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Virtuell, 19.–21. Mai 2021 / 19–21 mai 2021

Abstracts

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5. Frühjahrskongress der SGAIM

5ème congrès de printemps SSMIG

Virtuell, 19.–21. Mai 2021 / 19–21 mai 2021

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FM1

Is dairy intake associated with less cognitive decline? A systematic review and meta-analysis of longitudinal studies

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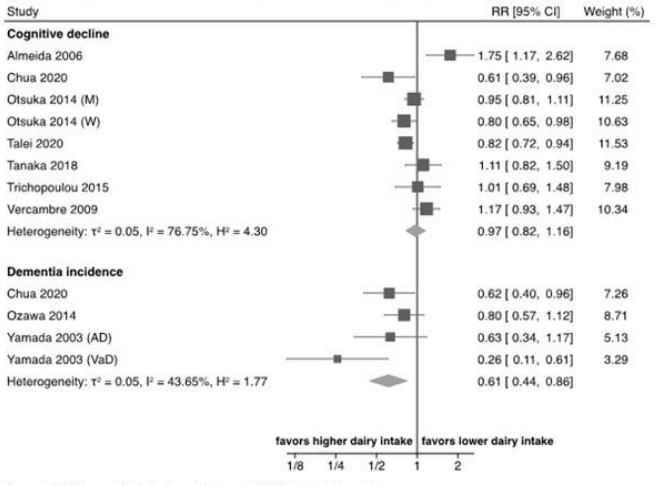
Introduction: With aging population, prevention of cognitive decline is a major concern in primary care. Nutrition is a modifiable factor that could have a clinical impact in this prevention. In particular, the effects of the dairy intake on cognition are still controversial. We conducted a systematic review and meta-analysis on association between the dairy intake and cognitive decline or incidence of dementia with dose-response analysis.

Methods: We included longitudinal studies with community-dwelling adults ≥ 18 years unselected on the basis of chronic conditions. Our primary outcomes were the decline of cognitive function as defined in studies and incidence of dementia at end of follow-up. We identified relevant literature through a systematic search of Embase, Medline Ovid, Cochrane, Web of Science and Google Scholar from inception to end of July 2020. Two investigators conducted abstract and full-text screenings, data extractions, and risk-of-bias assessments using the Academy of Nutrition and Dietetics Quality Criteria Checklist (QCC). We performed a meta-analysis using a random-effects model.

Results: We included 11 prospective studies with 46,896 participants. We rated all studies at low risk of bias. Mean follow-up time was 11.7 years. Seven studies assessed cognitive decline through decrease in scores of various neuropsychological tests including MMSE (Mini-Mental State Examination). Three studies assessed dementia incidence using either MMSE threshold or DSM-IIIR/DSM-IV criteria. Comparing highest vs. lowest dairy intake, we found no association between dairy and cognitive decline. (Summary risk ratio-sRR=0.97; 95%CI 0.82, 1.16; 7 studies) although with large statistical heterogeneity (I^2=76.75%). The dose-response analyses using g/day with 4 studies showed U-shaped curve, with lowest risk at approximately 120-130 g/day. We found an inverse association between the dairy intake and dementia incidence (sRR=0.61; 95%CI 0.44, 0.86; I^2 =43.65%; 3 studies).

Conclusion: Our study suggests no association between the dairy intake and cognitive decline. However, the dose-response analyses infer a possible protective role, limited to a tight range of daily intakes. Moreover, we found that high dairy intake might decrease dementia incidence. Nevertheless, we should consider results with caution due to the heterogeneity of assessment. We need further studies to help guide patients with appropriate lifestyle recommendations to prevent cognitive decline.

Figure 1. Highest versus lowest dairy intake meta-analysis by outcome type.



(M) men; (W) Women ; (AD) Alzeihmer Disease; (VaD) Vascular Dementia

[Figure 1. Highest versus lowest dairy intake meta-analysis by outcome type.]

FM2

Reflexivity as a tool to raise medical students' awareness on gender bias

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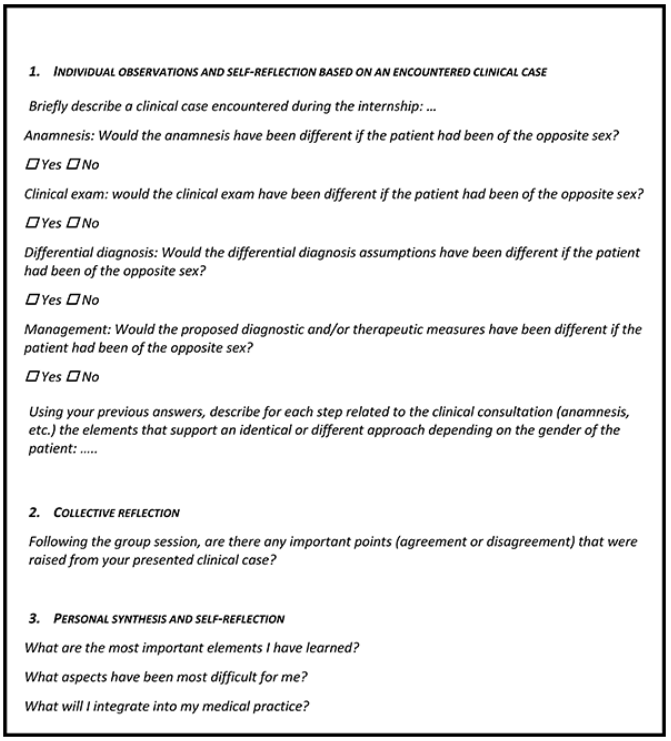
Introduction: Gender bias interferes with optimal medical care for both men and women, leading to health risks for patients and contributing to health inequalities. Reflexivity is used in medical education to improve professionalism and health provision. This study aimed at assessing the adequacy of the reflective practice to raise awareness of gender bias in medical practice in undergraduate teaching.

Methods: This qualitative study was conducted in general ambulatory medicine in Lausanne, Switzerland, between March and August 2019 with 160 master students. Through group discussions and on-line reflective sheets (figure 1), students were asked to discuss encountered clinical cases with a focus on potential gender bias. We analyzed the reflective sheets using a thematic analysis framework.



1. INDIVIDUAL OBSERVATIONS AND SELF-REFLECTION BASED ON AN ENCOUNTERED CLINICAL CASE

Briefly describe a clinical case encountered during the internship: ...

Anamnesis: Would the anamnesis have been different if the patient had been of the opposite sex?

☐ Yes ☐ No

Clinical exam: would the clinical exam have been different if the patient had been of the opposite sex?

☐ Yes ☐ No

Differential diagnosis: Would the differential diagnosis assumptions have been different if the patient had been of the opposite sex?

☐ Yes ☐ No

Management: Would the proposed diagnostic and/or therapeutic measures have been different if the patient had been of the opposite sex?

☐ Yes ☐ No

Using your previous answers, describe for each step related to the clinical consultation (anamnesis, etc.) the elements that support an identical or different approach depending on the gender of the patient: .....

2. COLLECTIVE REFLECTION

Following the group session, are there any important points (agreement or disagreement) that were raised from your presented clinical case?

3. PERSONAL SYNTHESIS AND SELF-REFLECTION

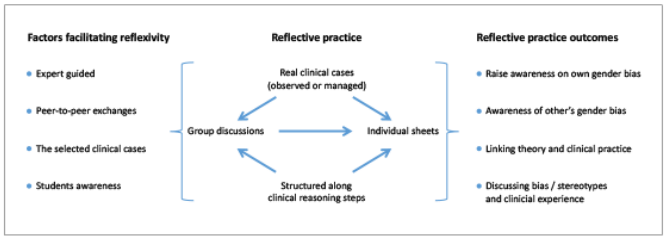
What are the most important elements I have learned?

What aspects have been most difficult for me?

What will I integrate into my medical practice?

[FIGURE 1 – Reflective sheet (Accessed by students via their electronic portfolio)]

Results: The reflection structured along clinical reasoning steps from a real clinical case, enabled the identification of gender bias at each stage of a clinical case management. The analysis of the reflective sheets revealed four factors that facilitated gender reflexivity (**figure 2**): the gender expert´s guidance, the peer-to-peer exchanges, the selected clinical cases and the student's awareness. Group discussions through expert guidance and peer-to-peer exchanges made the majority of students aware of their own gender bias or/and of bias in their colleagues. The students found the exercise useful in linking theoretical lectures and clinical practice. They did not have the same opinion regarding the benefits or disadvantages of having little clinical experience; some thought it was protective against gender bias while others thought the opposite.



[FIGURE 2 - Main themes enabling and emerging from reflective practice to identify gender bias]

Conclusions: Our study adds to the current literature by assessing the adequacy of an innovative tool combining group discussions and reflective sheets integrated in clinical practice to raise awareness of gender bias in patients' management. It allows raising medical students' awareness of their own gender bias but also that of other students and more experienced doctors they encounter.

FM3

Does Achilles tendon ultrasound help to diagnose familial hypercholesterolemia? A cross-sectional study

Maria de Montmollin[1,2], Martin Feller[1,2], Elisavet Moutzouri[1,2], Manuel Blum[1,2], Jennifer Amsler[3], Burkhard Möller[3], Nicolas Rodondi[1,2]

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Introduction: People with familial hypercholesterolemia (FH) are 13 times more likely to develop premature cardiovascular disease than the general population. However, FH is underdiagnosed. Tendinous xanthoma is a specific clinical feature of FH and its presence alone implies a probable diagnosis of FH according to the Dutch Lipid Clinic Network Score (DLCNS) used for the clinical diagnosis of FH. The Achilles tendon is the most common site of tendon xanthomas and it is readily available for sonographic examination. The aim of the study was to compare the reliability of clinical examination of Achilles tendon xanthoma (ATX) to an ultrasound evaluation, and to determine whether ultrasound of the Achilles tendon improves the diagnostics of FH based on the DLCNS.

Methods: We recruited 100 patients from the lipid clinic in University Hospital in Bern with LDL- C ≥ 4mmol/L and no Achilles tendon surgery or trauma. Achilles tendons were evaluated through clinical and sonographic examination. For the sonographic diagnosis of the ATX, an already existing definition of abnormal echostructure (hypoechoic nodules or diffuse hypoechogenicity with heterogeneous echostructure) or thickness above the threshold (5.3 and 5.7 mm in men < />45 years, and 4.8 and 4.9mm in women < />50 years, respectively) was used. All ultrasound images were second-read by a rheumatologist with expertise in musculoskeletal ultrasound. We compared the proportion of patients with ATX detected by either clinical examination or ultrasound. The DLCNS was calculated before and after ultrasound, and we compared the proportion of patients with probable/definite FH diagnosis on the DLCNS before and after ultrasound.

Results: Mean (SD) age was 47 (12) years, mean highest LDL-C was 6.57 mmol/L (2.2), 49% were women, 91% had no history of atherosclerotic cardiovascular disease. ATX were detected in 23% of patients through clinical examination, and in 54% through ultrasound. The mean Achilles tendon thickness in women with xanthoma diagnosed through ultrasound was 5.98mm (1.84) and in men 6.59mm (1.61). After ultrasound, the probable/definite diagnosis rate of FH on the DLCNS increased from 43% to 67%.

Conclusion: Compared to clinical examination, ultrasound of Achilles tendon substantially improves the detection of ATX and may help more accurately diagnose patients with FH who are at high risk for premature cardiovascular disease.

Table 1. Results

Examination \ Classification on the DLCNS	Unlikely/possible	Probable/definite
Clinical examination	57%	43%
Ultrasound	33%	67%

p- value < 0.001
DLCNS, Dutch Lipid Clinic Network Score

[Results]

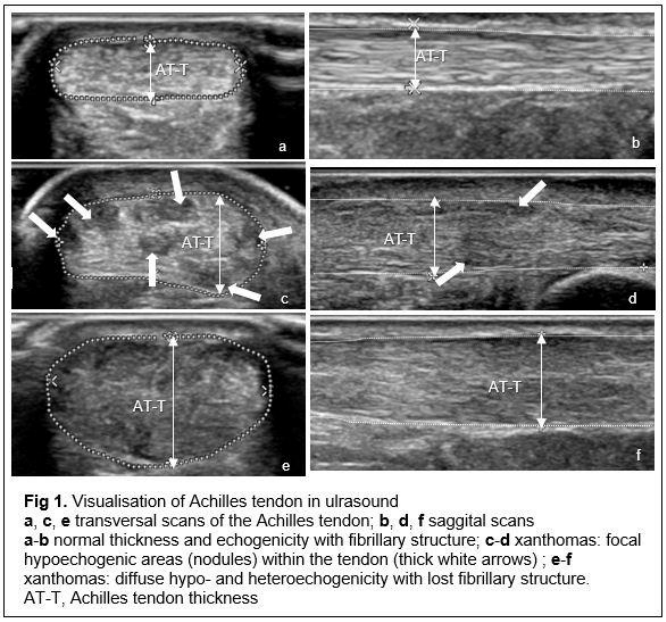

Fig 1. Visualisation of Achilles tendon in ulrasound
a, **c**, **e** transversal scans of the Achilles tendon; **b**, **d**, **f** saggital scans
a-**b** normal thickness and echogenicity with fibrillary structure; **c**-**d** xanthomas: focal hypoechogenic areas (nodules) within the tendon (thick white arrows) ; **e**-**f** xanthomas: diffuse hypo- and heteroechogenicity with lost fibrillary structure.
AT-T, Achilles tendon thickness

[Visualisation of Achilles tendon in ulrasound]

FM4

Proton pump inhibitors in older multimorbid patients: what are longitudinal patterns of prescribing and deprescribing, and what are the potential adverse effects?

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Introduction: Proton pump inhibitors (PPIs) are among the most frequently prescribed medications, often without an appropriate indication. They contribute to polypharmacy and are associated with adverse effects. However, little is known about longitudinal patterns of potentially inappropriate PPI use and deprescribing, and on risk of readmission associated with PPI use in older multimorbid adults.

Methods: Among multimorbid hospitalized patients with polypharmacy in 4 European countries, we assessed PPI prevalence at admission, and new prescriptions and deprescribing at discharge, 2 months and 1 year. Appropriate indications included gastro-esophageal reflux disease, Barrett's esophagus, gastro-duodenal ulcer, H. pylori infection, acute gastritis, gastro-intestinal bleeding, non-steroidal anti-inflammatory medications and antiplatelets. We used competing-risk regression (competing risk for death), adjusted for age, Charlson comorbidity index, medication count, study site, admission ward, intervention arm, and discharge place, to assess the association of persistent (> 2 months) PPI use with potential adverse effects (pneumonia, fracture, nephritis, bacterial intestinal infection) leading to readmission, and all-cause readmission.

Results: 58% of patients had PPI at admission. 46% of patients with PPI had a potentially inappropriate indication. At discharge, 21% of PPI users had been deprescribed. Among PPI users, 14% had been deprescribed at 2 months, and 37% at 1 year. Among 778 patients without PPI at discharge, 13% had PPI at 2 months, and 18% at 1 year. Persistent PPI use was associated with all-cause readmission (N=770, subhazard ratio [SHR] 1.32, 95%CI 1.13-1.54). PPI-related readmission risk showed a pattern of increase not reaching statistical significance (N=62, SHR 1.33, 95%CI 0.80-2.22).

Outcomes	Subhazard ratio (95% CI)
All-cause readmission (N=770)	1.32 (1.13-1.54)
Potentially PPI-related readmission (N=62)	1.33 (0.80-2.22)
Pneumonia-related readmission (N=34)	0.98 (0.93-1.03)
Fracture-related readmission (N=25)	1.19 (0.53-2.68)

[Competing-risk regression for the association between persistent PPI use and outcomes (N=1,719 patients)]

Conclusion: Over half of older multimorbid adults had PPI at admission, despite a lack of indication in almost half of them. At discharge, PPIs were deprescribed in one fifth of PPI users, while PPI was initiated in one fifth of those non-PPI users. Persistent PPI use was associated with 1-year readmission. Our study shows that inappropriate PPI prescribing remains an important issue in older multimorbid patients, the largest population cared for by general practitioners. Given PPI potential adverse effects, this underscores the importance of frequently re-assessing the need and indication for PPI in this vulnerable population.

FM5

Harnessing electronic medical record data extraction to increase adherence to clinical guidelines: a multifaceted quality improvement study

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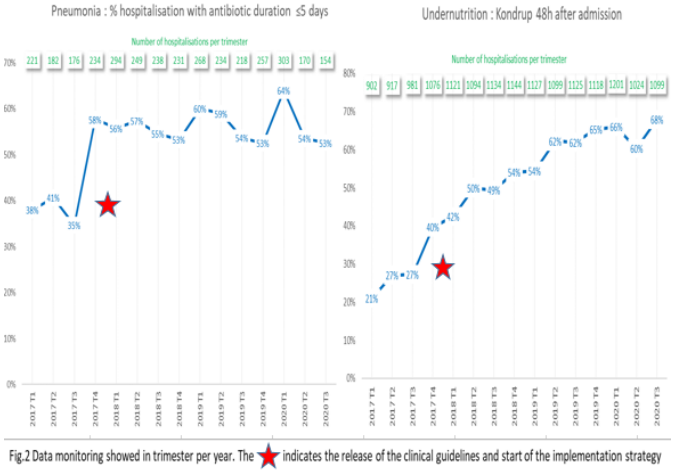
Introduction: Data extracted from electronic medical records (EMR) can improve clinical care by increasing awareness and driving change. We aimed to assess the use of EMR data extraction in increasing adherence to clinical guidelines. Our objectives were to
i) reduce neuroleptic prescription in patients with acute delirium,
ii) reduce antibiotic duration to 5 days for community-acquired pneumonia, and
iii) increase early nutritional screening and nutritional support in hospitalized patients.
Methods: in 2018, we developed clinical guidelines for 11 common conditions encountered in the internal medicine department at Lausanne University Hospital. Focusing on 3 of them, data extraction was used to:
i) monitor adherence to the guidelines;
ii) identify areas needing improvement;
iii) monitor progress.
EMR data extraction was collected during the study period (pre-intervention from 01.2017 to 12.2017 and during the intervention from 01.2018 to 09.2020) for all inpatients presenting at least one of the 11 common conditions.
During the intervention period, we conducted a multifaceted implementation strategy targeting the healthcare staff, consisting in dissemination of paper and electronic guidelines, educational seminars, emails, newsletters, a website, posters and order sets to facilitate prescription according to the clinical guidelines. Multidisciplinary "champions" led changes in their clinical workplace, by raising awareness and providing regular feedback reports to healthcare staff, based on the data extraction results.
Comparing pre-intervention and intervention periods, the outcomes were trends in: i) neuroleptic prescription; ii) antibiotic duration; iii) nutritional screening and support.
Results: analysis included 16,162 hospitalizations (47% women, mean age 71.2 years). In patients with acute delirium (n=1,611), systematic haloperidol prescription decreased from 23% to 8% and quetiapine from 25% to 17%. In patients with community-acquired pneumonia (n=3,429), 5-day course of antibiotic increased from 38% to 53%. Nutritional screening (n=16,162), in the first 48hrs after admission, increased from 21% to 68%, whereas nutritional support in patients at nutritional risk did not improve.

Conclusion: The use of data extraction supported by a multifaceted implementation strategy led to improved adherence to guidelines for 3 common medical inpatient conditions. EMR data extraction may represent a tool to sustain change and pursue continuous improvement.

[Figure 1]



[Figure 2]

FM6

Factors associated with one-year mortality after hospital discharge: a prospective cohort study

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Background: Limited data exist about mortality after hospital discharge in medical patients. We aimed to identify factors associated with one-year mortality in medical patients.

Methods: This prospective, observational study included adult patients consecutively discharged from four general internal medi-

cine hospitals. We analyzed all-cause mortality at one year after discharge. Data from the index hospitalization were collected from the electronic health record including demographic characteristics, comorbidities, laboratory variables, nurse visits at home and the simplified HOSPITAL score. We collected data at 30 days after discharge by phone interview on the number of emergency room and primary care provider visits, as well as unplanned readmission. We performed a univariate analysis including variables available during hospitalization and 30 days after hospital discharge. We constructed two multivariable models with variables available at discharge and 30 days after discharge.

Results: Survival status at one year after discharge was collected from 814 of the 934 patients enrolled in the study. Over the one-year follow-up, 108 patients died (13.3%). In the univariate analysis the following factors were associated with one-year mortality: age, not living at home, nurse visits at home, dementia, active cancer, low level of sodium, hemoglobin, or albumin, the simplified HOSPITAL score, and unplanned hospitalization or any emergency department visits within 30 days after discharge.
In the multivariable analysis with factors available at discharge an increase in score points of the simplified HOSPITAL score (OR 1.50, 95%CI 1.31-1.71, p< 0.001) and the fact of not living at home (OR 3.9, 95%CI 1.89-8.3, p< 0.001) were predictors for one-year mortality. With predictors available at 30 days after discharge a 30-day unplanned readmission was significantly associated with one-year mortality (OR 4.81 95%CI [2.77-8.33], p< 0.001). A primary care physician visit within 30 days was negatively associated without reaching statistical significance (OR 0.67 [0.40-1.13], p=0.13).
Conclusions: After discharge of medical inpatients, the main factors predicting one-year mortality were the simplified HOSPITAL score and patients not living at home (i.e., protected appartement or nursing home). Mortality was found to be higher in those with a 30-day unplanned readmission and tended to be lower in those with at least a primary care physician visit within 30 days.

	Number of observations	Odds ratio (95% CI)	P-value
Age [decades]	814	1.32 (1.14 - 1.54)	<0.001
Living at home	812	0.18 (0.10 - 0.35)	<0.001
Semi-private or private insurance	813	0.85 (0.53 - 1.38)	0.52
Nurse visits at home	812	3.10 (2.04 - 4.71)	<0.001
Distance to primary care physician [min]	797	0.99 (0.97 - 1.02)	0.54
Sodium level at admission [mmol/L]	786	0.96 (0.92 - 1.00)	0.036
Hemoglobin level at admission [g/L]	790	0.98 (0.97 - 0.98)	<0.001
Albumin level at admission [g/L]	606	0.91 (0.87 - 0.95)	<0.001
Simplified HOSPITAL score with lab at admission [score points]	814	1.58 (1.42 - 1.76)	<0.001

[Univariate logistic regression for death at one year with factors available at hospital discharge]

	Odds ratio (95% CI)	P-value
Age [decades]	1.17 (0.97 - 1.41)	0.09
Female gender	0.82 (0.51 - 1.32)	0.42
Living at home	0.25 (0.12 - 0.54)	<0.001
Semi-private or private insurance	0.94 (0.54 - 1.66)	0.84
Nurse visits at home	1.62 (0.98 - 2.69)	0.06
Distance to primary care physician [min]	1.00 (0.97 - 1.03)	0.96
Sodium level at admission [mmol/L]	0.99 (0.95 - 1.04)	0.72
Hemoglobin level at admission [g/L]	0.99 (0.98 - 1.00)	0.22
Simplified HOSPITAL score with lab at admission [score points]	1.50 (1.31 - 1.71)	<0.001

[Multivariable logistic regression for death at one year with predictors available at hospital discharge (N = 758)]

FM7

Cardiovascular risk assessment in HIV-infected individuals compared to the general population

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Objectives: To assess and compare the accuracy of widely used cardiovascular prediction functions in HIV-infected and uninfected individuals from the general population.

Methods: We used data from the Swiss HIV Cohort Study (SHCS), a longitudinal study involving 20,802 HIV-infected adults aged over 18 years, and from the CoLaus|PsyCoLaus study, a population-based cohort including 6,733 individuals aged 35-75 years. The European Systematic Coronary Risk Evaluation Score (SCORE), the North American Pooled Cohort Equation (PCE) and the HIV-specific Data Collection on Adverse events of Anti-HIV Drugs (D:A:D) score (HIV-infected individuals only) were calculated for all participants free from atherosclerotic cardiovascular disease (ASCVD) between January 1, 2003 and December 31, 2009. Accuracy of the scores was assessed based on discrimination and calibration metrics for each cohort separately using incident ASCVD as outcome. The value of adding HIV-specific variables to either SCORE or PCE was evaluated using the net reclassification index (NRI).

Results: 6,373 HIV-infected (28.4% women; aged 40.6 [SD, 9.9]; 57.2% under antiretroviral therapy) and 5,403 uninfected individuals (53.5% women, aged 52.8 [10.7]) were included in the analysis with a mean follow-up time of 13.5 (±4.1) and 9.9 (±2.3) years, respectively. 533 (8.4%) participants in SHCS and 374 (6.9%) in the CoLaus|PsyCoLaus study experienced an incident ASCVD (age-adjusted incidence rate of 12.9 vs. 7.5 per 1,000 person-year). In SHCS, PCE and D:A:D presented discriminative capacities with AUROC of 0.757 (95%CI, 0.736-0.777) and 0.763 (95%CI, 0.743-0.783), respectively, compared to SCORE (0.704 [95%CI, 0.681-0.728]). Calibration was suboptimal regardless of the scores in SHCS, with under-prediction of ASCVD in the higher deciles of risk compared to the CoLaus|PsyCoLaus study. Adding CD4 nadir (< 200 cells/mm3) and abacavir exposure as categorical variables to PCE resulted in a marginal improvement in discrimination and in a global NRI of 2.7% (95%CI, 0.3-5.1), p-value = 0.03.

Conclusions: HIV-infected individuals presented a two-fold higher rate of incident ASCVD compared to uninfected individuals of the same age from the general population. The accuracy of PCE score to predict ASCVD in HIV-infected individuals is equivalent to the D:A:D score and may represent a better alternative due to its reduced set of variables and its widespread use.

FM8

The impact of physicians' empathy measures on patient outcomes: a gender analysis

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Background: Empathy in primary care settings has been linked to improved health outcomes. However, the operationalisation of empathy differs between studies, and no study has compared these empathy measures regarding their patient outcomes. Moreover, it is unclear if gender impacts empathy measures differently.

Aim: To examine gender differences between 6 different empathy measures, the relationship between these empathy measures and patient-reported satisfaction, quality of consultation and trust in the physician, and to determine if this relationship is modulated by physician's gender.

Design and setting: Analysis of 61 primary care physicians' empathy in relation to 244 patient experience questionnaires in French-speaking part of Switzerland.

Methods: 61 physicians were videotaped with 2 male and 2 female patients. Six different empathy measures were extracted: 2 self-reported measures, 1 facial recognition test, 2 external observational measures, and 1 Synchrony of Vocal Mean Fundamental Frequencies (SVMFF), a measure of vocally coded arousal. At the end of the consultation, patients indicated their satisfaction, trust, and quality of the consultation.

Results: Two empathy measures differed significantly between male and female physicians. Female physicians self-rated their empathic concern above their male counterparts, whereas male physicians were more synchronised to their patients. SVMFF was the only predictor of patient outcomes.

Conclusion: Gender differences were observed more often in self-reported measures of empathy than in external measures, indicating a probable social desirability bias. SVMFF significantly predicted patient outcomes and could be used as a cost-effective proxy of relational quality.

FM9

Effect of bedside patient case presentation compared to presentation outside the room on patients' knowledge about their medical care: a randomized, controlled, multicenter trial

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Introduction: While bedside case presentation contributes to patient-centered care through active patient participation in medical discussions, there is concern that the complexity of medical information and jargon-induced confusion causes misunderstandings and discomfort. We tested the hypothesis that case presentation outside the room during consultant ward rounds results in patients having better knowledge of their medical care.

Methods: We randomly assigned patients at three Swiss teaching hospitals to case presentations at bedside or outside the room. The primary endpoint was patients' average knowledge of three dimensions of their medical care, including understanding their disease, the therapeutic approach, and further plans for care (each rated on a visual analogue scale from 0 to 100).

Results: Compared to presentations outside the room (n=443), patients in the bedside presentation group (n=476) reported a similar mean [±SD] knowledge about their medical care (79.5±21.6 vs. 79.4±19.8, adjusted difference 0.09 (95%CI -2.58 to 2.76), p=0.95). Also, an objective rating of patient knowledge by the study team was similar for the two groups, but the bedside presentation group had higher ratings of confusion regarding medical jargon and uncertainty caused by team discussions. Bedside ward rounds were more efficient (mean [±SD] 11.9±4.9 vs. 14.1±5.7 minutes, adjusted difference -2.3 minutes (95%CI -3.0 to -1.6), p< 0.001).

Conclusion: Bedside patient presentation during ward rounds does not result in patients knowing less about their medical care and saves time compared to presentation outside the room. However, physicians presenting at bedside need to be skilled in the use of medical language to avoid patients' confusion and misunderstandings.

FM10

Pulmonary embolism risk stratification – less is more?

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Introduction: The 2019 European Society of Cardiology (ESC) guidelines proposed a new risk stratification model for early risk of death in patients with pulmonary embolism (PE), with the recommendation to evaluate all normotensive patients for right ventricular (RV) dysfunction, including those considered as low risk by clinical risk assessment models such as the Pulmonary Embolism Risk Score (PESI). We compared the predictive performance of the 2019 and 2014 ESC risk stratification algorithms and the PESI alone.

Methods: We investigated normotensive patients aged 65 years with acute PE from the prospective multicenter SWITCO65+ cohort. The primary outcome was overall mortality; secondary outcomes were PE-related mortality and adverse outcomes (PE-related death, cardiopulmonary resuscitation, intubation, catecholamine use, recurrent venous thromboembolism) at 30 days. We assessed outcomes in intermediate-high, intermediate-low, and low risk groups according to the 2019 and 2014 ESC algorithms and the PESI (Table 1). Discriminative power was compared using the area under the receiver operating curve (AUC).

Results: Among 419 patients with acute PE, median age was 74 years and 233 (56%) were men. RV dysfunction was slightly more prevalent in intermediate-high than in intermediate-low risk patients (64% vs. 58%). Overall, 14 (3.3%) died (7 from PE) and 16 (3.8%) had adverse outcomes within 30 days. The 2019 ESC algorithm classified more patients as intermediate-high risk (45%) than the 2014 ESC algorithm (24%) or the PESI (37%), and only 19% as low risk (32% with 2014 ESC or the PESI). No deaths occurred in the low risk category of any of the risk stratification models (Table 2). Discriminatory power for overall 30-day mortality was lower with the 2019 ESC algorithm (AUC 63.6%, 95% confidence interval [CI] 58.9-68.3), compared to the 2014 ESC algorithm (AUC 71.5%, 95% CI 67.0-75.9) or the PESI (AUC 75.2%, 95% CI 70.8.-79.2), although the difference did not reach statistical significance (p=0.063). Discrimination for PE-related mortality and adverse outcomes was similar.

Conclusions: While categorizing more patients in higher-risk groups, the 2019 ESC algorithm for PE did not improve prediction of short-term outcomes compared to the 2014 ESC algorithm or the PESI alone. Thus, implementation of the 2019 ESC algorithm may result in a higher use of health care ressources by reducing the proportion of patients who safely qualify for less costly care.

Table 1. Definition of ESC and PESI risk categories

	2019 ESC		2014 ESC		PESI
Risk category	PESI≥III or RVD	troponin*	PESI	RVD or troponin*	class
Low	no	negative	I-II	not assessed	I-II
Intermediate-low	yes	negative	≥III	none or one positive	III
Intermediate-high	yes	positive	≥III	both	IV-V

Abbreviations: ESC= European Society of Cardiology, PESI= Pulmonary Embolism Severity Index, RVD= right ventricular dysfunction.
*High-sensitivity troponin of >14 ng/L.

[Table 1]

Table 2. 30-day overall mortality by risk categories

	2019 ESC	2014 ESC	PESI
	%	%	%
Risk category			
Low	0	0	0
Intermediate-low	3.3	3.8	2.2
Intermediate-high	4.8	6.9	7.2

Abbreviations: ESC= European Society of Cardiology, PESI= Pulmonary Embolism Severity Index.

[Table 2]

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P1

Ten-year changes in colorectal cancer screening in Switzerland: the Swiss Health Interview Survey 2007, 2012 and 2017

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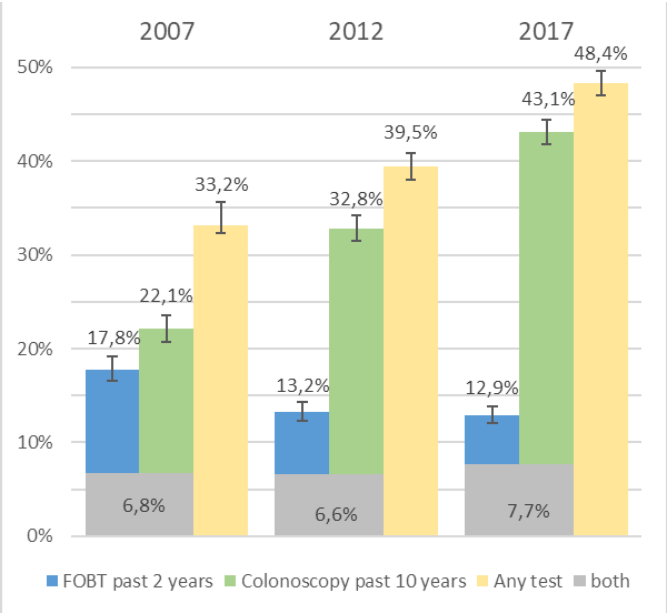
Background: Recent recommendations for colorectal cancer (CRC) screening suggest patients choose between faecal occult blood test (FOBT) and colonoscopy. We set out to determine if CRC testing rate and type of CRC screening had changed in Switzerland from 2007 to 2017.

Methods: We extracted data on 50-75 year-olds from the Swiss Health Interview Survey (SHS) 2007, 2012 and 2017 to determine rates of self-reported testing with FOBT within last 2 years and colonoscopy within last 10 years. We estimated prevalence ratio (PR) in multivariate adjusted multinomial regression models and compared rates in German- , French- and Italian-speaking regions, adjusting for sociodemographic (gender, age, nationality, education, income, linguistic region, self-rated health) and insurance variables (deductible, private insurance, health maintenance organization).

Results: Overall testing rates (FOBT or colonoscopy) increased in all regions from 2007 to 2017 (German-speaking 33.6% to 48.3%; French-speaking 30.8% to 48.8%; Italian-speaking 37.9% to 46.8%), mainly because of an increase in colonoscopy rate ($p < 0.001$ in all regions). Rates of FOBT testing fell significantly in the German-speaking region (11.9% to 4.4%, $p < 0.001$), but not in the Italian- (13.9% to 8.5%, p=0.052) and French-speaking regions (7.6% to 7.4%, p=0.138).

Conclusion: Overall CRC testing rate rose from 33.2% in 2007 to 48.4% in 2017, mainly because of an increase of colonoscopy rate. The FOBT rate decreased in the German-speaking part. Coverage remains below the 65% target of European guidelines. Organized screening programs encouraging FOBT screening could contribute to further increasing the CRC testing rate.



[Figure 1: Weighted colorectal cancer testing rate of 50-75-year-olds, SHS 2007, 2012 and 2017.]

P2

Impact of smoking on sleep macro- and microstructure

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Objectives: Existing data suggest that smoking may be associated with sleep disturbances. This study aimed to determine the association between smoking and both subjective and objective sleep quality.

Methods: Cross-sectional analysis of sleep characteristics in 3233 participants from the population-based CoLaus-HypnoLaus cohort (52.2% women, mean age 56.6±10.2 years) who completed questionnaires on sleep quality, of whom 1489 (46%) had a full polysomnography. Smoking data were self-reported; participants were classified by smoking status as current, former or never smokers. Primary outcomes were subjective sleep quality assessed by sleep questionnaires, and objective sleep quality based on polysomnography (sleep macrostructure), including power spectral analysis of the electroencephalogram (EEG) on C4 electrode (sleep microstructure), quantifying the relative amount of delta power (1-4 Hz), a marker of sleep depth, and alpha power (8-12 Hz), a marker or arousal.

Results: Current smokers had a shift toward faster sleep EEG activity with lower delta power in NREM (non-rapid eye movement) sleep compared with former and never smokers (-2.8±0.4% and -2.4±0.4%, respectively; both $p< 0.001$) and higher alpha power (+0.8±0.2%; $p< 0.001$) compared with never smokers. There was a dose-dependent negative association between EEG delta power and smoking intensity (r^2=-1.2 [-1.9, -0.5]; p=0.001). Additionally, mean nocturnal oxygen saturation was lower in current smokers.

Conclusions: Current smokers had decreased objective sleep quality, with a dose-dependent association between smoking intensity and decrease in deep sleep-associated EEG delta power during NREM sleep, in addition to an increase in arousal-associated alpha power. Considering the importance of sleep quality for wellbeing and health, these results provide further data to support smoking cessation.

P3

Risk of major bleeding in recurrent fallers with atrial fibrillation: a prospective cohort study

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Background: Anticoagulation is a cornerstone in the management of AF. However, it is still underprescribed in some elderly patients. Risk of fall-related bleeding is the most commonly cited reason for not following recommendations on anticoagulation in AF patients. We aimed to assess whether recurrent fallers receiving anticoagulants for AF are at increased risk of bleeding compared to individuals not falling repeatedly.

Methods: This study is part of the Swiss Atrial Fibrillation (Swiss-AF) multicenter cohort study in Switzerland. We included 2396 patients. Patients were followed up with yearly face-to-face interviews. When a clinical outcome was reported by the patient or detected in the medical records, detailed information was collected from the corresponding hospitals and/or treating physicians. We considered patients as recurrent fallers if they answered, "yes" to the question: "did you have recurrent falls". The primary outcome was the time to first major bleeding, defined according to the Internationel Society on Thrombosis and Haemostasis criteria. We examined the association between recurrent falls and time to a first bleeding, using competing risk regression, accounting for death as a competing event. We adjusted for known bleeding risk factors, namely use of platelet inhibitors, alcohol abuse, anemia, renal failure, thrombopenia, age over 75, history of stroke and hypertension.

Results: Among 2396 patients, 204 patients (8.5%) reported recurrent falls. Mean age was 73.2 years (95% CI 72.9-73.6) and 27.4% were female. During a median follow-up of 36.6 (IQR:34.9–48.2) months, 151 (5.65%) patients had a major bleeding. Patients who reported recurrent falls had a higher cumulative incidence of major bleeding than non-recurrent fallers, with 10 events per 1000 patient-years (95%CI: 2.0-32.9) and 4.6 events per 1000 patient-years (95%CI: 2.4-8.3) respectively. Recurrent fallers had a 2.5-fold increased risk of major bleeding compared to non-recurrent fallers (unadjusted SHR 2.71; 95%CI: 1,78-4.12; $p < 0.001$). After multivariate adjustment, the association persisted (SHR 2.65; 95%CI: 1.58-4.46; $p < 0.001$).

Conclusions: For elderly patients with AF taking anticoagulants, the risk of major bleeding is 2.5-fold higher in recurrent fallers. Therefore, recurrent falls should be considered as an important but potentially modifiable risk factor for major bleeding in patient on anticoagulants and strategies to prevent falls should be actively implemented.

P4

Outpatient management of mild to moderate COVID-19 pneumonia spares hospital capacity

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Introduction: Severe acute respiratory coronavirus 2 (SARS-CoV-2) represents an uncommon burden on health care systems across the world due to its high rate of pneumonia-related hospitalizations. In order to spares hospital capacity, the Geneva University Hospital created and implemented recommendations for outpatient management of moderate SARS-CoV-2 pneumonia, during the first wave, from April to May 2020, and second wave from October 2020 to January 2021, of the pandemic. These guidelines were communicated to healthcare professionals, both within hospitals and in the Geneva emergency network.

Methods: Recommendations for outpatient management of pneumonia in our hospital were evaluated since April 2020 (corresponding to the first wave) and reapplied in October 2020 (second wave). We identified patients with COVID-19 pneumonia and performed ambulatory follow-up at 24 or 48 hours after diagnosis to ensure proper progression. Primary Endpoint was hospitalization. Secondary endpoint were the number of beds and costs averted and satisfaction of patients regarding the outpatient follow-up.

Results: A total of 89 patients with COVID-19-related pneumonia were followed at the Ambulatory Follow-up Unit (AFU) since April 2020. During the first and second waves, five patients (14%) then fourteen (26%) experienced hospitalization, and none died. A large amount of patients (86%) were satisfied of the care they received, assessed by a satisfaction survey. These novel recommendations for outpatient management resulted in an estimated 280 hospital bed-nights spare (70 patients averted hospitalization during average of 4nights estimated for pneumonia) and CHF 6'600 (USD 6´000) per capita averted hospitalization costs over the period.

Conclusions: Guidelines developed for outpatient management of mild to moderate COVID-19 were able to spare hospital capacity without affecting patient outcome. In addition, the majority of patients were satisfied with outpatient care. In order to preserve hospital capacity during the next waves in Switzerland and elsewhere, using such recommendations more widely should be considered.

P5

Comparative effectiveness of an interprofessional discharge planning tool in hospitalized patients: The quasi-experimental In-HospiTOOL study

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Introduction: Whether interprofessional collaboration facilitates discharge planning in medical acute care patients remains uncertain. We evaluated the comparative effectiveness of an interprofessional discharge planning tool embedded in the electronic medical records (EMR) to safely reduce length of stay in mainly older and multimorbid inpatients.

Methods: Using a quasi-experimental design we conducted interrupted time-series analyses including EMR and in-hospital administrative data from August 2017 to January 2019. We compared monthly changes in trends of length of stay, hospital readmission, and other patient outcomes after the implementation of a discharge planning tool with changes in trends among non-intervention hospitals.

Results: We analyzed data from 41`848 medical hospitalizations in 7 intervention hospitals and from 345`497 hospitalizations in 75 non-intervention hospitals. During implementation between February and July 2018, mean overall adherence in using the discharge planning tool was 52.5% (standard deviation [SD] ±27.1%) and rose to 64.5% (SD ±27.3%; $p< 0.0001$) in the intervention period thereafter. Among intervention hospitals, length of stay decreased from 7.5 days (95% confidence interval [CI], 7.3 to 7.6) in the observation period to 7.0 days (95% CI, 6.8 to 7.2) in the intervention period, while there was no decline in non-intervention hospitals (from 7.2 days [95% CI, 7.2 to 7.2] to 7.2 days [95% CI, 7.1 to 7.2]. The monthly change in trend after the observation period differed significantly between intervention and non-intervention hospitals (difference, -0.037 days per month [95% CI, -0.055 to -0.020]). 30-day hospital readmissions did not change over time nor between intervention and non-intervention hospitals.

Conclusions: The implementation of an interprofessional discharge planning tool in acute care hospitals was associated with a decline in length of stay without an increase in hospital readmissions.

P6

Epidemiology of fatal poisoning in Switzerland over 12 years

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Introduction: National Poisons Centres (PCs) record only a small proportion of fatal poisonings. We aimed to compare fatal poisonings recorded by the Federal Statistical Office (FSO) in the official death register of Switzerland with cases reported to the Swiss PC to get a full nationwide picture of this topic.

Methods: A retrospective review of cases from the official death register and cases reported to the PC from 1997 to 2008 was performed. According to the ICD-10 code patients with accidental poisoning and intentional self-poisoning were extracted by the FSO from the death register and compared to patients with fatal poisonings reported to the Swiss PC.

Results: A total of 10'743 poisoning deaths were recorded by the FSO, but only 151 fatal cases (1.4% of the poisoning deaths) were reported to the Swiss PC. The FSO recorded an increase in poisoning deaths from 10.9 to 13.5 per 100,000 inhabitants over the period evaluated, which is related to a steady increase in assisted suicides. The number of other poisoning deaths was constant over the study period. Six out of ten patients were male. There were 4'589 deaths caused by substance abuse (mainly chronic), 4'895 deaths by intentional self-harm, 1'101 deaths by accident and 158 deaths by other circumstances. In cases with substance abuse, alcohol was the most frequent cause of death (50%). In suicidal cases pharmaceuticals (such as psychotropic drugs and sedative-hypnotics), were most frequently involved (73%), while in accidental poisonings narcotics and hallucinogens dominated (40%). In children and adolescents (< 16 years), only 33 deaths from poisoning were reported (0.3%).

Conclusion: Only a small proportion of fatal poisonings is reported to the Swiss PC, which is in accordance to international results. The value of PC data lies in the higher information content with more precise details on circumstances, substances and symptoms. The data from the FSO are more complete and show a full coverage of poisoning deaths in Switzerland. To prevent deaths by poisoning strategies should aim at drug safety and illicit drug usage. Furthermore, suicide prevention should be strengthened in Switzerland.

P7

Is type 2 diabetes mellitus appropriately treated in multimorbid older patients and prevalence of overtreatment? A multicentre European study

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Introduction: In multimorbid older patients with type 2 diabetes mellitus (T2DM), the intensity of glucose-lowering therapy (GLT) should balance the opposing risks of hypoglycemia and hyperglycemia. In these multimorbid older patients, the harm of treating T2DM according to target guidelines may outweigh the benefits, and thus the current guidelines recommend focusing on avoiding side effects than attaining a very low HbA_{1c} level.

Methods: In a multicentre European study of multimorbid older patients (OPERAM, "Optimising PharmacothERApy in the Multimorbid elderly"), we evaluated HbA_{1c} levels and GLT in T2DM participants. Participants were aged ≥70 years, with multimorbidity (≥3 chronic diagnoses) and polypharmacy (≥5 chronic medications), enrolled in four university centres across Europe (Switzerland, Belgium, Netherlands, Ireland). We regarded multimorbid older participants receiving GLT with an HbA_{1c} < 7% as potentially overtreated and >9% as potentially undertreated.

Results: Among 1938 multimorbid older patients, 564 (27%) had T2DM (mean age 78±6 years, 38% women, Charlson comorbidity index 7; IQR 5;8), of whom 74 (13%) had no GLT with a mean HbA_{1c} of 6.5±0.8%, while the other 490 (87%) were on GLT achieving a mean HbA_{1c} of 7.3±1.3%. Among these 490 patients treated for T2DM, 226 (46%) were potentially overtreated and 37 patients (8%) were potentially undertreated. Among T2DM patients on GLT with an HbA_{1c}< 7% (mean 6.2±0.5%), metformin (65%) was the most frequently used pharmacotherapy, followed by insulin (27%) and sulfonylureas (25%), and 41% were prescribed two or more glucose-lowering agents. 136 (28%) of T2DM patients on GLT even had an HbA_{1c} < 6.5% (mean 6.0±0.4%) with 35% on two or more glucose-lowering drugs and 26% on insulin. Among T2DM patients with an HbA_{1c} >9% (mean 10.3±0.9%), 70% were on insulin, 46% on metformin and 32% on sulfonylureas, and 81% were prescribed two or more glucose-lowering drugs.

Conclusions: Our findings suggest that a much higher proportion of multimorbid older patients with T2DM is potentially over- than undertreated, and thus may incur a substantial risk of hypoglycemia. Therefore, GLT including insulin, sulfonylureas and multiple glucose-lowering agents, should be critically reviewed in multimorbid older patients with T2DM and HbA_{1c} levels < 7% in order to reduce inappropriate polypharmacy leading to higher risk of side effects.

P8

Comparison of bleeding risk scores in elderly patients receiving extended anticoagulation with vitamin K antagonists for venous thromboembolism

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Introduction: In elderly patients with venous thromboembolism (VTE), the decision to extend anticoagulation beyond 3 months must be weighed against the bleeding risk. We compared the predictive performance of 10 clinical bleeding scores (VTE-BLEED, Seiler, Kuijer, Kearon, RIETE, ACCP, OBRI, $HEMORR_2HAGES$, HAS-BLED, ATRIA) in elderly patients receiving extended anticoagulation for VTE.

Methods: In a multicenter Swiss cohort study, we analyzed 743 patients aged ≥65 years who received extended treatment with vitamin K antagonists after VTE. The outcomes were the time to a first major bleeding event and time to a first clinically relevant (major or non-major) bleeding event. For each score, we classified patients into 2 bleeding risk categories (low/moderate vs. high). We calculated likelihood ratios and the area under the receiver operating characteristic (ROC) curve for each score.

Results: Over a median anticoagulation duration of 10.1 months, 45 patients (6.1%) had a first major bleeding and 127 (17.1%) a first clinically relevant bleeding. The positive likelihood ratios for predicting major bleeding ranged from 0.69 (OBRI) to 2.56 (Seiler) and from 1.07 (ACCP) to 2.36 (Seiler) for clinically relevant bleeding. The area under the ROC curves were poor to fair and varied between 0.47 (OBRI) and 0.70 (Seiler) for major bleeding (Table) and between 0.52 (OBRI) and 0.67 ($HEMORR_2HAGES$) for clinically relevant bleeding.

Conclusions: The predictive performance of most clinical bleeding risk scores does not appear to be sufficiently high to identify elderly patients with VTE who are at high risk of bleeding and who may therefore not be suitable candidates for extended anticoagulation.

	Area under the ROC curve (95% CI)	p-value*
VTE-BLEED	0.57 (0.53-0.61)	0.11
Seiler	0.70 (0.66-0.73)	<0.001
Kuijer	0.55 (0.51-0.59)	0.23
Kearon	0.53 (0.50-0.57)	0.41
RIETE	0.63 (0.59-0.66)	<0.001
ACCP	0.59 (0.55-0.62)	0.03
OBRI	0.47 (0.43-0.51)	0.37
HAS-BLED	0.54 (0.50-0.58)	0.41
$HEMORR_2HAGES$	0.57 (0.53-0.60)	0.16
ATRIA	0.61 (0.57-0.64)	0.02

Abbreviations: ROC = receiver operator characteristic, CI = confidence interval

*A value <0.05 indicates that the discriminative power to predict a first bleeding event is statistically significantly different from chance (i.e. an area under the ROC curve of 0.5)

[Discriminative power of scores to predict a first major bleeding during extended anticoagulation.]

P9

Motivational factors influencing graduating medical students' intentions to become General practitioners: results of a national cross-sectional study

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Background: Exploring student career intentions is necessary to inform the planning and training of the future medical workforce in order to fulfill societal needs. Definitive career decision is associated with career intentions in medical school but little is known about dynamic factors influencing these intentions. We investigated medical students' intentions to become General practitioners (GPs) and the specific motivational factors predicting these intentions.

Methods: From 2010-2015, 1749 graduating Swiss medical students from four Swiss medical schools i.e. Zurich, Bern, Lausanne and Geneva self-reported their specialty intentions and chose among 25 motives, those that explained their choice. Motives were aggregated using a principal component analysis (PCA) with Varimax rotation (KMO 0.75, p< .001, 46.2% of variance explained) into four motivational factors : a) "experiential" e.g. experiences as a student, interests, affinity b)"relational" e.g. doctor-patient relationship, team collaboration c)"occupational" e.g. work atmosphere, working conditions d)"scientific" e.g. research, scientific curiosity. We used Chi-square to compare intentions to become GPs by study site and gender; logistic regression to predict the effects of gender and motivational factors on intentions to become GPs.

Results: The average proportion of students' intentions to become GPs was 36.8%, with the highest rates found in Lausanne medical school (43.0%). 17.4% of students were still undecided. Students motivated by "relational" (odds ratio [OR], 5.4; 95% confidence interval [CI], 4.4-6.5) and "occupational" (OR, 1.7; 95% CI, 1.4-1.9) factors were more likely to show intentions to become GPs and those motivated by "experiential" (OR, 0.5; 95% CI, 0.4- 0.5) and "scientific" (OR, 0.4; 95% CI, 0.3- 0.4) factors as well as males (OR, 0.6; 95% CI, 0.4- 0.8) less likely.

Conclusions: Results at four Swiss medical schools confirm that the proportion of students intending to become GPs at the end of their undergraduate studies seems insufficient to meet the needs of the Swiss population (50% to 60%). Study site and gender impact these proportions. There are differences in students' motivational factors driving their specialty choice, notably in their intentions to become GPs. Positive incentive measures that affect "relational" and "occupational" factors could potentially help to promote GPs as a career. The role of study site needs further investigation.

P10

Are the showcases of our pharmacies evidence-based?

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Introduction: In 2019, the law regarding the sale of different medications according to categories (Categories A and B requiring medical prescriptions, categories C, D and E for over-the-counter medication) was revised, thus eliminating an entire category which previously required no medical prescription. The aim of the study was to analyse the windows of Pharmacies in relation to chain or independently owned stores, different linguistic regions of Switzerland and according to season and thus determine the percentage of evidence-based medications recommended to the general public.

Method: This is an observational, non-interventional study conducted by medical doctors in the department for internal medicine at the Spitalzentrum Biel, Switzerland. The observation took place from July 2019 to April 2020. From a total of 1800 pharmacies existing in Switzerland in January 2019, 68 were selected and the medications in their windows were examined for the level of evidence that we could find in medical databases in the form of randomized controlled trials (RCTs), Cohort studies or case reports. We classified the drugs into 2 categories. Category 1 was considered evidence- based (at least 1 Meta-Analysis or several placebo-controlled double-blinded randomized trials confirming the efficacy), Category 2 was considered non-evidence based (only 1 placebo-controlled double-blinded randomized trial in weak journals, several non-peer-reviewed studies or no study supporting their efficacy). The drugs in the windows were compared between the different cantons at each season, or between Pro-Pharma and Non-Pro-Pharma areas, and between chains/privately owned pharmacies using Chi-square.

Results: We found that over the whole year, much more non-evidence-based drugs are presented in the windows than evidence-based (57% vs 43%). When analysed regarding linguistic region and season, we found that swiss-german cantons display significantly more non-evidence based medications in winter (83,3% compared to 50% in other linguistic regions, p= 0,0001). We found no statistical difference for other seasons, no difference between Pro-Pharma and Non-Pro-Pharma cantons or between chains or privately owned pharmacies.

Conclusion: Pharmacies in Switzerland present more than half of non-evidence based drugs in their windows, especially in Winter in Swiss-german cantons. However, the interdiction to display drugs that require prescription probably plays a significant role in this tendency.

Präsentation beste Case Reports SGAIM / Présentation des meilleurs Case Reports SSMIG

P11

Stepwise anti-inflammatory and anti-SARS-CoV-2 effects following convalescent plasma therapy with full clinical recovery

Aurélia Zimmerli[1], Matteo Monti[1], Craig Fenwick[2], Isabella Eckerle[3], Catherine Beigelman-Aubry[4], Celine Pellaton[2], Katia Jaton[5], Dominique Dumas[1], Gian-Marco Stamm[1], Laura Infanti[6], Heidrun Andreu-Ullrich[7], Daphné Germann[8], Marie Mean[1], Peter Vollenweider[1], Raphael Stadelmann[9], Maura Prella[10], Denis Comte[2], Benoit Guery[11], Nathalie Rufer[12], David Gachoud[1]

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Learning objectives: In these times of COVID-19 pandemic, concern has been raised about the potential effects of SARS-CoV-2 infection on immunocompromised patients, particularly on those receiving B-cell depleting agents. Convalescent plasma (CP) can be a therapeutic option for these patients. Understanding the underlying mechanisms of CP is crucial to optimize such therapeutic approach.

Case: A 74-year-old man known for hypertension and type 2 diabetes mellitus was immunosuppressed following treatment with 6 cycles of rituximab and bendamustin for chronic lymphoid leukemia. Within 3 months of completing this treatment, he developed COVID-19 symptoms. He was admitted to our hospital with asthenia, dry cough and diarrhea. SARS-CoV-2 RNA was detected from nasopharyngeal swab. Laboratory results showed a moderate neutropenia, severe T and B lymphopenia with reduced total IgG and IgM levels, and increased CRP and ferritin. The patient clinical condition gradually deteriorated with sub-febrile episodes, persisting dry cough, diarrhea, weight loss and cognitive dysfunction, while long-lasting SARS-CoV-2 infection was confirmed together with negative anti-SARS-CoV-2 antibody titers. We hypothesized that CP could be beneficial in this particular case of severe immunosuppression with prolonged COVID-19 disease. The first cycle of plasma transfusion was given on days 72 and 73 after admission,

followed by three additional cycles (every 10-15 days). Anti-SARS-CoV-2 antibody titers and neutralizing activity were assessed over time, before and after plasma transfusions, alongside to SARS-CoV-2 RNA quantification and virus isolation from the upper respiratory tract. Already after the first cycle of plasma transfusion, the patient experienced rapid improvement of pneumonia, inflammation and blood cell counts, likely related to the immunomodulatory properties of plasma. Subsequently, the cumulative increase in anti-SARS-CoV-2 neutralizing antibodies due to the three additional plasma transfusions was associated with progressive and finally complete viral clearance, resulting in full clinical recovery.

Discussion: In this case, CP demonstrated a stepwise effect with an initial and rapid anti-inflammatory activity followed by a progressive viral clearance alongside to a cumulative increase in anti-SARS-CoV-2 antibodies. These data have potential implications for a more extended use of CP and future monoclonal antibodies in the treatment of immunosuppressed COVID-19 patients.

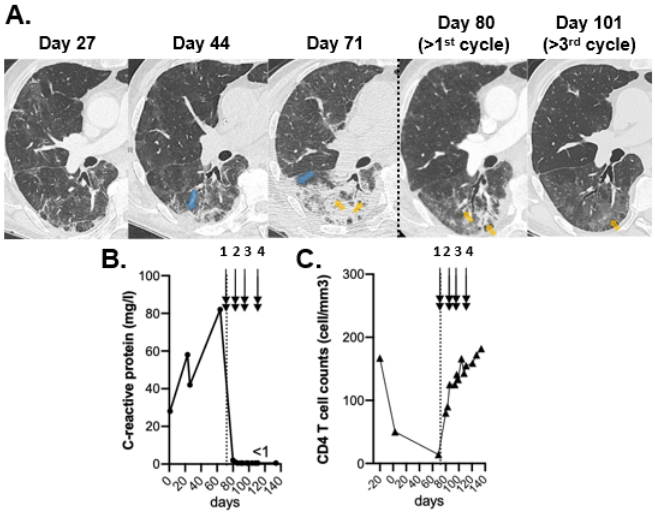

Figure 1. Stepwise anti-inflammatory and anti-SARS-CoV-2 effects following convalescent plasma therapy with full clinical recovery. (A-C) Timeline of chronic SARS-COV-2 infection in a severely immunosuppressed patient showing chest CT scan (**A**), the inflammatory marker CRP (**B**), and CD4 complete blood counts (**C**). (**A-C**) Arrows indicate the 4 cycles of plasma transfusion (two units given on two consecutive days of each cycle).

[Figure 1]

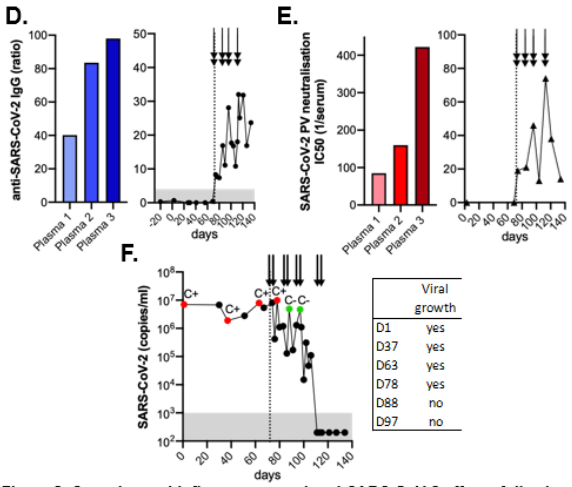

Figure 2. Stepwise anti-inflammatory and anti-SARS-CoV-2 effects following convalescent plasma therapy with full clinical recovery (D) Anti-SARS-CoV-2 S-protein IgG antibody levels as assessed by Luminex for each plasma as well as in the patient's serum before and following plasma transfusions. (E) Activity of neutralizing antibodies was assessed by a SARS-CoV-2 pseudovirus neutralization assay for each plasma and in patient's serum at the indicated time-points. (**F**) Over-time follow-up of SARS-CoV-2 RNA detection in nasopharyngeal swabs. The cytopathic effect on VeroE6 cells was evaluated after inoculation with SARS-CoV-2 from nasopharyngeal swabs: C+, successful virus isolation; C-, absence of virus isolation. (**D-F**) Arrows indicate the 4 cycles of plasma transfusion (two units given on two consecutive days of each cycle).

[Figure 2]

P12

The endocrine effect of exocrine enzymes: a case of pancreatitis-panniculitis-polyarthritis (PPP) syndrome

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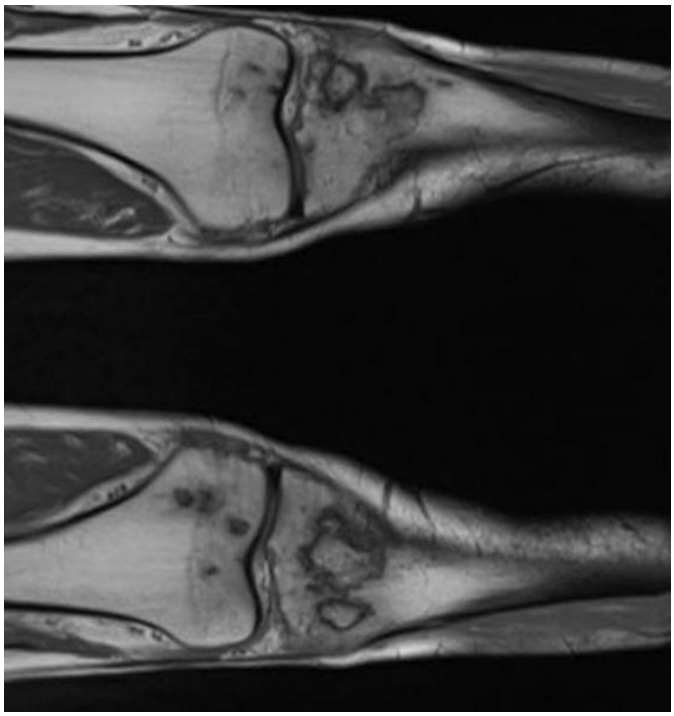
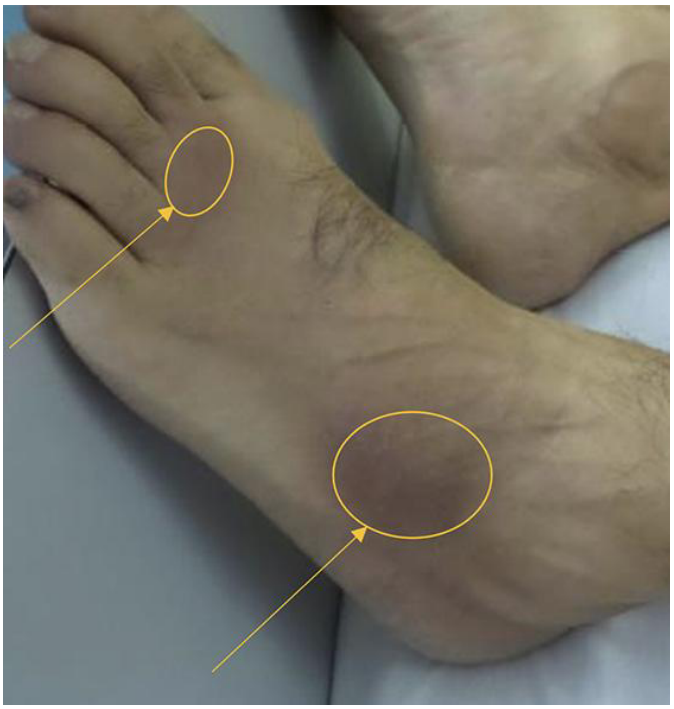
Learning objectives: To recognize the PPP-Syndrome, a very rare complication of recurrent pancreatitis with predominantly extrapancreatic manifestation (polyarthritis, panniculitis).

Case: A 74-year-old Caucasian male presented with symmetrical pain of multiple joints and bones of all extremities since two weeks with swollen and painful nodules on wrists, ankles and hips. He denied abdominal symptoms. The patient had a history of recurrent pancreatitis despite alcohol abstinence for 10 years and was previously diagnosed with a pancreatic pseudocyst. Physical examination revealed no abdominal tenderness or joint swelling, but multiple tender erythematous nodules of the skin. Laboratory tests showed extrem elevated lipase (~30'000 U/l) and CRP levels (178mg/l). An MRI of the lower legs displayed intraosseous necrosis of the proximal tibia, calcaneus, talus and tarsal bones (Fig. 1). A biopsy of skin and bone lesions revealed tryptic fat tissue necrosis. Due to the triad of pancreatitis, polyarthritis, and panniculitis, the diagnosis of a PPP-syndrome was made. Despite adequate management for pancreatitis, five more episodes with severe pain and impressive spikes in lipase levels occurred during the hospital stay. Given the association of the syndrome with the presence of a fistula between a pancreatic pseudocyst and the venous system as a reason for the elevated lipase levels, a MRI scan showed no clear sign of a fistula. EUS-guided biopsy of the pseudocyst showed no signs of malignancy, a follow- up CT scan revealed thrombosis of the superior mesenteric vein as a sign of a fistula between the two structures. A surgical exploration confirmed the suspected fistula and resulted in total pancreatectomy. After total pancreatectomy and reconstruction of the superior mesenteric vein we observed a favourable outcome with discharge to home. Residual limb pain was reported in the follow-up.

Discussion: This case illustrates the systemic effect of high blood levels of pancreatic enzymes, causing panniculitis and polyarthritis with severe inflammation and fat tissue necrosis. Characteristically, our patient complained predominantly of polyarthritis and panniculitis symptoms, which closely correlated with lipase blood levels. The etiology of these high lipase levels despite minimal pancreatitis symptoms was a fistula between a pancreatic pseudocyst and the superior mesenteric vein. In case of relapse, a therapeutic total pancreatectomy should be considered.



[Figure 1. Intraosseous fat necrosis in the femur and tibia on MRI]



[Figure 2. Panniculitis]

P13

«Un-Thirsty» Hypernatremia

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Learning objective: Adipsic diabetes insipidus is a rare hypothalamic syndrome of diabetes insipidus (DI) combined with a loss of thirst in response to hypernatremia.

Case: The 39-year-old man was admitted to our emergency room because of somnolence. Medical history was remarkable for subarachnoid haemorrhage from a ruptured aneurysm of the anterior communicating artery (ACOM) treated by craniotomy and clipping five weeks earlier. His parents described that he had recovered well, even though loss of short-term memory persisted. Clinical examination showed facial nerve paresis of the forehead on the side of the craniotomy, but no new neurological deficits. He was again awake, fully oriented but with mnestic disorder. Cerebral CT with angiography revealed no bleeding or infarction and correctly positioned clips. Laboratory examination showed severe hypernatremia (179 mmol/l). Consequently, the patient was admitted to the ICU and treated with oral fluids and 5% glucose intravenously. Remarkably, he denied having thirst and had to be encouraged to drink. During the following hours, urine osmolality fell from 739 to 294mOsm/kg, polyuria with up to 400ml/h was measured, while serum sodium remained elevated. Therefore, DI was obvious. After nasal application of 10µg desmopressinacetat (Minirin®) urine output fell to about 50ml/hour which confirmed central DI. Dosage of desmopressinacetat and volume management were steadily adapted over the following days until reaching normalisation of blood sodium and euvolemia (0.5mg desmopressinacetat orally, divided by three dosages, 2.5l fluid intake daily). Drinking volume always needed to be supervised carefully because of persistent lack of thirst and amnesia for being told to drink.

Discussion: Adipsic DI is a rare syndrome characterized by the combination of central DI with loss of thirst in response to hypernatremia. It usually occurs within days after cell damage of regulating nuclei (subfornical-organ, organum-vasculosum of lamina terminalis), for example after disruption of blood supply. Literature review shows that bleeding from ACOM aneurysm and possibly frontal craniectomy with aneurysm clipping are the most frequent causes of adipsic DI. Other causes include craniopharyngioma, head trauma or neurosarcoidosis. Management includes replacement of titrated desmopressinacetat, fixed water intake, daily weight tracking, patient education and regular sodium monitoring. According to literature, spontaneous remission is rare.

P14

Overdosage of nasal desmopressin during prolonged upper respiratory tract infection

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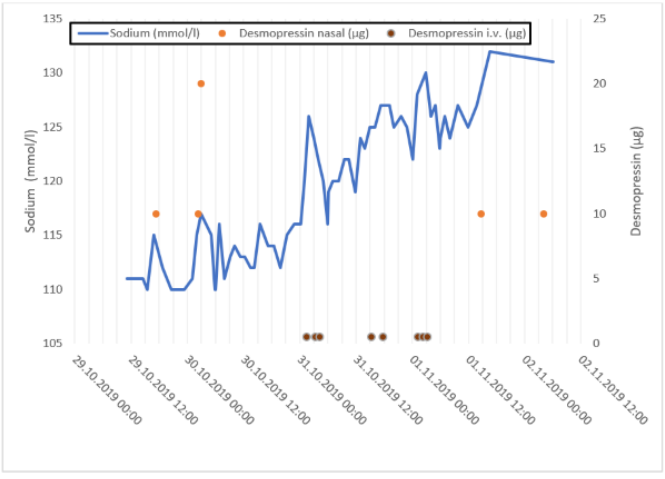
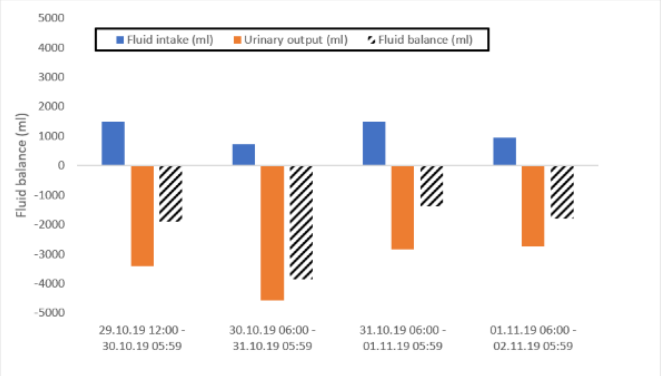
Learning objectives: Changes in the permeability of skin or mucous membranes may lead to altered drug absorption, resulting in over- or underdosage. We report a case of increased nasal desmopressin absorption during a prolonged upper respiratory tract infection leading to severe symptomatic hyponatremia.

Case report: A 44-year-old male patient on continuous substitution of nasal desmopressin (2 x 10 µg/d), levothyroxin, hydrocortisone and testosterone for central hypopituitarism following transcranial craniopharyngioma resection 37 years previously presented to the emergency department with a prolonged upper respiratory tract infection and deterioration of his general condition. Respiratory symptoms had started 6 weeks earlier and not responded to symptomatic treatment. The patient reported having increased his usual dose of 10 mg hydrocortisone to 30 mg on his own. He had the impression that the effect of a single nasal dose of desmopressin lasted longer than usual. Dosage and galenic formulation of desmopressin had not been changed.
Laboratory analyses revealed severe hypoosmolar hyponatremia of 111 mmol/l. Urine osmolality of 587 mmol/kg with urine sodium of 159 mmol/l were consistent with SIADH. After suspension of nasal desmopressin, sodium increased within five hours to 115 mmol/l and returned to 110 mmol/l within two hours after application of nasal desmopressin (Fig. 1). Nasal desmopressin was stopped and upon repeated rapid rise of sodium, we used intravenous desmopressin to correct hyponatremia at the desired rate. Additionally, fluid intake was restricted to 1500 ml/d (Fig. 2). Rhinitis was treated with xylometazoline. Towards the end of the hospital stay, desmopressin was reinstituted nasally at the usual dosage and frequency with ultimately stable sodium levels around 131 mmol/l.
Discussion: The patient's severe hyponatremia with laboratory constellation of SIADH was likely due to increased nasal resorption of desmopressin caused by hyperemia of mucous membranes. This conclusion is supported by the patient's impression of prolonged desmopressin action prior to admission, the rapid rise of sodium after suspension and a rapid decline back after re-administration of the year-long usual nasal desmopressin dosage as well as the normalization after resolution of rhinitis. To the best of our knowledge, only impaired nasal desmopressin resorption due to mucous membrane swelling and decreased permeability has been previously described.



[Desmopressin doses and related changes in blood sodium concentration]



[Fluid balance]

P15

Negative myoclonus as the leading symptom in cefepime neurotoxicity

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[1]Internal Medicine, [2]Interdisciplinary Emergency Center, [3]Kantonsspital Baden AG, Interal Medicine, Baden, Switzerland

Learning objective: In a multimorbid patient with new neurologic symptoms the differential diagnosis is broad and should always include drug side effects. The treating physicians should have a high index of suspicion for neurotoxicity if cefepime is used. In our case a patient developed negative myoclonus as the exclusive symptom of cefepime neurotoxicity.

Case: An 86-year-old woman was hospitalized for an Influenza A infection. She had a history of diabetes mellitus, arterial hypertension, atrial fibrillation and chronic kidney disease (creatinine 130µmol/l). Because of a hospital acquired pneumonia she was started on cefepime. Four days later the patient developed a negative myoclonus to the whole body with no change in mental status. A CT-scan and MR-imaging of the brain as well as an electroencephalogram revealed no underlying pathology. Ammonia, TSH and thiamine were all within normal limits. In an interprofessional evaluation (internal medicine, neurology, nephrology) we decided to switch the cefepime to piperacillin/tazobactam. One day later, the negative myoclonus had already diminished. A spinal tap was not performed at this point because of the therapy with rivaroxaban and the positive development. The neurologic symptoms gradually improved and were not detectable four days after cessation of cefepime.
Discussion: The differential diagnosis of negative myoclonus includes stroke, metabolic disorders, intoxication and many rather rare causes. Neurotoxicity is a recognized adverse effect of cefepime (incidence approximately 1-3%). Typically the patients show an altered mental status and with progression of intoxication seizures, ataxia and myoclonus may develop. Neurotoxicity is more common in patients with renal insufficiency and critically ill patients.
Our patient experienced negative myoclonus as the only adverse effect of cefepime despite correct dose adjustments to the declining renal function. The untypical presentation with a normal mental status might indicate the presence of a slight intoxication, despite the absence of a cefepime through level to prove this. The markedly decreased renal function did not hinder the rapid and complete neurologic recovery after stopping cefepime. Thus, we suspect other causes besides the renal clearance to influence the cefepime plasma level and the susceptibility to GABA receptors. Drug interactions should always be considered the cause of a new onset of myoclonic movements.

P16

A new case of Congenital Analbuminemia

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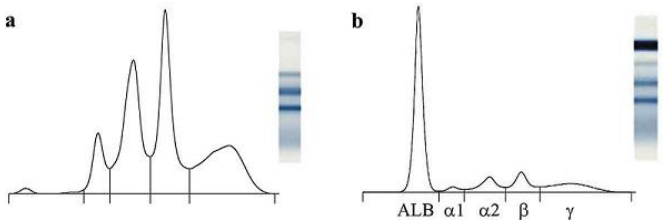
Learning objectives:
1. Congenital analbuminemia is an inherited, autosomal recessive disorder with an incidence of 1:1´000´000 live birth.
2. Most adult patients are often oligosymptomatic. Symptoms range from mild edema, hyperlipidemia, hypotension to fatigue.
3. After any other more prevalent protein-losing diseases have been excluded, the diagnosis can be made with immunonephelometric techniques in association with serum protein electrophoresis and analysis of the albumin gene (ALB) for the molecular diagnosis.

Case: A 36-year-old male asylum seeker from Syria presented himself in mid-2019 to our medical office seeking psychiatric help. After a nervous breakdown in Lebanon in 2017 he reported having taken antidepressants (Sertralin, Risperidon, Flupentixol/Melitracen). He reported no other complaints than chronic fatigue. Clinical examination was unremarkable. Due to suspicious mental slowness and before reinstating any medication, a blood analysis was done. It revealed hypoalbuminemia of 9g/l. Extended consultations with the older brother excluded any history of unintentional weight loss, diarrhea, or illness in the recent past. He reported consanguinity of their parents and a sudden infant death syndrome of a sibling at the age of 4 months. The patient´s childhood was shadowed by recurring serious respiratory infections with inpatient treatments. The coming blood tests showed that the patient also suffers from hyperlipidemia (LDL 7.08mmol/l). The serum protein electrophoresis depicted a virtually non-existing albumin band and an overproduction of the other serum protein components including what is thought to be a prealbumin band.
Referral to gastroenterologists in a tertiary hospital yielded despite repeated lab tests, ultrasound of the abdomen, and extensive specialist investigation no explanation for the low value. A protein-losing enteropathy was held rather unlikely since the patient was asymptomatic. Finally, the molecular analysis of the ALB gene revealed a homozygous nonsense variant with a premature termination codon of a truncated albumin consisting of only 412 amino acids. This new variant results in analbuminemia, since an intact C-terminal end of the molecule is required for the long plasma half-life of albumin.
Discussion: Hereby, we report a new case of congenital analbuminemia in an oligosymptomatic adult patient, caused by a previously unreported variation in the ALB, for which we propose the name Hama, the town of origin of the proband.



[Serum protein electrophoresis of the case (a) and of a normal control from the same run (b)]

P17

When "Good" means bad - a rare but dangerous syndrome in patients with thymoma

Andrea Quadri[1], Lilian Weiss[2], Bertram Feil[3], Lars C. Huber[1], Kristina Reggel-Dapoto[1]

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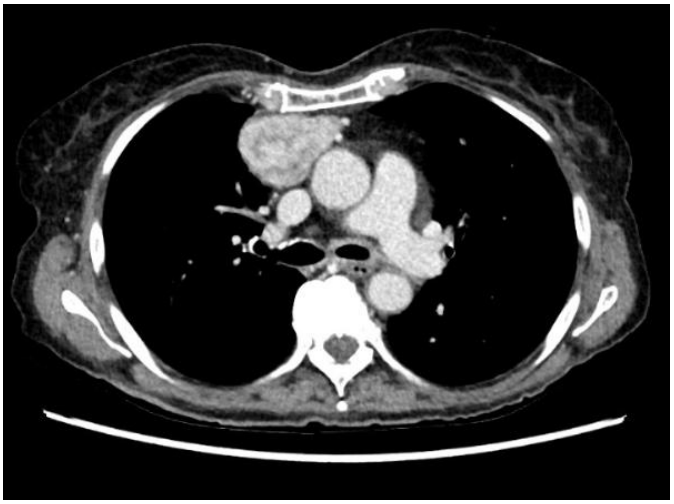
Learning Objectives:
– Good syndrome describes the rare association between thymoma and immunodeficiency and carries a poor prognosis
– It should be suspected in patients with recurrent infections with encapsulated organisms and opportunistic viral or fungal infections
– Serum immunoglobulins should be included as part of the routine diagnostic investigations for patients with thymoma
– Associated autoimmune conditions should be considered in the diagnostic work-up
Case: A 75-year-old woman was referred due to fever, persistent productive cough and dyspnea. The patient has been treated for recurrent infections (pneumonia and sinusitis) already in the weeks before the actual presentation. Now, a diagnosis of Haemophilus influenzae pneumonia was made and the patient was treated with Amoxicillin/Clavulanic acid. Clinical examination was further remarkable for a vesicular rash, suggesting (primo)infection with Varicella zoster virus and antiviral treatment with acyclovir was started. Computed tomography of the chest revealed a large anterior mediastinal mass, which, by subsequent bioptic analysis,

turned out to be a thymoma. Due to the history of recurrent infections and the presence of thymoma, a Good syndrome was suspected. Further diagnostic work-up showed hypogammaglobulinaemia, complete absence of B-cells and an inverted CD4/CD8 ratio. Substitution of immunoglobulins was initiated and the patient underwent surgical removal of the thymoma. At follow-up visits, the patient had recovered well but reported novel episodes of infections including bilateral pneumonia, oral candidiasis and Salmonella enteritis.

Discussion: Good syndrome confines the rare association between thymoma and combined B- and T-cell immunodeficiency in adults. The pathogenesis of this disorder is unknown. Typical clinical manifestations of Good syndrome include, as illustrated in our case, recurrent sinopulmonary infections with encapsulated organisms (Haemophilus influenzae) and opportunistic viral infections (Varicella zoster virus). Treatment includes surgical removal of the thymoma and, since recovery of immunoglobulin levels is usually not observed, preventive substitution with immunoglobulin at regular intervals.



[Computed tomography of the chest revealed a large anterior mediastinal mass]

P18

A tree can hide the forest: the case of Chemsex and STIs

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Learning objectives:
1) to be aware of a new pattern of drug use in men who have sex with men (MSM)
2) to identify these people in inpatient and outpatient settings
3) to look for sexually transmitted infections including HIV and mental health issues.

Cases:
1) A 29 years MSM comes for voluntary counselling and testing. A gonorrhoea is diagnosed by 3 sites pooled PCR. We ask him about chemsex use, and he states that he likes to take 3MMC and GHB, to enjoy parties. He adds that having sex without taking any substance has become very difficult. We propose him to completely stop using GHB, which carries a real risk of fatal overdose. Concerning the 3-MMC, he doesn't want to stop, so we apply basic reduction risk interventions.
2) A 20 years-old MSM is evaluated for a fever accompanied by headaches. The physical examination confirms high fever (39.6°), oropharyngeal candidiasis, multiples oral ulcers and a diffuse rash. He is diagnosed with primary HIV infection, secondary syphilis, and Chlamydia urethritis. After treating for these 3 concomittent STIs, we ask him about chemsex use. He reports a regular use of sniffed crystal meth and GHB. He's currently followed for this problem.

Discussion: The term "chemsex" is mostly used for the voluntary intake of psychoactive substances in the context of recreational settings to facilitate and/or to enhance sexual intercourses, mostly among men who have sex with other men (MSM). For a long time, the most popular drugs used in this setting were cocaine, ecstasy, and alkyl nitrites Newer drugs include gamma-hydroxybutyrate (GHB), gamma-butyrolactone (GBL), synthetic cathinones (mostly 3MMC in Switzerland), and crystal methamphetamine. Since the first reports of recreational chemsex with the newer drugs in the early 2000', their use increased dramatically, mostly among MSM. The prevalence of use of chemsex drugs among MSM in western countries is estimated between 5 and 20%, depending on the design of the studies. There is a growing concern about the harms related to these drugs. Among others, chemsex use is associated with new HIV infections (risk ratio 2-8), common bacterial STIs (mostly gonorrhoea and syphilis), sexual assaults, depression, and premature death (by overdose or suicide). Chemsex use should systematically be discussed between physicians and MSM patients, especially in those with high risk features. High-risk patients should always be referred to facilities having expertise in this very specific field.

P19

Metal fume fever as a differential diagnosis of SARS-CoV-2: a case report

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Learning objective: In the case of general symptoms, e.g. fever, a precise anamnesis is essential. This also includes asking for the workplace.

Case: A 25-year-old male presented himself to our emergency department with severe, persistent calf pain in both legs since a few hours. Later on, shivers and high temperature were added. He admitted to have slightly elevated temperature in the evening several times a week, always vanished the next morning and reported a history of recurrent pain in both legs. The physical examination showed normal calves without any signs of local reaction and compression pain. The temperature taken was 39.2°C. Laboratory findings were a slightly leukocytosis with 13.4 10e9/L, the rest unremarkable with a negative SARS-CoV-2-PCR. The patient was treated symptomatically with paracetamol. The calf pain steadily improved, the patient left the hospital at his own wish the same evening.
It appeared that the patient worked as a bricklayer on a building site, also occupied with welding jobs. His co-worker showed up on our emergency department the same evening with identical symptoms.

Discussion: Metal fume fever (MFF) is caused by the exposure to metallic oxides, e.g. Aluminum or Zinc, contained in welding fumes. Common symptoms are similar to feelings of flu with sweating, shivering, headache and myalgias, often accompanied by sore throat, cough, blocked nose and occupational asthma. The symptoms are self-limiting and typically resolve within 24 hours. As the fumes contain carcinogenic elements it is important to reduce fume exposure to prevent from respiratory problems in the long run. It is recommended to keep the head out of the fumes, to use respirators and protective clothing and to install local ventilation systems. This all assumes an increased awareness on part of the welder himself.
Because the symptoms of MFF are very similar to those of fever in the setting of a viral respiratory infection and there is no laboratory test to confirm the diagnosis of MFF, a good anamnesis with questions about the workplace is essential. Especially since the appearance of the SARS-CoV-2, it is very important to also recognize alternative diagnoses.

[Figure 1 Welding Fumes]

Image source: https://kemperamerica.com/international-cancer-researchers-say-welding-smoke-carcinogenic; 18.01.2021

P20

Pulmonary abscess: a rare cause of treatment failure in Legionnaires` disease

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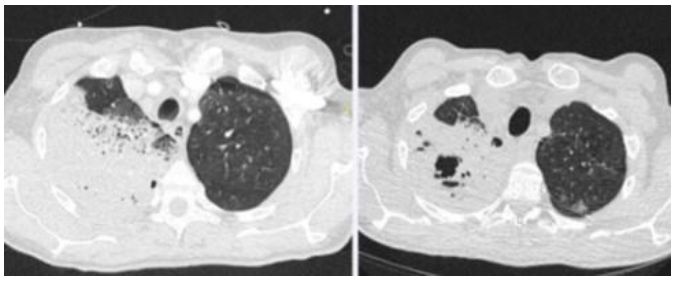
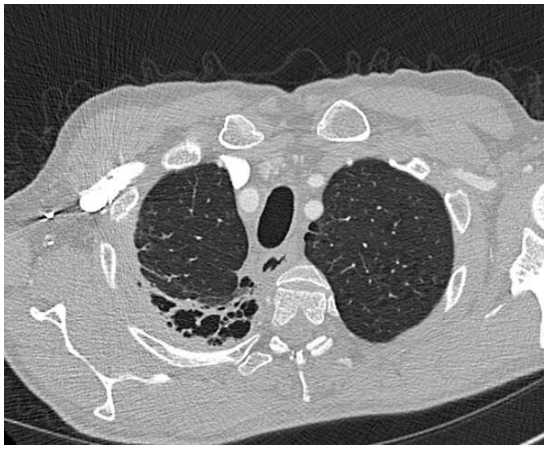
Learning objective: Legionnaires' disease (LD) is the cause of 5-10% of community-acquired pneumonia (CAP). However, cavitary pneumonia and lung abscesses caused by Legionella spp are rarely described. We report a case of a 53-year-old smoker with septic shock from LD complicated by a lung abscess. Local complications should be considered in case of persisting fever in LD.

Case: The patient presented to the emergency department because of fatigue. He was tachycardic and tachypnoeic, and rales in the right lung fields were evident on auscultation. Laboratory analysis was significant for thrombocytopenia and increased CRP and lactate. The chest CT scan demonstrated extensive confluent opacities in all right lung lobes and concomitant right-sided pleural effusion (Fig 1).

Because of respiratory failure, the patient was intubated and admitted to the ICU. A diagnosis of severe CAP was made and an empiric antibiotic treatment with piperacillin/tazobactam and clarithromycin was started. A positive PCR for *L. pneumophila* in the tracheal aspirate established the diagnosis of LD and the antibiotic treatment was switched to levofloxacin. Subsequently, *L. pneumophila* was confirmed as causative pathogen in selective culture.
After transfer to the ward elevated inflammatory markers and fever persisted despite antibiotic treatment. A repeat chest CT scan on day 20 raised the suspicion of a lung abscess (Fig1) and anaerobic coverage with clindamycin was added. Bronchoalveolar lavage (BAL) culture was still positive for *L. pneumophila*.
Because of clinical improvement the patient was discharged on day 33 with only azithromycin (due to a levofloxacin-associated rash).
The patient presented again 2 weeks later due to persisting fever. A chest CT scan demonstrated a progressive abscess formation. Work-up including another BAL was negative with the exception of a positive PCR for *L. pneumophila*. Antimicrobial treatment was broadened with the addition of piperacillin/tazobactam. After significant improvement the patient was discharged with azithromycin and amoxicillin/clavulanic acid. Follow-up CT scan 4 months later showed almost complete resolution of the lung abscess.
Discussion: Although rarely described LD can be complicated by a pulmonary abscess despite adequate antimicrobial coverage. This may be related to insufficient antibiotic penetration or presence of polymicrobial infection. Anaerobic coverage and involvement of a thoracic surgery may be necessary.



[Chest CT scan on day of admission (d0) and on day 20]



[Chest CT scan on readmission]

Prevention

P21

Awareness, attitudes and clinical practices regarding human papillomavirus vaccination among General Practitioners and Pediatricians in Switzerland

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Introduction: In Switzerland, the human papillomavirus vaccination (HPVv) coverage rate lies well below a desirable threshold. General practitioners (GPs) and pediatricians have been recognized as important providers of HPVv, but little is known about their self-attributed role and its relationship with their actual HPVv behavior. The objective of our study was therefore to explore awareness, attitudes and clinical practices of Swiss primary care providers concerning HPVv.

Methods: We designed an anonymous, self-administered, web-based questionnaire using a commercial web tool (SurveyMonkey) with invitations sent to members of the Association of Swiss General Practitioners and Pediatricians (mfe). The survey assessed participants' awareness, attitudes and clinical practices regarding counseling and administration of HPVv. Determinants for GPs' status as HPVv providers and differences between GPs and pediatricians were assessed by means of multivariable logistic regression.

Results: We analyzed the responses of 422 participants (age median 55, interquartile range (IQR) 48-60 years, 35% female, 72% GPs). Compared to GPs, pediatricians were more likely to deem HPVv "Absolutely essential" (54.2% versus 30.6%, $p < 0.001$) and reported higher numbers of administered HPVv doses per month (median 10, IQR 5-18 versus median 2, IQR 1-4, $p < 0.001$). As many as 44% of GPs indicated spending more time and effort on HPVv counseling for female rather than male patients, as opposed to 13.9% of pediatricians ($p< 0.001$). Whether a GP reported administering HPVv was mainly determined by the weekly number of patients aged 11-17 years seen in practice ($p = 0.002$) and whether HPVv was deemed "Absolutely essential" ($p = 0.02$). Check-up visits and admission of new patients were the most common reasons for consultations leading to HPVv status assessment (85.4% and 82.6% of respondents, respectively).

Conclusions: Primary care providers acknowledge the importance of HPVv and see themselves as relevant for its administration. We found a mismatch between their generally high support for the HPVv and their vaccination prescription and recommendation behavior. Shortcomings in terms of awareness, effort in identification of potentially eligible vaccination candidates and the role of male vaccination candidates were identified. By addressing these gaps, Swiss primary care providers could contribute to a relevant increase of the national HPVv coverage rate.

P22

Change in colorectal cancer (CRC) testing rates associated with the introduction of the first organized screening program in Canton Uri, Switzerland: evidence from insurance claims data analyses from 2010-2018

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Introduction: Guidelines recommend colorectal cancer (CRC) testing with colonoscopy every 10 years or fecal occult blood test (FOBT) every 2 years for the population aged 50-69. The first canton in Switzerland to implement an organized colorectal cancer screening program (OSP) was Uri. In Uri, starting in 2013, both methods are offered and for free. We hypothesized that implementing the OSP would raise testing rates because it provides financial incentives and an organized structure and increase rates of FOBT compared to colonoscopy because it enables eligible inhabitants to choose the CRC test they prefer.

Methods: We analyzed Swiss health insurance claims data of 50-69-year-olds from Uri and neighboring cantons (NB) and complemented it with data from the Uri program. We fitted a multinomial logistic regression model to compare yearly testing rates by method (colonoscopy or FOBT/both) and a logistic regression model for overall testing rates, all adjusted for socio-demographic factors and comorbidities. We further computed the 2018 rate of the population up-to-date with CRC testing (colonoscopy within 9 years/ FOBT within 2 years).

Results: Yearly overall testing rate in Uri increased from 8.7 % in 2010 to 10.8 % in 2018; in NBs testing increased from 6.5% to 7.9%. In Uri, the proportion tested with FOBT or both increased from 4.7% to 6.0%; in NBs it decreased from 2.8% to 1.1%. Our multivariate adjusted models showed there was a higher increase in testing by FOBT for insurees living in Uri between 2015-2018 versus 2010-2012 than in NB (OR 2.1 [95%CI: 1.8- 2.4]), a lower increase in colonoscopy between time periods in Uri compared to NB (OR 0.60; [95%CI:0.51-0.70]) and that there was no change in overall CRC testing (OR 0.91; [95%CI 0.81-1.02]). In 2018 in Uri, 41.5% were up-to-date with testing (9.5% FOBT/both, 34.3% colonoscopy); in NBs, 40.2 % were up-to-date with testing (2.7% FOBT/both, 38.7% colonoscopy).

Conclusion: Each year between 2010 to 2018, CRC testing rates for Uri insurees were consistently higher than for NB insurees. Though the OSP in Uri was not associated with an increase in overall testing rates compared to NB, it was associated with a significant increase in the FOBT/colonoscopy ratio, this could suggest that informed patients in the program were more likely to choose the test they preferred.

P23

Changes in rate of colorectal cancer testing in Switzerland 2012–2018: evidence from claims data of a large insurance

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Background: Guidelines recommend colorectal cancer (CRC) screening by fecal occult blood test (FOBT) or colonoscopy. In 2013, Switzerland introduced reimbursement of CRC screening by mandatory health insurance for 50-69-years-olds, after they met their deductible. We hypothesized that the 2013 reimbursement policy increased testing rate for CRC and widened gaps between those with high and low deductibles.

Methods: In claims data from a Swiss insurance, we determined CRC testing rate (FOBT and/or colonoscopy) among 50-75-year-olds each year (2012-2018). We fit multivariate adjusted logistic regression models to determine, year by year, associations between CRC testing rates and socio-demographic, insurance-, and health-related covariates. We tested for interaction of age (50-69/70-75) and deductible on CRC testing over time.

Results: Among insurees (2012:355'683; 2018:348'526), yearly CRC testing rate increased from 8.1% in 2012 to 9.9% in 2018 (colonoscopy: 5.0% to 7.6%; FOBT:3.1% to 2.3%). Odds ratio (OR) of CRC testing for 70-75-year-olds vs. 50-69-year-olds was 1.16 in 2012 (95%CI 1.13-1.20) and 1.05 in 2018 (95%CI 1.02-1.08). High deductible was associated with lower testing rates (2012: OR 0.59, 95%CI 0.56-0.62; 2018: OR 0.65, 95%CI 0.63-0.68). Age and deductible significantly interacted with CRC testing rate over the years.

Conclusions: The 2013 policy was associated with an increased CRC testing in Switzerland among the 50-69-year-olds. Those with high deductible remained less likely to be tested, and the gap between low and high deductible decreased. Future studies should explore whether encouraging more participants to opt for FOBT, and waiving the deductible may increase the overall testing rate.

P24

Coffee consumption is positively associated with cognitive performance in patients with atrial fibrillation

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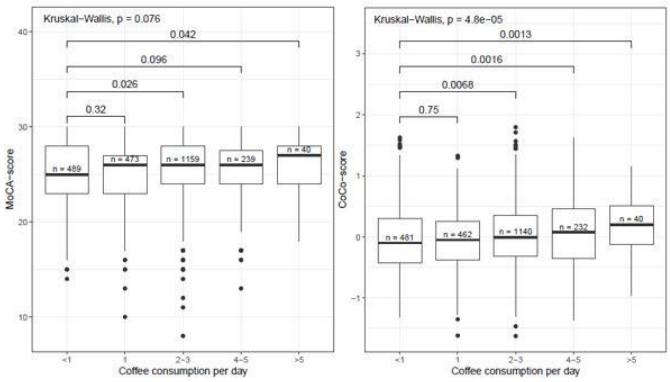
Background: Coffee consumption has been reported to be beneficial in cognitive decline in neurodegenerative disease. Atrial fibrillation (AF) is associated with cognitive deterioration due to macro- and microvascular events. The association of coffee consumption with cognitive function in AF remains unclear.

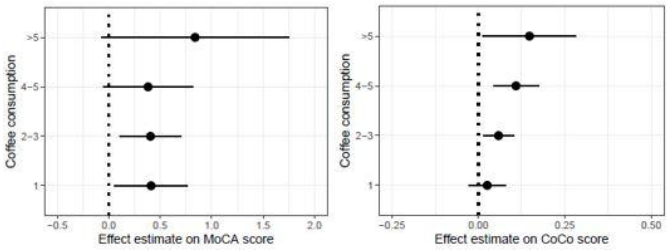
Methods: In this cross-sectional analysis, we used the data of 2'415 patients from the Swiss Atrial Fibrillation Cohort Study (Swiss-AF), a prospective, national, multicentre cohort study. By applying structured questionnaires, coffee consumption was quantified. Cognitive function was measured using validated neuropsychological tests i.e. the Montreal cognitive assessment (MoCA), trail marking test (TMT), semantic fluency (SF) animal naming test and digit symbol substitution test (DSST). In addition, cognitive construct (CoCo) score, an aggregating global performance parameter, was used. Primary outcomes were MoCA and CoCo scores at baseline. High-sensitivity CRP (hsCRP) and IL-6 were measured using standard methods. Associations between coffee consumption and cognitive performance were estimated using linear mixed effects models with study site as random effect. Models were adjusted for age, sex, BMI, sport, smoking, history of stroke, education level, and depression.

Results: Compared to < 1cup/d, the effect of 1 cup of coffee/d with the **CoCo score** was 0.03 (95% CI -0.03 - 0.08, p=0.35), 0.06 (95% CI 0.01 - 0.10, p=0.01) for 2-3 cups/d, 0.11 (95% CI 0.04 - 0.17, p=0.001) for 4-5 cups/d and 0.15 (95% CI 0.01 - 0.28, p=0.03) for >5 cups/d. Using polynomial contrasts, the linear trend estimate was 0.12 (95% CI 0.03 - 0.21, p=0.01).
In the **MoCA score** compared to < 1cup/d, the effect of 1 cup/d was 0.41 (95% CI 0.05 - 0.77, p=0.02), 0.41 (95% CI 0.11 - 0.70, p=0.01) for 2-3 cups/d, 0.38 (95% CI -0.05 - 0.82, p=0.09) for 4-5 cups/d and 0.84 (95% CI -0.07 - 1.75, p=0.01) for >5 cups/d, respectively. Using polynomial contrasts, the linear trend estimate was 0.52 (95% CI -0.07 - 1.12, p=0.09).
Interestingly, we found lower hsCRP and IL-6 levels with increasing coffee exposure.

Conclusions: Coffee consumption in AF was dose dependently associated with a higher cognitive performance in psychometric tests. Anti-inflammatory mechanisms may be operative.



[Figure 1A&B: Boxplot of the observed MoCA (A) and CoCo (B) scores in different coffee consumer group]



[Figure 2: Estimated differences in MoCA (A) and CoCo (B) scores (with 95% CIs)]

P25

Counseling in vape shops: results from a survey among vape shop managers in Switzerland

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Introduction: Vaporizers (also called e-cigarettes) are the most frequently used method for smoking cessation in Switzerland. Smokers can buy vaporizers and get support in vape shops. We describe the characteristics of vape shop managers and the recommendations they give to customers.

Methods: An interdisciplinary group of researchers active in smoking cessation, primary care physicians, vape shop managers and vapers developed a questionnaire for vape shop managers. Respondents self-reported their smoking history, demographics, and indicated the recommendations they would give to hypothetical customers. We also asked if they collaborated with health care professionals. Survey invitations were sent by email and postal mail in 2020 to all vape shops with a physical address in German- or French-speaking Switzerland.

Results: We received responses from 70/130 (54%) vape shops. Participants were mostly male (81%) and ex-smokers who had switched to vaporizers (82%); 11% were dual users (i.e. they both vaped and smoked). 29% reported having a tertiary education degree. The majority (60%) stated they would encourage a hypothetical smoker with a very high nicotine dependence to start with the highest possible nicotine concentration when switching to vaporizers. For this highly dependent smoker, 37% would recommend a high (≥15 mg/ml), 32% a medium (6-14 mg/ml) and 3% a low (1-5 mg/ml) nicotine concentration; the rest adapted their recommendations to fit the customer or device. Most respondents (78%, 51/65) would tell a customer with stable coronary artery disease that vaporizers are not risk free but should be preferred over conventional cigarettes after a heart attack. Most (76%) respondents reported that physicians referred customers to them; 50% said they referred customers to physicians. Most (79%, 52/66) respondents would be interested in participating in a training for vape shop employees.

Conclusion: There were wide variations between vape shop managers in the recommendations they give to smokers wanting to switch to e-cigarettes. Most vape shops managers seem to collaborate with physicians to help smokers quit. A training workshop for vape shop employees would be welcome.

P26

Do the cantonal human papillomavirus vaccination programmes influence the vaccination behaviour of primary care providers? Results of an exploratory online survey

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Background: Vaccination coverage rates against human papillomavirus (HPV) have been low in Switzerland for years. A particularity of the HPV vaccination is that it is organised through cantonal vaccination programmes. Vaccination providers have to actively register for participation and the vaccination process involves additional administrative work compared to other vaccinations. This could be one reason contributing to the low vaccination coverage rates in Switzerland. The aim of this study was to conduct an exploratory survey among primary care providers (general practitioners, paediatricians) to determine how much the system of the cantonal vaccination programmes affects the willingness of primary care providers to offer the HPV vaccination in their practice.

Methods: Data for this explorative analysis were collected by an anonymous online survey. Members of the Association of Swiss General Practitioners and Paediatricians (Hausärzte Schweiz) were invited to participate. The survey was conducted between May and September 2020 using a commercial online survey software (SurveyMonkey). Answering all questions was voluntary and all participants consented to the scientific analysis and publication of the data.

Results: Responses from 463 survey participants were analysed. The vast majority of survey participants knew the vaccination programmes (family medicine: 92%, paediatrics: 98%). There were significant differences in participation rates between the primary care providers (paediatrics 94%, family medicine: 68%, $p< 0.001$). Although the general satisfaction with the cantonal programmes was high (paediatrics 64.7%, family medicine: 55.8%, $p< 0.153$), general administrative efforts and the efforts regarding reimbursement were identified as the most relevant points of criticism among both for the cantonal programme registered and non-registered survey participants.

Discussion: The majority of all primary care providers registered in the cantonal HPV vaccination programme are satisfied with the HPV vaccination programme. Nevertheless, barriers were identified that deterred survey participants from participating. By optimising the administrative processes, which involves multiple intermediate steps at the cantonal level and with the manufacturer, the willingness to participate could be increased among a large proportion of primary care providers who currently refrain from participating, thus resulting in an increased HPV vaccination rate.

P27

Expert guidance for COVID-19 vaccine deployment in Switzerland: a Delphi process

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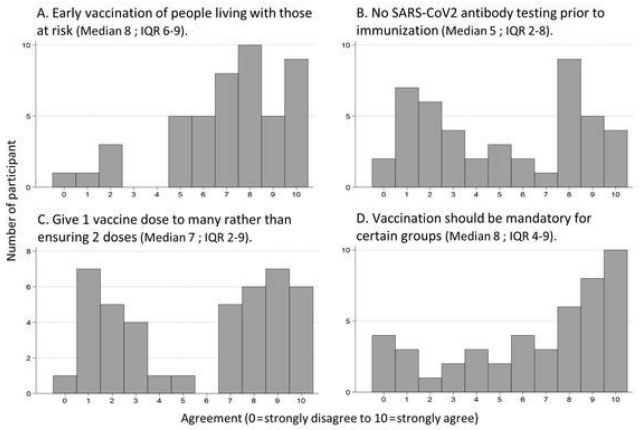
Introduction: Vaccines providing protection against COVID-19 are widely seen as a core tool for ending the pandemic. Though international organizations have created guidance for vaccine deployment, it must be adapted for each country's situation and values. We aimed to assist public health decision-makers by identifying areas of consensus among Swiss experts for the deployment of one or more novel COVID-19 vaccines.

Methods: An electronic, modified Delphi process between September and November 2020. We recruited a convenience sample of Swiss experts from a variety of specialties, who completed two anonymous questionnaires. They voted on guidance statements from 0 (complete disagreement) to 10 (complete agreement). Responses with a median ≥8 and a lower inter-quartile range bound ≥7 were considered as reaching consensus.

Results: 65 experts accepted (66% response rate), with 47 completing the first questionnaire (72%), and 48 the second (74%). Statements reaching consensus included: in the first phase we should vaccinate frontline healthcare professionals and people ≥65 years with risk factors; widespread vaccination of children and adolescents should not be an early priority; and vaccines should be provided free of charge in the setting of national or cantonal vaccination campaigns. Statements not reaching consensus included: early vaccination of people living with someone with risk factors who are not themselves at risk; vaccination of people with previous confirmed or suspected COVID-19; and whether vaccination should be mandatory for individuals with certain activities, such as frontline healthcare professionals. Various distributions of level of agreement were seen for questions not reaching consensus (Figure). While some statements approached consensus (Figure A), others had a wide distribution of answers (D), or even strong opposing views (B and C).

Conclusions: Experts reached consensus on several statements that may guide decision-makers when designing a strategy for COVID-19 vaccine deployment. Statements without consensus highlighted areas requiring ongoing expert and public dialog.



[Distribution of responses for agreement with 4 selected statements not reaching consensus]

P28

High intensity interval training alters ventricular-arterial coupling in a cardiovascular risk population: echocardiographic data from the EXAMIN AGE cohort

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Introduction: Ventricular-arterial coupling (VAC), the interplay between cardiac function and arterial system, can be accurately estimated by transthoracic echocardiography and has been described as the key determinant of global cardiovascular performance. The aim of this investigation was to quantify cardiovascular fitness through VAC and to assess its modifiability through high intensity interval training (HIIT) in an ageing population at increased cardiovascular risk.

Methods: In the interventional part of the EXAMIN AGE study, eighty-four sedentary individuals (mean age 59.4 ± 7.0 years) were randomized into either a training or a control group. Participants in the training group performed a 12-week walking-based HIIT. Standard care, based on European guidelines on cardiovascular disease prevention, served as a comparator. Key inclusion criterion was the presence of two or more cardiovascular risk factors (out of hypertension, obesity, elevated fasting plasma glucose, elevated triglycerides or LDL, HDL deficiency, current smoking). VAC was estimated by transthoracic echocardiography before and after the intervention as the ratio of arterial elastance to end-systolic elastance of the left ventricle.

Results: Valid echocardiographic data was available for 35 and 34 individuals in the HIIT group and control group, respectively. No significant differences in VAC between the two groups at baseline could be detected. The one-way ANCOVA on the multiply imputated data set determined a statistically significant effect of HIIT on VAC controlling for VAC at baseline ($p = 0.04$). Mean change of VAC from baseline to post-intervention was -0.04 (95%-CI: [-0.1; 0.02]) in the HIIT group, and +0.06 (95%-CI: [0.02; 0.1]) in the control group.

Conclusions: A twelve-week high-intensity interval training altered VAC in an ageing population at increased cardiovascular risk. This implies that exercise training alone can lead to structural and functional remodeling, and an alteration in the coupling of the left ventricle and the aortic tree. The results show that echocardiography is a feasible and reproducible method for the assessment thereof. Further research is needed to determine underlying mechanisms and clinical significance.

P29

How Swiss citizens have responded to various phases of the COVID-19 pandemic: repeated cross-sectional surveys

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Background: Government restrictions and citizen knowledge, feelings and behaviours have evolved rapidly during the COVID-19 pandemic depending on levels of virus transmission and the challenges inherent to containment strategies. We repeatedly assessed citizens' knowledge and perceptions about recommendations, and collected their suggestions for improvements as a means of providing feedback on public health measures in Canton Vaud, Switzerland.

Methods: Community-based partners disseminated three cross-sectional, electronic surveys with open and closed questions between 17 April and 14 May, 15 May and 22 June, and again between 30 October and 2 December. Outcomes included citizen knowledge (8-question measure), worry about the virus, self-reported adherence to measures, perception of government measures, suggestions for improvements, and their intention to uptake novel technologies, such as SwissCovid and COVID-19 vaccine. Comparisons between surveys controlled for age, sex, education, and health literacy using regression. Free-text answers were analysed thematically.

Results: A total of 847, 690 and 836 people completed surveys 1, 2, and 3 respectively, with respondents being majority women (71%) from Vaud (88%) with a university-level education (61%) and high self-reported health literacy (93%). Adjusted, mean worry about the COVID-19 pandemic on a 0 to 100 scale decreased from 52/100 to 39/100 from survey 1 to 2, but rose again to 55/100 for survey 3 ($p< 0.001$). Mean worry was consistently higher in women than men (51 vs 46, $p< 0.001$) and in respondents with lower health literacy (54 vs 49, $p< 0.001$). Mean knowledge (>6/8) and self-reported adherence (>80/100) were consistently high. The proportion of participants judging the government response to be insufficient was 34%, 28%, and 51% in surveys 1, 2, and 3, respectively ($p< 0.001$). In the third survey, 56% of respondents said they would get vaccinated for COVID-19, 22% would not, and 22% weren't sure. Analysis of open-text answers revealed a desire for greater use and access to personal protective equipment such as masks, improved government communication, and increased use of testing, with ranking of issues varying between surveys (Table).

Conclusions: Repeated surveys provided rapid feedback to public health authorities with indications of population worry, satisfaction with measures, and ideas for improvement. We hope to use this methodology in ongoing surveys.

	Survey 1	Survey 2	Survey 3
1	Masks should be compulsory outside home	Masks should be compulsory in closed spaces	Impose more restrictive measures
2	Free distribution of personal protective equipment to the population	Free distribution of personal protective equipment to the population	Increase the number of checks on compliance and penalties for non-compliance
3	Improve and harmonize information about government measures	Systematic, free, mass testing available repetitively	Improve and harmonize information about the virus and its spread
4	Do not rush deconfinement	Increase the number of checks on compliance	Introduce additional measures to protect vulnerable populations
5	Impose more restrictive measures	Should diffuse information about how to correctly wear mask and observe distances	Better support the hospital system
6	Large-scale deployment of testing	Implement large-scale serologic testing	Encourage individual responsibility

[Principal themes from the open-text survey question: "What else could the government do to help individual citizens limit the spread of COVID-19?"]

P30

"Nichtrauchen ist clever!" – Evaluation of a smoking prevention program for school-children and what we learn from the kids

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Introduction: In 2014, a hospital-based smoking prevention program "Nichtrauchen ist clever!" (NIC!) for adolescents was initiated, consisting of three parts: namely a workshop, a film, and a patient interview. The aim of the study was to evaluate the acceptance of the program, and to explore participants' awareness on smoking related diseases and factors that promote smoking initiation to further develop the program.

Methods: We performed an observational study to evaluate students' acceptance of the program and their smoking habits, and a qualitative approach, to assess their view on reasons for smoking initiation and their knowledge about smoking-related diseases.

Results: Between January 2016 and December 2019, 1658 students participated our observational study with a mean age of 13.3 years (SD ±0.9). Twenty-six percent (429/1658) have already tried tobacco products (so called triers), specifically cigarettes, electronic (e)-cigarettes, and shisha. Use of e-cigarettes was most popular among triers 58% (252/429). All parts of the program were widely rated as good and excellent, and 88% (1408/1604) of participants reported they had acquired good or excellent knowledge about smoking. Particularly lung cancer, cancer in general and heart diseases were frequently mentioned to be smoking related; peer pressure, stress and coolness were identified as reasons for smoking initiation. The influence of marketing and multimedia on smoking behaviour in the young was barely noticed.

Conclusion: NIC!" had a high acceptance among the participants and a large number of students reported relevant knowledge gain. We identified important knowledge-gaps relating smoking initiation and smoking related diseases, helping to improve further smoking prevention approaches.

P31

Nicotine prices in Switzerland, Germany, USA, Sweden, France and the UK in 2019

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Introduction: High tobacco taxes are the most effective public health measure to reduce smoking prevalence. Implementation of high tobacco taxes should be accompanied by measures to facilitate smoking cessation for addicted smokers. Nicotine replacement therapy (NRT) is a safe and effective method of smoking cessation. The high price of NRT might pose a barrier to its use and smokers might turn to alternate nicotine delivery systems like snus or tobacco free electronic nicotine delivery systems (ENDS), also called "e-cigarettes," if they are cheaper than NRTs. We compared standardized nicotine prices across nicotine delivery systems and across countries.

Methods: We gathered information on the price of tobacco cigarettes, NRT gums and patches, tobacco toasting systems (TTS), and open and closed ENDS in 2019 via Euromonitor in six countries: Switzerland; Germany; the USA; Sweden; France; and the United Kingdom (UK). We obtained the price of snus from online retailers in countries where snus is legal. We used the price of a pack of cigarettes in Switzerland as our reference and compared it to the price of equivalent doses of nicotine delivered by other products. We adjusted prices across countries for per capita Gross Domestic Product (GDP).

Results: Tobacco cigarette price relative to GDP was lowest in Switzerland; relative prices for NRT were 1.1 in Switzerland and 1.3 in Germany, and health insurances did not cover costs (Figure 1). In France and the UK, relative cigarettes prices were 2.7 times higher than in Switzerland; health insurances covered NRT, so patients paid only a small out-of-pocket charge (relative price 0.03 to 0.06). In Switzerland, snus was the cheapest form of nicotine delivery (relative price 0.2), open ENDS were a low-cost option for nicotine delivery in all countries (relative price 0.2 to 0.6), and TTS cost more than regular tobacco products in most countries.

Conclusion: In Switzerland and Germany, prices for a pack of cigarettes relative to GDP are lowest and were close to the relative prices of NRTs. In the UK and France, relative price of cigarettes was up to 3 times higher than in Switzerland and NRTs were 10 times cheaper than cigarettes. To effectively lower prevalence of smoking in Switzerland and Germany, and incentivize smokers to quit by using NRTs instead of snus and ENDS, policymakers could emulate France and the UK and implement high tobacco taxes while mandating that health insurances reimburse NRTs to lower their costs.

P32

Oral hydrogen peroxide (H_2O_2) exposures related to dental treatments during and before COVID-19

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Background: Rigorous policies for hygienic measures were promoted during the COVID-19 pandemic. In dental practices, hydrogen peroxide 1-1.5% is frequently used as an oral disinfectant before dental treatment. With increased availability we speculated about increased accidental exposures with these products. Therefore, calls to the Swiss National Poisons Information Centre during and before the pandemic were analyzed.

Methods: We included all calls related to exposures with hydrogen peroxide to Tox Info Suisse during the COVID-19 pandemic from January 2020 to January 2021. The cases during this 13-month span were compared to the previous 10 years (Jan. 2010-Dec 2019). All calls by dentists or general practitioners seeing patients after dental treatments were included. Cases with dermal, ocular or inhalative exposures or unrelated to dental treatment were excluded.

Results: During the 10 years preceding the pandemic, Tox Info Suisse recorded overall 5 cases with oral exposure to hydrogen peroxide during medical treatment. All exposures were observed in adults. From 2 available medical follow-up reports one patient remained asymptomatic and the second patient developed moderate local symptoms after exposure to a erroneously high concentration. During the observation period of the COVID-19 pandemic a 5.4 fold higher rate of oral hydrogen peroxide exposures was recorded with 27 cases (8 children, 19 adults) within only 13 months. Medical follow-up information was available in 7 patients (2 children). One child developed a burning sensation in the throat, the second child suffered from nausea and vomiting. Of the 5 adults, 4 remained asymptomatic and one developed a burning sensation in the throat, which was rapidly reversible.

Conclusion: This small case-series proves the well-known concept of availability of products and the accidental exposures. Although medicinal use of H_2O_2 in low concentrations only leads to minor symptoms, prophylactic measures of accidental exposures should be considered especially in times of increased availability.

General practice / Family medicine

P33

«A different lifestyle», or How can we attract millennials to primary care careers? Insights from a qualitative study

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Introduction: In the context of the primary care (PC) physician shortage, it is crucial to increase the attractiveness of PC careers during undergraduate and postgraduate medical training. Several aspects are known to influence career choice during medical school, but the extent to which students are influenced by these factors needs to be uncovered in more detail. Our objective was to explore the process of the development of career preferences for or against primary care during undergraduate and early postgraduate training.

Methods: Qualitative design based on a conceptual framework of primary care career choice. Physicians in their first year of postgraduate training were recruited from a previous cohort study, using a purposive sampling strategy to include participants who had indicated preferences for a PC specialty at different moments during medical school. Choice processes and different levels of influences were explored in semi-structured interviews, which were audiotaped, transcribed and analysed using a mixed deductive-inductive approach. We present results from 14 interviews (10 females, 4 males).

Results: At the time of the interview, 7 participants were aiming for a PC career, and they mainly valued variety of conditions and patient follow-up in their work. The other 7 participants aimed for a non-PC career and generally valued complexity of conditions and problem-solving. Work-life balance and work conditions were highly valued by all participants. Clerkship experiences were important in shaping their perceptions of different specialties. When participants talked about the way in which clerkships influenced their career choice, the way they were integrated by the team and given useful tasks to do, as well as relationships with colleagues and superiors were predominant themes.

Conclusion: Experiences during clinical clerkships strongly determined participants' perceptions of different specialties, which were matched with their values and expectations to form a career choice. Work-life balance, workplace satisfaction and relations with superiors were highly valued, characteristics that have been described as typical for the millennial generation. To promote PC careers, we should take these aspects into account already in undergraduate training, putting even more efforts into high quality clerkships where students are fully integrated as team members and making PC physicians aware of their role modelling in terms of work-life balance.

P34

Carbon footprint of Primary Care Practices in western Switzerland

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Background: The medical field generates significant environmental impact. The reduction of primary care practices (PCP) carbon footprint could decrease global carbon emissions.

Questions: What is the carbon footprint of Swiss PCP?

Methods: We conducted a retrospective carbon footprint analysis of ten private practices over the year 2018. Collected data included invoices, medical and furniture inventory, heating and power supply, staff and patients transport, laboratory analyses (in/out-house), waste quantity and management.
We used a life-cycle analysis to estimate carbon emissions of each sector, from manufacturing to disposal. The results were expressed as CO_2 equivalent, by average consultation and by practice, examining variations by practice.
Outcomes: An average medical consultation generated 4.8 kg of CO_2. Overall, an average practice produced 30 tons of CO_2 per year, of which 46.7% for staff and patients transport and 30.5 % for heating. Medical consumables produced 5.5 % of CO_2 emissions, while in-house laboratory and X-Ray contributed less than 2% each. Emergency analyses requiring courier transport caused 5.7% of all emissions. Non-medical activities generated 84.6 % of the total CO_2. Simulation of best and worst-case scenarios resulted in a one to ten variation in CO_2 emissions.

Discussion: Important reductions of the practice footprint can be obtained without major changes to medical habits.

Take Home Message for Practice: Optimizing structural and organisational aspects of practice work can have a major impact on carbon footprint of primary care practices.

P35

Change In Colorectal Cancer (CRC) testing rates in canton Vaud, neighboring cantons and the rest of Switzerland: evidence from insurance claims data from 2010 to 2018

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Introduction: In 2015, the canton of Vaud (VD) implemented an organized CRC screening program offering colonoscopy every 10 years or fecal occult blood test (FOBT) every 2 years to residents aged 50 to 69 years. Geneva (GE) and Neuchatel (NE) implemented programs in 2019, and Fribourg (FR) and Valais (VS) in 2020, while many cantons don't yet have programs. We hypothesized that earlier implementation of a screening program would be associated with an increase in overall CRC testing rates compared to neighboring cantons and the rest of Switzerland. We also expected an increase in FOBT testing rates with systematic offering of a non-invasive test.

Methods: We analyzed Swiss health insurance claims data of 50-69 year-olds from VD, its four neighboring cantons (GE, NE, FR, VS) and the rest of Switzerland. First, we analyzed the testing rates per year of each cantons (overall testing rates, FOBT/both-, and colonoscopy-testing rates). We fit two multinomial logistic regression models, first for overall testing rates and second to compare yearly testing rates by method, both adjusted for socio-demographic factors and comorbidities.

Results: Approximately 300,000 people contributed data annually from 2010 to 2018. The Table shows CRC testing rates among 50-69 years-olds. Overall testing-rates increased from 7.59% to 11.63% (+4.04%) in VD, from 6.09% to 9.29% (+3.20%) in the neighboring cantons, and from 7.41% to 8.56% (+1.15 %) in the rest of Switzerland. The number having FOBT/both increased, primarily between 2016 and 2018, in VD from 2.92% to 4.11% (+1.19%) and from 1.65% to 2.55% (+ 0.90%) in the neighboring cantons, but decreased in the rest of Switzerland from 3.08% to 1.51% (-1.57%). Colonoscopy increased consistently in all cantons, from 4.67% to 7.52% in Vaud, from 4.44% to 6.73% in neighbors and from 4.33% to 7.05% in the rest of Switzerland. In VD, 40% of FOBT/both and 26% of colonoscopies occurred in the program in 2018. In the models, the overall odds of being tested was 1.27 times higher in VD than in neighboring cantons, 1.87 times with FOBT and 1.09 times with colonoscopy.

Conclusion: CRC testing rates increased between 2010 and 2018, with greater absolute increases in VD than in neighboring cantons

or the rest of Switzerland. FOBT testing rates increased in VD, but also in neighboring cantons, possibly reflecting changes in testing patterns by GPs. By 2018, a significant portion of CRC testing was occurring within the screening program.

Table: Evolution of CRC testing-rates, between 2010 and 2018, in 50-69 years old patients, by testing-methods (fecal occult blood test (FOBT) or both vs. colonoscopy), and between cantons VD, the neighboring cantons (GE, FR, NE, VS) and the rest of Switzerland (rest of CH)

	2010	2011	2012	2013	2014	2015	2016	2017	2018
VD (N pop)	20921	19257	17823	18202	18482	17989	17447	17122	17492
Neighbors (N pop)	64076	59259	58347	60036	61615	60745	60426	60497	62203
The rest of CH (N pop)	203231	199556	199888	206086	213294	218030	228012	233769	243535
A) OVERALL TESTING RATES									
VD % [CI]	7.59 [7.24 - 7.96]	8.26 [7.88 - 8.66]	7.60 [7.22 - 7.80]	7.81 [7.43 - 8.21]	8.62 [8.23 - 9.04]	8.28 [7.88 - 8.69]	9.53 [9.10 - 9.98]	10.39 [9.94 - 10.86]	11.63 [11.17 - 12.12]
Neighbors % [CI]	6.09 [5.91 - 6.28]	6.01 [5.82 - 6.21]	6.13 [5.94 - 6.33]	6.20 [6.01 - 6.40]	7.02 [6.82 - 7.22]	6.94 [6.74 - 7.14]	8.75 [8.52 - 8.97]	8.72 [8.50 - 8.95]	9.29 [9.06 - 9.52]
The rest of CH % [CI]	7.41 [7.29 - 7.52]	7.67 [7.56 - 7.79]	7.64 [7.53 - 7.76]	7.57 [7.46 - 7.69]	7.98 [7.86 - 8.10]	7.90 [7.78 - 8.01]	8.74 [8.63 - 8.86]	8.22 [8.11 - 8.33]	8.56 [8.45 - 8.67]
B) FOBT OR BOTH TESTING RATES									
VD Overall % [CI]	2.92 [2.69 - 3.15]	3.25 [3.00 - 3.51]	2.59 [2.36 - 2.84]	2.63 [2.40 - 2.87]	2.49 [2.27 - 2.72]	2.38 [2.17 - 2.62]	2.83 [2.59 - 3.09]	3.43 [3.16 - 3.71]	4.11 [3.82 - 4.42]
VD in program % [CI]	- -	- -	- -	- -	- -	- -	0.65 [0.53 - 0.78]	1.27 [1.11 - 1.45]	1.66 [1.48 - 1.86]
VD outside program % [CI]	- -	- -	- -	- -	- -	- -	2.18 [1.97 - 2.41]	2.16 [1.94 - 2.38]	2.45 [2.22 - 2.69]
Neighbords % [CI]	1.65 [1.55-1.75]	1.60 [1.5 - 1.71]	1.53 [1.43 - 1.63]	1.37 [1.27 - 1.46]	1.54 [1.44 - 1.64]	1.54 [1.45 - 1.65]	2.22 [2.11 - 2.34]	2.15 [2.03 - 2.26]	2.55 [2.43 - 2.68]
The rest of CH % [CI]	3.08 [3.00 - 3.15]	2.84 [2.76 - 2.91]	2.62 [2.55 - 2.69]	2.25 [2.19 - 2.32]	2.03 [1.97 - 2.09]	1.80 [1.74 - 1.86]	1.78 [1.72 - 1.83]	1.57 [1.52 - 1.62]	1.51 [1.46 - 1.56]
C) COLONOSCOPY ONLY TESTING RATES									
VD Overall % [CI]	4.67 [4.39 - 4.97]	5.01 [4.71 - 5.33]	5.00 [4.69 - 5.34]	5.18 [4.86 - 5.51]	6.14 [5.79 - 6.49]	5.89 [5.55 - 6.25]	6.70 [6.33 - 7.08]	6.96 [6.59 - 7.35]	7.52 [7.14 - 7.92]
VD in program % [CI]	- -	- -	- -	- -	- -	0.02 [0.00 - 0.05]	0.59 [0.48 - 0.72]	1.02 [0.87 - 1.18]	1.99 [1.79 - 2.21]
VD outside program % [CI]	- -	- -	- -	- -	- -	5.86 [5.54 - 6.23]	6.11 [5.76 - 6.48]	5.95 [5.60 - 6.31]	5.53 [5.20 - 5.88]
Neighbors % [CI]	4.44 [4.28 - 4.61]	4.41 [4.24 - 4.58]	4.60 [4.43 - 4.77]	4.84 [4.67 - 5.01]	5.48 [5.44 - 1-64]	5.39 [5.21 - 5.58]	6.52 [6.33 - 6.72]	6.58 [6.38 - 6.78]	6.73 [6.54 - 6.93]
The rest of CH % [CI]	4.33 [4.24 - 4.42]	4.84 [4.74 - 4.93]	5.02 [4.93 - 5.12]	5.32 [5.23 - 5.42]	5.95 [5.84 - 6.05]	6.10 [6.00 - 6.20]	6.96 [6.86 - 7.07]	6.66 [6.55 - 6.76]	7.05 [6.94 - 7.15]

[Evolution of CRC testing-rates, between 2010 and 2018, in 50-69 years old patients]

P36

Change in glucose homeostasis induced by transient iron overload: a double-blind randomised placebo-controlled trial

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Background: Excess and chronic iron exposure increases diabetes risk, but the consequences of acute iron overload on glucose homeostasis are unknown.

Methods: Between June 21, 2017 and March 8, 2020, 32 women aged 18 to 47 years, displaying symptomatic iron deficiency without anaemia, were recruited from a community setting at a single centre in Switzerland and randomly allocated (1:1) to receive a single, double-blinded infusion of 1000 mg intravenous ferric carboxymaltose (iron, n=16) or saline (placebo, n=16). The variation in insulin secretion at 28 days assessed by a two-step hyperglycaemic clamp was set as primary outcome. All analyses were performed by intention to treat. The trial is registered with ClinicalTrials.gov, NCT03191201, and is closed to inclusions.

Findings: Iron increased serum ferritin (mean±SD, in mg/L) from 25±12 at baseline to 444±123 and 233±69, at 14 and 28 days respectively, with no effect for placebo. First phase insulin release in mUx10min/mL, were at baseline and 28 days, respectively, 86±13 and 93±14 in iron, and 76±8 and 84±9 in placebo (between-group difference: 0; 95% CI, -22 to 22; P=0.99). The second phase insulin release and hepatic glucose output were not different among groups. The glucose infusion rate - a proxy for insulin sensitivity - improved by 20%, with a between-group difference of 0.7 mg/kg/min (95% CI, 0.1 to 1.2; P=0.02) and total and LDL cholesterol were significantly decreased. Total cholesterol levels decreased from 3.7±0.7 to 3.5±0.5 and to 3.4±0.6 mmol/L after iron at days 14 and 28 respectively and increased from 3.9±0.9 to 4.3±0.9 and to 4.1±1.0 mmol/L after placebo (95% CI between baseline and day 28, 3.4 to 4.2; P=0.008). A similar decrease in LDL cholesterol levels was also observed.

Interpretation: In iron deficient women without anaemia, intravenous iron administration did not impair glucose-induced insulin secretion. However, it improved peripheral insulin sensitivity. Iron repletion also decreased total and LDL cholesterol levels despite these being already in the "low normal" range at baseline. These findings have important implications for iron deficient patients that happen to suffer from diabetes, hypercholesterolaemia or heart failure.

P37

Changes in workload in Swiss general practice since 2005: a five yearly questionnaire-based survey on self-reported working activities of a representative sample of Swiss general practitioners

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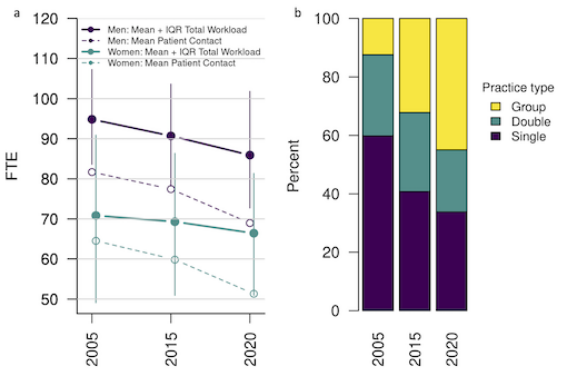
Introduction: General practitioners (GPs) play a central role in the delivery of health care in Switzerland. Assessing GPs' workload over time is essential to meet the population's demand on health service and for future healthcare planning.

Methods: Four questionnaire-based cross-sectional studies, using a comparable set of questions, were conducted in 2005, 2010, 2015, and 2020 among a representative sample of Swiss GPs (German, French, and Italian speaking). Data on GPs' self-estimated workload (face-to-face consultations, house calls, nursing home visits, and clinical administrative work) was analyzed.

Results: The mean age of GPs in 2020 was 55 years, i.e., significantly higher than in 2005 (51 years, p< 0.001). The proportion of female GPs increased gradually from 17% in 2005 to 36% in 2020 (p< 0.001). In terms of full-time equivalents (FTE) (100% = 55 h/week), GPs' workload significantly decreased within the last 15 years from 91% FTE (50 h/week) in 2005 to 79% FTE (43 h/week) in 2020, respectively. There was a significant interaction between year and gender (p=0.034), indicating that the decreased average workload across years was less pronounced in women than in men (men: 95% FTE in 2005 to 86% FTE in 2020, women: 71% FTE in 2005 to 66% FTE in 2020) (see Figure 1a). Further, a significant main effect of gender showed that women worked on average 22% FTE (12 h/week) less than men (p< 0.001). In 2020, GPs spend on average 79% of their working time in direct patient contact (consultations, house calls or nursing home visits) and 21% for clinical administrative work. While the time spent with patients gradually decreased over time, the amount of time spent for clinical administrative work remained stable (9 hours/week). In 2020, GPs were working more frequently in group practices compared to 2005 (45% vs. 12%, p< 0.001, see Figure 1b).

Conclusion: The study demonstrates a decrease in GPs' overall workload over time from 2005 to 2020. The decrease is mostly at the expense of direct face-to-face encounters whereas the clinical administrative work remained stable. The most likely explanation for this decrease in workload is the increasing number of GPs working part-time, particularly male GPs started to reduce their workload. To maintain an efficient health care system in the future, substantial efforts are crucial to rebalance the disproportion of workforce between the young and retiring generation of GPs in Switzerland.



[Figure 1a: Full time equivalents (FTE) across time and sex. Figure 1b: Practice type across time]

P38

Clinical course of COVID-19 suspects consulting in ambulatory care: a longitudinal study

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Introduction: The first case of COVID-19 diagnosed in Switzerland was in February 2020, with a first peak of the epidemic at the end of March 2020. Our study, by analyzing a group of patients tested in outpatient facilities in Switzerland, aimed to describe the clinical course of SARS-CoV-2 PCR positive patients, compared with PCR-negative patients. Secondary objectives were to estimate the duration of the symptomatic phase overall and for specific symptoms, and to identify factors associated with symptom duration.

Methods: This study was a prospective study of symptomatic patients suspect of COVID-19 that consulted in two walk-in clinics and a general practitioner's office in the canton of Vaud. Telephone follow-ups using standardized case report forms were made two, four, eight days and at least 28 days after the first visit. We calculated the proportion of symptomatic patients, hospitalization and recovery at each time point, according to the SARS-CoV-2 PCR test result, and estimated the median time to recovery in a parametric survival model.

Results: We enrolled 883 patients, of median age 38 years, 59.3% women. 13.9% (N=123) of the participants had a positive SARS-CoV-2 PCR test, 68.6% (N=606) a negative PCR test and 17.4% (N=154) did not get tested. At the 28 days or more follow-up (median time, 55 days), 44.7% (55/123) had still reported symptoms in the PCR positive group, compared with 18.3% (111/606) in the negative group (p< 0.001). Symptoms that were more reported in the PCR-positive group were anosmia (20/123=16.3%), dyspnea (15/123=12.2%), and fatigue (13/123=10.6%). Anosmia was strongly associated with COVID-19 and was the symptom that lasted longer (median time to recovery, 15.8 days). Older age was associated with prolonged symptoms (HR 1.32 for age < 40 compared with 40-65, p=0.002).

Conclusions: This study showed that almost half of SARS-CoV-2 positive patients seen in ambulatory care still reported symptoms at least 28 days after the initial consultation. The main persistent symptoms were anosmia, dyspnea and fatigue. Knowing what the potential lasting symptoms are can be reassuring for the patients that are experiencing them. For doctors, it is important to be aware of the issue of persisting symptom, in order to better accompany patients.

P39

Compliance data and survival time after 3-months of physical exercise and nutritional therapy in advanced cancer patients: a pooled analysis

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Introduction: Malnutrition in cancer patients is a complex problem and requires a multimodal approach. The following analysis investigated compliance data and survival time in patients participating in two multimodal trials.

Methods: Advanced cancer patients participating in two randomised intervention trials were included in a pooled analysis. In both trials, patients in the intervention group received at least three times nutritional counselling (at baseline, after six and 12 weeks) and supervised training sessions (2/week). Patients in the control group received usual care. Survival time was analysed using the Cox proportional hazard model with the period between beginning of the trial and death as underlying time scale.

Results: In total, 110 patients were included in the pooled analysis. 68 men (61.8%) and 42 women (38.2%) were randomised either in the intervention (n=56) or control (n=54) group. The mean age was 63.0 ± 10.2 years and the average body mass index (BMI) was 25.3 kg/m^2. Patients in the intervention group joined a mean of 16.3 ± 6.3 of 24 planned training sessions at the hospital (67.9 %). The mean number of individual nutritional counselling sessions were 3.5 ± 1.1 (116.7 %). Patients with lung cancers constituted the largest group with n=42 (38.2%) followed by patients with colorectal (n=25, 22.7%) or pancreatic cancer (n=20, 18.2%). The analysis of survival time showed no inter-group difference for all patients. The covariates "CRP" and "days from first diagnosis to randomization" were significantly associated with survival time. Patients with higher CRP value had a shorter survival time. A detailed analysis of survival time for several diagnoses showed that in patients with lung cancer the covariates CRP value, days from first diagnosis to randomization as well as gender were significantly associated with survival time. Female patients had a shorter survival time than male patients in our analysis. In addition, patients with pancreatic cancer randomized to the control group had a 20% shorter survival time than patients in the intervention group (p=0.048).

Conclusion: The pooled analysis showed a good compliance of advanced cancer patients receiving multimodal therapy including nutritional counselling and physical exercise. There is special need for further investigations examining the effect of multimodal therapy on survival time with focus on specific cancer diagnoses.

P40

Development and testing of an electronic encounter decision aid for smoking cessation in general medicine

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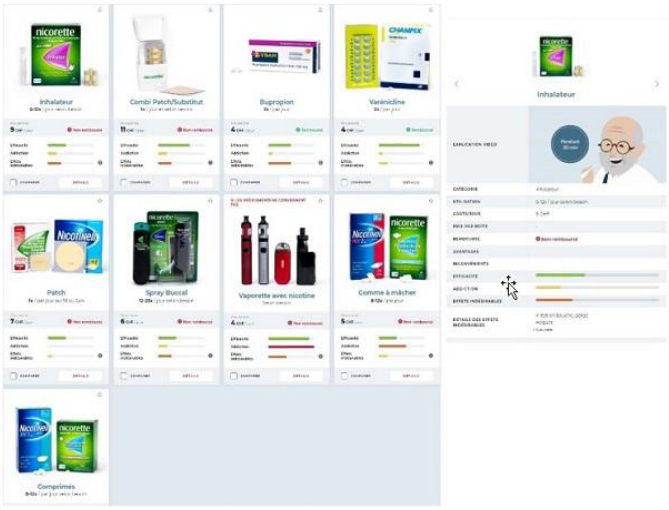
Introduction: Tobacco cessation is an essential part of improving patient health, decreasing morbidity and mortality on the short and long term. However, discussions about tobacco cessation in primary care are often short and the presentation of available pharmaceutical aids time consuming. Encounter decision aids optimize therapeutic education and increase interaction, making patients more active during the consultation, enhance shared decision-making and the therapeutic alliance. Thus, a decision aid for smoking cessation could improve smoking cessation counselling, increase use of pharmaceutical aids, and increase the number of patients who quit smoking. Paper based aids have their limitations, small imagery, non-ecological and hard to keep rapidly up to date. We aimed to develop and test an electronic encounter decision aid (EEDA) that facilitates and encourages the discussion about tobacco cessation in primary care.

Methods: We developed an EEDA adapted from a paper version developed by our team in 2017 using user-centred design. The tool is perfected by implementing user feedback. The EEDA is a one page interactive website where all forms of pharmaceutical aids for tobacco cessation and electronic cigarettes are presented and can be compared. Each pharmaceutical aid has a drop down menu which presents additional information and video demonstrations (Figure 1, available at howtoquit.ch). A questionnaire was submitted to general practitioner residents of Unisanté (academic service for general medicine) and two experts in the field of tobacco. The questionnaire consisted of 4 multiple-choice and 2 free text questions, exploring the usability/acceptability of the EEDA, the acquisition of new knowledge for practitioners, the perceived utility in aiding patients' choices, difficulties encountered, strong points and if the tool was recommendable.

Results: The multiple choice results are summarised in table 1. Free text comments included practitioners finding the decision aid visually pleasing and easy to use. Information was clear, concise and facilitated decision making as comparisons were readily possible. Inclusion of explanatory videos was a bonus. Changes being implemented based on the results included, grouping together similar pharmaceutical options, adding a landing page, and other minor changes.

Conclusions: The overall response to the tool was very positive. The ultimate objective is to have the tool deployed and easily accessible for all to use.



[Figure 1: illustrative screenshot of the decision aid taken on howtoquit.ch]

Questions	Score	(10 people in total)						
	1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree	Mean	Standard deviation
1. The electronic interface is practical and intuitive	0	0	0	4	6	4.6	0.516
2. By using this tool I improved my knowledge	0	0	1	4	5	4.4	0.699
3. The tool facilitated the choosing process for the patient	0	0	0	6	4	4.4	0.516
4. I would recommend this tool to my colleagues	0	0	0	2	8	4.8	0.422

[Table 1: Overview of quantative feedback.]

P41

Development of a prediction model for COVID-19 diagnosis among suspects presenting in primary care settings

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Purpose: In context of COVID-19 pandemic, patients presenting with flu-like symptoms might outnumber the testing-capacity of health care system. We studied diagnostic performance of signs, symptoms, and socio-demographic factors to detect a -SARS-CoV-2 positive PCR test in a primary care population.

Methods: We recruited 883 patients suspected of being infected by COVID-19 in three primary care clinics in Lausanne during the first wave of pandemic. Symptoms, signs and socio-demographics factors of patients were registered in a clinical registry, before a PCR-SARS-CoV-2 test was performed if indicated. We estimated sensitivity, specificity, predictive values and c-index for each symptom separately, using SARS-COV-2 PCR result as reference standard. We estimated the diagnostic performance of various symptom combinations, combining first those with the highest c-index. Sociodemographic factors were combined in a multivariate predictive model

Results: Most sensitive symptoms were cough (80.5%, 95%CI 72.4 - 87.1), myalgia (68.8%, 95%CI 59.3 - 77.2), and history of fever (65.6%, 95%CI 56.4 - 73.9), while most specific symptoms were fever of at least 4 days (97.2%, 95%CI 95.50-098.3) dys/anosmia (88.3%, 95%CI 85.1 - 90.9), and dys/ageusia (86.1%, 95%CI 82.8 - 89.0). A combination of six symptoms (dys/agueusia, dys/anosmia, cough, fever, high measured temperature (≥ 38°), myalgia) achieved a high sensitivity (99.2%, 95%CI 95.6 - 100.0). Socio-demographics positive predictive factors were medium education level (adjOR 1.79, 95%CI 0.96 - 3.35) and low occupation level (adjOR 2.13, 95%CI 1.21 - 3.77). Active smoking was a negative predictive factor (adjOR 0.41, 95%CI 0.22 - 0.76).

Conclusion: While some factors showed a relatively high specificity, none was very sensitive. The discriminative value of individual symptoms was limited, indicating that none can be used on its own to diagnosis COVID-19. We found than a combination of six symptoms had a good performance to exclude a positive SARS-CoV-2 test result if absent. However, because of its poor specificity, a laboratory test is still required to confirm the diagnosis. These results can help health authorities to establish case definitions of which symptomatic patients to test.

P42

Disproportionate increase in strong opioid and metamizole use compared to other pain medications in Switzerland between 2006 and 2018

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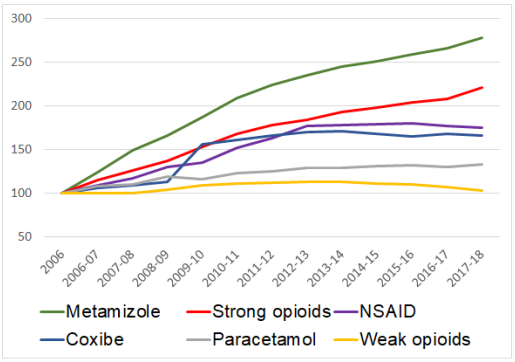
Introduction: In Switzerland, strong opioids have been found to be mainly used in non-cancer pain. The aim was to assess the temporal changes in pain medication use between 2006 and 2018. Further, we compared regional variation in pain medication use.

Methods: Analysis of insurance claims for opioids between 2006 and 2018 from one of the major health insurers in Switzerland, that covers 1.2 million individuals. Persons with opioid use within a drug substitution program were excluded. Based on age and gender, data were extrapolated to claims per 100'000 inhabitants and annual changes in claims were analyzed. Further, we assessed the differences in the variation in claims per 100'000 across Swiss Cantons for the calendar year 2018.

Results: Between 2006 and 2018, we observed an increased use of all pain medications except for weak opioids. The highest increase was found for metamizole (+178%) and strong opioids (+121%). While we observed a constant linear increase in metamizole and strong opioids use (**Figure**), the use of paracetamol, NSAIDs, and coxibs leveled off after 2012. The overall increase in NSAIDs was +75% with a decrease by -4% between 2016 and 2018. Whereas we observed a low variation for NSAID, coxibes, and paracetamol use, a high to very high variation was observed for metamizole (22-fold variation), weak and strong opioids moderate (3.8 and 3.2-fold variation, respectively) across Swiss Cantons in 2018.

Conclusion: Whereas the use in most non-opioid pain medications and weak opioids stabilized, we observed an constant linear increase in the use of strong opioids and metamizole. Wide variations across Swiss Cantons in the use of strong opioids and metamizole were not explained by age and gender.



[Figure: Percent increase in pain medication use between 2006 and 2018 in Switzerland]

P43

Do we AGREE on the targets of antihypertensive drug treatment in older adults: a systematic review of guidelines on primary prevention of cardiovascular diseases

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Introduction: Translation of the available evidence concerning primary cardiovascular prevention into clinical guidance for the heterogeneous population of older adults is challenging. With this review, we aimed to give an overview of the thresholds and targets of antihypertensive drug therapy for older adults in currently used guidelines on primary cardiovascular prevention. Secondly, we evaluated the relationship between the advised targets and the guideline quality.

Methods: We systematically searched PubMed, Embase, Emcare, and five guideline databases (SIGN, NGC, GIN, CPG infobase and UpToDate). We selected guidelines with
(1) numerical thresholds for the initiation or target values of antihypertensive drug therapy in context of primary prevention (January 2008-July 2020) and
(2) specific advice concerning antihypertensive drug therapy in older adults. We extracted the recommendations and appraised the quality of the included guidelines with the AGREEII-instrument.

Results: Thirty-four guidelines provided recommendations concerning antihypertensive drug therapy in older adults. Twenty advised a higher target of systolic blood pressure (SBP) for octogenarians in comparison with the general population and three advised a lower target. Over half of the guidelines (n=18) recommended to target a SBP < 150 mmHg in the oldest old, while four endorsed targets of SBP lower than 130 or 120 mmHg. Although many guidelines acknowledged frailty, only three gave specific thresholds and targets. The guidelines' methodological quality did not influence the recommended blood pressure targets.

Conclusions: Recommended blood pressure targets differ considerably across guidelines. Inconsistent recommendations reflect the ongoing debate on antihypertensive treatment targets in older adults. Recommended targets are independent of methodological quality and set on chronological rather than biological age.

P44

Does levothyroxine therapy for subclinical hypothyroidism change bone geometry in older adults? A nested study within a randomized placebo controlled trial

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Introduction: Thyroid dysfunction has been associated with fractures and bone loss, especially in the subclinical hyperthyroidism range. However, levothyroxine (LT4) therapy for subclinical hypothyroidism (SHypo) has not been shown to induce clinically relevant bone loss, and its effects on bone geometry and volumetric bone mineral density are unknown. We wanted to assess the effect of LT4 therapy on bone geometry as measured by peripheral quantitative computed tomography (pQCT).

Methods: Nested study within the randomized, placebo-controlled, multicenter Thyroid Hormone Replacement for Subclinical Hypothyroidism (TRUST) trial. Community-dwelling adults ≥65 years old with SHypo were randomized to LT4 with dose titration vs. placebo with mock titration. We analyzed participants at the Bern TRUST site in Switzerland who had baseline and follow-up bone pQCT and analyzed yearly percentage changes of bone geometry (total and cortical cross-sectional area (CSA) and cortical thickness) as well as volumetric bone mineral density (bone mineral content (BMC) and total, trabecular and cortical volumetric density (vBMD)). We performed linear regression of pQCT percentage changes per year adjusted for sex, dose at randomization and muscle cross-sectional area at measurement site.

Results: 98 included participants had a mean age of 73.9 (±5.4) years, 45.9% were women, and 12% had osteoporosis. They were randomized to placebo (n=48) vs. or 50 LT4 (n=50) group. Changes per year in vBMD and BMC were similar between placebo and levothyroxine-treated groups, without significant differences in bone geometry or volumetric bone mineral density changes, neither at diaphysis nor at the epiphysis. As an example, the between-group difference of epiphyseal BMC (radius) in %ΔBMC was 0.3, (95%CI -0.70 to 1.21, p=0.91). Levothyroxine treatment did not cause periosteal drift (reduced cortical bone, increased CSA).

Conclusions: Compared to placebo, levothyroxine therapy for an average 14 months had no effect on bone architecture in older adults with subclinical hypothyroidism.

P45

Facing climate change's challenges: roles and activities of two academic primary care institutions

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Introduction: Health care systems cause a significant proportion of global greenhouse gas emission and energy consumption. Reducing the environmental footprint of medical care, engaging patients and health professionals into environment-friendly behaviors (food, mobility, etc.) and preparing to tackle climate change's health consequences may contribute to mitigate its burden. We describe initiatives taken by primary care physicians (PHP) from the division of primary care medicine in Geneva University Hospital and the Center for primary care and public health (Unisanté) in Lausanne.

Methods: In Geneva, a group of PHP engaged in reflecting about the environmental impact of healthcare delivery notably regarding energy and resources use. A similar discussion was brought to the School of Medicine. In Lausanne, an interdepartmental working group was set up to propose concrete measures to reduce carbon foot print of the institution.

Results: In Geneva, PHP work with non-health actors to provide the management with concrete propositions following the Reduce-Reuse-Recycle framework applicable in different clinical setting. In Lausanne, measures were proposed to reduce carbon footprint at different levels such as reducing plastic usage and waste, reducing air travel and ban flights shorter than 10 hours or for distance < 1000 km. In Geneva, a talk was organized with Pr. Dominique Bourg on Anthropocene. A course was given for PHP focused on climate, energy and resources challenges and PHP role. Two master students on applied psychological for pro-environmental behaviors changes were recruited in an internship study. The 2020-24 institution strategic plan will have a specific objective for sustainability development. From a research perspective, projects are being developed to explore the roles and potential levelers of action of the health care actors to reduce carbon footprint. Finally, lectures have been proposed to students to address climate change from a public health and clinical perspective.

Discussion: Combining public health, clinical and managerial actions is needed to mitigate large healthcare institution's environmental footprint. PHP can act as key informants for the general population, role models for other health professionals and mentor for students in leading changes in the healthcare system. Further efforts are needed to better coordinate the different interventions and to strengthen inter-institutional collaborations.

P46

Feedback loops in integrated care with PizolCare's training courses for outpatient (Spitex) and nursing home caregivers

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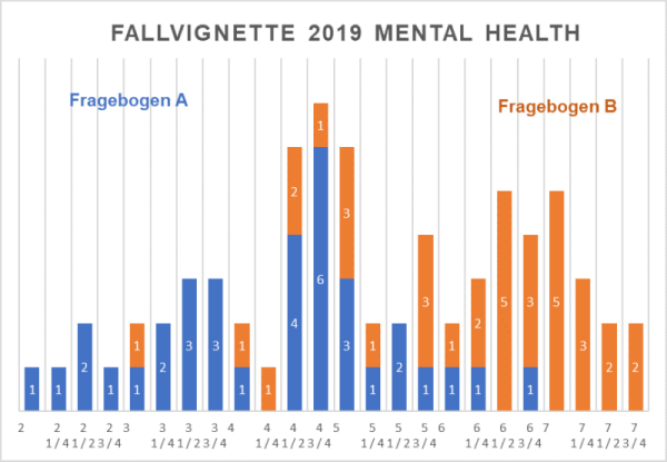
Introduction: PizolCare is a network of doctors in the south of the canton of St. Gallen offering MC patients integrated medical treatment along the entire treatment chain.
For this purpose, an educational training course for our partners of outpatient care (Spitex) and nursing home caregivers took place in 2004 for the first time and has been held annually since then. Care instructions for the five most relevant chronic diseases, crucial to a network of physicians with joint budget responsibility, have been developed: for heart failure, diabetes, COPD, mental health and end of life. In addition the respective patient treatment paths for the mentioned diseases were discussed in the doctors´ quality circles.
Methods: The training courses - carried out on these topics - comprised case vignettes, which had to be completed at the beginning and at end of the course for the purpose of a feedback loop.
We report on the results of the last four feedback loops on the occasion of the 17th PizolCare-outpatient care and nursing home ed-

ucation training course on "Palliative Care and Heart Failure" and compare them to those of the previous years.
Between 35 and 38 nursing professionals from outpatient care (Spitex) and nursing homes took part in the courses. Apart of the case vignettes, various further training sequences were held on the respective topics.

Results: The evaluation was based on a score depending on correctly answered questions. We compared the score-results before and after the training sequences:
- 2020, Heart Failure: 38 participants, before 205, after 311
- 2019, Mental Health: 35 participants, before 134, after 221
- 2018, End of Life: 38 participants, before 217, after 271
- 2017, Diabetes: 35 participants, before 172, after 241

The two charts below show how the answers clearly shifted in favor of the correct ones in the wake of the training courses.

Conclusions: We observed a significant learning success in caregiving professionals using feedback loops in educational training. In order to consolidate what had been learned, all participants were provided with a documentation on the topics. Since 2004, these documentations have been updated and made available to all caregiving professionals in our region. Simultaneous updating of the patient treatment pathways regarding the corresponding topics in the physicians quality circles ensures high medical quality in integrated care.



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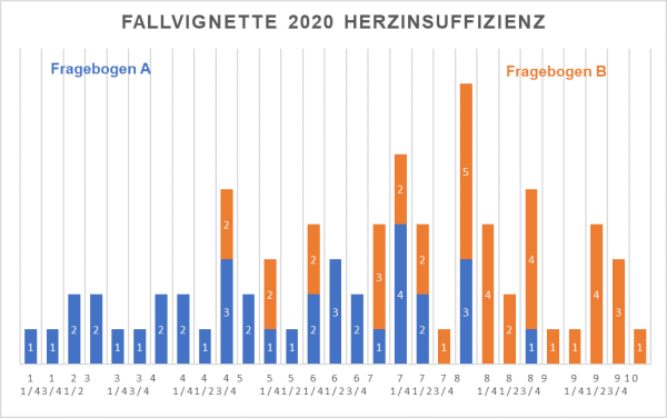

[Fallvignette 2020]

P47

General practitioners and practices characteristics related to frequency of attendance

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Introduction: A few patients consulting frequently can become a burden for general practicioners (GPs) by generating a high amount of workload. If some patient determinants are recurrently associated with frequent attendance, there is also evidence that the GP himself can influence the frequency of attendance of his patients. Finally, this raises the question whether the practice characteristics could also have an impact. The aim of this study was to investigate GPs and organizational practices' characteristics associated with frequency of attendance.

Methods: The data stemmed from an observational cross-sectional national survey, called SPAM Prev (Swiss Primary Health Care Active Monitoring, Prevention) conducted in 2015-2016 in Switzerland. 167 GPs and 1150 patients from the SPAM network of Swiss primary care physicians were included in the study. The GPs filled a self-administrated online questionnaire focused on the organization of their practices. The patients were recruited at the general practice and were given administrated-questionnaire by fieldworkers. Predictive factors of the number of visits were investigated using multilevel Poisson regression models.

Results: Negative associations with number of visits were found for female (IRR 0.94, 95% CI 0.88-1.01), less compliant patients (IRR 0.91, CI 0.84-0.98), those reporting a high self-perceived health status (IRR 0.8, CI 0.75-0.84)and those practicing physical activities (IRR 0.87, CI 0.81-0.94). Frequency of visits was higher among patients withsleeping problems (IRR 1.08, CI 0.96-1.23), moderate to severe psychological distress (IRR 1.66, CI 1.49-1.86), chronic disease (RR 1.27, CI 1.18-1.37) and treatment (IRR 1.24, CI 1.12-1.37), in particular anticoagulant (IRR 1.58, CI 1.45-1.71). Positive association with number of visits was found among physicians with higher (50h or more) number of hours working pro week (IRR 1.21, CI 1.01-1.46). Longer opening hours (> 8 hours/day) (IRR 0.88, CI 0.76-1.02) and the use of shared medical records (IRR 0.79, CI 0.67-0.92) were negatively associated with number of visits.

Conclusion: This work shows that patients characteristics as well as practice characteristics are predictive of consultation rates. Further investigations are needed to better understand the underlying mechanisms of those associations. These new findings could however already help to optimize intervention strategies and reduce the workload of GPs along with the health care costs.

P48

How should we intensify hypertension treatment in older adults: by maximizing dose, or by combining low-dose medications?

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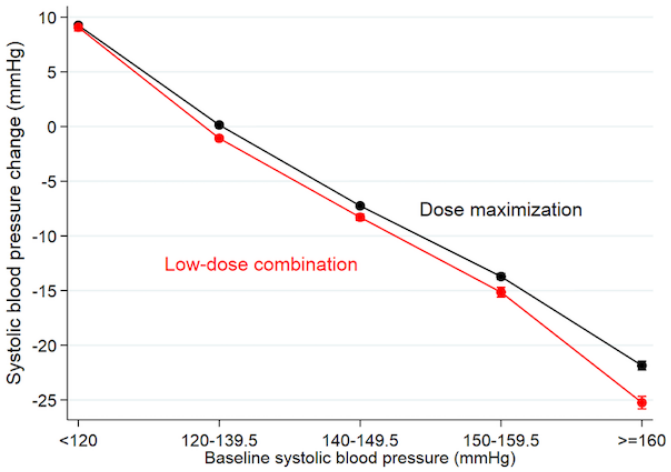
Introduction: Guidelines mention two strategies to intensify antihypertensive treatment: dose maximization, or combination of low-dose medications. Medications may have fewer adverse effects at low dose, however starting new medications increases the risk of medication-specific side effects and interactions, particularly in older adults. Since it is not clearly known which strategy is better, we compared how often each approach is used, their sustainability, and their effect on blood pressure.

Methods: In Veterans aged ≥65 years (2011-2013) taking ≥1 antihypertensive medication at less than the maximum dose (i.e., all had the opportunity for intensification by either approach), we determined medication count and standardized total doses using pharmacy fills. We defined dose maximization as an increase in dose without adding a new medication during 3 months after inclusion; low-dose combination as an increase in total dose that included a medication count increase. We assessed the two approaches in terms of: relative incidence, characteristics associated with use, sustainability of intensified treatment over the next 3 months, and effectiveness (decrease in systolic blood pressure [SBP] over 1 year).

Results: Among 308,108 patients, 69,685 (22.6%) had intensification by low-dose combination, and 238,423 (77.4%) by dose maximization. Low-dose combination was more likely with higher baseline SBP and specialty care and less likely with younger age, higher medication count, and geriatric primary care. Treatment intensity was more likely to be sustained for dose maximization (64.0% versus 50.7%, p< 0.001) with more frequent medication discontinua-

tions after low-dose combination (19.3% vs. 6.1%, p< 0.001). However, mean SBP was 1.2 mmHg lower (95%CI -1.3 to -1.0 mmHg; p< 0.001) for low-dose combination.



[Change in SBP between baseline and follow-up.]

Conclusion: Low-dose combination was less frequently used but associated with slightly lower SBP on subsequent follow-up. The more frequent discontinuation rate after low-dose combination is consistent with concerns that polypharmacy may lead to adverse effects. Older patients and those with mildly elevated SBP and less need for reduction in blood pressure may fare better with dose maximization. To define the benefit/risk ratio of the treatment approach would require evidence about long term clinical outcomes and adverse effects of the two strategies in older adults.

P49

Measuring accessibility to primary care: development of a new indicator

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Introduction: The number of general practitioners (GPs) per inhabitants, commonly used as indicator of primary care (PC) access, is rather approximate and reflect only imprecisely the true availability of GPs. The aim of this study is to develop a new indicator able to better reflect the time effectively available at population level to take care of patients: *the GPs' time availability per inhabitant.*

Methods: The data stem from the Commonwealth Fund International Health Policy Survey of Primary Care Physicians conducted in 2015, including 11 Western countries and 12049 randomly drawn GPs. We built an indicator combining two questions about the weekly workload in hours and the percentage of time spent on face-to-face contact with patients. The indicator was then extrapolated taking into account the number of GPs, number of weeks worked by year and the country's population size.

Results: On average, GPs worked 43 hours/week. Average time spent in direct face-to-face contacts with patients was 30.5 hours/week (35 hours when including emails and phone contacts), ranging from 22 hours in Sweden and 38 hours in France. Mean time available of GPs in face-to-face contact was 69 minutes/year/inhabitant, ranging from 38 minutes in Sweden to 118 minutes in Australia. Including email and telephone contact time, mean time was 79 minutes / year / inhabitant, ranging from 48 minutes in Sweden to 127 minutes in Australia.

Conclusion: This new indicator provides an accurate and sensitive estimate of the true availability of GPs' time at population level that could guide GPs workforce development. Results should be interpreted in the perspective of the overall PC workforce organization.

P50

More than "walking pneumonia" – macrolide resistant Mycoplasma pneumoniae infection

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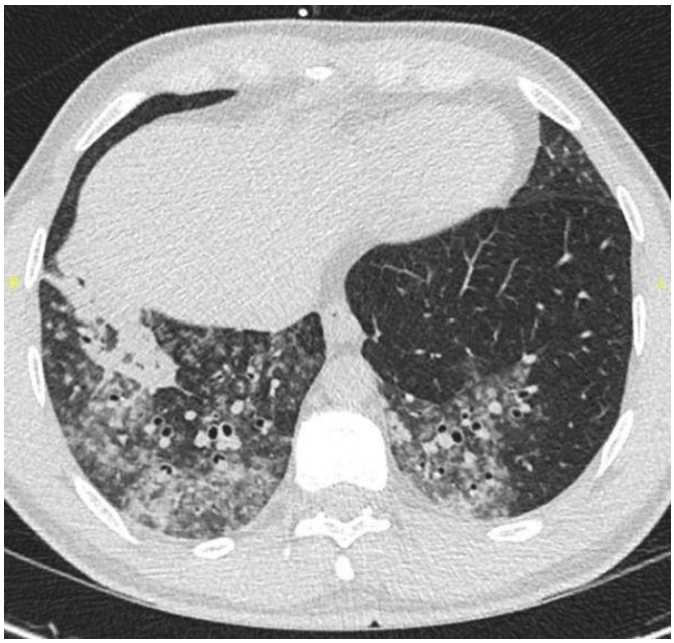
Learning objective: To consider the possibility of macrolide resistance in Mycoplasma pneumoniae community-acquired pneumonia, in particular in pretreated patients or persistent infection.

Case: A 39-year-old man presented to the emergency department (ED) because of recurrent lower respiratory tract infections (LRTI). About nine weeks earlier, his son and wife were both diagnosed with M. pneumoniae infection and were treated with clarithromycin. Five weeks ago, he presented to his general practitioner with cough and fever, and was also prescribed clarithromycin for 7 days. Neither he nor his family were staying outside Switzerland during the past months.
The patient recovered, but had a relapse four weeks later. Clarithromycin was again prescribed. After 3 days without improvement, he presented to our ED for the first time. C-reactive protein was elevated (80.4 mg/l), and a chest X-ray showed a consolidation in the right lower lobe. Routine microbiological work-up for typical bacterial pathogens, Legionella pneumophila and Influenza virus was negative. The patient was treated with intravenous amoxicillin/clavulanic acid (AMX/CLV) and discharged within 48 hours after improvement of his general condition on oral AMX/CLV.
Four days later, he returned to the ED with progressive dyspnea, cough and fever. A CT scan of the chest showed bilateral consolidations (Figure 1). Given the history of M. pneumoniae infection in his family, a respiratory PCR panel was performed from a nasopharyngeal swab and was positive for M. pneumoniae. Treatment was changed to doxycycline to cover for suspected macrolide resistant infection.
The patient recovered quickly and was discharged after 3 days. Subsequently, a mutation in the 23S rRNA gene of the respective M. pneumoniae strain was detected, which corresponds to high-level macrolide resistance.



[Figure 1]

Discussion: M. pneumoniae community-acquired pneumonia has been described as "walking pneumonia" due to its mild course, however severe cases have been reported. The use of macrolide antibiotics as first line treatment has been recently challenged due to increasing resistance rates, which may be related to the widespread use of macrolids in Switzerland. Recent data from Switzerland indicate a macrolid resistance rate of at least 9%. It is therefore important to suspect macrolide resistance in pretreated patients or persistent M. pneumoniae LRTI and to consider alternative treatment options in adults such as doxycycline.

P51

Observational results of oropharyngeal swab tests for COVID-19 outpatients in Switzerland: a case series

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Introduction: The coronavirus disease 2019 (COVID-19) occurs with various clinical pictures (range from asymptomatic to very severe) and its course differs in outpatients at the beginning of the disease to those during hospitalization at a later stage. In this retrospective study we focused for the count of leucocytes.

Methods: We tested 1´453 patients by oropharyngeal polymerase chain reaction swab tests of which 3 groups can be stratified: 1. staff and residents of nursing homes where most were asymptomatic (n=900), 2. symptomatic outpatients who were assigned by their family doctors after a telephone evaluation (n=190), and 3. outpatients connected to our doctor´s offices where most patients' blood was withdrawn to test for inflammatory markers (n=363).

Results: Overall, 60 out of 1´453 patients were tested positive for COVID-19 (4.13 %). The positive testing within the groups were the following: (1): 9/900=1 %, (2): 16/190=8.42 % and (3): 35/363=9.64 %. 5 out of the 35 followed-up patients were hospitalized (14.3 %), 35/60=58.3 % were female, age range 0.1-99 years (interquartile range 29.3, 47, 56.6).
In addition, blood samples, available for 31 patients, have been analyzed: 11 patients (35.5 %) showed leukopenia, 4 (12.9 %) lymphocytopenia, 3 (9.68 %) lymphocytosis, 3 (9.68 %) thrombocytopenia, 1 (3.23 %) thrombocytosis and 5 (16.1 %) C-reactive protein>20 mg/L.

Conclusions: In contrast to what is known from hospitalized patients, none of our outpatients (n=31) showed leukocytosis.

P52

Personalized medicine and chronic disease prevention: perceptions, expectations and needs of patients and general practitioners

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Introduction: Personalized medicine is based on individual's genetic data. Used mainly in oncology, it allows better targeting of treatments. Considering the prevalence of chronic diseases, this medicine could be used in primary care to optimize prevention and early diagnosis. Our qualitative study investigated the representations of general practitioners and their patients facing this new technology. Our study is part of a project including a questionnaire to randomly selected patients in general practice and a delphi process with general practitioners establishing recommendations.

Methods: 20 in-depth interviews were conducted with 10 general practitioners and 10 of their patients. The purposive sampling took into account the doctor's age, sex, and place of practice (rural/urban). Each doctor was asked to find a patient of the same age and sex. Interviews were conducted by an anthropologist and a general practitioner. Beginning with an open-ended question about the knowledge of the topic, some examples were given to initiate the discussion (direct access to genetic card, general consent, etc.) about advantages and risks. Using the grounded theory method, the analysis consisted of open coding by 2 coders, followed by axial coding releasing pairs of properties to lead to a selective coding discussed in common.

Results: Personalized medicine is not well known to our interlocutors. They understand either person-centered medicine and therapeutic relationship, or medicine open to innovation, genetics being on the same level as alternative medicine. For those who value the relationship, the risks of innovation must be clearly considered: discriminations, loss of confidentiality, generation of anxiety, "fast-food" medicine and over-medicalization. The needs they define are those of regulation. Those who integrate progress and want to remain open to all the resources, put the advantages forward: better understanding of the disease, better anticipation of risks, better targeting of treatments. They mainly define research and training needs. Some describe a relationship where the general practitioner has a mediating role as opposed to a direct-to-consumer model where patients deal directly with the provider.

Conclusions: Should general practitioners play a greater role in evaluating future technologies? Qualitative methods bring added value to anticipate the introduction of future technologies (early detection and horizon scanning).

P53

Prevention status and perspectives of osteoporosis in Switzerland

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Introduction: Bone fractures affect patients' quality of life and have a high financial impact on the health care system. Although previous research has shown osteoporosis to be underdiagnosed and undertreated in parts of the Swiss patient population, current prevention status and risk factors, particularly with patients of general practitioners (GPs), remained uninvestigated. Our recent nationwide survey therefore included these topics.

Methods: The physician and patient questionnaire designed specifically for our survey covered various aspects of prevention, diagnosis and treatment of osteoporosis. Questionnaires were distributed to specialists in general medicine, rheumatology, endocrinology and gynecology across Switzerland, in the language of each region. Completed questionnaires were collected within a one-week period and analyzed by an independent biometric institute.

Results: 64.9% of surveyed physicians were GPs (n = 170), accounting for 65.9% of patients (n = 5970). While most GPs (65.9%) reported treating less than 20% of patients with osteoporosis, nearly 1/3 indicated having 20-50% of osteoporosis patients in their practice. Rated importance of osteoporosis for daily practice was accordingly high. Most GPs base their decision on an osteoporosis check on clinical criteria (87.1%), followed by screening (62.9%) and nutrition deficit (58.8%). However, half of GPs also consider patient initiative. More than 4/5 of GPs prescribe supplements when calcium/vitamin D are in deficit, and around 3/5 for a nutrition deficit and/or as complementary treatment. GPs' patients display various risk factors for osteoporosis regarding their nutrition and lifestyle. Although only a minority are on a diet (12.1%), most do not consume more than 7 portions of certain major sources of calcium. 37.6% of GPs' patients exercise 1-2x/week, and almost 1/5 do not exercise at all. Minority of this patient population is further affected by smoking (18.8%) and/or elevated alcohol intake (13.0%). 2/5 of GPs' patients take calcium and/or vitamin D supplements. 3.4% with atraumatic fractures and 6% on osteoporosis treatment have manifested osteoporosis.

Conclusions: Our data highlight the current status of osteoporosis risk factors and prevention in the Swiss patient population. GPs provide a critical contribution to the ongoing prevention and management of osteoporosis. Awareness of osteoporosis among GPs and their patients is thus crucial for any future health care endeavors.

P54

Scope of activities provided by nurses in general practitioners practices along a pilot implementation project in the canton of Vaud

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Introduction: In collaboration with general practitioners (GPs) and canton of Vaud's public health authorities, the Department of Family Medicine (Unisanté) developed a new organizational model in GPs' practices including primary care nursing activities to ensure better care coordination and to provide adapted care according to patients' needs. In July 2019, a two-year pilot implementation

study has begun in eight GPs' practices in the canton of Vaud. Hence, we aimed to describe the scope of nursing activities and their respective financing opportunities.

Method and analysis: The main source of data on nurses' activities is a web application (on HTTPS, PHP framework Laravel) developed specifically for the project. It consists of a pre-established list of activities with the GPs and nurses involved in the pilot project. Nurses recorded the activities performed, their duration and the tariff heading of the federal legislation *"Ordonnance sur les prestations de l'assurance des soins"* (OPAS). To describe nurses' activities and mock tariff heading used, we use standard descriptive statistics.

Results: 11 060 activities were provided by 5.1 full time equivalent nurses to 1597 patients during 10.5 months of the pilot project. The median duration of the activities was 20 minutes (2-500). One nurse cared daily for a median number of 22 patients. The scope (and dedicated time) of activities varied between the eight practices. Depending on the practice, 23% to 75% of the activities were performed for patients with chronic conditions according to a care plan, such as care coordination, therapeutic education, secondary and tertiary prevention. 20% to 67% of the activities were carried out for patients without care plan, such as small emergencies, primary prevention and punctual clinical care. The nurses could bill 57% of coordination activities and 75% of clinical activities with care plan. 67% of the clinical activities without care plan were potentially billed.

Conclusion: Some of the nurses mainly implemented activities for chronic patients with care plan, while others carried out more activities for patients without care plan. With the current tariff system (OPAS), the nurses could not bill all the care deliveries performed.

P55

Symptoms and symptom clusters associated with positive and negative SARS-CoV-2 nasopharyngeal swabs: a network analysis of outpatients from the general population

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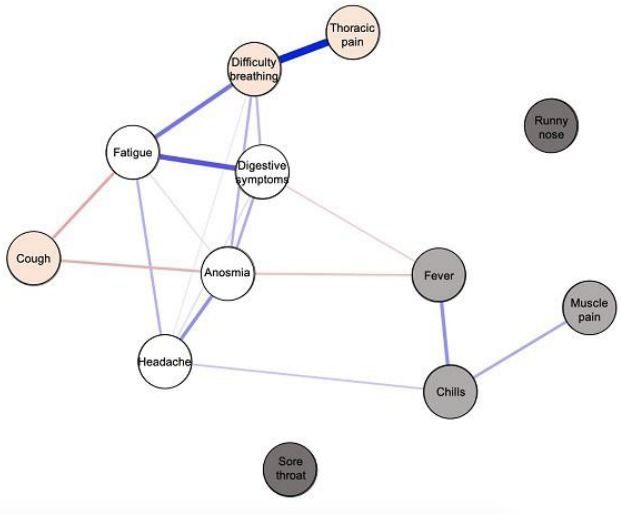
Introduction: The COVID-19 comprise a wide range of symptoms. At the beginning, the focus has primarily been on describing clinical symptoms amongst hospitalized patients, which include respiratory symptoms and fever associated with myalgia and fatigue. Then the set of symptoms outlined by the WHO (World Health Organization) for COVID-19 case definition has changed to reflect the spectrum of COVID-19 reported symptoms, including non-respiratory manifestations, such as loss of smell and taste, neurological symptoms, ocular manifestations, and dermatologic signs. Studies analyzing the early clinical symptoms as risk factors for testing positive for SARS-CoV-2 in an outpatient setting are sparse. Recently efforts have been done to find more specific symptoms and association of symptoms. This study aims to identify early outpatient clinical symptoms predictive of either a positive or negative SARS-CoV-2 test by RT-PCR using nasopharyngeal swabs among a large cohort of outpatients presenting with mild-to-moderate symptoms. In addition, we presented how symptoms clustered together among SARS-CoV-2 infected patients (Fig1).

Methods: We included all individuals consulting for a suspicion of SARS-CoV-2 infection in University Hospitals of Geneva from March 2, 2020 to April 23, 2020. All outpatients were asked to complete a questionnaire upon admission. The questionnaire collated information on medical and sociodemographic factors: clinical symptoms and onset, common treatments, comorbidities, risk factors for more severe illness, age, gender, and social determinants.

Results: We included 3.248 patients, among these 3.166 (97.5%) came only once, median age was 42.17 years old +/-14.78, 46.3% were men. The infection rate was 21.9% (n=712). The multivariate analysis suggested that predictive symptoms for a positive SARS-CoV-2 were anosmia with an odds ratio (OR) of 5.85, then fever (OR=1.96), muscle pain (OR=1.71), and couch (OR=1.53). We identifed three clusters, one including chills, fever and muscle pain, another : cough, difficulty breathing and thoracic pain and a third : abdominal pain, anosmia, headache and fatigue are clustered. Sore throat was not related to other symptoms.

Conclusions: This study permit to raise awareness on early symptoms predictive and not predictive of a positive RT-PCR. It shows that the disease could present different forms, with some symptoms not likely to occur together.



[Fig1, cluster of symptoms]

P56

The effect of COVID-19 on mental well-being in Switzerland: a cross-sectional survey of the adult Swiss general population

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Background: The COVID-19 pandemic entails a threat to the physical and the mental health. The aim of this study was to assess the prevalence of impaired mental well-being due to COVID-19 and explore associated factors.

Methods: The study was an observational, population-based, nationwide, cross-sectional online survey of a representative sample of the general Swiss population between April 28th and May 7th, 2020. Participants reported on mental well-being, self-isolation/quarantine, risk for severe COVID-19 and work situation. Multivariable logistic regression analyses assessed risk factors of impaired mental well-being due to the pandemic.

Results: Data from 1022 individuals were analysed. The median age was 44 years (range 18 to 78) and 49% were women. A third of respondents reported that COVID-19 pandemic impaired their mental well-being and almost half reported specific mental health concerns. Impaired mental well-being was associated with having health problems (OR = 1.84, 95% CIs: 1.26-2.68, P = 0.002, vs no problems), being or living with someone at risk for severe COVID-19 (OR = 1.47, 95% CIs: 1.06-2.02, P = 0.02), smoking (OR = 1.75, 95% CIs: 1.21-2.54, P = 0.003), living in urban residential environments (OR = 1.63, 95% CIs: 1.14-2.33, P = 0.008, vs rural), not being able to work due to closed workplace (OR = 1.66, 95% CIs: 1.04-2.66, P = 0.35), being younger (OR = 0.8, 95% CIs: 0.72-0.89, P < 0.001, per 10 years increase), and living in a single household (living with someone, OR = 0.63, 95% CIs: 0.42-0.95, P = 0.026 vs single household). Overall, the best predictors for impaired mental well-being were to report specific mental health concerns: feeling lonely (OR = 4.11, 95% Cis: 2.56-6.6, P < 0.001), feeling anxious (OR = 6.08, 95% CIs: 3.89-9.5, P < 0.001), feeling depressed (OR = 7.11, 95% CIs: 4.43-11.41, P < 0.001), and feeling less pleasure in doing things than before (Or = 6.29, 95% CIs: 4.11-9.65, P< 0.001).

Conclusion: We highlight population subgroups with highest impaired mental well-being due to COVID-19, who would be in need of special attention. Namely those at risk for severe symptoms and those reporting specific mental health concerns.

P57

The impact of the residence status regularization on access to healthcare for undocumented migrants in Switzerland: a panel study

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Background: Switzerland has a universal healthcare system. Yet, undocumented migrants face barriers at different levels that hinder their access to health services. The aims of this study are to identify barriers at the undocumented migrants' level and to assess whether the regularization of the residence status improves their healthcare utilization.

Methods: We used two-wave panel data collected at one-year intervals from the Parchemins study, a multidisciplinary study taking place in Geneva and evaluating the impact of regularization on undocumented migrants' health and well-being. The sample consisted of undocumented migrants living in Geneva for at least 3 years. We categorized them into two groups according to their status at baseline: those who had been newly regularized (< 3 months) vs. those ineligible/unwilling to apply for regularization. Using the number of medical consultations over the past 12 months to measure healthcare utilization, we conducted multivariable regression analyses to identify impeding factors. In a second step, we estimated first-difference panel models to assess change in healthcare utilization due to regularization. Models were adjusted for demographic characteristics and health-related variables.

Preliminary results: Of the 310 participants, 68 (22%) belonged to the regularized group and 111 (36%) suffered from comorbidity at the beginning of the follow-up. At baseline, significant factors hindering healthcare utilization included male gender (Risk ratio: 0.62; 95% confidence interval: 0.46-0.85) and not having a regular family doctor (RR: 0.67, 95% CI: 0.52-0.86). Prior to regularization, migrants in the regularized group did not significantly differ from undocumented ones in terms of healthcare utilization (RR: 0.94; 95% CI: 0.71-1.25). However, after regularization, they were more likely to consult than those who remained undocumented (RR: 1.65; 95% CI: 1.23-2.21), suggesting a positive impact of regularization on healthcare utilization. Results from the first-difference panel models seemed to confirm that residence status regularization might have driven migrants' healthcare utilization (β coefficient: 1.00; 95% CI: 0.29-1.79).

Conclusions: Public policies aiming at granting undocumented migrants residence permits might improve healthcare utilization for this population. More research is needed to understand the mechanisms through which regularization improves undocumented migrants' use of healthcare services.

P58

The Roles of nurses in family medicine practices during the first wave of the CoVID-19 pandemic, the example of pilot project MOCCA in the canton of Vaud

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Introduction: Since 2019, the Department of family medicine of Unisante in Lausanne is implementing a new model of organization in family medicine (FM) practices in the canton of Vaud, the Mocca pilot project. The model consists in the integration of nurses' activities in FM practices to improve continuity and coordination of care, develop prevention services and to improve the management of social determinants of health. In the pandemic context, these nurses had to adapt to new roles. The aim of this study is to describe the activities and plus-value of nurses in family medicine practices during the first wave of the CoVID-19 pandemic (March -June 2020),

Methods: This study has been nested in the pilot project Mocca which includes eight GPs' practices in the Canton of Vaud for two years. We used a web application and an online survey using RED-Cap software. The nurses were asked to complete the survey and the web application every workday. We described the distribution of activities and the distribution of roles into the practices, divided into two periods: activities restricted to emergency (p 1) and unrestricted activities (p 2).

Results: During the period 1, the main CoVID-19 activities performed by all the nurses during the period 1 were: the declaration of suspected cases and confirmed CoVID-19 cases (10%), the implementations of measures pandemic (5.7%), the telephone triage (38.6%), the follow-up of patients (21.6%) and the implementation of guidelines (24%). During the first period, all the nurses devoted their entire time to manage the crisis at the practices. The results have highlighted contrasting situations on distribution of activities e.g. the distribution of calls between nurses, medical assistant and GPs (min 20.3%-max 48.5%). The time in period 2 dedicated to the crisis by the nurses varied from one practice to another (min 6.7%-max 48.5%). Almost half nurses have carried out COVID-19 testing. In contrast, some nurses did not participate COVID-19 testing.

Conclusion: FM nurses have a key role to play in the response of pandemic situation. During the first Covid-19 wave, this workforce, was able to demonstrate an autonomous and multifaceted role by quickly adapting and supporting activities the GP's.

P59

Undocumented migrants' use of social media to access to health information

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Introduction: Undocumented migrants (UM) face barriers to access to care. Social media (SM) like YouTube, Facebook and Whatsapp are channels to access to health information. We aimed to explore UM's knowledge, attitude and practice about SM utilization in the health domain.

Methods: This pilot cross-sectional study was conducted among a convenient sample of UM patients at the division of primary care medicine of the Geneva University Hospital in 2018. After obtaining informed consent, we collected data face-to-face using an electronic multi-lingual questionnaire.

Results: We enrolled 142 participants, 121 (85.2%) of whom completed the questionnaire. They were mainly middle-aged (39 +/- 19 years) women (74%) from Latin America (73%) with secondary or higher education (76%). Most (91%) used their mobile phone to access to internet and 56% consulted SM about health issues. SM were consulted for general health information (87%), specific health conditions (66%) and medication (51%). A majority (70%) used SM in relation to a specific consultation which enhanced trust with health professionals. A minority (32%) seeked support from the community of users affected by a similar condition. Patients were generally satisfied with the quality of the information available on internet, which 80% of them found useful. On the other hand, only 48% found it reliable and reassuring.
Overall, SM were perceived as a good way to connect with people having the same conditions (59%), for being free of charge (55%) and to improve the self-management of one´s health problems (50%). Most (76%) supported the creation of e-content by health professionals and healthcare institutions and showed interest in communicating with their doctors through SM.

Conclusion: This study highlights the frequent use of SM to access to health information via mobile phones among UM. This strategy is appreciated by patients and seems to increase trust in their doctor. Patients' interest in developing interactions with health professionals through SM supports the development of e-content and of clinical interactions aiming to improve health self-management and literacy.

P60

Use of once-weekly semaglutide in patients with type 2 diabetes: real-world data from the SURE Switzerland prospective, observational study

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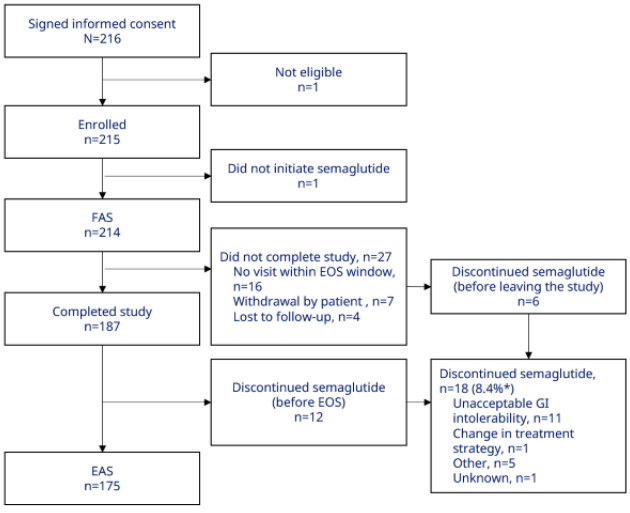
Introduction: Once-weekly (OW) subcutaneous semaglutide, a glucagon-like peptide-1 receptor agonist (GLP-1RA) approved for type 2 diabetes (T2D) treatment, demonstrated clinically relevant and superior HbA_{1c} and body weight (BW) reductions vs placebo and active comparators in the SUSTAIN clinical trials. Non-interventional studies can provide insights into real-world therapy use in clinical practice. SURE Switzerland, a multicentre, prospective, non-interventional study investigating the real-world use of OW semaglutide, was conducted to complement findings from the SUSTAIN trials.

Methods: Patients (pts; ≥18 years) with T2D in routine clinical practice with ≥1 documented HbA_{1c} value ≤12 weeks before semaglutide initiation were enrolled. Semaglutide and any additional antihyperglycaemic drugs were prescribed at the treating physician's discretion. Change in HbA_{1c} from baseline (BL) to end of study (EOS; ~30 weeks; primary endpoint) and change in BW from BL to EOS are reported for pts who completed the study on treatment with semaglutide in both the overall study population and (*post hoc* analysis) pts not receiving another GLP-1RA at BL. Also reported are the proportions of pts achieving the composite endpoint of a ≥1%-point HbA_{1c} reduction and ≥3% BW reduction in the overall population and (*post hoc* analysis) in those with HbA_{1c} >7% at BL.

Results: Of 214 pts initiating semaglutide (Figure 1; mean BL age 60.2 years, duration of diabetes 11.0 years, HbA_{1c} 7.8%, BW 99.9 kg and body mass index 34.6 kg/m^2), 166 (77.6%) were not receiving another GLP-1RA at BL. Of 187 pts attending the EOS visit, 175 (93.6%) were still receiving semaglutide, of whom 133 were not receiving another GLP-1RA at BL. Significant mean reductions in HbA_{1c} (0.8%-points [95% CI: -1.01;-0.68]) and BW (5.0 kg [-5.73;-4.24]) were observed from BL to EOS (both p< 0.0001); reductions were also significant in pts not receiving another GLP-1RA at BL (HbA_{1c} 0.9%-points [-1.10;-0.71], BW 5.5 kg [-6.33;-4.59]; both p< 0.0001) and were numerically greater than those observed in the overall population (Figure 2). In the overall population, 52 pts (30.6%) achieved a ≥1%-point HbA_{1c} reduction and ≥3% BW reduction from BL to EOS; of pts with BL HbA_{1c} >7%, 49 (42.6%) achieved the same composite endpoint.

Figure 1: Patient disposition in SURE Switzerland

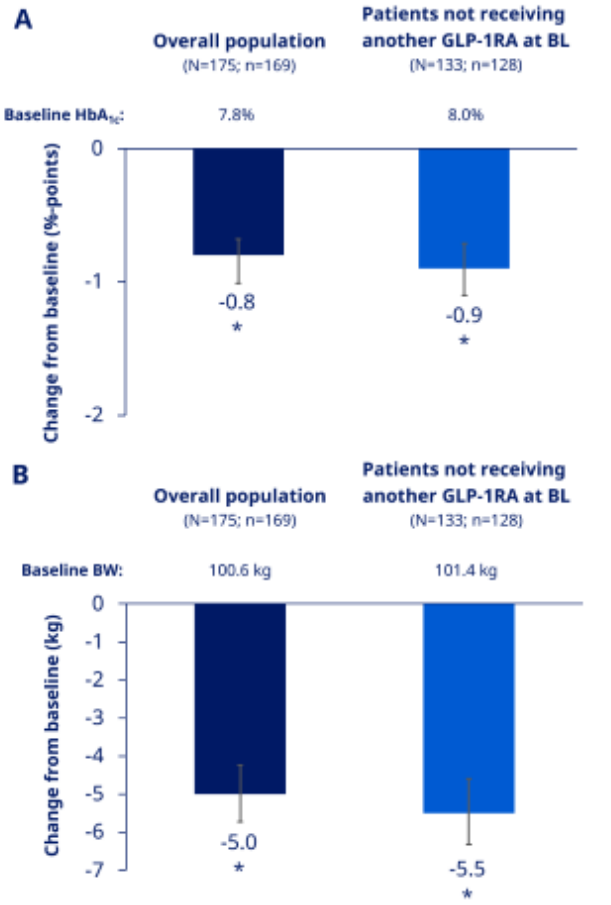


*Percentage of FAS who discontinued semaglutide.
'Completed study' defined as patients who attended the EOS visit.
EAS, effectiveness analysis set; EOS, end of study; FAS, full analysis set; GI, gastrointestinal.

[Figure 1]

Conclusions: Pts with T2D initiating OW semaglutide in the SURE Switzerland study, including pts not receiving another GLP-1RA at BL, experienced clinically significant mean reductions in HbA_{1c} and BW.

Figure 2: Change from baseline to end of study in HbA_{1c} (A) and body weight (B)



*P<0.0001 for change from baseline to EOS. Error bars indicate 95% CI.
Change in HbA_{1c} and change in BW were analysed using an analysis of covariance model with baseline HbA_{1c} (A only), body weight (B only), diabetes duration, age, BMI, pre-initiation use of GLP-1RA (yes/no), pre-initiation use of DPP-4i (yes/no), pre-initiation use of insulin (yes/no), number of OADs used pre-initiation (0–1/2+) and sex as covariates.
BL, baseline; BMI, body mass index; BW, body weight; CI, confidence interval; DPP-4i, dipeptidyl peptidase-4 inhibitor; EOS, end of study; GLP-1RA, glucagon-like peptide-1 receptor agonist; N, total number of patients completing the study and still treated with semaglutide at the EOS visit; n, total number of patients included in the analysis (patients for whom information on endpoint and covariates was available); OAD, oral antidiabetes drug.

[Figure 2]

P61

Use of the Flu-Fast-Track form in the treatment of uncomplicated viral infections in primary health care: focus on cost-efficiency

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Introduction: The Flu-Fast-Track form is a cost-reducing approach in the outpatient setting. It was developed to quickly identify patients with viral infections and to treat them without direct physician contact. Patients with symptoms common for viral infections are questioned by the MPA using the FFT-form. The form is then shown to the doctor. Based on this information he decides whether or not he still needs to examine the patient himself or if symptomatic treatment can be initiated without further examination. The study examines the form's cost efficiency in primary health care.

Method: Data was collected during the flu season of 2016/2017 in the PizolCare Wartau practice, Trübbach SG. The total costs of the respective treatments were calculated and an index patient was

created to represent a comparative value of usual treatment. The patients were divided into 3 categories based on the outcome of the FFT-Form: "completed without consultation", "completed with consultation" and "not completed with follow-up consultation".

Results: A total of 98 patients (mean age: 37y) were treated by the FFT-procedure. Compared to the index patient, the first category (60 patients) showed cost savings of 30.35 %.The second (29 patients) showed a cost reduction of 2.64 % and the third (9 patients) depicted a cost increase of 77.15 %. However, this is only the case if the second consultation is considered to be the fault of the FFT-procedure. If the follow-up consultation is considered inevitable and therefore accounted for in the index patient, the third category shows a cost reduction of 11.43 %. If the overall data is compared with the index patient, including all categories, savings of 11.72 % - 18.75 % do result.

Discussion: In order to further confirm these statements individual differences in billing would have to be taken into account. There are limitations in the use of the FFT-form, e.g. in relation to its application to high-risk patients. Thus, depending on the patient population and comorbidities, the procedure may not be applicable in all practices. However, the data shows that there is great potential in the FFT-procedure if it were to be widely used, as it can lead to significant cost reductions in healthcare during the flu season.

Conclusions: The FFT-form was able to prove its cost efficiency in the small-scale economic framework of a medical practice through a significant saving of 11.72 % - 18.75 %. The use of the procedure also shows some operational advantages.

P62

What are the prevalences and determinants of influenza and pneumococcal vaccination among European multimorbid older patients?

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Introduction: Older adults with chronic conditions are at high risk of complications from influenza and pneumococcal infections. Despite previous data suggesting suboptimal vaccination rates, evidence about factors associated with vaccination among older multimorbid persons in Europe is limited. We aimed to assess the prevalence and determinants of influenza and pneumococcal vaccination in this population.

Methods: We used baseline data from the OPERAM ("Optimising PharmacothERapy in the Multimorbid elderly") trial. Multimorbid (≥ 3 chronic diseases) patients aged ≥70 years with polypharmacy (n=2008) were enrolled in 4 European hospitals (Switzerland, Belgium, The Netherlands, and Ireland). Data on vaccinations, demographics, health care contacts, and comorbidities were obtained from self-report, general practitioners (GPs), and medical records. The association of comorbidities or health care contacts with vaccination status was assessed using log-binomial regression models clustered by study sites and adjusted for age, sex, race, education level, alcohol use, and smoking status.

Results: Among the 1956 multimorbid patients with available influenza vaccination data (median age 79 years, 45% women), 67% (n=1,314) received an influenza vaccination within the last year. Of 1400 patients with available pneumococcal vaccination data (median age 79 years, 46% women), the overall prevalence of pneumococcal vaccination was 21% (n=291). The prevalence remained low in high-risk populations with chronic respiratory disease (34%), immunosuppression (27%), or chronic heart disease (19%), but increased with an increasing number of GP visits (7.2% with 0 vs. 25.4% with ≥5 visits within the last 6 months).
Chronic respiratory disease and diabetes was independently associated with the receipt of both influenza and pneumococcal vaccinations. An independent association was found between number of GP visits and pneumococcal vaccinations (p for linear trend < 0.001; Table), as well as other outpatient physician or emergency department visits and influenza vaccinations.
Conclusions: Uptake of influenza and pneumococcal vaccination in this European multimorbid older population remains insufficient and is determined by comorbidities as well as number and type of health care contacts, especially GP visits. Further efforts are needed to increase vaccination rates, particularly targeting patients with few outpatient physician contacts.

Characteristic		adjusted PR*	95% CI	p for trend #	adjusted PR*	95% CI	p for trend #
		Influenza Vaccination			Pneumococcal Vaccination		
Chronic respiratory disease		1.09	1.03-1.16		2.03	1.22-3.40	
Chronic kidney disease		1.12	1.08-1.17		1.07	0.81-1.42	
Diabetes mellitus		1.06	1.03-1.08		1.24	1.16-1.34	
Any Malignancy§		1.04	0.99-1.09		1.18	0.92-1.50	
Chronic heart disease		0.99	0.96-1.03		0.81	0.63-1.03	
Immunosuppression		0.97	0.85-1.12		1.29	1.03-1.61	
Health care contacts †							
GP visits, n	0	*Reference*			*Reference*		
	1-2	1.08	0.86-1.37	0.16	2.29	1.59-3.31	<0.001
	3-4	1.08	0.92-1.28		2.88	2.75-3.02	
	≥5	1.21	0.91-1.61		3.41	2.74-4.24	
Other outpatient physician or ED visits, n	0	*Reference*			*Reference*		
	1-2	1.12	1.02-1.22	0.027	1.07	0.64-1.78	0.47
	≥3	1.12	1.01-1.24		1.42	0.54-3.72	
Hospitalisations, n	0	*Reference*			*Reference*		
	1	1.05	0.98-1.12	0.67	0.92	0.82-1.03	0.88
	≥2	0.98	0.92-1.06		1.02	0.80-1.30	
Receipt of informal care §		1.19	0.97-1.29		1.34	0.73-2.44	
Nursing home residency		1.03	0.93-1.14		0.99	0.65-1.50	

Abbreviations: CI, confidence interval; ED, emergency department; GP, general practitioner; PR, prevalence ratio
* adjusted for age, sex, race, education level, alcohol use and smoking status
# p-value for linear trend across categories
§ Except malignant neoplasm of skin
† Health care contacts refer to hospitalisations within 12 months, or GP visits, ED or outpatient clinic/specialist visits, or receipt of informal care within 6 months prior to the baseline visit
§ defined as care received by relatives or other close persons

[Table. Independent association of Chronic Health Conditions and Health Care Contacts with Receipt of Influenza and Pneumococcal Vaccination]

P63

What factors are associated with hyperpolypharmacy in multimorbid older patients?

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Introduction: Hyperpolypharmacy (HPP) is defined as ≥10 concurrent medications. Appropriate medication can treat disease and relieve symptoms. Yet as the number of medications increase, so does the risk for potentially inappropriate prescribing, which may lead to adverse events. Due to limited evidence on determinants of HPP, we aimed to identify the risk factors of HPP in the vulnerable population of multimorbid older inpatients.

Methods: We used baseline data from the OPERAM ("Optimising PharmacothERapy in the Multimorbid elderly") trial conducted in 4 European centers. Inpatients aged ≥70 years were enrolled if they had ≥3 comorbidities and ≥5 chronic medications. Data on demographics, clinical characteristics, number/type of medications and health care contacts were collected. We dichotomized participants into 2 groups: < 10 vs. ≥10 chronic medications (i.e. HPP). Risk factors associated with HPP were identified using multivariate logistic regression adjusted for age and sex.

Results: Of 2005 patients with data on the number of medications, 986 (48.3%) had HPP, with a median number of 12 medications (vs. 7 in the non-HPP group). Compared to those with < 10 medications, patients with HPP were of similar age (median 79 years), more likely to be female (48.4% vs. 41.0%), and had more chronic dis-

eases (median 12 vs. 10). The following factors were found to be associated with HPP (Table): female sex (odds ratio [OR] 1.35, 95% confidence interval [CI] 1.13-1.61), overweight (OR 1.34, 95%CI 1.10-1.63 for a BMI ≥25 vs. 18-25 kg/m^2), >1 fall in the last year (OR 1.59, 95%CI 1.26-2.00), nursing home residence (OR 2.59, 95%CI 1.87-3.59), ≥1 hospitalization (OR 1.99, 95%CI 1.66-2.38) or ≥1 specialist/emergency department (ED) contact (OR 1.44, 95%CI 1.19-1.74) in the last year, a higher level of dependence (OR 2.49, 95%CI 1.41-4.41 for total dependency vs. independency) and a greater number of comorbidities (OR 1.06, 95%CI 1.05-1.08 per additional disease). Alcohol consumption (OR 0.49, 95%CI 0.34-0.70) and a higher education (OR 0.54, 95%CI 0.42-0.69) were associated with lower odds of HPP.

Conclusion: HPP was highly prevalent in our study population and associated with factors such as nursing home residence and number of diseases. Patients identified with these potential risk factors for HPP and in particular recent hospitalizations or specialist/ED visits should prompt general practitioners to screen medication lists for potentially inappropriate drugs.

Table: Factors associated with hyperpolypharmacy[1]

Variable	OR	95% conf. interval	P-value
Age	1.00	0.99 – 1.02	0.781
Female sex	1.35	1.13 – 1.61	**0.001**
BMI			0.063*
- 18-25	Reference		
- <18	0.79	0.45 – 1.38	0.409
- ≥25	1.34	1.10 – 1.63	**0.004**
Alcohol consumption			
- None	Reference		**<0.001***
- Moderate drinker	0.78	0.64 – 0.95	
- Heavy drinker	0.49	0.34 – 0.70	
Active smoking	1.02	0.73 – 1.41	0.927
Falls[2]			
- 0	Reference		**<0.001***
- 1	1.07	0.84 – 1.35	
- >1	1.59	1.26 – 2.00	
Education level			
- less than high school	Reference		**<0.001***
- High school	0.79	0.64 – 0.98	
- University	0.54	0.42 – 0.69	
Number of Comorbidities[3]	1.06	1.05 – 1.08	**<0.001**
Charlson Comorbidity Index			
- 0	Reference		**<0.001***
- 1-3	1.58	1.19 – 2.08	
- >=4	3.07	2.27 – 4.16	
Barthel's Index			
- Independent	Reference		**0.001***
- Moderate dependency	1.82	1.49 – 2.23	
- Severe dependency	2.01	1.51 – 2.68	
- Total dependency	2.49	1.41 – 4.41	
Hospitalisations[4]	1.99	1.66 – 2.38	**<0.001**
GP contact[4]	1.24	0.87 – 1.76	0.232
Specialist/ED contact[4]	1.44	1.19 – 1.74	**<0.001**
Nursing home residence	2.59	1.87 – 3.59	**<0.001**

Legend: BMI, body mass index; ED, emergency department; GP, general practitioner; OR, odds ratio.

* p-value for trend
[1] results from a multivariable logistic regression model adjusted for age and sex
[2] number of falls in the last year
[3] OR per additional disease
[4] at least one contact in the last year

[Table]

Hospital medicine

P64

1000x Factor V Leiden analysis: history, prothrombotic cofactors, decision making and treatment

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Introduction: Resistance to activated Protein C is mostly caused by a point mutation (R506Q) in coagulation factor V (Factor V Leiden, FVL), and represents the most common inherited prothrombotic disorder in the Caucasian population, leading to a 4-fold increased thrombotic risk in heterozygous and 30-fold in homozygous individuals. We aimed to characterize patients assessed for FVL in light of the current guidelines.

Methods: We evaluated 918 consecutive patients (pts) aged >18 years who underwent testing for FVL at our hospital between January 2014 until December 2019. If tested positive, pts were assessed including genetic profiles, history and type of thrombosis, the coexisting thrombophilia, family history, associated risk factors, and anticoagulant treatment with special focus on young pts and unprovoked events.

Results: 139/918 (15%) pts tested positive for FVL, of whom five (4%) were homozygous, which is consistent with previous studies. Out of 132 pts with complete datasets, 42 underwent genetic testing solely due to a positive family history. The remaining 90 pts (mean age 49 years ± 15y) had clinically relevant thrombotic events: 9 presented with arterial thrombosis and 81 with VTE, 44% had a positive family history for VTE, and 24% were aged < 35 years. We detected a higher female proportion (55%) in young pts with thrombotic event compared to elderly pts (31%), possibly due to the high prevalence of hormonal contraceptive use (41%). 62 (69%) of the events were unprovoked, of which 13% were associated with hormone therapy. All pts aged < 35 years had additional risk factors for VTE. In pts with unprovoked VTE, 74% were put on long-term OAC, and 26% were treated for 3-6 months - which is shorter than recommended by current guidelines. The reasons are currently investigated. Discontinuation was associated with a recurrence rate of 32%, which is slightly higher than in previous studies on unprovoked VTE. Additional thrombophilia in pts with unprovoked thrombosis were found in 69%; the most frequent cofactor was an elevated factor VIII.

Conclusions: Unprovoked thrombosis - particularly in pts with FVL - should be considered for indeterminate anticoagulation. Isolated FVL is considered a mild thrombophilia, as supported by our data. Especially in young pts with VTE and FVL, additional risk factors are usually present and should be investigated.

P65

A life threatening sore throat – from local pain to septicemia

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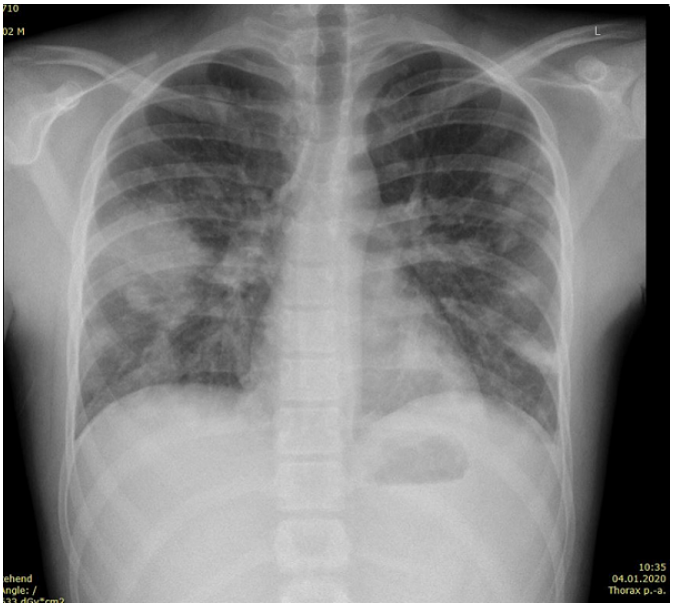
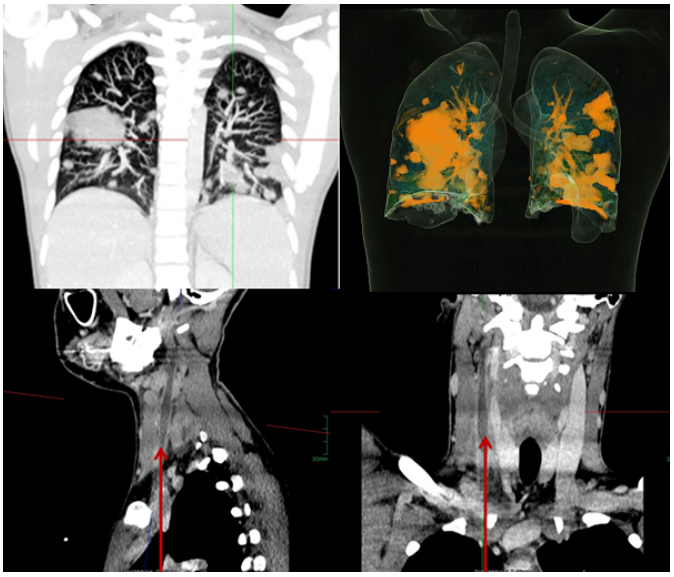
Learning objective: In patients with antecedent pharyngitis presenting with fever, localized neck pain or respiratory distress, Lemierre's syndrome should be suspected.

Case report: A 17 year old adolescent presented to the emergency department (ED) of a regional hospital with one day of fever, sore throat, cough and headache. Rapid testing for group A streptococci and Epstein-Barr virus was negative and he received symptomatic treatment for presumed viral tonsillopharyngitis. Four days later, he returned to the ED with high fever and new pleuritic chest pain. Because of multiple patchy infiltrates on chest X-ray (figure 1), increasing inflammatory markers and new severe thrombocytopenia (31 G/l), he was sent to our hospital with suspected pneumonia. On admission, the patient was afebrile, vital signs were within normal limits. Clinical examination was significant for inflamed tonsils, localized tenderness of the right neck and right inferior rales on lung auscultation. CT scan revealed a long thrombosis of the right inter-

nal jugular vein (figure 2). Thoracic images showed numerous septic emboli in multiple lung segments (figure 2). Thus, diagnosis of Lemierre's syndrome was confirmed. The patient was treated in the ICU with amoxicillin/clavulanic acid and unfractionated heparine for activated intravascular coagulation. Blood cultures grew Fusobacterium necrophorum.
The course of the hospitalization was complicated by empyema and hematothorax with hemorrhagic shock after pleurocentesis. The patient underwent thoracic surgery for evacuation of hematothorax and decortication. CT scan the following day revealed a new peritonsillar abscess, for which emergency abscess tonsillectomy was performed. The patient recovered well and was discharged to a rehabilitation center.
Discussion: Lemierre's syndrome is a rare but severe complication of tonsillopharyngitis, spreading per continuitatem to the jugular vein resulting in septic thrombophlebitis and phlebothrombosis. It should be suspected in patients with preceding pharyngitis presenting with fever, neck pain and often respiratory distress due to septic emboli of the lung, and/or persistent fever despite antibiotic therapy. The condition is usually caused by normal oropharyngeal flora (mainly Fusobacterium spp., but also Streptococcus spp.). Rapid recognition and initiation of proper treatment (antimicrobial therapy, abscess drainage, intensive care) is crucial since untreated, mortality is high (up to 90 %).



[Figure 1]


[Figure 2]

P66

Accuracy of flash glucose measurement in hemodialysis patients with and without diabetes mellitus

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Background: Management of diabetes mellitus is difficult in hemodialysis (HD) patients due to altered insulin metabolism, interference of dialysis schedules with food intake, dietary restrictions and unreliability of HbA1c measurements. Flash glucose monitoring (FGM) may provide an attractive option for glucose monitoring in these patients and also offer a means to monitor glucose levels in non-diabetic HD patients with symptoms of hypoglycemia or for research purpose. We therefore aimed to validate FGM in both, diabetic and non-diabetic dialysis patients.

Methods: We measured interstitial blood glucose using a Freestyle Libre® FGM device in 15 HD patients (8 with and 7 without diabetes mellitus) during a 14 day period. Patients performed self-monitoring of blood glucose (SMBG) four times daily during this period, using a capillary glucose monitoring device. Paired measurements from both methods performed within ± 7.5 minutes were compared using mean difference to quantitate systematic error and mean absolute difference (MAD) as well as mean absolute relative difference (MARD) to quantitate random error.

Results: In a total of 720 paired measurements, mean FGM values were significantly lower than SMBG (6.12 ± 2.52 vs. 7.15 ± 2.39 mmol/l, p=1.3 E-86). The systematic error was significantly larger in non-diabetic vs. diabetic patients (-1.17 vs. -0.82 mmol/l), patients with vs. without fluid removal during HD (-1.07 vs. -0.82 mmol/l), with high (≥7mmol/l) vs. normal (< 7mmol/l) blood glucose measurements (-1.16 vs. -0.84 mmol/l) and during dialysis vs. non-dialysis days (-1.09 vs. -0.90 mmol/l). Overall, MARD was 17.4% and MAD 1.20 mmol/l for all 720 paired measurements. Adding +1.0 mmol/l as a correction for the systematic error to all FGM measurements improved the MARD and MAD to 11.9% and 0.82 mmol/l, respectively.

Discussion: FGM systematically underestimates blood glucose levels in hemodialysis patients. The systematic error depended on diabetes status, blood glucose level, dialysis schedule and fluid removal during dialysis, but these influences were relatively small compared to the overall systematic error of the entire cohort. After a simple correction of + 1 mmol/l, FGM measurements quite accurately reflect blood glucose levels and FGM can thus be used for glucose monitoring in hemodialysis patients.

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Arrhythmia conversion to sinus rhythm during an hypnotic session. Is hypnosis a normal bystander or a "Guilty" accomplice?

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Learning objective(s): To discuss the role of psychological stress in supraventricular arrhythmias, and the potential role of hypnosis to trigger conversion to sinus rhythm (SR).

Case:
1) A 69-year-old man was admitted for coronary artery bypass graft surgery (CABG). In the post-operatory period, he developed atrial fibrillation (AF). Amiodarone successfully controlled ventricular rate, but AF persisted. At day 6 post-CABG, the patient underwent hypnosis to cope with anxiety; it was successful. An ECG at the end of the session showed conversion to normal SR.
2) A 24-year-old woman was admitted to the emergency department (ED) for viral gastroenteritis. Although clinical evolution was favourable, the patient was anxious, and developed paroxysmal supraventricular tachycardia (PSVT). Vagal manoeuvres proved ineffective. The patient was offered hypnosis for stress reduction. During the session, the patient calmed down; PSVT spontaneously converted to SR.
Discussion: Post-operatory AF (POAF) is a frequent complication of cardiac surgical procedures; it can be pharmacologically controlled by antiarrhythmic drugs. A retrospective cohort study showed that hypnosis could lower POAF incidence post-CABG. Hypnosis can

also be an alternative to sedation during AF ablation. POAF seems related to adrenergic activation induced by psychical/physical stress. Anxiety can modulate the autonomic nervous system to create an arrhythmogenic substrate. PSVT accounts for approximately 50,000 ED visits each year in the USA. It is often managed conservatively by manoeuvres aimed at slowing the atrioventricular (AV) conduction (e.g. vagal manoeuvres). AV conduction velocity is responsive to sympathetic tone and adrenergic stimulation. Psychical and physical stress may trigger PSVT. Mood and anxiety disorders can influence the occurrence of cardiac arrhythmias. Hypnosis is an effective treatment for anxiety, moreover it can increase parasympathetic activity. Therefore, it has the potential to modulate a major pathogenetic trigger of cardiac arrhythmias: the sympathetic nervous system activity. Evidence regarding effectiveness of hypnosis in this setting is scarce. Further research is warranted. To conclude that hypnosis can play a major role in arrhythmia conversion to SR, would lead us to a "post hoc ergo propter hoc" fallacy. Hence, ours cases have the merit of raising awareness about the potential effects of hypnosis for anxiety-triggered conditions like AF and PSVT.

P68

Auto-reactive T cells in severe osteoporosis

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Background: Our laboratory and others contributed to the field of osteoimmunolgy showing the role of T cells in the control of bone turnover. In particular, we demonstrated that T cells are more reactive to generic antigenic stimuli in patients affected by osteoporosis.
Here we hypothesize that a small proportion of auto reactive T cells may be present in the circulation and cross-react with antigens derived by bone matrix degradation presented by osteoclasts. The aim of this work is to identify self-antigens responsible for T cells activation in patients affected by severe form osteoporosis.

Methods: In order to evaluate if T cells from severe osteoporotic patients are able to react against bone matrix proteins, peripheral blood mononuclear cells (PBMCs) has been incubated with homologous bone proteins. PBMCs has been obtained from 38 patients affected by femoral fragility fracture that underwent total hip replacement (THR) and 14 controls that underwent THR for osteoarthritis, fresh surgical samples has been collected and used to obtain homologous bone proteins. Briefly, bone samples have been processed immediately after surgery, frozen in liquid nitrogen and homogenized by a cryogenic mill according to a standardized protocol.
Bone proteins have been obtained after TRIZOl standard RNA extraction, solubilized and quantified using a spectrophotometric method. PBMCs has been tested against bone proteins and the number of activated T cells after incubation with bone protein has been measured by flow cytometry.
Three bone samples from patients with T cells activation have been processed to separate proteins by second dimension separation on polyacrylamide gel and identified by a proteomic approach.
Proteins common amongst the three sample have been purified and T cells reactivity was tested to the single purified protein.

Results: Here we show that the number of activated T cells (CD3+/CD25+/CD69+) increased after incubation with bone proteins only in patients affected by osteoporosis. Thanks to the proteomic approach, we identified two proteins able to activate T cells in osteoporotic patients: PEX-1 (Peroxisome biogenesis factor-1) and Dermcidin Isoform-2.

Conclusion: These preliminary data suggest an important role of auto-reactive T cells in the pathogenesis of severe forms of osteoporosis. Further data are needed in order to clarify their role and to widen the screening for possible antigens.

P69

Campylobacter fetus – an unusual cause of cellulitis with bacteremia

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Learning objective: Cellulitis may be caused by unusual pathogens like Campylobacter fetus.

Case: A 87 year old European man with chronic diabetes, atrial fibrillation and dementia presented to our emergency department with a painful, swollen, red and warm lower leg. Physical examination revealed acute cellulitis. The remainder of the examination was unremarkable. Initial laboratory analysis showed mild to moderate inflammation (leukocytes 12.3 G/l, CRP 38mg/l), increased blood glucose of 10.3 mmol/L and slightly deteriorated anticoagulation (INR 4.14). Duplex sonography excluded venous thrombosis or abscess formation.
Blood cultures were taken and the patient was treated with amoxicillin/clavulanic acid intravenously. This led to prompt improvement of the patient's general condition and local inflammation subsided together with CRP. Three days after treatment initiation one of two blood cultures became positive with Gram-negative bacilli - to our surprise identified as Campylobacter fetus. Because of the appropriate and rapid clinical response and in vitro susceptibility to amoxicillin, treatment was adapted to oral amoxicillin for a total of ten days and the patient was discharged.

Discussion: Campylobacter are gram-negative bacilli, which cause disease in humans and animals. Most frequently, C. jejuni or C. coli are isolated from stool samples of patients with acute bacterial enteritis. However, blood stream infection with Campylobacter species is rare (< 0.5%) and mostly caused by C. fetus, particularly in patients with immunodeficiency (i.e. HIV), chronic liver disease or advanced malignancy. The focus of C. fetus bacteremia may be endovascular including medical devices, bone and joints or cellulitis whereas enteritis is less common. Human C. fetus infection is a zoonosis mainly transmitted from sheep, cattle and their products, although we were unable to identify such a connection in our patient. In contrast to C. jejuni / coli, C. fetus is often resistant to macrolides, quinolones and 3rd generation cephalosporins but susceptible to amoxicillin.
In conclusion, C. fetus cellulitis combined with bacteremia is a very rare and severe disease with a mortality of 15-20%. Fortunately, first line empiric therapy for cellulitis with amoxicillin/Clavulanic acid is usually active against C. fetus as well.

P70

Challenges of primary care medicine in a tertiary care setting – the case of primary CMV infection

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Learning objectives:
– In a tertiary care center, patients with primary cytomegalovirus (CMV) infections were investigated extensively before arriving at the final diagnosis.
– Knowledge about typical findings of primary CMV infection may help to avoid unnecessary diagnostic testing and treatment in otherwise healthy individuals.

Cases: Six patients (aged 20 to 57 years) with primary CMV infection without significant comorbidities and admitted to the department of internal medicine in the past three years were identified in the hospital administrative database. All patients were referred by their primary care physician with a history of prolonged fevers. Atypical lymphocytes were present, and LUC cells (large unstained cells) and liver enzymes moderately elevated in all patients (Table 1). Splenomegaly was documented in three patients by abdominal ultrasound. CMV serology confirmed primary CMV disease in all patients.
Multiple additional diagnostic tests were performed early during admission before the final diagnosis was reached. All the listed tests yielded negative or unremarkable results (Table 2). In particular, multiple blood cultures were drawn and hepatitis and other serologies ordered. Advanced imaging (CT, MRI) was performed in four patients. Three patients received empiric antibiotic therapy. No complications related to the performed tests, treatments or the CMV infection itself were observed. Cost of additional laboratory testing was estimated to range between 250 and 650 CHF per patient.

	Patient 1 (f, 50y)	Patient 2 (f, 57y)	Patient 3 (m, 33y)	Patient 4 (f, 20y)	Patient 5 (m, 31y)	Patient 6 (m, 32y)
History	Fevers for 3 weeks.	Headache and fevers for 1 week. The patient reported non-productive cough.	Fevers for 2 weeks with night sweat and 3 kg weight loss. The patient also reported abdominal cramps.	Fevers, palpitations and dyspnea for 5 days.	Fevers for 2 weeks. The patient reported being man having sex with men (MSM).	Fevers and lower lumbar spine pain for 1 week. Lumbar spine MRI showed unspecific sacroiliitis.
Clinical examination findings	No suspect findings.	No suspect findings.	Non-tender inguinal lymph nodes, otherwise no findings	No suspect findings.	No suspect findings.	No suspect findings.
Working hypothesis	FUO	Atypical pneumonia	Cancer	Pulmonary embolism	FUO	FUO
Laboratory restults	Lymphocytes 2.9 G/l (45%) LUC 0.64 G/l (10%) Atyp. lymphocytes 12% ASAT 136 U/l ALAT 162 U/l CRP 23 mg/l	Lymphocytes 1.5 G/l (28%) LUC 0.21 G/l (4%) *No manual differential* ASAT 37 U/l ALAT 48 U/l CRP 29 mg/l	Lymphocytes 7.9 G/l (52%) LUC 1.02 G/l (7%) Atyp. lymphocytes 4 % ASAT 112 U/l ALAT 165 U/l CRP 17 mg/l	Lymphocytes 2.3 G/l (39%) LUC 0.85 G/l (14%) Atyp. lymphocytes 8% ASAT 79 U/l, ALAT 138 U/l CRP 6 mg/l	Lymphocytes 6.6 G/l (65%) LUC absolut 1.2 G/l (12%) Atyp. lymphocytes 4% ASAT 136 U/l ALAT 199 U/l CRP 13 mg/l	Lymphocytes 5.7 G/l (46 %) LUC 0.67 G/l (5%) Atyp. lymphocytes 6 % ASAT 141 U/l ALAT 180 U/l CRP 28 mg/l
Timing of CMV Testing	2 days after admission	10 days after admission	On admission day	On admission day	1 day after admission	On admission day
Length of stay	5 days	16 days	3 days	1 day	2 days	5 days

Table 1: Overview of the patents' histories, findings, test results and length of stay. Legend: *f: female, m: male, y: years, FUO: fever of unknown origin, LUC: large unstained cells, ASAT: Aspartate aminotransferase, ALAT: Alanin aminotransferase, CRP C-Reactive protein.*

[Table 1]

	Patient 1 (f, 50y)	Patient 2 (f, 57y)	Patient 3 (m, 33y)	Patient 4 (f, 20y)	Patient 5 (m, 31y)	Patient 6 (m, 32y)
Basic imaging results (US abdomen and chest X-ray)	US Abdomen: Splenomegaly 14cm Chest X-ray: no infiltrate	Chest X-ray: possible infiltrate right inferior lobe	US Abdomen: splenomegaly 12cm, hepatomegaly	None performed	US Abdomen hepatosplenomagely	Chest X-ray: no infiltrate
Additional diagnostic testing	**Blood cultures**; 7 x 2 pairs **Laboratory:** - Serologies: EBV, HIV, Hepatitis B & C - Borelliosis, Brucellosis -Protein electrophoresis **Imaging:** none	**Blood cultures**; 9 x 2 pairs **Laboratory:** -Serologies: EBV -Sputum culture **Imaging:** Cranial MRI	**Blood cultures**; 1 x 2 pairs **Laboratory:** -Serologies: EBV, HIV -IgG, IgA, IgM -FACS **Imaging:** CT chest and abdomen	**Blood cultures**; 2 x 2 pairs **Laboratory:** -Serologies : Hepatitis B & C, HIV - PCR : Toxoplasma gondii, Treponema pallidum -VitaminB12, Folic acid, Ferritin **Imaging:** CT-Angiography Thorax Echocardiography Stress echocardiography	**Blood cultures**; 2 x 2 pairs **Laboratory :** -Serologies : HIV -PCR :Treponema palidum Chlamydia trachomatis **Imaging:** none	**Blood cultures**; 4 x 2 pairs **Laboratory:** -**Serologies: HIV, Parvovirus B19, Hepatitis A, B & C.** -PCR : Chlamydia trachomatis, Neisseria gonorrhoeae -Other: Tb-Spot, rheumatoid factor, anti-CCP-Antibodies, Protein electrophoresis **Imaging:** MRI spine
Additional treatment	Antibiotic therapy (levofloxacin, 10 days)	Antibiotic therapy (amoxicillin/clavulanic acid and clarithromycin, then levofloxacin, 13 days)				Antibiotic therapy (Amoxicillin/clavulanic acid, 5 days) before admission

Table 2: Overview of additional testing and treatment. Legend: *PCR: polymerase chain reaction, FACS fluorescence activated cell sorting, Tb-Spot (interferon-gamma release assay for the diagnosis of latent tuberculosis), anti-CCP-antibodies: anti-citrullinated peptide antibodies, CT: computed tomography, MRI: magnetic resonance imaging.*

[Table 2]

Conclusion: Physicians working in tertiary care hospitals are biased towards complex patients and severe diseases. Additional pressure to perform extensive and potentially unnecessary investigations early during admission is related to crowded hospitals, expectations of referring physicians or patients, and liability issues. In this context, the diagnosis of a "simple" viral infection such as primary CMV infection can be challenging. Knowledge of typical signs (in particular elevated LUC cells or atypical lymphocytes and mild hepatitis) and symptoms of primary CMV infection may help to adopt a rational approach in this setting. The present case series is intended to raise awareness about this cause of prolonged fevers and malaise in young and/or otherwise healthy adults. Basic viral serology, supportive treatment and in particular observation may be a safe strategy avoiding costs and potentially harmful tests and treatments in these patients.

P71

Circadian variations in natriuretic peptide levels: clinical implications for the diagnosis of acute heart failure

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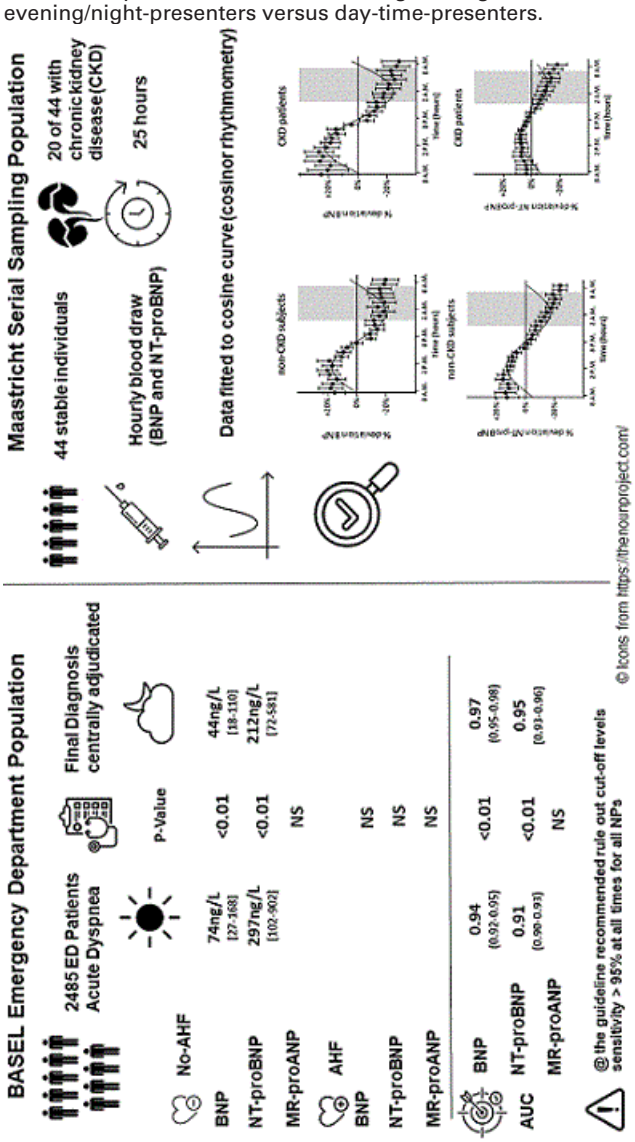
Background: Current guidelines recommend interpreting concentrations of natriuretic peptides (NPs) irrespective of the time of presentation to the emergency department (ED). We hypothesized that circadian variations in NP-concentration may affect their diagnostic accuracy for acute heart failure (AHF).

Methods: In a multicenter diagnostic study enrolling patients presenting with acute dyspnoea to the ED and using central adjudication of the final diagnosis by two independent cardiologists, the diagnostic accuracy for AHF of B-type natriuretic peptide (BNP), N-terminal pro-BNP (NT-proBNP), and midregional pro-ANP (MR-proANP) was compared among 1577 "day-time"-presenters versus 908 "evening/night-time"-presenters. In a validation study, the presence of a circadian rhythm in BNP- and NT-proBNP-concentrations was examined by hourly measurements in 44 stable individuals.

Results: Among patients adjudicated to have AHF, BNP, NT-proBNP and MR-proANP concentrations were comparable among day-time versus evening/night-presenters (all p=ns). Contrastingly, among patients adjudicated to have other causes of dyspnoea, evening/night-presenters had lower BNP (median 44ng/L[18-110] versus 74ng/L[27-168],p< 0.01) and NT-proBNP (median 212ng/L[72-581] versus 297ng/L[102-902], p< 0.01) concentrations versus day-time-presenters. This resulted in higher diagnostic accuracy as quantified by the area under the curve (AUC) of BNP and NT-proBNP among evening/night presenters [0.97 (95%CI 0.95-0.98) and 0.95 (95%CI 0.93-0.96) versus 0.94 (95%CI 0.92-0.95) and 0.91 (95%CI 0.90-0.93)] among day-time presenters (both p< 0.01). These differences were not observed for MR-proANP. Circadian variation of BNP and NT-proBNP with lower evening/night concentration was confirmed in 44 stable individuals (p< 0.01).

Conclusion: BNP and NT-proBNP, but not MR-proANP, exhibit a circadian rhythm that results in even higher diagnostic accuracy in evening/night-presenters versus day-time-presenters.



[Graphical Abstract SGAIM]

P72

Comparison of the first and second COVID-19 waves in the service of internal medicine, Lausanne University Hospital

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Introduction: As of January 2021, Switzerland has been stricken by two distinct waves of COVID-19. In Canton Vaud, the service of internal medicine (SIM) of Lausanne University Hospital has been one of the main actors caring for patients with severe forms of

COVID-19. Whether the successive preventive measures or new therapeutics such as dexamethasone led to changes in characteristics and outcomes of patients admitted to the SIM is unclear. Our aim was to identify clinical and organizational differences between both waves.

Methods: Data between 12.03.2020 to 29.05.2020 (1st wave, 78 days) and 17.10.2020 to 04.01.2021 (2nd wave, 80 days) were collected by the COVID task force support group. Data on patient characteristics, total amount of beds available in acute and intermediate care units and number of COVID-19 versus non-COVID-19 patients in these units were collected daily.

Results: Overall, the number of COVID-19 patients and COVID-19 related stays almost doubled during the second wave (+87%). Patients in the second wave were older (by almost 5 years, p< 0.001), while no difference in gender distribution (1st wave: 60.3% and 2nd wave: 61.8% males) was found. Regarding hospital stays, admission to intermediate care was less frequent (16.5% versus 21%), while admission to intensive care (13%) and length of stay (median: 7 days) remained stable. We experienced no shortage of intermediate nor internal medicine beds during either wave. Mortality in intermediate and internal medicine services increased slightly (first wave: 8.9% versus second wave: 10.5%). Hospitalizations of non-COVID patients went up in the second wave: the number of non-COVID patients increased by 11%. Indeed, number of daily non-COVID patients present in intermediate and internal services went from a median of 85 during the first wave to 95 during the second.

Conclusion: The fewer admissions to intermediate care during the second wave could be related to the use of dexamethasone. The higher mortality rate (+1,6%) during the second wave, despite lower frequency of admission to intermediate care, could be explained by the higher inpatient median age and their potential non-admissibility to intermediate care or intensive care due to their advanced care planning. However, mortality rates during both waves were low compared to the literature in Switzerland and elsewhere.

	First wave	Second wave	p-value
COVID patients	N=385*	N=740*	
Number of daily COVID patients present in acute + intermediate care (median and IQR)	45 [28 - 74]	87 [62 – 102]	< 0.001
Age (median and IQR)	69.0 [56.1 - 80.8]	74.8 [61.8 - 84.0]	< 0.001
Age range (youngest – oldest)	19.8 – 100.6	16.9 – 99.7	
Male patients [%]	60.3	61.8	0.625
COVID stays	N=594	N=1101	
Length of stay (median and IQR)	7 [3 -12]	7 [4 - 12]	0.767
Admitted to intermediate care [%]	124.7 (21)	181.7 (16.5)	
Admitted to intensive care [%]	82 (13.8)	147.5 (13.4)	
Outcomes [%]			0.011
Home	345 (58.1)	540 (50.0)	
Transfers**	196 (33.0)	416 (38.5)	
Death	53 (8.9)	115 (10.5)	
Non-COVID activity			
Number of daily non-COVID patients present in acute + intermediate care (median and IQR)	85 [61 - 106]	95 [82 - 113]	< 0.001
Occupancy rates			
Average occupancy rate, all beds [%]	72.9 ± 8.6	74.6 ± 6.7	0.187
Number of COVID beds (median and IQR)	73 [43 - 124]	117 [97 - 139]	< 0.001
Average COVID occupancy rate [%]	58.2 ± 13.2	71.3 ± 9.2	< 0.001
Number of non-COVID beds (median and IQR)	135 [119 - 142]	123 [113.3 - 143]	0.171
Average non-COVID occupancy rate [%]	63.6 ± 14.6	76.9 ± 9.5	< 0.001

* Some patients were admitted more than once (due to readmissions), therefore the number of COVID stays is higher than the number of COVID patients

** Patient transfers to other medical or paramedical institutions for the rest of their treatment

Abbreviation: IQR, interquartile range

[Table : Comparison of the first two Covid-19 waves in the service of internal medicine, CHUV]

P73

Depression: an important factor in the medical treatment of the elderly people

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Introduction: Depression is the most common mental disorder in the elderly population. Depression has a major impact on the treatment outcome of acute and chronic non-infectious diseases and on the quality of life and mortality. There are several tests available to detect a depressive disorder. One of the most used tests is the Geriatric Depression Scale-15 (GDS-15).
The goal of our research was to determine the incidence of depressive symptoms in the patients hospitalized in the geriatric department.

Methods: A total of 1159 patients were included in the retrospective analysis (421 men and 738 women), in the age between 65 and 101 years. All subjects were tested with GDS-15 (positive test implies a GDS-15 value of > 5). The results were analyzed by Statistica 13.3 Tribco, USA.

Results: In a total of 266 (23%) patients the test confirmed the existence of depressive symptoms (90 men and 176 females). In women, symptoms are mostly present in widows, divorced, or unmarried women (121 women- 68,7%). In the male population, the majority are married men or men who live in a partnership (59 men- 65,6%).

Conclusions: Depression is present in a high percentage of elderly patients. Although patients are hospitalized for some other disease, early detection of depressive symptoms may contribute to greater success in treating the underlying disease. GDS-15 is a simple method that can detect the presence of depressive symptoms in patients applicable on any hospital ward. Routine screening is necessary for timely recognition of depressive symptoms, conducting further tests in the detection of depression and initiation of therapy. This can achieve greater success in the treatment of basic illness.

P74

Differential diagnoses in COVID-19 pandemic: a retrospective descriptive study

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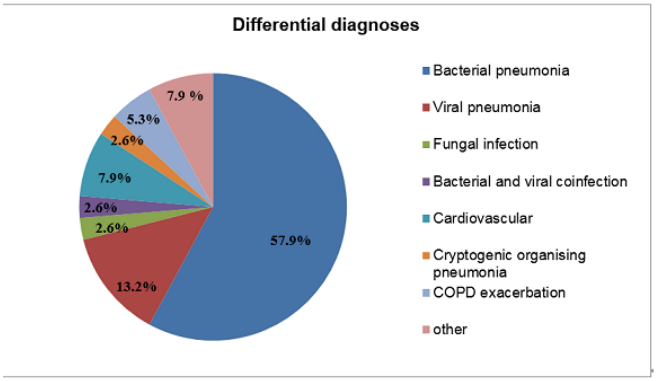
Introduction: Since 02.2020, SARS-CoV-2 infection rapidly spread across Southern Switzerland. The available literature on differential diagnoses of COVID-19 is scarce.

Methods: Our study aims to review differential diagnoses of SARS-CoV-2 infections in public hospitals in Southern Switzerland and to describe patients´ related outcome.

Results: Between 01.03.2020 and 15.04.2020, 344 patients had a chest CT-scan at admission, 210 of them were pathological. 172 patients had a positive nasopharyngeal swab for SARS-CoV-2 and 38 patients needed an additional diagnostic work-up and were included in this study. Among the selected patients,8 patients underwent 2 PCR for SARS-CoV2, 18 of them 3 PCR. We observed 29 infective cases, 3 due to cardiovascular aetiologies, 2 due to COPD exacerbation, 1 due to cryptogenic organizing pneumonia, 3 not related to respiratory diseases.

Conclusions: Our results highlight the importance of differential diagnosis in times of widespread occurrence of COVID-19, considering the similarity of symptoms and imaging appearance with other respiratory conditions.

Figure·1:·Differential·diagnoses·of·SARS-CoV2·infections·in·included·patients¶



[Figure 1: Differential diagnoses of SARS-CoV2 infections in included patients]

Table·1:·Demographics·and·microbiologic·specimens·

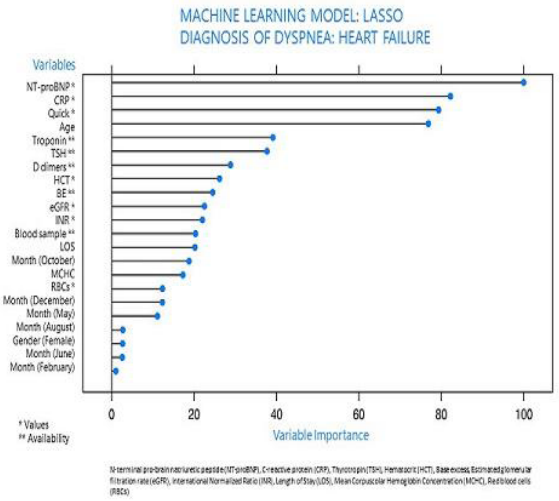
Established·diagnosis	
··Infectious	29·(76.3%)
····Bacterial·pneumonia	22·(57.9%)
•→ Community-acquired·=·10	
•→ Streptococcus·Pneumoniae·=·5	
•→ Ab·ingestis·pneumonia·=3	
•→ Haemophilus·Influenzae·=1	
•→ Pseudomonas·Aeruginosa·=1	
•→ Mycoplasma·Pneumoniae·=1·¶	
•→ Legionella·Pneumophila·=·1	
····Viral·pneumonia	5·(13.2%)
•→ Community-acquired·=·3	
•→ Adenovirus·=·1	
•→ Human·Coronavirus·OC43·=1	
····Fungal·infection	1·(2.6%)
•→ Pneumocystis·Jirovecii·=1·¤	
····Bacterial·and·viral·coinfection	1·(2.6%)
•→ Haemophilus· Influenzae· and· Adenovirus·=·1	
-¤	
¤	¤
··Non-infectious	9·(23.7%)
····Cardiovascular	3·(7.9%)
•→ pulmonary·embolism·=2·¶	
•→ acute·heart·failure=·1	
····COPD·exacerbation	2·(5.3%)
····Cryptogenic· organizing· pneumonia	1·(2.6%)
····Other	3·(7.9%)
•→ prosthesis-related·infection·=·1	
•→ left·lower·limb·ischemia·=·1	
•→ ischemic·cerebral·stroke·=·1	

[Table 1: Demographics and microbiologic specimens of included patients]

tem and the final diagnosis was evaluated independently by two General Internal Medicine residents. Patient characteristics were collected encompassing demographic data and performed diagnostic tests, such as laboratory findings. Regularized logistic regression using least absolute shrinkage and selection operator (LASSO), ridge regression and random forest (RF) models were constructed based on selected variables, and ten-fold cross-validation was used to train each model using R.

Results: Out of 4891 patients hospitalized at the internal medicine ward, 602 patients were included in the study. The most common causes of dyspnea identified were heart insufficiency COPD and pneumonia (respectively 53%, 30% 18%), pulmonary embolism, asthma and acute coronary syndrome occurred less frequently (6%, 4%, 2%). The predictive efficiency of the optimal combinations of features by Lasso and ridge regression as well as random forest was almost equal (sensitivity = 0.75, 0.77, 0.75, specificity = 0.55, 0.57, 0.54, respectively). The common significant predictive factors were laboratory value (e.g. BNP, CRP, INR, creatinine, troponin) and age.(Fig.1)

Conclusion: The evaluation of a patient with dyspnea can be challenging and despite the multitude of possible diagnosis only few ones are usually diagnosed. Big Data analysis is foreseen as part of the CREATE PRIMA Project in order to characterize patients more precisely and detect important contributors factors especially connected with uncommon cause of dyspnea.



[Fig.1 Lasso model of Heart Failure]

P75

Dyspnea as a chief complaint: characterization of patient population and diagnostic predictors for rapid assessment

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Introduction: Dyspnea, a common symptom and a major cause for emergency department admission, is related to a wide range of health conditions including cardiac, pulmonary diseases and mediastinal, hematological, metabolic, and psychogenic disorders. Despite the high prevalence, little is known about associated diagnosis frequency and characteristics of patients admitted with dyspnea. The aim of this study was to collect data on the occurrence and causes of dyspnea, to identify patient characteristics at the time of hospital admission that will guide early-targeted diagnosis. Further, this study aimed to develop and assess machine-learning models to predict heart insufficiency in patients presenting with dyspnea.

Methods: The study was based on retrospective data from the Cantonal Hospital of Baselland from year 2014. All adult patients and chief complaint (dyspnea, shortness of breath, air hunger) were included in the study. Patients were screened using the CREATE sys-

P76

Efficacy of Doll thErapy compared with standard treatment in the control of behavioral and psychologic Symptoms and CaReglver Burden in dEmentia: DESCRIBE a randomized, controlled study

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Introduction: Behavioral and psychologic symptoms in dementia (BPSD) are frequent and represent a burden for patients and caregivers, the use of a first line non-pharmacologic approach is highly recommended. Amongst different non-pharmacologic approaches, the doll therapy (DT) has been extensively studied mainly in nursing home residents. The aim of DESCRIBE is to evaluate the effect of doll therapy (DT) on BPSD in different clinical settings by a randomized controlled trial.

Methods: DESCRIBE is a randomized controlled trial with two parallel arms, developed in order to assess the efficacy of DT compared with Standard Treatment (ST) in the control of BPSD and in relieving the caregiver burden in persons with dementia in nursing homes or hospitalized in an acute geriatric unit. We enrolled fifty-two nursing homes residents and 52 acute in-patients with dementia and BPSD. Subjects were randomized to DT or standard treatment (ST), we measured agitation, delirium and caregiver burden with standard clinical scales at baseline and during treatment.

In acute in-patients, we carried out a follow-up of 4 weeks after hospital discharge.

Results: In nursing home residents DT was more effective in the control of BPSD, in relieving the caregiver burden and in reducing the risk of delirium and as respect to ST. Also in acute geriatric in-patients DT was more effective in reducing BPSD during hospital stay as respect to ST, DT and ST were both ineffective in relieving the perceived professional caregiver burden and in reducing the incidence of delirium. As regards pharmacologic treatment, the use of *pro re nata* antipsychotic drugs was significantly lower in the DT group. In order to evaluate the effect of DT withdrawal, all the patients were followed up for one month after hospital discharge with two telephonic interviews after 1 and 4 weeks. During follow up, we observed an increase in BPSD, that was significantly higher in patients previously treated with DT, there were no significant change in the professional and familiar caregiver burden.

Conclusions: DESCRIBE shows that DT is more effective that ST in the control of BSPD in patients affected by dementia. We suggest that, in patients affected by severe to moderate forms of dementia with BPSD, DT may be used as a first line treatment, not only in nursing home residents, but also in acute care geriatric in-patients.

P77

Eight versus twenty-eight point lung ultrasonography in moderate acute heart failure: a prospective comparative trial

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Introduction: In Switzerland 15% of discharged patients are readmitted within 30 days with acute heart failure (AHF) being one of the leading causes. Residual congestion is noted in 10%-15% of patients at discharge and is associated with an increased risk of re-admission and mortality. Lung ultrasound (LUS) is an accurate method to estimate lung congestion and provides a semi-quantification of residual congestion, even at subclinical stage. Several protocols exist to evaluate lung congestion differing by exhaustiveness and rating methodology. The aim of the study was to compare the two widely used 8- and 28-point LUS protocols in terms of reproducibility, feasibility and performance.

Methods: In this prospective comparative study 8- and 28-point LUS protocols were performed by a pair of expert-novice reciprocally blinded sonographers. LUS was executed twice on AHF inpatients, at admission and at follow-up (4 to 6 days later). At the same time, a structured clinical and biological evaluation was performed by the treating physician. Primary outcome was expert-novice interobserver agreement. Secondary outcomes included time spent for images acquisition and interpretation, correlation between temporal evolution in LUS-estimated congestion and clinical congestion, body weight or NT-proBNP.

Results: During the study period, 319 LUS protocols were performed on 43 patients. Expert-novice interobserver agreement was good and moderate for 8-point and 28-point protocol respectively. At admission, 8-point protocol required significantly less time for images acquisition (mean time difference -3.6 min for experts, -5.1 min for novices) and interpretation (-6.0 min for experts and -6.3 min for novices). Similar time differences were observed at follow-up. No significant correlation with temporal evolution of bio-clinical features was noted for both protocols.

Conclusions: In this head-to-head study, a simple 8-point LUS protocol was shown to be more reproducible and timesaving when compared to a 28-point protocol. Eight-point protocol should be preferred for assessment lung congestion in patients hospitalized for AHF.

P78

Hemoglobin thresholds for transfusion: how are we doing in the era of Choosing Wisely?

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Introduction: Guidelines and the Choosing Wisely initiative recommend a restrictive transfusion strategy (hemoglobin [Hb] threshold 70-80g/l in stable hospitalized patients) to reduce transfusion associated complications. The aim of this study was to investigate compliance with these recommendations in General Internal Medicine (GIM) and other clinics of a university hospital.

Methods: For this retrospective cohort study all hospitalizations with a medication code for red blood cell (RBC) transfusions (ATC B05AX01) on a hospital ward of a Swiss university hospital between 2012 and 2019 were identified. We only considered the first transfusion per case if we had data on pre-transfusion Hb. Demographic, clinical, and laboratory data were obtained from electronic health records. Primary endpoint was mean pre-transfusion Hb, secondary endpoint were potentially inadequate transfusions, defined as transfusions at Hb >80g/l. Trends in mean pre-transfusion Hb over time were estimated using generalized estimating equations, accounting for the within-patient correlation.

Results: Of 14'598 hospitalizations with RBC transfusions (representing 10'607 unique patients), 1980 (13.6%) were discharged from GIM. Median age was 66 years and 44.7% were women. Patients from GIM were less likely to have surgical procedures than those from other clinics (Table). Mean pre-transfusion Hb (±standard deviation) was lower in patients from GIM compared to those from other clinics (72.6 ± 9.8g/l vs. 75.2 ± 9.0 g/l, p< 0.001), as was the proportion of potentially inadequate transfusions (18.9% vs. 25.1%, p< 0.001). From 2012 to 2019, the mean pre-transfusion Hb decreased from 74.0g/l to 68.8g/l in GIM (mean annual decrease -0.77g/l, 95% confidence interval [CI] -0.51 to -1.02, p< 0.001) and from 78.2g/l to 72.7g/l in other clinics (mean annual decrease -0.69g/l, 95% CI -0.62 to -0.77, p< 0.001; Figure). The decrease was similar in GIM and other clinics (p for interaction 0.53).

Conclusions: Transfusion thresholds and the proportion of potentially inadequate transfusions were lower in GIM compared to patients discharged from other clinics, although this may have been due to a higher proportion of unstable patients in other clinics (e.g. surgery). Following publication of RBC transfusion guidelines in 2012 and the Choosing Wisely initiative endorsing a restrictive transfusion strategy, the Hb threshold decreased, suggesting an impact of these recommendations throughout our institution.

Variable	All patients (n = 14'598)	General Internal Medicine (n = 1980)	Other Clinics (n = 12'618)	p-value
Age (years), median (IQR)	66 (55-75)	72 (62-81)	66 (54-74)	<0.001
Female, n (%)	6534 (44.7)	833 (42.1)	5701 (45.2)	0.010
Emergency admission, n (%)	6496(44.5)	1512 (76.4)	4984 (39.5)	<0.001
Intensive care unit stay, n (%) ||	4038 (27.7)	417 (21.1)	3621 (28.7)	<0.001
Partition, * n (%)				<0.001
Medical	5036 (34.5)	1163 (58.7)	3873 (30.7)	
Surgical	8756 (60.0)	634 (32.0)	8122 (64.4)	
Others	806 (5.5)	183 (9.2)	623 (4.9)	
Comorbidities, n (%)				
Hemorrhage §	2318 (15.9)	483 (24.4)	1835 (14.5)	<0.001
Peripheral vascular disease #	2255 (15.5)	345 (17.5)	1910 (15.1)	0.009
Cerebrovascular disease	845 (5.8)	185 (9.3)	660 (5.2)	<0.001
Ischemic heart disease	3353 (23)	524 (26.5)	2829 (22.4)	<0.001
Renal failure	5091 (34.9)	1005 (50.8)	4086 (32.4)	<0.001
Any malignancy	6088 (41.7)	613 (31.0)	5475 (43.4)	<0.001

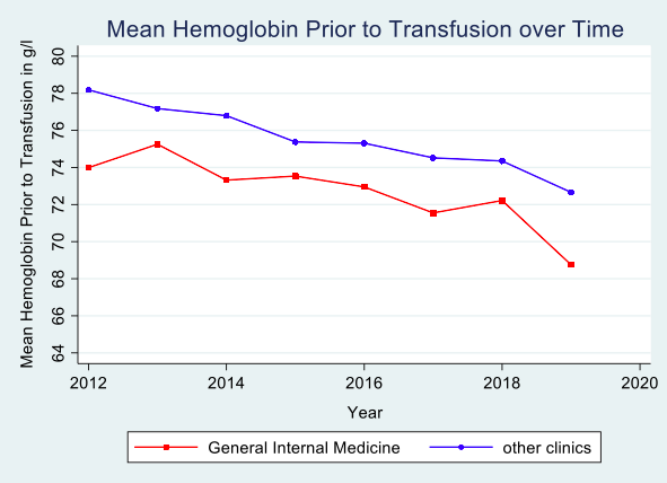
|| stay at the intensive care or intermediate care unit at any time during the hospitalization

** Medical partition refers to hospitalizations without a relevant procedure, surgical partition to those with a surgical procedure, and other partitions to those with a non-surgical procedure as defined by SwissDRG*

§ includes gastrointestinal hemorrhage, respiratory hemorrhage, traumatic hemorrhage, hemorrhagic shock and all other hemorrhage

 # includes diseases of arteries, arterioles and capillaries

[Table. Characteristics of included patients on GIM wards and wards of other clinics]



[Figure. Mean Hemoglobin Prior to Transfusion over Time]

P79

High dose vitamin-D-substitution in patients with COVID-19: study protocol for a randomized, double blind, placebo controlled, multi-centre study - VitCov Trial

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Background: The Coronavirus disease 19 (Covid-19) pandemic has caused more than a million deaths and new treatments are urgently needed. Factors associated with a worse Covid-19 prognosis include old age (>65 years), ethnicity, male sex, obesity and people with comorbidities such as hypertension, diabetes, cardiovascular disease, and respiratory diseases. Further, vitamin D deficiency has been reported to be a predictor of poor prognosis in patients with acute respiratory failure due to Covid-19. Vitamin D deficiency is a modifiable risk factor, which - according to a recent clinical case series - has the prospect of reducing hospital stay, intensive care and fatal outcomes. Vitamin D has potent immunomodulatory property sand its supplementation might improve important outcomes in critically ill and vitamin D deficient Covid-19 patients. Despite the evidence that supports an association between vitamin D deficiency and Covid-19 severity, there is uncertainty about the direct link. The aim of the trial is therefore to assess if high dose vitamin D supplementation has a therapeutic effect in vitamin D deficient patients with Covid-19.

Methods: Randomized, placebo-controlled double blind, multi-centre study trial to compare a high single dose of vitamin D (140'000 IU) followed by treatment as usual (TAU) (VitD + TAU) with treatment as usual only (placebo + TAU) in patients with Covid-19 and vitamin D deficiency.

Results: Recruiting is ongoing. No Results are available yet. Recruitment of patients has startet in December 2020 and shall be completet in June 2021

Discussion: Vitamin D substitution in patients with Covid-19 and vitamin D deficiency should be investigated for efficacy and safety. The objective of the study is to test the hypothesis that patients with vitamin D deficiency suffering from Covid-19 treated under standardized conditions in hospital will recover faster when additionally treated with high dose vitamin D supplementation. Latest studies suggest, that vitamin D supplementation in patients with Covid-19 is highly recommended to positively influence the course of the disease. With this randomised controlled trial, a contribution to new treatment guidelines shall be made.

P80

How can we predict drug-related readmissions in older multimorbid patients?

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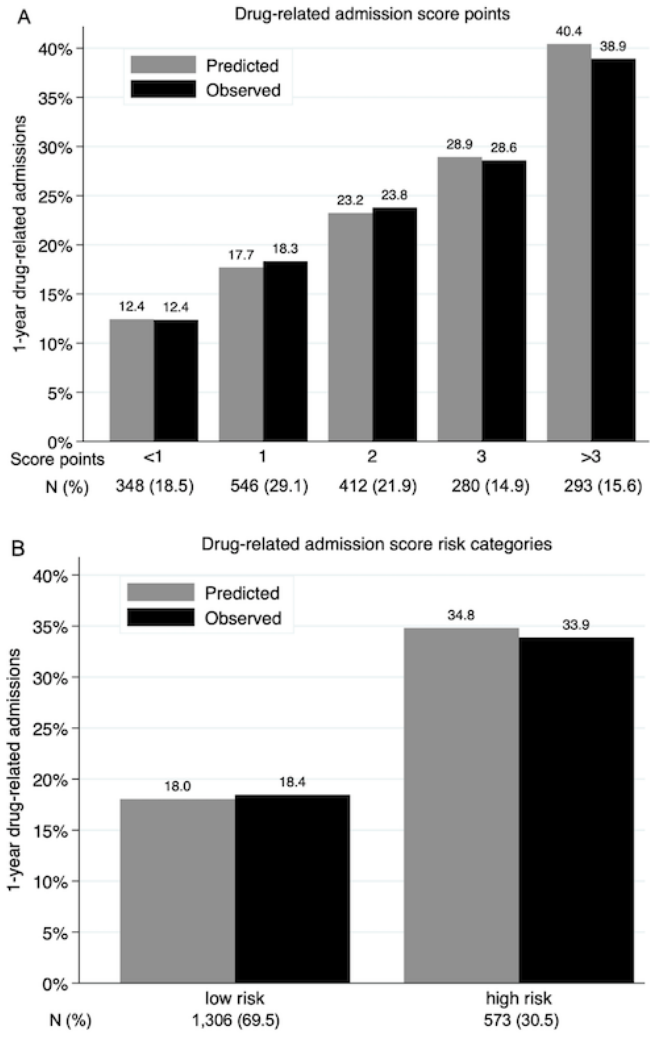
Introduction: Patients with multimorbidity frequently receive multiple medications, leading to increased risk of adverse events that may lead to hospitalization. Drug-related hospital admissions (DRAs) represent a significant burden for multimorbid patients and healthcare systems. While around 50% of DRAs would be preventable in older adults, identifying high-risk patients may help to target preventive interventions. In older patients with multimorbidity and polypharmacy, we developed a score to predict DRAs.

Methods: Among 1,879 multimorbid (≥3 chronic conditions) patients with polypharmacy (≥5 chronic medications) in 4 European countries, we assessed the risk of 1-year DRA (primary outcome, defined as medication-related first readmission diagnosis). Predictors included baseline demographics, comorbidities, medication count, hospitalization count in the previous year, and hospitalization characteristics. Predictors with p< 0.20 in univariable regression were taken forward to backward regression, and retained in the model if p was < 0.05. We attributed points to each variable by dividing its coefficient by the lowest coefficient. We defined 2 risk categories, based on the total number of points. We assessed discrimination (C-statistic), calibration (observed vs. predicted proportions), and overall accuracy (scaled Brier score, < 0.20 considered good) of the score, and internally validated it by tenfold cross-validation.

Results: Within 1 year, 435/1,879 (23%) patients had a DRA. The score included 7 variables: number of previous hospitalizations (0, 1-2, ≥3), non-elective admission, hypertension, cirrhosis with portal hypertension, chronic kidney disease (eGFR< 60ml/min), any diuretic use at admission, systemic corticosteroid use at admission. The scaled Brier score was 0.05, and the cross-validated C-statistic 0.63 (95% CI 0.59-0.68). Predicted and observed proportions matched well. DRA risk was 18% for a score < 3 points (69% of the patients), and 34% for a score ≥3 points.

VARIABLES	OR (95% CI)	COEFFICIENT (SE)	P-VALUE	POINTS
1-2 hospitalizati-on(s) <1 year	1.46 (1.15-1.86)		0.001	1
≥3 hospitalizations <1 year	2.43 (1.74-3.38)	0.89 (0.17)	<0.001	3
Non-elective admission	1.59 (1.20-2.11)	0.46 (0.14)	0.001	1
Hypertension	0.73 (0.57-0.92)	-0.32 (0.12)	0.009	-1
Chronic kidney disease	1.41 (1.11-1.79)	0.34 (0.12)	0.005	1
Cirrhosis with portal hypertension	3.61 (1.38-9.42)	1.28 (0.49)	0.009	4
Diuretic	1.36 (1.09-1.71)	0.31 (0.12)	0.006	1
Oral corticosteroid	1.68 (1.25-2.26)	0.52 (0.15)	0.001	2
SCORE RANGE	-	-	-	-1 to 12

[Drug-related admission score.]



[Calibration of the score to predict 1-year drug-related readmissions.]

Conclusions: Comorbidities related to drug metabolism, specific medications, and previous hospitalization count, were associated with DRA. The score we developed showed very good overall accuracy. A cut-off of 3 points may help to identify patients at highest risk of DRA. After external validation, the score we developed may help to identify early after admission patients at higher risk of DRA, who are most likely to benefit from medication review during hospitalization.

P81

Impact of SARS-CoV-2 lockdown and seasonal variations on diabetes compensation: a retrospective study in a tertiary setting in Switzerland

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Introduction: Metabolic compensation of patients with diabetes mellitus (DM) depends on psychosocial well-being and healthy lifestyle, both of which were influenced by the national lockdown in spring 2020 due to the SARS-CoV-2 pandemic. The goal of our study was to analyze the impact of Swiss national lockdown (17.3.2020 - 24.4.2020) on compensation of DM as expressed by the level of HbA1c.

Methods: We performed a retrospective observational study using electronic health records of the University Hospital Basel. Patients with DM with at least one HbA1c measurement before and one after the begin of the lockdown were included. The observation period was 16.12.2018 - 27.07.2020. Time periods three months before (winter) and four months after the begin of the lockdown (spring) were defined and compared to corresponding time periods one year before. Patient determinants affecting HbA1c values were identified using a mixed-model regression multivariable analysis.

Results: We included 1,078 patients in our analyses (925 type 2 DM, 145 type 1 DM, 8 other). Metabolic compensation was susceptible to seasonal changes with HbA1c highest in January with mean (standard deviation, SD) 7.60% (1.68), and lowest in July with mean (SD) 7.29% (1.67). In patients with type 2 DM, HbA1c decreased more in spring 2020 as compared to 2019 (difference of means 2020 = -0.22%, 95% confidence interval (CI): -0.058, -0.39, p=0.008; vs. difference of means 2019 = -0.15%, 95% CI: -0.33, 0.03, p=0.1), respectively. The differences in type 1 DM were not significant. Subgroup analysis of 241 patients with HbA1c in all analyzed periods yielded no significant change in HbA1c after the lockdown. Inappropriate alcohol intake was identified as a risk factor for increased HbA1c after lockdown (OR 1.69, 95% CI: 1.03, 2.75). Number of hospitalizations per patient decreased significantly after the lockdown (winter 2019/2020 mean (SD) 1.42 (0.83) vs. spring 2020, 1.24 (0.55) p= 0.028). The lockdown led to no significant change in weight (mean difference = 1.72 Kg, 95% CI: -5.07, 1.63, p=0.314).

Conclusion: Metabolic compensation of patients with DM undergoes marked seasonal variations, with highest HbA1c in winter and lowest in summer. Contrary to expectations, HbA1c in patients with type 2 DM did not increase in four months after the begin of national lockdown, but decreased to the same values as the year before.

P82

Malnutrition in elderly: a significant element in the modern geriatric medicine

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Introduction: A high malnutrition prevalence and an increased risk of malnutrition is a well known phenomenon in the geriatric population. Together with a multi-morbidity, inadequate physical activity and the worsening of acute illness the malnutrition lead to reduced body function. Therefore, an appropriate nutrition and malnutrition detection must be a part of the modern treatment of elderly people to achieve the desired goals. Our study aimed to determine the incidence of malnutrition in elderly patients.

Methods: This study included 1159 patients older than 65 years (maximum age of 101 years) who were admitted to the geriatric department at the Luzerner Kantonsspital Wolhusen (Switzerland). To assess nutritional status, we applied the Mini Nutritional Assessment-LF, recommended by the European Society of Clinical Nutrition and Metabolism (ESPEN). The data were statistically analyzed.

Results: The analysis confirmed the high incidence of malnutrition in the geriatric population. A total of 751 patients - 64,8% were malnourished or in the risk for malnutrition. The malnutrition was confirmed in 27,9% of the patients, while the next 36,9% were in the category of a high risk of malnutrition, with a significantly longer time of hospitalization.

Conclusions: Malnutrition and high risk of malnutrition are very common in elderly patients, suggesting the need for regular and timely nutritional screening to reduce the incidence of complications, improve the prognosis of the treatment and shorten the duration of hospitalization.

P83

Monitor the hypnotic state using the Bispectral Index

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Introduction: Hypnosis has many uses in medicine and especially useful in the context of pain, and anxiety. Apart from a few and probably unreliable clinical signs, there is no objective and easy way to prove that the patient is in a hypnotic state, neither to measure hypnosis depth. The hypnotic state is associated with varia-

tions in brain electrical activity, nevertheless processing electroencephalographic (EEG) data is a cumbersome and difficult task for the non-specialist. We believe that the use of the Bispectral Index (BIS), a simplified EEG activity devices commonly used to monitor the depth of anesthesia could be instrumental to measure the global electric activity correlating to an hypnotic state and its depth. The purpose of this study is to describe the variations in the BIS during the hypnotic state and to establish whether these variations correlate with the subjects' perception and therapist's impressions of trance's depth.

Methods: At the end in this study, 12 healthy volunteers will be included. During a standardized hypnotic session of about 30 minutes (induction, relaxation, deepening, safe place, trace termination), the BIS values will be evaluated at three moments: before hypnotic induction, during the session (deepening), and after the return to normal state of consciousness.

Results: We present our preliminary results (6 pilot subjects). We observed a significant decrease in the average value of the BIS during the hypnotic state compared to the normal wakeful state (83.2±7.3 versus 97.8±0.6 to; p< 0.00001). The BIS rapidly returned to normal wakeful values at the end of the hypnotic session.

Conclusions: The BIS is a simple and reliable tool to measure and monitor the depth of the hypnotic state. Moreover, the BIS values during trance state are significantly lower compared to that of the normal wakeful state and akin to those of light and paradoxal (REM) sleep (stage 1-2).

P84

Post intensive care syndrome in out-of-hospital cardiac arrest patients: a prospective observational cohort study

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Introduction: Intensive care unit (ICU) patients are at increased risk to suffer from a post-intensive care syndrome (PICS), which includes psychological, physical and/or cognitive symptoms long after the index hospital stay. Our aim was to systematically evaluate PICS in patients with out-of-hospital cardiac arrest (OHCA).

Methods: In this prospective observational cohort study, baseline predictor variables were collected during ICU stay and PICS was measured at 90 and 365 days after ICU admission within the following domains:
a) psychological burden (Hospital Anxiety and Depression Scale [HADS], Impact of Event Scale-Revised [IES-R]),
b) physical symptoms (EuroQol [EQ-5D]), and c) cognitive functioning (Cerebral Performance Category [CPC] score, modified Rankin Scale [mRS]). PICS was defined as impairment in at least one domain.
Results: Of 139 patients, 69 patients (49.6%) showed evidence of PICS after 90 days. Eighteen (12.9%) reported psychological, 51 (36.7%) physiological, and 35 patients (25.2%) showed cognitive impairments. Univariate logistic regression analyses found intubation (OR 2.32, 95%CI 1.08 to 4.97, p=0.03), sedatives (OR 3.36, 95%CI 1.03 to 11.00, p = 0.045), mRS at discharge
(OR 4.33, 95%CI 1.70 to 11.01, p=0.002), CPC at discharge (OR 3.29, 95%CI 1.43 to 7.60, p=0.005) and work loss during 90-day follow-up (OR 13.42, 95%CI 1.67 to 107.53, p=0.014) to be associated with PICS. After one year, 52 patients (47.3%) had evidence for PICS with fourteen patients (12.7%) showing psychological, 40 (36.7%) physiological, and 24 (22.2%) cognitive impairments. Duration of rehabilitation (OR 1.24, 95%CI 1.03 to 1.50, p=0.026), APACHE score
(OR 1.08, 95%CI 1.02 to 1.15, p=0.007), mRS (OR 4.05, 95%CI 1.45 to 11.29, p=0.008) and CPC at discharge (OR 3.26 95%CI 1.31 to 8.08, p=0.01) were associated with PICS at one year follow-up.
Conclusions: With a growing number of patients surviving their ICU stay after an OHCA and nearly half of all OHCA survivors displaying PICS up to one year after ICU admission, appropriate screening and management is necessary to minimize the risk for PICS and to meet the increased need for its treatment. Future studies should evaluate whether early identification of these patients enables preventive strategies.

P85

Post-COVID-19 fatigue?

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Learning objectives: In the last months, post-COVID-19 syndrome is a frequently discussed condition. However, other diagnosis explaining asthenia should be carefully considered.

Case: A 76-year-old man was referred to our hospital by his primary care physician because of recurrent falls and pronounced weakness and fatigue after he had been tested positive for SARS-CoV-2 nine days earlier. He had no fever, coughing, vomiting or diarrhoea. Physical examination showed general weakness without focal neurological deficits. The patient fell asleep several times during conversation, even though he was always oriented and didn't present aphasia or dysarthria. Body temperature and blood oxygen saturation were normal, blood pressure was in the lower normal range. Laboratory results were significant for normal WBC count, elevated CRP levels (60mg/l), normal levels of electrolytes as well as glucose and mild renal insufficiency (eGFR 51ml/min/1.7m^2).
A nasopharyngeal swab for SARS-CoV-2 (PCR) was still positive. A lung CT scan revealed pulmonary infiltrates typical for COVID-19 as well as central pulmonary embolism. After ruling out a cerebral bleeding in head CT scan oral anticoagulation was initiated. Additionally, by means of head CT scan a suspect mass in the pituitary region was detected. Cerebral MRI was performed and showed a mass in the pituitary region consistent with a pituitary macroadenoma with mass effect on optic chiasm. Considering the inflammatory condition, morning serum cortisol level was relatively low (211nmol/l) and an ACTH stimulation-test showed an increase in cortisol consistent with ACTH deficiency. Furthermore, hypopituitarism with gonadotropic, thyrotropic and growth hormone deficiencies was diagnosed. Replacement of hydrocortisone, levothyroxine and testosterone lead to a marked improvement of fatigue and weakness. We postulate that the underlying hypopituitarism caused by an endocrine-inactive macroadenoma was possibly aggravated by the infection with SARS-CoV-2.
Discussion: Fatigue and weakness are common symptoms associated with COVID-19 and post-COVID-19 syndrome. Nevertheless, especially nowadays it is important to consider other possible conditions in patients with COVID-19 and prolonged fatigue and weakness. This case report shows the importance of careful clinical reasoning in patients with COVID-19 as well as in all other patients.

P86

Probability of target attainment with standard intermittent bolus administration of cefazolin in patients with complicated infections caused by Staphylococcus aureus: a prospective single-centre cohort study

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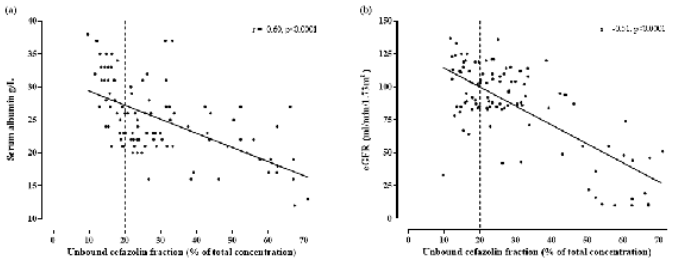
Background: Complicated *Staphylococcus aureus* infections (CSAI) are an important cause of mortality. β-lactam antibiotics have been cornerstone of antibiotic treatment for methicillin-susceptible *S. aureus* (MSSA) infections. Contemporary data regarding the pharmacology of cefazolin (CFZ), a highly protein bound cephalosporin, are scarce.The primary purpose of this ongoing study is to determine the achievement of pharmacological targets and its association with clinical outcome and toxicity with standard intermittent bolus administration of CFZ in patients with MSSA-CSAI.

Methods: 25 patients with MSSA-CSAI were prospectively enrolled in a Swiss tertiary care center. Total and unbound plasma CFZ concentrations were measured by high performance liquid chromatography-mass spectrometry at 5 time points during the first week of treatment. Target attainment (%$fT_{>MIC}$) based on the minimal inhibitory concentration$_{90}$ (MIC_{90}) for MSSA strains (1mg/L) and associated factors were analyzed.

Results: Patients were predominately male (84%) with median age of 64 years 11 [interquartile range (IQR) 56-77]. Bloodstream infection was diagnosed in 80% of patients and the most frequent foci were endocarditis and skin and soft tissue infection (both 25%). ICU admission was required in 24% of patients.

The median mid-dose concentration of unbound CFZ was 11(IQR 6-17) and 13(IQR 4-31)mg/L on day 1 and 3, respectively, and the median trough concentration was 3(IQR 1-10), 5(1-16) and 3(1-12) mg/L on day 1, 3 & 7, respectively. Optimal (100% $fT_{>MIC}$) and maximum (100% $fT_{>4xMIC}$) target attainment was achieved by 84% & 36% patients throughout the study period, and 20% of patients had at least one trough level in the potentially toxic range (>20mg/L, Table 1).
The unbound fraction showed a moderate inter-individual variability (median 25%, range 10-71%) and correlated positively with SOFA score and negatively with renal function and albumin ($p< 0.05$, Figure 1). Optimal target achievement was significantly associated with higher age, comorbidities, impaired renal function and hypoalbuminemia.

Conclusions: In contrast to healthy individuals, the unbound plasma fraction of CFZ is substantially higher in MSSA-CSAI patients with impaired renal function, hypoalbuminemia, older age and severe disease. The proportion of patients with potentially toxic CFZ concentrations was substantial. Therefore, therapeutic drug monitoring of unbound CFZ concentrations in MSSA-CSAI is desirable.



[Correlation of unbound cefazolin fraction (in % of total concentration) with serum albumin and eGFR]

	First TDM		Second TDM		Third TDM
Time point/ Number of patients (N)	Mid-dose N=24	Trough N=23	Mid-dose N=21	Trough/ N=19	Trough N=13
Cefazolin					
Total concentration in *mg/L [median, (IQR)]*	36 (25-71)	14 (7-42)	50 (21-73)	25 (8-52)	16 (7-28)
Unbound concentration in mg/L *[median, (IQR)]*	11 (6-17)	3 (1-10)	13 (4-31)	5 (1-16)	3 (1-12)
Unbound fraction, in percent, *[median, (IQR)]*	26 (17-33)	23 (19-39)	26 (17-41)	25 (16-42)	21 (16-28)
Target attainment n (,%)					
50%$fT_{>MIC_{50}}$	23 (96%)		20 (95%)		
50%$fT_{>4xMIC_{50}}$	20 (83%)		15 (71%)		
100%$fT_{>MIC_{50}}$		19 (83%)		16 (84%)	11 (85%)
100%$fT_{>4xMIC_{50}}$		11 (48%)		12 (63%)	5 (38%)
100%$fT_{>20mg/L}$		4 (17%)		4 (21%)	0 (0%)

[Cefazolin concentration/unbound fraction and target attainment during the first week of treatment]

P87

Reduced adrenal stress response in patients on PCSK9 inhibitor therapy

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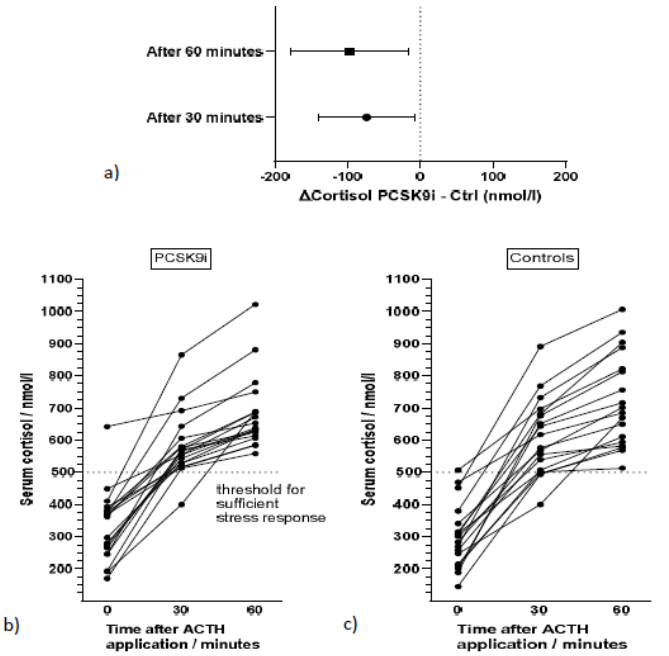
Introduction: Treatment with proprotein convertase subtilisin-kexin type 9 inhibitors (PCSK9i), in addition to statin therapy, reduces LDL-cholesterol (LDL-c) in some patients to extremely low levels (i.e.< 20mg/dl or < 0.52 mmol/l). We hypothesized that at such low levels, the physiological cholesterol supply may be impaired. Whether PCSK9i influences the adrenal cortisol stress response to the adrenocorticotropic hormone (ACTH) has not yet been evaluated. We therefore analyzed the effect of PCSK9i therapy on the cortisol response to ACTH in patients with low-density lipoprotein cholesterol (LDL-c) reduced to very low levels.

Methods: Nineteen patients on PCSK9i therapy (mean treatment duration 18.16 ± 16.86 months) and 18 controls on statin therapy matched for age, gender and comorbidities were included. The adrenal stress response was evaluated with a standard 250 micrograms ACTH test. Baseline cortisol and ACTH were measured before ACTH application at 9 a.m. and stimulated cortisol levels were obtained after 30 and 60 minutes in accordance to Practice Guidelines. A Schellong orthostasis test was additionally performed as a clinical indicator for adrenal insufficiency.

Results: LDL-c levels ranged from 0.42 - 3.32 mmol/l (mean 1.38 ± 0.84 mmol/l) in the PCSK9i group and 0.81 - 4.82 mmol/l (mean 2.10 ± 0.97) in the control group. There was no significant difference between groups for baseline cortisol and ACTH levels. After 60 minutes, by analysis of covariance (ANCOVA), the PCSK9i group had a significantly lower cortisol response compared to the control group (-97.26 nmol/l, -178.60 to -15.93, p=0.02) (Figure 1). There was a significant positive correlation between the duration of PCSK9i treatment and cortisol levels (r=0.59, p=0.009), with lower stimulated cortisol levels in the first 18 months of treatment (Figure 2). Extremely low LDL-c levels down to 0.42 mmol/l were not associated with lower stimulated cortisol levels. All tested patients achieved cortisol values >500 nmol/l and pathological Schellong orthostasis test were not more frequently observed in the PCSK9i group.

Conclusion: Patients on PCSK9i therapy showed a significantly lower cortisol response to ACTH. Stimulated cortisol levels were lower in the first months of PCSK9i treatment, suggesting an adaptive phenomenon. We conclude that the adrenal stress response on PCSK9i therapy is significantly reduced. The biological relevance remains to be determined.

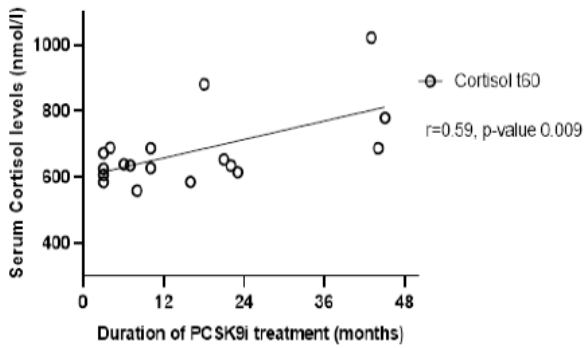
Figure 1. a) Mean cortisol level differences in the analysis of covariance at 30 and 60 minutes after adrenocorticotropic hormone stimulation, with 95% confidence intervals. b) and c) Cortisol responses at baseline, and at 30 and 60 minutes after adrenocorticotropic hormone stimulation in the PCSK9i and control groups, respectively.



PCSK9i: proprotein convertase subtilisin-kexin type 9 inhibitor
ACTH: adrenocorticotropic hormone

[Figure 1]

Figure 2. Results of serum cortisol levels 60 minutes after adrenocorticotropic hormone stimulation, dependant on duration of PCSK9i treatment.



PCSK9i: proprotein convertase subtilisin-kexin type 9 inhibitor.

[Figure2]

P88

Retrospective analysis of characteristics, outcomes and in-hospital mortality of COVID-19 patients admitted in Centre Hospitalier du Valais Romand, between 31.12.19 and 23.12.20

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Introduction: In-hospital care of COVID-19 patients during waves of pandemic state requires continuous adaptations, based on continuous evolving medical knowledge and locally available resources. Analysis of characteristics and outcomes of hospitalized patients should lead to adjustments of medical practice and allocation of specific resources.

Methods:
- All data were retrospectively extracted from computerized patient records by the Datawarehouse of our institution
- We included all inpatients with COVID-19 confirmed between 31.12.19 and 23.12.20
- Follow-up spread from admission to discharge from our institution
- 4C Mortality Score was chosen as a mortality adjustment variable, based on the first available data for each patient. Missing data were imputed.
- Simple descriptive analyses and multivariate analyses were carried out with STATA

Results:
- 1211 patients were included
- Average age was 71.1; 57.7% were men; 73.4% were admitted during the 2nd wave
- Overall in-hospital mortality was 17.6%, with no significant difference between the two waves
- At admission, receiving wards were: Medicine 77.8%, Geriatrics 11.9% and Intensive Care 4.2%
- In the first wave, 22.4% versus 17.9% of patients in the second wave were admitted to intensive care unit (ICU)/intermediate (IC), with a statistically significant difference for ICU admissions (11.8% vs. 7.5%)
- Average length of stay was 14.8 and 15.4 days, for the 1st and 2nd wave respectively, with no statistically significant difference
- Rate of potential hospital-acquired infection was 7.5% in acute care wards
- 4C Mortality Score showed good prognostic value for assessing the risk of intra-hospital death (AUC 0.83)
- Average 4C score in survivor was 7.8 and 11.4 in non survivor
- Proportion of high/very high risk 4C scores was overall higher in the 2nd wave (57.7% vs. 46.3%).

Conclusions:
- Despite a higher average 4C Mortality Score and lower admission rate in ICU/IC during the 2nd wave, mortality remained similar between the two waves
- More than ¾ of all patients in our institution are continually admitted to the Internal Medicine ward, requiring significant adjustments of size units and strengthening of medical teams
- In this Swiss population, 4C Mortality Score showed good prognostic value for assessing the risk of intra-hospital death
- Use and development of automated calculation of the 4C Mortality Score could help to stratify patients into different management groups and organize patients flows.

P89

Serial Point Of Care NT-proBNP measurement in patients with acute decompensated heart failure may lead to more pronounced up-titration of prognostically relevant heart failure therapies

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Introduction: Despite important advances in heart failure (HF) therapy, therapy guidance continues to be based on clinical signs and symptoms. Although N-terminal pro B-type natriuretic peptide (NT-proBNP) is a strong and independent predictor of morbidity and mortality in patients with HF, no data are available on the efficacy of serial NT-proBNP measurements as a tool for treatment monitoring in patients hospitalized for acute decompensated HF (ADHF). The goal of this pilot study was to assess whether serial NT-proBNP measurements affect the dosage of prognostically relevant HF therapies and lead to earlier hospital discharge in patients hospitalized for ADHF.

Methods: POC-HF, a randomized controlled pilot trial, included 52 patients hospitalized for ADHF. NT-pro BNP and safety parameters sodium, potassium and creatinine were measured every second day and made available to the treating physician in the intervention group, but not in the control group. HF therapy was left at discretion of the treating physician in both groups. Dosing and dose adjustments of HF medication were analyzed from admission to hospital discharge (primary endpoint). Secondary endpoints included the change of serum NT-proBNP, NYHA functional class, quality of life, vital signs, length of hospital stay, weight loss, and adverse events.

Results: The intervention and control group comprised 26 patients each (mean age 80.1 vs. 79.6 years, male 73.1% vs. 53.8%, mean NYHA class 2.6 vs. 2.7). Longitudinal data analysis revealed strong group-time relationships for angiotensin converting enzyme inhibitors (ACEI), beta-blockers (BB), and loop diuretics (LD) (p=0.007, p=0.002, p=0.005), with patients in the intervention group receiving higher dosages of ACEI and LD, and lower dosages of BB compared to the control group. Thiazide diuretics were up-titrated in the Intervention group and down-titrated in the control group (+1.61 vs. -1.25mg metolazon equivalent, p=0.027). NT-proBNP decrease was more pronounced in the intervention group but did not differ significantly from the control group (-1650 vs. -898 pg/ml, p=0.338).

Conclusions: Compared to solely symptom-guided HF management, serial NT-proBNP measurements may induce stronger up-titration of prognostically relevant HF medication and more frequent application of sequential nephron blockade in patients hospitalized for ADHF, demonstrating the potential of NT-proBNP monitoring as an additional tool for HF therapy monitoring and optimization.

P90

Tell-tale immune-related neurological syndromes: should we look for and underlying low-grade B-cell lymphoma? A collaborative retrospective study on 12 cases

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Introduction: Albeit rarely, immune-related neurological syndromes (affecting both the central and peripheral nervous system, as well as the neuromuscular junction) can associate with low-grade B-cell lymphomas (viz. lymphoplasmacytic lymphoma and marginal zone lymphoma).

Methods: We conducted a retrospective study on the records of patients with miscellaneous immune-related neuropathies followed by the "Referral Centre for Neuromuscular Diseases and ALS" in collaboration with the Services of Internal Medicine and Hematology (La Timone Hospital, and the Paoli Calmettes-Institute, Marseille, France; Geneva University Hospitals, Geneva, Switzerland). Clinical, biological, immunological and histological work-up was carried out and data collected.

Results: We identified 12 patients (10 males; 2 females; mean age 60.7 years; range 42-78) with neurological syndromes (sensorimotor neuropathy [n=8], myasthenia gravis [n =3], (Morvan's) fibrillary chorea [n = 1]) and atypical presentation/course (i.e. resistance to conventional treatment, rapid worsening, repeated relapses, rhabdomyolysis, presence of dysautonomic symptoms or systemic manifestations). In all these patients multiple autoantibodies (besides those commonly implicated in autoimmune neuropathies) were found. This prompted us to perform thorough hematologic investigations, that led to the diagnosis of different type of Low-Grade Cell lymphomas [i.e. marginal zone lymphomas with lymphoplasmacytic differentiation (n=3), splenic marginal area lymphoma with secondary lymph node invasion (n=1), unclassified marginal area lymphomas (n=8)]. Treatment of the underlying lymphoma resulted in an improvement (n=8) or stabilization (n=4) of neurological disease.

Conclusion: Atypical presentation of immune-related neurological syndromes (particularly a poor therapeutic response), as well as the presence of antibodies with different antigenic targets should be regarded as "warning signs" and raise the suspicion of a paraneoplastic origin sustained by an underlying low-grade B-cell lymphoma that should be actively sought and treated. Close collaboration between internists, neurologists and hematologists allows for the appropriate management of each case.

P91

The painful crown on the cervical spine

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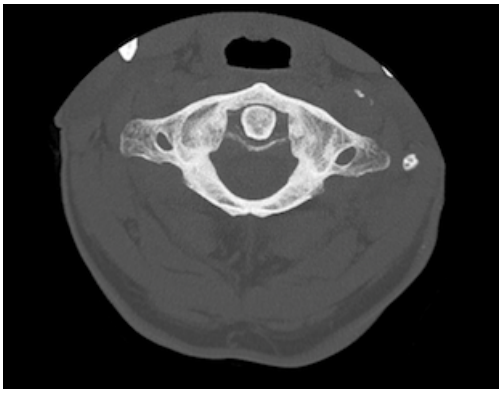
Learning objective: "Crowned Dens Syndrome" (CDS) may present itself like meningitis. In the elderly patient especially, CDS should be considered as a potential differential diagnosis.

Case: A 72-year-old man was referred with a history of posterior neck pain on movement since two days. He reported no recent headache, fever or tick bite and his personal history included coronary artery disease and obstructive sleep apnea. Clinical examination found cervical stiffness without neurological abnormalities and confusion. In the blood analysis C-reactive protein (CRP) was elevated at 155 mg/l. However the liquor analysis showed no remarkable results, bacterial meningitis and viral encephalitis were therefore excluded. The computertomography (CT) of the neurocranium detected an advanced arthrosis of the atlanto-axial-articulation and an enhancement of the transverse ligament of the atlas (Figure). Based on these findings, corresponding to CDS, a systemic corticosteroid therapy and nonsteroidal antiinflammatory drugs (NSAIDs) were started. A few hours after the first intake of prednisone and NSAID he reported considerable improvement of the neck pain. Three days later he was discharged with complete remission of symptoms and a significant decrease of the inflammatory marker CRP.

Discussion: Calcium pyrophosphate dihydrate crystal deposition (CPPD) is a common symptomatic disease concerning mainly the elderly population. All joints may be affected by CPPD, especially the knees, wrists or hands. Rarely the peri-odontoid articulation is affected which is known as CDS. The manifestation with posterior neck pain, headache and persistent fever is similar to other life-threatening diseases. The clinical differentiation between meningitis and CDS is difficult, but frequently CDS manifests with painful rotational movements, less so upon reclination or inclination of the head. The latter is typical for meningitis. The radiological findings in the CT-scan typical for CDS are enhancement of transverse ligament of the atlas. If meningitis, giant cell arteriitis, polymyalgia rheumatica or spondylodiscitis are suspected, they should potentially be treated until definite exclusion. The treatment of CDS includes NSAIDs, systemic corticosteroids or colchicine. The first-line drug has not yet been determined, hence co-morbidities should be considered during the choice of treatment. CDS is possibly an underdiagnosed cause of neck pain upon movement in the elderly.



[CT-Scan with typical enhancement of transverse ligament of the atlas]

P92

The unusual presentation of an unusual complication: topical corticosteroid-induced binasal heteronymous hemianopia

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Learning objectives: To discuss corticosteroid (CS)-induced glaucoma and the differential diagnosis of binasal heteronymous hemianopia.

Case: A 23-year-old patient presented to the emergency department with visual disturbances. Her major complaints were white scotomata covering about half of the medial (nasal) part of both visual fields for the preceding three months and perception of black vertical lines in the left visual hemifield in the last month, initially sporadic and progressing to continuous. She had a 10-year history of severe psoriasis, treated with topical clobetasol. Neurological exam was otherwise normal. Upon ophthalmological assessment, her best corrected visual acuity was 8/10 (20/25/ in the right eye and 6/10 (20/32) in the left eye.
Intraocular pressure (IOP) was elevated in both eyes (35 mmHg; normal value< 12 mmHg). Stereoscopic fundus examination showed a cup-to-disk ratio of > 0.9 (normal ratio ~0.4) in both eyes. Optical coherence tomography detected bilateral retinal nerve fiber layer thinning of both the superior and inferior temporal quadrants. Automated peripheral visual field assessment (central 30 degrees) detected bilateral arcuate nasal scotoma with fixation involvement of the left eye. These features suggested advanced glaucomatous damage which at her age could only be attributed to the clobetasol. Topical steroids were immediately withdrawn and maximum anti-glaucomatous medical treatment (travoprost/timolol,brinzolamide/brimonidine, acetazolamide) was begun. Intraocular pressure remained elevated, and bilateral deep sclerectomy with collagen implant was performed. At 3 months follow-up, the intraocular pressure normalised to 12 mmHg in both eyes, with no additional medical therapy; and her visual field was normal without scotoma.

Discussion: Binasal heteronymous hemianopia is a rare finding (it accounts for ~8% of visual field defects). Although neurologic causes are sometimes diagnosed (e.g. hydrocephalus, lesions of the third ventricle), this condition is most often (~ 75%) of ophthalmic origin (e.g. ischemic optic neuropathy, optic nerve drusen, or glaucoma). Glaucoma is most often a disease of advanced age, but in rare cases (4-6%), can be induced or further worsened by any form of CS treatment (i.e. both systemic and local). Therefore, consideration of this possibility is essential in CS-treated patients, and regular monitoring of patients IOP is mandatory, regardless of CS administration route.

P93

Trauma as a trigger of autoimmunity: an observational cohort study in patients with pertrochanteric femoral fracture

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Introduction: Defective clearance of body waste products including cells undergoing cell death may lead to autoimmunity. The goal of our pilot study was to evaluate whether patients after a major trauma develop laboratory signs of systemic autoimmunity in the following months.

Methods: The study was designed as prospective cohort study on patients with pertrochanteric femoral fracture (≤7 days) with planned gamma-nail osteosynthesis. We followed the patients for 12 months at the following time points: day -1-2 preoperatively (baseline, BL), day 3-4 postoperatively (FU-1), day 42 (FU-2), day 84 (FU-3) and day 365 (FU-4). Except at FU-1, at each time point we measured the following autoantibodies: anti-nuclear antibodies (ANA), anti-dsDNA, anti-cardiolipin and anti-C1q. In order to quantify the presence of ANA, we used not only indirect immunofluorescence on a Hep-2 cell line, but also automated digital fluorescence microscopy (NOVA View, INOVA Diagnostics). This method expresses the presence of ANA in fluorescence index (FI).

Results: Out of 50 included patients with an average age of 80.1 years, 23 (46%) completed the study. Six of the 23 (26%) patients tested positive for ANA at baseline on microscopic interpretation and two of them became positive and two negative in the follow-up. However, the FI increased during follow-up (mean (SD)): 296 (193) at BL, 351 (256) at FU-2, 471 (332) at FU-3 and 449 (292) at FU-4 ($p< 0.0001$). Only 4/23 patients were positive for anti-C1q, and these four increased modestly in follow-up (mean (SD)): 80 (11); 85 (118); 94 (140) and 124 (184) U/ml ($p=0.033$). Only three patients had measurable anti-cardiolipin IgM antibodies and their follow-up didn' t show any changes. None of the patients were positive for anti-dsDNA at any time point. Six patients had measurable levels of anti-cardiolipin IgG antibodies during the study, with initial slight increase followed by decrease of the values: (mean (SD)): 23 (9); 29 (7); 29 (7) and 20 (2) IU/ml ($p=0.04$).
Total IgG showed a similar pattern in the follow-up (mean (SD)): 8.8 (2,9); 10.7 (3.8); 11.1 (2.8) and 10.6 (3.0) g/l ($p< 0.001$). Moreover, total IgG correlated positively with ANA FI ($r=0.371$, $p< 0.001$).
The patients did not develop any clinical signs of systemic autoimmunity.

Conclusion: In the elderly patients, trauma induces a minor subclinical increase in some systemic autoantibodies. This may be linked to a non-specific increase in total IgG.

P94

Urinary catheter placement in acute congestive heart failure has no clinically relevant benefits and increases risks

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Introduction: Patients with acute congestive heart failure (HF) regularly undergo urinary catheterisation (UC) at hospital admission. Although this practice is off-label, close monitoring of diuresis may guide treatment and speed overload resolution. No study exists on its benefits and harms in this context. We assessed the hypothesis that UC abstention is non-inferior to UC placement for the overload resolution.

Methods: We performed a single centre non-inferiority retrospective cohort study on 459 patients hospitalised for acute HF. Patients with UC inserted within 24 hours of diuretic therapy (n=113) were compared to patients without UC (n=346) and followed for one year. Weight loss between day 1 and day 3 was adjusted for confounders in linear regression. The non-inferiority boundary was set at 1 kg. Adjusted cox model served to test the impact of UC on time to clinical improvement and time to unfavourable outcomes, namely urinary tract infection (UTI), hospital readmission, and death.

Results: Weight loss was not statistically different between groups and the adjusted difference was bellow the non-inferiority boundary (0.43 kg (95% CI: -0.03-0.88) in favour of UC, $p< 0.01$ for non-inferiority). UC was not associated with time to reaching target weight (HR 1.1; 95%CI: 0.8-1.5), discontinuation of intravenous diuretics (HR 0.8; 95%CI: 0.7-1.0), or resolution of respiratory failure (HR 1.2; 95%CI: 0.7-2.2). Hospital length of stay and hospital readmission were not associated with UC, but patients with UC had lower odds to be discharged directly home (OR 0.5; CI95%: 0.3-0.7). UC increased the risk of UTI (HR 2.6; CI95%: 1.6-4.2) and one-year mortality (HR 1.7; CI95%: 1.2-2.4). The latter was not significant after adjustment.

Conclusions: UC inserted within the first 24h has no impact on clinical improvement and increased UTI risk. Evidence argues against systematic UC placement for the management of HF.

P95

Young patient with an unusual liver tumor

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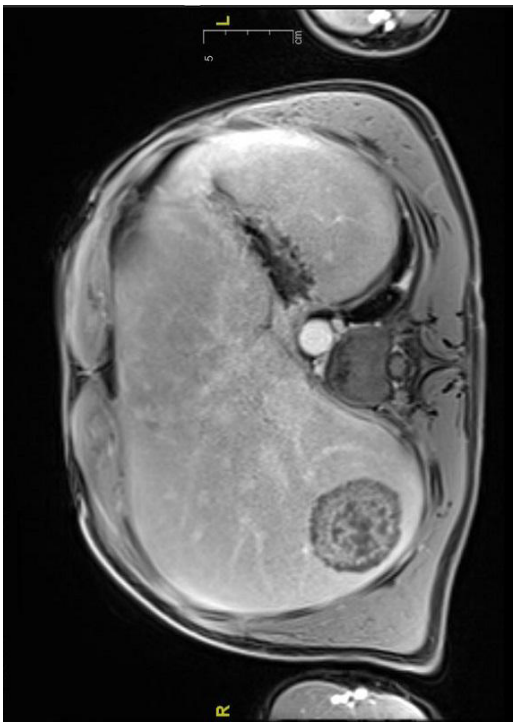
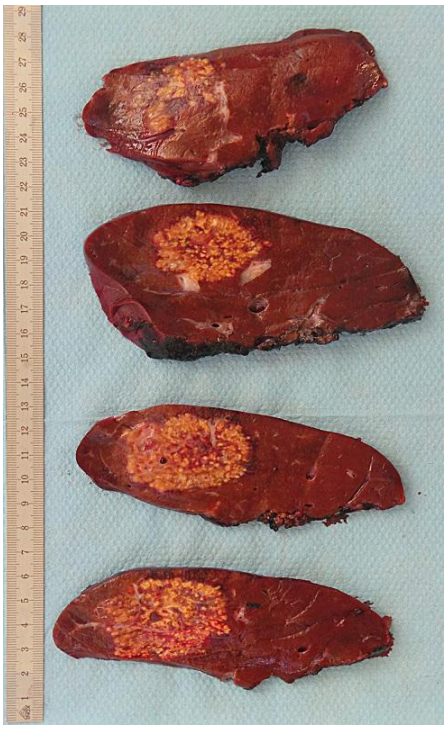
Learning objective: Recognize Actinomyces as a rare cause of liver abscess that can mimic other pathogens and malignancies.

Case: A 28-year-old male otherwise healthy patient presented to the emergency department with fever of 40°C, chills, malaise, and headache for two days. The physical examination was unremarkable. He was admitted with a suspicion of perimyocarditis due to markedly elevated high-sensitive troponin T. A cardiac magnetic resonance imaging (MRI) was consistent with acute myocarditis. As an incidental finding, the radiologist described a 5.5 cm mass in the liver segments VII-VIII (Fig 1).: The patient's condition further deteriorated with decreasing blood pressure and increasing inflammatory parameters. Blood cultures became positive with Streptococcus intermedius. Empiric therapy with amoxicillin/clavulanic acid and gentamicin was started for sepsis with streptococcal bacteremia of unknown focus. A computed tomography of the thorax/abdomen/pelvis showed no infectious foci except for the known liver lesion. Transesophageal echocardiography showed no signs of endocarditis. Thus, the liver mass seemed the most likely source of the bacteremia.
On MRI, the lesion had an irregular edge with heterogeneous contrast uptake. The images were deemed to be primarily compatible with an atypical liver malignancy or an alveolar echinococcosis, but not with an abscess. However, a CT-guided liver biopsy yielded pus where S. intermedius was isolated. Histological examination of the tissue cylinders showed an acute abscessing cholangitis. On special staining, the pathologists identified "sulfur granules", consistent with liver actinomycosis.
A follow-up MRI after 14 days of antibiotic therapy showed only a mild regression of the liver lesion. We therefore chose a surgical approach in joint decision with the patient and performed a resection of the right posterior liver sector (Fig 2). The patient recovered quickly, and the antibiotic therapy could be discontinued two months later. Follow-up MRI before the end of antibiotic therapy showed no evidence of recurrence.

Discussion: We present a case of a young otherwise healthy patient with a primary hepatic actinomycosis. He presented with sepsis including a septic cardiomyopathy due to superinfection of the liver lesion with S. intermedius. Primary hepatic actinomycosis is a rare condition (about 100 cases reported in the literature) which can mimic a liver malignancy in radiological studies.



[Axial T1-weighted abdominal magnetic resonance imaging with contrast]



[Liver resectate after open anatomical right posterior sectorectomy]

Clinical epidemiology

P96

A retrospective study on the true prevalence of allergy to beta-lactam antibiotics in an adult population in Switzerland

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Introduction: About 10% of the population is labelled as allergic to penicillin. Studies suggest that 90% of patients labelled as allergic to penicillin tolerate it after rigorous assessment. Here, we examined the true frequency of allergies to beta-lactam antibiotics subclasses, as well as the negative predictive value (NPV) of skin testing in an adult population referred to a university allergy clinic in Switzerland.

Methods: This is a retrospective study in which we examined the clinical records of patients who were investigated for a label of allergy to beta-lactam (penicillin, cephalosporin or carbapenem) antibiotics between January 1st 2011 and December 31st 2018.

Results: 582 patients were identified with a documented allergy to beta-lactam antibiotics and 477 patients were systemically investigated by skin-tests and/or drug challenge to confirm or rule out allergy. 262 patients reported a history of immediate reactions, 137 of delayed reactions, and 114 of unknown reactions. Overall, 88 (15.1%) patients were truly allergic to any beta-lactam antibiotics; 64 (11.0%) with an immediate reaction and 24 (4.1%) with a delayed reaction. Most frequently identified true allergy was to penicillin (65 patients), followed by cephalosporin (21 patients) and carbapenem (2 patients). NPV of skin tests for all beta-lactam were 97.7% and 92.5% for immediate and delayed reactions, respectively, and 96.3% and 92.1% when penicillin only was considered. Systemic allergic reaction occurred in 0.6% of skin tests and in 3.1% of drug challenges.

Conclusions: Only 15.1% of patients with beta-lactam allergy label are truly allergic and non-allergic patients can be safely identified and delabelled by a rigorous allergic work-up based on skin tests and drug challenge.

P97

Anosm-CoV: investigating SARS-CoV-2 infection in anosmic patients

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Introduction: SARS-CoV-2 infection has been linked to a wide variety of symptoms at the time of diagnosis. Among them anosmia has emerged as a specific symptom, being strongly associated with the probability of SARS-CoV-2 infection, both prospectively for RT-PCR test when described at the time of testing, and retrospectively on population-based serological surveys in the canton. However, as it has also been described with other viral infection, it is unknown if anosmic patients with a SARS-CoV-2 RT-PCR negative test are infected with SARS-CoV-2 and missed at the RT-PCR (false negative), or are infected with another virus.

Methods: This prospective study aims to include 100 outpatients presenting at the Geneva University Hospital SARS-CoV-2 testing center, describing anosmia and for whom the initial SARS-CoV-2 RT-PCR test is negative. They will benefit from blood serological status at J1 (day after the initial RT-PCR test) and after 3 weeks. Excluding criteria will previous documented SARS-CoV-2 infection, SARS-CoV-2 immunization, prior anosmia/agueusia. Patient with a positive serolgy at baseline will also be excluded. The initial nasopharyngeal samples of patients whose serology remains negative will be then retested for enlarged panel of viruses. Finally resolution of symptoms will be assessed over the next 6 months.

Results: Since the beginning of the testing activities in our center, about 10 to 15% of the SARS-CoV-2 RT-PCT negative patients presented with anosmia. Seroconverting patients will be considered as having a SARS-CoV-2 acute infection. The specificity and sensitivity of anosmia will be compared with those of the RT-PCR test. Other viruses causing anosmia will also be detected. Finally the duration of anosmia will be correlated with the causative virus, if detected.

Conclusion: SARS-CoV-2 RT-PCR testing is now considered as the gold standard for patient's suspect of infection, and an important part of the strategy to contain the pandemic. Indeed until immunization becomes widespread enough to circumvent viral circulation, public health strategies mostly rely on a test and trace approach, where positive cases are isolated and contact traced then quarantined. Determining sensitivity, specificity, positive and negative predicting value of anosmia for SARS-CoV-2 infection, in the context of a negative RT-PCR test, may impact on such strategies, prompting for example a second test or even a quarantine.

P98

Association between lifetime use of cannabis and cognitive function in middle age according to sex: the Coronary Artery Risk Development in Young Adults (CARDIA) Study

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Introduction: Cannabis use may reduce cognitive function, but perhaps not equally for men and women.
We analyzed the association between cumulative lifetime exposure to cannabis and cognitive function in middle age and according to sex.
Methods: Cross-sectional analysis of cognitive function scores at Year 30 visit of the Coronary Artery Risk Development in Young Adults (CARDIA) Study, stratified by sex. This prospective cohort followed Black and White men and women, 18-30 years old at baseline (1986, Year 0), over 30 years. We computed five categories of cumulative exposure in cannabis years (1 cannabis-year = 365 days of use) from self-reported cannabis use every 2 to 5 years. At Years 25 and 30, we assessed cognitive function with the Rey Auditory Verbal Learning Test (verbal memory), the Digital Symbol Substitution Test (processing speed), and the Stroop Interference Test (executive function). At Year 30, the Category and Letter Fluency Test (verbal ability) and the Montreal Cognitive Assessment (MoCA) (cognitive impairment) were added.
Prospective analysis of cognitive function scores at 2 time-points (Year 25 and Year 30) to test the likelihood of decline in cognitive function (>0.2 standard deviation of sex-specific decline) associated with changes in cannabis use.

Results: By Year 30, cognitive function was measured in 1,352 men and 1,739 women; 1,171 men (87%) and 1,502 women (84%) reported ever cannabis use, with 249 men (18%) and 198 women (11%) reporting cannabis use within 30 days. In a joint model including men and women, we found sex to interact on the association between cumulative cannabis use and verbal memory (p=0.05). We therefore stratified results by sex. After excluding 102 men (8%) who used cannabis within 24 hours and adjusting for covariables, cumulative cannabis use was associated with worse verbal memory in men (e.g. -0.49 standardized units for ≥5 cannabis-years of exposure; 95%CI: -0.76 to -0.22), but not in women (0.02 standardized units for ≥5 cannabis-years of exposure; 95%CI: -0.25 to 0.29). Other measures of cognitive function were not associated with cumulative exposure to cannabis. Changes in cannabis use over 5 years were not associated with the likelihood of cognitive decline.

Conclusion: Cumulative cannabis exposure was associated with worse verbal memory in men, but not in women. Researchers should consider performing stratified analyses by sex when studying the association between cannabis and cognition.

P99

Blood pressure in a population of a rural area of Rwanda: preliminary data

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Introduction: Arterial hypertension likely affects millions of people in Africa and is the most important cause of heart disease and stroke. In Sub-Saharan Africa, the burden of hypertension is a rapid growing health threat. The aim of our study was to perform a screening of the local population living in the rural area of the District of Nyaruguru (Rwanda) to determine the prevalence of high BP.

Methods: Between February and July 2020, instructed health care providers collected some anthropometric data (such as height and weight) and measured BP three times in a sitting position with a validated oscillometric device (OMRON HEM-7322U).

Results: A total of 7336 subjects participated to the screening, with median age of 32 (IQR 21, 47) years; 4053 (55%) were female, age 35 (23, 49) years; 3283 (45%) were male, age 30 (20, 44) years (p< 0.001). BMI was 20.7 (19.0, 22.3) in males and 21.8 (20.0, 23.8) in females (p< 0.001). The mean of the last two BP measurements was 119.5±15.2mmHg. Males had a higher SBP 120.1±14.0mmHg compared to females 118.6±16.1mmHg (p< 0.001.). SBP ≥140mmHg in 642 subjects (8.8%), without differences between males (8.4%) und females (9.0%); p=0.36.

Conclusions: Surprisingly, in a very rural peripheral region where the average age of the inhabitants is relatively low, about 9% of the subjects examined have abnormal blood pressure values. These data confirm the need to implement also in rural areas of Rwanda an adequate strategy for the prevention, diagnosis and treatment of hypertension.

P100

COVID-19 symptom persistency and subjective well-being in outpatients versus inpatients: a 2-month follow-up

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Introduction: COVID-19 caused by infection with Sars-CoV-2 usually presents as an acute respiratory syndrome. However, some patients experience long-term symptoms and a decreased quality of life, sometimes referred to as Long COVID. Regarding the ongoing pandemic and an expected growing influx of patients with persisting COVID-19 symptoms, there is an urgent need for further research regarding this topic.

Methods: We assessed symptom persistency in participants receiving inpatient or outpatient care at the Cantonal Hospital of Baden after a laboratory confirmed diagnosis of Sars-CoV-2 infection in the time period from the 28th of February to the 19th of May 2020. Data collection was obtained through a questionnaire, which was answered by the study participants two months after initial diagnosis. The survey addresses symptom dimension and subjective wellbeing at the time during confirmed Sars-CoV- 2 infection as well as at date of follow-up. The primary endpoints were symptom persistency and subjective wellbeing.

Results: During the investigated period, a total of 116 patients met inclusion criteria. 69 (59.5%) of those received outpatient care and 47 (40.5%) inpatient care. The questionnaire was answered at a mean of 54 days after initial diagnosis. 54 (46.6%) of all patients suffered from at least one persistent symptom at time of follow-up and 32 (27.6%) from at least two symptoms. The overall symptom persistency in both groups at follow-up was 22.4% for dysgeusia, 22.4% for dyspnoea, 17.2% for coughing, 16.4% for myalgia, 15.5% for headache and 6.0% for fever. There was no significant difference in symptom persistency between outpatients and inpatients, except for coughing (p< 0.039). At follow-up the outpatient group reported a subjective wellbeing of an 8.5 (median) compared to 7 (median) in the inpatient group, whereas 0 represents the worst and 10 the best possible state of wellbeing.

Conclusion: In our study a large group of patients suffering from Sars-CoV-2 infection reported at least one persistent symptom at time of follow up. However, there was no significant difference in the number of symptoms reported from inpatients vs. outpatient. Nevertheless, participants receiving inpatient care reported worse subjective wellbeing compared to those who received outpatient care.

P101

Equity in access to COVID-19 testing for undocumented migrants and homeless persons during the early phase of the pandemic

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Introduction: The COVID-19 pandemic has disproportionally affected socially and economically deprived individuals, including an increased difficulty to meet their health needs. To date, few empirical studies have focused on the effect of policies regulating access to care for such groups. This study explored the impact of an equity-based strategy to facilitate access to COVID-19 testing to the undeserved population.

Methods: This cross-sectional study included outpatients presenting at the Geneva University Hospital for COVID-19 testing in March and April 2020, in Geneva, Switzerland. We compared the undeserved groups and general population for the following outcomes: early visits to the testing program (≤ 3 days after symptoms onset), number of symptoms, SARS-CoV-2 positive testing, and COVID-19-related hospitalizations. The underserved group was identified using the presence of at least one visit at the mobile outpatient community health center or following formal assessment by the hospital social workers.

Results: A total of 3,299 visits were included in the study, of which n=215 (6.5%) corresponded to underserved patients. There was no significant difference between groups for early visits (p=.149) and the number of symptoms at presentation (p=.409). The proportion of positive tests was significantly higher (32.1% vs. 23.6%, p=.005) among undeserved in comparison with the general population, while the proportion of COVID-19-related hospitalizations was comparable among positive cases (p=-.09).

Conclusions: The non-significant differences in access to health care between the undeserved groups and the general populations suggested that equity-based policies mitigated disparities in access to care. As undeserved groups are more likely to be infected, such policies are very important and can help reducing the spread of SARS-CoV-2 by early detection of infected cases. These findings also inform for future SARS-CoV-2 immunization programs. The high uptake of the testing program should be taken as an indicator of the willingness of these high-risk groups to protect their own and their families' health.

P102

How many multimorbid elderly patients do receive antithrombotic drugs potentially inappropriately?

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Introduction: Data on the use of antithrombotics (AT, antiplatelet drugs (AP) and anticoagulants (AC)) is limited. Of patients aged >75 years, 40-66% take AP, 7-10% take AC. Only about 60% take AP when indicated. In 20-68%, there is no indication for AC. In multimorbid older patients, AT can cause an increased bleeding risk, leading to increased hospitalizations and morbidity/mortality.

Methods: We used baseline data from the OPERAM trial ("Optimising PharmacothERapy in the Multimorbid elderly"), which enrolled 2008 multimorbid persons aged ≥70 years with polypharmacy from 2016 to 2018. Based on major guidelines, indications for AP and AC were defined to assess appropriateness of AT therapy.
We analyzed the drug list of each participant for all AT and identified relevant diagnoses and cross-checked the defined indications. Patients who took an AT without indication were classified as "overuse", with indication but without AT as "underuse". In patients who did not take AT or have an indication, non-prescription was appropriate.

Results: The participants mean age (SD) was 79 (6.3) years, 44.7% were female. Overall, 1425 patients (71%) took AT. Of these, 1174 (82%) took one drug, 240 (17%) had dual and 11 (1%) triple AT therapy.
602 (29.9%) of patients had overuse (or a combination including overuse). 19.8% of patients had a single drug prescribed without indication. Dual therapy was overused in 9.6% and triple therapy in 0.6% of cases.
Misuse of AT was observed in in 203 (10.1%) patients, in 101 (5.3%) patients the misused drugs were also overused.
Overall, 433 (21.6%) patients were identified as having underuse, 156 (7.8%) without AT therapy and 277 (13.8%) had AT therapy but were not appropriately treated (e.g. AP instead of AC in atrial fibrillation Risk factors for inappropriate use include age ≥80 years, use of >10 medications and chronic kidney disease (KDIGO Classes 3-5). Protective factors include 10 or fewer medications.

Conclusions: In this cohort of multimorbid elderly patients with polypharmacy, two thirds took at least one AT. One in four took AT without an appropriate indication, and almost 10% were potentially undertreated. As overprescription of AT unnecessarily increases the risk of bleeding and underprescription exposes patients to the risk of thrombotic events, quality improvement measures to increase the proportion of appropriate prescription of AT have the potential to greatly reduce morbidity and mortality in elderly multimorbid patients.

P103

Persisting COVID-19 symptoms at 7 months from diagnosis in a longitudinal outpatient study

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Introduction: The term "long covid", recently introduced in the literature, describes illness in people who continue to report lasting effects of the infection. At the Geneva University Hospitals (HUG), a longitudinal study aims to describe Long COVID through a cohort followed since March 2020 at the first pandemic wave in Switzerland.

Methods: Adults testing positive for SARS-CoV-2 at the HUG between March 18 and May 15, 2020 and who were not hospitalized at baseline were recruited for the study. Participants were called during the first 10 days of the infection and at their 1 month follow-up (range from days 30-45). Participants received an online questionnaire or called by phone at their 7 months follow-up. Symptoms were reported using a standardized survey instrument with binomial variables for each symptom (yes, no) as well as symptoms evolution and intensity. Longitudinal analysis including Generalized Estimating Equations were used to account for repeated measurements.

Results: Out of the 669 participants, 432 answered their 7 months follow-up. 26% of all participants had at least 1 persisting symptom, with fatigue (13%), loss of taste or smell (10%), Dyspnea (7%), Headache (6%), Difficulty concentrating (4%), Loss of memory (3.6%), and Insomnia (3.5%). Hospitalization (n=40) seemed like a protective factor against persisting symptoms (OR 0.6, CI 0.40-0.89) and loss of taste or smell (OR 0.54 CI 0.32-0.89). Older age and female gender were associated with having at least 1 symptom at 7 months from diagnosis (age ≥ 50 OR 1.33 CI 1.08-1.65, female gender OR 1.36 CI 1.12-1.64), as well as fatigue (age ≥ 50 OR 1.39 CI 1.13-1.72, female gender OR 1.43 CI 1.17-1.74). Female gender and having more than 2 symptoms in the acute phase were also associated with the persistence of several symptoms. Intensity differed between symptoms and ranged from mild-moderate to severe with on average 50% of participants reporting symptoms at a moderate intensity, followed by 38% with mild, and 12% with severe symptoms.

Conclusions: A quarter of patients can have persisting COVID-19 symptoms at 7 months from diagnosis. The persistence of symptoms differs in intensity and depends on multiple factors including age and gender. It is paramount to assess symptoms duration, intensity and any predictors that may play a role in long COVID in order to better communicate to patients from the time of diagnosis and better prepare the healthcare system.

P104

Prevalence of antibodies against SARS-CoV-2 among Swiss Italian conscripts

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Introduction: The seroprevalence of antibodies against SARS-CoV-2 has been investigated in many studies. Few data are available on late adolescents (and conscripts). The aim of this cross-sectional study was to investigate the prevalence of conscripts who present with IgG against the SARS-CoV-2 and to evaluate their clinical history in the previous months.

Methods: Subjects 18-19 years of age undergoing the medical evaluation before the military service in Southern Switzerland from July to December 2020 were invited to participate. Blood was collected for detection of IgG against spike protein subunit 1 of SARS-CoV-2. Furthermore, subjects filled in a structured questionnaire about their clinical history from February 2020.

Results: A total of 301 subjects (286 males and 15 females) volunteered to participate. Only 10 (3.3%) subjects tested positive for IgG against SARS-CoV-2. History of hyposmia, asthenia and muscle ache were slightly but significantly more common among subjects, who tested positive for IgG against SARS-CoV-2.

Conclusions: To the best of our knowledge, this is the first study investigating the seroprevalence of IgG against SARS-CoV-2 in Swiss conscripts before beginning of the military service. The data point out that the vast majority of these subjects do not present IgG against SARS-CoV-2. Despite not considered among priority groups for vaccination, late adolescents have a significant potential to transmit SARS-CoV-2 infections and to be source of SARS-CoV-2 outbreaks. Taken together, these data suggest that vaccination campaigns should consider conscripts who might be at high risk of SARS-CoV-2 during military service.

P105

Prevalence of atrial fibrillation: The Swiss population-based CoLaus study

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Introduction: Atrial fibrillation (AF) is the most common arrhythmia worldwide and is associated with increased morbi-mortality. The prevalence of AF in the western world is described as raising. However reports on the prevalence of AF in the last decade are scarce, and whether the prevalence of AF increased during the last decade in Switzerland remains uncertain. Therefore we aimed to assess, using data from a Swiss population-based sample, the prevalence of AF from 2014 to 2017 and to investigate determinants of AF.

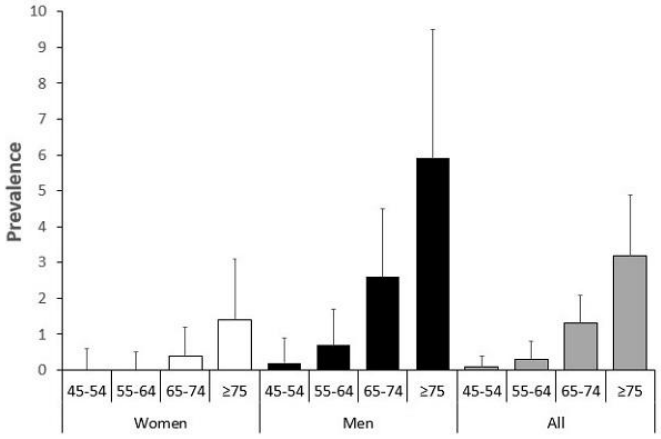
Methods: Cross-sectional analysis of 4616 participants aged 45-86 years (55% women) from a population-based sample designed to explore the prevalence and determinants of cardiovascular risk factors in the population of Lausanne, Switzerland. AF was assessed using electrocardiography (ECG) between 2014 and 2017.

Results: Overall, the prevalence of AF was 0.9% (95% confidence interval: 0.7-1.2%) and the combined AF + atrial flutter prevalence was 1.1% (95% confidence interval: 8.4-1.5%). The prevalence of AF was higher among men (81%, vs. 19% in women) and increased with age, reaching 3.2% in participants aged ≥75. In multivariable analysis, male gender [odds ratio and 95% CI: 4.99 (1.01-24.68)] and increasing age [2.79 (1.35-5.74) per decade] were associated with AF.

Conclusions: The prevalence of AF, assessed between 2014 and 2017 in the city of Lausanne (Switzerland), was low but increases with age and in male subjects.

	Odds ratio (95% CI)	P-value
Age (per decade)	**2.79 (1.35 - 5.74)**	**0.005**
Man vs. woman	**4.99 (1.01 - 24.7)**	**0.049**
Personal history of CVD (yes vs. no)	2.62 (0.57 - 12.1)	0.217
Hypertension (yes vs. no)	2.86 (0.58 - 14.0)	0.196
BMI – Overweight (ref is normal-underweight)	4.95 (0.59 - 41.5)	0.141
BMI – Obese (ref is normal-underweight)	6.12 (0.62 - 60.3)	0.121
Dyslipidemia (yes vs. no)	0.44 (0.12 - 1.71)	0.238
Diabetes using HbA1c (yes vs. no)	0.91 (0.20 - 4.13)	0.902
Physical activity (yes vs. no)	0.74 (0.14 - 3.78)	0.716

[Multivariable analysis of the factors associated with atrial fibrillation, CoLaus|PsyColaus study, 2014-2017, Lausanne, Switzerland.]



[Prevalence (%) of atrial fibrillation by sex and age]

P106

Quality of dying – a retrospective analysis

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Introduction: How do people die in the Werdenberg-Sarganserland region? And what is the relationship between the doctor and the deceased? In a retrospective analysis we interviewed post-mortem doctors about the patients´ quality of dying.

Method: From January 2015 to September 2017, doctors, who were brought in after the death of patients, were asked to answer questions about the place of death, the relationship to the dead and the quality of the process of dying, using a questionnaire enclosed with the official cause of death statistics form. The anonymized data was recorded and evaluated in an Excel file.

Results: A total of 796 deceased were registered. The vast majority died either in a hospital (33%), in a home for the aged (23%) or in a nursing home (21%). Only 18% died at home [Graph 1]. The relationship of the doctor who was brought in after death was described as close in only 7%, in 59% of the cases there was no relationship between the doctor and the deceased [Graph 2]. However, 3/4 of the doctors could designate a person, who had looked after the deceased before death [Graph 3]. 2/3 of all doctors had spoken to a relative before or after death [Graph 4]. The effort for doctors concerning medical care increased significantly in the days before the patient´s death[Graph 5].

Discussion: The places of death observed in our study coincide with the figures from the Swiss Health Observatory. Contrary to the widespread desire among people to die at home, only 18% of all deceased are granted this. Since doctors working in hospitals and nursing homes were also consulted after death, there is a bias in the display of the relationship of the doctor to the deceased. It is assumed that the relationship between the deceased at home and their general practitioners can be described as good or even close. It is encouraging that in the majority of the cases the physicians brought in after death knew carers of the deceased and spoke to relatives immediately before or after death. The analysis of the medical care efforts one year and immediately before death reflects the fact that the majority of the patients did not die at home,

but rather in a hospital or nursing home, with 50% of the doctors claiming no effort the days before the patient's death.

Conclusion: We believe there is potential to improve the quality of dying in our region to match the patient's wishes. Further studies in this regard would be appreciated.

P107

Reduced maximal aerobic capacity after COVID-19 in young adult recruits, Switzerland, May 2020

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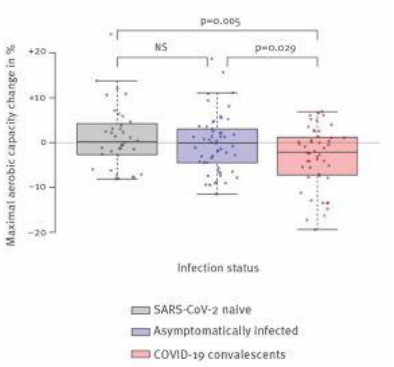
Introduction: Clues as to the occurrence of sequelae following the 2019 coronavirus disease (COVID-19) already exist: Impairment of physical fitness and abnormalities in lung imaging have been described mostly for in-patients. These abnormalities have also been observed after asymptomatic infection. To add to this area of research, we compared muscle strength and physical endurance before and after a COVID-19 outbreak among young, otherwise healthy Swiss recruits.

Methods: The 199 study participants (age range: 18-27 years, 87% men) were completing their military training together at the Swiss Armed Forces Base in Airolo. We sampled those with flu-like symptoms as wells as all participants cross-sectionally to detect asymptomatic infections: Reverse transcriptase quantitative PCR (RT-PCR) on nasopharyngeal swabs and serology by enzyme-linked immunosorbent assay (ELISA) were assessed to group the participants into convalescents, asymptomatically infected, and a naive group without evidence for infection. A standard sport test (TriFit) including progressive endurance run, prone bridge test, and seated shot put test is run at the beginning and end of any recruits' school. TriFit was run 3 months before and within 1-2 months after the COVID-19 outbreak in Airolo. Thus, we were able to compare the post-infection results of estimated maximal aerobic capacity (VO_2 max) as well as arm and trunk muscle strength with a baseline.

Results: We found VO_2 max to be decreased (mean -0.9 ml/min/kg, p=0.005) among convalescents, with none of them significantly improving and around a fifth losing 10% or more of their initial VO_2 max. Asymptomatic and naive recruits showed stable results in the mean, while 10% and 14% were able to improve, respectively. Neither arm nor trunk strength showed significant differences between the three groups.

Conclusions: VO_2 max is a measure of physical endurance that is generally expected to increase during military training. We therefore interpret a decrease of it as an impairment of cardiopulmonary endurance among otherwise healthy young adults around one month after symptomatic COVID-19. Due to the observed stability in muscular strength, this decrease is not likely to be a mere consequence of deconditioning. Although we cannot identify a clear etiology for them, our study shows that mid- and long-term effects of the current pandemic have to be further investigated not only for in-patients but also for the general population.



[Difference in VO2max before and after COVID-19 outbreak by infection status]

P108

Social distancing alters the clinical course of COVID-19 in young adults: a comparative cohort study

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Background: Viral SARS-CoV-2 inoculum might not only reduce the probability of infection, but also favour an asymptomatic course of the disease. Social distancing and masks wearing seem to be effective in reducing the number of transmitted virus particles, and therefore the infectivity, of coronavirus disease 2019 (COVID-19) and could alter the mode of transmission of the disease.

Methods: We prospectively studied an outbreak of COVID-19 in 508 mostly young male soldiers. We followed the clinical course of two spatially separated cohorts before and after implementation of stringent social distancing.

Results: In a group of 354 soldiers where infection occurred prior to implementation of social distancing 30% suffered from symptomatic COVID-19. No soldier in a group of 154 people, in which infections happened after implementation of social distancing, developed COVID-19. Both viral nasal RNA and virus specific antibodies could be detected.

Conclusions: We hypothetize, that there is a dose-effect relationship with regards to the clinical course of COVID-19. Social distancing slows not only the spread of SARS-CoV-2 but can also prevent the outbreak of COVID-19 while still inducing an immune response and colonizing nasal passages. Hence, viral inoculum during infection or mode of transmission may be a key factor determining the clinical course of COVID-19.

P109

What patient factors are associated with the new prescribing of potentially inappropriate medications in older adults with multimorbidity and polypharmacy?

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Background: The use of potentially inappropriate medications (PIMs) is common in older adults and is associated with potential negative consequences, such as falls and cognitive decline. Our objective was to investigate measurable patient factors associated with new outpatient prescribing of potentially inappropriate medications in older multimorbid adults already using multiple medications.

Methods: In this retrospective US cohort study, we used linked Medicare pharmacy and medical claims and electronic health record data from a large healthcare system in Massachusetts between 2007 and 2014. We identified patients aged ≥65 years with an office visit who had not been prescribed or used a PIM in the 365 days before the visit. PIMs were defined using 2019 Beers criteria of the American Geriatrics Society. To specifically evaluate factors in patients with polypharmacy and multimorbidity, we selected those who filled medications for ≥90 days (i.e., chronic use) from ≥5 pharmaceutical classes in the prior 365 days and had ≥2 chronic conditions. Multivariable Cox regression analysis was used to estimate the association between baseline demographic and clinical characteristics on the probability of being prescribed a PIM in the 90-day follow-up period.

Results: In total, we identified 17,912 patients aged ≥65 years with multimorbidity and polypharmacy who were naïve to a PIM in the prior 365 days. Of those, 10,497 (58.6%) were female, and the mean age was 78 (SD=7.5). On average, patients had 5.1 (SD=2.3) chronic conditions and previously filled 6.1 (SD=1.4) chronic medications.

In total, 447 patients (2.5%) were prescribed a potentially inappropriate medication during the 90-day follow-up. Male sex (adjusted hazard ratio (HR)=1.29; 95%CI: 1.06-1.57), age, (≥85 years: HR=0.75, 95%CI: 0.56-0.99), ambulatory visits (18-29 visits: HR=1.42, 95%CI: 1.06-1.92; ≥30: HR=2.12, 95%CI: 1.53-2.95), number of prescribing orders (HR=1.02, 95%CI: 1.01-1.02), and heart failure (HR=1.38, 95%CI: 1.07-1.78) were independently associated with being newly-prescribed a potentially inappropriate medication.

Conclusion: Several demographic and clinical characteristics, including factors suggesting lack of care coordination and increased clinical complexity, were found to be associated with the new prescribing of potentially inappropriate medications. This knowledge could inform the design of interventions and policies to optimize pharmacotherapy in this patient group.

Quality of care

P110

Adult survivors of childhood cancer: characteristics of patients from two follow-up care clinics

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Introduction: Currently >80% of children, diagnosed with cancer, survive their disease. Many adult survivors of childhood cancer (ACCS) suffer from late effects of the cancer or its treatment. Interdisciplinary long-term follow-up has been shown to improve morbidity and mortality and to be cost-effective. However, in Switzerland the majority of 270 survivors annually transitioning into adult care are lost to follow-up. The long-term follow-up clinics in Bern and Liestal are one of the first that offer follow-up care under the guidance of general internists. The aim of this study was to assess the prevalence of follow-up care and late effects in the ACCS included in the program.

Methods: ACCS from the long-term follow-up clinics were included in this cohort study. The patients' history, several clinical parameters (e.g., blood pressure, laboratory tests, and spirometry) as well as data about quality of life (e.g. SF36) are collected in yearly follow-ups. We assessed the influence of the time elapsed between end of follow-up in a pediatric setting and first follow-up visit on the prevalence of late effects: group 1* age at the first follow- up visit < 28 years, group 2** age at the first follow- up visit ≥28 years.

Results: We analyzed 54 ACCS (68% group 1, 32% group 2, **Table**). Mean age was 26 years, 75% were female. The most common cancer were leukemia (22%) and lymphoma (22%). In total 30% (group 2 59%) reported no follow-up care at all since their transition into adult care. Only 15% of ACCS received information regarding late effects and importance of follow-up care. Less than 4% reported no late effects (96.3% with ≥1 late effect(s) in ≥1 organ system(s)). The mean number of organ systems affected by late effects increased from 4.2 in group 1 to 6.0 in group 2. The most frequently affected systems were endocrine (51%), neurological (46%), eye (37%), and musculoskeletal/chronic pain (48%). Psychological problems and fatigue were present in 33% (group 1 16%, group 2 71%). Whereas 39% were working, 24% were unemployed or on disability pension.

Conclusion: The majority of ACCS presented with one or more late effects. However, one third reported no follow-up care after the transition into adult care. A substantial proportion of ACCS suffered from psychological problems and unemployment. Structured interdisciplinary care under the guidance of experienced general internists will offer the opportunity to care for late effects and prevent chronic diseases.

Number of patients	All 54 (100)	<28 years* 37 (68)	=28 years** 17 (32)
	n (%) / mean [SD]		
Patients without late effects	**2 (4)**	**1 (3)**	**1 (6)**
Affected organ systems: mean [SD]	**5.0 [2.8]**	**4.2 [2.3]**	**6.0 [2.8]**
Number of late effects	**254**	**153**	**101**
Endocrine	28 (51)	18 (48)	10 (59)
Neurological	25 (46)	16 (43)	9 (53)
Eye	20 (37)	15 (41)	5 (29)
Musculoskeletal / chronic pain	26 (48)	16 (43)	10 (59)
Skin	18 (33)	13 (35)	5 (29)
Hearing	15 (28)	10 (27)	5 (29)
Pulmonary	14 (26)	7 (19)	7 (41)
Cardiovascular	14 (26)	6 (16)	8 (47)
Urinary tract/renal	12 (22)	8 (22)	4 (24)
Gastrointestinal	12 (22)	5 (14)	7 (41)
Psychosocial / fatigue	18 (33)	6 (16)	12 (71)
Immunological/infectious	5 (9)	3 (8)	2 (12)
Hepatic	5 (9)	4 (10)	1 (6)
Gynecological/male reproductive	4 (7)	1 (3)	3 (18)
Raynaud's phenomenon	3 (6)	2 (5)	1 (6)
Other late effects	35 (26)	23 (62)	12 (71)
Current occupation			
Employed	21 (39)	10 (27)	11 (65)
Disability pension	5 (9)	4 (11)	1 (6)
In education	19 (35)	19 (51)	0 (0)
Unemployed	8 (15)	4 (11)	4 (24)

[Overview of late effects and occupation in ACCS included in the long-term follow-up study]

P111

Adult survivors of childhood cancer: patient needs and approach during follow-up care in two interdisciplinary outpatient clinics in General Internal Medicine

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Introduction: Currently more than 80% of children diagnosed with cancer survive the disease and undergo transition into adult primary follow-up care. Little is known about the specific needs of adult survivors of childhood cancer (ACCS). Most ACCS suffer from late effects of the cancer and the treatments. We aim to study the needs of ACCS and how effectively they can be addressed in an interdisciplinary follow-up program under the clinical lead of general internists.

Methods: We assessed the needs of ACCS before their clinical visit within the interdisciplinary follow-up program at the outpatient clinic of the Departments of General Internal Medicine at the University Hospital Bern and the Cantonal Hospital Baselland in Liestal. All ACCS were invited to report their satisfaction three months after the visit. We further assessed the influence of the clinical visit on the self-perceived health in a subgroup.

Results: In total 69 ACCS attended the follow-up program, 65 ACCS (94%) completed a questionnaire on needs before their visit and 37 ACCS (54%) returned the 3 months follow-up questionnaire. Most ACCS wished to discuss their current health state, late effects of cancer treatments, current health behavior, and medications (Table 1). For more than 30-40% social, work-related, insurance-related issues as well as fertility were also important topics. After 3 months, most ACCS stated that their needs were addressed. Current health was discussed in 94%, medication in 84%, late effects of cancer treatments in 92%, fertility in 81%. In a subgroup of 36 ACCS, 14 (39%) reported improvement and 18 (50%) no change in their self-perceived health status. However, 4 ACCS (11%) reported a worse or much worse health status.

Conclusion: The needs of ACCS during follow-up care cover a wide range of health related and social aspects. Although most of the needs were addressed during an interdisciplinary follow-up clinic, insurance related aspects were less well covered. Great care must be executed when caring for ACCS as a subgroup of patients reported a worse self-perceived health status after the clinical visit.

Patient related needs	Before clinical visit	Needs covered (3-months follow-up)
Responders	**65**	**37**
Current health status	45 (69.2%)	35 (94.6%)
Medication	33 (50.8%)	31 (83.8%)
Late effects of cancer therapy	43 (66.2%)	34 (91.9%)
Current health behavior	38 (58.7%)	34 (91.9%)
Contraception/fertility/ sexual problems	30 (46.2%)	30 (81%)
Difficulties with work/ education	18 (27.7%)	29 (78.4%)
Insurance	21 (32.3%)	14 (37.9%)

[patient related needs and their coverage at the clinical visit]

P112

Can we improve blood culture collection practice? A survey about knowledge and attitudes among physicians regarding blood culture collection at the University Hospital Basel

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Background: Approximately 18'000 blood cultures (BC) are collected per year at the University Hospital Basel (USB). As inappropriatetely collected BC are associated with substantial costs and have the potential to harm patients, we aimed to assess in-house prescribers' knowledge, attitudes, and perceptions regarding BC collection to assist in developing future interventions to improve quality of BC collection.

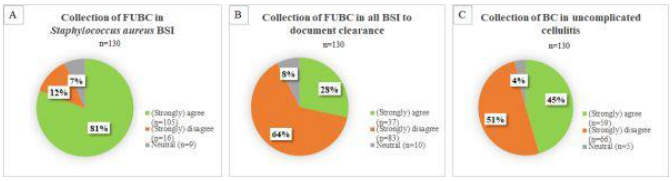
Materials/methods: In January 2021, an 18-item electronic questionnaire (Table 1) was sent to 353 physicians at the USB working in either the Department of Internal Medicine or Surgery, the intensive care unit (ICU), the emergency department (ED) or the infectious diseases consultation service. Participation was voluntary and anonymous. We used Research Electronic Data Capture (REDCap) to create and distribute the survey. Answers were provided using a 5-point Likert scale.

Results: 130 (37%) participants completed the survey. The majority (n=61; 47%) was working in the Department of Internal Medicine and 68 (52%) were residents. 96 responders (74%) had the impression that too many BC are collected in daily practice and 42 (33%) reported to be unfamiliar with the indications of BC collection. 83 providers (64%) agreed that the likelihood for a positive BC is higher if fever is accompagnied by shaking chills. The proporption was significantly lower in ED physicians and surgeons (46% and 30%, respectively, p=0.002). Follow-up BC (FUBC) were deemed necessary in *Staphyloccus aureus* bloodstream infection (BSI) by 81% of the respondents, and was negatively correlated with work experience (p=0.05). 37 responders (28%) agreed to collect BC in all BSI to document clearance. Ambigous answers were noted for the scenarios of patients presenting to the ED with uncomplicated cellulitis or with community acquired pneumonia (CAP) (Figure 1).

Conclusions: We report significant uncertainty regarding several aspects of BC collection. In particular, respondents strongly disagreed on the requirement of BC collection in uncomplicated cellulitis and CAP, whereas the benefit of BC in *Staphylococcus aureus* BSI was acknowledged by the great majority in accordance to guidelines. In contrast, a significant proportion of participants agreed with FUBC collection in all BSI to document clearance, despite the lack of evidence. Our results identify areas of BC collection practices that future interventions may focus on.

1. I already had the impression that too many BC are collected from my patients.
2. The indication for BC collection is often unclear to me.
3. The likelihood for a positive BC is higher if fever is accompagnied by shaking chills.
4. BC should be collected in hospitalised patients with new onset of fever (after 48h of fever absence)
5. BC should be collected in hospitalised patients with new leukocytosis and an increase in CRP.
6. FUBC should be collected in patients with Staphylococcus aureus blood stream infections.
7. FUBC should be collected in all blood stream infections to document clearance.
8. At the emergency department, BC should be collected in patients with uncomplicated cellulitis
9. At the emergency department, BC should be collected in febrile patients with moderate, community acquired pneumonia
10. A patient with suspected urosepsis is admitted to the general ward. Before initiation of antibiotic treatment 2 BC and an urine culture were drawn. 12h later, fever spikes again. BC should be collected.

[Table 1. Selection of questions of the survey. BC: blood culture. FUBC: follow-up blood culture.]



[Figure 1. Respondents' answers to BC collection in different settings.]

P113

Communication in medicine: placebo or nocebo? Results form a preliminary study

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Introduction: Warnings and commiserations referring to painful sensations or unpleasant emotions (e.g., "I´m stinging," "don´t be afraid") do not help patients to cope with pain and anxiety linked to medical procedures. Indeed, this mode of communication increases patient´s distress (Lang et al. 2005), and therefore could be regarded as a real nocebo effect. "Therapeutic communication" is a conversational approach derived from hypnosis that can be easily and quickly learned. The benefits of such practice have been demonstrated in several studies (Lang et al. 2000 and 2006); moreover, it could reinforce an attitude of empathy and compassion.

Methods: This preliminary study consists of 2 parts: 1. Review of the literature on the impact of words in clinical communication 2. Analysis of pre-existing transcripts (N=25; from interprofessional high-fidelity mannequin-based simulations) using a qualitative analysis software.

Results: Our literature review shows a scarcity in the literature regarding how communication can affect patients and her/his relationship with health-care providers. Moreover, our preliminary data show that healthcare workers do often use nocebos during clinical interactions.

Discussion: Healthcare workers often use nocebos without being aware of it. Education and ad-hoc training can improve such "unconscious" but potentially harmful attitude.

P114

Early initiation of advance care planning in ALS patients: results of a systematic intervention of a palliative care team in a multidisciplinary management program

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Introduction: Early palliative care and advance care planning (ACP) are recommended for multidisciplinary management programs (MDM) in amyotrophic lateral sclerosis (ALS). However, patients may be reluctant to discuss end of life care.

Aims: To determine the effect of a systematic palliative care consultation on the initiation of ACP in ALS patients.

Methods: Cohort study of ALS patients followed by the MDM of the Geneva University Hospitals between June 2012 and September 2016. Patients are seen every 3 months for a one-day multidisciplinary evaluation. All the data were collected prospectively.

Results: Out of 68 patients, 4 with dementia were excluded. Half the patients were men. Mean age was 68.6 (±11.9) years. Thirteen patients (19%) had bulbar onset ALS. On the first palliative care consultation 14 patients (21%) were under non invasive ventilation (NIV). Thirty patients (44%) died during follow-up. ACP was discussed with 49 patients (77%) on the first palliative care consultation. Main topics were intubation and tracheostomy (n=23; 47%), cardiopulmonary resuscitation (n=24; 49%), and palliative sedation (n=18; 36.7%). Assisted suicide was discussed with 16 patients (36.6%) at their request. Functional disability was the only factor associated with initiation of ACP. Advance directives (AD) were written by 29 patients (43%), and 26 (38%) designated a healthcare surrogate. Bulbar onset, functional disability, and NIV were not associated with AD completion.

Conclusion: Advance care planning can be initiated early in most ALS patients and relevant treatment issues are discussed. All the patients should be offered to write advance directives as completion was not associated with disease severity.

P115

Evaluation of sleep in a rehabilitation ward: a pilot study

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Background: Although inadequate sleep is negatively associated with health care outcomes, as yet data about sleep in general hospital wards are scarce, and no study examined sleep in a readaptation structure.

Methods: This pilot observational study was conducted to assess sleep quality and quantity and to identify hospital-related factors associated with sleep disturbances and their possible correlations with adverse events related to hospitalization. Patients admitted in November 2019 at the Division of General Medical Rehabilitation - Beau-Séjour (Geneva University Hospitals) were recruited. On the 3rd day of their hospital stay, they received an anonymized questionnaire assessing subjective sleep quantity and quality during their stay as compared to home, physical activity during the day and factors disturbing sleep. Exclusion criteria: cognitive impairment (MMS< 24) and insufficient mastery of French.

Results: Forty-five patients were included (median age=69.9; gender: 54.5%=male). As compared with home, total time of sleep in hospital was 80 minutes shorter even in patients who reported no sleep problems at home. Thirty-three (73.3%) patients reported problems sleeping and 65.9% had insomnia according to the Paquereau Scale (light in 39.0%; moderate in 19.5%; and severe in 7.3%). The mean time between going to bed and falling sleeping was 2 hours. Patients developing sleep problems after admission (n=17), were those who spent more time in bed (>6h), moved less (< 2h), were wearing a hospital gown and took more naps during the day, and drank more coffee after 3 pm. More than 80% of patients having sleep disorders also had several nocturnal awakenings when hospitalized, mainly related to noise (N=16), light (13) and pain (15). More than half (55.6%) of the patients consumed sleeping pills, with 72% of them already on sleeping pills at home, and 28% had a new prescription during their hospital stay. As many as 54.5% of patients reporting no sleep problems took sleeping pills at home.

Conclusion: This study stresses the importance of sleep issues in hospitalized patients, and shows that duration and quality of sleep are markedly affected. Many potentially modifiable hospital-related factors negatively associated with sleep are substantiated. Targetting these factors may improve health care during the high-risk period of hospitalization.

P116

gA-Mathis: an interprofessionally assembled GERIATRIC ASSESSMENT TOOL by an APN-Advanced Practice Nurse and General Practitioners Team to improve medical- and nursing care for retirement home residents

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Introduction: Capturing the vulnerability of geriatric patients through evidence based assessment tools by the General Practioner (GP) is difficult mainly due to the lack of time in the ambulatory setting.
The aim of this Project was to examine the feasability and practicability of integrating an APN-Advanced Practice Nurse in assessing geriatric patients through valid tools and then work out a medial -and nursing care strategy together with the GP for geriatric retirement home residents.
This could lead to early detection of certain symptoms and syndroms as well as weaknesses and health restrictions and to prevent avoidable complications.

Methods: A simple, practical and user-friendly assessment tool was assembled by the APN after an extensive search for evidence-based and valid assessments tools.
The following 10 geriatric Syndoms and health restrictions were examined and both treatment- and nursing care strategies were developed in order to improve the quality of life ot these residents/ patients: Frailty, Fall Efficacy, Mobility, Urine-Incontinence Nutritional status, Oral health, Sleeping behavior, Psychological status, Pain, and Polypharmacy. This project was implemented in 2 retirement homes in the Canton of Schwyz/Switzerland.

Results: In a period of 1 Month 11 complete assessments were completed along with treatment-and nursing care strategies. The median age of the residents was 87 years. In all residents, unexpressed multiple geriatric Syndroms and health restrictions were found that needed diagnostical, therapeutical or nursing care. The main issues assessed, concerned the Nutritional status, Mobility, Psychological status, Urine-Incontinence and Sleeping behaviour. Polypharmacy was a serious issue as well whereas the number of medications after the assessment was reduced by almost a half.

Conclusion: Integrating an APN-Advanced Practice Nurse to assess geriatric residents in retirement homes and to develop an interproffessional treatment-and nursing care strategy with the GP ist very realistic and feasable as well as a thankful task that not only lead to improvent of the quality of life for the patient and his realitves but also was thankfully accepted be the caregivers in those retirement homes.
The next step is to modify and adapt Mathis assembled gA-Geriatric Assessment Tool in order to be used to assess geriatric patiens in the GP- ambulatory setting.

P117

Implementation of a complex intervention to improve hospital discharge: process evaluation of a cluster randomized controlled trial

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Introduction: Polypharmacy is associated with adverse health outcomes, and its extent increases during hospitalisation. In a cluster randomized, controlled, effectiveness-implementation hybrid trial, we tested the effectiveness of a medication review at hospital discharge (using a checklist, Figure 1), and a communication stimulus between hospital physicians (HPs) and general practitioners (GPs), on rehospitalisation of multimorbid older patients in Switzerland. The complex intervention involved multiple sites, different levels of personnel, and different time points during the patients' hospital stay. In this article, we report on the implementation of our trial with regard to recruitment, delivery, response and maintenance.

Methods: For this mixed method process evaluation, we developed a framework on the basis of Grant et al., paying special attention to the multilevel nature of the intervention. We collected data

on recruitment, delivery, and response from chief physicians (semi-structured interviews), senior HPs, junior HPs, GPs (surveys), and patients (via HPs). Quantitative data was summarised using descriptive statistics, and interviews were analysed using thematic analysis.

Results: Among the 21 participating hospitals (n = 12 in the intervention group), process evaluation data was collected from 15 chief physicians, 60 senior HPs, 65 junior HPs and 187 GPs (Figure 2: Flow of participants through the study). Implementation was successful in recruitment of hospitals and HPs and in response of HPs, patients, and GPs. Implementation success was mixed regarding intervention delivery to patients and GPs. Implementation was deficient in recruitment and retention of patients. We identified a multitude of implementation facilitators and barriers as well as strategies to overcome the latter.

Conclusions: The results from this evaluation will support interpretation of the findings of the effectiveness study and - positive results given - dissemination of our approach to further hospitals. In addition, the implementation strategies presented may help researchers to plan future studies in the hospital setting.

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Discharge-Checklist Patient-ID: .....

Date: .....

	Yes	No
1: Have you collected the **main complaint** of the patient?	❑	❑
2: Have you and your patient discussed the **treatment goals from his own point of view** ?	❑	❑
3: Have you compiled a full list of all the patient's **drugs at admission**?	❑	❑
4: Have you decided for every single drug whether		
▪ the patient will indeed **take it as prescribed**?	❑	❑
▪ the **indication** of the drug is correct for this patient?	❑	❑
▪ the **risk of side effects** (present or expected) is less than the benefit incurred?	❑	❑
▪ the **dose** is correct for this individual patient (age, comorbidities)?	❑	❑
▪ there is no **alternative drug** with a better benefit-to-risk ratio?	❑	❑
5: Have you decided whether a **new drug** is indicated?	❑	❑
6: Did you **involve the patient** in the changes you are proposing?	❑	❑
7: Have you provided the patient with a **discharge medication list** together with an invitation to use it?	❑	❑
8: Have you motivated the patient to consult the family doctor/general practitioner **within 7 days**?	❑	❑
9: Did you send the **list of modified or newly introduced** medications to the family doctor/general practitioner?	❑	❑
10: Have you offered the family doctor/general practitioner **to discuss** medication changes?	❑	❑

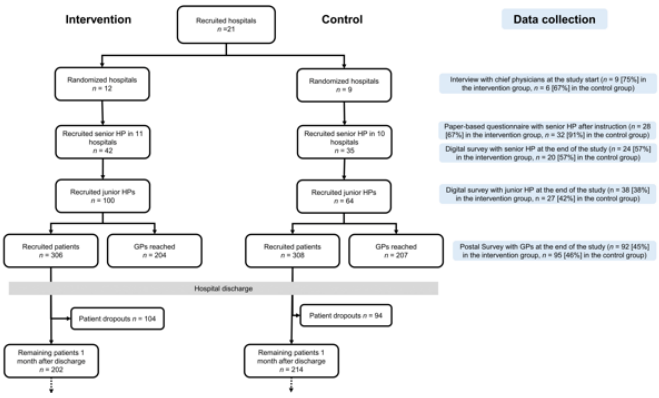
11: Was there any **contact with the general practitioner during the hospital stay** in view of the imminent discharge of the patient? ❑ Yes / ❑ No

Discharging Physician:

Name: ..... Junior HP ❑ / Senior HP ❑ Signature: .....

Thank you very much!

[Figure 1. Checklist used by hospital physicians in the intervention group for each recruited patient]



[Figure 2. Flow of participants through the study, by study arm]

P118

Physicians' perspective on nonbeneficial treatment when assessing patients for ICU admission: a qualitative study

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Background: Providing nonbeneficial intensive care treatment to patients with advanced disease prolongs suffering at the end of life. It is associated with family distress and healthcare staff burnout.

Aims: To determine whether physicians integrate potentially nonbeneficial treatments in their clinical reasoning for ICU admission decisions and how they resolve the question.

Methods: We conducted qualitative in-depth interviews with 12 ICU physicians and 12 internists working in the Geneva University Hospitals, a tertiary care hospital with 34 adult ICU beds. Interviews were analysed using an inductive approach to thematic content analysis.

Results: Physicians struggled to understand the request for intensive care for patients with advanced disease and full code status. Physicians considered patients' long-term vital and functional prognosis, but they also resorted to shortcuts, i.e. a priori consensus about reasons for admitting a patient. Family pressure and unexpected critical events were determinants of admission to the ICU. Patient preferences, ICU physician's expertise and collaborative decision making facilitated refusal. Physicians were willing to admit a terminally ill patient for a limited amount of time in order to fulfill a personal need.

Conclusions: In situations of potentially nonbeneficial intensive care, the influence of shortcuts or context-related factors suggests that practice variations and inappropriate admission decisions are likely to occur. Additional research should focus on how physicians weigh multiple contextual factors and how institutional guidelines and advance care planning can help admission decisions.

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P119

Quality of life in patients with T2DM mellitus before and one year after a structured education program (KOMEKON)

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Introduction: It is widely accepted, that patients with type 2 diabetes should change their lifestyle in order to gain life years and improve their quality of life (QoL).
PizolCare, an integrated medical network in Eastern Switzerland, developed a practical education program aiming at improving disease perception for (newly diagnosed) patients with type 2 diabetes mellitus. This program proved successful in significantly lowering HbA1c [1]. Similar programs have led to a significant and clinically relevant HbA1c reduction [2,3,4]. In this survey we address the participants' QoL-parameters.
Methods: The survey was conducted before and one year after patients attending the KOMEKON education program. After obtaining informed consent data were filed and analyzed using MS Excel.
100 patients took part in the survey (38 women and 62 men) of whom 43 participants answered the questionnaire twice, i.e. at the beginning and one year after concluding the program.

Results: We observed a trend towards a better perception of health state and QoL after one year, although - with the participants getting older - handicap in daily activities grew, though not significantly. Psychological distress in relation to the disease led to slightly less physical activity in participants one year after attending the program, though no significance could be detected here as well. An insignificant increase of handicap regarding sexual activity was noted. Finally, time spent on diabetes treatment did not differ after one year.

Conclusions: Attending the KOMEKON structured diabetes education program proved safe for participants and showed a trend towards better disease perception and QoL after one year.

P120

Safety monitoring of morphine prescribing in hospitalised non-critical care patients with renal failure

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Introduction: Hospitalized patients often need strong painkillers and morphine is one of the most frequently used opioid drugs for this purpose. However, caution is needed particularly in elderly patients and patients with impaired renal function due to metabolite accumulation and therefore intoxication under what are normally considered to be therapeutic morphine doses. As a consequence, morphine-use in patients with severe renal failure (< 30 ml/min) is contraindicated in our hospital.

Methods: A quality audit was performed as part of our university hospital`s drug safety monitoring programme. We developed an alert trigger tool and defined two high-risk patient groups under morphine treatment as automatic alerts, namely "patients > 65 years old with GFR < 45 ml/min" and "patients with GFR < 30 ml/min". We monitored and analysed the total number of non-critically ill, hospitalised patients treated with morphine (scheduled or on-demand) and the frequency of automatic alert activation in the two groups between November 2020 and January 2021. Patients on emergency, critical-care and haematological stem cell transplant units were excluded. We additionally gathered information about emergency interventions using an alert called "naloxone administration", which alerted us every time naloxone was administered.

Results: A total of 1162 patients were treated at least once with morphine during the studied time period. The first alert "patients > 65 years old with GFR < 45 ml/min" was activated in 70 (6.0%) and the second one "patients with GFR < 30 ml/min" in 38 (3.3%) of 1162 patient cases, respectively. For 31 of these patients, both alert criteria were met - either simultaneously or with a 1-3 day difference. Overall, one patient in the "patients > 65 years old with GFR < 45 ml/min" group was treated with the antidote naloxone 48 hours after alert activation.

Conclusions: This systematic drug safety monitoring of morphine prescribing in patients with impaired renal function and elderly patients will allow us to identify patients at risk of overdose early on and to take preventive action.

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Sex-related disparities in management and prognosis of acute ischemic heart events in Switzerland

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Introduction: Cardiovascular diseases are the leading cause of death in both men and women in Switzerland. The objective of this study is to assess if there are differences in the management and prognosis between men and women with an ischemic heart event.

Methods: Retrospective analysis of hospital administrative health data including all ischemic heart events (unstable angina, non-ST-segment-elevation myocardial infarction (NSTEMI) and ST-segment-elevation myocardial infarction (STEMI)) in Swiss hospitals between 2009 and 2017. We compared management (cardiologic investigations and treatments) and outcomes (complications and mortality) between men and women. Logistic regression models adjusted for potential confounding factors (age, nationality, class of stay, type of ischemic event, presence of older ischemic event, somatic and psychiatric comorbidities) were built for each outcome.

Results: Out of 224'172 participants, 72'889 (32.5%) were women. Women were on average older than men (74.9 (SD 13.17) vs. 66.8 years old (SD 12.44). The proportion of STEMI and unstable angina were higher in women than men (52.2% vs. 47.2% and 16.0% vs. 15.4%, respectively), whereas the proportion of STEMI was higher in men (37.4% vs. 31.8%).
Compared to men, after adjustment to potential confounding factors, women were less likely to receive cardiologic investigations such as coronarography (Odds Ratio (OR) 0.81, 95% Confidence Interval (95% CI) 0.79-0.83) and angiocardiography (OR 0.85, 95% CI 0.83-0.87), and treatments such as thrombolysis (OR 0.90, 95% CI 0.86-0.94), percutaneous coronary intervention (PCI) without stenting (OR 0.72, 95% CI 0.70-0.73), PCI with stenting (OR 0.72, 95% CI 0.71-0.74) and coronary artery bypass graft (OR 0.61, 95% CI 0.58-0.64).
Regarding complications, women were more likely than men to get complications from hospital care (OR 1.13, 95% CI 1.10-1.16) and to be readmitted (OR 1.08, 95% CI 1.03-1.14). Intrahospital death rates were higher among women (7.5%) compared with men (5.3%), with an unadjusted OR of 1.45 (95% CI 1.40-1.51). The difference decreased and became non-significant after adjustment for confounding variables (OR 0.9, 95% CI 0.88-0.95), the main confounder being age.

Conclusion: There are still important differences in management of ischemic heart events between men and women. These differences do not seem to have an impact directly on mortality, but they have an impact on complications and risk of readmission.

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Swiss Severe Asthma Registry (SSAR) - how are patients with severe asthma treated in Switzerland and is it in line with the current guidelines?

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Background: Asthma is one of the most common chronic diseases and according to the SAPALDIA-study, the prevalence of asthma in adults in Switzerland is estimated to be around 2-8%. And despite optimized treatment options and more specific medication the prevalence of asthma was increasing worldwide. There are a variety of phenotypes and subtypes in asthma. Considering the range of manifestation of asthma, especially severe asthma, the special interest group Obstructive Lung Diseases and Allergy (SIGOLDA) of the Swiss Pneumology Society (SGP) was building up a national registry for severe asthma to get a better understanding about the variety of the disease. The registry was started in 2018 and the first patients were enrolled in 2019. Currently > 150 Patients are enrolled.

Objective: The overall objective of the Severe Asthma Registry is to establish a clinical register for patients with severe asthma to better understand asthma's natural history in patients with severe asthma. Further objectives are changes in symptoms and asthma control, lung function and medication. Within these analyses, we want to compare if the reported treatments are in line with the current national and international guidelines for severe asthma.

Methods: This is a longitudinal multicenter prospective cohort study. Severe asthma patients are recruited and enrolled by local pneumologists in private practice and pulmonary departments in hospitals within all regions of Switzerland. Collected data range socio-demographic information to well as clinical data. The patients are followed up annually for 15 years.

Results: About 90% of all patient that were included in the registry receive a highly specific monoclonal antibody therapy and 90% get an ICS/LABA combination for maintenance therapy. Almost half of the patients receive a LAMA and about 20% of the patients have systemic steroids as a maintenance therapy. The reported Asthma Control by the physicians was controlled in 60% of the patients. In 20 % percent it was partially controlled and 1 out of 5 patients has an uncontrolled asthma.

Discussion: The comparison between the collected reallife data and the current guidelines showed that patients are treated according to the international guidelines. Nevertheless, a closer look has to be made to the combinations of the medication. A further question is why still 20% of the patients have an uncontrolled asthma.

P123

The Hospital@Home Trial: improving the discharge-management of complex and multimorbid patients, a pilot study

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Introduction: According to international studies appr. 20% of complex/multimorbid patients are rehospitalized within 30 days after discharge leading to substantial morbidity and costs. The early transition phase to the home environment represents a particularly vulnerable period. An excellent interprofessional team approach of the hospital staff in collaboration with the follow up care givers is crucial. We hypothesized that a 5d overlap of coordinated care by a multiprofessional group after discharge should reduce the rehospitalization rate of this group by at least 20%.

Methods: In this pilot study, we developed a score to identify the pts at high risk for rehospitalization and validated it in 2 series of 2x100: a. with randomly selected medical inpatients and b. with high risk pts scoring ≥5. We used our previously published revised screening tool consisting of18 weighed items and a maximum point score of 30 (fig.1). A score of ≥5points is considered high risk for rehospitalization. *In the main study*, a single blinded RCT, pts with a score ≥5 will be randomised to either usual care or to the intervention group which will be followed up by a multiprofessional «Hospital@Home-Team» with follow up-phone calls and/or -visits during the first 5 days after discharge (fig.2). The H@H-Team also assures that the follow up care givers and primary physicians receive all the necessary information needed for a continous care. A power analyses based on the data of the pilot study revealed that 2x680pts will be necessary to show a sig. difference of the intervention arm. Secondary endpoints will include patient and caregiver satisfaction as well as quality of life.

Results: *In the pilot studies* of our preanalysis of the first 100 randomly selected pts, 9 pts were rehospitalized within 30 days. 7 out of these 9 patients had a score of ≥5. Overall rehospitalisation rate was 9% and in the high risk group it was 20.5%. To further analyse these findings and test our screening tool we conducted a second analysis with 100 pts with a score ≥5. Out of these 100 high risk pts 19% were readmitted within 30 days after discharge, thus confirming our initial assumption and the first series within the pilot study.

Inclusion Criterias Hospital@Home-Study

Criteria	Points
Patient lives alone	1 ☐
Home Care needed before hospitalization	1 ☐
Home Care needed after hospitalization	1 ☐
Age > 80 years	1 ☐
Polypharmacy (>8 drugs, without Vitamins)	1 ☐
Newly prescripted Insulin	1 ☐
Newly prescripted Coumadin	1 ☐
Delirium during hospital stay	1 ☐
Risk of falls / limited mobility	1 ☐
Fall within the past 6 months	2 ☐
Self-care deficit (SPI <30)	2 ☐
Cognitiv impairment (MMS ≤ 21)	2 ☐
Complex wound management	2 ☐
Complex clinical picture / medical history[1]	2 ☐
Unplanned rehospitalization within the past 18 days	2 ☐
Complex social situation[2]	3 ☐
Palliative situation	3 ☐
Increased need for organization (e.g. Port a cath, PleurX, Picc, VAC)	3 ☐
Total Score	
Max. Score: 30	

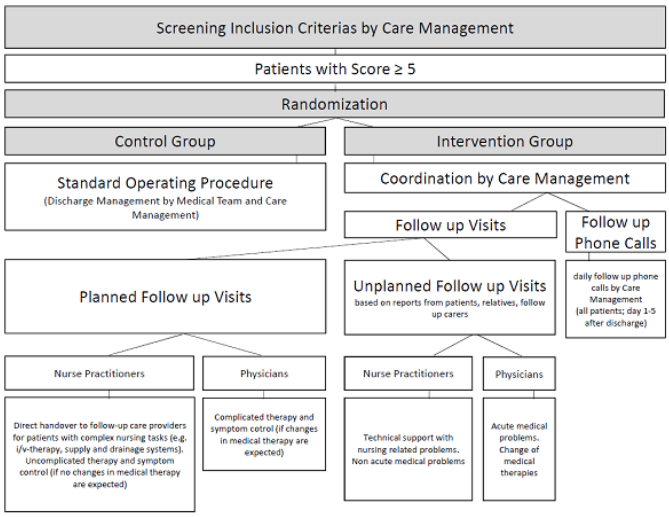
1) Min. 2 Diagnosis, multiple organ systems, chronic disease progression, diagnosis with intense self-care management (e.g. heart failure)

2) financial problems (e.g. health care), authority involved (e.g. KESB, financial assistant), family conflicts or no family

0-2	No Intervention needed
3-4	Care Management
≥5	Hospital@Home-Team

[Inclusion Criterias]

Conclusions: Our 2 pilot studies reveal that rehospitalisation is common with complex and multimorbid patients and reaches 1/5 of the high risk medical inpatients. The screening tool recognizes robustly the high risk patients for rehospitalization in the first 30 days.



[follow-up process]

P124

Trends and regional variation in vertebroplasty and kyphoplasty in Switzerland: a population-based small area analysis

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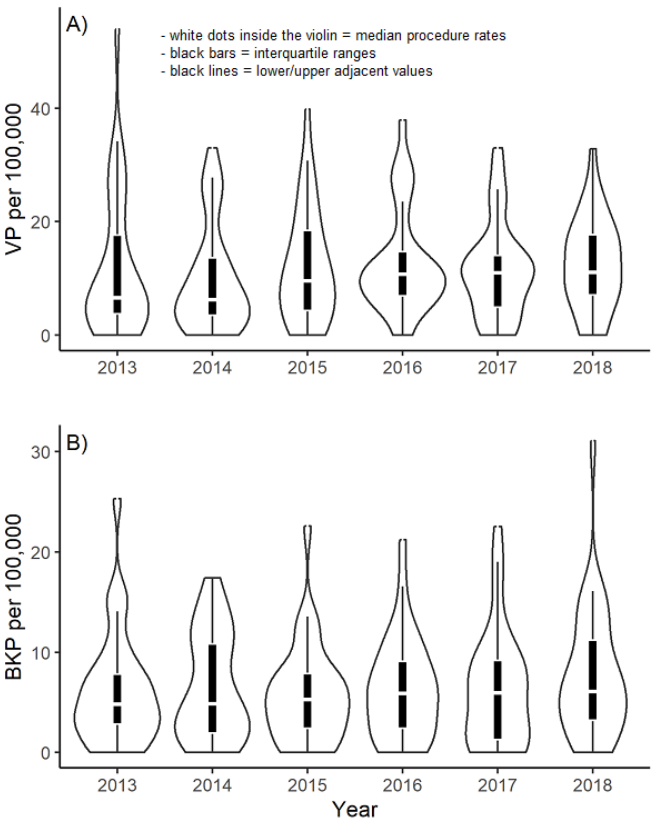
Introduction: There is uncertainty about the balance of risks versus benefits of percutaneous vertebroplasty (VP) and balloon kyphoplasty (BKP) for the treatment of osteoporotic vertebral fractures. Wide variation in their use has been observed across Swiss hospital service areas (HSAs), most recently in 2012 and 2013. To evaluate how these variations have changed over time and to examine potential determinants of the observed variation, we assessed trends and regional variation in VP/BKP use across Switzerland between 2013 and 2018.

Methods: We conducted a population-based small area analysis using patient discharge data from all Swiss acute care hospitals for calendar years 2013-2018. VP/BKP-specific HSAs were derived by analyzing flows of patient discharges. We calculated age/sex-standardized mean procedure rates and measures of variation across HSAs (extremal quotient [EQ] and systematic component of variation [SCV]). We assessed the influence of potential determinants of variation using multilevel regression models with incremental adjustment for demographics, cultural/socioeconomic, population health, and supply factors.

Results: We analyzed 7,855 discharges with VP/BKP from 31 HSAs. The mean age/sex standardized procedure rate increased from 16 to 20 per 100,000 persons from 2013 to 2018. While the variation in procedure rates across HSAs declined during this period, the overall variation remained high (EQ from 10.3 to 4.9, and SCV from 56.8 to 6.9 from 2013 to 2018, respectively). Demographic, cultural/socioeconomic, population health, and supply factors explained half of the regional variation.

Conclusions: Regional variation in VP/BKP rates across Switzerland declined but remained at a high level, while the procedure rates increased between 2013 and 2018. A substantial part of the regional variation remained unexplained by differences in demographic, cultural/socioeconomic, population health, and supply factors, and likely signals different access to surgery and widely differing physician opinion regarding vertebroplasty and balloon kyphoplasty across the country.



[Age/sex-standardized VP- and BKP-rates trough time. Wider sections of the violin represent higher amounts of HSAs with a given procedure rate.]

P125

Trends, determinants and costs of asthma potentially avoidable hospitalizations in Switzerland from 1998 to 2018: a multiple cross-sectional study

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Background: Potentially avoidable hospitalizations (PAH) due to common chronic conditions are commonly used as a proxy indicator for healthcare quality and primary care performance of modern healthcare systems. Still, data is usually presented in a restricted time-frame without detailed geographical distribution. We aimed to calculate rates, trends, determinants and costs of PAH of asthma, in adult patients for Switzerland between 1998 and 2018.

Methods: Cross-sectional study using hospital discharge data from patients ≥20 years old for years 1998 to 2018. PAH were defined according to the asthma ICD-10 codes used by the OECD Health Care Quality Indicators Project. Hospitalizations selected as potentially avoidable were allocated to 7 administrative regions (Eastern, Léman, Mittelland, Northwest, Zürich, Central, and Ticino), and to the 26 cantons. Rates and regional trends, along with PAH-associated costs, were estimated. Hospitalizations of foreigners or with missing data were excluded.

Results: Of the initial 45,774 hospitalizations for asthma, 27,589 (60%) were included in the analysis. Almost one quarter (23.4%) of them were considered as PAH. The rates of PAH increased from 17.8% in 1998 to 29% in 2018 (p< 0.001). Multivariable analysis showed female gender, older age, living in Leman, Mittelland or Zürich regions and emergency admission to be associated with a higher likelihood of PAH, while Swiss citizenship and having health insurance were associated with a lower likelihood of PAH (table 1). PAH had a longer length of stay (multivariable-adjusted average standard error: 10.3 ± 0.1 vs. 8.1 ± 0.1, p< 0.001). Similar findings were obtained when foreigners (N=14,099) were included.

Conclusion: PAH represents a sizable fraction of all hospitalizations for asthma in Switzerland. The differences between regions cannot be explained by patients' socio-demographic characteristics.

Table 1 : multivariable analysis of the factors associated with potentially avoidable hospitalizations for asthma, Switzerland, 1998-2018.

	Odds ratio (95% CI)	P-value
Year (one-year increase)	1.03 (1.03 - 1.04)	<0.001
Woman vs. man	1.18 (1.11 - 1.26)	<0.001
Age groups		
[20-30[	1 (ref)	
[30-40[	1.13 (1.00 - 1.28)	0.058
[40-50[	1.58 (1.41 - 1.78)	<0.001
[50-60[	1.33 (1.18 - 1.49)	<0.001
[60-70[	1.17 (1.04 - 1.32)	0.011
[70-80[	1.14 (1.01 - 1.28)	0.029
[80-90[	1.33 (1.18 - 1.51)	<0.001
[90+[	1.38 (1.13 - 1.69)	0.002
Swiss citizenship (no vs. yes)	0.87 (0.81 - 0.93)	<0.001
Geographical regions		
Leman	1.67 (1.47 - 1.90)	<0.001
Mittelland	1.23 (1.08 - 1.41)	0.002
Northwest	0.91 (0.79 - 1.04)	0.153
Zurich	1.19 (1.04 - 1.37)	0.011
Eastern	0.90 (0.78 - 1.04)	0.138
Central	1 (ref.)	
Tessin	1.02 (0.87 - 1.20)	0.806
Health insurance (no vs. yes)	0.61 (0.52 - 0.72)	<0.001
Emergency admission (no vs. yes)	1.40 (1.31 - 1.49)	<0.001

Results are expressed as odds ratio and (95% confidence interval). Statistical analysis using logistic regression modelling the likelihood of a potentially avoidable hospitalization.

[Table 1]

P126

What are the current treatment recommendations in hip and knee osteoarthritis: a cross-sectional study of treatment guidelines

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Background / objective: Switzerland has one of the highest hip and knee replacement rates and treatment of hip and knee osteoarthritis (OA) varies widely across countries. The aim of the study was to assess whether variation may be due to differences in guideline recommendations.

Methods: We compared treatment guidelines published after the year 2018. We compared the strength of recommendations and the level of evidence for pharmacological and non-pharmacological treatments using the GRADE criteria.

Results: Overall, three guidelines for knee OA (the American College of Rheumatology [ACR], European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases [ESCEO], and Osteoarthritis Research Society International [OARSI] guideline) and three for hip OA (the American College of Occupational and Environmental Medicine [ACOEM], ACR, and OARSI) were analyzed. Although all guidelines were published during 2019, treatment recommendations varied widely. In pharmacolocial treatment options, most variation was observed for intra-articular hyaluronic acid injection (conditional for to strong against, **table 1**), chondroitin / glucosamine (strong for to strong against), and strong opioids (conditional for to weak against). Oral NSAID were recommended by all guidelines, while recommendations for paracetamol diverged (conditional against to strong for). For non-pharmacological treatment options (**table 2**),

guidelines agreed mainly that education and exercise are important. Weight loss was recommended for knee OA. Variation was observed in recommendations for insoles (conditional for to conditional against), braces (strong for to strong against), and TENS (conditional for to strong against). For persisting pain, functional impairment and failed conservative treatment in knee and hip OA, ESCEO and ACOEM, respectively, recommended joint replacement. The other guidelines did not address when to refer to hip or knee arthroplasty.

Conclusion: Despite reviewing the same evidence, the conclusions drawn and the recommendations for the treatment of hip and knee OA vary widely.

	Knee osteoarthritis			Hip osteoarthritis		
	ACR	ESCEO	OARSI	ACR	ACOEM	OARSI
Paracetamol	**++**	+ short, - long term	-	+	+	-
Topical NSAID	**++**	++	++	-	-	-
NSAID	**++**	++	+	++	++	+
Weak opioids	**+**	+	-	+	+	n.a.
Strong opioids	**-**	+	-	-	-	-
Chondroitin / glucosamine	**- -**	++	- -	- -	no recommendation	- -
Intra-articular hyaluronic acid injection	**-**	+	+	- -	-	-
Intra-articular steroid injection	**++**	+	+	++	+	+

[Strength of recommendations for pharmacological treatments (strong for ++, conditional +, conditional against -, strong against --)]

	Knee osteoarthritis			Hip osteoarthritis		
	ACR	**ESCEO**	**OARSI**	**ACR**	**ACOEM**	**OARSI**
Eduction	++	++	++	++	+	++
Exercise	++	++	++	++	+	++
Weight loss	++	++	++	++	n.a.	+
Insoles	-	n.a.	-	-	+	n.a.
Braces	++	n.a.	- -	-	-	n.a.
TENS	- -	n.a.	- -	- -	+	- -
Acupuncture	+	n.a.	-	+	+	+
Heat / cold	+	n.a.	-/- -	+	+	-/- -

[Strength of recommendations for non-pharmacological treatments (strong for ++, conditional +, conditional aggainst -, strong against --)]

Case reports

P127

A case of reactive hemophagocytic lymphohistiocytosis: the value of asking the right question at the right time

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Learning objectives: To ascertain when to consider hemophagocytic lymphohistiocytosis (HLH) as well as determining its etiology.

Case: A 48-year-old, otherwise healthy Swiss farmer presented with fever (40.4° C), chills and epigastric pain. Initially he denied any foreign travel. On physical examination the spleen was enlarged. A thoraco-abdominal CT-scan showed no additional abnormalities. A mild bicytopenia (hemoglobin 131 g/l, neutrophils 2.6 G/l, platelets 101 G/l) was noted with a CRP of 110 mg/l. Given his profession, the patient was investigated for endemic zoonotic diseases with negative results. Repeated blood cultures were negative.
Within 6 days, the ferritin rose from 556 µg/l at admission to 4048 µg/l and signs of a mild cholestatic hepatitis developed together with a drop of blood counts (platelets 36 G/l, neutrophils 1.2 G/l). A bone marrow biopsy (BMB) showed no evidence of a hematological disorder but revealed some macrophages with morphological evidence of hemophagocytosis. Secondary HLH was diagnosed according to the H-Score (see table 1):

Parameter	Number of points (criteria for scoring)
Known underlying immunosuppression	0 (no) or 18 (yes)
Temperature (°C)	0 (<38.4), 33 (38.4-39.4), or 49 (>39.4)
Organomegaly	0 (no), 23 (hepatomegaly or splenomegaly), or 38 (hepatomegaly and splenomegaly)
Number of cytopenias	0 (1 lineage), 24 (2 lineages), or 34 (3 lineages)
Ferritin (µg/l)	0 (<2000), 35 (2000-6000), or 50 (>6000)
Triglyceride (mmol/l)	0 (<1.5), 44 (1.5-4), or 64 (>4)
Fibrinogen (g/l)	0 (>2.5) or 30 (≤2.5)
Aspartate aminotransferase (U/L)	0 (<30) or 19 (≥30)
Hemophagocytosis on bone marrow aspirate	0 (no) or 35 (yes)

[H-score is a diagnostic score to assess the likelihood of HLH. The findings of our case resulted in 210 points equating to 88-93% probability of HLH]

An intensive work-up (table 2) identified no underlying disease:

Infection serologies: all negative or without evidence of active disease	Viruses: Herpes viruses (EBV, CMV, HSV 1+2), Hepatitis (A, B, C), Adenovirus, Parvovirus B19, HIV 1/2
	Bacteria: Coxiella burnetii, Francisella tularensis, Brucella, Rickettsia sp., Mycoplasma pneumoniae, Leptospira interrogans
	Parasites: Toxoplasma
Infection PCR: All with negative results	Viruses: SARS-CoV2 (nasopharyngeal swab)
	Bacteria: Bartonella henselae (blood), Mycobacterium tuberculosis (BMB)
	Parasites: Tropheryma whippelei (blood)
Rheumatological workup	No clinical or laboratory diagnostic criteria fulfilled for a defined rheumatological disorder, especially systemic lupus erythematodes or adult Still's disease. ANA (antinuclear-antibodies), ANCA (anti-neutrophil-cytoplasmatic-antibodies) and rheumatoid factor were negative
PET-CT-Scan (Positrons-Emission-Tomography-CT)	Hypermetabolic splenomegaly (17 x 12.6 x 7.9 cm; maximal standardized uptake value (SUVmax) = 8.5) and hypermetabolic pyloric region of the stomach (SUVmax = 5.5) No lymphadenopathy, no evidence of a solid malignancy, no evidence of vasculitis
Ultrasound-guided biopsy of spleen	Histopathological examination: No morphological or immunohistochemical evidence for malignancy or clonal lymphoproliferation. But showing numerous macrophages with hemophagocytosis
Gastroduodenoscopy	Macroscopy: Non-specific gastritis. Histopathological examination of gastric biopsies: non-specific reactive inflammation with a negative result for Helicobacter pylori, no malignancy. Histopathological examination of duodenal biopsies: no evidence of celiac disease, negative result for Tropheryma whippelei, no malignancy

[Summary of our extensive workup regarding etiology of reactive HLH]

Due to progressive clinical deterioration we started steroids together with Anakinra and immunoglobulins. The fever reduced without complete resolution. Serological studies for Leishmania, which were pending from the extensive investigation concerning HLH, turned out to be positive after 3 weeks. A repeated travel history, asking specifically for any journeys abroad within the last years, revealed a potential exposure in Southern Spain one year before disease onset. It wasn't considered relevant by the patient initially because he related the question about travels to tropical areas only. Amphotericin B was started after ceasing the immunosuppression. The patient rapidly improved clinically and lab tests normalized. A positive PCR for Leishmania infantum from BMB confirmed the diagnosis.

Discussion: HLH should be considered in any case with fever of unknown origin, if cytopenia is present together with splenomegaly and elevated or rising ferritin levels. Identifying an underlying cause is essential to guide therapy but may require a broad panel of lab tests and (invasive, potentially harmful) procedures.
In our case of HLH due to visceral Leishmaniasis, the use of concise questions during initial history-taking would have helped to make the correct diagnosis faster as well as with less effort regarding technical and laboratory examinations.

P128

A case of sporadic Creutzfeldt-Jakob disease

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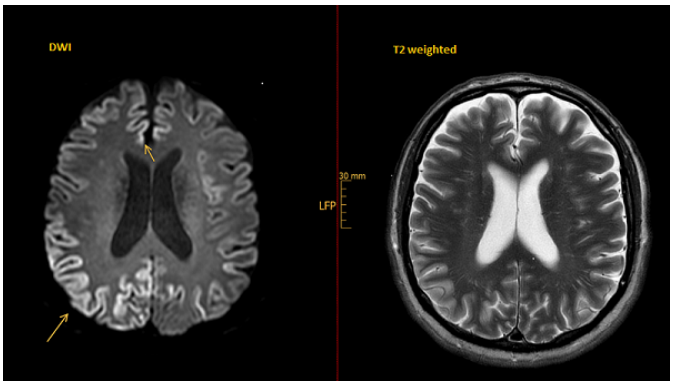
Learning objectives: The neurodegenerative prion disease Creutzfeldt-Jakob (CJD) inevitably runs a lethal course usually within one year once it manifests. It is categorized as either sporadic (sCJD), genetic, iatrogenic or variant. About 85-95% of CJD cases are sporadic. Patients typically present with neuropsychiatric symptoms, myoclonus, cerebellar manifestations, signs of corticospinal tract involvement and extrapyramidal signs.

Case: A 72-year-old patient was referred to the emergency room due to acute behavioral changes consisting of delusions and aggressive behavior observed by his partner. The family doctor had been previously consulted because of a gradually worsening tremor and gait ataxia observed during the last 1 - 2 months.
The clinical examination revealed myocloni of the upper extremities, a left sided intention tremor in the finger-to-nose test and an ataxic - pronounced on the left side - knee-to-shin test. The left arm was rigid, his gait was abnormal, consisting of small steps, and right sided lateropulsion was observed when seated. The patient presented with a syndrome of subjective doubles and anosognosia regarding his symptoms. In neuropsychological testing an executive dysfunction and a memory disorder were observed.
There were no electrolyte abnormalities and no infection present. In the non-contrast CT-scan of the head were no signs of intracranial hemorrhage or intracranial pressure elevation. The head MRI showed a high degree of suspicion of CJD (Figure). EEG showed no triphasic waves.



[MRI head: Hyperintense signaling of the cerebral cortex, ''cortical ribbon sign'', typical of sCJD.]

A comprehensive infectiological, metabolic and autoimmune serological/CSF panel showed no pathologies.
The CSF Western Blot analysis found traces of Protein 14-3-3 and the consecutive real-time quaking-induced conversion (RT-QuIC) was positive.
According to the diagnostic guidelines of the CJD International Surveillance Network and in the absence of evidence of another cause of the symptoms, we assessed the findings as a sCJD.
The findings were discussed with the patient and his life partner and he was transferred to a nursing home.

Discussion: It is estimated, that sCJD occurs in one per 1,000,000 individuals per year. A primary psychiatric disorder as well as other rapidly progressive dementias should be considered. sCJD can generally be supposed with appropriate clinical and laboratory features, while a definitive diagnosis requires neuropathologic confirmation. At the moment no effective treatment exists to cure or control CJD.

P129

A case-report of combined Shiga-toxin associated hemolytic uremic syndrome and heparin-induced thrombocytopenia

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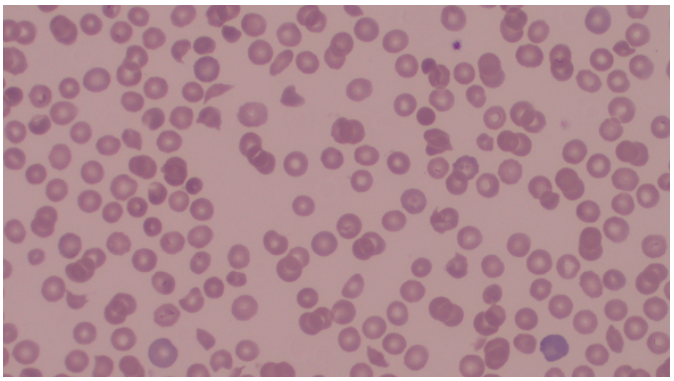
Background: The combination of acute kidney injury and severe thrombocytopenia requires a systematic diagnostic approach and rapid therapeutic intervention. We report a case of an elderly woman with an unusual presentation of thrombotic microangiopathy (TMA).

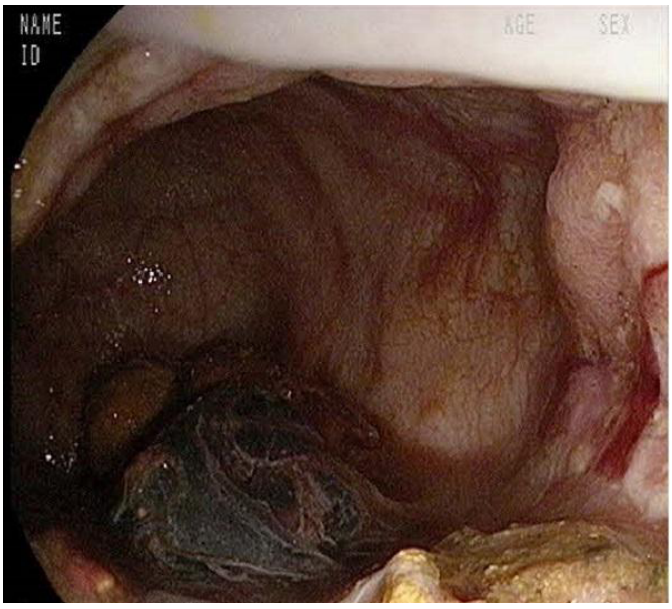
Case: A 79-year-old woman was admitted to the surgical unit because of proctitis, after self-emptying of a fecal occlusion. A few days after admission, a nephrological evaluation was requested because of acute kidney injury (AKI stage 3), severe thrombocytopenia (15x10^9/l), hemolytic anemia and mild neurological deterio-

ration. In the suspicion of thrombotic thrombocytopenic purpura (TTP) we started therapy with high-dose corticosteroids, and plasmapheresis. Secondary causes of TMA were excluded (drugs, viral infections, autoimmunity, paraneoplastic). C3 and C4 levels were initially normal, anti-factor H antibodies were not present. Fecal cultures, obtained only a week later due to constipation, showed the presence of Shiga toxin producing Escherichia coli, thereby setting the diagnosis of hemolytic uremic syndrome (HUS). Plasmapheresis was therefore stopped. Under supportive therapy, the clinical conditions, the renal function and the hemolytic anemia slowly improved, but thrombocytopenia persisted over several weeks and the patient developed posterior tibial vein thrombosis despite prophylactic doses of heparin. With a strong clinical suspicion of heparin induced thrombocytopenia (HIT), Heparin was immediately discontinued and anticoagulant therapy with argatroban was started. Antibodies to platelet factor 4 were positive, and heparin-induced platelet aggregation (HIPA) assay confirmed the diagnosis of HIT. The evolution was favorable: the patient was discharged in good clinical conditions, with normal platelet count.

Conclusion: To our knowledge, this is the second reported case of combined HUS/HIT (Studt JD, Hemostaseologie 2013). TMA leads to platelet activation with release of PF4 in a highly inflammatory environment, which might trigger HIT. A discordant evolution of the platelet counts in patients with TMA requires a systematic re-evaluation of the thrombocytopenia.



[Figure 1: schistocytes]



[Figure 2: severe proctitis]

P130

A peculiar hypoactive delirium: catatonia

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Learning objective: To recognize that catatonia (a syndrome characterized by a stuporous state, catalepsy, waxy flexibility and mutism) is probably underestimated in general medical practice.

Case: A 75-year-old patient was referred to explore a hypoactive delirium, combining mutism and perplexity, evolving over the last few weeks. The clinical examination showed a significant overall psychomotor slowing, with mutism and bradylalia. The neurological examination showed stereotypical hand movements. The biological assessment was normal. Suspecting intense anxiety, he was administered 1 milligram of lorazepam; the initial picture completely resolved within one hour. Brain CT was normal. A diagnosis of catatonic syndrome in the context of delirious melancholy was finally made. The evolution was favorable under lorazepam and fluoxetine.

Discussion: Catatonia can complicate both psychiatric and organic disorders. Indeed, its prevalence car reach about 10% in patients hospitalized in a somatic environment. The consequences of this syndrome can be serious, and particularly in terms of immobilization and malnutrition. This clinical case reminds us that the diagnosis of catatonia must be evoked in any patient with deteriorating psychomotor function associated with a stuporous state. Catatonia respond almost immediately to benzodiazepines (in particularly lorazepam); its regression within 24 hours is both diagnostic and therapeutic. These features permit to avoid costly and invasive investigations such as lumbar puncture and MRI.

P131

A rare case of dyspnea and fever

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Learning objectives: Eosinophilic pneumonia as a cause of acute dyspnea.

Case: A 16-year-old patient presented at the emergency department with acute dyspnea and cough over the last few days. Furthermore, he had fever of up to 39.5°C. The dyspnea was progressive over time. Until that point he was healthy and had no history of asthma. Two weeks prior to admission he started smoking cigarettes. A CT scan revealed typical patterns of interstitial pneumonia. Results of two SARS-CoV-2 RT-PCR tests were negative. Finally, a bronchoalveolar lavage showed a massive count of eosinophilic granulocytes with a total of more than 60% in the differential count. The peripheric blood showed, only later, an elevation of the eosinophilic granulocytes. A diagnosis of acute eosinophilic pneumonia was made. Recently starting smoking was identified as the trigger. The patient was then treated with systemic steroids for three months. Afterwards, he was completely asymptomatic and was able to continue his previous activities.

Discussion: Acute eosinophilic pneumonia is a rare disease. Depending on the source, less than 200 cases have been described. Exposure to smoke or dust is often found to be the cause.
A bronchoalveoal lavage with an elevated eosinophilic count of more than 25% is necessary for diagnosis. Typical patients being firefighters or new smokers. Primary therapy is a course of systemic steroids over a few weeks.

P132

A rare presentation of giant cell arteritis

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Learning objectives: Giant cell arteritis (GCA) is the most common large vessel vasculitis which preferentially affects the branches of external carotid artery. Clinical manifestations depends on affected vascular territory, mostly leading to the classic symptoms. Tongue necrosis is a rare atypical manifestation of GCA with potentially severe disease course.

Case: A 73-year old man presented with leftsided central retinal artery occlusion (RAO). He was diagnosed with a giant cell arteritis based on typical clinical manifestation, findings in laboratory and duplex scan of left temporal artery („halo-sign"). Temporal-artery biopsy was refused by patient initially. High dose glucocorticoid (GC) therapy, initially intravenous (i.v.), and low-dose aspirin was started following the EULAR recommendations 2018. Two weeks later he presented with new onset of painful leftsided tongue necrosis under high-dose Prednisolon. Additional therapy with Tocilizumab was started. The necrotic part of the tongue dropped off spontaneously. 14 days after diagnosis of tongue necrosis the patient reported new visual loss of the right eye. A diagnosis of rightsided central RAO was made despite continuous high dose GC, low-dose aspirin and therapy with Tocilizumab. Because of refractory disease we performed temporal-artery biopsy bilaterally, which confirmed the diagnosis of GCA. Another short-time therapy of high dose GC i.v. was performed. After 5 months of therapy with GC in decreasing dosage and 5 infusions of Tocilizumab (8mg/kg body weight every 4 weeks) the disease was in remission.

Discussion: GCA preferentially involves the extracranial branches of carotid artery possibly resulting in stenosis and occlusion of inflamed vessels. About 40% of patients suffer from otorhinolaryngological symptoms like jaw claudication; tongue involvement is rare (< 5%) with symptoms like paresthesias, pain, glossitis and tongue claudication. Tongue ischemia and necrosis remain very rare events, in few cases as first manifestation of the disease. Furthermore, since the tongue is a well-vascularizide region, tongue necrosis suggests an extensive vessel involvement signalizing a more serious prognosis with a higher risk for visual involvement and increased mortality. Physicians should be aware of this uncommon presentation of GCA to avoid treatment delay.

P133

A rarity rarely comes alone – 2 cases of pulmonary nocardiosis

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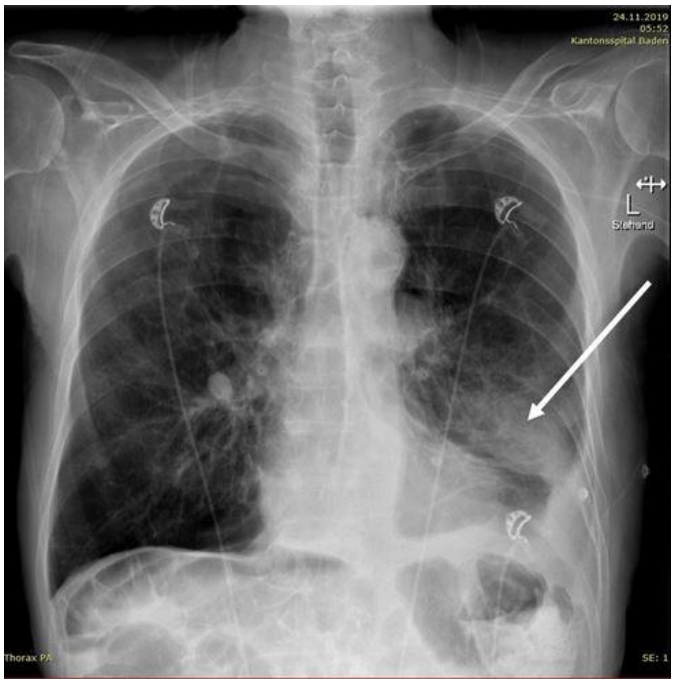
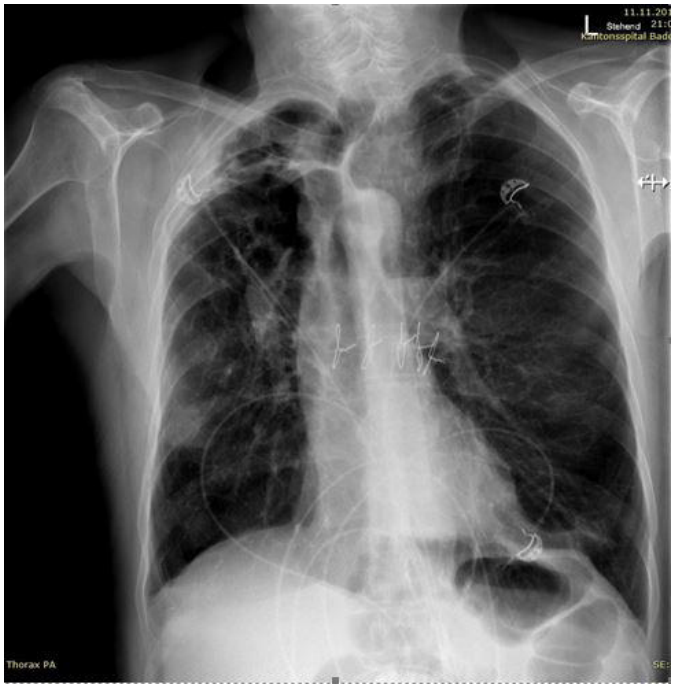
Learning object: Nocardiosis is a rare infectious disease, which should be considered in patients predisposing conditions.
Pulmonary and cutaneous manifestations are most frequent.
Accurate microbiological sampling is essential in order to detect Nocardia and guide anti-microbial therapy.
Case description: In November 2019, two patients present themselves to our ER with similar diagnosis: Pat A is a 74 year old man with a history of bronchial carcinoma receiving palliative chemotherapy. He suffered from progressive dyspnea without fever. Laboratory results showed neutropenia and Chest-Xray confirmed pneumonia. Accordingly antibiotic therapy with Cefepime/Clarithromycin was started. After 51 hours blood cultures showed growth of Nocardia farcinita and antibiotic therapy was changed to TMP/SMX and Imipenem. Unfortunately, further testing showed multiple resistances and therapy had to be switched to include Amikacin. Due to the resistance profile and the limited prognosis, therapy was changed to Linezolid for suppression and the patient discharged home.
Pat B is a 70 year old man with known COPD who presented to the ER also with progressive dyspnea.The patient was admitted due to reduced general status and anti-obstructive therapy was started. After 72 hours the initial sputum sample revealed growth of Nocardia farcinita. Antibiotic therapy was started with high-dose TMP-SMX. No relevant resistances were detected. After steady improvement the patient could be discharged for pulmonary rehabilitation.

Discussion: Nocardia are aerobic, gram positive, weakly acid-fast bacteria, which live as soil saprophytes. Most affected patients suffer from an immunosuppressive condition or a chronic pulmonary disease. Pulmonary and/or cutaneous disease are the most frequent presentations. Other presentations mainly occur by dissemination and can affect any other organ. Therapy is by antibiotic treatment. If abscesses are present, surgical intervention and debridement are necessary. Empiric therapy usually starts with high-dose TMP/SMX, possibly in combination with Imipenem depending on severity of disease. The definite choice of antibiotic therapy is guided by resistance testing. Duration of antibiotic therapy depends on clinical manifestation and the type of immunosuppression, ranging from 1 to 12 months with an initial parenteral phase of 3-6 weeks. Prognosis of survival varies between almost 100% (cutaneous forms) to only 50% (e.g. intracerebral abscess).

Figures:



[Chest Xray Pat A showing emphysema and pneumonic infiltration in left lower lung]



[Chest Xray Pat B showing emphysema but no pneumonic infiltration]

P134

A well-intentioned flu prevention or "simply" an autoimmune hepatitis?

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Learning objectives: Differentiation between autoimmune induced hepatitis (AIH) and drug induced liver injury (DILI) can be difficult due to similar histological and laboratory results. Therefore, a detailed and consistently revised survey regarding medication, lifestyle and family history of the patient is important.

Case: A 46-year old male patient presented himself in December 2020 with increasing joint pain for ten days, as well as flatulence,

obscure urine, lightly colored diarrhea, icteric skin and sclerae. The medication and noxae history indicated moderate use of paracetamol and occasional smoking, no mushroom or alcohol consumption. The family history regarding liver diseases was negative. Initial laboratory findings showed distinct increased liver and cholestasis parameters with only discrete signs of inflammation (Table 1) as well as an urobilinogenuria. The abdominal ultrasound showed hepatomegaly with homogenously parenchyma and a slight cholecystitis in reaction to the hepatitis. Further analytics evinced an increased level of antinuclear antibodies (ANA) and Immunoglobulin G. The viral hepatitis screening was negative. A liver biopsy was histologically compatible with autoimmune hepatitis. However, medication-induced autoimmune hepatitis could not be separately differentiated. During hospitalization, the patient later reported an increased use of an Echinacea-containing throat spray for flu prevention for approximately three months prior to admission.
Because of the profound suspicion of autoimmune hepatitis, a weight adapted impact therapy with prednisone was started. Further follow-ups showed a slow but good response to the over time slowly tapered prednisone therapy, resulting in almost normalized liver and cholestasis parameters after one month.

Table 1: laboratory results

clinical chemistry at admission		immunology	
CRP	11 mg/l	ANA	1:1280
AST	1152 U/l	anti-LKM	<1:40
ALT	2015 U/l	anti-SLA/LP	5
γ-GT	160 U/l	Ig G	16.93 g/l
alkaline phosphatase	197 U/l		
bilirubine total	145.8 µmol/l		

CRP: C-reactive protein; AST: aspartate transaminase; ALT: alanine transaminase; γ-GT: gamma-glutamyltransferase; ANA: antinuclear antibodies; anti-LKM: anti-liver-kidney microsomal antibodies; anti-SLA/LP: anti-soluble-liver-antigen/liver-pancreas autoantibodies; Ig: Immunoglobulin

[Table 1]

Discussion: As AIH occurs more frequently in female than in male patients (~ 4-10:1), the use of Echinacea as a cause for DILI has to be considered in the case described above. Echinacea purpurea has been linked to liver injuries in previous, isolated case reports. To differentiate AIH from DILI is difficult, especially as the histological results can be quite similar. According to literature, increased levels of ANA can also be found in DILI. The Revised International Autoimmune Hepatitis Group Scoring System or the simplified version (Figure1) might be helpful in the process of diagnosis. In this case, however, six points on the Simplified Scoring System is only indicative of AIH.

Figure 1: Simplified Diagnostic Criteria for Autoimmune Hepatitis by Hennes et al., 2008

Variable	Cutoff	Points
ANA or SMA	≥1:40	1
ANA or SMA or LKM or SLA	≥1:80 ≥1:40 Positive	2*
IgG	>Upper normal limit >1.10 times upper normal limit	1 2
Liver histology (evidence of hepatitis is a necessary condition)	Compatible with AIH Typical AIH	1 2
Absence of viral hepatitis	Yes	2
		≥6: probable AIH ≥7: definite AIH

*Addition of points achieved for all autoantibodies (maximum, 2 points).

[Figure 1]

P135

Abdominal pain in an HIV-positive patient with disseminated mycobacterium avium complex-infection: think of gas

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Learning objectives:
– Pneumatosis intestinalis is a rare but important cause of peritonitis in patients with acquired immunodeficiency syndrome (AIDS) and disseminated MAC-infection
– Subserous or submucosal gas-filled lesions in the bowel wall are indicative for pneumatosis intestinalis
– Conservative management is the preferred treatment.
Case: A 56-year-old caucasian man was admitted to our hospital with abdominal pain, weight loss, confusion and diarrhea. History was remarkable for a recent diagnosis of AIDS (CDC stadium C3, CD4+ count: 14 cells/µl, HIV-load: 1.310.000 copies/ml) with wasting syndrome, candida oesophagitis, HIV-encephalopathy and disseminated MAC-infection, complicated by the development of an immune reconstitution inflammatory syndrome (IRIS). Antiretroviral therapy (ART) was started 4 weeks earlier; the MAC-infection was treated with Ethambutol, Rifabutin and Clarithromycin, the IRIS with steroids (60 mg/d).
Physical examination at the actual presentation revealed subfebrile temperature, diffuse tenderness to light palpation and peritonism in the right hemiabdomen. Laboratory tests showed pancytopenia and elevated levels of C-reactive protein (180 mg/L). Bacterial stool examination was negative.The computed tomography of the abdomen (Fig. 1) showed gas-filled intestinal loops from the cecum to left colon flexure, circumferential collections of gas in the wall of the bowel, a thickened jejunal wall and 4-quadrant ascites. Diagnostic laparoscopy confirmed the CT-graphic findings indicative of pneumatosis intestinalis. Since there was no evidence for necrosis or perforation, a conservative strategy with additional antibiotic therapy (Piperacillin/Tazobactam) for three weeks was established. Testing for CMV (viral load < 1000 copies/ml) and cryptosporidial infection was negative. With clinical improvement over the next two weeks, intramural and free air in the abdomen resolved.

Discussion: Our case highlights the association of AIDS, disseminated MAC-infection and the development of pneumatosis intestinalis. Pneumatosis intestinalis is observed in advanced stages of HIV-infection and characteristically involves the cecum, the ascendending and transverse part of the colon. While the pathogenesis is poorly understood, infection with MAC, CMV, and cryptosporidium are well known triggers, in our case probably aggravated by corticosteroids. Without signs of necrosis or perforation, conservative management is the preferred treatment option.

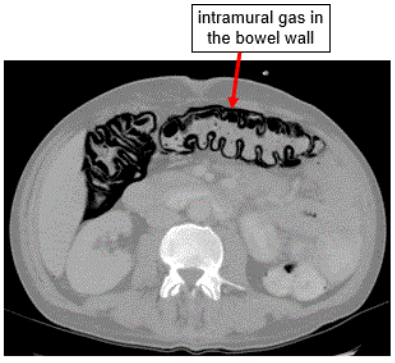

Fig. 1
Lung window for better representation of the gas deposits in the intestinal walls.
Pneumatosis intestinalis from cecum to the left flexure of the colon. Thickened wall of the jejunum. Abdominal free air next to the right flexure of the colon and the caudal edge of the liver.

[Fig.1]

P136

Acromegalic cardiomyopathy: a neglected cause of cardiomyopathy

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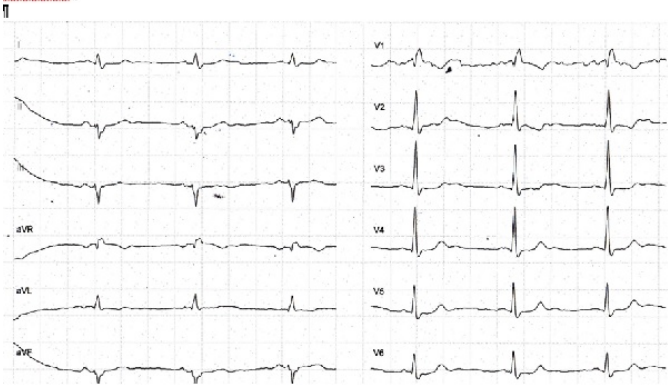
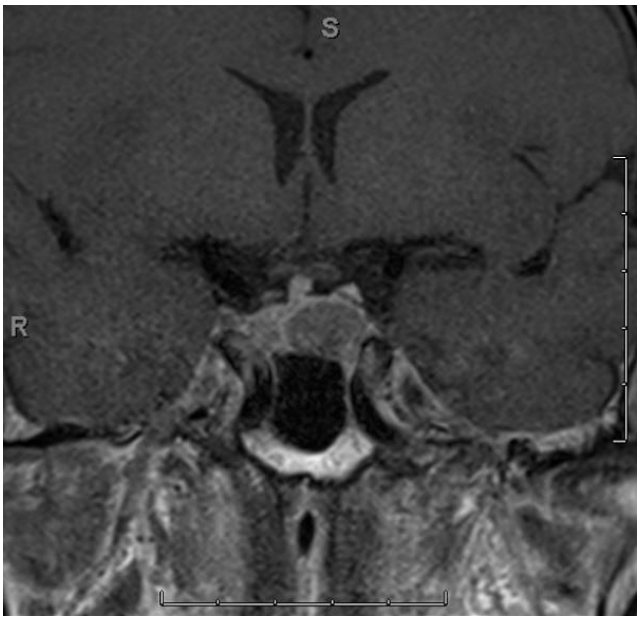
Case: We describe the case of a 66 year old man who came to the first cardiac evaluation after observation of frequent supra- and ventricular extra-systoles during orthopaedic surgery.The patient had excellent general condition. The electrocardiogram registered a normo-cardic sinus rhythm with complete right bundle branch block and left anterior fascicular block, with negative T wave from V1 to V3. (fig1.)
The transthoracic rest echocardiography showed a slightly dilated left ventricle, with ejection fraction of 45-50%, lateral and anterior middle-apical hypokinesia. During stress-echocardiography, we observed the appearance of polymorphic ventricular extra-systoles and ventricular bigeminism during exercise. A cardiac magnetic resonance with pharmacological stress was performed , which confirmed a light dilation of both ventricles with a slightly reduced ejection fraction but without alterations of the regional kinesis. 1 yr later, echocardiogrpahy showed a slow progression of the ventricular hypertrophy and a grade 2 diastolic dysfunction. To investigate secondary causes of cardiomyopathy, screening tests were conducted: autoimmune diseases were excluded; thyroid function, protein electrophoresis, ferritin, and serologies for Borellia were normal.An endocrinological evaluation was also performed and showed an increase of the growth hormone and of the insulin-like growth factor levels (GH 7.80 ng/L, IGF-1612 ng/L).The MRI brain scan confirmed the presence of a 12 mm pituitary adenoma, which was surgically excised through trans-sphenoidal trans-nasal access. The patient started a therapy with cabergoline. The following cardiologic evaluation showed an imporvement in left ventricular ejection fraction.

Discussion: Acromegaly represents a rare endocrine condition characterized by an excessive secretion of the growth hormone and the insulin-like growth factor-1,mostly subsequent to a pituitary adenoma. The slow progression of the disease leads to a delay in diagnosis of 4 to 10 years from the onset of the hormonal imbalance. The increase of the GH and IFG-1 levels is associated with cardiac, respiratory, metabolic and rheumatic disorders. The cardiac involvement, also called acromegalic cardiomyopathy, causes a serious deterioration of the prognosis quoad vitam.
Learning point: An early diagnosis and a targeted treatment at the initial stage of the myocardial damage can enable the reversibility of the structural alterations.

Fig1::Sinus bradycardia, normal PR interval, complete right bundle branch block and anterio hemiblock¶



[Fig1::Sinus bradycardia, normal PR interval, complete right bundle branch block and anterior hemiblo]



[Fig2 T1 weighted MRI sequence after gadolinium administration shows a left lateralised pituitary mac]

P137

An unusual cause of heart failure symptoms after pacemaker implantation

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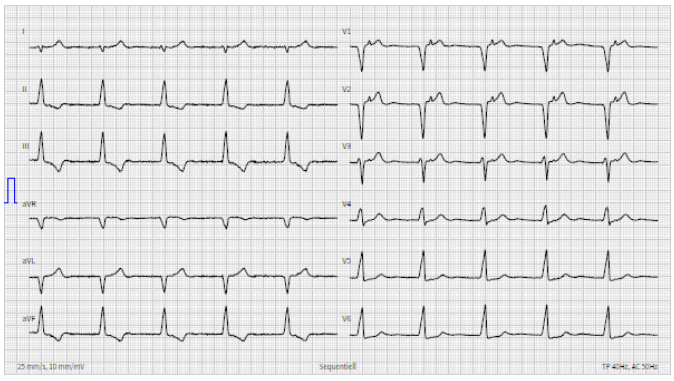
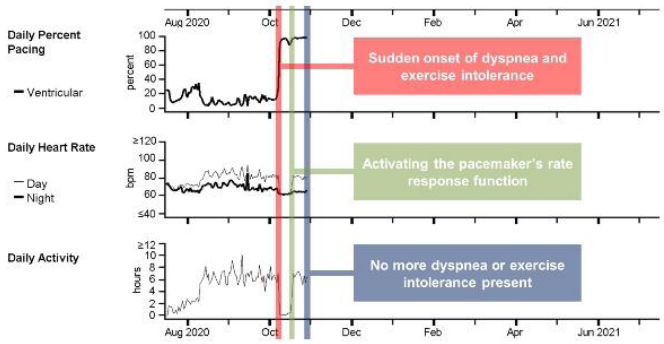
Learning objective: Therapy of tachycardia-bradycardia syndrome (TBS) consists of protection from bradycardia induced symptoms with a pacemaker and medical treatment of symptomatic tachycardia. Sudden onset of heart failure symptoms as dyspnea and exercise intolerance in TBS can be caused by chronotropic incompetence; activation of the pacemaker's rate response function is a treatment option.

Case: An 81-year-old female patient with TBS was treated with a single-chamber pacemaker for backup pacing (VVI 60/min) because of former episodes of sinus bradycardia and sinus arrest with syncope and need for medical rate control (beta-blockers) of a now permanent atrial fibrillation with rapid ventricular response. Due to a small cephalic vein the implantation of only a ventricular (V) pacemaker lead was possible. The implantation of an additional atrial (A) pacemaker lead by subclavian vein access would have had a substantial pneumothorax risk in a patient with slender physique. Three months after pacemaker implantation the patient presented with sudden onset of dyspnea and exercise intolerance. An electrocardiogram (ECG, **figure 1**) showed ventricular pacing with retrograde VA conduction and superimposed P waves in the ST segment. Cannon A waves were apparent. Analysis of the pacemaker showed a spontaneous conversion to sinus rhythm with pronounced chronotropic incompetence at the day the symptoms begun (**figure 2**). Hence the pacemaker's rate response function was activated (VVIR). Two weeks later, neither dyspnea nor exercise intolerance were present anymore (**figure 2**).



[Figure 1]



[Figure 2]

Discussion: Treatment alternatives would have been reducing beta-blocker therapy (risk of other episodes of atrial fibrillation with rapid ventricular response), or implanting an additional atrial (A) pacemaker lead (operation risk). Despite the typical clinical and ECG signs (retrograde VA conduction) reflecting atrial contraction against closed AV valves, symptoms in our case disappeared only by activating the pacemaker's rate response function, so no pacemaker syndrome was present. A pacemaker syndrome may occur in 20-25% of patients after implantation of a single-chamber ventricular pacemaker, caused by suboptimal AV synchrony leading to various cardiovascular and neurologic signs and symptoms. Assessing a pacemaker with the programmer provides additional information beyond the pacemaker's basic function and should always be performed in pacemaker patients with new or worsening symptoms.

P138

Case report: Misty hypereosinophilia – diagnostic challenges identifying the underlying condition

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Learning objectives: Although an allergy or adverse drug reaction is mostly responsible for eosinophilia it is advisable to perform broad and careful diagnostics as any organ system can be severely affected due to a great variety of underlying conditions.

Case: A 71-year old man presented with a seven-day history of cough, dyspnoea, rhinitis, diarrhoea and ocular symptoms. Mild hypoxemia and ubiquitous pulmonary wheezing were objectifiable and arterial blood gas analysis showed a partial insufficiency. Blood test showed hypereosinophilia of 4.6 x10`9/l (normal: < 0.5x10`9/l). After excluding allergy or medication causing hypereosinophilia, further testing (blood, test for infections including HIV, parasites) were performed: a hypergammaglobulinemia, elevated IgE and IgG4 level as well as mild interstitial pneumopathy and lymphadenopathy seen in the computed tomography were highly suspect for a IgG4 related diseases with pneumopathy. Detailed pneumological workup by body plethysmography confirmed the diagnosis of pulmonary hypereosinophilic syndrome. Inhalation of ipratropiumbromid/salbutamol improved coughing and dyspnoea slightly. However, after initiating steroids (initially: Prednisone 50 mg) eosinophil levels dropped sharply, and the symptoms resolved. Under these favourable circumstances, further diagnostics e.g. a lung biopsy were not necessary. In case steroids could not be tapered long-term a steroid-sparing anti-interleukin 5 biological drug therapy would be a therapeutic alternative. Unfortunately, we lost track as the patient developed a malignancy with prognostic limitation which is not related with the hypereosinophilic syndrome.

Discussion: Eosinophilia is often caused by allergies or adverse drug reactions. Nevertheless, cutaneous, gastrointestinal, pulmonary, cardiac and rheumatological diseases as well as haematological diseases can be hidden behind eosinophilia. Hypereosinophilia always demands a quick and well-structured diagnostic workup; as this case shows a careful anamnesis and physical examination are therefore essential for effective diagnostics. In case of inexplicably elevated eosinophils over a longer period of time, hypereosinophilia syndrome must also be considered as a differential diagnosis. Given that eosinophilic granulocytes are highly tissue-damaging, rapid initiation of therapy (in this case steroids) aims to prevent severe organ dysfunction or even failure.

P139

COVID-19 related exanthema – case report of a patient with an apparently drug-related exanthema (SDRIFE) without having taken any drugs

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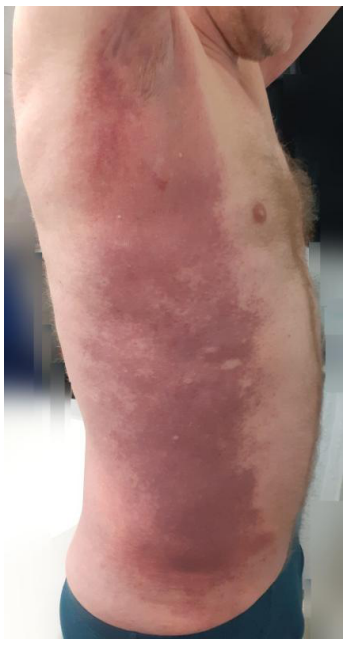
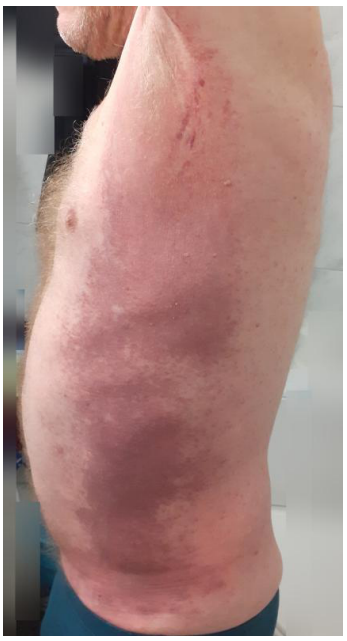
Learning objective(s): There have been several cases of COVID-19 related exanthema by now, typically showing varicella like or morbiliforme. But presenting as a symmetric drug-related intertriginous and flexural exanthema (SDRIFE) is rare. The following case reports on a patient with a SDRIFE like exanthema credibly not having taken any drugs. In patients with a SDRIFE like exanthema (on no reported medication), together with fever and a respiratory limitation, especially nowadays one should think of a COVID-19 related exanthema as a likely differential diagnosis.

Case: A 61-year-old male patient presented with a SDRIFE like exanthema, pruritic and accentuated axillary and inguinal, rapidly increasing (fig. 1, 2). The mucosa was not involved, neither was there any sign of vesication (Nikolski I negative).
Three days before the exanthema, he evolved flu-like symptoms with fever, a dry cough and respiratory limitation, and was tested positive on COVID-19 the following day.
He was healthy without any pre-existing health condition and was on no medication. The exanthema presented as a typical SDRIFE. But, in fact, the patient negated any drug taking including antibiotics, analgetics or herbals, and reported on no special food. He did not use any unguent nor other extern application. Therefore, a drug-related reaction was ruled out.
The laboratory findings showed an increase in CRP, a slight hypokaliemia and anemia, no eosinophilia.
The patient received oxygen for two days and dexamethasone as well as a topical treatment with a cream containing glucocorticoids (cat. III-IV) and a lotion for about two weeks. He showed a rapid recovery and could soon be dismissed.

Discussion: Exanthemas are often seen in virus infections, and is usually self-limiting. As seen in other virus exanthemas, COVID-19 related exanthema often shows varicella like, morbiliforme, maculopapulous or like a Chilblain lupus, a SDRIFE like exanthema is rare.
The pathogenic mechanisms have been discussed as being a hyperactive immune response, or a microvascular injury. Usually, a COVID-19 related exanthema shows up after the onset of other typical COVID-19 symptoms (as in our patient) and lasts for about 10 days.
Nowadays, without any other likely explanation, the combination of a SDRIFE like exanthema and no other systemic symptoms but fever should lead to a - maybe otherwise not yet confirmed - COVID-19 diagnosis.



[fig. 1 - SDRIFE like skin rash]



[fig. 2 - Skin rash of a COVID-19 positive man accentuated axillary]

P140

Delayed onset of statin-induced necrotizing autoimmune myopathy

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Learning objective: Statin-induced necrotising autoimmune myopathy (SINAM) is a relatively new term, which describes a rare and severe complication of statin therapy and, because of its clinical presentation, complicated course, and the expected increased statin use in the future, an extremely challenging phenomenon.

Case: A 73-year-old woman was admitted to the hospital with progressive *symmetrical* muscle weakness in the legs. The laboratory test showed elevated liver enzymes, an elevated creatine kinase of 4830 U/L and Troponin T of 405 ng/L. The heart diagnostic was negativ. MRI of *the* legs showed *signal alterations* of several muscles. The biopsy of the musculus rectus femoris was performed - the result corresponded to the *morphological* picture of the necrotizing autoimmune myopathy. The patient confirmed an earlier *statin* intake. However, the medication has been stopped 18 months before the current hospitalization because of elevated liver enzymes. The blood analysis showed positive antibodies against anti-3-hydroxy-3-methylglutaryl-coenzyme A reductase (anti-HMGCR). The cortisone and immunoglobulin therapy quickly improved the patient´s clinical condition.

Discussion: *SINAM* is a very rare form of the myopathy (approximately 2-3 cases of every 100,000 statin-patients), with potentially severe consequences and very often unrecognized symptoms, mostly present in patients above the age of 50 years. The mechanisms of the emergence of SINAM are still poorly understood. The timing of the onset of this disease cannot be defined - as a rule, the disease manifests itself within 10-20 years of the start of statin administration. The laboratory findings showed the elevation of the creatine kinase more than 10-fold greater than normal. The finding of anti-HMGCR antiboides is a valuable test to confirm the suspicion of SINAM. The muscle biopsy with a finding of necrotic muscle fibers and mild or absent inflammatory cell infiltration is an indispensable method, which together with anamnesis, clinical symptoms, laboratory findings, and imaging diagnostic methods fills the puzzle of diagnostic procedures.
A such a late onset of symptoms as in our case *confirms* the assumption that pathophysiological *mechanisms* of SINAM are still unclear and must be taken into account in the differential diagnosis of every progressive muscle weakness independently of the time of the statin uptake.

P141

Disappearance of chronic pain in the context of acute SARS-CoV-2 infection. A case series

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Learning objective(s): To describe how SARS-CoV-2 infections could blunt pain perceptions in patients with chronic pain; to hypothesize possible underlying pathophysiological mechanisms.

Case: We have followed three patients (67, 68, and 84 years old) with cancer-related chronic pain. Despite appropriate analgesic treatment, pain was inadequately relieved (pain severity > 8/10 on the Numerical Rating Scale). After confirmed SARS-CoV-2 infections, patients developed severe COVID-19, necessitating hospitalization. During hospitalization, all patients reported an impressive reduction in pain perception (< 4/10), with no increase in pain medications. Interestingly, all patients presented asymptomatic hypoxemia.

Discussion: Apart from an anecdotal case, chronic pain perception modulation in COVID-19 patients has never been described before. Interestingly, in all 3 patients SARS-CoV-2 infection resulted both in asymptomatic hypoxemia and in temporary blunted pain perception. Propagation of SARS-CoV-2 from the nose to the cortex (in particular the insula), and virus-induced dysfunction can affect dyspnea perception. The insula is indeed essential for interoception (i.e. the conscious experience of body signals). Besides breathing, the insula is also implicated in pain modulation, and its dysfunction plays a crucial role in chronic pain.

Thus, we hypothesize that virus-mediated dysfunction of a focal cortical region, the insula, can result both in lack of dyspnea and in blunted pain perception. Future studies should evaluate the prevalence of the co-occurrence of silent hypoxemia and pain modulation and disentangle if SARS-CoV-2 has a specific tropism for the insula. Future studies are needed to further evaluate the prevalence of pain modulation in patients with COVID-19 and the co-occurrence with silent hypoxemia; moreover, a specif tropism of SARS-CoV-2 for the insula still needs to be demonstrated.

P142

Dynamic T wave inversions after intramuscular adrenaline therapy in anaphylactic shock

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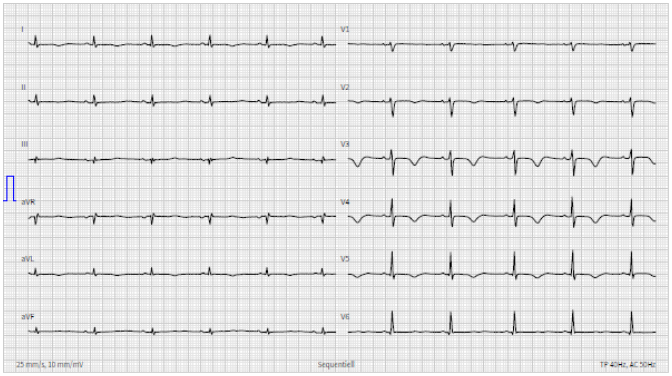
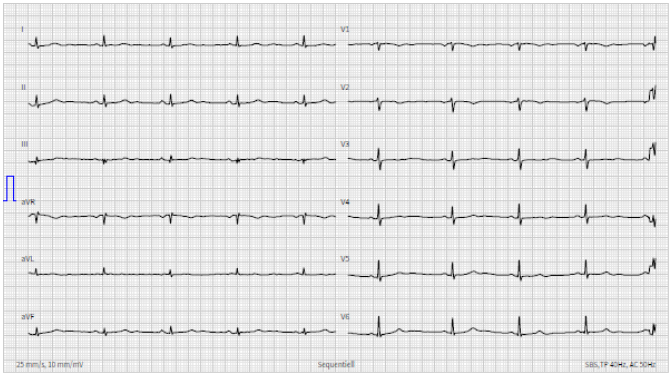
Learning objective: Anaphylactic shock is the most serious manifestation of anaphylaxis and a life-threatening emergency; immediate treatment with adrenaline is crucial. Systemic treatment with adrenaline may lead to cardiac side effects as tachyarrhythmia, myocardial injury, or heart failure.

Case: A 68-year-old female patient was admitted to our emergency department with anaphylactic shock due to a hornet sting. She was treated by intramuscular adrenaline, and intravenous glucocorticoid and H1 histamine antagonist. Thus, her clinical status rapidly improved. An electrocardiogram (ECG) showed T wave inversions in the precordial and lateral leads V3, V4, V5, I, and aVL (**figure 1**). The patient reported no cardiac symptoms (especially no chest pain or dyspnea). High-sensitivity cardiac troponin I was below the 99th percentile of the upper reference limit, so acute myocardial injury or infarction could be ruled out as the cause of the T wave inversions. The patient was dismissed from the emergency department after 12 hours of uneventful monitoring. The next day, an echocardiography and physical stress test were performed with normal findings. ECG at that time showed completely normal ventricular de- and repolarization without residual T wave inversions (**figure 2**). In summary, the dynamic T wave inversions were interpreted as temporary adrenaline mediated coronary artery vasospasm without clinically relevant myocardial injury.



[Figure 1]



[Figure 2]

Discussion: The T wave corresponds to the phase of rapid ventricular repolarization of the ventricular action potential. Abnormalities of the T wave may be secondary to abnormalities of ventricular depolarization (e.g., bundle branch block, or pre-excitation syndromes) or primary (e.g., ischemic, pulmonary embolism, hypokalemia, digitalis effect, takotsubo cardiomyopathy, pericarditis, or memory effect). Anaphylactic shock is the most serious manifestation of anaphylaxis and a life-threatening emergency; immediate treatment with adrenaline is crucial; however, systemic treatment with adrenaline may lead to potential serious cardiac side effects as tachyarrhythmia, myocardial injury, or heart failure. Myocardial injury in the setting of anaphylaxis may occur due to anaphylaxis itself, known as Kounis syndrome, or as a result of adrenaline treatment. Myocardial injury caused by adrenaline therapy in the setting of anaphylaxis is rare and proposed to be due to alpha-1 adrenergic receptor mediated coronary artery vasospasm.

P143

Embolizing endocarditis in a young adult: a case-report

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Learning objectives: Demonstrating the possible wide anamnesis in an embolizing endocarditis.

Case: A 50 years old male patient with fever (38.5°), shivers, acuitization of chronic lumbago, diarrhea, tiredness and moderate headache developed a transient confusion with disinhibition and temporal disorientation. He presented sharply elevated inflammatory values. A cerebral CT showed a small hemorrhage frontal right. A cerebral MRI detected multiple lesions and diffuse arteritis which evocated infectious embolizations with subsequent cerebral hemorrhage. The blood cultures were 4/4 positive for a Staphylococcus aureus. A transthoracic echocardiography (TTE), completed by a transesophageal echocardiography (TOE) ensured the diagnosis of an aortic valve endocarditis with moderate aortic regurgitation. A lumbar CT and MRI showed a spondylitis L1-L2 with an abscess of the psoas which was successfully CT-guided drained. A TTE control after 7 days of specific antibiotics resistance-adapted showed a worsening with severe aortic regurgitation, perforation of the valve and vegetation. An operative mechanic aortic valve replacement took place successfully. The post-operative follow up including TTE was complications free. The following blood cultures, the culture of the valve and the culture of the abscess of the psoas were sterile.

Diagnosis: Multi-embolizing aortic valve endocarditis with severe aortic regurgitation

Discussion: The diagnosis of an infectious endocarditis is a challenge due to nonspecific and variable symptoms and biological findings. Systemic complications (heart failure, neurologic complications, septic emboli, metastatic infection, immune reaction) may be present. Our patient had 3 complications (aortic regurgitation, infectious embolization and cerebral hemorrhages). In the literature more than half of patients have at least one complication which increases risks of mortality. Multiple complications are rarely described (8% with 3 complications). Due to its virulence S.aureus is more likely associated with complications. Our case illustrated the nonspecific history often occurring in infectious endocarditis and it showed that first consultation may be motivated by symptoms which are already reflecting systemic complications. The diagnosis of infectious endocarditis has to be evocate in all patients presenting with B-symptoms, even if they are young, without any risk factors or obvious etiology, in order to avoid delayed diagnosis.

P144

First manifestation of G6PD deficiency by excessive intake of dietary supplements for intensive work out

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Learning objective: Glucose-6-phosphate dehydrogenase (G6PD) deficiency is the most common enzyme deficiency and renders those affected susceptible to potentially severe oxidative hemolysis. Although the majority of patients remains clinically asymptomatic, hemolytic crisis develops mostly after exposure to several triggers such as (i) nutrients (fava beans, vitamins) (ii) infections (iii) drugs (antimalarial, antibiotics, analgesics etc.). We describe the initial presentation of a young male patient with G6PD deficiency, who developed life threatening hemolysis after ingestion of vegan pea protein due to excessive intake for work out.

Case report: Here we report the case of a 19-year-old man of Italian origin living in Switzerland with no relevant familial or personal medical history. He presented himself to the emergency department with acute fever, malaise, headache and upper abdominal pain. The physical examination displayed general jaundice, as well as diffuse tenderness of the upper abdomen. Blood tests revealed a normocytic anemia and an elevated indirect bilirubin. Sonographic examination showed a discrete splenomegaly and no signs of cholestasis. The erythrocyte morphology on the blood smear was normal, haptoglobin levels were markedly decreased and the direct coombs-test came back negative. G6PD-enzyme activity was almost not detectable proving therefore severe G6PD-deficiency. No red blood transfusions were needed and the patient recovered uneventfully during the next few weeks. After vigorous questioning, the patient admitted to have consumed large amounts of protein shakes, vitamin K and C to support muscle building, as well as having increased his training sessions. Therefore, we interpreted the excessive intake of dietary supplements as well as extreme training as triggers of oxidative stress and induction of GP6D deficient massive hemolysis. Consequently, we recommended the cease of these provoking factors.

Discussion: G6PD-deficiency is a X-chromosomal disease and the most common hereditary enzyme defect worldwide. While prevalence in African countries reaches up to 25%, only about 1% of the Swiss population is affected. Our patients had no family history and therefore, diagnosis was not evident in the beginning. Besides a large amount of commonly used drugs, stress, nutrients and even vitamins can induce a hemolytic crisis. Careful counseling for patients and family is warranted to avoid potentially life threatening hemolytic crises.

P145

Foot drop and elevated liver function tests – what is your diagnosis?

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Learning objective: We report on a patient who presented with a foot drop, a swollen and tender foot, due to a deficit of the peroneal nerve. He also presented markedly elevated liver function tests. What is your first guess?

Case: A 42-year-old man presented with a sudden onset of foot drop, swelling and pain in the left anterior foot without a history of trauma. The clinical examination revealed a week dorsiflexion of the left foot and sensory loss of the left anterior plantar region. The left dorsal metatarsal region presented with a tender swelling. The remaining clinical examination was normal. Laboratory tests showed markedly elevated liver enzymes, elevated C-reactive protein (figure 1) and microhematuria. An MRI of the left foot, ankle and knee revealed diffuse soft tissue edema without signs of myositis or arthritis. A joint aspirate of the left ankle joint did not show evidence of inflammatory cells or crystals, and cultures remained sterile. Electroneurography confirmed motor conduction deficit of the left peroneal nerve, suggesting mononeuritis. A biopsy of the left suralis superficialis nerve showed small vessel arteritis with demyelinisation. Serologies for hepatitis showed acute hepatitis B infection (figure 2). The HBV viral load was high (>170 Million IU/ml). Other serological studies and PCR-examinations for infectious agents remained negative. An autoimmune panel was also negative. We diagnosed a polyarteritis nodosa (PAN) triggered by acute hepatitis B infection. Antiviral therapy with tenofovir together with a high dose corticosteroid therapy was established. Because of disease progression under this therapy, plasmapheresis was added.

Test	Value	Normal range
ASAT	74 U/l	11 - 34
ALAT	167 U/l	9 - 59
GGT	139 U/l	12 - 68
Bilirubin	11.2 µmol/l	<24
CRP	171 mg/l	<10

ASAT: aspartate transaminase, ALAT: alanine transaminase, GGT: gamma-glutamyltransferase, CRP: c-reactive protein

[Laboratory tests]

HBsAg	positive (25723 IU/ml)
Anti-HBs	negative
Anti-HBc	positive
Anti-HBc IgM	positive
HBV	>170 mio IU/ml

HBsAg: hepatitis B surface antigen; anti-HBc: hepatitis B core antibody; anti-HBs: hepatitis B surface antibody; IgM: immunoglobulin M; HBV: hepatitis B virus

[Hepatitis B serologies]

Discussion: Polyarteritis nodosa (PAN) is a rare cause of mononeuritis and a rare first presenting sign/symptom of acute hepatitis B infection. Because of its potentially rapid evolution and severe complications, prompt identification of the disease and start of therapy is of paramount importance. Therapy of PAN consists of controlling the underlying disease. Immunosuppressive therapy and plasmapheresis might be required to avoid rapid disease progression.

P146

It came, it purred, it infected – a case of severe invasive pasteurellosis

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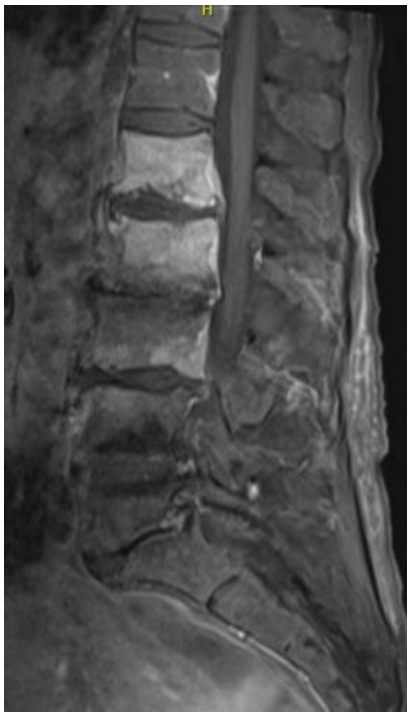
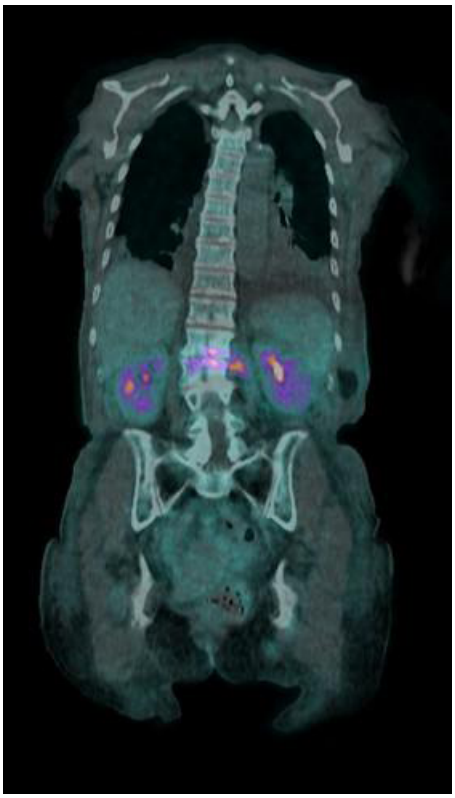
Learning object: Pasteurella multocida is a common cause of skin infection following canine bites. Invasive disease is much rarer and can cause serious complications. Possible invasive forms can be pneumonia, osteomyelitis or infections of the CNS.
Accurate microbiological sampling is essential in order to detect Pasteurella infections and guide anti-microbial therapy.
Persistent bacteremia must always trigger extended focus search.

Case: In Sep. 2020, a 87-year-old patient with severe dementia presented herself in our ER due to sudden aphasia, decreased vigilance and right-sided facial palsy. Multiple cardioembolic insults were detected by cMRI under previously unknown atrial fibrillation. Due to elevated CRP, blood cultures were taken and an empiric therapy with ceftriaxone was initiated. After 24h incubation growth of Pasteurella multocida was detected.
Further anamnesis discovered that the patient had been treated in a district hospital three weeks before, for erysipelas of the left leg with co-amoxicillin for seven days. At that time blood cultures also showed growth of Pasteurella spp.
With persisting bacteremia, an extended focus search was initiated. After an inconspicuous TTE, a PET-CT showed osteomyelitis with paravertebral abcesses, which was confirmed by MRI later. Luckily, after consultation of the spinal surgeons, no surgery was necessary and a curative antibiotic therapy with Amoxicillin for six weeks was established. After two weeks of i.v.-treatment the patient was discharged with oral Amoxicillin.

Discussion: Pasteurella are Gram-neg. coccobacilli that can cause a variety of infections in humans, usually as a result of scratches and bites by cats and dogs. That is why skin and soft tissue infections are the most common presentation. Pulmonary and severe infections can occur by dissemination in previously healthy individuals but are more likely in individuals with immunocompromising conditions.
Therapy is usually antibiotic treatment. If abscesses are present, surgical intervention may be necessary. Empiric therapy usually starts with Co-Amoxicillin. The definite choice of antibiotic therapy is guided by resistance testing. Duration of antibiotic therapy depends on clinical manifestation and medical condition. While cutaneous infections usually heal without sequelae with adequate antibiotic therapy and surgical debridement, severe infections as Pasteurella meningitis (25%), bacteremia (30%), and endocarditis (30%) have a high mortality.



[MRI with signs of osteomyelitis L1/2]



[PET-CT with signs of osteomyelitis L1/2]

P147

It is not always how it seems: an "onco" – reumatology case report

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Learning objective: Mixed connective tissue disease (MCTD) is a rare connective disorder. Even if not common, it is an important entity to know because of its vast symptom variations and multi-organ involvement.

Case: We admitted into oncology a 69-year-old woman sent by her family doctor because of fatigue, weight loss, thorax and leg pain that worsened with deambulation in the last two weeks with anemia and thrombocytopenia. The patient is known for a MCTD, in therapy with methotrexate and low-dose prednisone. Clinically she had petechiae in lower limbs and palpable lymphadenopathies in both axillae and groins. Thrombocytes were 37 G/l, hemoglobin was 9.7 g/dl, CT-thorax showed lots of pathological lymph nodes in both axillae and in the mediastinal cave. We performed bone marrow and lymph node biopsies with suspicion of a lymphoma which showed a high percentage of plasma cells. A PET-scan was negative excluding a lymphoma-disease. At admittance, the patient confessed she has stopped without telling anyone her therapy for MCDT ca. 3 weeks ago. Since then she has noticed the appearance of the symptoms we described. Therefore in our differential diagnoses it was believed a reactivation of her chronic pathology. Rheumatological blood tests showed an elevation of ENA-Ab, with anti-U1-RNP 112.9 U/l (normal range < 20U/l), rheumatoid factor (RF) was 86 u/ml (normal range < 14 u/ml), C3 and C4 were low. We asked for a rheumatologist's evaluation that agreed that a MCDT reactivation was highly probable. Our patient received a prophylaxis for bone protection with zoledronic acid, calcium and vitamin D3 and then started Hydroxychloroquine sulfate 400mg/die and Prednisone 50mg/die with a rapid reduction scheme. At one month follow up, the symptoms were absent and the hematological blood tests were normal. We then confirmed the diagnosis of reactivation of MCTD.

Discussion: This case underlines how in a specialist field the medical judgment can be misleading and take the suspicion in diagnosis of our own disciplines: we focalized our attention to confirm a lymphoma's diagnosis, which is a better-known subject for an oncologist specialist, instead of thinking that the symptoms and laboratory's findings could be related to an already known diagnosis. This led to a lot of unnecessary exams elevating in-hospital costs and also patient's exposure to adverse related to the invasive gestures performed.

P148

Lymphoma Immune reconstitution inflammatory syndrome in an HIV infection late presenter

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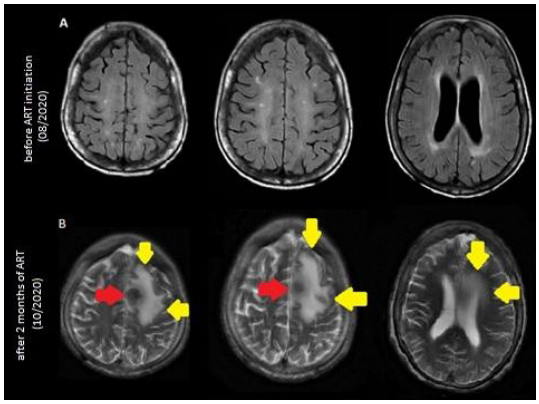
Learning Objectives:
- Immune reconstitution inflammatory syndrome (IRIS) in HIV patients can be provoked by newly established antiretroviral therapy (ART)
- IRIS results from rapid restoration of immune response causing deterioration of a treated infection (paradoxical IRIS) or manifestation of a previously subclinical infection (unmasking IRIS)
- Lymphoma can be a manifestation of unmasking IRIS and is defined as Hodgkin's or non-Hodgkin's lymphoma that occurs within the first 6 months of ART and ≥ 0.5 log reduction in HIV RNA copies/ml.

Case: A 63-year old female from South Africa was admitted to our hospital with new onset of right dominant tetraparesis.
Two months before, the patient was diagnosed with HIV-Infection CDC Stadium C3 (CD4 count < 22/µl; HI-viral load (VL) of 1,740,000/ml) with HIV encephalopathy and wasting syndrome. cMRI showed mild central cerebral atrophy and microangiopathic alterations. CSF examination was remarkable for a slight barrier dysfunction and an intrathecal HI-VL of 121´000/ml, microbiological examination was normal without any signs for an acute infection. ART (Bictegravir, Emtricitabin,Tenofoviralafenamid) was started and the patient was discharged in stable condition.
At the actual presentation, laboratory studies revealed leukopenia (2.18 10^9/l, range 3.9-10.2 10^9/l), CRP 20 mg/l (< 5mg/l), CD4 count 39/µl and HIV-VL of 875/ml. cMRI showed a ring-enhancing lesion in the left frontal cortex with surrounding edema (Figure 1). CSF examination revealed three mononuclear cells and an elevated protein level of 1,126 mg/l. Microbiology was negative for JCV, CMV, Toxoplasma, Mycoplasma, Cryptococci and acid fast bacilli; intrathecal EBV PCR was positive. Brain biopsy and histological workup including immunohistochemistry staining showed prominent B-cell proliferation with expression of the oncogene LMP-1, confirming the diagnosis of EBV-associated B-cell lymphoma. Treatment with methylprednisolone resulted in improvement of symptoms. However, the patient refused further treatment and decided to follow a palliative care setting.

Discussion: The risk to develop lymphoma is increased in HIV patients, and incidence is further increased after initiation of ART. How many of these cases are due to unmasking lymphoma IRIS is unknown, but retrospective cohort studies suggest an incidence of 10%. The clinical evaluation in this patient population can be challenging due to the plethora of neurological symptoms.



[Figure 1: Axial cMRI before starting ART (A) and 2 months of ART (B). Red arrows: cerebral mass, yel]

P149

Macrophage activation syndrome secondary to acute infection or systemic lupus erythematodes

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Learning objectives: There are primary (genetic) and secondary (reactive) forms of macrophage activation syndrome (MAS). The reactive forms are based on over activation of T-Lymphocytes and NK-Cells because of a preexisting immunosuppression (autoimmune diseases, neoplasms), which leads to a cytokine storm. Furthermore, external stimuli, like a virus infection, can trigger antigen-presenting Cells via Toll-like receptor 9 or MyD88 signaling pathway.

Case description: A 50-year-old Caucasian female presented to the emergency department with fatigue, fever, sore throat, dry cough, nausea and easily bleeding gums. Physical examination was normal with the exception of white patches on the tongue.
The patient had a history of invasive ductal mamma carcinoma in remission treated with adjuvant hormone therapy. Three months earlier, Anastrozole treatment was stopped because of suspected drug related systemic lupus erythematodes (SLE) based on lymphocytopenia, several high-titer antibodies, complement deficiency and arthralgia (SLICC Criteria). SLE was not treated with immune modulation since symptoms had already improved rapidly.
Upon admission, the patient showed pancytopenia, normal c-reactive protein, and elevated total IgG and erythrocyte sedimentation rate. Within a few days the patient developed hepatitis without jaundice and hyperferritinemia of 14´902 µg/l. Although Parvovirus B19 serology was compatible with recent infection (IgM and IgG positive), PCR from the bone marrow was negative. Bone marrow aspiration showed increased proliferating macrophages without hemophagocytosis; malignancy was excluded.
We assumed a macrophage activation syndrome (not a hemophagocytic lymphohistiocitosis), triggered either by an unidentified acute infection (possibly Parvovirus B19) or by the underlying untreated SLE. This was further supported by a HScore of 216 points, pointing to a 95% probability of MAS. The patient was treated initially with 100mg prednisolone daily orally. With this treatment, the fever subsided and the pancytopenia, transaminases and ferritin improved.

Discussion: A MAS should be considered in Patients with signs of inflammation and hyperferritinemia, hypertriglycerinemia, bi- or pancytopenia, liver dysfunction, coagulopathy or elevated lactate dehydrogenase (LDH). A diagnostic score (HScore) exists to facilitate diagnosis of reactive MAS in adults. Treatment consists of targeting the underlying disease or, if unknown, immunosuppression.

P150

Malignant lymphoma in a long-term Hodgkin lymphoma survivor with potentially therapy associated cardiovascular toxicity: a case report

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Learning objectives: Hodgkin lymphoma (HL) is a model of a curable malignancy. Long-term survivors of HL are at increased risk for a range of late effects, with second malignant neoplasm and cardiovascular diseases being the leading causes of death in these patients.

Case presentation: We report a case of a patient treated at teen age for HL with chemotherapy (CHT) and mediastinal radiotherapy (RT), who 30 years later developed a secondary diffuse large B-cell lymphoma (DLBCL).
Our patient was diagnosed at age 17 with HL and treated initially with CHT, later with combined chemo-radiotherapy for relapse. She received anthracycline (AC) for primary as well as for salvage treatment and reached the cumulative AC dose of 450mg/m2. The salvage CHT was followed by mantle field RT with 39,6 grays, which was standard at that time.
At age 44 she presented with thoracic pain and dyspnea and was then diagnosed with coronary heart disease of the left main and RCX with midrange ejection fraction (EF) (45%) due to scaring of the inferior wall and associated severe mitral. She was then treated with an aortocoronary bypass and later underwent mitral valve reconstruction. Since then she is being treated for chronic heart failure (HF). However the early appearance can not only be explained by cardiac risk factors.
At age 47, she presented with a newly palpable mass in the right breast. The biopsy of the lesion showed DLBCL. Further diagnostics revealed localized primary breast DLBCL considered low risk with about 90% probability to be cured, if treated with a combined AC therapy.
Given the favourable prognosis and curative intent of treatment we decided in this medically complicated situation for a standard AC containing treatment with R-CHOP with liposomal formulation in close cooperation with cardiologists and oncologists.

Discussion: The curative treatment for HL has been associated with a number of adverse late consequences of CHT and RT causing substantial excess of morbidity and mortality in long-term HL survivors. Difficult decision making is arising in patients with reduced cardiac function formally eligible for AC containing CHT with cumulative dose over 400mg/m2 in secondary malignancy. Late effects with progressive decline of the EF have shown to appear in median after 7 years of CHT and must thus be anticipated early and treated. Interdisciplinary approach, close cooperation with cardiologists and well-educated patients are essential.

P151

MDA-5 associated rapidly progressive intestinal lung disease - or an example of a successful teamwork between physicians and Dr. Google to diagnose a very rare disease

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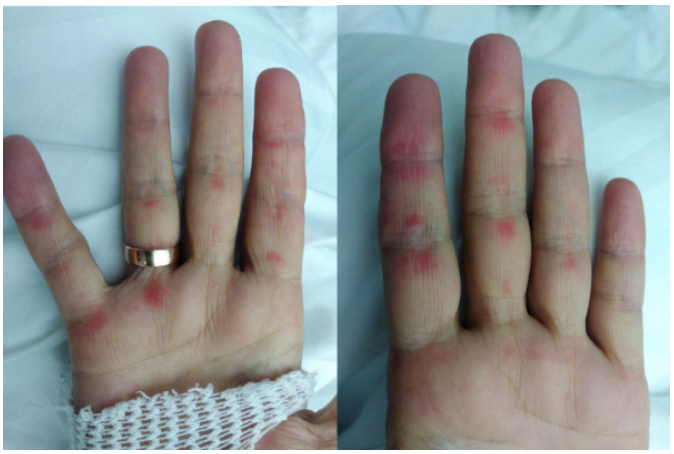
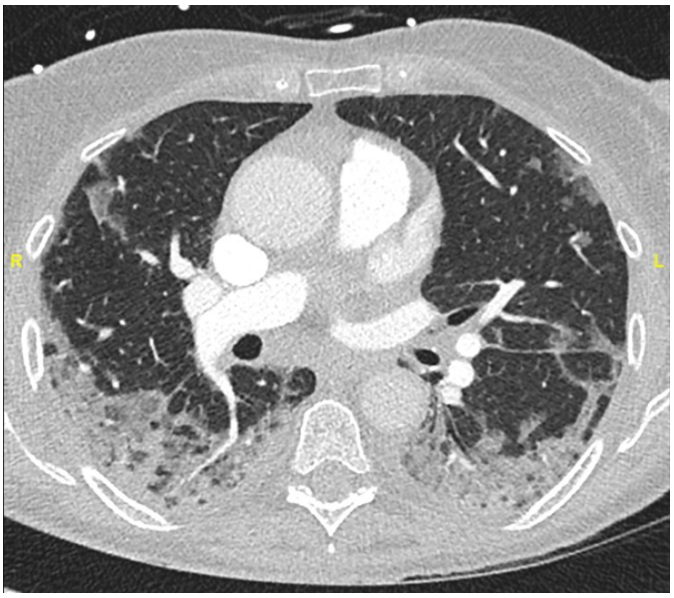
Learning objectives: MDA-5 associated amyopathic dermatomyositis (ADM) is a very rare cause of rapidly progressive intestinal lung disease.
Dr. Google can be an efficient and effective support to diagnose rare diseases if the syndrome or its symptoms are entered adequately.
Case: A 67-year old female patient presented to our department with a two-week history of malaise, fevers and increasing cough since two weeks. She denied myalgia or muscle weakness. An outpatient chest X-ray had shown diffuse consolidations and outpatient treatment with levofloxacin and ceftriaxone had not been effective. On admission, a discrete erythematous rash was noted on her fingers (Figure 1) and elbows in addition to pulmonary crepitations on both sides. Laboratory results were significant for a mild leukocytosis, increased C-reactive protein (63 mg/L) and LDH (550 U/L), and a procalcitonin and creatine kinase in the normal ranges. A CT scan of the chest (Figure 2) showed bilateral consolidations and mediastinal lymphadenopathy. An extensive work-up for infectious causes and rheumatic disease was negative. Suspecting an organizing or hypersensitivity pneumonitis treatment with intravenous prednisolone was started. However, the patient deteriorated rapidly requiring intubation. Interestingly, after entering the terms "rapidly progressive lung disease and rash" in the Google search engine the first hit displayed was "MDA-5 associated rapidly progressive interstitial lung disease". Eventually, high anti-MDA-5 antibodies in this patient confirmed a diagnosis of MDA-5 associated ADM and appropriate treatment with high-dose prednisolone, rituximab, cyclophosphamide and plasma exchange was initiated.

Discussion: The collaboration between physicians and Dr. Google (or other digital search engines) may be the future of medicine. However, challenges have to be acknowledged: the ability of the physician to recognize the relevant clinical symptoms, to translate them in an adequate medical terminology, to phrase the crucial question as well as the competence to evaluate the results according to relevance and agreement with the clinical picture. Digital search engines such as Google are outstanding in coping with large amounts of data and may help diagnose rare disease.
The combination of ADM and rapidly progressive intestinal lung disease should prompt a search for anti-MDA-5 autoantibodies. Prognosis despite intensive treatment is miserable.



[Figure 1: Erythematous papules on the patient's palms.]



[Figure 2: CT scan of the chest showing bilateral consolidations.]

P152

Metamizole as a rare cause of drug induced liver injury

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Learning objective(s): To identify metamizole as a rare cause of drug-induced liver injury (DILI) and to highlight the importance of taking a systematic medical history to diagnose DILI.

Case: We report the case of a 56-year-old man who presented to the emergency department with a one-day history of fever, malaise, and general deterioration. Onset of the symptoms occurred 12 hours after attending the surgical emergency department where treatment with metamizole (dipyrone) for presumed active osteoarthritis of the right shoulder was started. The patient reported no use of other drugs, alcohol or recreational substances, and his travel history was unremarkable. He reported having an "allergy" to paracetamol, but not to other drugs.
Past medical history was remarkable for three previous episodes of an inflammatory syndrome with hepatitis of unknown etiology during the last three years. Each episode was preceded by metamizole intake shortly before symptom onset. Co-medication with NSAIDs and ciprofloxacin was reported during the first and the second episode, respectively.

On admission, the patient was febrile (39.6 °C), but hemodynamically stable. Laboratory tests showed elevated white-blood cell count (12.6/nL) and elevated C-reactive protein (132mg/L). Liver enzymes were markedly elevated (ALT 1'374 U/L, AST 804 U/L, ALP 51 U/L). Bilirubin, albumin, and INR were normal. Relevant differential diagnoses were excluded such as acute infection, vasculitis, autoimmune and metabolic diseases. Liver biopsy showed subacute perivenular hepatocyte necrosis and eosinophilic inflammatory infiltration, compatible with DILI. Discontinuation of metamizole led to rapid clinical improvement and normalization of liver transaminases.

Discussion: Our presumed diagnosis was metamizole-induced hepatotoxicity. DILI is a diagnosis of exclusion and can be difficult to detect, especially when it mimics a systemic inflammatory syndrome like in our case. A profound medical history taking was crucial to identifythe correlation of metamizole intake and the onset of liver injury. Metamizole is a very rare and not well-known cause of severe DILI with inflammatory syndrome with only a few published case reports in the literature.
In conclusion, metamizole has to be considered as a rare cause of severe DILI. Prompt recognition and discontinuation of the drug is crucial. Patients have to be informed to avoid this medication.

P153

Mind the gap: when SGLT-2 inhibitors have acid consequences

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Learning objectives: Euglycemic diabetic ketoacidosis due to SGLT-2 inhibitor therapy is a rare but life-threatening adverse event. It can be prevented by stopping the relevant medication during periods of fasting. Consider the possibility of late onset type 1 diabetes (LADA) in these patients.

Case: A 66-year-old female presented to the emergency department with acute generalized weakness, nausea and vomiting. Past medical history consisted of a NSTEMI 3 months ago, diabetes mellitus type 2 on oral antidiabetics and a premixed insulin, asthma, and eye-surgery one day before admission. Despite inappetence, the patient continued all regular medication, including the newly prescribed short course of acetazolamide (Diamox) following eye surgery. Insulin was discontinued prior to surgery.
The patient was in poor general condition, but clinical and laboratory examinations were unremarkable apart from a blood glucose of 11 mmol/l. ECG showed no signs of acute myocardial Infarction. Arterial blood gas analysis showed severe metabolic acidosis with normal lactate *(Figure 1)*.
An intravenous crystalloid infusion was initiated and medications potentially causing metabolic acidosis including acetazolamide were stopped. Due to a high anion gap, ketonuria and a history of ongoing SGLT-2 inhibitor therapy in a fasting patient, euglycemic diabetic ketoacidosis was postulated.
During intensive care, the patient received continuous intravenous insulin and glucose to stabilise blood glucose. SGLT-2 inhibitor was stopped. Acidosis resolved, the anion gap closed and the symptoms improved. After 4 days, the patient was discharged in good general condition on a basal-bolus insulin regime.
Further analysis revealed GAD antibodies, diagnostic for a LADA, for which SGLT-2 inhibitors are contraindicated.

Discussion: Euglycemic diabetic ketoacidosis due to SGLT-2 inhibitors may be overlooked and mistaken for another forms of metabolic acidosis. The high anion gap and the medication history led to the correct diagnosis. Fasting state and insulin deficiency were triggering factors. With broader use of SGLT-2 inhibitors, awareness of this side effect becomes increasingly important, so that life-threatening events may be prevented by pausing the SGLT-2 inhibitors in fasting periods, for example before elective surgery. Furthermore, euglycemic diabetic ketoacidosis may unveil LADA in formerly assumed type 2 diabetics, so further investigation may be rational.

pHT	7.350 - 7.450	7.110
pCO2T	35.0 - 45.0 mmHg	21.8
pO2T	80.0 - 90.0 mmHg	95.7
Routine Block		
pH	7.350 - 7.450	7.110
pH	7.35 - 7.45	
pCO2	35.0 - 45.0 mmHg	21.8
pCO2	35 - 45 mmHg	
pO2	80.0 - 90.0 mmHg	95.7
pO2	83 - 108 mmHg	
Bicarbonat aktuell	22.0 - 26.0 mmol/l	6.9
Bicarbonat standard	22.0 - 26.0 mmol/l	
Bicarbonat	20 - 29 mmol/l	
Basen-Excess	-2.0 - 2.0 mmol/l	-20.9
Base Excess aktuell	-2.3 - 2.3 mmol/l	
CO-Oximetrie		
Hämoglobin aus BGA	120 - 180 g/l	137
Hämatokrit aus BGA	35 - 52 %	42
Oxyhämoglobin	94.0 - 97.0 %	93.7
Methämoglobin	<1.5 %	1.3
Carboxyhämoglobin	0.5 - 1.5 %	0.9
Desoxyhämoglobin	1.0 - 5.0 %	4.1
Sauerstoffsättigung	95.0 - 97.0 %	95.8
O2-Sättigung	95 - 99 %	
p50	mmHg	
Elektrolyte		
Natrium aus BGA	135 - 148 mmol/l	138
Kalium aus BGA	3.5 - 5.3 mmol/l	4.4
Calcium ionisiert aus BGA	1.13 - 1.32 mmol/l	1.42
Chlorid aus BGA	98 - 106 mmol/l	113
Anionenlücke	8 - 16 mmol/l	18.1
Metaboliten		
Lactat aus BGA	0.5 - 2.0 mmol/l	1.2
Glucose aus BGA	3.6 - 5.2 mmol/l	11.4

[Figure 1. Blood gas analysis on admission]

P154

Non-traumatic paraplegia caused by intramural aortic hematoma

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Learning objectives: The etiology of non-traumatic paraplegia contains a broad spectrum of differential diagnoses. Detailed anamnesis is of utmost importance for identification or exclusion of potential causes in order to choose adequate treatment modalities.

Case report: A 79-year old female patient presented to our emergency department for a new-onset of faecal incontinence and urinary retention. The patient reported hypoesthesia below the navel with concomitant loss of strength in both legs. Her medical history was significant for hypertension and osteoporosis. In addition, a spinal MRI, conducted in the clinical assessment of chronic lower back pain, showed osteochondrosis without herniated discs at the height of L5/S1.
On physical examination, a bilateral loss of strength in hip flexion (M4/5), a saddle anesthesia and a reduced anal sphincter tone were noted. Spinal MRI revealed ischemia of the spinal cord from the level of the 6th thoracic vertebra to the cone. Upon close questioning, the patient further specified the initial anamnesis by adding a short episode of chest pain prior to the beginning of paraplegia. This information increased the clinical suspicion of aortic dissection. A chest CT identified an extensive intramural hematoma of the aorta from the aortic valve as far as to the coeliac trunk. The latter turned out to be completely occluded. Accordingly, the initial clinical presentation was assumed to be caused by the above mentioned hematoma and consecutive closure of the major anterior segmental medullary artery (A. Adamkiewicz) with subsequent ischemia of the spinal cord. The patient refused surgery and neurologic rehabilitation. She developed a complete paraplegia.

Discussion: The causes of non-traumatic paraplegia are numerous, emphasizing the importance of a thorough anamnesis to identify potentially life-threatening situations, such as an aortic dissection. Therefore a thorough and problem-oriented anamnesis is important to evaluate the next diagnostic and therapeutic steps. A prompt surgical aortic repair can improve the overall-survival of patients with aortic hematoma/dissection. However, the neurological outcome cannot be improved in patients with ischemia of the spinal cord.

P155

Pneumothorax – a potentially life threatening complication of COVID-19 pneumonia

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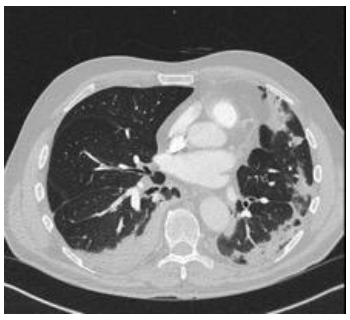
Learning objectives: We present 2 patients with pneumothorax, a rare but possible fatal complication in the course of COVID-19 (Coronavirus Disease) pneumonia. This complication should be known to treating physicians, since the number of COVID-19 patients is still increasing worldwide. The curative emergency treatment with immediate drainage must be available in close proximity.

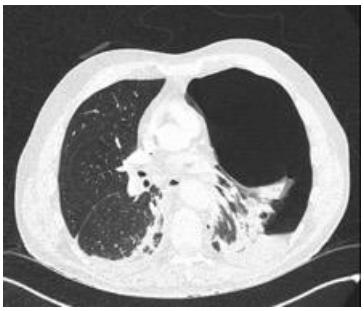
Case 1: An otherwise healthy with COVID-19 infected 63-year-old presented on the 21th day of the disease with dyspnea and chest pain. CT scan (computed tomography) showed bilateral consolidative opacities in both lungs (Figure 1) and subsegmental pulmonary embolism on the right lower lobe. The patient was treated with off-label hydroxychloroquine, amoxicillin/clavulanic acid and dalteparin. On the 30th day, he suddenly was tachypnoic with an oxygen saturation of 83% and absent breath sounds on the left side of the chest. The CT scan (Figure 2) confirmed a left sided tension pneumothorax with slight mediastinal shift. A chest tube was inserted, which resolved his dyspnea.

Case 2: A 58-year-old non-smoker presented with dry cough, fever, fatigue, dyspnoea and was diagnosed with COVID-19. Chest CT scan detected diffuse bilateral subpleural ground glass opacities predominantly on the lower lobes. He was treated with oxygen supplementation, off label hydroxychloroquine, piperacillin/tazobactam as well as one dose of off label tocilizumab. On the 28th day of the disease, the patient had a coughing fit followed by acute respiratory distress and left sided chest pain. The chest radiography showed a left sided tension pneumothorax, which was promptly drained with a chest tube.

Discussion: The mechanism that lead to spontaneous pneumothorax in COVID-19 has not yet been clarified. Both patients didn't had history of any underlying lung disease, were nonsmoker and not mechanically ventilated. The CT scan on admission showed no parenchymal changes such as emphysema, cysts or bullae. Spontaneous pneumothorax mostly occurs in necrotizing pneumonia caused by tuberculosis, Staphylococcus, Klebsiella, Pseudomonas or Pneumocystis jirovecii. This complication was observed in few patients during the outbreak of Severe Acute Respiratory Syndrome and is rare in viral pneumonia. We suppose that the extensive alveolar damage combined with high intrapulmonary pressure due to cough fits, might lead to spontaneous pneumothorax. This mechanism was already experimentally described in 1944 by Macklin.



[Figure 1.]



[Figure 2.]

P156

Point of care ultrasonography allows earlier identification of the source of infection in septic patients

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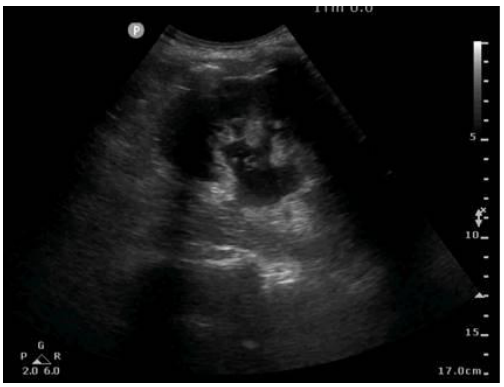
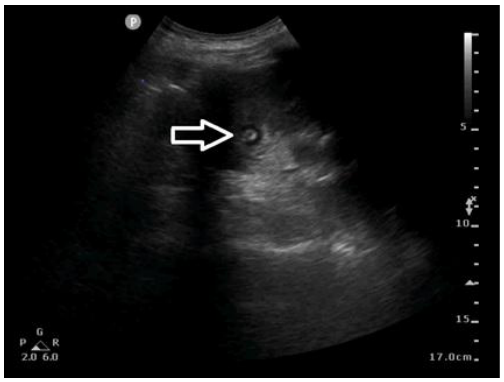
Learning objectives: To illustrate how point of care ultrasonography (POCUS) can rapidly identify the source of infection and speed up the time to diagnosis and treatment of septic patients.

Case Presentation: A 60-year-old patient known for Down´s syndrome, epilepsy and Parkinson´s disease was brought to the emergency department with fever without evident source after history evaluation. His vital signs on admission were as follows: SaO2 90% in ambient air, blood pressure 90/55 mmHg, pulse rate 95/min, respiratory rate 13/min and temperature 37.9°C. Clinical examination and chest x-ray were normal. Point of care blood analysis found mild elevation of lactate at 2.0 mmol/l and a new creatinine elevation at 200 µmol/l. Bedside POCUS showed a left hydronephrosis (Image 1) and two hyperechoic images corresponding to nephrolithiasis (white arrow, Image 2). Lung ultrasonography found a right basal consolidation. Blood analysis showed elevation of C-reactive protein, leukocytosis and signs of multi-organ failure including renal and liver impairment and thrombocytopenia. Urinary analysis showed nitrites, leukocytes and erythrocytes. Thus, the diagnosis of sepsis due to pneumonia and obstructive pyelonephritis was made rapidly after emergency department admission. Crystalloids and a broad-range antibiotic therapy were started immediately after POCUS findings. An hour later, abdominal CT scan confirmed POCUS findings. While still in the emergency department, the patient became hemodynamically unstable and was transferred to the operating room for emergent upper urinary tract drainage. He was then transferred to the intensive care unit where clinical and biological markers rapidly turned back to normal. The patient eventually completely recovered and was discharged a week later.

Discussion: Patients with sepsis and septic shock have a high mortality rate. Early antibiotic therapy is mandatory to decrease mortality. Surgical intervention is also sometimes necessary to control infectious source. As described in this case report, POCUS appears to be a reliable and early diagnostic tool allowing prompt identification of the source of infection. Currently, there is no universal diagnostic POCUS protocol for sepsis management. Using a systematic ultrasound approach to patients presenting with septic shock and/or sepsis may allow a faster recognition of the infection source, leading to more appropriate and prompt treatment.



[Image 1]



[Image 2]

P157

Polymyositis/ scleroderma overlap syndrom (positive anti-PM/scl) with myocardial involvement: a case report

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Learning objectives: Polymyositis/scleroderma overlap syndrome is a rare subgroup of connective tissue diseases that can lead to symptoms such as Raynaud's phenomenon, skin lesions, arthritis, myositis, interstitial lung disease and dysphagia. Positivity for anti-PM/Scl antibodies is highly specific for this entity. Here we describe a patient with high titers of anti-PM/Scl antibodies and myocardial involvement as the main clinical feature of Polymyositis/scleroderma overlap syndrome.

Case: A 79-year-old woman was admitted to our hospital with fatigue, distal muscle weakness and necrosis of the left Hallux. During hospitalization, she developed chest pain without accompanying ECG alterations. However, Creatine kinase as well as Troponin levels in the serum were highly elevated. A coronary angiography was normal thus excluding coronary heart disease. An MRI of the heart revealed a focal delayed enhancement from the inferolateral basal segment until mid-ventricular with hypokinesis of the inferolateral wall. A pathologic capillary microscopy suggested the occurrence of a systemic connective tissue disease. We thus performed further blood tests, which revealed a high titer of antinuclear antibodies with positivity for anti-PM/Scl (131 U/L, normal < 10 U/L). Anti-PM/Scl antibodies are highly specific for polymyositis/scleroderma overlap syndrome. Taking into account the clinical, laboratory and radiological findings, the diagnosis of polymyositis/scleroderma overlap syndrome with myocardial involvement was established and a therapy with prednisone (60 mg daily) and methotrexate was initiated. In a 2-month follow-up, after an intensive rehabilitation program, the patient showed an improvement of muscle strength and minimal skin involvement. At follow-up, Creatine kinase levels were clearly reduced.

Discussion: Anti-PM/Scl antibodies can be found in connective tissue diseases and are highly specific for polymyositis/scleroderma overlap syndrome. This rare disease is usually associated with muscle, skin, gastrointestinal and pulmonary involvement, but can also lead to myocardial involvement as highlighted by our case report.

P158

Porphyria cutanea tarda treated by iron reduction with phlebotomy

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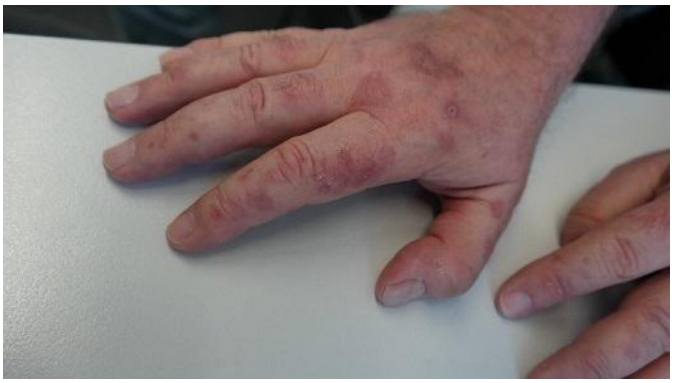
Learning objective(s): Skin efflorescence at exposed areas as hands and face are perturbing for patients. With accurate diagnostics sometimes more rare aetiologies might be found and effective non-medicamentous treatments can induce complete remission and lower psychological strain for patients.

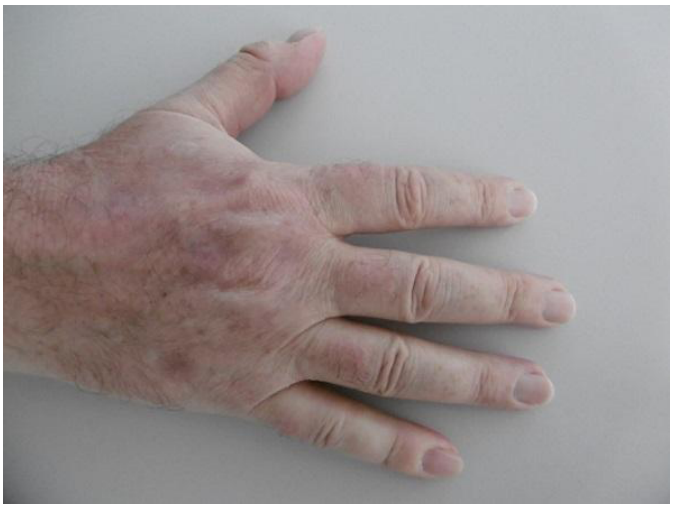
Case: A 59-year-old male patient presented at the clinic for dermatology for further evaluation of bothersome lesions on the back of both hands. Past medical history was unremarkable, he reported an alcohol consumption of 2-3 standard drinks daily and no regular medication. Physical examination showed erythematous and

bullous skin lesions and formation of milia on the back of both hands and discreetly in the face (see Picture 1). Porphyria cutanea tarda was suspected and confirmed: Porphyrin testing showed elevated total porphyrins in the spot urine with predominance of uro-, hepta-, hexa- and pentacarboxylprophyrins, a plasma fluorescence peak at 619 nm and positive isocoproporphyrin in the feces, all in all compatible with porphyria cutanea tarda. Ferritin was elevated 348 ug/l (nl ragne 30-330 ug/l), Liver enzymes were slightly elevated (less than 1.5x upper normal) and concomitant hemochromatosis was excluded by genetic testing. Sun protection and alcohol elimination were initiated but there was no major improvement. Phlebotomy of 400ml every second week for four times was performed. Ferritin levels fell to 22 ug/l and eight weeks after the last phlebotomy the patient had no new skin lesions and only minimal residuum of initial skin lesion (see Picture 2).

Discussion: Porphyria cutanea tarda is a rare mostly multifactorial related disease caused by decreased hepatic uroporphyrinogen decarboxylase (UROD) enzyme activity. Iron accumulation plays a central role in pathophysiology of the disease. The association of skin lesions and liver disease should arouse suspicion of porphyria. Lifestyle modification as sun protection, alcohol and tabaco cessation are first steps for improving skin condition. Reduction of accumulated iron by phlebotomy might induce long term remission in most of the patients, if ineffective second line treatment with hydroxychloroquine might be successful.



[Picture 1: Skin lesions before initiation of phlebotomy]



[Picture 2: Skin condition eight weeks after last phlebotomy]

P159

Precision medicine versus grey zone: maintaining homeostasis in a patient with Takotsubo syndrome

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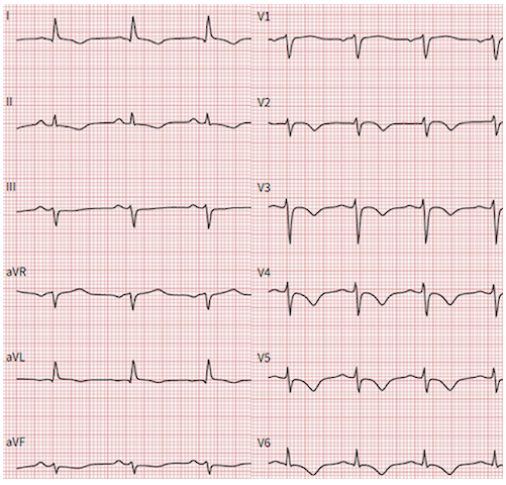
[1]Canton Hospital of Baden, Department of Internal Medicine, [2]Canton Hospital of Baden, Department of Internal Medicine, Cardiology, [3]Canton Hospital of Baden, Department of Radiology, Baden, [4]University of Zurich, Center for Molecular Cardiology, Schlieren, Switzerland

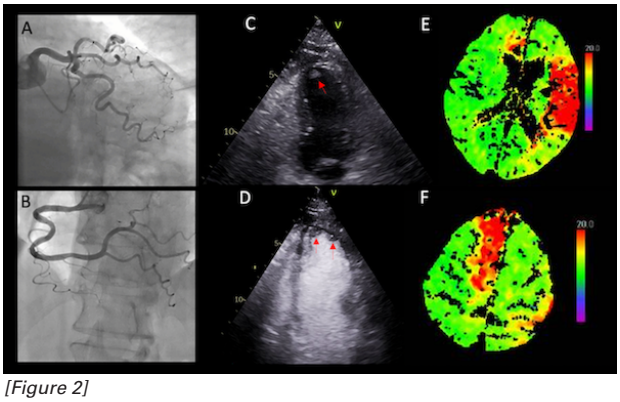
Learning objective: Left Ventricular Thrombus (LVT) formation with increased risk of cardioembolic stroke is a well-known complication among patients with Takotsubo cardiomyopathy (TTC). Adequate therapeutic balance between embolic and bleeding risk is vital and exceptionally challenging.

Case: A 77-year-old woman was referred to the emergency department by her general practitioner with suspected myocardial infarction due to anterolateral T-wave inversions (Fig 1) in the setting of psychological stress. Given elevated high-sensitive Troponin aspirin was started. Coronary angiography excluded relevant coronary stenosis (Fig 2A,B). Transthoracic echocardiography (TTE) showed apical dyskinesis with 2 mobile LVT (0.5 and 0.7 cm diameter) and anteroseptal akinesis, suggesting TTC (Fig 2B,C). Aspirin was switched to therapeutical anticoagulation (AC) with unfractionated heparin and Vitamin K Antagonist. However the patient developed multiple acute neurological deficits (global aphasia, left motor hemisyndrome, right hemianopsia). Cerebral computed-tomography (cCT) with angiography demonstrated extended bilateral ischemia (Fig 2E,F) with proximal occlusion of the left M2-segment of middle cerebral artery and distal occlusion of the right anterior cerebral artery.AC was interrupted and given a INR of 1.1 and aPTT of 30 seconds intravenous systemic thrombolysis with tPA (event-to-needle-time: 146 min) with following mechanical recanalization of the persistent M2 occlusion (event-to-groin-time: 195min) was performed.Following a rapid GCS deterioration, a re-CT demonstrated left-sided subarachnoid and intraparenchymal hemorrhage in the infarcted area. Acute conservative therapy with prothrombin complex concentrate stabilized the clinical scenario.Given improved neurologic deficits prophylactic low molecular weight heparin was cautiously started at day 10. Follow-up TTE showed persistent apical dyskinesis but non-detectable LVT.

Discussion: In TTC, systemic inflammation, endothelial dysfunction and catecholamines storm lead to a procoagulant state that may hamper the achievement of a safe AC level.Moreover, high thrombus burden and intrinsic thrombus friability may represent unpredictable factors for thromboembolism under therapeutical AC.Conversely, antithrombotic therapy may end-up with near fatal bleeding complications as in our patient. Our case well illustrates the dilemma of AC in a patient with TTS associated LVT and the necessity of further research in this field.



[Figure 1]



[Figure 2]

P160

Pulmonary valve endocarditis caused by septic thrombophlebitis after peripheral venous catheterization

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Learning objective: Septic Staphylococcus aureus (S. aureus) thrombophlebitis after peripheral venous catheterization caused a pulmonary valve endocarditis in a young patient without history of IV drug use or congenital heart defect.

Case: A 34-year-old female presented herself with fever and thrombophlebitis of the right basilic vein. On the day before she was discharged from a gynaecology ward after enucleation of 13 uterine fibroids. During this previous hospitalisation, a peripheral venous catheter has been placed in the right basilic vein for approximately 7 days. Undergoing a preoperative diagnostic hematology examination due to a suspected bleeding disorder (familial von Willebrand disease) and due to her asymptomatic anemia (normochromic, normocyteric), incidentially found during preoperative examinations, conclusively, no remarkable hematological disorder was detected.
The patient has never undergone any other operative procedures and has never had a peripheral venous cannulation prior to the gynaecological hospitalisation. More importantly, she has neither a history of IV drug abuse nor of any heart defect.
The ultrasound revealed a long segment basilic vein thrombosis. Furthermore, we could verify a S. aureus bacteriemia (2/4 blood cultures). A transesophageal echocardiography revealed a thickened lateral cusp of the pulmonary valve with suspected vegetations in the right ventricular outflow tract. According to local bacterial resistance profiles and antibiotic guidelines, we adjusted the antibiotic treatment and administered flucloxacillin 2g 6x/day for 3 weeks and daptomycin 500mg once daily for another week.The patient`s vital signs remained stable, she generally improved clinically, and all following blood cultures did not show any bacterial growth.
Due to the potentially embolic superficial arm vein thrombosis, an anticoagulation therapy was started and was consequently stopped after 6 weeks when the deep upper extremity veins presented unremarkable findings in the sonographic examination.
2 weeks after the last dose of daptomycin was administered, blood cultures, inflammation parameters and the clinical examination remained unremarkable.

Discussion: Right heart endocarditis caused by septic thrombophlebitis is a rare but potentially lethal nosocomial infection. In patients presenting fever during or shortly after peripheral venous catheterization, thrombophlebitis and its possible complications must be searched for.

P161

Recurrent abdominal pain and fever

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Learning objectives:
· Hereditary periodic fever syndroms: when to evoque FMF
· Phenotype-genotype correlation in our practice
· Single MEFV mutation: looking for the second hit?

Case: 31-year old Syrian patient known for numerous past hospitalisations for abdominal pain, fever and undetermined inflammatory syndrome since 2016. A prior coloscopy showed an ulcerative terminal ileitis, associated with radiologic colitis, treated by Entocort and Imurek for an IBD suspicion. New endoscopies are clear of histologic lesions, but persistent symptoms suggest a possible diagnosis of Familial Mediterranean Fever (FMF). A treatment by Colchicine is started in July 2019.
At presentation the patient has a pseudofolliculitis without positive pathergy test and omalgia. He experienced occasionnal apthosis and conjonctivitis. Among his family, his mother presented the same pattern of abdominal pain, polyarthralgia, alguria and apthosis. Aside a major inflammatory syndrom, the immune panel including immunoglobulins, FAN, complement and protein electrophoresis is negative, as well as ferritine, glycosylated ferritine and beta-2 microglobuline. For the infectious work-up, the bacteriology and the serologies for HIV, HBV, HCV and Quantiferon are negative.
A new abdominal-CT shows a pancolitis with a discrete parietal thickening of the proximal jejunum motivating a trial of ceftriaxone-metronidazole for 10 days. Colchicine is maintained. The ophtalmic exam is normal and the echocardiography shows a preserved LVEF without structural anomaly. Inflammation and pain improve under treatment.
Discussion: Related to this case, the main differential diagnosis includes an IBD such as Crohn, with an initial compatible histology with ulcerations at the first coloscopy, and an hereditary periodic fever syndrom such as FMF which is a recessively inherited autosomal disease. The genetic testing unfolds an heterozygotic MERV mutation (M694V) whose phenotypic variability is confered by a variant considered as frequent missense mutation in the healthy population. Among FMF reported cases, 10-20% of patients do not possess any identifiable MEFV mutations even after complete gene sequencing. Moreover, up to 30% of patients presenting a situation of heterozygoty with typical disease history respond to Colchicine trial. The question is then the presence of another modifying event, such as an intronic or regulatory variant of MEFV or dominantly inherited mutation with variable penetrance.

P162

Recurrent facial palsy

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Learning objectivs:
- Differential diagnosis of facial palsy
- Awareness raising for rare diseases
- Error probability of diagnostic radiology

Case: A 54-year-old Caucasian man was admitted with the fourth episode of facial palsy of the right side. The diagnosis of recurrent idiopathic facial nerve palsy was presumed with normal routine blood and liquor tests, excluded infections (Borrelia burgdorferi antibodies, Herpes simplex Virus 1/2 polymerase chain reaction (PCR), Varicella zoster Virus PCR) and according to a written report of a magnetic resonance imaging (MRI) of the head, done after the second episode, with no pathological findings. The patient was treated with Prednisolon (70mg) for 7 days with tapering over a week, Pantoprazol, a watch glass bandage and artificial teardrops. As recurrent idiopathic facial nerve palsies are rare the patient was referred to a clinic for otorhinolaryngology for further assessment. Here a 1x1 cm big mass was palpated at the right angulus mandibulae. A second head MRI showed a tumour of the right parotid gland, which enveloped the facial nerve. A biopsy confirmed a high-grade salivary gland cancer. The patient received a radical parotidectomy, neck dissection II-IV and a facial nerve reconstruction. Multiple lymphatic metastases were found (pT4a LI VO pN3b (53/68) RI (lokal) cMO) and an adjuvant radiotherapy followed. In retrospective the tumour was already visible in the first head MRI.

Discussion: Recurring non-idiopathic facial palsies are very rare. The differential diagnoses involve the Melkersson-Rosenthal syndrome, neurosarcoidosis und carcinomas (schwannoma, parotid gland carcinoma, cholesteatoma). Only 1.5-7% of idiopathic facial palsies recur. Unusual medical histories warrant an interdisciplinary approach, as guidelines often don`t cover rare diseases. Clinicians should be aware of anchoring biases by trusting radiologic reports blindly. Radiologists have a daily error rate of 3-4%, were they misdiagnose or overlook pathologies. In our case the incorrect interpretation of the first head MRI led to a delay of almost a year in finding the tumour, reducing the chances of survival of our patient.

P163

Reversed halo sign on computed tomography – not always a sign of mucormycosis

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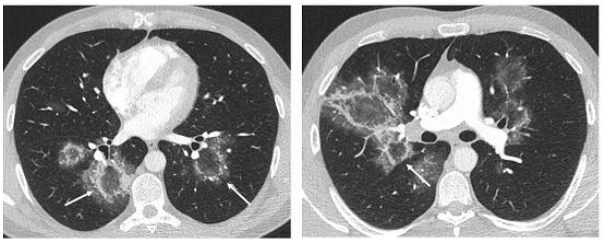
Learning objectives: The reversed halo sign is a pulmonary, focal, central ground-glass opacity surrounded by a denser air-space consolidation in the shape of a crescent or a ring, found on chest computed tomography (CT). Mucormycosis is the most frequent underlying disease in immunocompromised patients. However, it has also been described in association with invasive aspergillosis,

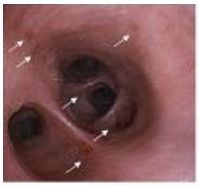
tuberculosis, cryptogenic organizing pneumonia, vasculitis and malignancy.

Case: A 33-year old, previously healthy man, presented to the emergency department complaining about fatigue, lack of appetite, abdominal pain and arthralgia, persisting for ten days. He was alert, afebrile, tachycardic (105/min) and normotensive. Physical examination revealed an epigastric tenderness. Laboratory findings included a leukocytosis of 17.5 x 10^9/L, a mild eosinophilia of 0.7 x 10^9/L (normal range < 0.3 x 10^9/L), an elevated C-reactive protein of 36 mg/L and a microhaematuria. The creatinine was within the normal range. The HIV serology was negative. The CT scan of the abdomen was normal. However, multiple bilateral pulmonary consolidations with extensive reversed halo signs were evident on CT scan of the chest (Figure 1). Bronchoscopy demonstrated a diffuse alveolar hemorrhage and teleangiectasia of the bronchial mucosa (Figure 2). In the microbiological analysis of the bronchoalveolar lavage no pathogen was identified. Histology of the transbronchial lung biopsy revealed non-specific eosinophilic mucosal and alveolar inflammation. Further laboratory analyses demonstrated a markedly elevated erythrocyte sedimentation rate of 70 mm/1h and a cANCA-titer (PR3-ANCA IgG 164 U/mL; normal range < 3 U/mL). Urine microscopy was significant for dysmorphic erythrocytes. In order to confirm the diagnosis of suspected vasculitis, a renal biopsy was performed, which showed focal and segmental necrotizing pauci-immune glomerulonephritis.
Finally, a diagnosis of cANCA-associated vasculitis (granulomatosis with polyangiitis, previously known as Wegener granulomatosis) with involvement of the lung and the kidneys was established. The patient was treated with high-dose prednisone and rituximab resulting in an improvement of his symptoms.

Discussion: The reversed halo sign on CT scan of the chest is primarily associated with infectious diseases. However, non-infectious causes have to be considered, particularly in immunocompetent patients. These include ANCA-associated vasculitis as in the present case.



[Figure 1. Chest CT showing bilateral pulmonary reversed halo signs (indicated by the white arrows).]



[Figure 2. Mucosal teleangiectasia (indicated by the white arrows) in the distal left main bronchus.]

P164

Sarcoidosis is an important differential diagnosis in patients with an atrioventricular block

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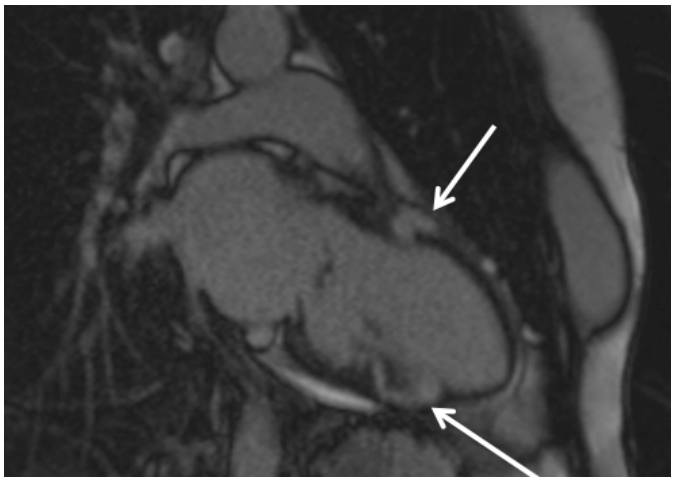
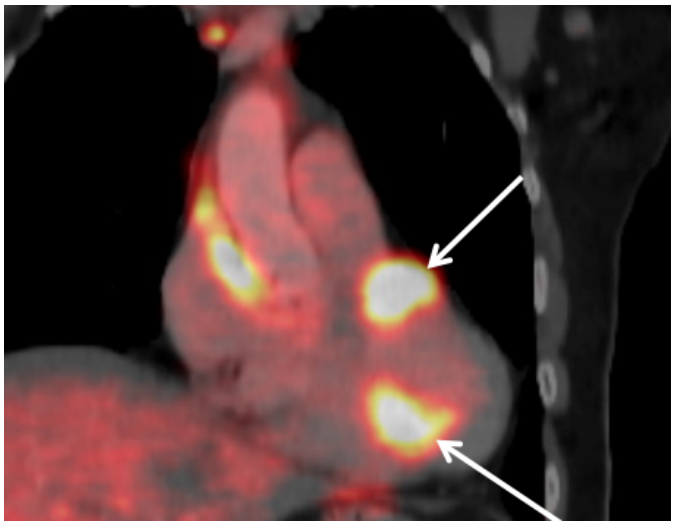
Learning objectives: Especially in younger patients, atrioventricular block (AVB) may be associated with pathologies other than the well-known degenerative processes of the conducting system of the heart. A thoroughly obtained medical history, clinical examination and appropriate diagnostic tools are of utmost importance.

Case: A 46-year-old woman was referred to our emergency room (ER) due to a third degree AVB. Previous medical history included breast cancer successfully treated with total left mastectomy, adjuvant chemotherapy and Tamoxifen in 2012. In summer 2019, an oligosymptomatic (palpitations) advanced AVB was diagnosed and a cardiac magnetic resonance imaging had shown two intramural lesions (inferior midventricular wall and anteroseptal basal wall) of unknown origin (Fig 1). She had no family history of heart disease and did not take any medication apart from homeopathic substances. She reported to have had intermittent pain in the knuckles of both hands with no physical impairment.
Upon arrival, the patient suffered from dyspnoea and dizziness. Her ECG showed a third degree AVB with a narrow escape rhythm of 29 beats per minute. Physical examination and oxygen saturation were normal. The implantation of a dual chamber cardioverter defibrillator after occurrence of symptomatic ventricular tachycardia led to an immediate cessation of symptoms. Our main differential diagnoses were sarcoidosis and lymphoma with cardiac involvement. A positron emission computed tomography (PET-CT) showed glucose metabolism active formations in the anteroseptal myocardium (Fig 2), in multiple lymph nodes of the hili, mediastinum, axilla, and supraclavicular, retroperitoneal, iliacal and inguinal regions. Histological examination of an inguinal lymph node did not reveal diagnostically clear results. A biopsy made during bronchoscopy showed granulomata, consistent with sarcoidosis, as already strongly suspected due to the typical PET-CT. A high-dose prednisone mono-therapy was initiated.

Discussion: Especially in younger patients, etiologies of AVB include congenital origin, infiltrative or inflammatory diseases, neoplasias and complications of cardiac interventions and radiotherapy. Cardiac involvement is found in approximately 5% of patients with sarcoidosis (clinical features depending on the location in the heart). The diagnosis has important implications for the cardiac (device therapy) as well as systemic/immunosuppressive treatment.



[Fig 1: MRI: areas of intramural late gadolinium enhancement (LGE) in the anterior and inferior wall]



[Fig 2: FDG-PET/CT: FDG-uptake also in the areas with LGE in the MRI study]

P165

Second-degree atrioventricular block type 1 («Wenckebach») as discriminator in paroxysmal regular supraventricular tachycardia

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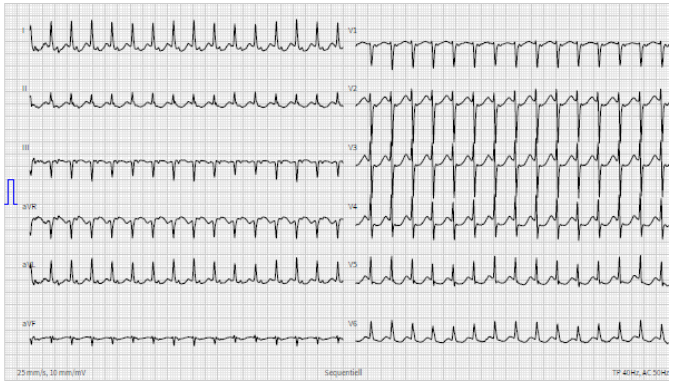
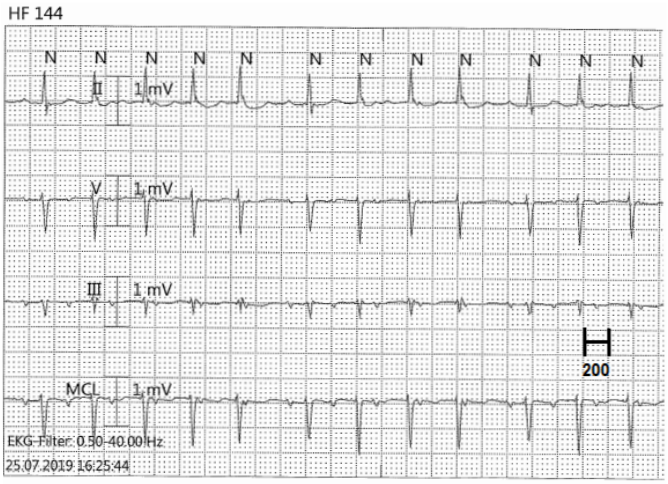
Learning objective: Paroxysmal regular supraventricular tachycardia (PSVT) is frequent and patients often are symptomatic, requiring specific therapy. Intermittent second-degree atrioventricular block type 1 («Wenckebach») can be helpful in further discriminating the mechanism of PSVT, particularly if vagal maneuvers and adenosine trial are not feasible.

Case: An 89-year-old female patient presented with recurrent palpitations and hypokalemia with a serum potassium level of 2.8 mmol/l. Electrocardiogram (ECG) showed a regular narrow QRS complex tachycardia with a ventricular heart rate of 182 bpm and short RP interval (**figure 1**). Tachycardia terminated and restarted several times spontaneously, so vagal maneuvers and adenosine trial to further discriminate the mechanism of the PSVT (most likely atrial flutter (AFL) with 2:1 ventricular response, atrioventricular nodal reentrant tachycardia (AVNRT), atrioventricular reentrant tachycardia (AVRT), or focal atrial tachycardia) were not feasible. While monitoring the patient with ECG telemetry, intermittent second-degree atrioventricular block type 1 («Wenckebach») during an episode of PSVT (ventricular heart rate of 144 bpm) was observed, unmasking monomorphic regular P waves with an atrial rate of 173 bpm (**figure 2**), indicating focal atrial tachycardia as the most likely mechanism for the PSVT. After correction of hypokalemia no more episodes of PSVT occurred.



[Figure 1]



[Figure 2]

Discussion: Paroxysmal regular supraventricular tachycardia (PSVT) is frequent and patients often are symptomatic, requiring diagnostic evaluation and specific management with drugs or electrophysiological procedures. Most common differential diagnosis of PSVT is AFL (often with 2:1 ventricular response), AVNRT, AVRT, and focal atrial tachycardia (FAT). In hemodynamically stable patients vagal maneuvers and adenosine are used to further discriminate PSVT, unmasking the P waves (atrial rate) and assessing the dependency on the atrioventricular node (AVN). If vagal maneuvers or adenosine trial are not feasible, occurrence of intermittent second-degree atrioventricular block type 1 («Wenckebach») with atrial (A) rate above ventricular (V) rate (A>V) is helpful establishing diagnosis of AFL if atrial rate is 250 to 330 bpm or FAT if the atrial rate is ≥ 100 bpm but below the rate of AFL. AVNRT and AVRT are AVN dependent and typically present with fixed 1:1 (A=V) rate.

P166

Septic arthritis of the knee due to Pantoea agglomerans: look for the thorn

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We report on a patient with a septic arthritis of the knee with *Pantoea agglomerans* after a penetrating black locust thorn injury. This is the first case reported in switzerland. This bacterium is a typical plant-associated bacterium, found ubiquitously in the environment. It affects humans in various ways, less frequently, by septic arthritis. In our patient and in 13 of the 16 patients previously published in the literature, antibiotics alone or in combination with an arthroscopy were insufficient to eradicate the infection presumably because thorn fragments were often present within the joint. We suggest that patients with septic arthritis due to pathogen bacteria with compatible history of a penetrating thorn injury and who fail to improve under antibiotic treatment should have an early open debridement with a search for a thorn fragment. Accurate medical history and early source control are key to successful treatment.

P167

Septic gonarthritis in N. meningitidis bacteremia

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Learning objectives: N. meningitidis can rarely cause infections other than meningitis and sepsis. In patients with monoarthritis with or without bacteremia, aspiration of joint fluid should always be performed to rule out septic arthritis.

Case report: A 17-year-old male patient with no significant past medical history presented to the emergency department with a 1-day history of vomiting, fever and abdominal discomfort. The patient also reported transient headache, which responded well to paracetamol. On examination, the patient was febrile (39.6°C) with epigastric and lower right abdominal tenderness. There were no neurological abnormalities or signs of meningitis. Blood analysis revealed modestly elevated CRP with normal leukocytes. Abdominal ultrasound was unremarkable. The patient was admitted to the hospital for observation with suspected gastroenteritis. On the next day, blood cultures grew cocci of unclear gram stain and treatment with amoxicillin/clavulanic acid was initiated. The patient subsequently reported increasing right knee pain. Diagnostic puncture revealed an increased cell count with predominance of neutrophils (76'830/ul, 89% PMN) and gram stain showed gram-negative diplococci. Antibiotic treatment was changed to ceftriaxone 2g twice daily and reduced to 2g once daily after a positive clinical course. Knee arthroscopy showed evidence of synovialitis but no damage to intraarticular structures. Synovial fluid PCR analysis and final results of blood cultures identified N. meningitidis serotype W.

Discussion: We report an atypical case of invasive meningococcal infection presenting with monarthritis and bacteremia. Meningococcal disease most often manifests as meningitis with or without sepsis. Meningococcal arthritis usually presents in the context of meningitis either as purulent arthritis (mostly monoarthritis) or more often as immune complex mediated arthritis (mostly oligoarthritis). Isolated septic arthritis due to N. meningitidis without meningitis or classical meningococcal sepsis is much rarer (< 50 cases reported in the literature). The knee is the most commonly affected joint. *N. meningitidis* serogroup W more often presents with uncommon manifestations such as pneumonia, septic arthritis, endocarditis and gastrointestinal symptoms than other serotypes. Although structural damage is rare and prognosis excellent, arthroscopy should be considered, particularly in cases of unclear diagnosis.

P168

Severe drug induced cholestatic liver injury due to Teriflunomide (Aubagio®) in a patient with multiple sclerosis

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Learning objective: Teriflunomide (TF), the main active metabolite of the disease-modifying, anti-rheumatic drug leflunomide (LF), is known to increase transaminases frequently. Cholestatic hepatitis induced by TF has not been reported of so far. Due to the here reported case of a severe cholestatic hepatitis caused in a patient with multiple sclerosis (MS), TF induced cholestatic liver injury must be considered among jaundiced MS patients treated with TF.

Case report: A 64-year old female patient was referred to our emergency department due to suspected acute liver failure. The patient had MS treated with TF for 15 months, arterial hypertension and polymyalgia rheumatica. Laboratory analysis showed a cholestatic hepatitis with hyperbilirubinemia >17 times upper limit of normal (ULN) and mild hepatitis (alanine aminotransferase (ALT)< 3 times ULN). Furthermore, the INR was elevated at 1.93. However, this was likely due to malnutrition since the Factor V level was normal (135 %) and INR normalized after administration of vitamin K.
Serological screening for several hepatopathies including hepatitis A-E, autoimmune hepatitis, primary sclerosing and biliary cholangitis (PSC, PBC) were negative. Due to suspected drug induced liver injury (DILI) all medications (prednisone, amlodipine, valsartan, vitamin D, magnesium) were stopped. Liver biopsy showed a portal triad accentuated inflammation with T lymphocytes and eosinophilic granulocytes compatible with DILI. After reintroduction of all medications other than TF, liver values continued to decline. Although a TF elimination regimen with cholestyramine was performed, it took 12 weeks for the liver enzymes to normalize.

Discussion: We report the first case of a mainly cholestatic course of hepatitis with extensive elevation of bilirubin levels >17 ULN and only a mild hepatitis due to treatment with TF after 15 months of drug intake. Besides other adverse effects, elevation of ALT levels >3 times ULN have been reported in about 2.8-12.3% of patients under treatment with TF, mostly within the first year of treatment. Whereas LF-induced severe liver injury has been previously reported, TF-induced ALT elevations are mostly transient and not associated with jaundice. However, in mice TF has been shown to induce hyperbilirubinemia by suppressing both the expression and function of the sodium-taurocholate cotransporting polypeptide. This might explain the predominantly cholestatic pattern of liver injury in our patient.

P169

Shunt nephritis: rare but not to be forgotten!

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Learning objectives:
· In patients with bilateral leg edema or generalized edema, nephrotic syndrome has to be considered
· Most glomerulonephritides can be idiopathic or secondary to systemic diseases and a thorough search for the latter is warranted
· Shunt nephritis can represent the sole clinical manifestation of chronic ventriculo-atrial shunt (VAS) infection.

Case report: A 19-years old woman presented with hypertension and bilateral leg edema. Prior history was notable for prematurity, perinatal intracranial hemorrhage and post-haemorrhagic hydrocephalus treated by a ventricular-peritoneal shunt (VPS), which later had been changed to a VAS due to bacterial peritonitis. Initial laboratory evaluation was notable for severely impaired renal function, moderate CRP-elevation, hypalbuminaemia, nephrotic range proteinuria and microhaematuria as well as hypocomplementemia (C3 and C4). Abdominal ultrasound revealed splenomegaly and hyperechoic kidney parenchyma. Kidney biopsy showed immune complex-mediated membranoproliferative glomerulonephritis (MPGN) and acute tubular injury. Although cerebrospinal fluid (CSF) was notable only for elevated protein, with normal cell count and negative cultures, we suspected chronic VAS infection and referred the patient for VAS removal and replacement by a VPS. Intraoperative CSF cultures grew Moraxella osloensis and cutibacterium acnes. After initiation of antibiotic treatment with ceftriaxone, we started systemic steroids. Within two months, renal function recovered and nephrotic syndrome gradually resolved, with residual proteinuria and microhematuria.

Discussion: MPGN is a rare form of glomerulonephritis that has traditionally been categorized into Type I-III, based on findings on electron microscopy. This classification has been recently replaced by a pathophysiological classification into immune complex- vs. complement-mediated, as defined by immunofluorescent staining on kidney biopsy. Immune complex-mediated MPGN is often associated with chronic bacterial infections, and shunt nephritis represents a classical, but rare cause of MPGN, mostly associated with VAS. The diagnosis of shunt infection can be difficult, since bacteria are often detected only locally and may not disseminate within the CSF. Thus, a high index of suspicion is necessary in patients with VAS and MPGN. Treatment consists of VAS removal / replacement and antibiotic therapy, while the role of immunosuppressive treatment is less clear.

P170

Silo filler's disease

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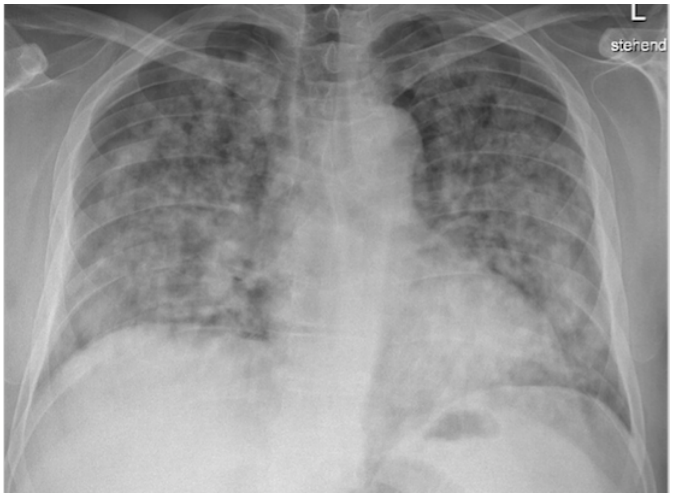
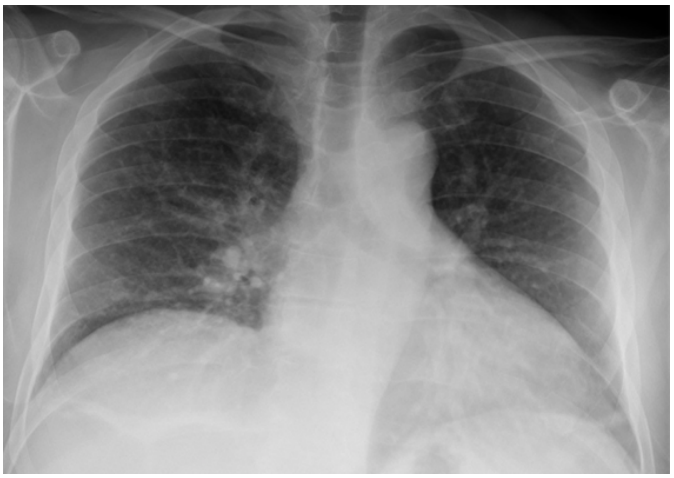
Learning objectives: In recently filled silos, harmful gases containing nitrogen oxides are formed by auto fermentation of protein-rich plants. When inhaled in high concentrations, these gases trigger alveolar damage, potentially causing acute toxic lung oedema and chronic bronchiolitis obliterans.

Case: A previously healthy 53 year-old farmer was referred to the emergency room (ER) due to fast-onset dyspnoea and cough. The patient stated having spent one hour inside a maize silo that had been filled a few days ago. Within two hours after leaving the silo, he started to suffer from progressive dyspnoea, cough and diaphoresis. In the ER, the afebrile patient presented with normotensive blood pressure and normal heart rate. He was tachypnoeic at 28 breaths per minute and had severe type 1-respiratory failure (paO_2 of 4.8 kPa at room air - SpO_2 68%). Administration of 10 lpm O_2 via face mask and later high-flow oxygen therapy with a FIO_2 peaking at 50% were needed. Contrast-enhanced chest-CT showed extended bilateral ground glass-opacities without signs of embolism. SARS-CoV-2 Ag-test was negative. Based on the case history and the typical findings, an ARDS with alveolitis caused by Silo filler's disease was diagnosed. The patient was started on high-dose steroids; antibiotic therapy with Ceftriaxon und Clarithromycin was stopped after four days, as there were no signs of an additional bacterial infection and repeatedly normal procalcitonin levels.
The patient showed rapid recovery with decreasing oxygen demand and remission of his pulmonary infiltrates. He was transferred from the intensive care unit to the ward and discharged on day 3 and 8, respectively. At that point, he negated any residual symptoms at rest while pulmonary function tests still showed moderately severe obstruction. A decreasing dose of oral prednisone was prescribed up to the outpatient follow-up appointment 4 weeks later. At follow-up, the patient showed full recovery without signs of obstruction.



[Figure 1: chest X-ray on day 1 of hospitalisation]



[Figure 2: chest X-ray on day 7 of hospitalisation]

Discussion: Silo filler's disease has an annual incidence of 5/100'000 farmers, affecting one farmer a year in Switzerland. To reduce the risk of developing chronic bronchiolitis obliterans, systemic use of steroids with gradual reduction of the dosage over 6-8 weeks is recommended. However, there are no prospective randomized studies on the use of steroids in this rare condition.

P171

Skeletal muscle tuberculosis in an immunocompetent patient: a case report

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Learning objective(s): To describe an uncommon manifestation of tuberculosis: primary skeletal muscle involvement.

Case: An otherwise healthy 47-year-old of Asian origin was hospitalized for investigation of an indolent mass of the right triceps. The patient denied any trauma. An ultrasound showed a hypoechoic soft tissue liquid collection. Muscle MRI diagnosed a cystic (100x56x56 mm) lesion within the triceps, surrounded by an irregular and hyper-vascularized shell. The puncture biopsy showed a purulent liquid (leukocytes: 55G/l, 94% neutrophils). PCR assay (GeneXpert®; Test Xpert MTB/RIF) from this specimen detected *Mycobacterium tuberculosis* complex DNA. A final diagnosis of skeletal muscle tuberculosis was made. Despite the absence of respiratory symptoms, we performed a chest CT that showed excavated lesion of the right upper lobe apical segment consistent with a *Mycobacterium tuberculosis* infection. Bronchoalveolar lavage (BAL) was negative for acid-fast bacilli on staining and on culture; PCR assay on BAL fluid was positive. Quadritherapy with rifampicin/isoniazid/pyrazinamide/ethambutol (Rimstar®) was started. Evolution was favorable, with regression of both muscular and pulmonary lesion within a couple of months.

Discussion: Tuberculosis is a global health problem, with ~10 million new cases/year globally. Although the lungs are the most common site of primary infection by tuberculosis (~80%), all organs can be affected. Extrapulmonary tuberculosis, the result of direct inoculation or hematogenous dissemination, is often associated to an underlying immune defect. Among extrapulmonary locations, musculoskeletal tuberculosis is rare (only 19 case have been described, excluding ours). Often paucisymptomatic and/or presenting with aspecific symptoms (local masses, swelling), in less than half of patients musculoskeletal tuberculosis accompanies systemic tuberculosis. The diagnosis of musculoskeletal tuberculosis mainly depends on biopsy (showing granulomas) and bacteriological culture; nevertheless, extrapulmonary disease is often poor in tubercular bacilli. The main treatments are standard anti-tuberculosis therapies and, in some cases, surgery for lesion removal.

P172

Skin lesions melting away under treatment with anakinra: considering new treatment options for cholesterol embolization syndrome

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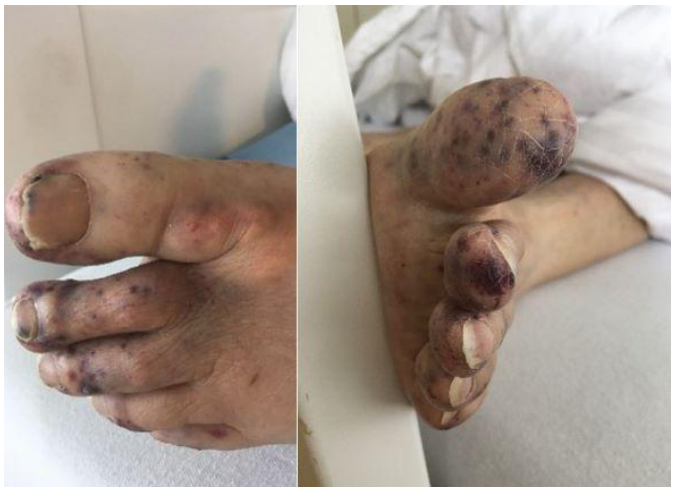
Learning objectives: In cholesterol embolization syndrome (CES) affected organs are impaired due to ischemic *and* inflammatory damage.
IL-1 receptor antagonists are in discussion for autoinflammatory conditions like Gout, Inflammatory of unknown origin and CES and should be considered in selected clinical situations.

Case: A 82-year old patient was admitted due to acute tophaceous gouty arthritis with uncontrollable pain and persisting signs of inflammation. He reported a history of chronic kidney disease (eGFR 25 ml/min) due to ADPKD, atrial fibrillation and arterial hypertension.
On admission the physical examination showed tophaceous gouty arthritis which was confirmed by a puncture with urate crystals. Laboratory showed an elevated CRP to 271mg/dl, leukocytosis of 19G/L and a creatinine of 221µmol/l (baseline). A treatment course with corticosteroids was initiated. Even though the clinical situation worsened when acral palpable purpura with development of tense bullae and livedo racemosa of the extremities occurred, and kidney function aggravated. Histopathology of a skin lesion on the finger revealed leucocytoclastic vasculitis. Even though there were no visible cholesterol crystals, we favored CES due to marked arteriosclerotic vascular changes, the absence of other causes of leukocytoclastic vasculitis (ANA, ANCA, drugs) and the generalized livedo racemosa and treated accordingly. Because of the non-respondent symptoms of gout attack and autoinflammatory condition, we additionally switched treatment to anakinra (Il-1 receptor antagonist) leading to a fast improvement of the arthritis, the disappearence of the skin lesions and normalization to baseline of the creatinine level.

Discussion: Standard medical treatment options of CES include aspirin and statins for plaque stabilization. In CES the affected organs are not only impaired due to ischemic but also due to inflammatory damage. CES causes inflammatory reactions and activates IL1-/NLRP3-pathway[1]. Antiinflammatory agents are therefore discussed as possible treatment options. Several case reports assumed beneficial effects of glucocorticoids, colchicine or cyclophosphamide[1)]. In addition, IL-1 receptor antagonists are considered as treatment options[1)] but still lacking randomized controlled trials. In conclusion, anakinra may have a beneficial effect in selected patients with CES.

1) Ozkok A.Cholesterol-embolization syndrome:current perspectives.Vascular Health and Risk Management 2019:15,209-220



[Acral palpable purpura]

P173

Stroke caused by bee venom – or just a coincidence?

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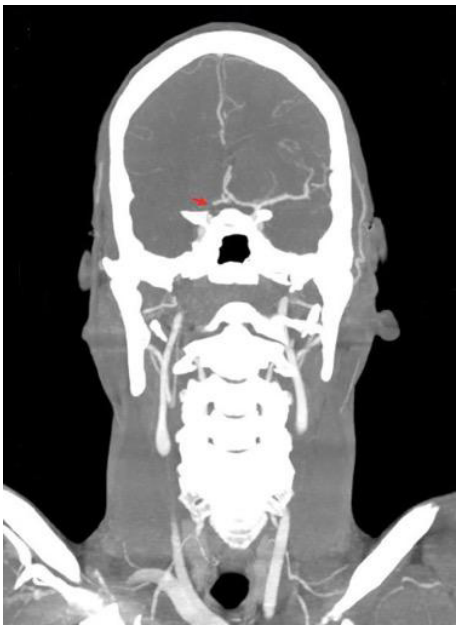
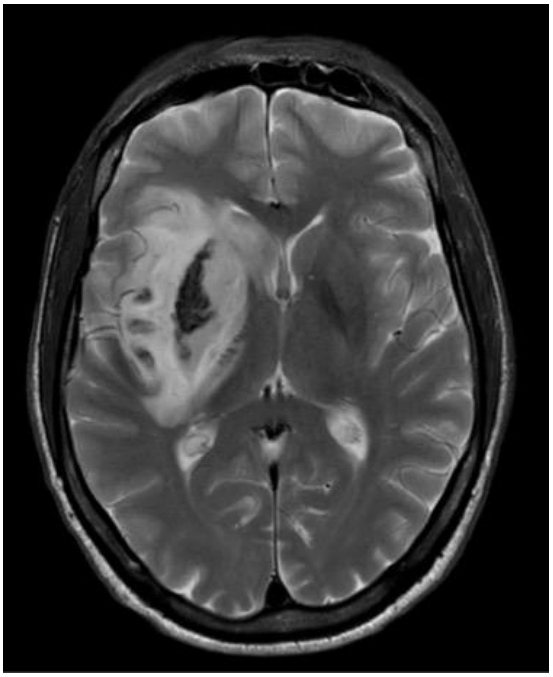
Learning Objective: Treating patients for an allergic reaction after a bee sting is a common occurrence. In Switzerland, where beekeeping is a popular hobby, we should also beware of rare non-allergic complications after multiple bee stings due to a toxic reaction.

Case: A 42-year-old beekeeper presented with diarrhoea and vomiting 3 hours after being stung about 100 times by his bees. He had no known allergies, smoked a pack of cigarettes per day and cannabis occasionally. His prior medical history was otherwise unremarkable and he took no medication. Vital signs and the physical examination were normal except for slight abdominal tenderness. Because of a possible anaphylactic reaction, we administered intravenous adrenaline, methylprednisolone and clemastine. The patient was admitted to the intensive care unit for monitoring. Vomiting and diarrhoea ceased. 5 hours later, slurred speech and complete left-sided hemiplegia were noticed. On the National Institutes of Health Stroke Scale (NIHSS) the patient scored 18/42 points - equivalent to a severe stroke. A cerebral CT scan showed an occluded right internal carotid artery without any signs of bleeding (figure 1). Intravenous lysis was started. The patient was transferred to the nearest stroke centre, where endovascular thrombectomy was performed successfully. Further tests did not reveal any cause for his severe stroke. He was started on aspirin and atorvastatin.
An MRI scan 2 days later demonstrated a large right hemispheric infarction with signs of haemorrhagic transformation (figure 2). After 5 days the patient still showed a moderate left-sided hemiparesis (NIHSS now 5/42 points), which improved slightly more until discharge.

Discussion: After multiple bee stings (at least 30), rare cases of glomerulonephritis, haemolysis, rhabdomyolysis, acute coronary syndrome or ischemic stroke due to toxic effects have been described: Bee venom contains vasoactive and inflammatory mediators, which could lead to platelet activation, thrombus formation and vasoconstriction.
Besides smoking, there were no stroke risk factors in our young patient. Therefore, the large amount of bee venom likely caused his stroke due to a toxic reaction. This case illustrates the importance of monitoring patients after *multiple* bee stings. However, in general, the risk of "generic" anaphylaxis is far greater (even after a *single* bee sting).
PS: An extended version of this case report has been accepted by *psychopraxis.neuropraxis* in Austria.



[Figure 1: CT angiogram before thrombolysis - occlusion of the right internal carotid artery]



[Figure 2: MRI (T2-weighted) 2 days after thrombolysis - large right hemispheric infarction]

P174

The dark purple side of ceftriaxone: a case report on leucocytoclastic vasculitis

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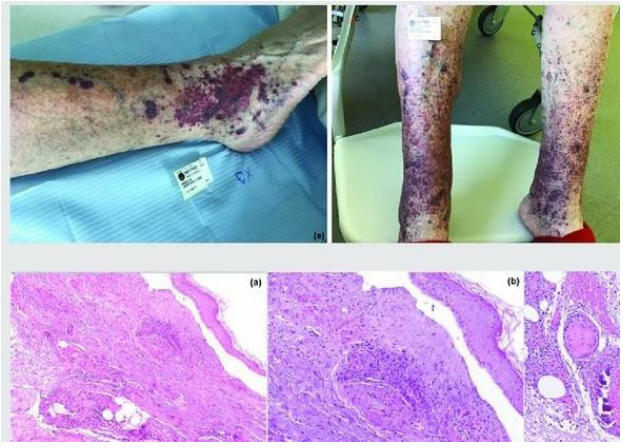
We present a case of an 85-year-old woman diagnosed with uncomplicated pyelonephritis, who was treated with intravenous ceftriaxone.
Her chronic medications were phenprocoumon, diltiazem and bisoprolol. During the infectious phase, the patient presented tachycardia - despite high-dose beta-blocker treatment - and developed left acute heart failure, with acute renal failure (pre-renal origin). After introduction of furosemide diuretic therapy, clinical conditions improved and better control of the volemic status and heart rate was achieved. Several days after ceftriaxone and digoxin therapy initiation, worsening multiple non-blanching palpable purpuric lesions with bullae and papules, limited to the lower extremities, were noted. Skin biopsy was performed and a diagnosis of leucocytoclastic vasculitis, with associated panniculitis, was made. Ceftriaxone was discontinued and systemic corticosteroids were introduced, with a clear improvement in the cutaneous condition.
Learning points:
– Leucocytoclastic vasculitis is a rare but significant side effect related to the administration of ceftriaxone.
–The importance of skin biopsy in the differential diagnosis of skin eruptions.



[Figure 1 Leucocytoclastic vasculitis in the lower legs]

P175

Think of statin-associated autoimmune myopathy if rhabdomyolysis persists after discontinuation of the statin

Rebecca Wieser[1], Christian Giambarba[1], Django Russo[2], Elisabeth Weber[1]

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Learning objectives: If symptoms and laboratory manifestations of statin-associated myopathy do not improve after statin discontinuation, immune-mediated necrotizing myopathy (IMNM) has to be sought for. IMNM is characterized by the presence of autoantibodies against 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase and requires immunosuppressive therapy.

Case: A 64-year-old male patient presented to our hospital with progressive symmetric proximal muscle weakness of legs and arms. The symptoms had evolved over the last 2 months and progressed to the inability to climb stairs and holding a laptop. The patient reported a history of type 2 diabetes mellitus and hypercholesterolemia treated with metformin and atorvastatin, respectively. He had no history of autoimmune disease and no family history of neuromuscular disorders. The physical examination was remarkable for proximal atrophy and weakness of the arms and legs. Laboratory workup showed an elevated creatine kinase (10207 U/l). We suspected a statin-induced myopathy and discontinued atorvastatin. Hydration with cristalloid was initiated to prevent crush kidney injury. After an initial drop, CK stabilized at persistently elevated levels between 6000 and 7000 U/l and muscle weakness did not improve. Muscle biopsy showed necrotic muscle fibres without inflammatory infiltrates and autoimmune serology revealed anti-HMGCR antibodies, while other myositis-specific antibodies were negative. Those findings supported our suspected diagnosis of a statin-associated immune-mediated necrotizing myopathy (IMNM). After treatment with systemic corticosteroids and methotrexate for one month, CK levels had decreased and muscle weakness slightly improved.

Discussion: Statins belong to the most commonly described medications and have an acceptable side effect profile. Muscle pain represents the most common side effect, although it may often be wrongly attributed to statins. Rarely, statins are associated with rhabdomyolysis and in up to 1 to 10'000 treated persons per year the drug has to be discontinued. The mechanism of statin-induced myopathy is unknown, and usually symptoms resolve after discontinuation of the drug. In rare cases, however, myopathy persists despite discontinuation of the statin. In these cases, muscle biopsy and testing for autoantibodies against HMG-CoA reductase are warranted to identify IMNM, which requires immunosuppressive therapy to prevent long-term disability.

P176

Thinking outside the box: don't forget anaphylaxis in people who use drugs and "overdose"

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Learning objectives:
1) to understand changing realities in substances used by people who use drugs (PWUD) and potential harmful consequences;
2) identify needs for training of health professionals and adequate care protocols.

Case: Quai 9 is a safe-use harm reduction facility in Geneva, where PWUD can use (smoke, sniff, inject) self-bought substances in a protected environment with trained staff. Heroin and cocaine are the most used substances, but also prescription drugs such as methadone, buprenorphine, methylphenidate, benzodiazepines (midazolam notably) and more recently a long-acting morphine sulfate pentahydrate (Sevrelong®), frequently prescribed as official agonist treatment, are used. We report here the case of a 31-years old male injecting drug user with regular opioid use, who injected Sevrelong and midazolam intravenously, in Quai 9 and lost consciousness after a few seconds. Glasgow coma scale was 13/15, oxygen saturation 90%, pupils were constricted and the blood pressure was 80/56mmHg. Thinking of an opioid and benzodiazepines overdose, the nurses started assisted ventilation and called the doctor. When the latter arrived, the patient had a red face and torso, tachycardia at 120/minute, normal saturation and tachypnoea at about 30/minute. The doctor suspected a probable anaphylactic shock. Ambulance arrived and provided immediate epinephrine and intravenous fluid. The patient was transferred to the emergency unit. Hypotension, tachycardia, tachypnea, skin redness and hypoxemia subsided in a few hours, and the patient could be discharged the same day with the diagnosis of probable anaphylactoid reaction to injected morphine sulfate. Of note, the tryptase was mildly elevated (16 mcg/L; normal < 11 mcg/L)

Discussion: This case reminds that severe anaphylactoïd reactions, and less commonly anaphylaxis, can occur in people who inject opioids, especially if injected quickly. It also shows that PWUD who lose consciousness after opioids intake do not always suffer from overdose. There is a need to inform and train patients and health professionals, especially in harm reduction and emergencies settings, on the different risks of (intravenous) opioid use, including "overdose", infections and anaphylaxis. Recommendations for the latter include: avoid injections, or inject very slowly; be aware that slow-release formulations like Sevrelong change their pharmacokinetic features when used intravenously (Cmax becoming higher; Tmax shorter).

P177

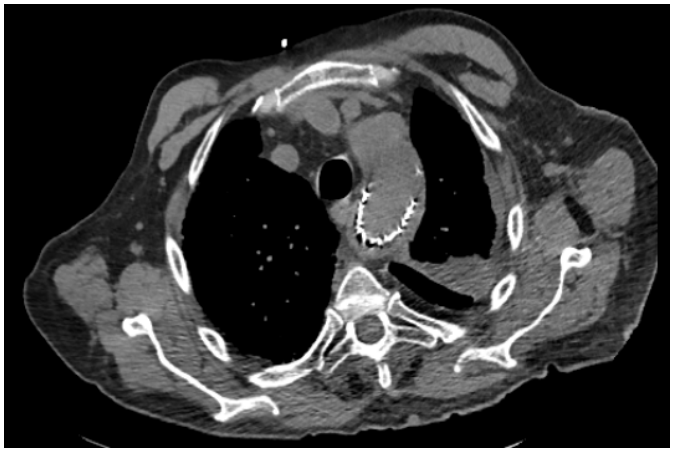
Thoracic endovascular aortic repair graft infection with clostridium perfringens: first published case

Tanja Engel, Constantine Bloch, Georg Mang

Kantonsspital Uri, Innere Medizin, Altdorf, Switzerland

Learning Objective: Aortic dissection type A is a life-threatening emergency with the need for immediate surgical repair and occurs mainly in elderly patients. Endovascular aortic repair has become a valuable alternative for surgery. Common complications are cerebrovascular or cardiovascular events during procedure. Endograft infection is rare but accompanied with severe complications and high mortality. We report the case of a patient diagnosed with thoracic endovascular aortic repair graft infection with clostridium perfringens.

Case: A 78-year-old male patient with a history of thoracic endovascular aortic repair (TEVAR) after Stanford A aortic dissection 2 months ago, was presented to the emergency department with dyspnea and fever. He just got out of rehabilitation after aortic graft implantation and community acquired pneumonia. We saw a patient in reduced general health, septic with low blood pressure and high fever. Physical examination showed a rattle noise over the left lung. Laboratory results showed elevated inflammatory markers and raised levels of creatinine. A CT scan showed a gas collection around the aortic graft highly suspicious for bacterial graft infection (Figure 1). Blood cultures were tested positive for gram+ rods, later identified as Clostridium perfringens. Due to the poor condition of the patient, an operation with graft removal was not possible in this case. We started an antibiotic therapy and gave oxygen via nasal cannula. The patient died shortly after due to multiorgan failure in sepsis from aortic graft infection with clostridium perfringens.
The slow recovery during rehabilitation and the persistent high levels of inflammatory markers were initially interpreted as postoperative and due to pneumonia. However respectively, it is possible that the aortic graft infection already occurred during or shortly after TEVAR procedure.



[Figure 1 Thoracic CT scan 2 month after TEVAR procedure shows gas collection around the aortic graft]

Discussion: An aortic graft infection is rare but remains a life-threatening complication. Staphylococcus and streptococcus are the most frequently identified microorganisms. Antibiotics solely are not a sufficient therapy. Aortic graft infection can be treated by antibiotics and graft removal and extra-anatomic bypass but is associated with high early postoperative morbidity and mortality. To our knowledge, there are no published cases of aortic graft infection with clostridium perfringens. This case illustrates a rarely observed complication and emphasizes the importance of early diagnosis.

P178

Three cases of type A aortic dissection in the same family within one year

Sarah Grimm, Jonas Koch, Daniel Ribeiro

SRRWS, Innere Medizin, Walenstadt, Switzerland

Learning objectives: Discussing the etiology of aortic dissection (AD) in three male patients of the same family without known genetical predisposition.

Case: We hereby describe three cases of AD that happened in the same family within one year. In the first case a 44-year-old healthy male presented in the emergency room (ER) of a regional hospital with slight chest pain lasting for ten hours. The only one sign in the physical examination was a systolic murmur. The computer tomographic (CT) scan revealed an AD type A extending from the aortic valve until proximal aorta without involving aortic branches.Half a year later his uncle, 66 years old, presented in the same hospital after 6 hours of pain in the back radiating towards the epigastrium and the neck. The vital signs showed a difference in systolic blood pressure of > 50 mmHg between both arms. In physical examination there was no pulse palpable at the right radial and carotid artery. The CT-scan proved the type A dissection reaching the iliac bifurcation, additionally the left renal artery was feeded by the false lumen and the right common carotid was occluded by a thrombus. Just 3 months later a 71-year-old male, father of the first patient and brother of the second one presented in the ER describing a sudden dull chest pain since 15 minutes. There was a significant difference of 61 mmHg in systolic blood pressure between both arms. The CT-scan showed an aortic dissection involving the descending thoracic aorta, the brachiocephalic trunk and the proximal part of the right common carotid artery. After surgical intervention all patients recovered well. Histological results revealed a cystic degeneration of the media in case one and arteriosclerosis in patient number two and three.

Discussion: Acute AD is a rare but life-threatening disease. In view of the low incidence of this condition we hereby describe three cases of AD in the same family within one year including one presentation with a thrombus formation, that is rarely seen. Abnormal pathogenetic features could not be found in the histopathologic examination. Furthermore, genetic diseases like Marfan Syndrome and conditions predisposing to aortic dissection like a congenital bicuspid aortic valve could not be identified in these patients. The only known causes are a cystic degeneration of the media in patient one and arteriosclerosis in patients two and three. In the end, the question of a hidden genetic link within this family remains open.

P179

Transient cholecystalgia caused by precapillary pulmonary hypertension and heart failure

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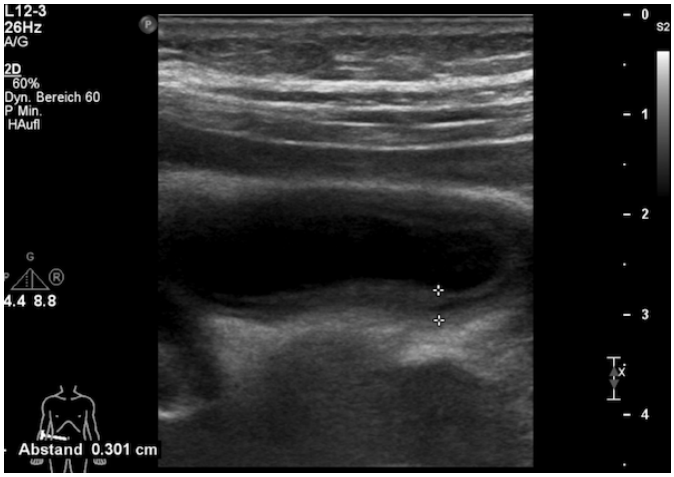
Learning objective: Pulmonary hypertension can lead to congestive heart failure and to venous congestion in the gastrointestinal tract with secondary transient cholecystalgia. In difference to acalculous cholecystitis, cholecystalgia due to right heart failure is transient. The pathogenesis of acalculous cholecystitis is caused by bile stasis and gallbladder ischemia followed by secondary infection. With our case we want to demonstrate the impact of fluctuation in volume status in transient cholecystalgia and recovery of symptoms to prevent unnecessary procedures.

Case: A 72-years old female patient introduced herself in the emergency department with non-colic, epigastric pain, not affected by eating. Her personal history included hemochromatosis and severe precapillary pulmonary hypertension (mPAP 55 mmHg) due to pulmonary embolism. Vital signs were 98/75 mmHg blood pressure, 86 bpm pulse, 36.8° celsius temperature and 88% oxygen saturation under 4 liters oxygen insufflation. She was 170 cm tall and weighted 70kg. The clinical examination only showed a slightly positive Murphy sign. Blood analysis demonstrated mildly elevated cholestasis parameters and a CRP of 39 mg/l (normal < 8 mg/l) without leucocytosis. Blood gas analysis showed hypoxia (pO2 4.14 kPa) and a low pCO2 level (4.2 kPa). Intravenous antibiotics (ertapenem and metronidazole) were started and the patient was transferred to our hospital with the diagnosis of acute acalculous cholecystitis for cholecystectomy. Due to the severe pulmonary hypertension with cor pulmonale, surgery was not performed. Initial sonography of the abdomen revealed a thickened wall of the gallbladder (4.5 mm). After reducing cardiac preload with diuretic therapy and loss of 10 kg fluid the abdominal pain disappeared and in sonographical follow up of the gallbladder wall thickening decreased to 3.0 mm. We therefore hypothesised transient cholecystalgia from congestive right heart failure due to precapillary pulmonary hypertension.

Discussion: Acalculous cholecystitis has a high mortality rate in already critically ill patients. Cholezystectomy in necrotic, emphysematous or perforated gallbladder is indicated. Treating right heart failure due to precapillary pulmonary hypertension as the cause of secondary transient cholecystalgia can lead to normalisation of right upper abdominal symptoms and prevent unnecessary operations.



[Sonography of the gallbladder 10 days later after diuresis and loss of 10 kg weight.]

Parameter	initially	after therapy	reference
Aspartate aminotransferase AST	61	35	< 40 U/l
Alanine aminotransferase ALT	37	21	< 55 U/l
Alkaline phosphatase AP	145	97	< 42 - 98 U/l
Gamma GT GGT	351	229	< 35 U/l
C-reactive Protein CRP	39	6	< 8 mg/l

[Blood chemistry]

Outcomes and prognosis

P180

Acute kidney injury increases the risk for subsequent heart failure hospitalizations in patients with acute dyspnea

Matthias Diebold[1,2], Tobias Zimmermann[2,3], Ivo Strebel[3], Desiree Wussler[2,3], Stefano Bassetti[2], Christian Müller[3,4], Tobias Breidthardt[2,3]

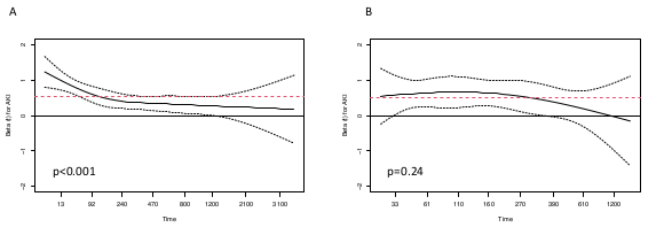
[1]Transplantationsimmunologie & Nephrologie, [2]Innere Medizin, [3]Cardiovascular Research Institute Basel, [4]Universitätsspital Basel, Kardiologie, Basel, Switzerland

Introduction: Acute kidney injury (AKI) is common and associated with increased mortality and morbidity. The impact of AKI on subsequent heart failure remains largely unknown.

Methods: The *Basics in Acute Shortness of Breath Evaluation Study* (BaselV) prospectively enrolled patients presenting the emergency department with acute dyspnea. Two independent specialists adjudicated the final cause of dyspnea. Serum creatinine concentrations were prospectively assessed throughout the hospitalization. AKI was defined according to the serum creatinine criteria of the 2012 KDIGO clinical practice guideline. AKI adjudication occurred blinded to the cause of dyspnea. Mortality and rehospitalizations were prospectively assessed during follow-up. Renal recovery was defined as a discharge creatinine< 1.25x baseline creatinine.

Results: After a median follow-up of 768 days (interquartile range [IQR]: 290-950) AKI occurred in 809 (40%) of 2021 patients and was associated with increased all-cause (adjusted Hazard Ratio [aHR] 1.33, 95%CI 1.13-1.55; p< 0.01) and cardiovascular mortality (aHR 1.43, 95%CI 1.16-1.75; p< 0.01). However, the impact of AKI on mortality was time-dependent with the highest impact on early 30-day mortality (aHR 2.47, 95%CI 1.62-3.76; p< 0.01) (Figure 1A). AKI was not associated with all-cause or cardiovascular mortality in patients achieving renal recovery (p=0.10 and p=0.30). In contrast, AKI displayed a time-independent association with subsequent hospitalisations for heart failure (hHF) (aHR 1.49, 95%CI 1.15-1.94; p< 0.01) (Figure 1B). The association with hHF was stronger for higher degrees of AKI (stage 2/3 aHR: 1.89; 95%CI 1.33-2.83; p< 0.01). This association with hHF persisted in patients with non-cardiac dyspnea (aHR 2.43, 95%CI 1.05-5.59; p=0.04), even after renal recovery (aHR 2.56, 95%CI 1.00-6.54; p=0.05). Again, in patients with non-cardiac dyspnea the association of advanced AKI (stage 2/3) with hHF was even stronger (aHR 4.25, 95%CI 1.59-11.36; p< 0.01).

Conclusions: AKI independently increases the risk of hHF by almost 50%. This association persists in patients with non-cardiac dyspnea, even after renal recovery by discharge. This suggests AKI to be a novel risk-factor for the development of clinically significant HF.



[Figure 1: Smoothed plot of the coefficient ß(t) for AKI on all-cause mortality (A), heart failure rehospitalization (B)]

P181

Association of endothelial activation assessed through endothelin-I precursor peptide measurement with mortality in hospitalized COVID-19 patients: an observational study

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Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) disease (COVID-19) has been linked to thrombotic complications and endothelial dysfunction. We assessed the prognostic implications of endothelial activation through measurement of endothelin-I precursor peptide (proET-1), the stable precursor protein of endothelin-1, in a well-defined cohort of patients hospitalized with COVID-19.

Methods: We measured proET-1 in 74 consecutively admitted adult patients with confirmed COVID-19 and compared its prognostic accuracy to that of patients hospitalized with community-acquired pneumonia (n=876) and viral bronchitis (n=371) from a previous study by means of logistic regression analysis. The primary endpoint was all-cause 30-day mortality.

Results: Overall, median admission proET-1 levels were lower in COVID-19 patients compared to those with pneumonia and exacerbated/viral bronchitis, respectively (57.0 pmol/l vs. 113.0 pmol/l vs. 96.0 pmol/l, p< 0.01). While COVID-19 non-survivors had 1.5-fold higher admission proET-1 levels compared with survivors (81.8 pmol/l [IQR: 76 to 118] vs. 53.6 [IQR: 37 to 69]), no association of proET-1 levels and mortality was found in a regression model adjusted for age, gender, creatinine level, diastolic blood pressure, cancer, and coronary artery disease (adjusted OR 0.1, 95%CI 0.0009 to 14.7). In contrast, in patients with pneumonia (adjusted OR 25.4, 95%CI 5.1 to 127.4) and exacerbated/viral bronchitis (adjusted OR 120.1, 95%CI 1.9 to 7499), proET-1 levels were associated with30-day mortality.

Conclusions: Compared to other types of bronchopulmonary infections, COVID-19 shows only a mild activation of the endothelium as assessed through measurement of proET-1. Therefore, this marker seems not to fully represent pathophysiology of mortality associated to COVID-19. Other pathways or interactions might mask the performance of this peptide marker, as mortality was study endpoint and not diagnosis of thromboembolic complications or arterial disease.

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Automated real-time detection of COVID-19 risk factors on (Swiss-)German Electronic Health Records using data mining and Natural Language Processing

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Introduction: Coronavirus disease 19 (COVID-19) is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Several risk factors have been identified for severe clinical outcomes. In the Electronic Health Records (EHR), some risk factors (eg age, sex and body mass index (BMI)) are included in tabulated form. However, comorbidities such as diabetes mellitus (DM), arterial hypertension (aHT), asthma, and chronic obstructive pulmonary disease (COPD) are included as free-text in the medical history, and can therefore not be easily detected automatically.
We propose an automated real-time detection of the above mentioned risk factors using a combination of data mining and Natural Language Processing (NLP).
Methods: 6'250 patients, all tested for SARS-CoV-2 at the Insel Hospital Group (IHG), were categorized in different groups (SARS-CoV-2 negative vs. positive, and non-severe vs. severe (intensive care or death) COVID-19). The NLP training dataset consisted of 138 manually tagged EHR. For each comorbidity, a key term list was defined. The steps used to detect diseases in NLP are shown below.

[Data preparation steps for the detection of diseases in a free-text medical history]

The manually and automatically detected comorbidities were compared and the key term lists amended accordingly. Age, sex and BMI were taken directly from the tabulated part of the EHR.

Results: We were able to automatically detect DM, aHT, asthma, and COPD in the (Swiss-)German EHR using NLP. The error rate was < 2% compared to the manually tagged EHR.
The proportion of patients with old age, male sex, higher BMI, aHT, and DM were significantly higher in the positive SARS-CoV-2 and in the severe COVID-19 cohort. Patients with COPD were less likely to be tested positive for SARS-CoV-2, but more prone to a severe COVID-19. Patients with asthma more likely to be tested positive for SARS-CoV-2, but there was no difference in COVID-19 severity.

	Test for SARS-CoV-2			*COVID-19 clinical manifestation*		
	negative (N=5'664)	***positive (N=586)***	***p-value***	***non-severe (N=461)***	***severe (N=125)***	***p-value***
Age (years): median (IQR)	63 (39, 77)	65 (48, 77)	**0.013$**	62 (44, 75)	69 (59, 81)	**<0.002$**
Sex: female (%)	2'650 (46.8%)	246 (42.0%)	**0.029***	211 (45.8%)	35 (28.0%)	**<0.002***
BMI: median (IQR)	24.6 (21.1, 28.7)	26.5 (23.5, 29.7)	**<0.002$**	25.9 (23.2, 29.4)	27.9 (24.8, 30.9)	**0.003$**
Diseases						
aHT (%)	2'411 (42.6%)	280 (47.8%)	**0.017***	203 (44.3%)	77 (61.6%)	**<0.002***
Asthma (%)	398 (7.0%)	55 (9.4%)	**0.044***	47 (10.2%)	8 (6.4%)	0.264*
COPD (%)	632 (11.2%)	47 (8.0%)	**0.024***	30 (6.5%)	17 (13.6%)	**0.016***
Diabetes (%)	1,130 (20.0%)	158 (27.0%)	**<0.002***	112 (24.3%)	46 (36.8%)	**0.007***

*[Distribution of risk factors as determined by automated analysis of the EHRs. $ Wilcoxon rank sum test, * Chi Square test]*

Conclusions: As comorbidities are often only accessible to structured processing after they have been manually converted to ICD-10 codes for billing and administration purposes, NLP appears to be a suitable tool for the detection of relevant risk factors for COVID-19 in the medical history of patients at time of admission. Especially for patients with long medical histories and multiple comorbidities, automated real-time detection is a timesaving support of risk assessment and triage. The analysis of the available patient data, which were tested for SARS-CoV-2 at the IHG were as expected from literature research.

P183

Digital nutritional therapy in patients with obesity: evaluation of weight loss and patient satisfaction in a novel weight management program

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Introduction: Facilitating behaviour change to improve diet and activity levels is the first treatment pillar in weight management. With an ever-growing prevalence of obesity and weight-related comorbidities, effective and scalable nutritional therapy options for patients in primary care are needed. Traditionally, patients are referred by their doctor into face-to-face groups or individual face-to-face consultations with registered dietitians to improve their eating habits. Digital health tools have the potential to scale care provision supporting greater numbers of patients, whilst allowing remote delivery of care. But data supporting these approaches regarding effectiveness of weight loss are limited.

Methods: In this retrospective data analysis, the clinical outcomes (kg weight loss) of 143 patients (18 M/ 125 F; age 46 ± 13 years, BMI 32.4 ± 4.8 kg/m^2) with overweight and obesity in a remotely-delivered ongoing weight management program delivered by specialized registered dietitians were evaluated. Following a doctor referral, the program consisted of video consultations and counseling through a smartphone application incorporating self-monitoring tools including a photo food log, weight and activity tracking, along with regular text messaging dietitian coaching and structured educational content. Weight data were collected at the beginning, after 3 and 6 months. Additionally the patient satisfaction, measured as Net Promoter Score (NPS), was evaluated. NPS was collected in the first month of the program using an automated short messaging service questionnaire.

Results: Mean weight change after the first 3 months was –2.8 kg (SD ± 2.7). NPS was 9.5 (SD ± 1) out of 10 with a 34% response rate. For the 38 patients who have reached the 6 months time point, the mean weight loss was –4.4 kg (SD ± 4.3).

Conclusions: Preliminary results demonstrate effectiveness and acceptability of digital nutrition therapy for patients with obesity referred by Swiss GP`s. Further research regarding long term satisfaction and clinical outcomes is required.

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Does the sex of general practitioners influence mortality after an acute coronary syndrome?

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Introduction: Studies have shown that medical outcomes might depend on physician's sex. In large cohorts of patients in North America, mortality and morbidity were lower among patients treated by female physicians. Our objective was to assess the impact of general practitioners (GPs)'sex on patients' outcome after an acute coronary syndrome (ACS).

Method: We performed a retrospective analysis, using data from the SPUM-ACS-ELIPS study (an interventional and multidimensional study aiming at a better prevention following an ACS). Patients hospitalized for an ACS were recruited and outcomes such as mortality and major adverse cardiovascular events (MACE) were measured at 1-year follow-up. GPs characteristics such as sex and years of practice were collected. We used logistical regression models to assess the impact of GPs' sex on mortality and MACE adjusting for potential confounding factors (GPs years of practice, patient's demographic variables and cardiovascular risk factors).

Results: The sample consisted of 1'009 patients (76.8% of men) who had suffered from an ACS. Women were older than men (68.513.21 vs. 62.0 respectively). We were able to retrieve GPs characteristics for 831 patients, of which 709 (85.3%) were treated by male GPs. Male GPs had more years of experience with an average of 29.9compared to 23.6years for their female counterparts.
Out of the 831 patients included in the analysis, 28 died and 77 had a MACE after one year. The unadjusted Odds Ratio (OR) of mortality for female vs. male GPs was not significantly lower (OR 0.69, 95% confidence interval (95% CI) 0.21-2.32). After adjusting for confounding variables, neither the 1-year mortality nor the MACE occurrence significantly differed for patients treated by female vs. male GPs (OR 1.02, 95% CI 0.25-4-15 and OR 1.13, 95% CI 0.52-2.44, respectively).
On average, male GPs treated older patients, which explained the tendency for worse outcomes. We also found a tendency for more female patients to be treated by female GPs (18.7% of female patients were treated by female GPs whereas only 13.4% of male patients were treated by females, p value=0.03).
Conclusion: In this study, GPs' sex did not influence significantly the outcome after an ACS. It did show demographic differences between GPs, female GPs having less experience and being more likely to treat female patients. These differences could be interesting to investigate for a better understanding of the patients' management.

OR on one year mortality	**Unadjusted models**		**Adjusted models**	
	OR	95% CI	OR	95% CI
Physican variables				
Physicians'sex (woman)	**0.69**	(0.21 ; 2.32)	**1.02**	(0.25 ; 4.15)
Physicians' years of practice	1.00	(0.95 ; 1.04)	0.97	(0.92 ; 1.03)
Demographic variables				
Patients' sex (woman)	1.26	(0.64 ; 2.48)	0.48	(0.14 ; 1.61)
Patients' age	1.09	(1.06 ; 1.13)	1.10	(1.04 ; 1.16)
Education (high school or higher)	1.03	(0.53 ;2.01)	1.25	(0.40 ; 3.94)
CV risk variables				
History of diabeties	2.34	(1.22 ; 4.47)	2.97	(1.02 ; 8.64)
History of hypertension	2.46	(1.22 ; 4.93)	1.90	(0.49 ; 7.43)
Current smoker at BL	0.72	(0.38 ; 1.35)	1.51	(0.47 ; 4.86)
History of dyslipidemia	0.70	(0.38 ; 1.29)	0.72	(0.25 ; 2.10)
History of CV disease (prev_CHD, PVD, Stroke, TIA)	2.91	(1.57 ; 5.39)	0.95	(0.32 ; 2.82)
BMI kg/m2, cat >30	0.92	(0.42 ; 2.02)	1.07	(0.31 ; 3.66)

[OR on 1 year mortality]

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How can we better predict mortality in multimorbid elderly patients?

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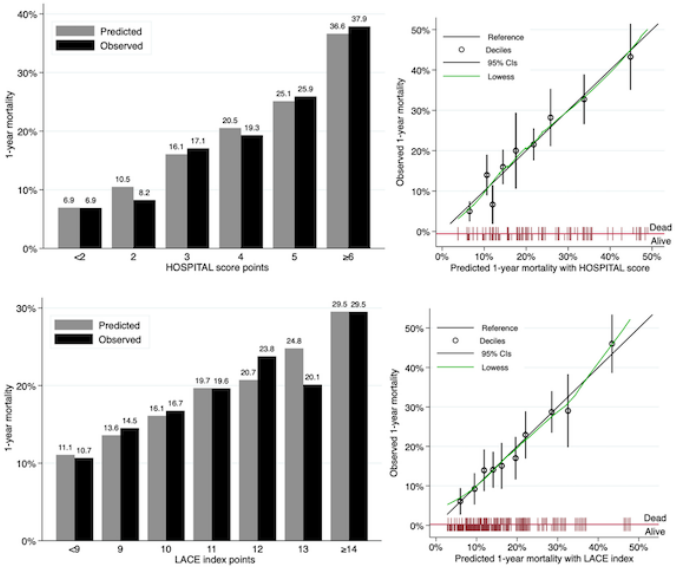
Introduction: Estimating life expectancy of older multimorbid patients often plays a role in the decision of further investigation and therapy. Several models to predict mortality have been developed in hospital settings, but none is broadly used. The HOSPITAL score and the LACE index have been validated to predict 30-day readmissions, but their ability to predict death has not been well tested. We assessed their performance to predict 1-year and 30-day mortality in older multimorbid inpatients with polypharmacy.

Methods: We calculated the HOSPITAL score and LACE index among 1,879 patients aged ≥70 years with multimorbid (≥3 chronic conditions) and polypharmacy (≥5 chronic medications) in 4 European countries. Our outcomes were 1-year and 30-day mortality. We assessed the overall accuracy (scaled Brier score, < 0.20 considered good), discrimination (C-statistic), and calibration (observed vs. predicted proportions by deciles and score point categories) of the models, and compared their C-statistics (DeLong method).

Results: Within 1 year, 375/1,879 (20.0%) patients died, including 94 deaths (5.0%) within 30 days of discharge. The overall accuracy was similar for both models (scaled Brier score 0.08 for 1-year mortality, and 0.01-0.02 for 30-day mortality). The C-statistics were identical for both models (0.69 for 1-year mortality; 0.66 for 30-day mortality). Patients with a HOSPITAL score of < 2 had a mean 1-year mortality of 7%, whereas score of ≥6 showed a mortality of 37%. Patients with a LACE score of < 9 had a mean 1-year mortality of 11%, whereas score of ≥14 showed a mortality of 30%. Calibration for 30-day mortality was lower.



[Calibration of the HOSPITAL score and the LACE index to predict 1-year mortality.]

Conclusions: The HOSPITAL score and LACE index showed similar performance to predict 1-year and 30-day mortality in older patients with multimorbidity and polypharmacy. Their overall accuracy was very good, the discrimination was moderate, and the calibration was good for 1-year and moderate for 30-day mortality. HOSPITAL score allows some better identification of very low and very high risk and may be easier to calculate, since it does not include diagnosis codes which are often available only after discharge. After external validation, these simple tools may help to predict the risk of death of older multimorbid patients after an acute hospitalization, and thus to determine the relevance of screening procedures, preventive medications, or even some specific treatments.

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Kynurenine/tryptophan ratio predicts short-term mortality and neurological outcome in out-of-hospital cardiac arrest patients

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Introduction: The essential amino acid tryptophan is mainly catabolized through the kynurenine pathway and recent studies have shown an association of an activated kynurenine pathway with inflammatory conditions as well as with poor outcome in critically ill patients. The aim of this study was to study the prognostic implications of the kynurenine pathway in patients after out-of-hospital cardiac arrest (OHCA) in a Swiss cohort.

Methods: Consecutive OHCA patients were included into this prospective observational study upon ICU admission between October 2012 and June 2018. Serum tryptophan and kynurenine were measured at admission date and associated with in-hospital mortality (primary endpoint) and neurological outcome (secondary endpoint).

Results: Out of 406 patients admitted to the ICU after successful resuscitation, 270 (66.5%) were included in this trial. 120 patients (44.4%) died during hospitalization. Non-survivors showed significantly higher initial serum kynurenine levels (OR 1.18, 95%CI 1.08 to 1.29, p< 0.001) and a higher kynurenine/tryptophan ratio than survivors (OR 1.22, 95%CI 1.11 to 1.33, p< 0.001).
The area under the curve (AUC) was 0.63 for kynurenine and 0.66 for kynurenine/tryptophan ratio. Patients with poor neurological outcome (CPC 3-5) also showed significantly higher initial serum kynurenine levels (OR 1.12, 95%CI 1.03 to 1.22, p=0.007) and a higher kynurenine/tryptophan ratio than those with good neurological outcome (OR 1.21, 95%CI 1.11 to 1.32, p< 0.001). The AUC was 0.59 for kynurenine and 0.65 for kynurenine/tryptophan ratio.

Conclusions: Higher kynurenine levels and a higher kynurenine/tryptophan ratio is associated with unfavorable clinical outcome after an OHCA event. Future studies should evaluate whether therapeutic modulation of the kynurenine pathway may impact clinical outcomes in OHCA patients.

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Long-term psychological burden in COVID-19 patients and their relatives: a prospective observational cohort study

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Introduction: COVID-19 causes psychological distress for patients and their relatives at short term. However, little research addressed the long-term psychological outcomes in this population. Therefore, we aimed to prospectively assess psychological distress in COVID-19 patients and their relatives 90 days after hospital discharge.

Methods: This prospective, observational cohort study included consecutive adult patients hospitalized in two Swiss tertiary-care hospitals between March and June 2020 for confirmed COVID-19 and their relatives. The primary outcome was psychological distress defined as clinically relevant symptoms of anxiety and/or depression measured with the Hospital Anxiety and Depression Scale (HADS) 90 days after discharge.

Results: Psychological distress 90 days after hospital discharge was present in 23/108 patients (21.3%) and 22/120 relatives (18.3%). For patients, risk and protective factors predicting psychological distress included sociodemographic, illness-related, psychosocial, and hospital-related factors. A model including these factors showed good discrimination, with an area under the receiver-operating characteristic curve (AUC) of 0.84. For relatives, relevant risk factors were illness-related, psychosocial, and hospital-related factors resulting in excellent discrimination (AUC 0.96). In both, patients and relatives, resilience was the strongest protective factor for anxiety, depression and PTSD; in addition, social connectedness was of high relevance.

Conclusions: COVID-19 is linked to relevant long-term psychological distress in a subgroup of patients and their relatives. Knowledge about risk and protective factors of psychological distress might inform developing preventive strategies.

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Predictors of hospitalisation and mortality in patients with COIVD-19: single centre experience of a tertiary COIVD-19-hospital

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Introduction and aims: Since the first hospitalisations of a COVID-19 patient (COVPat) in March 20, more than 500 COVPat were hospitalized in our hospital.
Here, we analysed the outcome of COVPat (hospitalisation duration, need of intensive care unit (ICU) and mortality) until 31.12.2020 in relation to the following parameters: age, gender, 4C-mortality score (4C-MS: based on age, gender, number of comorbidities, respiratory rate, O2 saturation on room air, Glasgow Coma Scale, urea, C-reactive prote) and first versus second wave of the pandemic.
Methods: Retrospective analysis of all adult COVPat treated exclusively at our institution. The following parameters were collected: age, gender, 4C-MS, hospitalisation duration, need for ICU, mortality. According to the epidemiology with 2 waves, we defined phase P1 from 3/20 to 9/20 and P2 from 10/20 to 12/20. P2 was characterised by a more sophisticated treatment bundle including remdesivir, dexamethasone, highflow-oxygen and cPAP-therapy in selected patients at the specialized COVID-19 unit.

Results: Since 3/20 536 COVPat were hospitalized. 58 (10.8%) patients were excluded from the current analysis: 11 (2.1% of 536) still hospitalized, 13 (2.4%) younger than 18 years, 17 (3.2) hospitalised in another department, 6 (1.1) transferred from and 10 (1.9%) to another hospital.
Results of the 478 analysed COVPat are summarized in the following table:

Parameter	All	Phase 1	Phase 2	p (*Fisher-exact-Test, **Wilcoxon-Mann-Whitney)
N (%)	478	124 (25.9)	354 (74.1)	
Gender [female/male; N (%)]	202 / 276 (42.3 / 57.7)	50 / 74 (40.3 / 59.7)	152 / 202 (42.9 / 57.1)	ns*
Age [years; mean± SD]	66.0±16.0	62.7±16.8	67.8±15.5	<0.01**
Age ≥ 80 years [N (%)]	116 (24.3)	24 (20.2)	91 (25.7)	ns*
4C-MS [mean± SD]	9.0±4.2	7.9±4.3	9.4±4.1	<0.01**
Hospitalisation duration [days, mean±SD]	8.3±7.8	9.5±9.2	7.9±7.2	ns*
ICU [N (%)]	49 (10.3)	15 (12.1)	34 (9.6)	ns*
Mortality [N (%)]	43 (9)	10 (8.1)	33 (9.3)	ns*
Mortality ≥ 80 years [N (%)]	30 (25.9)	9 (36.0)	21 (23.1)	ns*

[Results]

Mortality was lower than estimated by the 4C-MS-Score. In the low risk COVPat (estimated mortality of 1.2-1.7%) no patient died. In the intermediate (9.1-9.9%), high (31.4-34.9%) and very high risk (61.5-66.2%) COVPat group, mortality was 1.2%, 10.6% and 41.9, respectively.
There was a moderate correlation between hospitalisation duration of survivors and 4C-MS (Spearman's r 0.43, p< 0.0001) and only a weak correlation of hospitalisation duration of survivors and age (0.297, p< 0.0001).
Conclusion: Three-quarters of our COVID-19 patients were under 80 years of age. Mortality was significantly lower than expected (9.0% of all) but was almost 30% in the over-80s group. Predictive accuracy of the 4C-MS score was modest concerning mortality and length of stay. Despite increased severity of illness, mortality, duration of hospitalisation and need for ICU-admission remained stable during P2. Our data are compatible with an overall improved outcome in P2 due to a learning effect of the multidisciplinary team and the implementation of more sophisticated treatment bundles.

P189

Regulation of opioid receptors stops craving for opioids and supports abstinence

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Introduction: Based on so called "Rapid Detox" procedures for the treatment of opioid dependency the Israeli intensive care physician Andre Waismann succeeded to develop a new neuro-regulating procedure, which results in a total disappearance of craving for opiates. The procedure is called ANR - Accelerated Neuro Regulation.
Prolonged intake of opioids leads to a change in the endogenous opioid system, which is the main cause of cravings. Are these changes reversible? The remarkable results of Waismann´s research support this thesis. The aim of the "Pilot Project ANR Switzerland" was:
1. To confirm the results of Dr. Waismann.
2. To show that ANR is a safe, effective and economic method.
3. To prove that patients no longer feel craving after treatment and can thus remain more abstinent.

Methods: The ANR procedure is based on a correction of the endogenous opioid system by means of a subtotal blockage of the opioid receptors. This regulation occurs under anesthesia by the peroral and individually titrated administration of naltrexone and subsequent consolidating post-treatment with naltrexone peroral over 12-18 Mt. Treatment includes the following steps: information, preliminary examinations > addiction medicine, psychiatric, internal and anesthesiologic screening > therapy decision > treatment in the intensive care unit > follow-up care.

Results: A total of 129 opioid dependent patients (35 w, 94 m) were treated using ANR between 2012 and 2018. Subgroups were defined as illegal drug use (19%), substitution with co-consumption (28%), substitution without co-consumption (37%), patients with chronic pain (13%) and others (3%).
The most notable result was the almost complete absence of craving immediately after treatment in more than 90% of our patients, as well as a rapid improvement in physical and psychological well-being.

One year after treatment, success rates range from 40% (illegal drug use) to 78% (pain patients) with a mean value of 65 %. Urine sample and hair analyses were made in about 15%, the remaining surveys were carried out on the basis of foreign/anamnestic data.

Conclusion: ANR is an effective and safe method for the treatment of opioid dependency, which also allows significantly better long-term results with regard to abstinence compared to established withdrawal methods. Especially in pain patients with very high doses of opioids ANR might be the unique approach to realize abstinence and reverse the opioid induced hyperalgesia.

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The influence of comorbidities on the treatment outcome in symptomatic lumbar spinal stenosis: a systematic review and meta-analysis

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Introduction: Lumbar spinal stenosis (LSS) - a degenerative condition of the spine resulting in a narrowing of the lumbar spinal space - is the number one reason for elderly patients to undergo spine surgery. To date, it is unclear whether comorbidities impact treatment success and if they should be considered in the treatment decision.

Methods: Systematic literature review and meta-analysis. After searching four databases in May 2020 - Medline (Ovid), Embase, The Cochrane Library, and CINAHL - we included prospective and retrospective studies on at least 100 adult patients with LSS undergoing surgical or conservative treatment. We assessed whether comorbidities influenced following outcomes: satisfaction with treatment, functional and symptoms improvement, and adverse events (AE). We compared proportions of outcomes within two subgroups of a comorbidity with risk ratio (RR) as summary measure. Random effects meta-analysis models were used. A minimal number of three studies for the same subgroup and outcome was required for meta-analysis.

Results: We meta-analyzed 72 publications from 51 studies (two RCTs, 14 prospective observational, 32 retrospective studies, and three mixed methods). There was no evidence that patients with comorbidities were less satisfied with treatment than patients without comorbidities (RR 1.06, 95% CI 0.77 to 1.45, I2 94%), but they tended to have more AE (RR 1.46, 95% CI 1.06 to 2.01, I2 72%). A limited number of studies reported no influence of comorbidities on symptoms and functional improvement. Older patients did not report less satisfaction, symptoms and functional improvement, or more AE than younger patients (age >80 years RR 1.22, 95%CI 0.98 to 1.52, I2 60%). Diabetic patients had higher rates of AE (RR 1.72, 95% CI 1.19 to 2.47, I2 58%).

Conclusion: There is no evidence that older age alone is a risk factor for more AE or for less functional and symptoms improvement. In treatment decisions, special attention should be given to patients with LSS and comorbidities, in particular diabetes, because of an increased risk of AE.

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Treatment intensity modification in older patients with tightly-controlled blood pressure: is it associated with cardiovascular events, syncope, and fall injury?

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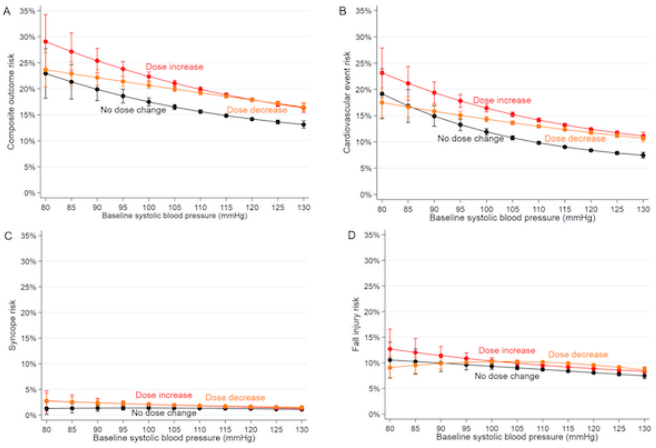
Introduction: Hypertension treatment reduces the risk of cardiovascular events. However, uncertainty remains about the benefits and harms of deintensification of antihypertensive medication when systolic blood pressure (SBP) is tightly controlled by medications in older adults. We hypothesized that hypertension treatment deintensification would be associated with fewer syncope and fall injury events, without increasing the risk of cardiovascular events, in older adults with tightly-controlled SBP.

Methods: We conducted a longitudinal cohort study during 2011-2013, using the US-nationwide primary care Veteran Health Administration healthcare system. We included all Veterans aged ≥65 years with baseline SBP < 130 mmHg and ≥1 antihypertensive medication during ≥2 consecutive visits. We used adjusted logistic regression and inverse probability of treatment weighting (IPTW) to assess the association between antihypertensive medication dose deintensification compared to stable treatment (no dose change) or dose intensification, with cardiovascular events, syncope, and fall injury. We considered the three types of events as composite and distinct outcomes, within 9 months after exposure.

Results: Among 228,753 patients (mean age 75 [SD 7.5] years), the composite outcome occurred in 12.8% (11,982/93,793) of patients with stable treatment, 20.3% (14,768/72,672) with deintensification, and 19.0% (11,821/62,288) with intensification. Adjusted absolute risk (95% CI) was 14.8% (14.6 to 15.0%; reference) for stable treatment, 18.3% (18.1 to 18.6%; *P*< .001) for deintensification, and 18.7% (18.4 to 19.0%; *P*< .001) for intensification. Deintensification was associated with statistically greater risk of cardiovascular, syncope and fall injury outcomes than stable treatment, for most baseline SBPs except for the lowest: below SBP 95 mmHg, there was no difference. IPTW yielded similar results. Mean follow-up SBP was 124.1 mmHg for stable treatment, 125.1 mmHg after deintensification (*P*< .001), and 124.0 mmHg after intensification (*P*< .001).



[Adjusted absolute risk for A) composite outcome, B) cardiovascular event, C) syncope, and D) fall.]

Conclusion: In this large national healthcare sample with robust administrative, medication and vital signs data, we did not find evidence that deintensifying antihypertensive treatment in older patients with tightly-controlled SBP was beneficial. Rather, it is likely that patients' declining clinical state, which was inadequately recognized in the administrative data, may have both prompted attempts at deintensification and led to adverse events.

Medical education

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A Swiss multi-centric study in primary care physicians' private practice: clinical teachers' responses and conceptual frameworks related to students' educational needs

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Introduction: The development of clinical expertise depends on the opportunities to practice but also on receiving quality supervision. Clinical teachers (CT) do not simply need to learn generic principles on how to supervise students: they need to have a broad repertoire of content-specific pedagogical responses in order to target their students' needs and these responses must be based on solid pedagogical frameworks. Faculty development for CT is critical if we want to support and foster the quality of clinical training in the ambulatory setting. The objective of our study was to observe how CT respond to students' needs by analysing the pedagogical responses and the underlying conceptual frameworks used during supervisions. We aimed also to highlight a possible quantitative correlation between these responses and conceptual frameworks.

Methods: Our study was conducted in collaboration with the Swiss Academy of Family Medicine institutes in 2015. We recruited primary care physicians in 4 Swiss cities working in private practice and hosting third year master students They had to supervise a standardized student by responding spontaneously to the educational needs expressed in three scenarios and then, through a stimulated recall technique, they had to answer questions about the conceptual frameworks used during these supervisions. We conducted a qualitative content analysis with a coding process developed by Côté and al. for responses content and conceptual frameworks and aPearson correlation quantitative analysis.

Results: The quantity of responses was large but rarely focused on student's specific educational needs. The conceptual frameworks observed came more from psychological than pedagogical theories, focusing on categories related to student's well-being during clinical supervision and most of them were clearly implicit. The quantitative analysis did not show a strong correlation between the quantity of responses and theoretical frameworks ($r = 0.18$; $P = .26$).

Conclusion: Our study shows that clinical teachers need to strengthen their pedagogical conceptual frameworks in order to be able to respond specifically to the needs of students. These results will help us to refine the faculty development plan in order to offer them a wider range of educational tools based on explicit conceptual frameworks.

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Are we fit to teach? A survey in physicians of the in- and outpatient departments of internal medicine at a Swiss university hospital

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Introduction: Teaching is one of the three pillars of medical-academic activity alongside with patient care and research. The aim of our study was to assess the current teaching practice in the medical departments of the University Hospital Basel, Switzerland.

Methods: We performed a cross-sectional online survey among the teaching faculty and the residents. In both groups, we assessed their estimation on the general importance and perceived frequency of various teaching formats in everyday practice. Additionally, we asked the senior physicians to evaluate their teaching competencies, and the residents to state their opinion on factors promoting a positive learning experience.

Results: Twenty-eight of thirty-four senior physicians (82%) and forty-eight of ninety residents (53%) participated in the study. Both groups widely agreed on the importance of various teaching formats for the professional development of physicians; and placed particular importance on bedside teaching, providing feedback, teaching during case discussions, and observation and modeling. However, the residents perceived they obtained less teaching, feedback, and support than the senior physicians perceived they were giving. Overall, teaching during case discussions represented the teaching format most often applied and it was also the one where the senior physicians felt most competent in. Furthermore, residents claimed "time" to be the most important factor promoting a positive learning experience, followed by positive attitude und personal characteristics of the supervisor.

Conclusion: Our study shows that despite of being an integral part of everyday work at a university clinic, many aspects of the current teaching practice allow discussion on possibilities of adaptations and improvement. Evaluation of the current teaching practice provides the basis for designing a faculty development program, tailored to the specific needs.

P194

Clinical reasoning in dire times. Cognitive Bias and COVID-19 pandemic.

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Introduction: Cognitive biases can be defined as a pattern of deviation in judgement, which can affect decision-making processes, and a fortiori clinical reasoning *("clinical reasoning is the sum of the thinking and decision-making processes associated with clinical practice ... and it enables practitioners to take ... the best judged action in a specific context ").* [Croskerry P, 2013; Higgs J, Jones M, 2008] The COVID-19 pandemic has shaken up clinical practices: diagnostic and therapeutic uncertainties are common, and hospitals have to face a constant overload of "critical" patients. Such a context can easily disturb clinical reasoning and enable cognitive biases.[Nendaz M, Perrier A, 2012]

Methods: To showcase how COVID-19 impacted clinicians' clinical reasoning, we sent a short survey to 169 clinicians working in our institution who were directly involved in the care of COVID-19 patients during the first wave. We asked them to describe clinical cases with which they perceived a difficulty in their diagnostic reasoning. The authors, using a list of the main cognitive biases described in medicine, independently analyzed these cases. [Nendaz M, Perrier A, 2012] A consensus made then it possible to establish for each case which reasoning biases potentially occurred.

Results: The most common cognitive errors encountered in the resolution of these clinical cases were: the "anchoring bias" (i.e. the tendency to rely heavily upon the first piece of information received), the "confirmation bias" (i.e. the tendency to interpret information in favour of one's own existing beliefs), the "availability bias" (i.e. the tendency to think that things that come readily to mind are more likely to happen again), and the "cognitive dissonance" (i.e. to prefer having consistency in our beliefs).

Conclusion: Cognitive biases are part of everyday medical practice, particularly with regard to clinical reasoning. The analysis of complex cases reported by clinicians during the first wave of the COVID-19 pandemic has highlighted several biases. These can particularly affect clinical reasoning and lead to errors in diagnosis, triage, or management. Every effort should be made to make clinicians aware of these mechanisms and to identify strategies to improve decision making and, consequently, patient care.

P195

Construction of the clinical script of COVID-19

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Introduction: Illness script are organized mental representations of a disease. They are built on the triad of enabling conditions (e.g.

age,), fault (pathophysiology), and consequences (e.g. signs, symptoms) and are organized for action. Illness scripts acquisition and enrichment relies on clinical practice, and less on education. Pertaining to COVID-19, health professionals and scientists cannot rely on known scripts of this disease. Instead, their scripts develop and change along with the growth of their knowledge and experience in regard to this new disease. Our research aimed at understanding how the script of COVID-19 developed amongst physicians.

Methods: We conducted focus groups and interviews with physicians with different levels of experience and involvement in clinical settings. The data were analysed by a qualitative methodology based on grounded theory. This analysis allowed us to contrast the "usual" construction of clinical scripts versus that of COVID-19.

Results: Our preliminary results show that the illness script of COVID-19 varies greatly amongst physicians, and notably in terms of richness (i.e. the capacity to generate relevant information on all 3 illness script components). Interns, for examples, had more direct ("frontline") exposition to patients, enabling them to create script that were particularly rich in the "consequences" component. Attending physicians, instead, had a more global view of the situation including the effects of the pandemic on the institutional landscape; their illness scripts were richer in the "Fault" and the "Enabling Conditions" components.
These features depend on physicians' exposition to patients with COVID-19, as well as on the range of illness severity of patients (asymptomatic to critical). ICU physicians, mainly dealt with intubated patients, and communication with families was reliant on video- phone-calls, and devoid of nonverbal-cues since families were not allowed in the hospital. Beyond medical factors, creation of illness scripts was deeply influenced by the peculiar pandemic context encompassing local, organisational, socio-cultural and global factors.

Conclusion: Our preliminary results allow us to deepen our understanding on what influences the construction of illness script and how it is enriched over time. We can already see emerge the impact of how the exposition to patients influences its construction. Further studies should assess how clinical reasoning is impacted by this illness script.

P196

Discussing evidence-based medicine through the lens of reflexivity and gender epistemology

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Introduction: Gender medicine is a medical research field that aims to understand the effects of sex and gender on health, with a major postulate that medical science is prone to gender bias. Since gender stereotypes have been documented among physicians and medical students, researchers have developed strategies to integrate gender perspective in medical curricula to raise awareness on bias and to reduce them. None of these pedagogical strategies provided practical tools to medical students to identify their own bias and stereotypes. A pedagogical project was piloted at the University of Lausanne to provide medical students reflexive tools to identify their own stereotypes and/or bias and eventually control them to improve patients' care. The aim of this study was to understand how reflexivity and gender bias are conceptualized by students and the strategies they envision to control subjectivity in clinical practice. Finally, we wanted to assess how far the educational activity brings students into the reflexive practice.

Methodology: Clinical cases were discussed in small groups of students during their general medicine internship with the objective to identify potential gender stereotypes susceptible to bias clinical management. Subsequently, all students had to fill an online "reflective sheet" discussing a case and answering general reflective questions on their gender bias. This study is based on the 160 reflective sheets that were handed in, that we analyzed using qualitative thematic analysis.

Results: All students were able to identify potential gender bias and stereotypes and to mobilize gender-related knowledge. However very few were able to apply reflexive practice defined as *the ability to address one's own position in societal structures and its influence in clinical practice regarding gender issues.* Instead of addressing their own subjectivity, they tended to shift to evidence-based medicine (EBM) concept as a guarantee of their neutrality and thus their absence of stereotypes.

Conclusion: Developping a reflexive practice on gender among medical students faced barriers. We show how exploring one's own positionality as a medical student was limited, and how it appeared contradictory with a practice based on evidence. New theoretic tools such as standpoint theory can prove helpful to support students addressing their own subjectivity in clinical practice and finally to control it when interacting with patients.

P197

Entrustable Professional Activities defined for residency programs in General Internal Medicine: a systematic review

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Background: Entrustable Professional Activities (EPAs) reflect day-to-day observable tasks, which are expected from doctors and for which trainees must gain their supervisors' trust. EPAs are already used in undergraduate medical education, but few residency programs use them. We aimed to review all the EPAs defined for residency programs in General Internal Medicine (GIM). GIM includes both Internal Medicine (IM) and Family Medicine (FM) in some contexts such as Switzerland. Therefore, we tried to distinguish between common EPAs and EPAs specific to either practice.

Method: We systematically searched databases and grey literature, using the terms of "EPAs" and "Residency Programs", from January 2005 to February 2020. Studies were included based on date of publication, language used and availability of a list of EPAs for residency programs in GIM. Specific data from article were extracted, including language, date and residency program targeted (IM or FM). We also extracted EPA lists from included studies. Thereafter, we categorized each EPA into themes in order to illustrate similarities and differences between IM and FM.

Results: Our search resulted in 1913 articles, 18 meeting inclusion criteria. Articles were mostly written by Canadian or American teams, all from 2012 onwards. A total of 368 EPAs from 15 different residency programs were gathered. Half of those programs were designed for FM, half for IM. We organized most of the EPAs in 5 domains:

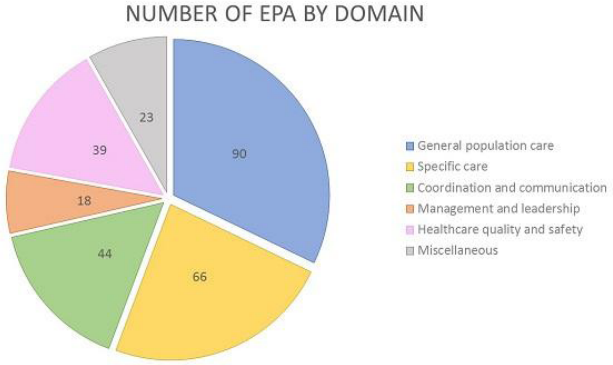
(1) management of general adult population,

(2) management of patients with specific needs,

(3) care coordination and communication,

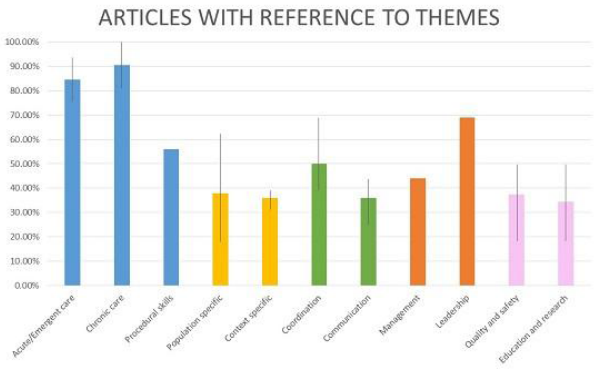
(4) management and leadership, and

(5) health quality, educational activity and research.



[figure 1 - Number of EPAs by domain]

Those domains were further divided in 11 themes, some of them being more frequently represented than others.



[figure 2 - Representation of themes in articles]

Finally, the 11 themes were divided in 27 subthemes, with three specific to FM (elderly care, children care and psychiatry) and one exclusive to IM (research activity), showing little discrepancy between IM and FM regarding residency program.

Conclusion: Residency programs using EPAs in GIM are recent and mostly from North America. The majority of those programs point out similar domains, themes and subthemes, which represent a useful framework for any GIM educator willing to implement EPAs in future residency programs.

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P198

Experience of a bottom-up evaluation for staff members in a teaching hospital

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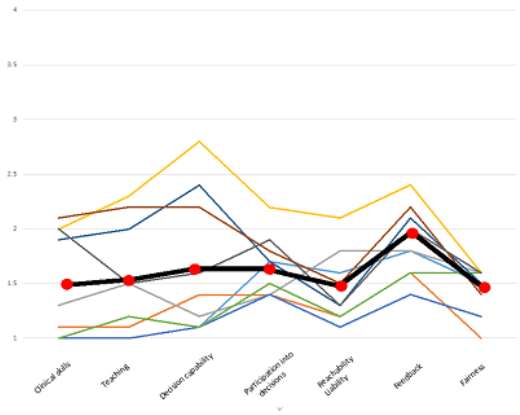
Introduction: We wanted to test the feasibility of an anonymous bottom-up evaluation by the residents in a teaching hospital facility and to estimate the impact for each of the staff members for improvements.

Methods: In the Department of Internal Medicine (FMH-category A), 9 attending physicians were evaluated including 2 chiefs (Chefärzte), 4 leadings physicians (Leitende Ärzte) and 3 fellows (Oberärzte). 28 residents (Assistenzärzte) evaluated each staff member anonymously. The evaluation had two parts. One was a structured rating of 7 features (clinical skills, teaching, decision capability, resident participation into decisions, reachability/liability, feedback, fairness) using a scale 1-5 (1 for best, 5 for worst). The second part included free comments about laudable features and requirements for improvement. Each staff member received only his personal evaluation and returned a structured questionnaire about his perception about fairness, adequacy and impact for improvements.

Results: The performance of each staff member regarding of the 7 features is shown in the figure: (Colored thin lines = single staff members; thick black line with red dots= average).



[Figure]

Most features were assessed as "good" or "fair" (scale 1-2), "Feedback" receiving the worst average score. Most of the staff stated that rating results were adequate or even better than the self-perception. However, the anonymous free comments were perceived as very personal and partially unfair due to focus on single interactions or specific functions. Each staff found the evaluation valuable for improving the interaction with the trainees, especially focusing on better and more frequent feedback.

Conclusions: Bottom-up evaluation by residents in a teaching facility is a valuable tool to point out weak training points in the staff-resident interaction, "feedback" requiring most improvement. However, the anonymity of the evaluation entails some unfairness that may jeopardize its value.

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HeadToToe: mHealth solution for medical knowledge dissemination

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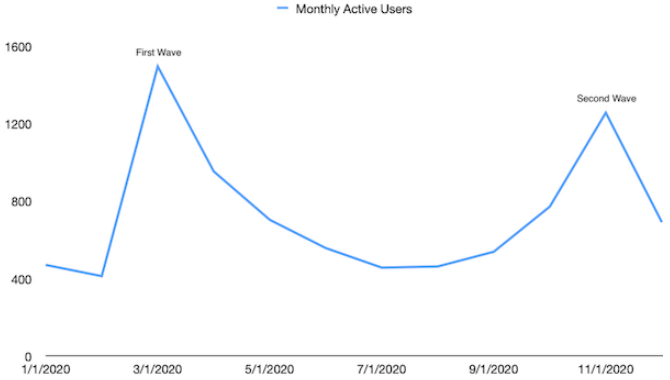
Introduction: Clinical Competencies (CC) are an important part of medical education. CC improve with experience and structured feedback from supervisors. Learners usually rely on references, often provided by their institution to prepare themselves for the clinical environment. However, finding validated references is not an easy task as they are usually scattered among a number of sources, are of overwhelming amount and may not always reflect local practice. It is even more the case during pandemics where updated and sometimes contradictory information unfolds on a daily basis and choice of treatment plans are highly dependent on local epidemiology and resources. As smartphones become ubiquitous, learners may benefit from a solution to easily access validated and locally endorsed medical knowledge. Moreover, educational stakeholders may benefit from automatic feedback concerning content use in order to appraise learners' information needs [1].

Methods: We have developed a mHealth platform intended for the dissemination of medical knowledge. Content is selected by experts from local institution who are responsible for content validation and updating. Each item provides information concerning its curator, revision and expiration date. The platform provides planned obsolesce for each item thus limiting access to obsolete content. Automatic statistics concerning activity and content use are collected and were used for quantitative analyses of platform's use. Moreover, qualitative assessments were performed to assess user experience and acceptability in clinical practice.

Results: Qualitative assessments gave the platform high-scores for user-experience, usefulness, time-effectiveness, content pertinence and reassurance in clinical practice [1,2]. A three-year analysis showed a constant pattern of increased usage among students one month before OCSE examination [1]. This might suggest platform's utility for exams preparation. A recent quantitative assessment in the Children's Hospital in our institution showed increased activity and COVID19 related content use during current outbreak [2]. A larger scale analysis showed a fourfold increase in app use and a correlation between app use and local epidemiology throughout the first wave of COVID19 in our institution [3].

Conclusions: The mHealth solution is an effective tool for disseminating and increasing the reach of validated and time-sensitive medical information and allows real-time decisions using real-world data.



[Figure 1. Monthly Active Users During 2 waves of COVID19]

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P200

Interprofessionalism and decision making. Dissection of the decision-making process

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Introduction: In order to provide optimal patient care, a team effort is required, as no profession can be independent, at least in the nurse-physician relationship. Interprofessional collaboration (IPC) is a process whereby members from different settings, disciplines or roles contribute to a common goal (e.g. by sharing knowledge and expertise). With this work, which constitutes the fourth phase of a project on interprofessionalism we sought to deepen our knowledge on interprofessional collaboration, particularly on the effects of mutual influences within the nurse-physician pair on the relevance of clinical decision-making and the development of diagnostic hypotheses.

Methods: We conducted a mixed-method study on previously collected data. Briefly, 14 pairs of doctors and nurses from the Service of Internal Medicine, University Hospitals of Geneva, Switzerland, participated to a high-fidelity mannequin-based simulation. Each pair had to manage an "urgent" situation. All simulations were videotaped and transcribed word for word. After identification of 9 fundamental clinical tasks for IPC (e.g. data collection, hypothesis formulation, case transmission, etc.), we coded the transcripts (ATLAS.ti; ATLAS.ti Scientific Software Development GmbH, Version 8.0) in order to assess who in the physician-nurse pair proposed/initiated the task, whether the task was adequate (in terms of relevance to the scenario, and its temporal course); we also looked at the underlying clinical reasoning.

Results: Our work, which we are currently analyzing, will make it possible to describe doctor-nurse interactions at the bedside. At this stage, several scenarios seem to emerge: hypotheses and actions (of variable relevance) are initially evoked by both nurses and doctors, but concrete implementation of the decision may sometimes not be carried out successfully.

Conclusions: This work constitutes the fourth phase of a project dedicated to interprofessionalism. Here, we have sought to investigate the key elements of interprofessional collaboration, and in particular the effects of mutual influences between nurses and physicians on clinical decision-making and the development of diagnostic hypotheses.

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Relationship between self-reported cognitive/affective and behavioural empathy among medical students

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Introduction: There is little consensus on definitions of empathy, but it is commonly agreed that cognitive, affective and behavioural elements play a role in the empathetic process. However, few empirical studies have measured these three empathetic elements at the same time. The aim of this study was to explore the relationship between cognitive/affective and behavioural empathy in medical students.

Methods: Fourteen medical students were recruited from a cohort of 4th year students on the basis of their high or low scores on the self-reported Jefferson Scale of Empathy (JSE-S - cognitive and affective empathy). Students were divided into two groups: group A (n=8) with a low JSE-S score (M=96.75, SD=10.3) and group B (n=6) with a high JSE-S score (M=121.3, SD=2.94). They were discretely videotaped while conducting the history taking phase of a clinical encounter with an incognito standardized patient during their primary care clerkship. Students' behavioural empathy was measured using the Verona Coding System (student talk in reaction to patients' cues and concerns as well as nonverbal communication).

Results: Patients expressed the same number of concerns per encounter in both groups but gave more cues to high-scorers (p=0.029). However, students of both groups demonstrated the same amount of verbal empathy (B 16% vs A 15 % p=1.00). High JSE-S-scorers non-verbal communication tended to be rated higher than low JSE-S-scorers (p=0.081).

Conclusion: This study did not allow to show any statistically significant differences of empathetic responses to patients' cues and concerns between low and high JSE-scorers. However, high JSE-S scorers displayed higher non-verbal communication scores.

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Shortcomings and challenges in the transition from resident to attending physician in General Internal Medicine

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Introduction: In Switzerland the attending physician of General Internal Medicine (GIM) guarantees comprehensive care for persons with complex and/or multiple diseases. Newly appointed attendings often report that the transition from resident to attending is burdensome and stressful. The objective of this study was to identify the specific challenges of newly appointed attendings in GIM and to gain a better understanding of the measures that might contribute to a better preparation to these challenges.

Methods: In a qualitative study, we explored the perceptions of 14 residents, 17 attendings and 5 heads of GIM departments in the German and French speaking parts of Switzerland using focus group discussions and semi-structured interviews. Data was qualitatively analyzed using a thematic analysis approach.

Results: Besides sound medical knowledge, practical and humanistic skills, four main themes emerged that present a particular challenge in the transition from resident to attending. First, embracing a holistic, patient centered view by seeking different medical specialists' opinions in case of a complex patient problem and integrating them into a larger picture was seen as the defining competency of GIM attending. Second, decision making and taking ultimate responsibility in the context of uncertainty was considered crucial, yet very burdensome for young professionals. Third, preparation to adopt the role of a leader orchestrating an interdisciplinary and interprofessional team of health care professionals and trainees was considered insufficient (quote 1). Fourth, finding a balance between patient safety through close control of the resident and simultaneously creating a learning environment allowing autonomy was found challenging (quote 2). A regular, structured coaching during the transition was reported to be often lacking, but very helpful when available.

Conclusions: Four critical competencies beyond medical knowledge and skills were considered pivotal for executing the role of an attending in GIM, but were insufficiently addressed prior to the transition from resident to attending. Delegation of tailored tasks during residency to preselected trainees would allow them to learn and make own experiences in a controlled environment under supervision. A designated mentor for newly appointed attendings, providing advice and support would offer additional guidance.

La cheffe de clinique compétente c'est celle qui a justement la capacité de travailler sur des objectifs pour chaque patient, … et qui travaille seule ou avec l'aide des spécialistes, mais qui ne se fait pas tirer de chaque côté justement … parce qu'il lui manque de l'expérience ou la capacité de gérer la responsabilité.

[Quote 1]

Man hat ja im Studium nie gelernt, wie man pädagogisch, didaktisch vorgeht mit schwierigen Situationen. Man ist auf einmal in der Situation, dass man quasi Lehrer ist, man soll beibringen, man soll in der Kommunikation stark sein. Man soll jemanden möglichst so kritisieren, dass es am Ende ankommt. Und man fragt sich einfach, woher soll ich das nehmen, wenn ich es nie gelernt habe?

[Quote 2]

P204

Swiss Physician's training needs in leadership: a pilot study

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Introduction: Most physicians do not value leadership skills as they are often absent from pre- and post-graduate medical education. As a result, most of today´s medical leaders find themselves ill-prepared to take on new leadership responsibilities. The aim of this research was to evaluate physicians' self-perceived competences and training needs in leadership in a Swiss hospital.

Methods: We sent an online survey to all physicians working at the Geneva University Hospital. Questions (n=19) focused on self-perceived competences (Likert scale 1-4, 4 = well mastered) and training needs in leadership (yes/no) using the NHS Medical Leadership Competency Framework[1]. It included field of competences such as demonstrating personal qualities (n=6), working with others (n=6), managing services (n=4), improving services (n=2), setting direction (n=1). Finally, head of services were also asked about the leadership training needs for their residents, chief residents and attending physicians.

Results: 570 physicians responded to the survey (participation rate 26%). Overall, 24% of participants have attended a training in leadership or management. The participants perceived themselves as being rather competent in most leadership dimensions. (Min: *M*=2.86. *SD*=1.12; Max: *M*=3.66, *SD*=.58). Self-perceived competences progressively improved as physicians moved up in the hierarchy. Residents' lowest and highest self-perceived competences were related to managing people (*M*=1.71, *SD*=.85) and acting with integrity (*M*=3.56, *SD*=.58) while senior physicians lowest and highest self-perceived competences referred to managing time (*M*=3.05, *SD*=.60) and acting with integrity (*M*=3.85, *SD*=.37). Not surprisingly, residents expressed higher training needs than senior physicians for all field of competences, except for external and internal communication (X^2 (3, *N*=472) = 5.24, *p*=.15). However, head of services underestimated residents' and chief residents' perceived needs, especially regarding working with others, managing and improving services (for the raw scores 69% - 90%, z = 2.09 - 3.32).

Discussion: Physicians acknowledged the importance of leadership and management competences in the workplace and expressed training needs in all fields of leadership. Further research should explore why most physicians still do not attend leadership training programs.

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P205

The value of near peer feedback in online OSCE during the pandemic

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Introduction: During the first phase of the Covid-19 pandemic, formative OSCE were transformed into online OSCE, and experienced tutors were replaced by senior students. The aim of the study was to evaluate quality of the feedbacks given by senior students during online OSCEs, and compare them with those given by experienced clinical tutors during the same OSCEs a few years ago.

Methods: All 2nd year medical students (n=158) were invited to attend an online OSCE under the supervision of ten senior medical students (4th - 5th year): a 20 minute interaction with a standardized patient presenting a cardiac complaint was followed by a 20 minute feedback that was videotaped. Outcome measures were 1) students´ perception of the quality of the feedback (self-administered online questionnaire about the quality of the feedback received; 15 items-Likert scale 1-5); 2) objective measure of the quality of the feedback focusing on both the process (14 items -Likert scale 0-5) and the content (6 items). The outcome measures were then compared with those collected in 2013 during OSCEs supervised by experienced clinical tutors.

Results: 106 2nd year medical students filled in the questionnaire and had their feedback session videotaped. Students' perceptions of the feedback was very good with most scores > 4 and were statistically significantly higher than students' ratings documented in 2013 (p< 0.001) for the 15 items). The objective analysis showed that senior students actively involved students in feedback, (students' exploration of learning needs (mean 3.42 SD 0.76), self-assessment (mean 3.27 SD 0.97), active participation in problem-solving (mean 3.07 SD 0.42), checking for understanding (mean 3.39 SD 1.13). They performed statistically significantly much better than the experienced tutors did in 2013 regarding most phases of the feedback process. Senior students addressed more elements in relation to history taking than experienced tutors (mean 3.54 SD 2.37 vs 0.84 SD 0.90), less for physical examination (1.71 SD 1.62 vs 5.11 SD 3.15) than experienced tutors, and quite similar amount of communication (4.89 SD 2.43 vs 4.70 SD 3.51) or clinical reasoning issues (0.78 SD 1.09 vs 0.54 SD 0.99).

Conclusions: These results show that the quality of senior students' feedback was good and well perceived Implementation of near-peer teaching should be encouraged if these results persist beyond the very specific conditions of the pandemic.

Economic and ethical aspects

P206

Analysis of intubate / do not intubate orders (DNI) in COVID-19 patients

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Introduction and aims: COVID-19 is a disease that requires specialized care. At our hospital patients were treated in a specialized COVD-19 unit and all patients were routinely discussed on a daily basis by a multidisciplinary team (internal medicine, infectious disease, pulmonology, palliative care, clinical ethics). COVID-19 is a disease with a high risk for rapid pulmonary deterioration with need of immediate intubation, therefore intubation directives (IntDir) must be discussed timely after admission. Intubated COVID-19 patients (CovPat) have a poor prognosis and therefore a critical review of IntDir is important. We analysed IntDir in CovPat in relation to following parameters: Age, gender, 4C-mortality score (4C-MS), documented decision-maker and whether DNI orders were retrospectively comprehensible from a medical perspective.

Methods: Retrospective analysis of all CovPat hospitalised in the COVID-19 unit from March 20 and discharged until end of 2020. CovPat with a debatable DNI were flagged and analysed based on medical records. The 4C-MS was calculated for each CovPat. As age is one of the major factors of the 4C-MS an adapted score independent of age was calculated (4C-MSw/oAge).

Results: 478 CovPat were hospitalised in the COVID-19 unit during this period. In the second wave of the pandemic up to 45 CovPat were admitted per week. Demographics are summarised in table 1, the various decision-makers are presented in table 2.

	All	To be intubate: YES	To be intubate: NO	p
N	478	336 (70.3)	142 (29.7)	
Gender: female / male [N (%)]	202 / 276 (42.3 / 57.7)	132 / 204 (39.3 / 60.7)	70 / 72 (49.3 / 50.7)	0.05
Age [years±SD]	65.9±16.0	59.5±14.2	81.2±7.4	<0.0001***
Hospitalized last 5 years yes / no [N (%)]	190 / 288 (39.7 / 60.3)	99 / 237 (29.5 / 70.5)	91/51 (64.1 / 35.9)	<0.0001**
Died [N,%]	43 (9.0)	7 (2.1)	36 (25.4)	<0.0001**
4C-MS* [value±SD]	9.0±4.2	7.5±3.8	12.5±2.9	<0.0001***
4C-MSw/oAge [value±SD]	4.8±3.0	4.3±2.4	6.0±3.0	<0.0001***

4C-MS: in-hospital mortality in patients admitted with COVID-19, based on age, gender, number of comorbidities, respiratory rate, peripheral oxygen saturation on room air, Glasgow Coma Scale, urea, C-reactive protein; **Fishers-Exact; ***Wilcoxon-Mann-Whitney

[Demographics]

	All N=478	Intubate (DI) N=336	Do not intubate (DNI) N=142	p
Preference / decision according to				
patients [N (%)]	376 (78.7)	269 (80.1)	107 (75.4)	
relatives [N (%)]	45 (9.4)	21 (6.3)	24 (16.9)	<0.0001*
physician [N (%)]	57 (11.9)	46 (13.7)	11 (7.7)	
Age and 4C-MSw/oAge of patients				
Decision according to patients [years±SD, value±SD]	66.5±15.0, 4.8±2.6	60.7±13.2, 4.4±2.4	81.3±7.1, 6.0±2.7	<0.0001*, <0.0001*
relatives [years±SD, value±SD]	72.9±14.1, 5.7±3.7	64.7±15.2, 5.3±2.9	80.0±8.2, 6.1±4.4	<0.0001*, ns
physician [years±SD, value±SD]	56.4±19.7, 3.9±2.5	50.2±16.1, 3.4±2.4	82.5±8.8, 5.6±2.2	<0.0001*, <0.001*
Wilcoxon-Mann-Whitney				

[Decision-makers]

38 DNI-patients (7.9%) with a potentially debatable decision where flagged and analysed. After revision, the decision remained debatable in 14 patients (2.9%). In 9 cases the decision was made according to preference of the patient, in 3 according to preference of relatives and in 2 was made by a physician, 10 of them were younger than 80 years.

Conclusions: In about 20% of CoVPat intubation directives were made by proxies. Patients with a DNI order were significantly older and more ill. DI orders were more common in younger and healthier patients and patients speaking languages other than German (data not shown). Although patients were routinely discussed by a multidisciplinary team, a proportion remains for whom the decision was retrospectively not comprehensible. The high turnover of patients may be a reason and therefore a risk for improper directives with an increasing number of patients remains. Accurate documentation, especially when directives are made by proxies needs to be warranted.

P207

Interruption of health care for the residents of Moria refugee camp in Lesvos, Greece, after the fire in September 2020

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As a volunteer doctor from Switzerland working in Moria - Europe's biggest refugee camp - on the Greek island of Lesvos during the time of the fire that destroyed the entire camp in September 2020, I witnessed the health problems that arose after the population was left in the street.

At the time of the fire, a few days after the first cases of COVID-19 were detected in Moria camp, the population consisted of about 13'000 people, with more than 4000 children. Among them, about 300 were on chronic medication for conditions such as diabetes, chronic heart disease, epilepsy, rheumatic inflammatory diseases on long-term immunomodulators or severe psychiatric disorders.

In the early hours of the 8th of September, fires were started in several parts of the camp, rapidly spreading to the whole area and forcing all the inhabitants to flee. Fortunately, no victims were to be deplored. The police intervened to prevent people from reaching the villages surrounded the area and the main city, Mytilene, 8 km away. Makeshifts shelters were erected along the main road as well as on the parking lots of the supermarkets and petrol stations.

During the week following the fire, the access to the area was severely restricted for NGOs. The most urgent needs expressed by the population were water and food. After three days, a clinic was able to start operating with medical providers for acute care, chronic medications, and midwife services. During the first five days of operation of the temporary clinic (12-16/09), 85 of the registered chronic patients presented and received their medication.

We measured the vital parameters of most of the patients. The blood pressure readings were overall acceptable. The lack of food possibly contributed to avoiding the development of hyperglycaemia in most diabetic patients with few notable exceptions.

Among the patients who consulted in those days following the destruction of the camp, some were at risk of severe complications following treatment interruption (myocardial infarct during the week preceding the fire, artificial mitral valve on long-term anticoagulation, severe epilepsy, Graves disease).

Crisis such as a fire might cause disruption in the treatment of the chronic patients. In most cases, an interruption of a few days has no repercussions. However, consequences can be dramatic. The authorities in charge of the emergency response after a major catastrophe must be made aware of the needs of this specific population.

P208

Predictors for unplanned readmissions within 18 days after hospital discharge: a retrospective cohort study

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Introduction: With the introduction of the reimbursement system based on diagnosis related groups (DRG) in Swiss hospitals in 2012, most readmissions to the same hospital occurring within 18 days and appertaining into the same major diagnostic category (MDC) are merged and, thus, often not reimbursed, or only to a lesser extent. In addition, readmissions reflect increased distress for patients and their relatives. Reasons for hospital readmissions are mainly patient-related and difficult to influence. However, it may be possible to identify cases at higher risk for readmission. Therefore, the aim of this study was to find predictors for early readmissions under the same MDC in order to identify high-risk index hospitalizations and prevent unnecessary readmissions.

Methods: Data of all patients admitted to the Clinic of Internal Medicine at the University Hospital of Basel, Switzerland, hospitalized for longer than 24 hours during the pre-DRG period between October 2009 and September 2010 were retrospectively collected from the hospital database. Case and patient data were analysed descriptively and examined for predictors of unplanned readmission within 18 days under the same MDC ('relevant readmission') by means of binary logistic regression.

Results: A total of 7'479 patients (median age 67.8 years, 56% male) were admitted to the Clinic of Internal Medicine, with a relevant readmission in 232 patients (3.1%). Binary logistic regression revealed male sex, high number of comorbidities, and high number of prescribed drugs at discharge as patient related predictors for a

relevant readmission (p=0.011, p< 0.005, p< 0.005, resp.). Moreover, MDCs F (cardiovascular system) and G/H (gastrointestinal system/hepatobiliary system) were identified as case related predictors in men (p=0.004, p=0.002, resp.), while MDC F was the only case related predictor in women (p=0.005). Age and length of index hospital stay added no significant explanatory value to the regression model.

Conclusions: Unplanned readmissions under the same MDC within 18 days were infrequent and not related to patient's age or length of index hospital stay. Overall, multimorbid patients, hospitalizations regarding the cardiovascular system and, in men, hospitalizations regarding the gastrointestinal system appear to be most at risk and should therefore be specifically targeted in the prevention of early readmissions.

Gastgesellschaft SGKPT/Société conviée SSPTC: Posterpräsentationen / Présentations de posters

P209

Algorithm-supported drug safety screening in medical inpatients of a Swiss tertiary care hospital

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Introduction: Drug related problems (DRP) are frequent in elderly patients with polymedication. Efforts to improve drug safety include chart reviews supported by automated algorithms. We report the findings of regular algorithm-supported drug safety screenings (DSS) over a one year period.

Methods: Electronic health records (EHR) of general internal medicine inpatients at the University Hospital Bern were screened once per week by a set of algorithms programmed to detect increased DRP risk based on parameters such as weight, liver and renal function, hemoglobin, critical (narrow therapeutic index, high potential for drug-drug interactions (DDI) or adverse reactions), QTc prolonging, or potentially inappropriate medications (PIM, Priscus). On identified EHRs, a focused screening was performed by a clinical pharmacologist who communicated recommendations in the patient's chart.

Results: From January to December 2020, 3813 (87%) of 4397 inpatients were covered by 49 screenings and 1953 (51%) patients with increased risk of DRP were identified. Of these, 378 (19%) had already been discharged, 10 (0.5%) received palliative care, 12 (0.6%) had died and in 21 (1.1%) cases full EHR access was not possible. Among the remaining 1532 (78.4%; approx. 32 patients per screening), individual chart review produced 358 findings in 310 (20.2%) patients (mean 1.2, range 1-3 findings per patient). Most frequent were 261 DDI (73%), 46 adverse drug events (13%), 29 PIM (8%), while missed dose-adjustments (2.5%) or therapeutic drug monitoring (2.2%) were infrequent. Among the DDI, 161 (62%) were pharmacokinetic and 100 (38%) pharmacodynamic, with more than half concerning QT-prolonging drug combinations (most frequently antidepressants and antiemetics). The most frequent PIM were antidepressants (45%), nitrofurantoin and antiarrhythmic agents (14% each). No relevant demographic differences were found between patients with and without findings. Overall, the algorithms significantly increased DSS coverage compared to the previous year (< 30%).

Conclusions: The relevant proportion of patients with DRP highlights the importance of routine DSS. The high number of patients identified by the algorithms compared to the number of patients with actionable DRP indicates that screening efficiency could be improved by mitigating some of the algorithms' rules. Many detected DRP are well known and integration into decision support tools would increase drug safety at point of care.

P210

Development and validation of an LC-MS/MS method for the bioanalysis of psilocybin's metabolites, psilocin and 4-hydroxyindole-3-acetic acid, in human plasma

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Introduction: Psilocybin is a psychedelic substance being explored in substance-assisted psychotherapy. However, its pharmacokinetics (PK) are only partially characterized. Thus, we developed and validated a liquid chromatography tandem mass spectrometry method to quantify psilocybin's metabolites psilocin and 4-hydroxyindole-3-acetic acid (4-HIAA) in human plasma, to further explore (or investigate) the PK properties of psilocybin.

Methods: Psilocin and 4-HIAA were detected by multiple reaction monitoring (MRM) in positive and negative electrospray ionisation mode, respectively. The analytes were separated on a C_{18} analytical column using water + 0.1% formic acid and methanol + 0.1% formic acid as mobile phase A and B, respectively.
Plasma samples (time course: 0 to 420 min after treatment) from 3 healthy subjects receiving an oral dose of 25 mg psilocybin were quantified in the presence and absence of *Escherichia coli* β-glucuronidase to determine the PK parameters of psilocin, psilocin glucuronide, and 4-HIAA.
Results: Three independent validation runs exhibited an inter-assay accuracy of 100-109% and precision ≤8.7%. Both analytes could be recovered almost completely (>94.7%) and showed no degradation (≤10%) under various storage conditions. Endogenous plasma components did not impair the selectivity of the analysis. Furthermore, the method was linear (R≥ 0.998) and covered the entire concentration range of psilocin (0.36 - 94.1 ng/ml) and 4-HIAA (7.2 - 156.7 ng/ml) observed in PK samples.
The applicability of the method was assessed by analysing PK samples of three healthy volunteers treated with an oral dose of 25 mg psilocybin. Maximal plasma level of psilocin and 4-HIAA were 19.2 ng/ml and 137.3 ng/ml, respectively. T_{max} was reached after 120 to 140 min post treatment. The half-life of psilocin and 4-HIAA was around 130 -140 min. Moreover, 4-HIAA was not glucuronidated, while the majority of psilocin underwent extensive O-glucuronidation reaching maximal plasma levels of 78.3 ng/ml after approximately 220 min post-treatment.

Conclusions: The developed method is reliable for the quantification of psilocin and 4-HIAA in plasma and is capable of determining their pharmacokinetic properties. Overall, the developed analytical method may serve as an important tool in the clinical development of psilocybin as a therapeutic agent.

P211

Drug-induced liver injury in Switzerland: an analysis of drug-related hepatic disorders in the WHO pharmacovigilance database VigiBase™ from 2010 to 2020

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Introduction: Our aim was to explore drug-induced liver injury (DILI) in Switzerland using real-world data of the global pharmacovigilance database VigiBase™, with a special focus on checkpoint inhibitors. This is the first study investigating a global pharmacovigilance database regarding drug-related hepatic disorders in Switzerland.

Methods: This was a retrospective study analyzing the ICSRs (individual case safety reports) of the global pharmacovigilance database VigiBase™. We explored all ICSRs submitted in Switzerland from July 1st, 2010 until June 30th, 2020. For data extraction, the Standardised MedDRA Query (SMQ) "narrow drug-related hepatic disorders - severe events only" was applied. Descriptive analyses regarding ICSRs, drug-reaction pairs, and adverse drug reactions were performed for summarizing the data, including a special focus on checkpoint inhibitors. For comparing the hepatic adverse drug reactions of pembrolizumab, nivolumab, and ipilimumab, the

reporting odds ratios (ROR) were calculated in a disproportionality analysis.

Results: In total, 2'042 individual case safety reports (ICSR) could be investigated, comprising 10'646 drugs and 6'436 adverse drug reactions. Gender was equally distributed between male and female, patients were on average 57 years old. The mortality rate was high (over 10% of cases). On average, patients used 5 drugs including 2 suspected drugs. Paracetamol, amoxicillin/clavulanic acid, esomeprazole, and atorvastatin ranked among the most frequently suspected drugs for severe drug-related hepatic disorders. An average of 3 adverse drug reactions per ICSR was reported, most frequently including hepatocellular injury, cholestatic liver injury as well as liver injury. For checkpoint inhibitors, hepatitis was the most frequently reported hepatic adverse drug reaction. In comparison with nivolumab and ipilimumab, pembrolizumab indicated a significantly higher ROR for hepatitis (2.41, p = 0.016) but also a lower ROR for autoimmune hepatitis (0.11, p = 0.009).

Conclusions: Our findings highlight the importance for health-care providers in Switzerland to pay special attention to possible drug-induced liver injuries due to their high mortality rate. The analysis of real-world data confirms the previous assumption that hepatitis is the most frequent hepatic adverse event for checkpoint inhibitors. Further clinical studies are warranted to directly compare hepatic adverse drug reactions of different checkpoint inhibitors.

P212

Emerging highly transmissible variants of SARS-CoV-2 may be more susceptible to antiviral therapy than wild type strains

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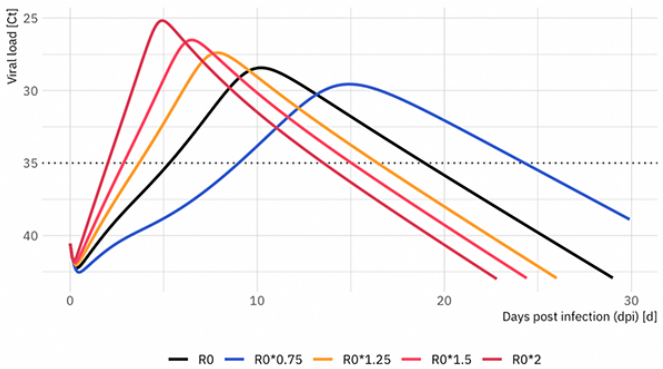
Introduction: As of now, no antiviral drug regimen has proved effective against SARS-CoV-2. Emerging variants of concern (VOCs) such as the lineages B1.1.7 and B.1.351 are characterized by higher transmissibility, and could prove more susceptible to specific drug therapy. [1-2] Here we use modeling and simulation to explore the effect of altered within-host transmissibility on viral load, and how this may impact drug effect with the example of the only modestly antivirally active drug ivermectin. [3-4]

Methods: Viral loads were simulated from a target-cell limited model with acquired immune response around day 10 post inoculation (dpi). [5] Highly transmissible variants were set to 1.25-, 1.5-, and 2-fold increases in the within-host reproductive number R0 compared to wild type. Co-adaptation (i.e. a less transmissible mutation) had a 0.75-fold decrease. Drug treatments were modeled according to Duthaler et al. [6] The dosing regimen was 600 ug/kg qd for 3d. Simulations were carried out in GNU R (version 3.6.3), Monolix (version 2019R2), and deSolve (version 1.28). Source code is available at https://github.com/cptbern/sars2-viral-kinetics.

Results: Compared to wild type strains, increased R0 resulted in higher peaks (Ct_{min}25.2-27.4 vs. 28.4) which are also achieved earlier (2.1-3.7 vs. 5.4 dpi), similar durations above the Ct threshold of 35 (11.4-12.7 vs. 13.5 d), and increased AUC 152-402% (**Figure 1**). Co-adaptation resulted in positivity at 9.1 dpi, a duration of 15.1 d, a $Ct_{min}$of 29.6, and an AUC of 66%. The effects of treatment with ivermectin 600 ug/kg qd for 3 d were sensitive to R0 as well as timing of treatment initiation (**Figure 2**). Exposure was reduced strongest in highly-transmissible mutations with treatment around 0 dpi. Duration was less sensitive, and Ct_{min}levels were unaffected.



[Figure 1 - Simulated viral load profiles by change in within-host infectivity (R0).]

Conclusions: Here, antiviral efficacy is correlated with R0, making highly transmissible VOCs more sensitive, esp. to treatments around inoculation. This suggests a role for prophylactic or post-exposure treatment in areas with highly transmissible strains. Drug trials on Covid-19 with borderline results should identify participants carrying VOCs for subgroup analyses.

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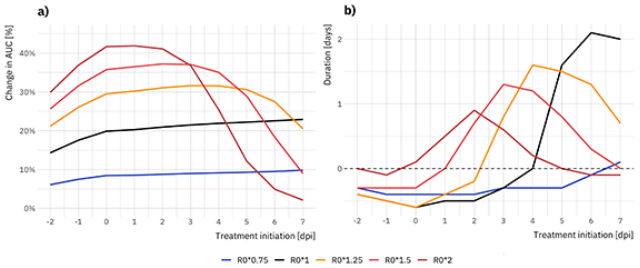

[Figure 2 - Changes in total viral exposure relative to wild type (a) and days above Ct > 35 (b).]

P213

Evaluating the association of anticholinergic drug burden and delirium in older hospitalised patients: a retrospective cohort study comparing 19 anticholinergic burden scales

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Background: Delirium is associated with increased morbidity and mortality in hospitalised older patients. Drugs with anticholinergic properties are potentially modifiable risk factors of delirium. A recent review identified 19 anticholinergic burden scales (ABS) but no study has yet compared the impact of all 19 ABS on delirium incidence. We evaluated whether a high anticholinergic burden classified by each ABS is associated with the development of delirium during hospitalisation.

Method: A retrospective cohort study was performed at Cantonal Hospital in Baden, Switzerland, using electronic health record data from 2015 to 2018. Included in the analysis were patients aged ≥65 and hospitalised ≥48 h with no stay >24 h in intensive care unit. The outcome of interest was delirium developed during hospitalisation. Patients' anticholinergic burden scores were classified using a binary (< 3: low, or ≥3: high burden) and categorical approach (0: no, 0.5-3: low, or ≥3: high burden). Development of delirium was analysed using multivariable logistic regression.

Results: In total, 25,820 patients with a mean age of 77.85±7.64 years were included. Of them 3,222 patients (12.5%) developed a delirium during hospitalisation and, depending on the evaluated ABS, 577 to 9,318 patients were exposed to at least one anticholinergic drug. Out of 19 ABS, 14 showed a significant association with delirium, when adjusted to co-variables. Therefore, depending on the ABS, a patient with a high anticholinergic burden score had a 1.21 (CI 95% 1.05-1.39) to 2.70 (CI 95% 2.07-3.51) fold increased risk to develop delirium compared to those with low or no burden.

Conclusion: Newer ABS of good quality seem currently the best scales to evaluate association with delirium in hospitalised patients. Discontinuing or substituting drugs with an anticholinergic burden score of ≥3 at admission might be a targeted intervention to lower the risk of developing delirium during hospitalisation.

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Pharmacokinetics and drug-drug interactions of ivermectin in Aedes aegypti mosquitoes

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Introduction: The World Health Organization (WHO) estimates vector-borne diseases to account for more than 17% of infectious diseases. Globally, mosquitoes are the most important disease vectors transmitting infectious diseases such as malaria or dengue. Mosquitoes in particular transmit diseases that are a major threat to global health. A novel approach in vector control are mass drug administrations (MDAs) of endectocides such as ivermectin. Preliminary data show that IVM could effectively disrupt the spread of disease and decrease incidence of malaria by diminishing the vector population. Drug-drug interactions with pharmacotherapy against co-endemic diseases (e.g. tuberculosis, HIV/AIDS) might interfere with the efficacy and safety of MDAs. These interactions may not only occur in the host but possibly also in the mosquito vector. A mosquito animal model for pharmacokinetic studies would be desirable to design more effective MDAs.

Methods: Female *Aedes aegypti* mosquitoes, globally the key vector for dengue, were fed on blood spiked with ivermectin alone or ivermectin in combination with one of the following small-molecular drugs: rifampicin, ketoconazole, ritonavir, or piperonyl butoxide (PBO). These drugs were chosen because they may either be medications for co-endemic diseases or a common bed-net treatment (PBO). Mosquitoes were frozen at scheduled time-points post-treatment, weighed, and analysed by LC-MS/MS. Moreover, the impact of the treatments on mosquito survival was examined.

Results: We demonstrated that mosquitoes can be dosed with high precision (CV% < 15%, n=30) over a range of 10-1000 ng/mL IVM (R^2: 0.99). An inter-batch analysis of ivermectin treatments revealed comparable long-lasting exposures with a slow zero-order elimination rate of 5.5 pg/h. The co-administration of ritonavir significantly increased the ivermectin exposure by 29%, whereas other drugs investigated did not interact with ivermectin PK. Intriguingly, increased exposure was caused by a prolongation of the initial lag time of about 12 h, whereas the terminal elimination rate remained similar. Importantly, the combination treatment enhanced the overall mortality rate by 25% compared to single treatments.

Conclusions: Concentration-time profiles of small molecule drugs can be obtained from *Aedes aegypti* as an animal model. Pharmacometric modeling allows the estimation of primary pharmacokinetic parameters and the assessment of drug-drug interactions in mosquitoes.

P215

Pharmacokinetics of acute dose-dependent effects of lysergic acid diethylamide in a double-blind placebo-controlled study in healthy subjects

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Introduction: Growing interest has been seen in using lysergic acid diethylamide (LSD) in psychiatric research and therapy. However, no modern studies have evaluated the dose-effect relationship and pharmacokinetic-pharmacodynamic properties of pharmaceutically well-defined doses of LSD.

Methods: We used a double-blind, randomized, placebo-controlled, crossover design in 16 healthy subjects (8 women, 8 men) who underwent six 25-h sessions and received placebo, LSD (25, 50, 100, and 200 µg), and 200 µg LSD 1 h after administration of the serotonin 5-hydroxytryptamine-2A (5-HT_{2A}) receptor antagonist ketanserin (40 mg). Test days were separated by at least 10 days. Outcome measures included self-rating scales that evaluated subjective effects and pharmacokinetics up to 24 h. Pharmacokinetic parameters were determined using compartmental modeling. Concentration-effect relationships were described using pharmacokinetic-pharmacodynamic modeling.

Results: Mean (95%confidence interval) maximal LSD concentrations were 0.49 ng/mL (0.41-0.58), 1.1 ng/mL (0.99-1.2), 2.0 ng/mL (1.9-2.2), and 3.9 ng/mL (3.5-4.3) after 25, 50, 100, and 200 µg LSD administration, respectively. Maximal concentrations were reached after 1.3 hours. The mean elimination half-life was 3.8 hours (2.9-4.9). The pharmacokinetic-subjective response relationship was evaluated. LSD dose-dependently induced subjective responses starting at the 25 µg dose. The average duration of subjective effects increased from 6.7 to 11 h with increasing doses of 25-200 µg. The LSD dose-response curve showed a ceiling effect for subjective good effects, and ego-dissolution and anxiety increased further at a dose above 100 µg. Ketanserin effectively prevented the subjective response to 200 µg LSD, but had no effect on pharmacokinetics.

Conclusion: These results may assist with dose finding for future LSD research. The full psychedelic effects of LSD are primarily mediated by serotonin 5-HT_{2A} receptor activation.

P216

Presentations with reported methamphetamine use to an urban emergency department in Switzerland

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Introduction: The stimulant methamphetamine (MA; e.g. "crystal meth") is a commonly abused drug in many parts of the world, and can cause significant health problems. The present study aimed to describe presentations with reported MA use at an urban emergency department (ED) in Switzerland, to investigate prevalence, patterns, and susceptible groups.

Methods: Retrospective analysis from June 2012 to July 2019 at the ED of the University Hospital of Bern, Switzerland. Cases were retrieved from the electronic patient database using full-text terms and were categorized into three groups based on patient history: "Acute", if patients presented within 72 hours of last reported use, "chronic" in cases of regular use but not within the previous 72 hours, and "past" in cases of discontinued consumption. Cases with a positive MA urine drug screening test with no further information available were described separately.

Results: During the study period, 40 cases were categorized as "acute". Among those, the mean age was 29.5 years (SD 8.7), 75% (n=30) were male, and agitation (n=11; 28%), hypertension (n=11; 28%), tachycardia (n=11; 28%), sleep disturbances (n=10; 25%), and aggression (n=8; 20%) were the most common symptoms. Most (n=22; 55%) patients were medically discharged, but 35% (n=14) were admitted to a psychiatric clinic. Most patients (n=34; 85%) were polydrug-users, with alcohol, cocaine and cannabis being the most frequent co-used substances. The "chronic" group included 37 cases. Those patients were mostly male (n=26; 70%), with a mean age of 31 years (SD 10.9), and 46% (n=17) presented due to psychiatric symptoms, such as psychosis, depression, or aggression. Of the 45 cases in the "past" group, 69% (n=31) were male with a mean age of 30 years (SD 8.5), and 49% (n=22) and 24% (n=11) indicated medical and psychiatric symptoms as the reason for admission, respectively. Of 61 cases with a positive urine drug screening test as the sole indicator for MA use, 19 patients reported MDMA use (cross-reactivity with MA in the urine immunoassay used). In the 42 remaining cases, it was unclear if the positive result was due to unreported MA use or cross-reactivity.

Conclusions: Most patients with reported MA use were young and male, with signs of sympathomimetic arousal and/or psychiatric symptoms. While ED visits with reports of MA use appear to be uncommon, consumption-related health problems can require significant resources pre- and in-hospital.

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Venomous Pets: exotic venomous snakebites in Switzerland reported to the National Poisons Information Centre over 22 years

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Objective: According to Swiss law the private keeping of exotic venomous snakes is legally permitted. 2'000-10'000 venomous reptiles are estimated to be held in the homes of the aficionados. The aim of the present study was to characterize the epidemiologic and clinical characteristics of bites by exotic venomous snakes over a period of 22 years in Switzerland.

Methods: We included all calls related to exotic snakebites in Switzerland and Liechtenstein recorded at the Swiss National Poisons Information Centre (Tox Info Suisse) from 1997 to 2018. The known genus of the snake was mandatory for inclusion. Exclusion criteria comprised indigenous snakes or non-venomous exotic snakes, or calls from Swiss citizens bitten abroad.

Results: Within the study period, 1'364 calls related to snakebites were recorded. 148 (11%) were attributed to exotic venomous snakes and fulfilled the study criteria. In 112 patients (75%) medical follow-up information and sufficient causality between the event and the symptoms were available. Overall only adult patients with a median age of 40 (range 16-71 years) were affected, with a predominance of the male gender (n=136 (92%)). Viperidae were involved in 87 (78%) and Elapidae in 25 (22%), respectively. Overall, the main affected body part was the hand in 89 patients (79%). In the majority of the patients the clinical course was mild (46; 41%) or moderate (40; 36%), a lower proportion was asymptomatic (6; 5%) or exhibited severe symptoms (20; 18%). No fatalities were reported in the study period. Severe symptoms occurred after elapid bites in six patients (24%) and after viper bites in 14 patients (16%), respectively. Besides local effects, neurologic disorders after elapid bites and hematologic disorders after viper bites were reported most frequently. Antivenom was administered in 24% (27 patients (18 Viperidae (21%) and 9 Elapidae (36%)), 5 patients (4%) required multiple doses), overall with good resolution of symptoms. The other 86 patients (76%) were treated symptomatically. The median hospitalization time was 1 day (range 0-36).

Conclusion: Considering the number of venomous snakes kept in Switzerland, the number of bites is relatively low. More than half of the patients developed symptoms requiring medical treatment. No fatalities or bites in children were observed.

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P218

A severe case of hypercoagulatory complications during the treatment with infliximab. – case report and vigibase analysis

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Learning objective(s): Hypercoagulative complications are a serious but very rarely reported adverse effect observed with infliximab. Although the anti-TNFα antibody is used in Behçet´s disease and there are promising reports of treatment of vascular complications such as Budd-Chiari syndrome, we urge caution when used to treat inflammatory bowel disease.

Case: We report a case of a young woman with a 12-year history of Crohn´s disease. After inadequate control with azathioprine, mesalamine, and prednisone, infliximab was started in November 2020. Induction with infliximab 300 mg at weeks 0, 2, and 6 was planned. A few days before the third infusion at week 6, the patient was hospitalized for extensive sinus and cerebral vein thrombosis. Diagnostic measures revealed no evidence of other causes. In addition, after several weeks of hospitalization, the patient suffered from cardiac arrest and cardio-vascular resuscitation was required. CT scans confirmed massive central pulmonary embolism.

Discussion: Hypercoagulability has been described in both Crohn´s disease and Behcet´s disease. Given our patient´s findings and course, we performed an analysis of the WHOs spontaneous report system database (Vigibase) and reviewed the scientific literature. Cardiovascular adverse events, including coagulation complications, are a rare finding in treatment of Crohn´s disease with infliximab, but should still be considered.

P219

Inflammatory response mediated increase in vitamin k antagonist associated anticoagulation: a case report and literature review

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Learning objective(s): To consider the need for dose adjustments and close therapeutic monitoring of vitamin K antagonists in inflammatory and infectious conditions.

Case study: We present the case of an adult male patient with a 7-year-old aortic valve replacement who was receiving a stable dose of the vitamin K antagonist (VKA) phenprocoumon (Marcoumar®). In three separate episodes, the patient presented with symptoms of respiratory infection confirmed by positive tests for viral and bacterial colonisation. Laboratory results showed elevated C-reactive protein (CRP) with concurrent supratherapeutic International Normalised Ratio (INR) values. The medical history and assessment of drug interactions did not provide conclusive explanations for the change in coagulation status. After recovery, the previously established VKA dose offered adequate INR control.

Discussion: Shifts in coagulation status are a regularly observed phenomenon after infections under antibiotic treatment. Regardless of the cause due to drug interactions, dietary changes or depletion of the microbiota after broad-spectrum antibiotics, many hospitalised patients experience an INR increase. Our observations show enhanced drug action/prolonged plasma half-life of the cytochrome P450 (CYP) 2C9 and 3A4 substrate phenprocoumon for reasons of inflammation alone, demonstrating previously suggested but rarely reported pharmacokinetic changes in its metabolic pathways.

P220

Renal insufficiency and magnesium deficiency inhibit vitamin D hydroxylation

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Introduction: Vitamin D is mainly formed endogenously in the skin or supplied exogenously in various pharmaceutical formulations or to a minor extent covered with the diet. The endogenous or supplemented prohormone cholecalciferol is hydroxylated to 25(OH) vitamin D (25(OH)D) in the liver. The reaction is catalyzed by the enzyme CYP2R1. 25(OH)D, which is most often assayed in clinical routine, is further hydroxylated mainly in the kidney by 1α-hydroxylase (CYP27B) to the biologically active hormone 1,25(OH) vitamin D ($1,25(OH)_2D$). Catabolism occurs by further hydroxylation, catalyzed by CYP24A1.
Magnesium is a cofactor of all involved hydroxylases. We aimed at investigating the effect of magnesium deficiency and renal insufficiency on the availability of the biologically active hormone $1,25(OH)_2D$.

Methods: Serum values collected over 2 years (2017-2018) were obtained from outpatient samples from the Medics laboratory in Bern. 25(OH)D, magnesium and creatinine were analyzed on Cobas (Roche), 1,25$(OH)_2$D on Liaison XL (DiaSorin). Renal performance was calculated using the CKD-EPI formula and expressed as estimated glomerular filtration rate (eGFR).
Statistical analyses were performed using SPSS. The study was registered on nih.gov and approved by the local ethics committee (NCT04237480; EKNZ 2018-00923).

Results: From a total of 331,614 laboratory results (62.6% women) over two years (2017-2018), 865 simultaneous values for eGFR and 1,25$(OH)_2$D were identified. The Spearman correlation between the two parameters was 0.317 ($p < 0.001$) (Table 1). For 277 simultaneous values of magnesium and 1,25$(OH)_2$D, the correlation coefficient was 0.217 ($p < 0.001$).

Table: 1,25(OH)2D serum values [pmol/l] with different stages of kidney failure (n=865)

renal insufficiency	stage 1	stage 2	stage 3	stage 4 and 5
eGFR [ml/min*1.73 m^2]	>90	60-89	30-59	<30
	n = 313	n = 379	n = 144	n = 29
1,25(OH)2D m ± s [pmol/l]	106.5 ± 44.3	97.3 ± 43.5	73.9 ± 34.3	51.7 ± 18.9

[eGFR-1,25(OH)2D]

Conclusions: 1,25$(OH)_2$D concentrations correlate with eGFR and with serum magnesium levels. Renal insufficiency and magnesium deficiency thus both impair the hydroxylation of vitamin D and the formation of active vitamin D. In renal insufficiency or severe magnesium deficiency, solely measuring serum 25(OH) may overestimate the patient's vitamin D status. As alternative marker 1,25$(OH)_2$D could be considered. Our data suggest that adequate magnesium supplementation should be ensured when correcting vitamin D deficiency.

P221

Safety monitoring of metamizole prescribing in hospitalized non-critical care patients

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Introduction: Hospitalized patients often need painkillers other than paracetamol, nonsteroidal anti-inflammatory drugs or opioids, and metamizole is one of the most effective non-opioid medications. However, caution is needed due to the rare adverse drug reaction of bone marrow suppression, in particular agranulocytosis. Metamizole is therefore contraindicated in patients with total white blood cell counts (WBC) below the normal range.

Methods: A quality audit was performed as part of our university hospital`s drug safety monitoring programme. We developed an alert trigger tool and defined two high-risk patient groups under metamizole treatment: "patients with WBC < 3.5 G/l" and "patients with neutrophils < 1.5 G/l". The first time metamizole was given in these patients, we received an alert. Patients on emergency, critical-care and haematological stem cell transplant units were excluded. We monitored and analyzed the total number of non-critically ill, hospitalized patients treated with metamizole (scheduled or on-demand) and the frequency of automatic alert activation in the two groups for ten weeks in order to determine the prevalence of contraindicated treatments with metamizole.

Results: Based on the preliminary systematic data analysis of all metamizole administrations, a total 2271 patients were treated at least once with this non-opioid drug. The first alert "patients with WBC < 3.5 G/l" was activated in 41 (1.8%) and the second one "patients with neutrophils < 1.5 G/l" in 19 (0.9%) of 2217 patient cases. In 11 cases both alerts were activated simultaneously and in one case the WBC alert preceded the neutrophil alert by 5 days.

Conclusions: A metamizole prescription monitoring system using WBC seems an appropriate alert strategy, which our hospital is planning to use in the future to prevent metamizole prescriptions that are contraindicated and to capture metamizole-induced leucopenia early.

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P222

Acute geriatric treatment of older trauma patients

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Background: Acute geriatric treatment is a type of early rehabilitation for hospitalized seniors to maintain personal autonomy and to avoid nursing home placement.

Objective: The aim of the study was to describe the changes of mobility and functional independence of older trauma patients during acute geriatric treatment.

Material and methods: We analyzed entry and discharge assessment data from 164 patients admitted to the geriatric department with fall-related injuries. Mobility and performance in activities of daily living were assessed using the short physical performance battery (SPPB), gait speed and Barthel-Index. We analyzed changes in mobility from admission to discharge (t-Test) and explored differences in mobility between patients returning home and those admitted to long-term care (age- and gender-adjusted linear regression model).

Results: Patients improved their mobility measured by SPPB by 1.8 (SD 2.1) points, gait speed by 0.10 (0.14) m/s and Barthel Index by 13 (16) points (all p< 0.001). The number of patients not able to walk decreased from 43% to 14% (p=0.003). 73% of community-dwelling patients were discharged either directly back home or to a subsequent rehabilitation outside the hospital as a transitional solution.

Conclusions: In the context of acute geriatric treatment older trauma patients significantly improved their mobility and performance. The majority of patients returned home.

Keywords: Acute geriatric treatment, fall, orthogeriatrics, mobility, activities of daily living

P223

Development of a Frailty Index from harmonized university hospital data - The Swiss Frailty Network and Repository

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Introduction: Frailty is an age-associated syndrome associated with multiple adverse health outcomes in older adults over various care settings, including acute care. Thus, early identification of frail patients upon hospital admission appears promising in order to improve clincial decision making and implement availabe interventions. However, different operationalizations of frailty have been published and a lack of consensus so far hinders the broad implementation of frailty screening in clinical care. Among the most common frailty concepts, the Frailty Index approach captures the degree of frailty from a pre-defined set of age-associated variables, that can be collected from routine care parameters availabe in electronic health records (EHR). At the same time, many hospitals use different EHR software, impeding the aggregation of EHR variables from different hospitals into a combined data set of harmonized variables.

Methods: The Swiss Frailty Network and Repository (SFNR) is a Swiss Personaized Health Network (SPHN) project, aiming to develop an electronic Frailty Index (eFI) from routinely available EHR data upon admission of patients age 65 and older admitted to acute care at all five Swiss university hospitals. In a second step, we will validate the eFI against a test-based clinical Frailty Instrument (cFI) in a subset of participants admitted to acute geriatric care at all five academic geriatric centers. We will further investigate both tools' predictive ability against length of stay and in-hospital mortality, two important outcomes in acute care.

Results: Our study will report on the development, characteristics and usability of the first nationwide eFI in Switzerland, validated against two adverse outcomes in acute care and a test-based cFI. Analyses will be performed within the secure BioMedIT environment, a national infrastructure to enable secure biomedical data processing, an integral part of SPHN. The SFNR is registered with ClinicalTrials.gov (NCT04516642).

Conclusions: Our project aims to lay groundwork for a nationwide Swiss Frailty Index from electronic health records in acute care in order to inform clinical decision making and foster geriatric research collaborations on the national level.

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Patients' characteristics associated with a request for a geriatric consultation in the emergency department

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Introduction: The proportion of older patients consulting the Emergency departments (ED) is growing. International guidelines recommend detecting vulnerable older patients in ED. Comprehensive geriatric assessment (CGA) is effective to identify older patients at risk for these adverse events but patients' characteristics that trigger a geriatric consultation in the ED have not been well studied.

Objective: To investigate patients' characteristics associated with the request for a geriatric consultation in the ED.

Methods: Eligible patients were aged 75 years or older, admitted over a 4-month period to the ED of an academic hospital in Switzerland and without life-threatening conditions. A research nurse collected data on socio-demographic (age, sex, living situation), health, functional (basic activities of daily living; BADL), cognitive (MiniCog), and affective (miniGDS-4) status. Patients who benefited from a geriatric consultation in the ED were identified from the electronic medical records. Hospitalization in the previous 6-month period were retrieved from the hospital database. Characteristics of patients with and without a geriatric consultation were then compared in bivariate and multivariate analyses.

Results: A total of 202 patients (aged 83.2±5.4 years, 66.9% women) were enrolled in the study. Overall, 32 (15%) benefited from a geriatric consultation while in the ED. Compared to the others, patients with a geriatric consultation were older (84.9±5.4 vs 82.9±5.4 years, p=.03), more dependent in BADLs (score 4.8±1.6 vs 5.5±1.0, p=.01), more frequently admitted after a fall (43.7% vs 19.4%, p< .01), and hospitalized in the previous 6-month period (53.1% vs 30.6%, p=.02). In multivariate logistic regression, being admitted after a fall (AdjOR 3.2, 95%CI 1.3-7.8, p=.01), having been hospitalized in the previous 6-month period (AdjOR 3.0, 95%CI 1.3-6.8, p=.01) were associated with 3 times higher odds of a geriatric consultation. Inversely, higher independency was associated with 30% lower odds (AdjOR 0.7, 95%CI 0.5-0.9, p< .01) of geriatric consultation.

Conclusions: Only 1 in 6 older patients consulting the ED benefited from a geriatric consultation in this population. Higher dependency, admission for a fall and hospitalization in the previous 6 months were most strongly associated with requesting a geriatrician advice. Further study should investigate whether these geriatric consultations are associated with specific health trajectories.

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