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Abstracts

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FM1

Does thyroid hormone replacement reduce fatigability in older adults with subclinical hypothyroidism? A randomized placebo controlled trial

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Background: Global fatigue is one of the most commonly reported symptoms in subclinical hypothyroidism (SHypo) and one of the main reasons for prescribing levothyroxine. Our recent TRUST trial indicated no benefit on global fatigue from levothyroxine replacement in SHypo, but it might not have captured all aspects of fatigue. Given that treatment of SHypo remains controversial, we analyzed the effect of levothyroxine replacement in patients with SHypo on physical and mental fatigability which has been shown to be a more sensitive measure than global fatigue.
Methods: The TRUST trial was a double-blind, randomized, placebo-controlled, parallel-group trial involving adults aged ≥65 and diagnosed with SHypo defined as the presence of persistently elevated TSH levels (4.6-19.9 mU/L) with free thyroxine within the reference range. The present substudy on fatigability included participants from Switzerland and Ireland. Our outcome was the between-group difference in perceived physical and mental fatigability after 1 year using the Pittsburgh Fatigability Scale (PFS), a 10-item self-administered questionnaire, that measures both physical and mental fatigability (scores range from 0 to 50, higher score = higher fatigability). Multivariate linear regression models were adjusted for levothyroxine starting dose, sex, site and baseline scores in a modified intention to treat population.
Results: This study included 230 participants (mean age: 73.4 years; 44.4%female). The mean±SD TSH was 6.2±1.9 mIU/L at baseline and after 1 year decreased to 3.1±1.3 mIU/L in the levothyroxine group vs. 5.3±2.3 mIU/L in the placebo group (p <0.001). At baseline, mean physical PFS score was 14.7±9.3 in levothyroxine group and 11.1±9.1 in placebo group; mean mental PFS score was 7.4±8.0 and 5.1±6.9, respectively. The mean physical PFS score at 12 months (adjusted for covariates) was 13.7±0.7 for levothyroxine group and 13.6±0.7 for placebo group with a between-group difference of 0.2 (95% confidence interval [CI] = -1.8 to 2.1; p = 0.88); mean mental PFS score was 5.5±0.6 and 6.5±0.7, respectively, with a between-group difference of -1.0 (95% CI = -2.8 to 0.8; p = 0.26).
Conclusions: Our substudy extended the TRUST trial's findings by examining the novel constructs of physical and mental fatigability. Levothyroxine replacement in SHypo was not associated with change in physical or mental fatigability. Therefore, fatigue does not seem to be a good indication to prescribe levothyroxine in SHypo.

FM2

***Smarter medicine* - compliance with the recommendation on imaging for nonspecific low back pain in a primary care setting**

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Introduction: Worldwide, about 60-90% of the population suffer from low back pain at least once in lifetime. Mostly, the cause is nonspecific and the pain improves within a few weeks. Evidence suggests that imaging for nonspecific low back pain, ordered within six weeks after onset of pain, does not improve outcome, but may lead to unnecessary radiation exposure, more surgery procedures and increasing costs. The recommendation #1 of *smarter medicine* for ambulatory care (launched in Switzerland in 2014) suggests to refraining from lumbar spine imaging within six weeks after onset of pain, if red flags are absent. The aim of this study was to assess the compliance with this recommendation and to analyse if there were any changes in the number of X-rays performed since the launch of *smarter medicine.*
Methods: We retrospectively analysed data of 228 lumbar spine X-rays, made in three GP practices in Basel-Land and Basel-Stadt between 2014 and 2018. Data were collected from the medical records on: i) indication for the X-ray, ii) presence or absence of red flags, iii) clinical findings in the X-ray, iv) number of comorbidities, v) treatment plan, and vi) further diagnostic investigations planned.
Results: The mean age of the analysed sample was 62 years, 52.6% were female. In total, 160 X-rays (70%) were performed within six weeks after onset of pain. Out of these, 40 investigations (25%) were not indicated according to the recommendation of *smarter medicine*. The most common reason for the unnecessary X-rays was lack of pain improvement despite taking analgesics or doing physiotherapy (36.6%). Among indicated X-rays, 86.6% were done due to the presence of red flags and 13.4% due to other important reasons (e.g. follow-up X-rays after fracture). The most common red flag was trauma (33.3%), followed by history of malignancy (19.5%) and osteoporosis (14.9%).
Conclusion: In a typical population from general practice, one out of four lumbar spine X-rays in patients with low back pain did not meet the recommendation #1 of *smarter medicine*. Lack of pain improvement despite taking analgesics or doing physiotherapy was the most common cause for non-indicated X-rays. The most frequent red flags were trauma and history of malignancy. Further promotion of *smarter medicine* seems crucial in order to prevent patients from unnecessary diagnostic or therapeutic procedures and to save costs.

FM3

Level of physical activity in elderly patients hospitalized in a Swiss university hospital

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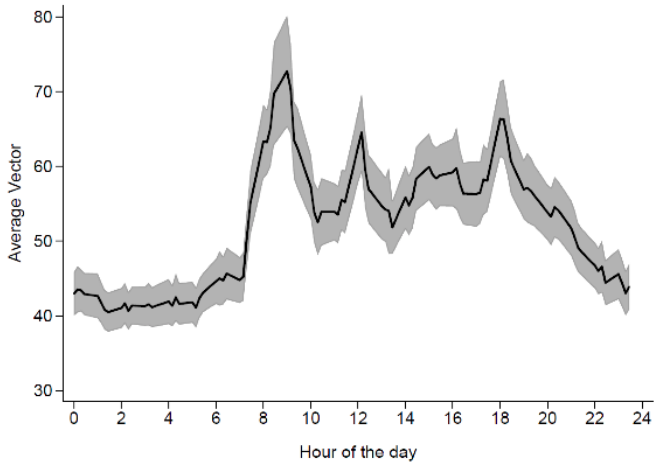
Introduction: Low mobility of elderly patients during hospitalization is associated with a wide range of negative outcomes, such as physical decline, increased fall risk, longer hospitalization and new institutionalization. Several studies have assessed inpatient mobility based on observational data (brief surveys of patient location, periodic nursing reports) but few have used accelerometry. Hence, we aimed to record physical activity (PA) levels of acutely admitted medical patients via accelerometry.
Method: Observational cohort study conducted between February and November 2018 in an acute internal medicine unit in the Lausanne university hospital, Switzerland. Overall, 200 patients aged ≥65 years were studied, including patients with cognitive impairment or confusion at admission. PA during acute hospital stay was objectively and continuously recorded via a 3D wrist accelerometer and categorized into sedentary (<85 milli-g [units of acceleration, 1g = 9.8 $m.s^{-2}$]), light (85-181 milli-g), moderate+vigorous (>181 milli-g) and overall activity. PA levels were described as the average amount of PA in percentage of time and minutes per day, nighttime not considered.
Results: Of the initial 200 patients, 124 (62%, median age 83 years, 59% men) had accelerometry data for at least 48h. At admission, one third had cognitive impairment/confusion and most of them experienced slight or moderate dependence before their hospital admission (median Barthel index at inclusion: 88). The characteristics and the PA levels of the 124 patients studied are summarized in the **table**.
Overall and most of the time, patients did not mobilize at all (median amount of time of sedentary status: 762 minutes, i.e. 98.5% of the day). The median time of light PA per day was 5.4 minutes (1.5%). No moderate+vigorous PA was recorded. Levels of PA did not differ according to gender. Intra-daily activity analysis showed three peak periods of PA: between 8 and 10 am, at 12 am and at 6 pm (**figure**).
We found similar findings when all patients with available PA data (n = 160) were included or when another algorithm to assess PA was applied.
Conclusion: Elderly hospitalized patients mobilize less than 6 minutes a day and perform only light PA. The intra-daily pattern of PA may cor-

respond to eating periods. Specific intervention programs in order to increase the amount of physical activity in elderly hospitalized patients are urgently needed.

	Men (N=73)	Women (N=51)	P-value
Characteristics			
Age (years)	79 ± 9	84 ± 8	0.003
Body mass index (kg/m²)	24.9 ± 4.5	24.2 ± 4.8	0.438
Barthel index at inclusion	95 [86 - 100]	96 [88 - 98]	0.817 §
Cognitive impairment/confusion (%)	26 (35.6)	9 (17.7)	0.029
Use of auxiliary walking tools (%)	36 (49.3)	30 (58.8)	0.296
Physical activity levels (min/day)			
Sedentary	776 [722 - 808]	761 [732 - 804]	0.747 §
Light	5 [2 - 15]	6 [1 - 17]	0.895 §
Moderate + vigorous	0 [0 - 1]	0 [0 - 1]	0.300 §
All	5 [2 - 16]	6 [2 - 19]	0.847
Physical activity levels (% of day)			
Sedentary	98.6 ± 1.6	98.5 ± 1.9	0.622
Light	1.2 ± 1.4	1.4 ± 1.7	0.523
Moderate + vigorous	0.1 ± 0.3	0.1 ± 0.3	0.887
All	1.4 ± 1.6	1.5 ± 1.9	0.595
Physically active (%)	38 (52.1)	29 (56.9)	0.597

Results are expressed as mean ± standard deviation or as median [interquartile range] for continuous variables and as number of patients (percentage) for categorical variables. Statistical analysis by student's t-test or Kruskal-Wallis test (§) for continuous variables and chi-square for categorical variables.

[Table: characteristics and physical activity levels according to gender.]



[Figure: average physical activity per hour. Results are shown as average and 95% confidence interval]

FM4

Outcomes of hospitalized patients with glucocorticoid-induced hyperglycemia

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Introduction: Glucocorticoid-induced hyperglycemia is a frequent side effect in hospitalized patients. Guidelines recommend treat-to-target treatment of glucocorticoid-induced hyperglycemia between 6-10 mmol/l with insulin, but patient-specific outcome has not been well-studied.
Methods: In this retrospective data analysis, all patient records of a Medical University Clinic from January 2014 to April 2018 were screened for glucocorticoid administration. We investigated the incidence of hyperglycemia in hospitalized patients after administration of at least 10 mg prednisolone equivalents daily for at least 3 days. Mortality, cardiovascular events, and infections until 30 days after discharge in patients with or without hyperglycemia were evaluated.
Results: 2424 hospitalized patients received systemic glucocorticoids. 623 patients (26%) developed fasting hyperglycemia, and 669 (29%) postprandial hyperglycemia. Glucocorticoid-induced hyperglycemia therefore had an incidence of 34% (824 patients). 511 patients (21%) had a previous diabetes diagnosis. In-hospital hypoglycemia was documented in 48 (2%) patients.
In-hospital mortality was 46 (2.9%) in patients without hyperglycemia and 32 (3.9%) in patients with hyperglycemia (OR 1.37, p = 0.18). Mortality until 30 days after discharge was 126 (7.8%) in patients without hyperglycemia, and 73 (8.9%) with hyperglycemia (OR 1.14, p = 0.44). Cardiovascular events occurred in 168 (11%) in patients without hyperglycemia, and 118 (14%) in patients with hyperglycemia (OR 1.43, p = 0.064). The combined endpoint death and cardiovascular event at day 30 after discharge was reached in 294 (18%) patients without hyperglycemia and 191 (23.2%) with hyperglycemia (OR 1.34, p = 0.006).
Infections during hospitalization occurred in 263 (16%) patients without hyperglycemia, and in 170 (21%) patients with hyperglycemia (OR 1.32, p = 0.012). Infections as a reason for rehospitalization or unplanned contact with medical staff 30 days after discharge occurred in 302 (18.9%) patients without and 192 (23%) with hyperglycemia (OR 1.3, p = 0.012).
Conclusions: Mortality, cardiovascular events and rate of infections were higher in patients with glucocorticoid-induced hyperglycemia than in normoglycemic patients. Rate of in-hospital hypoglycemia rate was low. Whether the treatment of glucocorticoid-induced hyperglycemia has an effect on outcome remains to be shown.

FM5

Clinical presentation and outcomes in elderly patients with symptomatic isolated subsegmental pulmonary embolism

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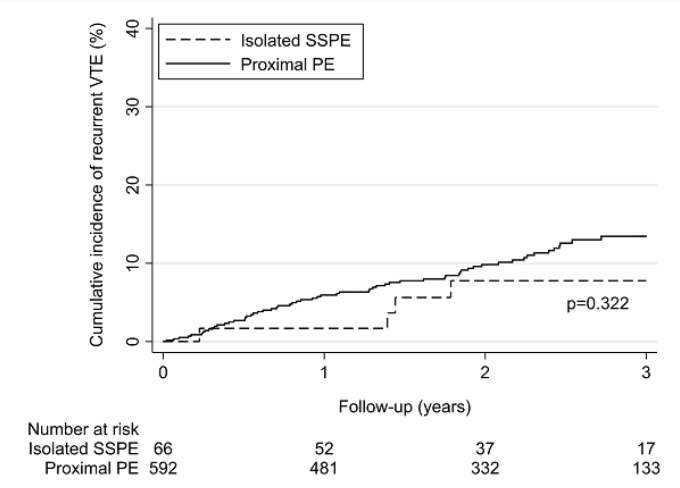
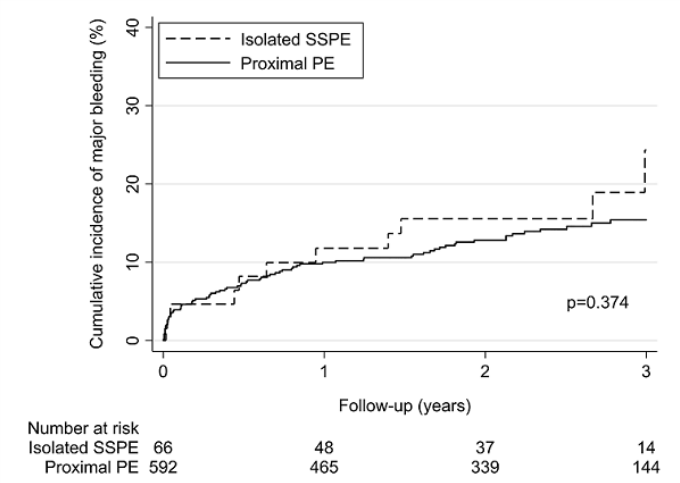
Introduction: Data are limited on clinical presentation and outcomes in elderly patients with acute symptomatic isolated subsegmental pulmonary embolism (SSPE).
Methods: We prospectively followed 658 patients aged ≥65 years with acute symptomatic isolated SSPE or more proximal pulmonary embolism (PE) in a multicenter Swiss cohort study. We compared the clinical presentation, risk factors, processes of care, and outcomes between patients with isolated SSPE and patients with more proximal PE. We examined the association between localization of PE and clinical outcomes (recurrent venous thromboembolism [VTE], major bleeding, and overall mortality) using regression models, adjusting for potential confounders and periods of anticoagulation as a time-varying covariate.
Results: Overall, 66 of 658 patients (10%) had isolated SSPE. Patients with SSPE were less likely to have new/worsening dyspnea (71% vs. 82%, p = 0.03), concomitant deep vein thrombosis (6% vs. 18%, p = 0.02), and a heart rate ≥110/minute (3% vs. 13%, p = 0.02), but were more likely to have active cancer (29% vs. 16%, p = 0.007) and to receive outpatient care (12% vs. 4%, p = 0.004) than patients with more proximal PE. Virtually all patients (98%) with isolated SSPE received anticoagulants. Patients with isolated SSPE and those with more proximal PE had similar 3-year cumulative incidences of recurrent VTE (8% vs. 13%, p = 0.32; Figure 1), major bleeding (24% vs. 15%, p = 0.37; Figure 2), and death (28% vs. 20%, p = 0.11). After adjustment, isolated SSPE was not significantly associated with a lower risk of clinical outcomes compared to more proximal PE (sub-hazard ratio [SHR] for recurrent VTE: 0.6, 95% confidence interval [CI] 0.3-1.5; SHR for major bleeding: 1.2, 95%CI 0.6-2.2; hazard ratio for death: 1.0, 95%CI 0.6-1.9). In a sensitivity analysis excluding patients with isolated SSPE who had concomitant proximal deep vein thrombosis, the results remained similar.
Conclusions: Elderly patients with acute isolated SSPE had a more discrete clinical presentation but similar incidences of adverse outcomes compared to patients with more proximal PE. Thus, our study does not provide any evidence that unselected, elderly patients with isolated SSPE have a more benign clinical course.



[Figure 1. Kaplan-Meier estimates of recurrent VTE by localization of PE]



[Figure 2. Kaplan-Meier estimates of major bleeding by localization of PE]

FM6

Do patients with subclinical hypothyroidism who suffer from greater symptom burden benefit from levothyroxine therapy? Randomized placebo-controlled TRUST trial

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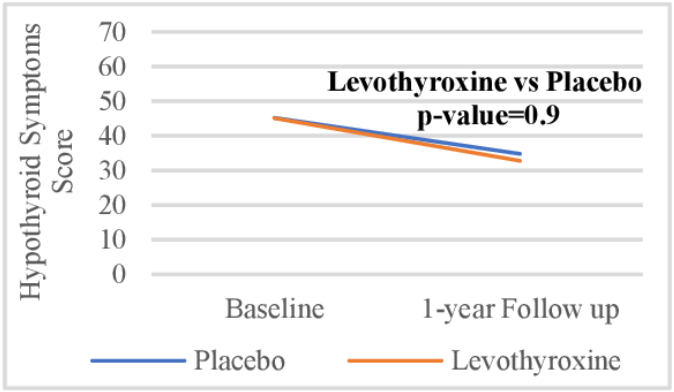
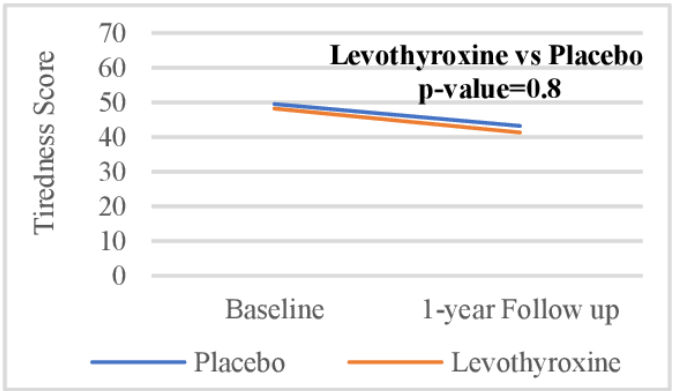
Introduction: A recent large trial and meta-analysis of all RCTs found that levothyroxine does not improve hypothyroid symptoms or quality of life among adults with subclinical hypothyroidism (SCH). However, those who report higher symptom burden prior to treatment might still benefit. The aim of this analysis is to determine whether levothyroxine, compared to placebo, improves hypothyroid physical symptoms and tiredness among older adults with SCH and higher baseline symptom burden.
Methods: We analyzed data from adults ≥65 years with persistent SCH (defined as TSH 4.6 to 19.9mIU/L for >3 months, normal fT4) included in the TRUST trial, a multicenter, double blinded, placebo-controlled, randomized trial. Participants were randomized to levothyroxine or matching placebo including mock titration. The main outcomes were the change in 1-year Hypothyroid Symptoms score (4 items) and Tiredness score (7 items) in the Thyroid-Related Quality-of-Life Questionnaire (ThyPRO). Both scores were self-reported (range 0 to 100, higher scores indicate more symptoms) with a 9 point difference considered clinically significant. In this subgroup analysis, we focus on participants with a baseline Hypothyroid Symptoms score >30 or Tiredness score >30.
Results: At baseline, 132 persons (20.7%) had Hypothyroid Symptoms scores >30 (mean age of 75.0 years, 64.4% women, mean TSH±SD 6.2mIU/L±1.65 and mean Hypothyroid Symptoms score±SD 45.2±14.6) and 209 persons (32.8%) had Tiredness scores >30 (mean age of 74.7 years, 63.2% women, mean TSH 6.2mIU/L±1.65 and mean Tiredness score 48.9±14.9). After 1 year, among those with a Hypothyroid Symptoms score >30 at baseline, the mean score was 34.9 in the placebo and 32.8 in the levothyroxine group; among those with a Tiredness score >30 at baseline, the mean score was 43.1 in the placebo and 41.3 in the levothyroxine group.
1-year outcomes were similar between the levothyroxine and placebo groups (adjusted between-group difference -0.5, 95%CI: -6.8 to 5.8, p = 0.88; and -0.7, 95% CI: -6.1 to 4.8, p = 0.80, respectively, Figures 1 & 2). Among all TRUST participants (n = 737), baseline scores of the two main outcomes (as continuous variables) did not modify the effects of levothyroxine vs. placebo on Hypothyroid Symptoms (interaction p value = 0.85) or Tiredness (p = 0.65).
Conclusions: In this secondary analysis of older adults with SCH and higher symptom burden at baseline, levothyroxine therapy did not improve hypothyroid symptoms or tiredness.



[Figure 1. Change in Hypothyroid Symptoms Scores among 132 Participants with Baseline Scores >30]



[Figure 2. Change in Tiredness Scores among 209 Participants with Baseline Scores >30]

FM7

Gait speed predicts death and readmission among patients surviving acute hypercapnic respiratory failure

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Background: The rate of hospital readmission or death is high among patients surviving acute hypercapnic respiratory failure (AHRF). Traditional severity scores such as BODE index perform poorly to predict readmission. Evaluation of functional performances could be a simple and useful way to assess this risk.
Aim: To evaluate the relationship between gait speed and hospital readmission or death in patients surviving AHRF.
Methods: 78 patients were recruited to form a cohort of patients surviving AHRF in the intensive care unit (ICU). All predictive variables were prospectively collected within 15 days after resolution of respiratory failure before hospital discharge. Gait speed was measured by a 6-minute walking test. Hospital readmission and death were recorded at regular intervals for 6 months.
Results: 34/71 (48%) patients died or were readmitted to the hospital during the observation period. Median gait speed was 0.7 m/sec. 66% (25/33) slow walkers (gait speed <0.7 m/s) and 27% (9/33) non-slow walkers died or were readmitted at six months (p = 0.002). Treated as a continuous variable, gait speed was significantly associated with death or readmission in univariate analysis (HR 0.41; 95% CI 0.19 to 0.90, p = 0.025). In the multivariate model adjusted for age, sex, BMI, forced expired volume in one second (FEV1), heart failure and home mechanical ventilation (HMV), gait speed remained the only variable associated with readmission or death (multivariate HR: 0.35, IC95: 0.14-0.88, p = 0.025).
Conclusion: This study suggests that a simple frailty parameter such as gait speed predicts death or readmission in patients surviving an acute hypercapnic respiratory failure.

FM8

Low back pain in the emergency department: prevalence of serious spinal pathologies and diagnostic accuracy of red flags - a systematic review

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Background: Low back pain (LBP) is a leading presenting complaint in the emergency department (ED). Primary care data implies a prevalence of serious spinal pathologies in LBP patients of <1%. However, the prevalence of serious conditions in the ED may be higher. The choosing wisely initiative does not recommend imaging studies in LBP patients unless red flags are present. Yet the diagnostic accuracy of red flags to identify patients at risk in the ED is unclear. The aim was to systematically summarize the prevalence of serious spinal pathologies and the diagnostic accuracy of red flags in patients presenting with LBP to the ED.
Methods: Systematic literature review. Five databases were searched in December 2017: Medline, Embase, Pubmed, Cochrane Library, and Scopus. Included were studies with adult patients presenting with LBP to the ED that evaluated the prevalence of serious spinal pathologies and/or the diagnostic accuracy of red flags. Excluded were studies on high-impact traumas and non-clinical settings or -studies. A serious spinal pathology was defined as pathology requiring immediate (<48 hours) or urgent (<30 days) intervention.
Results: We analyzed 19 studies (18 on prevalence, 9 on diagnostic accuracy). The prevalence of any serious spinal pathology was 2.5-5.1% in prospective studies and 0.7-7.4% in retrospective studies. The most often diagnosed serious conditions included vertebral fractures (0.0-7.2%), spinal cancer (0.0-2.1%), infectious disorders (0.0-1.0%), pathologies with spinal cord/cauda equina compression requiring immediate/urgent treatment (0.1-1.9%), and vascular pathologies (0.6-0.9%). Out of 77 red flags, only 2 were assessed in more than one study. Examples of red flags, which increased the likelihood for a serious condition, are summarized in Table 1: suspicion/history of cancer (spinal cancer); intravenous drug use, indwelling vascular catheter, other infection site (epidural abscess). The following situations decreased the likelihood for a serious condition: no risk factor, normal erythrocyte sedimentation rate (epidural abscess); no suspicion/no history of cancer (spinal cancer).
Conclusion: Compared to primary care, we found a higher prevalence of serious spinal pathologies in the ED. The quality of evidence on the diagnostic accuracy of red flags in the ED is surprisingly poor. High quality prospective studies should validate the diagnostic accuracy of red flags in LBP patients presenting to the ED.

Serious spinal pathology	Red flag	Sens %	Spez %	LR+	LR-
Spinal cancer	Suspicion/history of cancer	100	96.4	**27.9**	**0.00**
Vertebral fracture	History of trauma	80	54.9	1.8	**0.4**
Epidural abscess	Intravenous drug use	60.4	95.6	**13.7**	**0.4**
Epidural abscess	Indwelling vascular catheter	9.4	99.4	**15.7**	0.9
Epidural abscess	Other infection site	26	98.1	**13.7**	0.8
Epidural abscess	Elevated ESR (> 20 mm/hour)	100	67	3	**0.00**
Epidural abscess	Any risk factor[£]	100	76.7	4.3	**0.00**
Spinal cord/cauda equina compression	Disturbance of saddle sensation	34.4	89.1	3.1	0.7
Any serious outcome[§]	Bladder/suprapubic fullness in physical examination	6.5	99.8	**40.2**	0.9

Sens, sensitivity; Spez, specifity; LR+, positive likelihood ratio; LR-, negative likelihood ratio; ESR, erythrocyte sedimentation rate; [£], included diabetes, intravenous drug use, recent spine procedure or indwelling surgical implants, recent spine fracture, indwelling vascular catheter, immunocompromised patient, other site of infection, chronic liver disease; [§], included the following pathologies: osteomyelitis, epidural abscess, spinal cancer, cauda equina syndrome, severe disc prolapse requiring urgent intervention, retroperitoneal bleeding, compression fracture, spinal stenosis requiring urgent intervention

[Table 1: Diagnostic accuracy of red flags for serious spinal pathologies (selection)]

FM9

Genes, diet... or bad luck? Impact of dietary and genetic scores on weight gain

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Introduction: Obesity results from complex genetic and environmental interactions. Whether genetic background or dietary behaviors (or both) influence weight gain in middle-aged subjects is debated.
Aim: To assess the changes in body mass index, weight, waist and hip circumferences according to dietary and previously known obesity genetic scores in a swiss population-based cohort study (CoLaus, Lausanne).
Methods: Cross-sectional and prospective (follow-up of 5.6 years) study including 3033 participants (53.2% women, mean age 58.4 years). Two previously described obesity genetic risk scores using 31 or 68 SNPs were computed. Dietary intake was assessed using a validated, self-administered, semi-quantitative food frequency questionnaire. Naïve dietary patterns (one healthy "Fruits & vegetables" and two unhealthy "Meat & fries", "Fatty & sugary") were based on food consumption frequencies. Three hypothesis-oriented dietary scores [two Mediterranean diet scores and the alternative healthy eating index (AHEI)] were also computed.
Results: On the cross-sectional analysis, obesity markers were negatively associated with healthy dietary scores and dietary patterns, and positively associated with unhealthy dietary patterns and genetic scores. On the prospective analysis, the AHEI and the "Fruits & vegetables" dietary pattern were negatively associated with waist gain: multivariable-adjusted average ± standard error 0.96±0.25 vs. 0.11±0.26 cm (p for trend 0.008), and 1.14±0.26 vs. -0.05±0.26 cm (p for trend <0.001) for quartiles 1 and 4 of the AHEI and the "Fruits & vegetables" dietary pattern, respectively. Similar results were obtained when the changes in waist or weight were categorized into ≤ or >5 cm or ≤ 5 and >5 kg: multivariable-adjusted odds ratio and (95% confidence interval) for a >5 cm waist gain: 0.65 (0.50-0.85) and 0.67 (0.51-0.89) for the fourth vs. the first quartile of the AHEI and the "Fruits & vegetables" dietary pattern, respectively. No associations were found between genetic scores and changes in all obesity markers, and no significant gene´diet interactions were found for all obesity markers both in the cross-sectional and the prospective analyses.
Conclusion: Dietary intake, not genetic scores, are associated with waist and to a lesser degree with weight gain in subjects aged 40 to 80 living in Lausanne, Switzerland. Physicians should target dietary behaviours rather than rely on genetics to manage obesity.

FM10

Promoting shared decision making (SDM) in colorectal cancer screening in primary care: a cluster randomized controlled trial

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Introduction: Guidelines recommend both colonoscopy and fecal occult blood test (FOBT) for colorectal cancer (CRC) screening, but our earlier research showed most primary care physicians (PCPs) in Switzerland exclusively prescribe colonoscopy. When offered both methods, patients choose almost evenly between them, suggesting that the low rate of FOBT is more likely to reflect PCPs' prescription habits than a patient's preferences.
Methods: We randomized PCPs who report for the Sentinella practice-based research network to either a multidimensional intervention that promoted shared decision-making (SDM) in CRC screening or to usual care. PCPs in the intervention group received a mailed package containing the study rationale, patient-decision aids to support SDM, a 2-page evidence summary on CRC screening, an immunological FOBT sample kit, and individualized performance feedback based on data they had collected about their CRC screening practices in 2017. PCPs from both groups systematically collected data on 40 consecutive 50-75 y.o. patients, including demographic data, data on previous CRC testing, and the decision the patient made after the discussion (screening method, patient's refusal). PCPs completed a questionnaire about their intention to prescribe FOBT or colonoscopy. Our primary outcome was the number of PCPs with at least one patient who had had an FOBT at baseline or who planned FOBT after discussion.
Results: Of the 109 PCPs we randomized, 79 (64%) collected data. Mean PCP age was 51; 73% were men. PCPs collected data on 3,017 patients (mean age 62; 50% women). The 38 PCPs in the intervention group were more likely to have had at least one patient tested with FOBT at baseline or a patient who planned FOBT after discussion (89%) than PCPs in the control group (61%; p = 0.004). PCPs in the intervention group were more likely to intend to prescribe FOBT to ≥40% of their patients (58%) than PCPs in the control group (28%; p = 0.016). In the intervention group, 68% of patients (977/1,443) were up-to-date or planned to be tested for CRC; in the control group the rate was 65% (1,026/1,574) (p = 0.16).
Conclusion: A multidimensional mailed intervention promoting SDM in CRC screening increased the number of PCPs who prescribed at least one FOBT to their patients and significantly increased PCP intentions to use FOBT, suggesting our intervention increased the likelihood patients would be tested with the method they preferred. ClinicalTrials.gov ID: NCT03552744

Gastgesellschaft SFGG / Société conviée SPSG

FM11

Trajectories of aging in the european DO-HEALTH study

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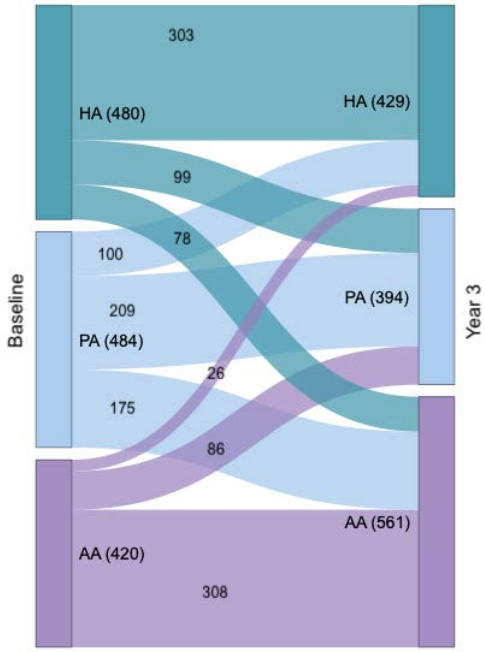
Introduction: Aging is a dynamic process ranging from delayed aging, allowing adults to stay active and healthy longer, to accelerated aging, putting adults at increased risk of frailty. Little is known, however, if and to what extend older adults may change between aging trajectories. Therefore, we aimed to assess trajectories of aging in the large DO-HEALTH Study.
Methods: We took advantage of the DO-HEALTH study cohort including 2157 comprehensively phenotyped adults age 70 and older living in the community, recruited from 5 European countries and followed over 3 years.
To classify healthy agers, we used the Nurses' health study (NHS) definition: No comorbidities, no major impairments in cognition, physical function or mental health. To classify pre-frailty and frailty, we used the Fried definition, where “pre-frail" was defined by presence of 1 or 2 and “frailty” by presence of at least 3 of 5 Fried frailty symptoms (weakness, unintentional weight loss, fatigue, slowness and low activity). The healthy ager status (HA) precluded the presence of any frailty symptom. Participants who did not meet the HA status were classified as “premature agers” (PA) if they were not pre-frail or frail and as “accelerated agers” (AA) if they did not meet the HA status and were at least pre-frail. Between these 3 categories, we pre-defined 9 trajectories of aging from baseline to the 3 year follow-up, and assessed their incidence in DO-HEALTH overall, by gender and by age.
Results: Over 3 years, 59.3% of 1384 DO-HEALTH participants remained in their baseline aging category (63.1% of 480 HA, 43.2% of 484 PA, 73.3% of 420 AA). Overall, 15.3% of participants improved: 20.7% of PA improved to HA and 26.7% of the AA recovered to either HA (6.2%) or PA (20.5%). However, 25.4% progressed: 36.2% of PA progressed to AA, and 36.9% of HA progressed to either PA (20.6%) or AA (16.3%). AA at baseline was more frequent among adults 75 and older vs. those 70-74 years (40.6% vs. 23.4%, p <0.0001) and among women vs. men (34.8% vs. 23.9%, p <0.0001). Adults 75 and older improved less frequently (12.3%) compared to adults aged 70-74 years (17.3%, p = 0.01). No significant differences in trajectories were observed between men and women.
Conclusion: In this large prospective study of healthy European adults age 70 and older, we found that within 3 years 25.4% switched towards a less advantageous aging trajectory, while 15.3% improved. Improvement was more frequent among those less than 75 years of age.



[Aging trajectories in DO-HEALTH. HA: Healthy agers, PA: Premature agers, AA: Accelerated agers]

FM12

Impact of an early rehabilitation programme on aged patients' functional independency, and their orientation at discharge: a retrospective and comparative study in an ACE unit

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Background: Hospitalization following the occurrence of an acute disease, notwithstanding treatment, places older people at risk for functional, physical and/or mental impairment. This paves the way to loss of autonomy, and generally results in
a burden to the proxies, the need for home care services, admission to an institutional setting or even death.
Objectives: To measure the impact of an early rehabilitation program on patients' administrative inhospital data (i.e., orientation at discharge, median length of stay and rate of early-unplanned hospital readmission).

Methods: We considered all patients consecutively admitted into the ACE unit of the University hospital of Lausanne from January 1st to August 31st, 2018. Administrative data for the year 2018 was compared to those obtained from the two previous years when the rehabilitation programme was not yet implemented. Clinical data used in the analyses were obtained through a comprehensive geriatric assessment (CGA) conducted within the first 48 hours of the hospital stay.
Results: Over the 8-month period, 378 patients (mean age 86.3±6.2, 72.8% women) were admitted into the ACE unit through the emergency department for 94.7%. Compared to previous years, the rehabilitation programme had significantly reduced the median length of stay to 10.4 days (mean length of stay to 11.7±8.1 day - p <0.05), and the rates of transfer to rehabilitation centres after the acute hospital stay and of early unplanned hospital readmission. Direct discharges to community care (i.e., personal home or institutional setting) were also significantly increased (35.7%). The rates of death during the hospital stay (2.6%) were similar across the three years considered.
Conclusion: The primary results of this study tend to demonstrate the interest of integrating early rehabilitation programme in ACE unit. Further analyses have still to be computed to identify clinical determinants of the adherence rate and the cost/benefit of such programme in order to recommend such approach to all hospitalized aged patients.

FM13

An example of a specific rehabilitation program after surgical intervention for peripheral artery disease in an elderly population: patients' characteristics, functional outcomes and cardiovascular risk factors

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Introduction: Peripheral Artery Disease (PAD) increases with age. Bypass surgery and/or endovascular interventions are often performed. Literature is scarce on post- operative rehabilitation outcomes in these patients. We set up a specific rehabilitation program which included a) functional rehabilitation and b) identification of cardio-vascular risk factors followed by targeted interventions. The interdisciplinary team received training by the cardio-vascular team. Joint visits (geriatrician- vascular surgeon) occurred bi-monthly.
Objective: To identify patients' characteristics, functional outcomes, cardio-vascular risk factors and consequent interventions.
Method: Retrospective study from February to December 2018, including all patients who were hospitalized after a vascular intervention. Data on demographics, cognitive and functional status were collected upon admission using standardized measures.
Results: N = 98 patients (mean age 76,4 years, 58% men, 47% living alone) participated. Cognitive impairment (MMSE <24/30) was present in 30% (N = 29/ 98). Functional dependency was present in 56% (N = 55/98) of patients upon admission (FIM <90/126).
At discharge 35% (N = 19/55) of patients with an initial functional dependency had regained their autonomy (FIM >90/126). Walking perimeter increased by ≥ 50 m in 42%, and increased by ≥ 100m in 28%.
Active smoking was present in 31% (N = 30/98) and an intervention (education, motivational support, patch-inhaler) occurred in 80%.
Hypertension was present in 79% (N = 77/98) and diabetes in 29% (N = 28/98). Medication was adapted in 23% (N = 18/77) and 11% (N = 3/28) respectively.
All patients (100%) had dyslipidemia, medication was adapted in 43% (N = 42/98).
Conclusion: In this elderly polybmorbid population over half the patients presented a functional dependency at admission and a third had impaired cognition. In spite of this, 20% of those presenting an initial functional dependency recuperated their functional autonomy at discharge. However, in spite of being in a rehabilitation setting, 36% (N = 35/98) remained functionally impaired (MIF <90/126) at discharge.
Although patients had treated cardio vascular risk factors, medication was frequently insufficient and adapted 63 times. Nearly half (43%) of dyslipidemia cases were undertreated.
Further research is needed to identify which patients are at risk of poorer functional outcomes and better understand why cardio -vascular risk factors are often undertreated.

FM14

Rehabilitation outcomes in older inpatients after hip fracture using instrumented shoes

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Introduction: Older patients suffering from a hip fracture most often need rehabilitation in post-acute care. Goals of care include to recover sufficient functional independence, improve mobility and locomotion, as well as strength and endurance. Wearable activity monitoring seems promising to better assessing not only gait performance but also several of these functional outcomes.
Methods: Patients aged >65 years admitted to post-acute care after a hip fracture were monitored using an instrumented shoes system consisting of an inertial measurement unit (Physilog®, CH) with a 3D accelerometer and gyroscopes, and a pressure sensing insole (Smart Insole ®, LU). Activity data were collected over 8 hours at admission (baseline measure) and 14 days later (follow up measure). Daily activity was profiled and gait parameters, load symmetry, and activity barcodes were obtained using dedicated algorithms.
Results: Among participants (12 older adults, 7 women, 5 men, aged 87.8±7.2 years, BADL at home 5.3±0.8, MMSE during hospitalization 26.6±3.31, Tinetti POMA at admission 17.5 ± 2.54) percent time sitting decreased (92.11% vs 85.60%, p = 0.10) whereas walking (2.50% vs 3.71%, p = 0.16) and standing (4.55% vs 10.24%, p = 0.07) increased at follow up compared to baseline and Lempel Ziv physical activity complexity (0.163 vs 0.193, p = 0.07) has improved.
Significant improvement was noted in load symmetry index (0.16 vs 0.10, p = 0.03), stride velocity (0.3 vs 0.38 m/s, p = 0.02), stride-length (0.58 vs 0.64m, p = 0.03), and% of stance symmetry index (0.03 vs 0.02, p = 0.02). Instantaneous cadence distribution graph shifted to the right and tended to have a more physiological biphasic shape at follow up.
Conclusions: This pilot study shows that instrumented shoes are part of new technologies that could potentially improve the monitoring of patients' progresses during rehabilitation. Besides classical spatio-temporal gait parameters, new and promising measures are obtained like load symmetry index, instantaneous cadence distribution and physical activity complexity metrics that are sensitive to functional improvements.

Poster SGAIM / Posters SSMIG

P15

Large regional variations in novel cardiac procedures in Switzerland: A population-based small area variation analysis

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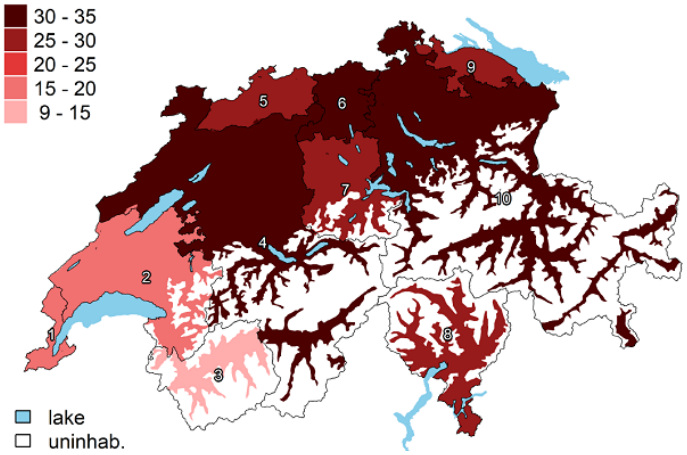
Introduction: Novel cardiac procedures, such as transcatheter aortic valve implantation (TAVI), and the more controversial percutaneous closure of a patent foramen ovale (PFO) or the left atrial appendage (LAA), are increasingly used in clinical practice. We assessed the regional variation in the rates of these procedures across Switzerland and explored potential determinants of variation.
Methods: We conducted a population-based analysis using patient discharge data from all Swiss hospitals and census data for calendar years 2013-2016. Hospital service areas (HSAs) for TAVI, PFO, and LAA were derived by analyzing patient flows. We calculated age-/sex-standardized mean procedure rates and measures of regional variation (extremal quotient [EQ], i.e., highest divided by lowest rate; systematic component of variation [SCV], i.e., non-random part of variation). An SCV >5.4 indicates a high and >10 a very high variation. We estimated the reduction in the variance of TAVI/PFO/LAA rates using multilevel Poisson regression models, with progressive adjustment for patient demographics (age, sex), language region, socioeconomic factors (urbanization, insurance status), disease burden, and the number of cardiologists.
Results: Overall, 4769 TAVI, 1680 PFO, and 1630 LAA were performed in Switzerland between 2013 and 2016. The age-/sex-standardized mean TAVI, PFO, and LAA rates were 16 (range 4-22), 5 (2-8), and 4 (1-10) per 100,000 persons across 10 HSAs, respectively. The EQ (TAVI 5.2, PFO 3.2, LAA 14.6) and the SCV (TAVI 7.9, PFO 9.2, LAA 34.8) indicated high to very high regional variations. Figure 1 shows the overall TAVI/PFO/LAA rates across HSAs, adjusted for year, age, sex, language region, socioeconomic factors, disease burden, and the number of cardiologists. These factors explained 98% of the variance across HSAs, with language region and socioeconomic factors explaining 85% of the variance. Higher procedure rates were observed in men, German-speaking regions, peri-urban/rural areas, and HSAs with a higher proportion of (semi)privately insured patients and a higher disease burden. The number of cardiologists was not associated with procedure rates.
Conclusions: We found a high regional variation in TAVI and very high variations in PFO and LAA rates across Swiss HSAs. A substantial proportion of the variation in novel cardiac procedures was related to the language region and socioeconomic factors, including insurance status.



[Figure 1. Adjusted TAVI/PFO/LAA rates (per 100,000 persons) across 10 Swiss HSAs]

P16

Worauf kommt es bei einer MM an? Leitfaden für die Morbiditäts- und Mortalitätskonferenz

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In Morbiditäts- und Mortalitätskonferenzen werden Komplikationen, ungewöhnliche Behandlungsverläufe und unerwartete Todesfälle aufgearbeitet mit dem Ziel, daraus zu lernen und Wiederholungen zu vermeiden. Internationale Empfehlungen bzgl. Struktur und Ablauf von MM-Konferenzen sind in der Schweiz vielerorts noch nicht erfüllt. Mit dem Projekt soll die MM-Konferenz als Instrument zur Verbesserung der Patientensicherheit gefördert und weiterentwickelt werden. Im Rahmen des Posters werden wir einen neuen Leitfaden vorstellen. Die Anwendung des Leitfadens soll zur kontinuierlichen Verbesserung von Abläufen und Prozessen und zu einer Verbesserung der Sicherheitskultur führen. Im Rahmen einer nationalen Befragung von über 300 Chefärztinnen und -ärzten (chirurgische Fächer, internistische Fächer, Anästhesiologie/Intensivmedizin, Gynäkologie/Geburtshilfe) wurde in 2017 der Status Quo und der Weiterentwicklungsbedarf der MM in der Schweiz erhoben. Basierend auf diesen Ergebnissen, einer umfassenden Literaturrecherche, der Sichtung bestehender Leitfäden und Beobachtungen von 15 MM in grösseren und kleineren Spitälern wurde ein Leitfaden für die MM entwickelt. Dieser wurde mit einem Expertenpanel diskutiert und überarbeitet. In einer Praxistestung werden Erkenntnisse zur Benutzerfreundlichkeit des Leitfadens und der Materialien gewonnen. Der Leitfaden macht Empfehlungen zu den Zielen, Prinzipien und zu allen Schritten der MM (Vorbereitung, Durchführung, Nachbereitung). Die Umsetzungshilfen vereinfachen die entsprechenden Schritte. Das strukturierte Vorgehen zur Fallauswahl zielt auf die Identifikation von unerwünschten und vermutlich vermeidbaren Ereignissen ab. Die Schwerpunkte der vereinfachten Fallanalyse liegen in systemischen und kognitiven Einflüssen auf Fehler. Anhand von Leitfragen kann die Diskussion gesteuert werden, die auf die Ableitung von starken, d.h. möglichst wenig von der Leistung von Individuen abhängigen, Massnahmen abzielt. Er ist ab Mai 2019 (vor Kongress!) verfügbar.

P17

Comparison of two cardiovascular prevention strategies in a Swiss population-based cohort with a 10-year follow-up

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Introduction and aims: Cardiovascular (CV) prevention relies on strategies evaluating the 10-year CV risk to identify high-risk individuals. In Switzerland, two risk scores are recommended: i) Prospective cardiovascular Münster score calibrated for Switzerland (SAI- AGLA); and ii) Systematic coronary risk estimation (SCORE). SAI-AGLA predicts major coronary events (sudden cardiac deaths, and fatal or nonfatal myocardial infarctions) and SCORE predicts fatal CV events. Using a Swiss population-based cohort, we determined the predictive accuracy of two preventive strategies based on incident cardiovascular events over a 10-year period. The first aim was to assess prediction of major coronary events and fatal CV events for SAI-AGLA and SCORE, respectively. The second aim was to assess prediction of any CV event for both scores.
Methods: Prospective cohort involving 6,733 subjects aged 35-75 years at baseline. Incident CV events were independently adjudicated. Very high-risk individuals were defined by presence of prior coronary disease, diabetes mellitus or chronic kidney disease. For the first aim, high-risk participants at 10 years were defined based on a major coronary event risk of >20% according to SAI-AGLA, and a fatal CV event risk of >5% according to SCORE. For the second aim, high-risk participants were defined based on 10-year risk of any CV event using the same risk thresholds. Discrimination, calibration and model fit of both scores were compared.
Results: 5,539 participants were analyzed, with a mean follow-up of 10.2 years. Overall, 422 incident CV events occurred, including, among others, 117 major coronary events, 34 fatal CV events and 158 strokes. Among very high- and high-risk participants, SAI-AGLA would have de-

tected 53% of major coronary events, whereas SCORE would have detected 68% of fatal CV events. Concerning individuals in high-risk categories with any CV event, SAI-AGLA and SCORE would have detected 52% and 56% of fatal and nonfatal CV events, respectively. Discrimination of SAI-AGLA and SCORE for prediction of any CV event was similar (AUROC, 0.77 and 0.78, respectively; p = 0.20), whereas SCORE presented a better calibration and model fit.
Conclusion: In this Swiss population-based cohort, prevention strategy of SCORE for very high- and high-risk individuals identified more subjects developing any CV event compared to SAI-AGLA, despite an equal number of individuals classified in high-risk categories.

P18

Are cardiovascular risk factors an indication to substitute subclinical hypothyroidism? An individual participant analysis of 13 large international cohorts

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Introduction: Subclinical hypothyroidism (SHypo) is linked to an increased risk for coronary heart disease (CHD). Moreover, SHypo is associated with several modifiable cardiovascular risk factors (CVRFs), but population-based data on these associations are inconsistent. Also, the impact of hormonal substitution in SHypo on CHD remains unclear with the lack of adequately powered trials. By pooling individual participant data from large prospective cohorts, this study assessed the association between SHypo and CVRFs across wide age ranges to help clarify the possibly increased risk for cardiovascular events in patients with SHypo.
Methods: CVRFs as primary outcomes were assessed in euthyroid (TSH 0.45-4.5 mU/l) and participants with SHypo (TSH >4.5 mU/l, normal free thyroxine) from cohorts within the *Thyroid Studies Collaboration (www.thyroid-studies.org)*. Participants on exposure-/outcome-modifying medications were excluded and multilevel mixed-effects linear regression models adjusted for age and smoking status used.
Results: Among 50'045 participants (mean age 58, range 18-100 years, 59% women, 27% current smokers), 2'832 (6%) had SHypo. All associations significantly differed by gender (p for interaction <0.001; HDL-cholesterol p for interaction = 0.03), except for hs-CRP (p for interaction = 0.60). Systolic blood pressure was higher with SHypo *vs* euthyroidism in women (138±10 *vs* 135±11 mmHg, p <0.01), but not in men (138±7 *vs* 138±7 mmHg, p = 0.70) as was total cholesterol (women 6.10±0.56 *vs* 6.03±0.52 mmol/l, p <0.001; men 5.41±0.53 *vs* 5.74±0.41 mmol/l, p = 0.39). With SHypo, HDL-cholesterol was lower (women 1.48±0.06 *vs* 1.51±0.05 mmol/l, p <0.001; men 1.16±0.04 *vs* 1.23±0.04 mmol/l, p <0.001) and triglycerides were higher (women 1.50±0.24 *vs* 1.38±0.22 mmol/l, p <0.001; men 1.68±0.31 *vs* 1.67±0.24 mmol/l, p <0.05) in both women and men, while LDL-cholesterol was slightly higher only in women (4.16±0.56 *vs* 4.12±0.55 mmol/l, p <0.001; men 3.68±0.51 *vs* 3.96±0.44 mmol/l, p = 0.83). hs-CRP levels were similar in SHypo *vs* euthyroidism for both genders (women 2.01±0.70 *vs* 1.91±0.67 mg/l, p = 0.24; men 1.81±0.67 *vs* 1.64±0.68 mg/l, p = 0.39). CVRFs did not significantly differ across age groups.
Conclusions: SHypo is associated with elevations of traditional CVRFs (but not hs-CRP) that differ according to gender, but not age. However, the differences may not be of clinical relevance as they are small. Therefore, CVRFs do not appear to be a strong argument to substitute SHypo.

P19

Appropriateness of antimicrobial prescribing in a Swiss tertiary care hospital - a repeated point prevalence survey

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Introduction: Inappropriate use of antimicrobials is associated with the emergence of antimicrobial resistance and adverse events. Antimicrobial stewardship programs may both optimize treatment of infections and reduce antimicrobial resistance, but are implemented in only a minority of Swiss hospitals. In addition, data on Swiss prescribing patterns are limited. We conducted a two-point prevalence survey to evaluate antimicrobial usage in a single tertiary care center.
Methods: Two audits of antimicrobial use were conducted (summer 2017 and winter 2018) among all patients admitted to the University Hospital Basel, Switzerland. Data were collected from the electronic health record. Appropriateness of antimicrobial use was evaluated by two infectious diseases physicians according to local and international guidelines.
Results: We evaluated 1112 patients of whom 378 (34%) were receiving 547 prescriptions in total (30% for prophylaxis). Penicillins with β-lactamase inhibitors were most commonly used (30%) followed by cotrimoxazole (12%) and cephalosporins (11%). Intravenous administration was chosen in 56% of patients. Prior to antimicrobial therapy, blood cultures were collected in 62% of patients. Overall, 154 (28%) prescriptions were not appropriate including lack of indication (12%, mostly prolonged administration of surgical prophylaxis), incorrect dosing (7%), lack of intravenous to oral switch (9%) or non-adherence to local guidelines (14%). A minority of patients received antimicrobials despite documented allergies (2%). Almost 50% of empiric prescriptions were inappropriate compared to only 20% of prophylactic and targeted prescriptions. In line, penicillins with β-lactamase inhibitors and cephalosporins were most commonly involved in inappropriate prescribing (>50%) compared to narrow-spectrum penicillins (11%), cotrimoxazole (13%) or carbapenems (27%), and oral administration was involved less frequently compared to intravenous (20 vs. 43%). Infectious diseases consultation and presence of immunosuppression were associated with a reduced odds (both 0.3, p = 0.01) of inappropriate prescription in the per-patient multivariable analysis.
Conclusions: Almost one third of prescriptions were inappropriate in a Swiss tertiary care center despite local guidelines and a busy infectious diseases consultation service. Our results underscore the need for expanding current antimicrobial stewardship efforts and identify areas for improvement.

P20

Impact of structural and organizational reforms on allocation of internal medicine resident time: the MED2DAY study

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Introduction: Work organization in internal medicine is becoming of outmost importance due to increase of complex polymorbid patients, administrative burden, and young residents' expectations. In a 2015 time-motion study, residents did not complete their duties during the scheduled shift, albeit spending half the day on a computer. This prompted major reforms to improve working condition quality: task delegation, schedule

reorganization, and a daily interprofessional patient orientation meeting. Along with indicators such as mean length of stay (LOS), we aimed to assess how residents changed time allocation after implementing these changes in work organization.

Methods: We repeated the 2015 time-motion study between May and July 2018. Trained observers followed residents and recorded 22 predefined activities and context (with a patient; using a computer) during day (08:00-18:24) and evening shifts. All residents of our tertiary internal medicine department were included and observed twice. We recorded shift duration and mean patient LOS during the studies. One endpoint was time spent for administrative tasks marked in table 1. Results were expressed as mean [95% confidence interval] and adjusted for number of handled patients per resident.

Results: We recorded 66 shifts in 2015 and 76 shifts in 2018, summing 1'478 hours of observation. Results of 75 residents (60% female; 29.6 years old [29.1-30.2]; 3.0 years of training [2.8-3.3]) are presented in table 1. Day shift duration decreased from 11:38 to 10:45 (95% CI 11:15-12:01 and 10:30-10:59, p <.001), i.e. 21 min more than the official schedule. Simultaneously, personal time increased to 62 min (+87%, p <.001) and activities using a computer decreased to 4.8 hours per shift (-11%, p = .005). Conversely, residents spent more time on administrative tasks (+53%, p <.001) and less time with patients (-20%, p = .001). Adjustments did not modify these results, even though the department activity grew dramatically between 2015 and 2018: admissions increased from 89 to 102 a week (+14.5%) and mean LOS decreased from 13.4 to 7.1 days (-47.0%).

Conclusions: Reforms in an internal medicine department can rapidly modify the allocation of residents' time. Work condition quality improved as shown by shift duration reduction and personal time increase, despite admissions and turnover of patients radically increasing. This implies that residents may have been more efficient and less stressed, despite a higher patient workload.

Adjusted allocation of residents' activities and context during day shifts.
Results are presented as mean [95% CI] in minutes per shift and adjusted to number of handled patients per resident. Definitions of activities are published in Ann Intern Med. 2017;166:579-586. NA : not available.

	2015	2018	p-value
Activities			
Admission	27 [18 - 37]	12 [4 - 20]	0.016
Patient rounds	139 [126 - 153]	115 [103 - 126]	0.007
Patient discharge activities	16 [11 - 21]	4 [0 - 9]	0.001
Clinical procedures	11 [5 - 16]	7 [3 - 12]	0.38
Out-of-unit support	14 [6 - 23]	3 [0 - 5]	NA
News delivery	4 [2 - 6]	3 [1 - 5]	0.29
Family meeting	11 [7 - 15]	10 [7 - 13]	0.66
Literature reviewing	8 [5 - 11]	7 [5 - 10]	0.52
Writing in the medical record	109 [97 - 120]	72 [61 - 82]	<0.001
Handoffs	17 [13 - 21]	13 [8 - 17]	0.11
Supervision	60 [50 - 69]	56 [48 - 64]	0.57
Multidisciplinary board	18 [12 - 24]	32 [27 - 37]	0.001
Talking with providers/collaborators	71 [62 - 79]	51 [44 - 58]	0.001
Patient administrative tasks ($)	31 [24 - 39]	43 [36 - 50]	0.009
Discharge summary writing ($)	15 [6 - 24]	25 [17 - 33]	0.13
Looking for information ($)	38 [30 - 45]	60 [53 - 66]	<0.001
Non-patient administrative tasks ($)	8 [5 - 11]	12 [10 - 14]	0.03
Receiving training	34 [24 - 43]	34 [26 - 42]	0.91
Teaching	9 [5 - 13]	8 [5 - 11]	0.56
Academic research	0	2 [0 - 6]	NA
Personal time	33 [22 - 44]	62 [53 - 72]	<0.001
Transit from a task to another	34 [31 - 38]	27 [24 - 30]	0.001
The above activities are done …			
… with a patient	113 [101 - 126]	92 [80 - 103]	0.011
… using a computer	327 [306 - 348]	290 [272 - 308]	0.009
($) Activities composing endpoint	91 [75 - 107]	140 [126 - 153]	<0.001

[Table 1: Adjusted allocation of residents' activities and context during day shifts.]

P21

Diagnostic performance of C-reactive protein, procalcitonin, serum amyloid A and neopterin to diagnose pneumonia in elderly patients

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Introduction: Diagnosis of pneumonia in elderly patients is complex. Signs and symptoms are neither sensitive nor specific. Chest X-ray (CXR) is difficult to interpret. Limited diagnostic accuracy of CRP and PCT in the diagnosis of community-acquired pneumonia has been reported. We aimed to identify: 1) the diagnostic value of biomarkers in patients >65 years hospitalized for suspicion of pneumonia, using CRP, PCT, serum amyloid A (SAA), neopterin and 2) the sensitivity of panels combinated with clinical and biological data.

Methods: In an ancillary study of a prospective single-center cohort study evaluating the impact of low-dose CT scan on the diagnosis of pneumonia (Prendki, Eur Resp J 2018), C-reactive protein (CRP), procalcitonin (PCT), serum amyloid A (SAA) and neopterin (NPT) were assessed in blood at admission. All patients had CT scan and the probability of a diagnosis of pneumonia incorporating clinical, biological, microbiological (including viral PCR on naso-pharyngeal swabs) and radiological data were obtained by experts. Diagnostic values of biomarkers were assessed and iterative Combination of Biomarkers and Thresholds (ICBT) was used to define the best panel of markers.

Results: 200 patients, median age of 84 years (IQR: 78.6-90.2), were included. The experts classified 131 patients with pneumonia and 67 without. Area under the curve (AUC) was 0.64 (95% CI: 0.56-0.7 2) for CRP; 0.59 (95% CI: 0.51-0.68) for PCT; 0.60 (95% CI: 0.52-0.69) for SAA; 0.59 (95% 0.50-0.68) for neopterin; 0.63 (CI: 0.52-0.71) for CRP/NPT and 0.61 (CI: 0.53-0.70) for SAA/NPT. AUC was 0.55 (CI: 0.40-0.69) for CRP/NPT and 0.45 (CI: 0.31-0.59) for SAA/NPT to distinguish patients with positive viral PCR vs bacterial pneumonia. The best panel to diagnose pneumonia was CRP, leucocytes and c ough with a sensitivity of 90.6% (CI: 84.7-96.5) and a specificity of 47.2% (CI: 30.6-63.9).

Conclusion: Diagnostic performance of biomarkers seemed insufficient for the diagnosis of pneumonia in elderly patients and to distinguish bacterial from viral pneumonia. A combination of CRP, leucocytes and cough had a good sensitivity to diagnose pneumonia. In a score predicting pneumonia in the same cohort, CRP and cough were also independently associated with the presence of pneumonia (Garin et al).

P22

Twelve-year trends in diabetes prevalence in the canton of Geneva

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Introduction: Against a backdrop of increasing type 2 diabetes prevalence across most high-income populations, little is currently known about its prevalence and secular trends in the canton of Geneva. Thus, we aimed to estimate trends in diabetes prevalence, awareness, and control using data from the Bus Santé Study.

Methods: Population-based cross-sectional study of adults residing in the canton of Geneva, conducted annually from 2005 to 2016. We included a total of 8574 participants, of which 51% were women with a mean age (standard deviation) of 49.2 (13.3). We defined the prevalence of diagnosed diabetes as having a previous diagnosis of diabetes; the prevalence of undiagnosed diabetes as having fasting plasma glucose level of ≥7 mmol/L and not having a previous diagnosis of diabetes; the prevalence of total diabetes as the sum of diagnosed and undiagnosed diabetes; diabetes awareness as the ratio of diagnosed diabetes to total diabetes; and diabetes control as having diagnosed diabetes and fasting plasma glucose level below 7 mmol/L. To assess trends, we grouped survey years into five categories: 2005-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016.

Results: In total, 599 cases of diabetes were identified over twelve years. The prevalence of total diabetes for the 2005-2008 period was 7.5% (95% CI: 5.8 - 9.3), remaining stable to 2015-2016 at 6.7% (5.6 - 7.8) (P for linear trend = 0.45). Similarly, the prevalence of diagnosed diabetes was 5.9% (4.3 - 7.5) in 2005-2008 and 5.3% (4.3 - 6.3) in 2015-2016 (P for linear trend = 0.51). The prevalence of undiagnosed diabetes decreased from 1.7% (0.8 - 2.5) in 2005-2008 to 0.7% (0.3 - 1.1) in 2011-2012 but increased to 1.4% (0.8 - 1.9) by 2015-2016 (P for quadratic trend = 0.02). The prevalence of diabetes awareness increased from 77.8% (67.6 - 88.1) in 2005-2008 to 88.1% (81.8 - 94.4) in 2011-2012, but later decreased to 79.8% (72.9 - 86.8) by 2015-2016 (P for quadratic trend = 0.03). The prevalence of diabetes control decreased from 83.9% (73.8 - 94.0) in 2005-2008 to 59.9% (50.6 - 69.2) in 2015-2016 (P for linear trend = 0.01).

Conclusion: In this representative sample of the population of Geneva, the estimated prevalence of diabetes has remained relatively stable over

a period of 12 years. There was a suggestion that the proportion of diabetic people who are able to control their blood glucose level has decreased in recent years.

	Prevalence,% (95% CI)						
	2005-2008	2009-2010	2011-2012	2013-2014	2015-2016		
	N = 854	N = 1999	N = 1676	N = 2009	N = 2036	$p^{linear\ trend}$	$p^{quadratic\ trend}$
Total diabetes	7.5 (5.8-9.3)	7.5 (6.4-8.6)	5.8 (4.7-6.9)	7.5 (6.4-8.7)	6.7 (5.6-7.8)	0.51	0.85
Diagnosed diabetes	5.9 (4.3-7.5)	6.5 (5.5-7.5)	5.1 (4.1-6.1)	6.3 (5.2-7.3)	5.3 (4.3-6.3)	0.80	0.02
Undiagnosed diabetes	1.7 (0.8-2.5)	1.0 (0.6-1.4)	0.7 (0.3-1.1)	1.3 (0.8-1.8)	1.4 (0.8-1.9)	0.45	0.42
Diabetes awareness	77.8 (67.6-88.1)	86.4 (81.1-91.7)	88.1 (81.8-94.4)	83.3 (77.2-89.4)	79.8 (72.9-86.8)	0.99	0.03
Diabetes control	83.9 (73.8-94.0)	58.6 (50.7-66.6)	67.4 (58.0-76.8)	58.9 (50.3-67.5)	59.9 (50.6-69.2)	0.01	0.05

[Table 1. Diabetes prevalence among adults living in the canton of Geneva, Bus Santé Study 2005-2016]

P23

Hyperthyroidism and iodine contrast media: a retrospective, observational study in a Swiss hospital

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Introduction: Iodine contrast media (ICM) increases the risk of an acute thyrotoxicosis and the possibility of a delayed reaction in patients with a known hyperthyroidism. In certain countries, guidelines recommend a thyroid-stimulating hormone (TSH) measurement and a prophylactic therapy with sodium-perchlorate before the administration of ICM in patients with known or suspected hyperthyroidism. We investigated the frequency of the evaluation of the thyroid function and the administration of a protective therapy in patients receiving a computed tomography (CT) with ICM in a Swiss hospital.
Methods: We carried out a retrospective, observational study in a cohort of adult patients with a diagnosis of hyperthyroidism (ICD-Code E05) admitted to a hospital between 2014 and 2016. All reports of these patients were reviewed for CT with or without ICM. Laboratory results (TSH measurements before and after ICM) were extracted from a database. Furthermore, we assessed if a prophylactic or therapeutic intervention (sodium-perchlorate and/or carbimazole) was applied.
Results: Between 2014 and 2016, 111 patients were found with ICD-Code E05 and were screened. The mean age was 69.1 (+/- 18.6) years old, 82% were women. The causes of hyperthyroidism were Morbus Basedow (n = 41; 37%), uni-/multinodular goiter (n = 28; 25%) and mixed causes (n = 42; 38%). 25 patients (22.5%) received a CT and ICM and were further evaluated. Within these 25 patients, a preliminary TSH measurement occurred in 84% (n = 21) of the cases. 10 patients (40%) didn't receive a prophylactic therapy. A post-exposure therapy occurred in 7 patients (28%) with carbimazole, in 3 patients (12%) with sodium-perchlorate and in 2 patients (8%) with both treatments. A prophylactic therapy with sodium-perchlorate before the CT was started in 3 patients (12%). TSH was controlled in 13 patients (52%) after the exposure.
Conclusions: TSH measurement was performed in the majority of the patients with known hyperthyroidism before a CT with ICM, only 12% (n = 3) received adequate prophylactic therapy with sodium-perchlorate. This preliminary data suggest the need for more detailed guidelines regarding the evaluation of the thyroid function and for an adequate protective therapy before and after a CT with ICM.

P24

Regional variation of hysterectomy in Switzerland: a population-based small area variation analysis

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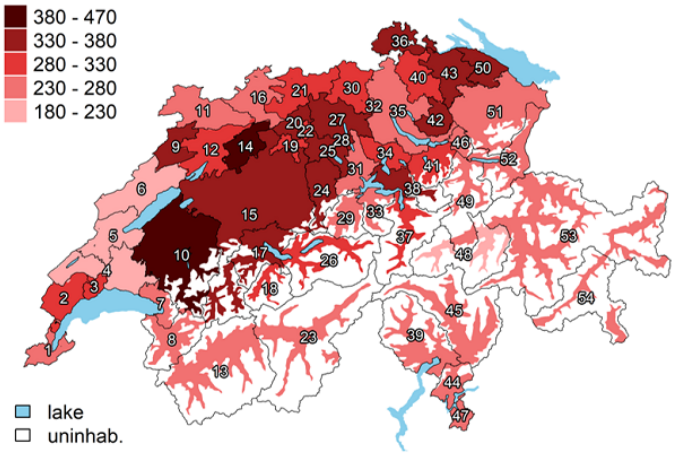
Introduction: In benign uterine disease, hysterectomy should not be the first treatment option in most cases and if hysterectomy is done, vaginal hysterectomy should be preferred over more invasive techniques whenever possible. We assessed the regional variation in hysterectomy rates for benign uterine diseases in Switzerland and explored potential determinants of variation.
Methods: We conducted a population-based analysis using patient discharge data from all Swiss hospitals and census data for calendar years 2013-2016. Hospital service areas (HSAs) for hysterectomies were derived by analyzing patient flows. We calculated age-standardized mean procedure rates and measures of regional variation (extremal quotient [EQ], i.e., highest divided by lowest rate; systematic component of variation [SCV], i.e., the non-random part of variation) for overall and procedure-specific (vaginal, laparoscopic, abdominal) hysterectomies. A SCV >5 is indicative of a significant variation. We estimated the reduction in the variance of hysterectomy rates using multilevel Poisson regression models, with adjustment for year, age, language region, socioeconomic factors (urbanization, socioeconomic position, insurance status, nationality), population burden of disease, and number of gynecologists.



Abbreviation: uninhab. = uninhabited area.

[Figure 1. Adjusted hysterectomy rates (per 100,000 women) per HSA]

Results: Overall, 40,211 hysterectomies for benign uterine disease were performed in Switzerland between 2013 and 2016. The age-standardized mean hysterectomy rate was 298/100,000 women across 54 HSAs. The EQ was 2.5 and the SCV 3.7. For specific procedures, the EQ (vaginal 5.0, laparoscopic 6.3, abdominal 8.0) and the SCV (vaginal 17.5, laparoscopic 11.2, abdominal 16.9) were much larger. Figure 1 shows the variations of overall hysterectomy rates across HSAs, adjusted for year, age, language, socioeconomic factors, burden of disease, and the number of gynecologists. These factors explained 34% of the variance across HSAs. Higher procedure rates were observed in women aged 50-54 years, in German-speaking regions, and in small urban areas. Insurance status and the number of gynecologists were not associated with procedure rates.
Conclusions: While the overall variation in hysterectomy was moderate, we found a very high procedure-specific variation across HSAs. As only one third of the variation was explained by differences in demographics, socioeconomic, and other specific factors, part of the remaining variation could be due to differences in individual physicians' practice style.

P25

Development and validation of a new tool to assess inpatient complexity: the Patient Complexity Assessment (PCA) score

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Introduction: In primary care, up to one third of patients are categorized as complex, while this proportion is not well known in the hospital setting. By definition complex patients demand more effort and/or resources. The treating physician's assessment is the gold standard, which makes the monitoring of patient complexity over time difficult. We aimed to develop and validate a new score to assess inpatient complexity (Patient Complexity Assessment, PCA score) and to compare its performance with a frequently used tool to estimate patient complexity, i.e. the Charlson comorbidity index.
Methods: All consecutive patients discharged from the department of medicine of a large tertiary care hospital were prospectively included into a derivation cohort from October, 2016 to February 16, 2017, and a temporal validation cohort from February 17, 2017, to March, 2017. The residents in charge of the patient assessed complexity at patient discharge. Potential predictors comprised 52 parameters from the electronic health record (EHR), including demographics, health factors and hospital care usage. We fit a logistic regression model with backward selection to create a scoring system. The model and score were then externally validated in the validation cohort. Performance was assessed using measures of discrimination and calibration.

Variable	Coefficient	Score points
Age	Reference	
- ≥ 80 years	0.36	3
- 70-79 years	0.5	5
- 60-69 years	0.94	9
- <60 years		
Elective admission	0.36	3
Above-average costs during hospitalization		
- for imaging procedures	0.6	6
- for laboratory analysis	0.77	7
High nurse workload	0.93	9
Malnutrition	0.47	4
Multimorbidity		
- Number of diagnoses >6 and <14	0.61	6
- Number of diagnoses ≥14	0.78	7
Medication at admission		
- Antineoplastic and immunomodulating agents	0.85	8
- Nervous system	0.33	3
Serum creatinine level ≥100 µmol/l		
- at admission only	0.23	2
- at admission and discharge	0.11	1
- at discharge only	0.96	9
Leukocyte count ≥20 G/l		
- at admission only	0.11	1
- at admission and discharge	1.12	10
- at discharge only	1.68	16

[PCA score weighted according to coefficients, high risk patients: ≥ 24 points]

Results: Overall, 447 of 1,407 patients (32%) in the derivation cohort, and 116 of 482 patients (24%) in the validation cohort were identified as complex. Eleven variables that were independently associated with complexity were included in the PCA score (table). The PCA score's area under the receiver operating characteristic (AUROC) was 0.78 (95% confidence interval [CI] 0.75-0.80) in the derivation cohort, and 0.78 (95%CI 0.74-0.82) in the validation cohort. In comparison, the Charlson comorbidity index showed a lower AUROC of 0.58 (95%CI 0.55-0.62) and 0.61 (95%CI 0.54-0.67), respectively. Using a cut-off of ≥24 score points to define high-risk patients, specificity was 83% and sensitivity 57% in the derivation cohort. Positive and negative predictive values were 62% and 81%, respectively.
Conclusions: We derived and externally validated a score that reflects patient complexity in the hospital setting, and performs better than the Charlson comorbidity index. This PCA score that uses variables from the EHR could help monitoring the proportion of complex patients in the hospital setting, and comparing patient complexity level between hospitals.

P26

The well-being of Swiss general internal medicine residents

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Introduction: Physician well-being is not only associated with empathy and professionalism, it has also a direct impact on productivity, quality of care, and patient safety. Residency training is a particularly challenging period in the life of physicians. We thus assessed the well-being of Swiss general internal medicine (GIM) residents as well as associated personal and work-related factors.
Methods: We conducted an electronic survey among GIM residents from 13 teaching hospitals in June 2018. Participants were asked to indicate personal and work-related characteristics and to complete the Physician Well-Being Index (PWBI). We explored the association between a reduced well-being (PWBI ≥5 points) and personal and work-related factors using multivariable mixed logistic regression. We used spearman's rank correlation coefficient to examine the relationship between the PWBI and job satisfaction, self-reported medical errors, suicidal ideation, and intention to leave clinical practice.
Results: The response rate was 54% (472/880). Although 95% of residents were at least partially satisfied with training quality and 91% with their job autonomy and the job overall, 19% had a reduced well-being, 60% felt burned out, 57% reported emotional problems, and 21% had career choice regret. Age (OR 1.20, 95% CI 1.06-1.35), having children (OR 0.10, 95% CI 0.02-0.41), <2.5 personally rewarding work hours per day (OR 3.01, 95% CI 1.62-5.61), low satisfaction with training quality (OR 2.40, 95% CI 1.34-4.31), and low satisfaction with job autonomy (OR 2.42, 95% CI 1.36-4.28) were significantly associated with reduced well-being, but not working hours, administrative workload, and satisfaction with income. We found significant, weak to moderate correlations between the PWBI and job satisfaction (r_s = -0.54, p <0.001), medical errors (r_s = 0.18, p <0.001), suicidal ideation (r_s = 0.12, p = 0.009), and the intention to leave clinical practice (r_s = 0.38, p <0.001).
Conclusions: Although the majority of Swiss GIM residents are satisfied with their job, approximately 20% appear to have a reduced well-being or career choice regret and around 60% feel burned out. Having few rewarding work hours and a low satisfaction with training quality and job autonomy are the most significant predictors of reduced well-being. Given the human costs of physician distress to both patients and physicians, health care organizations have the ethical responsibility to improve physician well-being.

P27

Comparison of the simplified hospital score to predict 30-day readmission using lab values at admission or at discharge

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The simplified HOSPITAL score is an easy-to-use prediction model that accurately identifies patients at high-risk of 30-day unplanned readmission before hospital discharge. Because an early stratification of the risk of readmission would allow more preparation time for transitional care interventions, we aimed to assess whether the score would perform similarly by using of hemoglobin and sodium level at time of admission instead of discharge.
We prospectively screened all consecutive adult patients discharged home from the department of internal medicine of 4 hospitals in Switzerland. The primary outcome was the composite of first unplanned readmission or death within 30 days after discharge of index admission. We compared the performance of the simplified score with lab at discharge (original simplified score) and lab at admission (revised HOSPITAL score) according to their discriminatory power (Area under the Receiver Operating Characteristic Curve, AUROC) and the Net Reclassification Improvement (NRI).

Among the 923 patients included, 126 (13.5%) had a 30-day unplanned readmission or death. The median hemoglobin level at admission and discharge was 132 and 124 g/l, and the median sodium level was 137 and 139 mmol/l, respectively. Both score versions categorized 316 patients (34%) as likely to be readmitted. The 2 versions of the HOSPITAL score showed both a very good accuracy (Brier score 0.11,95% confidence interval 0.10-0.13). Their AUROC were 0.64 (95%CI 0.59-0.69), and 0.65 (95%CI 0.60-0.70), respectively, without statistical difference (p = 0.51). The optimal cut-point according to Youden's index was 4 score points. Compared with the model at discharge, the model with lab at admission showed improvement in discrimination based on the continuous NRI (29%; 95% CI 11-47; P = 0.003) mainly driven by an improvement in prediction of non-cases that compensated the worse prediction for cases: 75% (596/797) non-cases had a lower risk if lab at admission was used, while 60% (50/126) cases had a lower risk if lab at admission was used.
The revised HOSPITAL score using lab values at time of admission perform at least as good as with lab values at discharge in order to identify high-risk patients for 30-day unplanned readmission or death. Therefore, this revised HOSPITAL score version offers a readmission risk stratification early during the hospital stay, which allows a timely preparation of transition care interventions to the patients who may benefit the most.

Attribute	Value	Points
Low **H**emoglobin level at admission (<120 g/l)	yes	1
Discharge from an **O**ncology service or active cancer	yes	2
Low **S**odium level at admission (<135 mmol/l)	yes	1
Index admission **T**ype: urgent or emergent (nonelective)	yes	1
Number of hospital **A**dmission(s) during the previous year	0-1	0
	2-5	2
	>5	5
Length of stay days ≥ 8*	yes	2
*adapted to the median length of stay of the country		

[Revised HOSPITAL score for 30-day unplanned readmissions and death (maximum score: 12 points)]

P28

How do patients want us to use the computer during medical encounters ?

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Introduction: The Electronic Health Record (EHR) is now widely used during medical encounters. To avoid negative impact on doctor-patient communication, experts in clinical communication have issued recommendations for a patient-centered use of EHRs. However, these recommendations have never been validated by real patients. The aim of our study is to explore patients' preferences regarding doctors' EHR-related behaviours as well as the factors influencing their choice.
Methods: An exploratory study was conducted at two outpatient clinics in Geneva in 2018. French speaking patients, waiting for a medical consultation, were invited to watch videos displaying variations of EHR-related behaviors and indicate which one they preferred. The videos featured 4 specific physician EHR-related behaviours with 2 or 3 variations for each: 1) typing: continuous/intermittent/manual writing; 2) mean of maintaining contact while typing: visual and verbal/verbal/visual; 3) signposting the use of EHR: with/without; 4) position of physicians' hands and bust: on the keyboard and towards the patient/away from the keyboard and towards the patient/on the keyboard and towards the screen. Experienced clinicians blinded to the study identified and validated the videotaped variations of the different EHR-related behaviors. A short questionnaire collected patients' socio-demographics and attitudes/experiences of EHR use. We used multinomial logistic regression to analyze the factors associated with patients' choices.
Results: 336 patients watched three different videotaped standardized encounters. A majority preferred intermittent typing versus manual writing or continuous typing (35.7% vs 28.0% or 16.3%). They favored visual and verbal contact (38.9%) over verbal (30.3%) or visual (13.0%) contact only while typing, as well as signposting the use of EHR versus no signposting (58.9% vs 34.8). Finally, the position with the physician's bust toward the patient and hands away from the keyboard was chosen by a higher proportion of patients (49.7%).The multivariate analyses showed that among all patients' characteristics, only a positive attitude towards EHR was consistently associated with a preference towards intermittent or continuous typing.
Conclusion: Our results confirm patient's positive attitude toward the use of EHR by physicians as well as towards the use of the EHR that follows expert recommendations. Such recommendations should be more consistently taught during medical training.

P29

Skin cancer screening in Switzerland: cross-sectional trends (1997-2012) in socioeconomic inequalities

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Introduction: Skin cancer is one of the most common malignancies and its incidence has increased worldwide. Despite controversy over its efficacy, skin cancer screening has become widespread. Important socioeconomic screening inequalities have been documented. Switzerland has the highest rate of melanoma in Europe but Swiss trends in skin cancer screening and social disparities have not been investigated. This study aims to evaluate trends in skin cancer screening and its association with socioeconomic indicators in Switzerland between 1997 and 2012.
Method: We used data from five waves (from 1997-2012) of the population-based Swiss Health Interview Survey. Multivariable Poisson regression were used to estimate weighted prevalence ratio (PR) and 95% Confidence Intervals (CI) adjusting for demographics, health status and use of healthcare.
Results: This study included 60764 participants with a mean age of 49.1 years (standard deviation (SD) 17.2) and 53.6% of women. Between 1997 and 2012, the weighted prevalence of ever life-time skin examination and skin examination in the current year increased by 38.2% and 35.3% respectively (p-value <0.001). Participants with a lower education level, lower income and living in non-metropolitan areas were less often screened than their counterparts.
Conclusion: While skin cancer screening prevalence in Switzerland increased from 1997 to 2012, a lower rate of screening among low educated, low income and rural areas residents was reported.

P30

The ecology of medical care - Prevalence of illness in the community and health care utilisation in Switzerland

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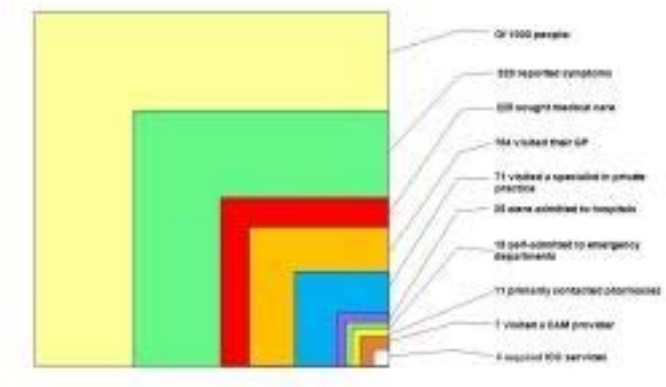
Introduction: The allocation and equal distribution of health care resources is one of the major challenges today. Therefore, a framework to analyse the prevalence of illness in the community and the use of various sources of health care is crucial. The aim was to evaluate the health seeking behaviour of 1000 individuals in Switzerland in a two-month period in 2018.
Method: Population-based, cross-sectional health survey with a multistage, stratified cluster design. The LINK Institute (Luzern, Switzerland, https://www.link.ch/) interviewed a representative sample of the adult Swiss population (age ≥ 18, three language regions, German (70%), French (25%), and Italian (5%)) by phone. The health seeking behaviour of around 1000 individuals during the past 8 weeks was calculated. There were two interview rounds to respect potential seasonal variations in May (n = 506) and November 2018 (n = 516).
Results: In total, data of 1025 individuals were analysed (51% females, median age 51, range 18 to 85, 18% were <30 years of age, 53% ≥ 30 and <60, 23% ≥ 60 and <80, and 6% were ≥ 80). During the preceding 8 weeks, per 1,000 adults, 520 had at least one symptom, 169 stated several symptoms, 251 took self-medication, 225 sought medical advice. Of the latter, two thirds (n = 154) contacted their GP, one third (n = 71) contacted a specialist in private practice, 15 self-admitted to an accident and emergency department, 11 contacted a pharmacy, and 7 contacted an alternative medicine health care provider. In total, 25 persons were admitted to a hospital of which 12 underwent surgical procedures, 21 were transferred to a regular ward, and four subjects required ICU services. The vast majority (95%) of subjects was registered with a GP.

Conclusion: This study represents an attempt to obtain the health care utilisation of the Swiss population. The current utilization patterns show a high demand for primary care physicians. Such population needs-based mapping may be useful for projecting or planning distributing health care resources and to guide medical education.



[Health care utilisation in 1000 indviduals of Switzerland]

P31

Computer log data and time-motion observations of internal medicine residents: activity during and after clinic hours

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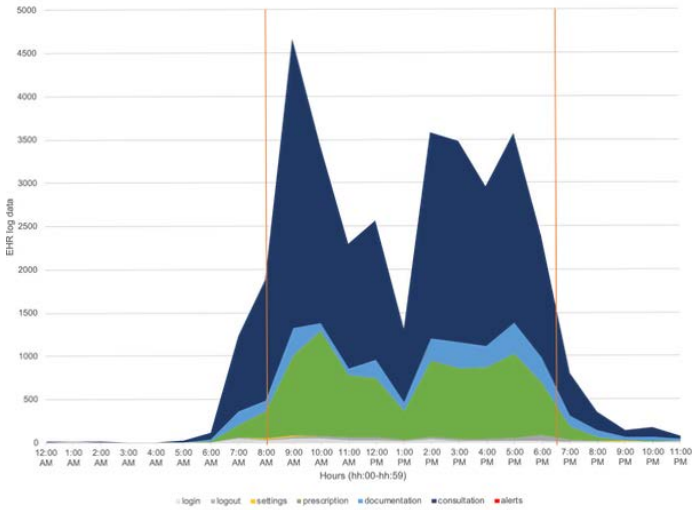
Introduction: The electronic health record (EHR) has become the primary tool of Internists. We performed a time-motion study about residents' activities on wards and observed that they spent 5.1 hours a day with a computer. But actions within the EHR, during and outside clinic hours weren't recorded. What is the activity in the EHR during the workday? Do residents work in the EHR before or after clinic hours?
Methods: 39 residents of the Department of Medicine, in the Lausanne University Hospital (Switzerland), were observed during a time-motion study between May and July 2018. Simultaneously, we collected EHR log data for 32 of them on a day shift planned from 8:00 AM to 6:24 PM. 52 types of logs including time and location were subdivided in login/logout, consultation, documentation, prescription, alerts, and settings.
Results: We collected 35065 logs during 63 observations and results are shown in figure 1.



[Fig 1. EHR log data during the day shift (8:00 AM - 6:24 PM)]

The heaviest period was from 9:15 until 10:00 AM, before patient rounds. The 1:00 PM postgraduate training period marked the lowest activity. Afternoon activity was remarkable until logs dropped at the 4:00 PM nurse desk round, and then decreased until the end of the day. Even low (4%, 1373/35065 logs) EHR activity began early before official shift, sometimes since 5:31 AM. We recorded a higher activity after clinic hours (8% of the day 2675/35065), sometimes until 2:50 AM. At night, logs were mainly consultation (58%, 1557/2675). 13% of after clinic activities were remote. Thus, 66% of physicians worked after the end of their day shift, for an average of 47 min±58 min per day, with a maximum of 4h17 observed after clinic hours.
The number of logs after clinic hours was higher among men (59.5±69.7 vs. 42.0±62.9, p = .000), and physicians with a Swiss diploma (52.4±71.1 vs. 42.3±54.7, p = .000). It decreased with age (Spearman's rho -0.15, p = .000) and years after graduation (-0.26, p = .000). The number of discharges (rho 0.25, p = .000) and admissions (0.13, p = .000) was more strongly correlated with extra activity than with the number of patients in charge (0.06, p = .000).
Conclusion: While residents heavily use the EHR during clinics hours, it tends to overflow before and after into social activity and rest time. This unrecognized activity after clinic hours differs a lot among residents and may increase the risk of burnout. This observation should lead to consider EHR best practices, and allow better supervision of physicians in training, especially the youngest.

P32

Improved agreement of a cuffless 24 hour blood pressure measurement device compared to cuff-based standard measurement

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Introduction: A cuffless blood pressure (BP) measurement device using pulse-transit time (PTT) for beat-to-beat calculation of BP is currently used in clinical settings. This device was certified according to the ESH validation protocol over a period of ≈ 25 minutes. Recently, we published data, demonstrating a significant difference between this cuffless PTT device (TestBP) and a cuff-based standard 24 h BP device (RefBP) with significantly higher BP values measured by the TestBP. In May 2018, the TestBP device software was updated from version 1.4 to 1.5 implementing a new algorithm for the calculation of asleep BP values. The aim of our current study was to evaluate the impact of the new software on BP results.
Methods: From May-December 2017, 71 individuals were prospectively enrolled and categorised into three groups according to mean awake systolic RefBP (<135, 135-149, > = 150 mmHg). Main exclusion criteria were age <25 years or an interarm BP difference >10 mmHg. Cuffless and standard cuff-based 24 h BP measurements were simultaneously performed on either arm. Calibration of the TestBP was done using initial cuff-based measurements. We analysed all measurements of TestBP with software V1.4 and V1.5 and compared the systolic and diastolic mean 24h, mean awake and mean asleep BP values to RefBP.

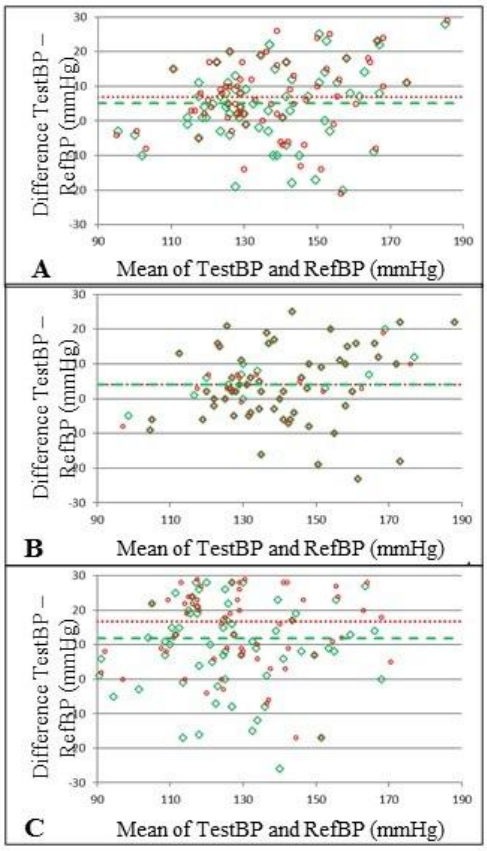

Figure 1 Bland Altman plots comparing systolic mean (A) 24h (B) awake and (C) asleep BP values of Test V1.4/V1.5 and RefBP. Horizontal lines indicate mean differences.
Legend: Version1.4 ◆ Version 1.5 ○ Version 1.4 ··· Version1.5 – –

[Fig. 1 Bland Altman Plots]

Results: Mean (±standard deviation) age was 49(±15) years and 51% were male. Mean (± SD) 24 h systolic BP for the RefBP, TestBP V1.4 and TestBP V1.5 were 134.0(±17.3), 140.8(±20) and 139.1(±20) mmHg, respectively (p-values: RefBP vs TestBP V1.4 <0.0001, RefBP vs TestBP V1.5 <0.001, Test BP V1.4 vs. TestBP V1.5 0.0002). Corresponding mean diastolic BP values were 79.3(±11.7), 85.8(±14.1) and 83.5(±13.0) mmHg with p-values <0.0001 for all comparisons. The mean differences (±SD) for mean, awake and asleep BP values stratified by awake BP groups are shown(Table1). Intraclass correlation coefficients for mean systolic 24h, awake and asleep BP were 0.88, 0.91 and 0.70 for TestBPV1.4 and 0.89, 0.91 and 0.75 for TestBPV1.5, respectively. Bland-Altman plots illustrating mean systolic and diastolic 24h-BP values of the two devices and software versions are shown (Figure 1).
Conclusion: The current study shows that the software update significantly improved the agreement of the cuffless TestBP in comparison to the RefBP, especially regarding asleep values. Best agreements were found with awake systolic and diastolic BP values in the range of 135-149 mmHg.

Table 1. Overview of Mean Difference of RefBP versus TestBP V1.4 and RefBP versus TestBP V1.5 for all Subjects and Over Different Systolic and Diastolic Awake and Asleep Ref BP Categories

Systolic	< 135 mmHg n=36		135-149 mmHg n=15		≥150 mmHg n=20		Overall n=71		
Version	V 1.4	V 1.5	V 1.4	V 1.5	V 1.4	V 1.5	V 1.4	V1.5	p-value
24h	7.6(8.1)	6.0(8.1)	3.7(10.0)	2.3(11.5)	7.8(14.4)	5.7(14.6)	6.8(10.5)	5.1(10.9)	<0.0001
Awake	4.9(8.5)	5.1(8.4)	0.7(8.7)	0.7(8.7)	4.5(13.8)	4.9(13.9)	3.9(10.3)	4.1(10.3)	0.02
Asleep	16.1(10.0)	12.1(10.7)	15.3(15.5)	10.8(18.0)	18.7(18.4)	12.5(19.1)	16.7(13.8)	11.9(14.9)	<0.0001
Diastolic	**< 85 mmHg n=44**		**85-94 mmHg n=16**		**≥95 mmHg n=11**		**Overall n=71**		
24 h	6.3(6.4)	4.2(6.5)	6.2(7.5)	3.1(8.2)	7.9(11.4)	5.6(9.9)	6.5(7.5)	4.2(7.4)	<0.0001
Awake	4.3(6.0)	3.6(6.2)	2.4(7.6)	2.1(7.7)	4.4(11.2)	4.3(11.0)	3.9(7.3)	3.4(7.4)	0.003
Asleep	13.1(8.4)	8.6(9.2)	17.8(7.8)	10.3(10.5)	18.8(11.0)	13.0(10.8)	15.0(8.9)	9.7(9.8)	<0.0001

[Table1: Mean Differences RefBP vs. TestBP V1.4 and V1.5]

P33

Diagnostic accuracy of a cuffless blood pressure device for the detection of elevated blood pressure

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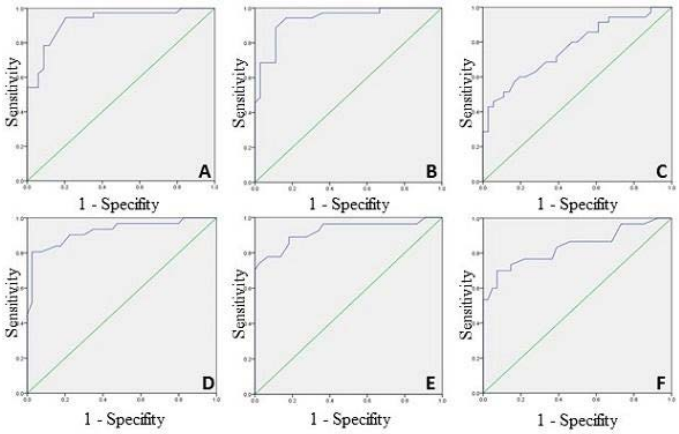
Introduction: A cuffless blood pressure measurement device (TestBP) using pulse transit time for beat-to-beat calculation of blood pressure (BP) values is currently being used in clinical practice and has been compared against a standard cuff-based device (RefBP) over 24 hours (h) by our group, showing significantly higher BP values by the TestBP. However, diagnostic accuracy for the detection of hypertension in comparison to RefBP over 24h remains unknown. Here, we evaluate the ability of the TestBP device to differentiate between normo- and hypertension determined by RefBP
Methods: From May-December 2017, 71 individuals were prospectively enrolled. TestBP and RefBP 24h BP measurements were simultaneously performed on either arm. Main exclusion criteria were age <25 years and interarm BP difference >10 mmHg. TestBP calibration was based on initial RefBP measurements. Participants were classified into normotensive and hypertensive using standard mean systolic and diastolic 24h, awake and asleep cut-offs (130/80, 135/85, 120/70 mmHg) measured by RefBP. Receiver operating curves for TestBP, sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) for different cutoffs were calculated.

Test characteristics		Sensitivity	Specificity	PPV	NPV
	Hypertension by RefBP; Mean systolic 24h BP >=130mmHg				
Standard cut-off	130 mmHg	95%	65%	74%	92%
≥95% sensitivity	133 mmHg	95%	80%	83%	93%
≥95% specificity	148 mmHg	54%	100%	100%	67%
Youden's Index	133 mmHg	95%	80%	83%	93%
	Hypertension by RefBP; Mean diastolic 24h BP >= 80mmHg				
Standard cut-off	80 mmHg	90%	70%	70%	90%
≥95% sensitivity	77 mmHg	97%	53%	62%	95%
≥95% specificity	87 mmHg	81%	98%	96%	87%
Youden's Index	87 mmHg	81%	98%	96%	87%

[Table 1. Test characteristics at different TestBP Cut Off Values for Mean Systolic and Diastolic 24 h]

Results: Mean (±standard deviation) age was 49.3 (±15) years and 51% were male. Using RefBP systolic 24 h, awake and asleep hypertension was detected in 37 (52.1%), 35 (49.3%) and 35 (49.3%) subjects, and diastolic hypertension in 31(44%), 27(38%), 30(42%) respectively. The area under the curve (95% confidence interval) for TestBP hypertension detection versus RefBP was 0.92 (0.86; 0.99), 0.94 (0.88; 0.99) and 0.77 (0.66; 0.88) for systolic and 0.92 (0.86; 0.99), 0.92 (0.85; 0.99) and 0.84 (0.74; 0.94) for diastolic 24 h, awake and asleep BP respectively (Figure 1). TestBP characteristics for different mean systolic and diastolic 24 h cutoff values are shown (Table 1). TestBP had 95% sensitivity and 65% specificity applying standard systolic cutoffs, and 90% sensitivity and 70% specificity applying standard diastolic cutoffs. Highest Youden's Index for mean systolic and diastolic 24 h BP was at systolic 133 and diastolic 87 mmHg.
Conclusions: TestBP showed good-excellent accuracy for detecting 24 h and awake systolic and diastolic hypertension BP values. Highest Youden's indices were at higher BP values than standard cutoffs for systolic and diastolic measurements. For the derivation of device specific cutoffs, larger studies are needed.



[Fig.1 ROC Curves Systolic (A) 24 h (B) Awake (C) Asleep. Diastolic (D) 24 h(E) Awake(F) Asleep]

P34

Barriers and enablers to deprescribing in older patients with multimorbidity and polypharmacy

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Introduction: Multimorbidity and polypharmacy has become the norm for general practitioners (GPs). Ideally, GPs search for inappropriate medication and, if necessary, deprescribe. However, it remains challenging to deprescribe given time constrains and little backup from guidelines. Further, barriers and enablers to deprescribing among patients have to be accounted for.
Method: Our goal wasto identify barriers and enablers to deprescribing in older patients with polypharmacy. We conducted a survey among patients 70 years, with multimorbidity (>2 chronic conditions) and polypharmacy (>4 regular medicines). We invited Swiss GPs, to recruit eligible patients each who completed a paper-based survey on demography, medications and chronic conditions. We applied the revised patients' attitudes towards deprescribing (rPATD) questionnaire and added twelve additional questions and two open questions to assess barriers and enablers towards deprescribing. The study received ethical approval and was funded by the SGAIM foundation.
Result (preliminary): We analyzed the first 221 responses received so far and full results will be presented at the conference. Participants were 79.3 years in mean (SD 5.8), 48% female, 31% lived alone, and 85% prepared their medication themselves, all others required help. 76% of participants took 5-9 regular medicines and 24% took ≥10 up to 22 medicines. 76% of participants were willing to deprescribe one or more of their medicines and 78% did not have any negative experience with deprescribing. Age and gender were not associated with their willingness to deprescribe. Important barriers to deprescribing were satisfaction with drugs (96%), long-term drugs (56%) and noticing positive effects when taking them (92%). When it comes to deprescribing, 89% of participants wanted as much information as possible on their medicines (96%). Having a good relationship with their GP was further key to them (85%).
Conclusions: Most older adults are willing to deprescribe. They would like to be informed about their medicines and want to discuss deprescribing to achieve shared decision making with the GP they trust.

P35

Comparative impact of C-reactive protein testing in hospitalized patients with acute respiratory tract infection: a retrospective cohort study

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Introduction: The Swiss Society of General Internal Medicine (SGAIM), in its Choosing Wisely Campaign, recommends to avoid routine and duplicative laboratory tests. Evidence-based data on the usefulness of C-reactive protein (CRP) monitoring in patient outcomes are lacking. CRP-testing in patients with acute respiratory tract infections (ARTI's) showed wide variability among internal medicine wards in our hospital network. The aim of the study was to investigate whether repetitive CRP-tests might optimize the switch of antibiotic therapy from intravenous to oral route and if CRP measurements could influence the combined outcome of readmission and in-hospital mortality.
Methods: We performed a retrospective cohort study comparing two internal medicine wards selected from a network of five teaching hospitals on the basis of their CRP prescriptions frequency in hospitalized patients with ARTI's.
Results: Clinical and laboratory data from 296 patients admitted from January 1st to December 31st 2016 were analyzed. The mean ± SD of CRP-tests/patient and antibiotic length during hospital stay were respectively in the low-CRP (Lcrp, n = 134) and high-CRP (Hcrp, n = 162) wards 1.4±0.72 vs 3.4±1.54 (p-value <0.001) and 7.0±2.6 vs 7.5 ±3.2 (p-value <0.298). The probability of antibiotic switching was higher in the Lcrp ward (HR 2.90, CI 1.69-4.95 p-value <0.001) correlating with the number of CRP-determinations (HR 1.20, 95% CI 1.01 -1.41; p-value 0.034). In-hospital readmissions and mortality rates were not significantly different in the two wards (Lcrp 17.1% vs Hcrp 10.0%, p-value 0.133). The number of CRP-determinations affects the combined outcome (OR 1.38; 95% CI 1.01-1.90; p-value 0.043).
Conclusions: Repeated CRP testing for ARTI's does not add value neither to antibiotic switch nor to patients´ outcomes in a hospital-network sharing the same guidelines. Clinical evaluation seems to be more useful than the instrumental approach in the treatment of ARTI's.

P36

Potentially inappropriate use of proton pump inhibitors: an increasing trend in Switzerland

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Introduction: In Switzerland, proton pump inhibitors (PPIs) are the 5th most prescribed drug group overall and pantoprazole is the most prescribed drug in primary care. Meanwhile, a growing body of evidence raises concerns about overuse and long term side effects of PPIs. Multiple studies have already assessed the extent of PPI overuse. However, previous estimates have been highly variable due to differences in the definition of PPI overuse and underlying study populations. The aim of this study was to estimate the potentially inappropriate use of PPIs (PIPPI) in the Swiss population on the basis of PPI regimes actually recommended by clinical practice guidelines.
Methods: For this study we used the largest Swiss health care claims database (Helsana), featuring a total observation period from January 2012 to December 2017. Individuals were included if enrolled for at least 12 months and aged >18 years. Individuals with implausibly high PPI prescriptions (>20 grams/day) were excluded. The main outcome of the study was the proportion of PPI users being prescribed more than 11.5 grams of pantoprazole-equivalents during any consecutive 365 days. We defined such a dose as PIPPI use, because it exceeds the most intensive regimen foreseen by guidelines. Specifically, it corresponds to more than 8 weeks of double-dose therapy (i.e. 4480 mg pantoprazole-equivalents) and unlimited maintenance therapy (i.e. 20 mg pantoprazole-equivalents daily) for the remainder of the year. We report time trends of proportions

of individuals receiving PPIs and those fulfilling criteria for PIPPI on a yearly basis throughout the observation period.
Results: Among 1'337'722 eligible individuals, the proportion of individuals with PPIs increased from 19.7% (2012) to 23.0% (2017), (p = <0.001). The proportion of PIPPIs among PPI users increased from 22.6% (2013) to 27.8% (2017), (p = <0.001).
Conclusion: At the end of the observation period, more than one in five individuals was prescribed a PPI. Among PPI users, every fourth received a cumulative dose exceeding maximal guideline recommendations. Thus, more than one in twenty Swiss residents might be exposed to inappropriate use of PPI and this rate might continue to increase.

P37

Does a tailored intervention to promote adherence in patients with chronic lung disease affect exacerbations? A randomized controlled trial

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Background: Poor medication-adherence is common in chronic lung patients, resulting in reduced health-outcomes and increased healthcare-costs.
Objective: To investigate the impact of an acoustic reminder and support calls on adherence to inhaled therapy in asthma and COPD patients and to determine their effect on exacerbations.
Methods: This single-blinded randomized trial investigated patients during 6 months. Exacerbations were recorded and adherence to inhaled medication was monitored using electronic data capture devices. Cox and Poisson regression were used to determine intervention effect on time to exacerbation and frequency of exacerbations, respectively.
Results: Of 149 eligible patients, 75 participants were assigned to the intervention group and 74 to usual follow-up care. During follow-up, 22% and 28% in the intervention and control groups respectively, experienced at least one exacerbation. Intervention had no effect on time to first exacerbation (HR 0.62, 95% CI 0.20 to 1.91, p = .20), but showed a trend toward a 39% decreased frequency of exacerbations (RR = 0.61, 95% CI 0.35 to 1.03, p = .070). The intervention group had significantly more days with 80-100% taking adherence regarding puff inhalers (82±14% vs. 60±30%, p <.001) and dry powder capsules (90±10% vs. 80±21%, p = .01). Timing adherence in participants using puff inhalers was higher in the intervention group (69±25% vs. 51±33%, p <.001).
Conclusion: Patients in the intervention group had significantly better taking and timing adherence of inhaled medication resulting in a trend towards a decreased frequency of exacerbations. However, no effect on time to next exacerbation was observed.

P38

Value-based PCSK9-inhibitor prices derived from fixed QALY-based and individual LDL based models

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Background: Value-based personalized drug prices (PEP) instead of fixed price models (QALY) may avoid rationing of expensive drugs.
Method: We compare a value-based pricing for gains in quality of life (QALY) using a fixed price model and for potentially avoidable events based on expected LDL effects in a personalized price model (PEP) applied to a primary care population with prognostically relevant carotid atherosclerosis applied to LDL lowering drugs including PCSK9-inhibitors.
Results: In the average Fourier or Odyssey patient, Evolocumab and Alirocumab were overpriced by 68% and 71% per QALY and were overpriced by 80% and 83% respectively according to the PEP model. Expected benefits from population-wide lipid lowering with statins and PCSK-9 inhibitors combinations in those with high CVD risk (20% or more) based on posttest-calculations derived from carotid atherosclerotic burden and their observed LDL at baseline (4.14 mmol/l) would avoid 7'371 cardiovascular events per year in Switzerland.
Conclusion: PCSK9-inhibitors are overpriced by 68% to 83% in Switzerland. The huge potential of LDL lowering in high-risk primary and secondary care patients would avoid 7'371 cardiovascular events in Switzerland annualy. New financing concepts should be developed in order to avoid rationing of these highly effective drugs. One way would be a world-wide concept regarding a statal sales guarantee for a certain period at value-based costs per drug unit. This might prevent that pharmaceutical companies do establish toxic prices at the beginning of new product sellings, in order to protect them from income losses.

P39

An unexplained case of acute kidney injury: would you consider orellanine?

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Learning objective: The diagnosis of out-patient acute kidney injury (AKI) can often be made rapidly with clinical and laboratory investigations. Sometimes, however, the etiology remains unclear even after a complete workup including a kidney biopsy. We report a case of severe AKI in which the etiology could be identified only one year after admission when the patient finally confessed that she had consumed *Cortinarius* mushrooms in a suicidal attempt.
Case report: A 46-years woman previously investigated for suspected multiple sclerosis was admitted end-September for nausea and vomiting with dizziness and stupor. A relapse of MS was suspected but a complete neurological workup (LP, MRI, EEG) was normal. An oliguric AKI was also present (Table 1). Renal morphology was normal. The patient was not taking any treatment at admission and repeatedly denied the consumption of non-prescribed medications or drugs. A toxic screening in urine was negative (benzodiazepine, opioid). In the following days the renal function worsened (CrCl 4 ml/min) and hemodialysis (HD) was started. A kidney biopsy showed signs of acute tubular necrosis suggesting a toxic origin; the glomeruli were normal (with few mesangial IgA deposits and a single osmiophilic deposit on EM). With supportive care, the mental status normalized but the patient developed anxio-depressive symptoms. The renal function also improved and HD could be stopped after 6 weeks. The creatinine stabilized thereafter at ≈200 µmol/l. Only one year later the patient finally admitted that in order to suicide she took 3 *Cortinarius orellanus (CO)* mushrooms 5 days before hospitalization.

Table 1: laboratory data at admission

Urea	15,4 mmol/l	Haemoglobin	145 g/l
Creatinine	424 µmol/l	Leucocytes	9,6 G/l
Sodium	138 mmol/l	Platelets	259 G/l
Potassium	4,5 mmol/l	pH	7,35
Ion. calcium	0,98 mmol/l	Bicarbonates	14 mmol/l
Phosphate	1,84 mmol/l		
Total proteins	70,4 g/l	**Urinanalysis**	
Albumin	39.8 g/l	Erythrocytes	3-5 /field
CRP	30 mg/l	Leucocytes	< 3 /field
CK	441 U/l	Sodium	111 mmol/l
LDH	487 U/l	Potassium	14 mmol/l
GOT	32 U/l	Creatinine	5,1 mmol/l
GPT	16 U/l	Proteins	3,55 g/l
gamma-GT	12 U/l	FE Na	6,7 %

[Table 1]

Discussion: Every year in Switzerland, ≈500 cases of accidental - or sometimes voluntary - mushroom poisoning are reported, only rarely due to *CO*. *Cortinarius orellanus* can be found from August to October and contains orellanine that can cause delayed nephrotoxicity by targeting the tubular epithelium. Three to 10 mushroom's hats are sufficient to induce irreversible renal failure. The 3 phases of the *orellanus-syndrome* are reported in Table 2. Therefore intoxication with *Cortinarius* mushrooms should be considered in the differential diagnosis of otherwise unexplained AKI, especially when occurring in late summer and autumn. Once dialysis has to be instituted the prognosis is rather poor: 50% of these patients develop chronic renal failure. Some of them will need chronic HD or kidney transplantation. So far there is no causative therapy.

Table 2: THE ORELLANUS SYNDROME

- Delayed symptom (> 6 hours after ingestion)
- Serious and potentially lethal toxicity

6-12 hours	Gastroenteritis	Nausea, vomiting, diarrhea, abdominal pain
1-4 days	Aspecific symptoms	Headache, general malaise, myalgias, dizziness, stupor
3-20 days	Orellanine	Acute renal failure with interstitial nephritis and tubulointerstitial fibrosis

[Table 2]

P40

Lyme neuroborreliosis: four patients - no rash

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Learning objective: Lyme neuroborreliosis may present with a wide range of neurological symptoms. There are no neurological and imaging findings specific for it. Clinical symptoms, inflammation of the cerebrospinal fluid (CSF) and the specific intrathecal Borrelia burgdorferi antibody index are used for the diagnosis. A lumbar puncture should be considered in unilateral facial nerve palsy.
Cases: Four patients presented to our hospital during the summer of 2018. Patient 1 (P1) was a 19 year old male presenting with fever, emesis, headache and unilateral facial nerve palsy. The second patient (P2) was a 30-year-old female experiencing fever, severe headache with nuchal rigidity and photophobia. Our third patient (P3), a 65-year-old female, initially complained of headache and emesis with diarrhea. She developed vertigo, dysphonia, hypacusis and dysphagia by the time of presentation. Patient 4 (P4) was an 82 year old male presenting with headache, somnolence, low fever and confusion. The past medical history of the patients were unsuspicious. Peripheral blood tests came back with only slightly elevated inflammatory markers. Cranial imaging displayed no suspicious lesions. Analysis of the CSF showed pleocytosis and a disturbance of the blood brain barrier. Intrathecal synthesis of immunoglobulins specifically against Borrelia burgdorferi were detected. The Borrelia antibody index was elevated in all patients. Considering the clinical suspicion, the inflamed CSF and the specific intrathecal Borrelia antibody index, we diagnosed acute neuroborreliosis in all four cases. We treated them with intravenous ceftriaxone and none displayed lasting neurological deficiencies.

	P1 | 19yo | male	P2 | 30yo | female	P3 | 65yo | female	P4 | 82yo | male
CSF cell count [µl]	317	291	527	136
Albumin quotient	8,6	16,9	16,9	27,6
Oligoclonal bands	Not prescribed	Not prescribed	positive	Not prescribed
Intrathecal immunoglobulins	Mainly IgM (borderline significant IgG, IgA)	IgM	IgG, IgM, IgA	IgM
Antibody index IgG	incalculable	incalculable	undetectable	incalculable
Antibody index IgM	40,0	1,41	2,75	11,9

[Patients' CSF characteristics]

Discussion: It has been reported that up to 12% of all Lyme disease patients have signs of a neurological involvement. The most common presentation in adults is Bannwarth's syndrome, which comprises of radicular pain, asymmetric paresis of the limbs and often a bilateral facial nerve palsy. A lymphocytic meningitis commonly appears in children with headaches and occasional nuchal rigidity. More rarely, neuroborreliosis might only cause a myeloencephalitis. P1 showed symptoms of Bannwarth's syndrome with a facial nerve palsy, P2 had a lymphocytic meningitis, P3 had Bannwarth's syndrome with 3 cranial nerve palsies and P4 presented with an encephalitis. None of the patients had skin or joint involvement. These cases highlight that the characteristic erythema migrans do not always precede this disease.

P41

Does electronic health record improvement mean usability improvement? The internists' perspective

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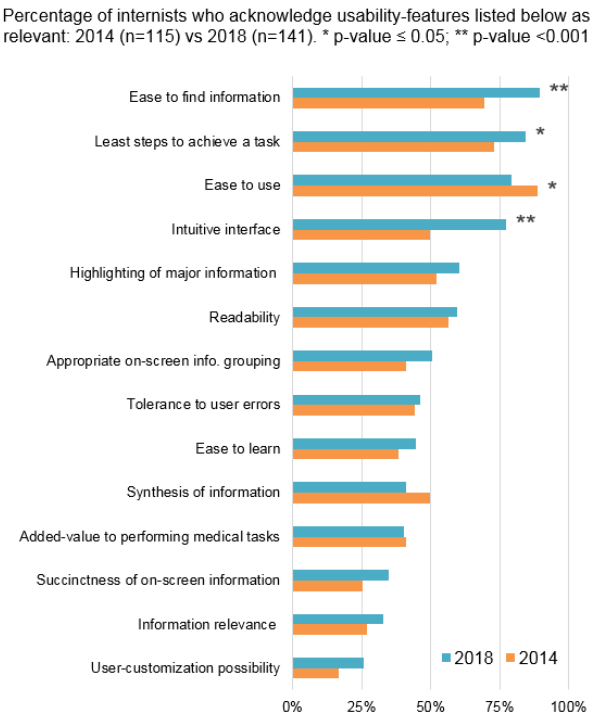
Introduction: In 2010, Lausanne University Hospital implemented a commercial electronic health record (EHR) by Cerner Soarian®, to support both clinical and clerical tasks. In a 2014 survey, internists assessed EHR usability as poor, which led to closer collaboration between clinicians and the information technology (IT) department. For example, clinicians and IT specialists teamed up to implement the new computerised provider order entry (CPOE) module. We aimed to quantify how the internists' perception of usability has changed after 4 years of successive upgrades, to help set improvement priorities.
Methods: We developed and distributed a 61-item survey in 2014. Eligible participants were all physicians working in our department for the last 3 months. We asked participants to assess their level of computer literacy, significance of 14 usability defining features, and the usability of 47 EHR-related tasks on a 6 Likert-type scale (1 = not usable, 6 = perfectly usable). The 2018 survey included 5 additional tasks assessing CPOE. We sorted tasks into coherent groups (**Table**). We calculated mean scores and standard deviation for each group of functionality and overall ranking.



[Figure]

Results: Out of the 286 participants, 256 returned the questionnaire (89.5%). In both surveys, most participants self-reported being comfortable with computers. 'Ease to find information' and 'Fewer steps to achieve a task' were the most frequently designated usability features and were considered relevant by a significantly higher number of participants in 2018 compared to 2014 (**Figure**). Overall, users' perception of EHR usability improved from 2.9 (± 0.6) to 3.3 (± 0.7, p <0.001), mainly because of the highly rated new CPOE module (3.9 ± 0.1, **Table**). The largest increase in scaling was in the 'Planning patient's discharge' group, explained by the development of a dedicated planning interface. Except for one item in the group 'Getting an overview' ('View paramedical information'), whose usability decreased significantly from 2.8 (± 1.1) to 2.3 (±1.0, p <0.001), all EHR-related tasks showed unchanged or improved usability (data not shown).
Conclusion: Close collaboration between physicians and IT specialists leads to significant progress and better usability perception of EHR, even if our survey highlights potential for improvement. While clinical data to be handled keeps increasing massively, physicians expect EHR to keep information seamlessly and easily available.

Table: Internists' assessment of EHR usability: 2014 vs 2018 comparison. Only categories are shown. Results are given on a scale from 1(not usable) to 6 (perfectly usable). NA: not applicable. SD: standard deviation.

	2014 Mean	SD	2018 Mean	SD	p-value
Getting an overview	2.5	0.8	2.6	0.8	<0.001
Writing admission documents	3.0	0.8	3.3	0.9	0.32
Updating the record	3.2	0.8	3.6	0.8	<0.001
Looking for medical history	2.8	0.8	3.0	0.9	0.007
Visualising results	3.6	1.0	3.6	1.0	0.47
Creating lists	2.6	0.8	2.8	0.8	0.022
Administrative data	2.9	0.8	3.1	0.8	0.017
Writing reports	3.4	0.9	3.7	0.9	0.004
Planning patients' discharge	2.3	0.9	2.9	0.9	<0.001
Entering orders			3.9	0.1	NA
Overall average	2.9	0.6	3.3	0.7	<0.001

[Table 2: results]

P42

Primary hyperparathyroidism due to an ectopic adenoma at an atypical age

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Learning objectives: We report the case of a young patient diagnosed with a mediastinal parathyroid adenoma after an episode of nephrolithiasis. Although less common in younger patients, primary hyperparathyroidism should be suspected at any age. Especially when typical complications, such as urolithiasis, are present. New techniques in preoperative imaging not only determine an ectopic localisation, but also help to guide the parathyroidectomy.

Case: A 23-year-old woman presented with a first episode of nephrolithiasis. Further evaluation showed a PTH-mediated hypercalcemia (calcium 2.83 mmol/l, ref.range 2.15-2.50), parathyroid hormone (PTH) 105 pg/ml (ref.range 15-65), hypophosphatemia (0.70 mmol/l, ref.range 0.87-1.15) and hypercalciuria. These laboratory findings confirmed the diagnosis of primary hyperparathyroidism. Negative personal/family history, no concomitant endocrinopathies and negative genetic analysis for multiple endocrine neoplasia type 1 supported a sporadic form. A parathyroid adenoma could not been localized with neck ultrasonography, whereas ^{99m}Tc-pertechnetate sestamibi scintigraphy SPECT/CT detected one functioning ectopic parathyroid gland within the anterior mediastinum.^{18}F-fluorcholine positron emission tomography PET/CT confirmed an intrathymic parathyroid adenoma.Thoracoscopic thymectomy led to adequate decline of parathyroid hormone and normocalcemia was achieved. Histopathological examination confirmed an ectopic parathyroid adenoma (6 mm) in the right thymus.

Discussion: Primary hyperparathyroidism (pHPT) is characterized by hypercalcemia and inappropriately high-normal or elevated PTH, most commonly due to a single parathyroid adenoma. Typical age at presentation is 55 years or older. PHPT is uncommon at younger age and in these cases other hereditary endocrinopathies must be excluded. However, in most patients the disease is sporadic. In contrast to adults, routine biochemical screening is not performed in the younger population, therefore pHPT is more often identified in symptomatic stages. Parathyroid glands are typically located in the neck, though ectopic adenomas represent 6-20% of all cases. Because of embryological development of the inferior parathyroid glands from the third branchial pouch, ectopic glands are found in the mediastinum and within the thymus. To date there is no sufficient data to report different clinical manifestation or more frequent ectopic adenomas in patients younger than 25 years with sporadic pHPT.

P43

Not even a zebra: when an "ordinary acute coronary syndrome" turns out to be a thyrotoxicosis-associated takotsubo syndrome

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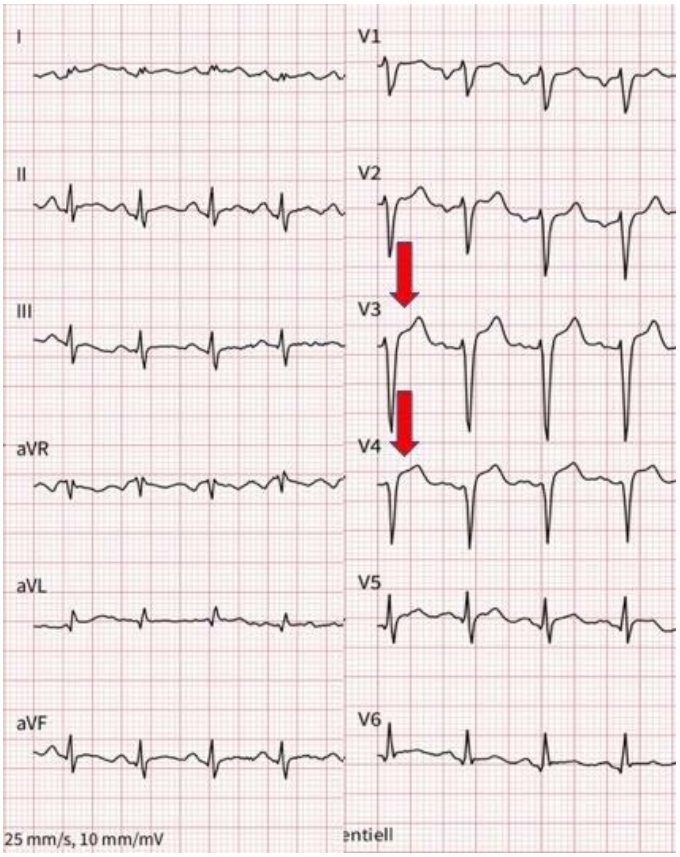
Learning objective: Hyperthyroidism may mimic acute coronary syndrome (ACS) by inducing takotsubo syndrome. Discrepant findings of wall motion abnormalities, ECG changes, cardiac biomarkers in the presence of abnormal thyroid function tests can be suggestive for this rare endocrine cause.

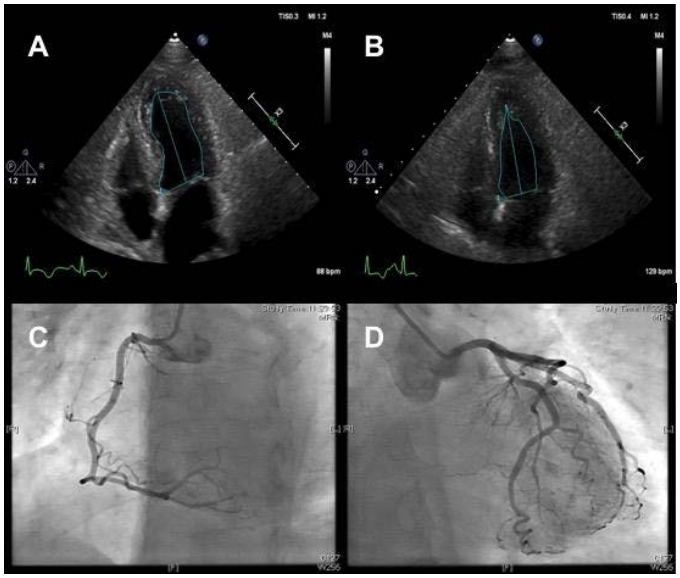
Case: A 75-year-old female patient presented to the emergency department with dyspnea without chest pain. The personal history was significant for COPD, smoking and major depression with a relapse 3 months before admission. On arrival, the patient was tachycardic (125 bpm) and hypertensive (180/90 mmHg) with clinical signs of pulmonary edema. A single nodule in the left thyroid lobe was palpated. The electrocardiogram (ECG) showed sinus tachycardia with ST elevations in V3 and V4 *(Fig. 1)*.



[Figure 1]

Clinical chemistry was significant for an elevated NT-pro-BNP (2,892ng/l), a dynamic elevation of troponin T (baseline 21 ng/l, peak 77.9 ng/l) and a normal creatine kinase. Echocardiography revealed left ventricular systolic dysfunction (LVEF 40%) with apical hypo- to akinesia and left ventricular thrombus *(Fig. 2A)*. Acute myocardial infarction was suspected. However urgent coronary angiography ruled out significant coronary stenosis *(Fig. 2C-D)*. Thyroid function tests obtained before angiography revealed hyperthyroidism with a suppressed thyroid-stimulating hormone (TSH 0.0006 mU/l) and elevated free thyroxine (fT4 42.2pmol/l). Thyroid ultrasound showed a cystic nodule (4cm) in the left thyroid lobe suggestive for a toxic adenoma. Thyroid suppressive therapy was initiated with carbimazole alongside with the usual heart failure therapy. Over the following 5 days, the clinical status significantly improved with regression of dyspnea and tachycardia. Echocardiography 8 days after admission showed complete normalization of left ventricular systolic dysfunction (*Fig. 2B*).

Discussion: This report illustrates an unusual case where the "zebra" (takotsubo syndrome) could be ascribed to an underlying endocrine trigger. The initial diagnosis of myocardial infarction could not be confirmed by coronary angiography. The rapid resolution of regional wall motion abnormalities supported the diagnosis of takotsubo syndrome. The exact pathogenesis of thyrotoxicosis-associated takotsubo syndrome is not yet fully understood but may involve overactivation/hypersensitivity to adrenergic signaling. The case highlights that hyperthyroidism may trigger takotsubo syndrome mimicking ST-elevation myocardial infarction.



[Figure 2]

P44

A mediterranean souvenir to remember

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Learning objectives: Travel in the elderly is increasing and exposes the travelers to specific risks that should be taken into consideration. A thorough medical history is of major importance before starting empiric antibiotic treatment for generally well known clinical syndromes that may have an unexpected causative etiology.
Case report: A 71 year old man with a history of chronic venous insufficiency and a chronic malleolar ulceration presented with a painful swelling and erythema of the lower limb surrounding the malleolar ulceration. Otherwise he was in a good condition with normal vital signs. Laboratory results showed increased CRP and leukocyte count. Erysipela was diagnosed and after drawing of blood cultures, an intravenous empiric antibiotic treatment with Amoxicillin-Clavulanate was initiated. The following days, the patient showed no clinical response to the antibiotic treatment with persistent swelling and erythema and the development of of high grade fever. One single blood culture showed growth of *Shewanella algae*, a maritime bacterium. A thorough patient history was taken, and he mentioned a recent travel to Italy where the first signs of swelling appeared after swimming in the Mediterranean. Subsequently, the treatment was changed to levofloxacin for 14 days with a rapid clinical improvement.
Discussion: *Shewanella algae* infections are reported worldwide in association with maritime water exposure, mainly in tropical areas. In addition outbreaks in association with contaminated water systems have been reported. There is very limited evidence of *S. algae* infections after exposure in the Mediteranean sea. Chronic ulcerations as the port of entry are common. The main complication is bacteremia. In soft tissue infection isolation of a causal microorganism is often not possible, therefore an empirical antibiotic therapy has to be chosen mainly based on clinical presentation and medical history. This case report highlights the importance of the travel history in the elderly traveler with comorbidities, that should not be limited to travel to remote or tropical areas.

P45

Prevalence of anemia in a cohort of hospitalized patients in a Swiss hospital

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Introduction: Various studies have shown a correlation between anemia and age, co-morbidities, length of hospitalization, and mortality. However, many studies focused on specific co-morbidities (i.e. chronic kidney disease, pregnancy, inflammatory bowel disease) or the elderly population. Data on prevalence of anemia in a cohort of hospitalized patients in Switzerland is scarce. The object of this study was to estimate the prevalence of anemia and describe the causes of severe anemia in a Swiss hospital.
Methods: A retrospective, observational study was conducted. Data of a cohort of 8412 patients, aged over 18 years of age with a measurement of their hemoglobin values on admission day were analyzed. Anemia was classified according WHO definition.
Results: Anemia was diagnosed in 31.3% (n = 2632) of the patients. 76.9% (n = 2025) had mild anemia (hemoglobin value 10.0 - 11.9 g/dl in women, 10.0 - 12.9 /dl in men), 17.4% (n = 459) had moderate anemia (Hb 8.0 - 9.9 g/dl), and 5.6% (n = 148) had severe anemia (Hb <8 g/dl). Diagnostic test performed to find the cause of anemia increased according to the severity of the anemia.
The leading cause of anemia in the subgroup of severe anemia (n = 148) was acute or chronic bleeding in 39.2% (n = 58), followed by anemia of chronic inflammation in 35.1% (n = 52), hematological causes in 20.3% (n = 30) and active tumor disease in 19.6% (n = 29). In more than half of patients in this subgroup (56.1%, n = 83) at least two causes of anemia could be observed.
Conclusion: Results from our data show, that anemia, predominantly mild anemia, was highly prevalent in a cohort of Swiss hospital patients, comparable with findings in literature. In patients suffering from severe anemia, acute or chronic blood loss from a gastrointestinal or urogenital source was the most frequent cause. More than half of the population with severe anemia had multiple reasons for their anemia and need therefore a more extensive evaluation.

P46

Intracardiac bubbles - not a love affair

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Learning objective(s):
- MIcrobubbles, or Microcavitations are a rare, but disctinct echocardiac finding
- The search for a port of entry can be difficult, but can lead to potentially curable diseases like gastric ulcer or tumors
- The deleterious potential of the microbubbles depends on their size and amount

Case: A 77-year old man was admitted for acute weakness, His medical history showed mitral regurgitation, ypertensive heart disease, chronic renal failure, and atrial fibrillation.
The patient had a temperature of 39.8°, normal blood pressure, heartrate and oxygen saturation. The clinical examination was unremarkable except for a systolic murmur. He had a hemoglobin of 88g/L, leukocytes of 15.9 G/L, CRP of 60 mg/l, creatinine of 198 µmol/l.
We suspected an infection of unknown origin; Blood cultures were taken and Ceftriaxone was startd: An echocardiography was done due to the mitral regurgitation and surprisingly showed spontaneous microcavitations in the right atrium, ventricle, outflow tract and truncus pulmonalis, no right-to-left shunt. A CT scan of the chest confirmed the findings, but also showed several hypodense hepatic lesions, suspicious of a metastatic disease. A colonoscopy showed an ulcerated colonic carcinoma. The patient refused any further examinations and died 4 months thereafter.
Discussion: Microcavitations are an accumulation of gaseous microbubbles. Usual entry sites are extracorporeal devices or circuits such as intravenous lines. They vary in size, can accumulate to larger bubbles. They can lead to microcirculatory impairment and ischemia, activate the complement system and disrupt the endothelial barrier (1,5), depending on the source, the size and the length of exposure. The port entry, therefore, must be detected. In our case, it seemed to be the colonic adenoma. Microbubble invade the portal system through gastric ulcers, but rarely through the colon (7, 8). Then, microbubbles must find a transhepatic access to the cardiac cavities. Portosystemic and hepatopulmonary shunting is known during radioembolization of hepatic metastases. The shunt fraction of the microparticles varies between 1 and 10%.
Although the translocation of microbubbles through the portal system into the cardiopulmonary circulation is rare, an intestinal neoplasia is a plausible source. Elimination of the port of entry offers also the cure for this potentially deleterious disease.

P47

No association of functional deficiency of complement mannose-binding lectin with cardiovascular disease in patients with systemic lupus erythematosus

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Introduction: Cardiovascular (CV) morbidity is the major cause of death in patients with Systemic Lupus Erythematosus (SLE). Previous studies on MBL gene polymorphisms in SLE patients suggest that low levels of complement mannose-binding lectin (MBL) are associated with cardiovascular disease (CVD). However, as large studies on functional MBL deficiency based on resulting MBL plasma concentrations were lacking, the aim of our study was to analyze the association of MBL concentrations with CVD in SLE patients.
Methods: Plasma MBL levels of 373 SLE patients included in the Swiss SLE Cohort Study (SSCS) were quantified by Enzyme-Linked Immunosorbent Assay. CV organ manifestation (cerebrovascular ischemia, coronary artery disease, myocardial infarction, peripheral artery disease, mesenteric insufficiency), occurring after the diagnosis of SLE, were documented using the Systemic Lupus International Collaborating Clinics (SLICC) damage index. Patients were selected based on the availability of complete disease activity index, SLICC index and plasma samples at the time of study visit.
Results: Of 373 included patients 319 (85.5%) were female and 54 (14.5%) male. The median (IQR) age at enrollment was 44.8 (34.6-57.5) years, the median SLE duration since first clinical SLE manifestation was 9.5 (5.2-18.1) years and the median MBL level was 1131 (335-2344) ng/ml. 129 patients (34.6%) showed levels below 500 ng/ml and 175 patients (46.9%) levels below 1000 ng/ml. In total, 62 patients (16.6%) had at least one CV manifestation, 20 (5.3%) had more than one.
Patients with functional MBL deficiency being defined as plasma concentrations below 500 ng/ml had no significantly increased frequency of CVD (19.4% vs. 15.2%, P = 0.3). Similarly, MBL levels below 1000 ng/ml were not associated with an increased rate of CVD (17.7% vs. 15.7%, P = 0.7). In addition, functional MBL deficiency was not associated with the occurrence of any subcategory of CVD. Adjusting the risk of CVD for traditional CV risk factors, MBL levels and positive antiphospholipid serology (APL+) (n = 162/371, 43.7%) revealed a significant association of CVD with age (P <0.001), hypertension (P <0.005) and APL+ (P <0.003), while there was no association with MBL levels, sex, diabetes mellitus, smoking or body-mass-index.
Conclusion: In our study of a large cohort of patients with SLE, we could not confirm previous studies suggesting functional MBL deficiency to be associated with an increased risk for CVD.

P48

Recruitment process, demographic and compliance data of patients participating in a multimodal therapy study

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Introduction: Malnutrition in cancer patients is a complex problem and requires a multimodal approach. The following analysis investigated the recruitment process of a multimodal trial as well as demographic and compliance data of the study patients.
Methods: Palliative patients were asked participating in a 12-week multimodal intervention trial. Patients in the intervention group, attended twice a week training sessions at the hospital (= 24 units) and once a week a home-based training session (= 12 units). In addition, they received at least three times nutrition counselling and a leucine-rich supplement. Two portions of the supplement should be consumed on training days and one portion on non-training days (= 120 portions). Patients in the control group received usual care without leucine-rich supplements.
Results: In total, 489 palliative cancer patients were screened for study inclusion wherefrom 274 met exclusion criteria. The remaining 215 patients were asked for study participation and 53 consented. One patient died before study inclusion; therefore, 52 patients were randomized. On average, these patients (23 female, 29 male) were 63.1 ±10.3 years old, weighed 72.7 ± 15.4 kg and had a body-mass-index of 25.4 ± 4.7 kg/m^2. Type of cancer in patients recruited for the trial is shown in Table 1.

Cancer	n = 52
Lung	22
Colorectal	9
Prostate	6
Pancreatic	5
Ovarian	3
Renal	3
Breast	2
Urothelial	2

[Type of cancer]

Of the 52 patients, 27 were allocated to the intervention and 25 to the control group. During the 12-week intervention, one patient in each group withdrew. Patients in the intervention group had an average of 17.0 ± 5.2 training sessions at the hospital (70.8%) and 11.4 ± 2.9 at home (95.0%). All intervention patients received all three appointments with the study dietician (100%). In addition, they consumed 85.4 ± 33.2 portions of the leucine-supplements (71.1%). For the follow-up at six month, three patients were lost in the intervention and six patients in the control group.
Conclusion: Palliative cancer patients are a vulnerable study group for nutrition and exercise trials, i.e. only 10.8% of the screened population participated. However, the contributing patients showed a good adherence to the program, especially to the nutrition counselling and the home-based training sessions.

P49

Association between mobility and functional decline in elderly patients hospitalized in a Swiss University hospital. A monocentric observational cohort study (Next Step)

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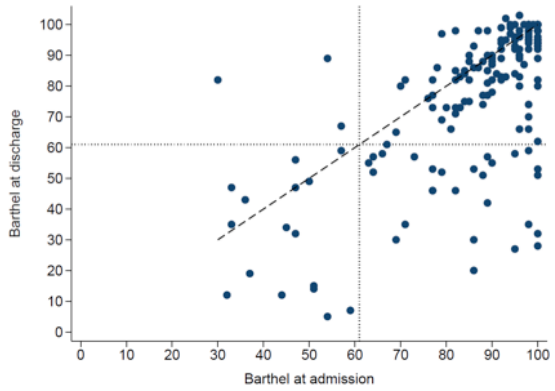
Introduction: Low mobility during hospitalization is associated with in-hospital functional decline and other negative outcomes, but few studies have objectively assessed mobility among hospitalized patients. Hence, we aimed to examine to which extent low mobility was associated with hospital-associated functional decline and other adverse outcomes at discharge in elderly patients hospitalized in a medical ward.
Methods: Monocentric observational study conducted from February to November 2018 in an internal medicine ward of the Lausanne university hospital, Switzerland. Patients aged ≥65 years (n = 200) had their physical activity levels assessed using a 3D wrist accelerometer. Based on a previous report, we considered patients as sedentary if their average daily physical activity was <12 milli-g (units of acceleration, 1g = 9.8 m.s^{-2}). Nighttime was not considered in the analyses. The primary outcome was patients´ evolution of functional status between admission and discharge, measured using the modified Barthel index (BI). Functional decline was defined as BI worsening by ≥ five points at discharge. Secondary outcomes were in-hospital falls, length of stay, risk of bedsores (Braden score ≤18) and inability to return home at hospital discharge (i.e. need of rehabilitation or new institutionalization).
Results: Of the initial 200 patients, 124 (62%) had accelerometry data for at least 2 days. Median patient age was 83 (interquartile range [IQR] 74-97), 60% were male, 30% had a cognitive impairment. Forty five percent of patients were considered sedentary. Their median daily time of inactivity was 762 minutes (~13.5 hrs) per day. Median daily activity time was 1.8 minutes (IQR: 0.8-3.4) for sedentary patients vs, 15.2 minutes (IQR: 9.5-26.5, p <0.01) for ambulatory patients (**Table**).
Changes in functional status between admission and discharge are shown in the **figure**. Overall, 50 patients (40%) presented hospital-associated functional decline. Sedentary patients had a higher change in BI, a higher risk for bedsores at discharge and were less frequently able to return home directly after discharge than ambulatory patients, in both bivariate and multivariable analyses (**Table**). Similar findings were obtained when the analysis was expanded to all patients with valid accelerometry data (n = 160).
Conclusion: Almost half of elderly hospitalized patients are sedentary. Being sedentary was associated with a worse outcome.

	Sedentary (n=57)	Ambulatory (n=67)	P value
Women (%)	22 (38.6)	29 (43.3)	0.597
Age (years)	81 ± 9	81 ± 8	0.893
Body mass index (kg/m²) [a]	24.5 ± 4.5	24.7 ± 4.7	0.820
Physical activity levels (% time)			
No physical activity	99.8 [99.6 - 99.9]	97.9 [97.1 - 98.8]	<0.001 ¦
Any physical activity	0.2 [0.1 - 0.4]	2.1 [1.2 - 2.9]	<0.001 ¦
Physical activity levels (min/per day)			
No physical activity	762 [725-795]	762 [725-812]	0.225
Any physical activity	1.8 [0.8-3.4]	15.2 [9.5-26.5]	<0.001 ¦
Outcomes, bivariate			
Change in Barthel index	4 [0 - 24]	0 [0 - 8]	0.048 ¦
Worsening of Barthel index (%)	27 (47.4)	23 (34.3)	0.140
Risk of sores at discharge (%)	39 (69.6)	26 (44.8)	0.007
In-hospital falls (%)	2 (3.7)	1 (1.5)	0.425 §
Inability to return home (%)	36 (64.3)	29 (43.3)	0.020
Length of stay (days)	7 [6 - 10]	7 [5 - 9]	0.321 ¦
Outcomes, multivariable [b]			
Worsening of Barthel index	1 (reference)	0.58 (0.28 - 1.21)	0.145
Risk of sore at discharge	1 (reference)	0.35 (0.16 - 0.79)	0.011
In-hospital falls	1 (reference)	NA	
Inability to return home	1 (reference)	0.39 (0.18 - 0.84)	0.016
Outcomes, multivariable [c]			
Worsening of Barthel index	1 (reference)	0.70 (0.32 - 1.49)	0.353
Risk of sore at discharge	1 (reference)	0.43 (0.18 - 1.03)	0.059
Inability to return home	1 (reference)	0.45 (0.20 - 0.99)	0.049

[a], based on 57 sedentary and 67 ambulatory; [b], adjusting for gender and age; [c], as previous, plus adjusting on Barthel index at admission. NA, not assessable. Results are expressed as mean ± standard deviation or as median and [interquartile range] for continuous variables, and as number of patients (percentage) for categorical variables. Statistical analysis by student's t-test or Kruskal-Wallis test (¦) for continuous variables and chi-square or Fisher's exact test (§) for categorical variables.

[Table: Analysis of characteristics and the outcomes according to mobility levels.]



[Figure: Functional status at admission and discharge (best score is 100)]

P50

Low antibiotic resistance patterns in urinary tract infections in Swiss primary care: active surveillance study

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Introduction: Urinary tract infections (UTI) are one of the most common reasons for prescribing antibiotics in primary care. In Switzerland, the Swiss Center for Antibiotic Resistances (www.anresis.ch) provides resistance patterns for uropathogens by passive surveillance. In clinical practice, a microbiological urine analysis is not recommended in most cases of uncomplicated UTI. Therefore, national resistance data overestimate the true resistance patterns. The aim of this study was to provide actual data of the antimicrobial resistance patterns in patients with UTI in Swiss primary care.
Methods: From June 2017 to August 2018, we conducted a cross-sectional study in 163 practices in Switzerland. Urine specimen, epidemiological, and medical data were obtained in all patients with a diagnosis of UTI (complicated or uncomplicated). Exclusion criteria were age <18 years, pregnancy and patients with a pyelonephritis. All microbiological analyses were centralized (Dr. Risch) and analyzed according to current EUCAST guidelines.
Results: 1,352 patients were included in the study. 94.9% of the patients were female with a mean (SD) age of 53.8 (20.8) years. 1,210 cases (89.4%) were classified as uncomplicated UTI. *E. coli* was the most frequent pathogen (74.6%). Susceptibility proportions of *E. coli* to Ciprofloxacin (88.89%, 88.82%-88.96% CI 95%) and Trimethoprim/Sulfamethoxazol (TMP/SMX) (85.66%, 85.58%-85.74% CI 95%) were significantly higher than the proportions reported by Anresis (78.4% and 77.8% for Ciprofloxacin and TMP/SMX, respectively in 2017) (p <0.001 for both). Susceptibility for Ciprofloxacin and TMP/SMX ranged from 84.6% to 90.9% and 76.5% to 90.9% across regions. We found high susceptibility to the recommended first line antibiotics Nitrofurantoin (99.48%, 99.47%-99.5% CI 95%) and Fosfomycin (99.35%, 99.34%-99.37% CI 95%).
Discussion: In this study, we report actual data on the resistance patterns of uropathogens in the Swiss primary care setting. *E. coli* was the most common pathogen for UTI, showing low resistance rates to the recommended first line antibiotics. Resistance to Ciprofloxacin and TMP/SMX were significantly lower than reported by Anresis, making TMP/SMX a suitable and cheap alternative for the empirical treatment in Swiss primary care. However, due to their importance in the treatment of extra-urogenital infections, fluoroquinolones should be avoided for the empirical treatment of UTI despite their high susceptibility.

P51

Evaluation of the online doctor-consultancy in dermatology- evidence of a fast and high-quality service

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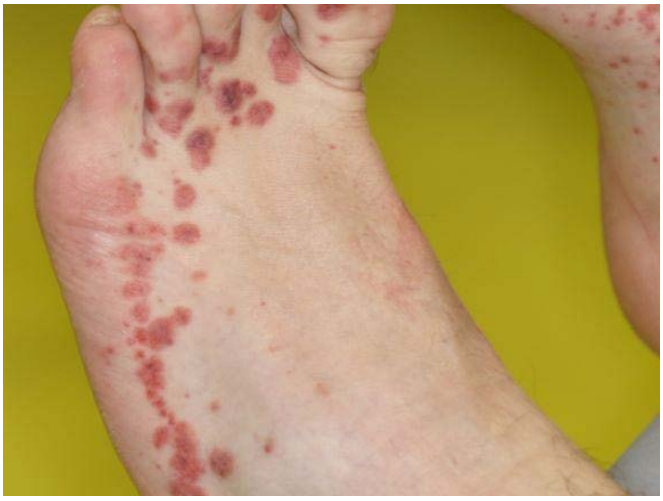
Introduction: There is an ever increasing demand for dermatologic services for patients as well as health professionals. Especially for in-hospital patients with a high incidence of drug interactions, allergies and sometimes life-threatening events a fast and professional answer is required and crucial for treatment decisions. Withholding vital medications can be detrimental.
For most institutions a 7/24 dermatological service is rarely available.
Our aim was to evaluate quality and timing of the web based onlinedoctor, implemented by one of us (E.P.S.[3]) in 2018.
This protected digital service for a professional dermatological assessment was developed in a structured fashion, with 2-layer authentified secured transmission of patient data and professional documentation. Servers are located in Switzerland, patient data are kept strictly separate from the medical records.
Additionally, we trained two attendings specialized in internal medicine to recognize the most common dermatological diseases and to perform digital dermatoscopy and skin biopsy whenever deemed necessary, to optimize services.
Methods: We analysed anonymously the data of all requests submitted from a 400-bed Swiss teaching hospital in 2018. Follow up consultations or need for biopsy were analysed. The turnaround times were recorded.



[Picture submitted via web.app The dermatologist approved the suspected diagnosis of purpura Schoenlein Henoch, which was then confirmed by a biopsy]

[Screenshot of the Onlinedoctor's web app.]

Results: In 2018 we had 86 formal requests for a dermatological assessment for hospitalized patients. The most frequent diagnoses were eczema (48%), adverse drug reaction(12%), infections (12%) and others including auto-immune disease (28%). 75% of all cases did not require the physical presence of a dermatologist.
25% of the patients received a biopsy to establish a definitive diagnosis. In 73% of the cases the response was received within 24 hrs, the remaining 27% were answered within 48 hrs. Reasons for follow up visits were case complexity, need for dermatoscopy or biopsy or insufficient quality of pictures.
Conclusions: The OnlineDoctor is a protected and safe digital service which allows patients and health professionals to receive a rapid advice from an experienced dermatological specialist.
It provides a reliable tool for an institution without a continuous in-house consultancy service
Our experience encourages teledermatological services by an experienced online specialist
By educating internists in the basics of dermatology and training them in dermatoscopy and skin biopsies the procedures are optimized and provide a rapid and high-quality medical service.

P52

Differential diagnosis assessment in ambulatory care with an automated medical history-taking device: a pilot randomized study

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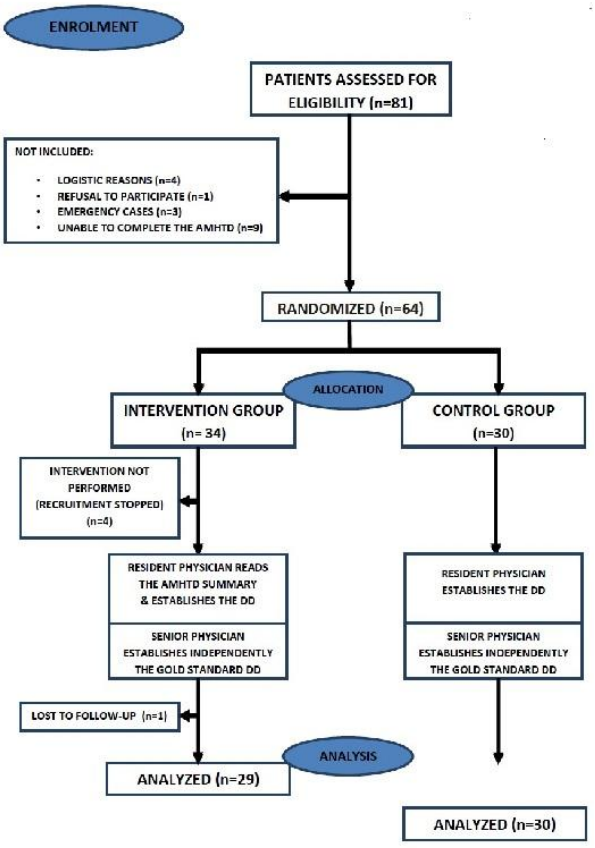
Background: Automated medical history-taking devices (AMHTD) are emerging tools with the potential to increase the quality of medical consultations by providing physicians with an exhaustive, high-quality, standardized anamnesis and differential diagnosis (DD).
Objective: This study aims to assess the effectiveness of an AMHTD to obtain an accurate DD in an outpatient service.



[Study flow chart]

Methods: We conducted a pilot, randomized controlled trial including 59 patients presenting to an emergency outpatient unit and suffering from various conditions affecting the limbs, the back and the chest wall. Resident physicians were randomized into two groups, one assisted by the AMHTD and one without access to the device. For each patient, physicians were asked to establish an exhaustive DD based on the anamnesis and clinical examination. In the intervention group, residents read the AMHTD report before performing the anamnesis. In both groups, the senior physician had to establish a DD, considered as the gold standard, independent of the resident's opinion and the AMHTD report.
Results: Physicians in the intervention group (n = 29) had more years of clinical practice compared to the control group (n = 30) (mean: 4.3 ± 2 vs. 5.5 ± 2, respectively; P = .03). There were also 16.1% more DDs in the intervention group (mean: 75.3 ± 26% vs. 59.2 ± 31%, respectively;

P = .01). Subgroup analysis showed a between-group difference of 3.3% for low complexity cases (1-2 DDs possible), 31.1% for intermediate complexity (3 DDs), and 23.7% for high complexity (4-5 DDs), all in favor of the AMHTD. The AMHTD was able to determine 72.6 ± 30% of the correct DDs. Patient satisfaction was good (4.3/5) and 26 out of 29 patients (90%) estimated being able to accurately describe their symptoms. In eight of 29 cases (28%), the residents considered that the AMHTD helped in DD establishment.
Conclusions: The AMHTD allowed physicians to make more accurate DD, particularly in complex cases where the diagnosis is not evident. This could be explained not only by the ability of the AMHTD to make the right diagnoses, but also by the exhaustive anamnesis provided.

P53

Clinical practice guidelines of medical societies in Switzerland: analysis of the current state

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Introduction: In Switzerland, not much is known about the availability and overall quality of clinical practice guidelines (CPGs). By conducting a comprehensive systematic search, our aim was to identify and describe the characteristics of current CPGs developed or endorsed by Swiss medical societies.
Methods: A systematic search was completed in two medical literature databases, two major non-indexed Swiss medical journals, Swiss medical societies' websites, and the FMH guidelines platform. Inclusion criteria for the retrieved documents were that they: 1) contain recommendations for patient care provided by physicians; 2) define specific clinical circumstances; 3) are developed, adapted or endorsed by one of the Swiss national medical specialty societies. Documents with publication date before 2008/01/01 or containing only public health recommendations were excluded. Retrieved documents were screened by two reviewers in parallel. Data on the reported methods as well as transparency and quality indicators of the CPGs were extracted in a standardised way.
Results: A total of 295 CPGs were included in the analysis, 199 of which were found only on the societies' websites. 159 (54%) of guidelines had at least one predefined keyword in the title, most frequently "Empfehlung" or "Guideline". Health areas with the highest number of CPGs were cardiovascular (55) and infectious diseases (52). Most CPGs were developed in Switzerland (212), in cooperation with German and/or Austrian societies (29), or by other international organizations (54). At least one author and the date of publication were reported in 83% and 94% of guidelines, respectively. Conflicts of interest were stated in 44% and financial support documented in 29% of the guidelines. Any method of guideline development was mentioned in 56% of CPGs.
Conclusions: Numerous CPGs provide recommendations for clinical practice in Switzerland. The majority are published on medical societies' websites only. The quality of reporting is extremely heterogeneous, ranging from documents without reported authors, methods of development and publication date, to guidelines using a grading of recommendations and being based on a systematic review of evidence. CPGs could potentially be improved by using a standardised development and reporting framework. We hope that this first overview of CPGs in Switzerland will foster further discussions on this topic.

P54

Pseudo or spurious hypertension among male youths in Southern Switzerland

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Objective: There is a debate about prevalence and significance of Isolated Systolic Hypertension in the Young (ISHY). Frequency and type of ISHY were therefore investigated among Swiss male citizens, who undergo a medical examination for recruitment into the army in the year they turn 18 to 19.
Design and method: Among males, who underwent the examination for recruitment between 2014 and 2016 in Southern Switzerland, 1027 accepted to participate in a research protocol addressing their cardiovascular health including among others blood pressure (BP) measurement. A single high BP reading does not mean hypertension and the average of several readings provides a more reliable estimate of BP. Consequently, more readings were taken with the average mode technology (Microlife® BP3AC1-1) in volunteers with an initial reading = or >140/90 mmHg. Further readings with the same technique were obtained 24 hours later in subjects with an average reading = or >140/90 mmHg. Central BP (Arteriograph®, TensioMed, Budapest, Hungary) was measured in subjects with Isolated Systolic Hypertension (ISH) to identify pseudo or spurious hypertension.
Results: Among the 1027 participants, the first blood pressure reading was = or >140/90 mmHg in 337. Average mode blood pressure was still = or >140/90 mmHg in 276 subjects. Twenty-four hours later, BP was = or >140/90 in 78 subjects. ISH (BP = or >140 / <90 mmHg) was observed in 57 of the mentioned 78 subjects. A reliable central BP determination was obtained in 47 of the subjects with ISH. Pseudo or spurious hypertension (central BP <130 mmHg) was noted in 25 cases.
Conclusions: Among males 18 to 19 years of age living in Southern Switzerland, ISHY is found in approximately 5%. The determination of central BP indicates that pseudo or spurious hypertension accounts for approximately half of the cases.

P55

Are patients with subclinical thyroid dysfunction at risk of depressive symptoms? An individual participant data analysis of prospective cohort studies

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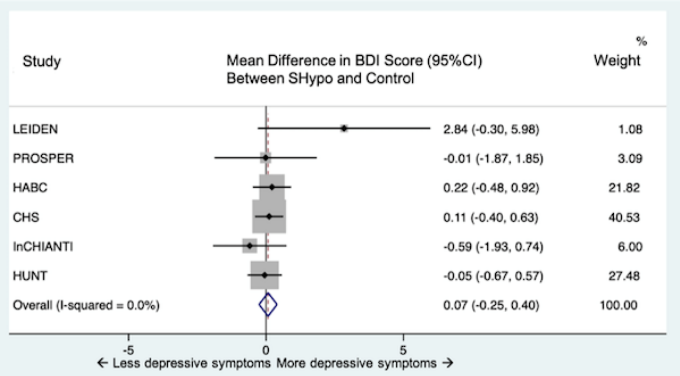
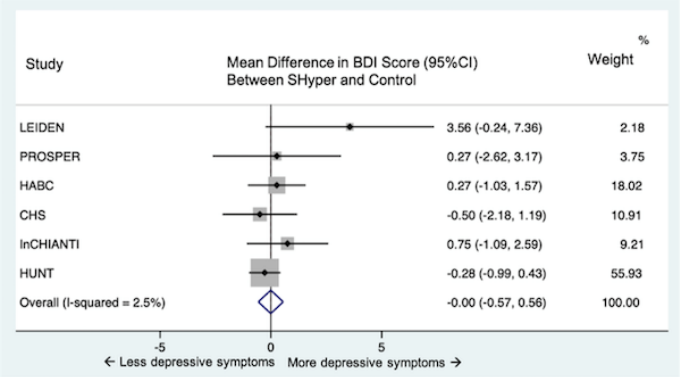
Introduction: Subclinical thyroid dysfunction may be associated with several negative health outcomes; including depressive symptoms. However, evidence for this association is conflicting across a large number of studies, in part due to inconsistencies in definitions and cut-offs. Further research is required to inform clinical practice and guidelines.
Methods: We conducted a systematic review of cohort studies to assess the association between subclinical hypothyroidism (SHypo) or subclinical hyperthyroidism (SHyper) and depressive symptoms. We requested individual participant data (IPD) from cohorts identified through a search of EMBASE and MEDLINE and through the Thyroid Studies Collaboration (www.thyroid-studies.org). The outcome was depressive symptoms at first follow-up, measured on any validated depression scale. We calculated conversion factors to convert all scores into the Beck Depression Inventory (BDI) scale (range: 0-63, minimal clinically important difference: 5). SHypo and SHyper were defined as elevated thyroid stimulating hormone (TSH) (≥ 4.5 mIU/L) and reduced TSH (<0.45 mIU/L) respectively, in combination with normal free thyroxine levels. We performed a two-stage IPD analysis. In each cohort, we estimated the mean difference (MD) in depressive symptoms scores between those with SHypo or SHyper and euthyroid controls adjusted for depressive symptoms at baseline. Further, we adjusted the multivariable linear regression analysis for age, sex and length of follow-up. We pooled the study effect estimates by using a random effects model. Heterogeneity was assessed by I^2.
Results: Among six cohorts, we analyzed data from 24,962 participants (65% female, mean age 61±13.3 years, SHypo N = 2,534, SHyper N = 684). At baseline, there was no difference in BDI scores between SHypo (10.67), SHyper (10.78) and controls (10.25). After a mean follow-up time

of 7.8±4.6 years BDI scores did not differ between SHypo participants and controls (pooled MD 0.07, 95% CI -0.25 to 0.40, I^2 0.0%) nor between SHyper and controls (pooled MD -0.004, 95%CI -0.57 to 0.56, I^2 2.5%). The results remained robust in sensitivity analyses, excluding participants taking thyroid medication (N = 23,602).
Conclusion: In this large study of prospective cohorts, neither SHypo nor SHyper were associated with an increase in depressive symptoms. Depressive symptoms do not seem to be a good indication for thyroxine therapy if no overt thyroid dysfunction is present. PROSPERO ID: CRD42018091627



[Mean difference in depressive symptoms between subclinical hypothyroidism and control]



[Mean difference in depressive symptoms between subclinical hyperthyroidism and control]

P56

A rare cause of dilated cardiomyopathy in a young woman in Switzerland

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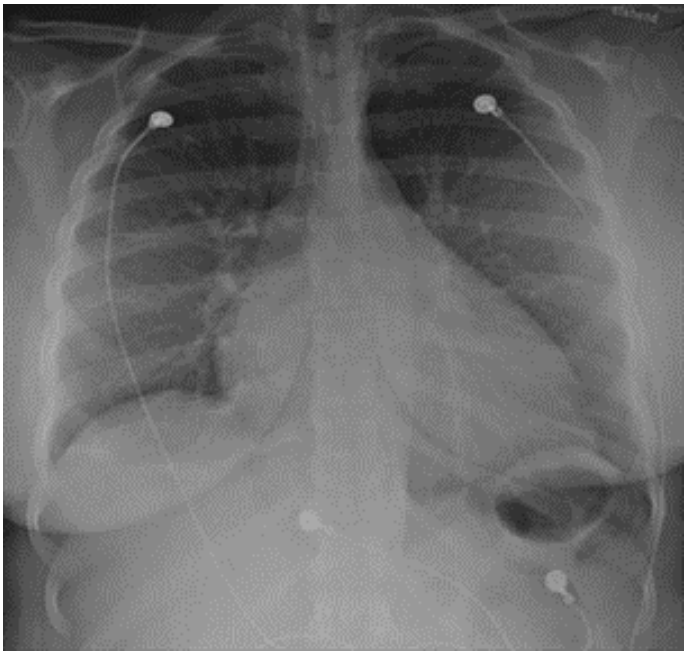
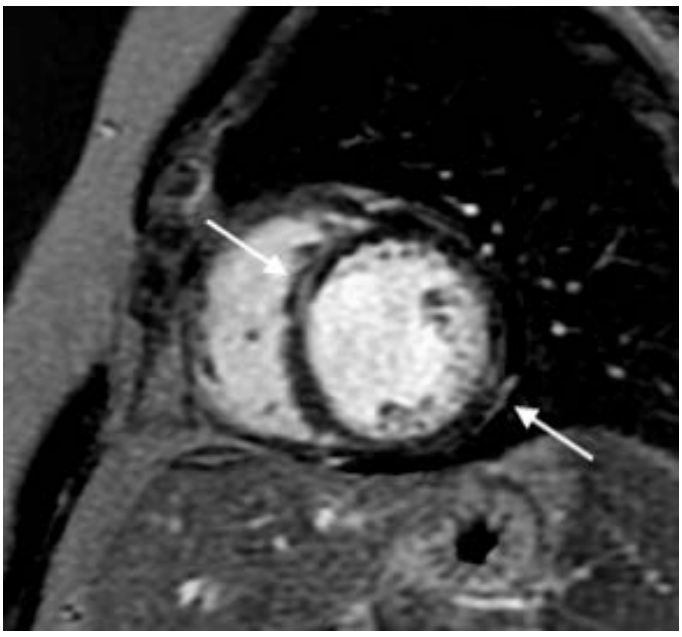
Learning objective: In times of increasing migration and mobility, physicians should be aware of rather exotic differential diagnosis to ensure a qualitative high and contemporary medicine.
Case: A 45-year-old woman was admitted to the emergency room because of progressive dyspnea and chest discomfort. The medical history was unremarkable. The patient was born in Brazil and grew up on a farm. Physical examination showed a hemodynamically stable patient with signs of volume overload and respiratory distress. Laboratory examination revealed a BNP value of 815 ng/l. ECG showed sinus rhythm with left bundle branch block and peripheral low voltage. Chest X-ray revealed cardiomegaly and bilateral pleural effusions and in the echocardiography we found a dilated left ventricle with severely impaired left ventricular function (ejection fraction, EF 25%), hypokinesia and thinning of the septum.



[X-Ray with cardiomegaly and bilateral pleural effusions]

Later in the course, cardiac magnetic resonance imaging showed late gadolinium enhancement (fibrosis) in the septum and lateral epicardial wall (arrows).



[Cardiac Magnetic Resonance Imaging (MRI) with late gadolinium enhancement (arrows)]

We assumed heart failure NYHA IV due to dilated cardiomyopathy of unknown etiology and the patient was admitted to the ward for further diagnostics and initiation of heart failure therapy. In the clinical reasoning process we could exclude the most common cardiomyopathy causes. Owing to the patient's ethnicity, Chagas disease was considered at an early stage in the investigations and tests for IgG against Trypanosoma cruzi were positive, confirming Chagas disease. The patient was received heart failure treatment, which improved the EF from 25 to 40%. Due to late stage of chronic Chagas disease, antiparasitic therapy was not indicated.
Discussion: Chagas disease is a major cause of cardiovascular death in areas where it is endemic. Although rarely observed in Switzerland, increased awareness of the disease is important in times of migration and travel. Chagas disease is caused by T.cruzi, which is transmitted by triotamine bugs. Acute infection is often asymptomatic and resolves

spontaneously in most cases, but it may lead to chronic Chagas disease. The chronic disease is diagnosed by the corresponding clinical presentation and detection of antibodies against T.cruzi. Chagas disease is treated with benznidazole or nifurtimox. Drug treatment can be offered to patients with acute infection and to adults with chronic infection without severe hepatic/renal insufficiency or advanced Chagas heart disease.

P57

A paralyzing abdominal pain with "red flags"

Alessia Proietti[1], Petra Ferrari Pedrini[1], François Fontana[2], Anna E. Minder[3], Elisabeth I. Minder[3], Markus Schwendinger[4], Alexander A. Tarnutzer[5,6], Jürg H. Beer[1,7]

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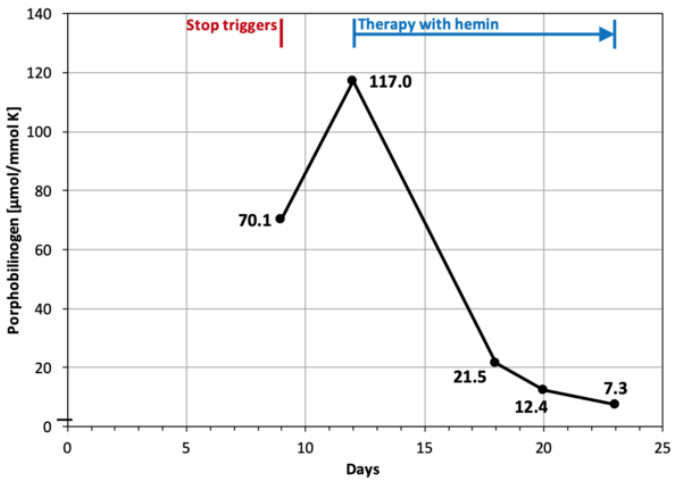
Learning objectives: To illustrate how abdominal pain can be the initial symptom of the rare, serious and often life-threatening porphyria followed by severe paralyses. Porphyria as a differential diagnosis should be considered in any case of unclear abdominal discomfort, especially since the analysis of urine is specific and noninvasive.

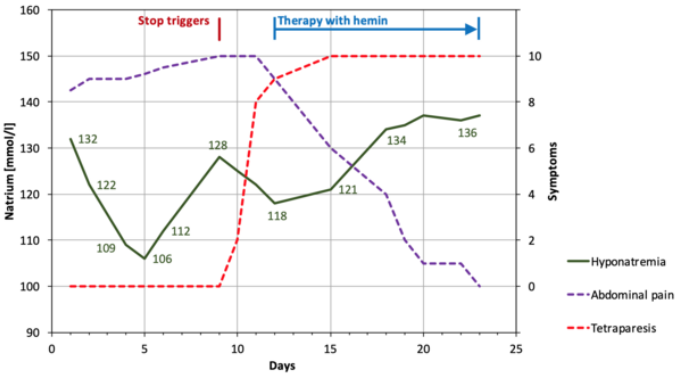
Case: A 29y old woman presented to the ER with abdominal pain. She reported absent bowel movements with severe constipation. She had gone through psychological stress recently, felt otherwise well; medication consisted of hormonal contraceptives. Previously, similar episodes had been assessed by gastro- and colonoscopy without reaching a diagnosis. An abdominal CT, a gynecological examination and even a diagnostic laparoscopy on day 3 were negative. A reddish colored urine led to nitrofurantoin prescription for suspected urinary tract infection.

The pat. condition worsened within a week and she developed severe hyponatremia, diffuse sensory loss and a flaccid, proximally pronounced tetraparesis by day 9 (Fig. 1,2). Due to swallowing difficulties she had to be tracheotomized. MRI-based neuroimaging and cerebrospinal fluid were within normal range. The analysis for urinary porphobilinogen turned out to be highly positive, confirming the diagnosis of acute hepatic porphyria. Under intravenous administration of hemin, glucose application and avoidance of triggers the abdominal pain improved and sodium levels normalized. The tetraparesis was progressive, sparing only finger flexion and foot flexion and reached a plateau after 1 week. ENG demonstrated severe progressive axonal motor neuropathy and emerging signs of denervation. The pat. was discharged after 3 weeks for rehabilitation, currently ongoing.

Discussion: Intermittent acute porphyria is a rare disease (prevalence 5:100'000). It typically presents after puberty with attacks of abdominal pain, constipation, hyponatremia, neurological symptoms. In our case we identified several triggers: fasting for endoscopies and laparoscopy, medication (barbiturates, nitrofurantoin, metamizol, gestagens). An at least 5-times increased urinary porphobilinogen during an attack (with typical urin darkening upon light exposure) is highly sensitive and specific. Recovery is usually good within weeks/months, including the paralyses. Our case emphasizes the importance of considering even rare diseases as differential diagnosis, especially if they have significant therapeutic consequences.



[Fig. 1: Levels of porphobilinogen before and after avoidance of triggers and the start of hemin.]



[Fig. 2: Levels of serum natrium (left) and intensity of the symptoms (right) relating to therapy.]

P58

Recombinant human C1 esterase inhibitor (Conestat alfa) in the prevention of contrast-induced nephropathy in high-risk patients (PROTECT): a randomized, placebo-controlled, double-blind single-center trial

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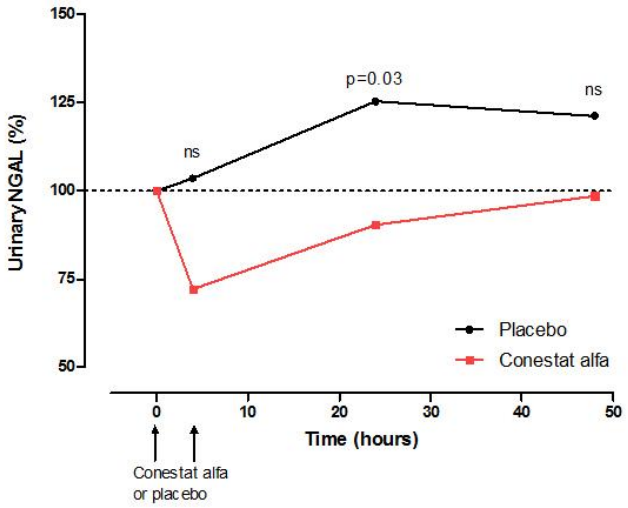
Introduction: Contrast-induced nephropathy (CIN) is a leading cause of acute kidney injury and is caused by renal tubular toxicity and ischemia/reperfusion (IR) injury. Experimental data support the concept that recombinant human C1 esterase inhibitor (conestat alfa) may be effective in the prevention of CIN.

Methods: In this randomized, placebo-controlled, double-blind single-center trial, we recruited patients aged 18 years or older with chronic kidney disease (eGFR of ≤50ml/min/1.73m^2), at least one additional risk factor for CIN, and who underwent an elective coronary angiography. Patients were randomly assigned (1:1) to receive 50 IU/kg conestat alfa immediately before and four hours after angiography or placebo. The primary outcome was the peak increase of urinary neutrophil gelatinase-associated lipocalin (NGAL) within 48 hours after angiography. This trial is registered with ClinicalTrials.gov, number NCT02869347.

Results: Between January 2017 and May 2018, 77 patients were randomized to either the conestat alfa group (n = 38) or the placebo group (n = 39). Baseline renal function (median eGFR 40.3 (conestat alfa) vs. 39.9 (placebo) ml/min/1.73m^2), amount of contrast media administered (median 110 vs. 112 ml) and baseline urinary NGAL levels were similar. A median increase of 91.7% in serum C1 inhibitor levels was observed after conestat alfa administration.

Median peak increase of urinary NGAL was lower in the conestat alfa group (4.7 vs. 22.5 ng/ml, p = 0.04) in the entire population and in a prespecified subgroup (patients with a percutaneous coronary interventions; median 1.8 vs. 26.2 ng/ml, p = 0.04 corresponding to a median percentage peak change of 11 vs. 205%, p = 0.001).



[Course of urinary NGAL]

The incidence of a cystatin C increase ≥10% within 24 hours was lower in the conestat alfa group (15.8% vs. 36.1%, p = 0.04), whereas the frequency of CIN and the peak change in troponin T within 48 hours were comparable. Cardiac and renal events during a three month follow-up were similarly distributed as were adverse events.

Conclusion: Administration of conestat alfa before and four hours after coronary angiography attenuated the rise in urinary NGAL, a marker of acute kidney injury, and decreased the incidence of a relevant cystatin C increase, in particular in patients undergoing more invasive procedures requiring higher volumes of contrast medium. In addition, the safety profile of conestat alfa was favorable in a patient population with multiple comorbidities.

P59

Best measures to identify multimorbid patients with high healthcare resource utilization

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Introduction: While most studies define multimorbidity as the presence of ≥2 conditions, its definition remains heterogeneous and not well standardized. We compared different measures of multimorbidity to identify patients with higher healthcare resource utilization.

Methods: We used a multinational retrospective cohort including 147,806 medical inpatients to assess the discriminatory power of 7 measures of multimorbidity by the area under the ROC curve (AUC). The measures were based on International Classification of Diseases (ICD) acute and/or chronic codes, Deyo-Charlson Comorbidity Index, body systems and Clinical Classification Software (CCS) categories. For each measure, we used a lower (sensitivity ≥90%) and an upper (specificity ≥60%) cut-off to create 3 multimorbidity risk categories. Two-thirds of the cohort was used to derive, and one-third to validate the measures. The outcome was any 30-day readmission and/or prolonged length of stay, defined as ≥ country-specific upper quartile.

Results: All measures showed moderate to good discriminatory power, with AUC of 0.60-0.71,

Measure of multimorbidity	AUC (95%CI) in the derivation cohort	AUC (95%CI) in the validation cohort	Cut-off with ≥90% sensitivity	Cut-off with ≥60% specificity
≥2 body systems and number of ICD codes	0.65 (0.64;0.65)	0.71 (0.71;0.71)	≥3	≥9
≥2 body systems and number of ICD chronic codes	0.61 (0.61;0.61)	0.64 (0.63;0.64)	≥1	≥6
Number of comorbidities of Deyo-Charlson Comorbidity Index	0.60 (0.59;0.60)	0.62 (0.62;0.62)	NA	≥2
Number of distinct body systems	0.65 (0.65;0.66)	0.71 (0.70;0.71)	≥2	≥5
Number of Clinical Classification Software categories	0.65 (0.65;0.66)	0.71 (0.70;0.71)	≥2	≥7
Number of ICD codes	0.65 (0.65;0.65)	0.71 (0.70;0.71)	≥3	≥9
Number of ICD chronic codes	0.61 (0.60;0.61)	0.64 (0.63;0.64)	≥1	≥6

[Performance of the different measures of multimorbidity for 30-day readmission or prolonged length of stay in the derivation and validation cohorts]

The measures based on the number of 1) ICD codes with ≥2 body systems, 2) body systems, 3) CCS categories, and 4) ICD codes, performed best (AUC 0.71). At the upper cut-off, sensitivity and specificity of these measures were around 60% in the derivation cohort. In the validation cohort, sensitivity was higher (65-79%), but specificity lower (50-53%). At the lower cut-off, the measure based on ICD chronic codes performed best with a sensitivity of 99%, but at the cost of a low specificity (4%). The historical definition of multimorbidity, i.e. ≥2 chronic conditions, performed similarly to other measures (sensitivity 95%, specificity 12%). Five to 12% of the patients were classified at low, 38-55% at intermediate, and 32-50% at high risk of multimorbidity, depending on the measure used.

Conclusions: All measures of multimorbidity showed relatively similar discriminatory power to identify patients with higher healthcare resource utilization. The historical definition of multimorbidity, based on the number of chronic conditions, showed similar sensitivity and specificity as all other measures of multimorbidity. Therefore, for ease of use, more simple measures such as all ICD codes or body systems may be preferred in practice. The cut-off chosen, favoring sensitivity or specificity, should be determined depending on the aim of a particular study using the measure.

P60

"Mister Shulman" - an athlete without power

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Learning objectives: Eosinophilic Fasciitis (EF) is an uncommon connective tissue disease first described by Lawrence Shulman in 1974. The disease is typified by symmetrical erythema and progressive induration and thickening of the subcutaneous tissue in the distal extremities leading to decreased mobility in combination with peripheral eosinophilia, hypergammaglobulinemia and an elevated erythrocyte sedimentation rate. Full-thickness biopsy is the diagnostic gold standard.

Case: A 45-year-old male competitive long distance triathlete presented to our outpatient clinic with reduced athletic performance due to impaired mobility of the lower legs caused by painless swelling and limited joint flexibility. Mild symptoms were first noticed 5 months prior to this visit. Later symptoms extended to the upper extremities and nocturnal paresthesia of both hands was noted. Laboratory work-up showed a severe peripheral eosinophilia (2.43 G/l) and a mild hypergammaglobulinemia (16.9 g/l). Erythrocyte sedimentation rate was normal. Magnetic resonance imaging of the lower extremities showed edema and inflammation of the superficial and deep fasciae. Biopsy of the left lower leg revealed mild fibrosis and eosinophilic inflammation of the fascia, confirming the

suspected diagnosis of EF. Treatment with high dose intravenous corticosteroids (1000mg prednisone for 3 days) followed by prednisone 1mg/kg per day and methotrexate (MTX) 20mg subcutaneous once weekly was initiated and the patient was referred to physical therapy. Symptoms diminished within weeks and after 2 months of treatment the patient was no longer limited in his daily activities.
Discussion: EF is rare and initially often misdiagnosed, resulting in an average delay of almost one year between onset of symptoms and diagnosis. Etiology is unknown. In up to 46% of all patients, excessive physical exertion was postulated as a possible trigger, which might apply for our athletic patient. Diagnostic criteria were proposed in 2014, but are still awaiting validation. Data on treatment of EF is generally derived from case reports and case series. Prospective, randomized studies are lacking. Evidence from a few retrospective studies favor the combination of systemic corticosteroids and MTX as the initial treatment of choice and there is consensus that early treatment of EF is critical since the initial inflammatory or edematous phase is more treatment responsive than the later phase characterized by severe fibrosis.

P61

The impact of PCSK9-inhibitors on platelet structure and function

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Introduction: PCSK9 inhibitors, a novel class of lipid lowering agents, may reduce plasma LDL-C levels to ultralow levels of less than 0.4mmol/l in 9% of the treated study population. Although "the lower, the better" is a guideline approved and welcome concept in preventing cardiovascular complications, pleiotropic effects of PCSK9-inhibitors remain to be investigated.
Aim: Since recent studies suggest that elevated LDL-C levels may activate platelets and PCSK9 might function as a positive modulator of platelets, we hypothesize that PCSK9-inhibitors interfere with platelet reactivity.
Methods: In this pilot study, citrated blood from patients on PCSK9-inhibitor therapy (n = 16) and matched controls (n = 16) was collected in order to investigate platelet numbers, structure and functional aspects. Platelet rich plasma (PRP) was analyzed for aggregation using ADP, collagen and TRAP as stimuli. In addition, the platelet receptor GPIb and the activation dependent glycoproteins P-selectin and GPIIb/IIIa were quantified by flow cytometry.
Results: Platelet aggregation to a low concentration of TRAP (5µM) is decreased by almost 50% in patients on PCSK9-inhibitor therapy compared to controls (P = 0,0381), while no significant differences could be observed in ADP and collagen induced platelet aggregation. In line with these results, the early platelet activation marker P-selectin was downregulated ~30% (P = 0,0188) in TRAP stimulated platelets of patients on PCSK9-inhibitor therapy. Activation of the major platelet integrin GPIIb/IIIa was not significantly affected by stimulation with ADP, collagen or TRAP. Of note, the PCSK9 inhibitor therapy did not affect the expression profile of the fibrinogen receptor GPIb as well as the total number of platelets.
Discussion/Conclusion: Our data support the hypothesis that platelets from patients treated with PCSK9-inhibitors show a reduced reactivity. This is particularly evident in platelet aggregation and P-selectin expression upon TRAP stimulation, indicating an important mechanistic role for the platelet PAR receptors. Whether these pleiotropic effects result from LDL-C reduction and/or different plasma levels of PCSK9 needs to be further investigated in the ongoing study.

P62

Hyperammonemic encephalopathy - a case series of a rare but life-threatening complication after bariatric surgery

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Learning objective: Roux-en-Y gastric bypass (RYGBP) is the most commonly performed bariatric procedure. Hyperammonemic encephalopathy (HE), due to a functional deficit of the urea-cycle after RYGBP, could lead by irreversible brain damage to a potential life-threatening condition. Thus, the early recognition of hyperammonemia even in the absence of a liver disease and the immediate initiation of a specific therapy is crucial in postbariatric patients with neurologic alterations.
Cases: Three females with psychiatric disorders (two with depression and ADHS, one with borderline syndrome and polytoxicomania), who had undergone RYGBP 10-11 years ago, were hospitalized (reason for admission were malnutrition, pneumonia, and psychiatric disorder, resp.). All had severe protein malnutrition. High-protein, thiamine, multivitamins and trace elements supplementation were established. In the further course, neurological deterioration with impaired consciousness and status epilepticus occurred, with normal findings in neuroimaging. In all cases, hyperammonemia was found without any laboratory evidence for an underlying liver disease. An extensive biochemical work-up failed to detect urea-cycle defects, organic acidurias, and fatty acid oxidation disorders. Immediate withdrawal of any protein supply, substitution of intermediates of the urea cycle (arginine, citrulline) and removal of ammonium via alternative pathways with sodium-benzoate resulted in rapidly declining plasma ammonium levels and neurological improvement.
Discussion: Ammonium is a neurotoxic product of protein catabolism that is converted to urea prior to renal excretion in the urea-cycle. The pathophysiology of hyperammonemia after RYGBP may be multifactorial. A functional deficit of the urea cycle is hypothesized in patients with normal liver function. As HE was only described in women, X-linked partial ornithine transcarbamylase (OTC) deficiency has been implicated. Additional zinc deficiency and hyperinsulinemia may decrease the expression and function of OTC and therefore unmask partial previously clinically silent X-linked OTC deficiencies. Bacterial overgrowth of the intestinal flora after RYGBP may lead to higher ammonium production. RYGBP can interfere with citrulline synthesis in the intestinal wall and consequently lead to depletion of urea cycle components. HE is a rare but life-threatening complication after RYGBP in patients with severe malnutrition receiving protein supplementation.

P63

Impact of adrenal insufficiency on patient-centred health care outcomes in adult medical inpatients

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Introduction: Patients with adrenal insufficiency suffer from increased morbidity and mortality. Quantitative evidence on the health-care burden of either primary (PAI) or secondary adrenal insufficiency (SAI) among hospitalized medical patients is scarce.
Methods: In this observational cohort study, we analysed nationwide acute care hospitalizations from patients with PAI or SAI, respectively, between 2011 and 2015 using prospective administrative data. Patients with either PAI or SAI were compared with propensity score-matched (1:1) controls, based on age, gender, citizenship, hospital volume, year of admission, Charlson Comorbidity Index, and relevant medical diagnoses. The primary outcome was in-hospital mortality. Secondary outcomes were intensive care unit (ICU) admission, intubation rate, length of hospital stay, and 30-day-readmission.
Results: We included 594 patients with PAI and 4`880 patients with SAI. Compared with matched controls, in-hospital mortality was comparable among patients with PAI (odds ratio [OR] 1.12 [95% CI 0.65 to 1.95]) and SAI (OR 1.14 [95% CI 0.88 to 1.24]), respectively. Patients with adrenal insufficiency were more likely to be admitted to the ICU (PAI: OR 2.56 [95% CI 1.69 to 3.90], and SAI: OR 3.03 [95% CI 2.60 to 3.54]). The risk for intubation was 3-fold higher in SAI patients (OR 3.04 [95% CI 2.40 to 3.84]), whereas there was a trend in PAI patients (OR 1.77 [95% CI 0.93 to 3.37]). The mean length of hospital stay was 1.8 days longer in PAI patients (8.9 vs. 7.1 days; difference 1.83 [95% CI 0.81 to 2.86]) and 4.6 days longer in SAI patients (12.1 vs. 7.5 days; difference 4.62 [95% CI 4.20 to 5.04]). The risk for 30-day hospital readmissions was increased in SAI patients (OR 1.48 [95% CI 1.33 to 1.64]) but not in PAI patients (OR 1.34 [95% CI 0.93 to 1.93]).
Conclusions: Among medical inpatients, adrenal insufficiency was associated with significant health-care burden, leading to higher rates of ICU admission, intubation and prolonged length of hospital stay.

Whether these compromised outcomes can be improved by a more comprehensive diagnostic and therapeutic work-up needs to be addressed in clinical trials.

P64

Prediction of 1-year mortality in multimorbid elderly patients - preliminary results of a prospective comparison of six existing mortality scores

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Introduction: The most appropriate therapy for a multimorbid elderly patient depends often on his/her life expectancy (i.e. mortality risk). Several scores to predict mortality have been developed. However, these mortality risk scores have not been well externally validated and no head-to-head comparison in a prospective real-life cohort has been performed. We aimed to prospectively compare the performance of six scores in predicting the 1-year mortality risk in multimorbid elderly patients.
Methods: This prospective cohort study was conducted in four European university hospitals. Included participants were multimorbid (≥3 coexisting chronic diseases), aged ≥70 years with polypharmacy (≥5 long-term medications), and admitted for an acute medical condition. The Burden of Illness Score for Elderly Persons, the Caring Criteria, the Charlson Comorbidity Index, the Gagné Index, the Levine Index and the Walter Index were the six scores assessed. The outcome was 1-year all-cause mortality. Overall performance (Brier score, 0 is perfect), discrimination (C-statistic, 1 is perfect) and calibration (calibration curves) was assessed for each score.
Results: We included 555 participants with 1-year follow-up. The mean age was 81 years (standard deviation (SD) 7), 46% were women, and the mean number of diagnoses was 12 (SD 7). Within one year, 106 participants died (19.1%). Brier scores ranged from 0.15 (Gagné Index) to 0.22 (Burden of Illness Score for Elderly Persons). The six scores had very similar C-Statistic with the area under the curve (AUC) ranging from 0.63 (Charlson Comorbidity Index) to 0.70 (Walter Index). The Calibration curves showed moderate calibration of the six scores.
Conclusions: The performance of all six 1-year mortality scores was moderate. Our external validation showed moderate discrimination and moderate calibration for all scores. No single score was superior in this multimorbid, elderly population.

P65

A qualitative study of outpatient clinical teachers' pedagogical skills in Switzerland - a call for targeted training

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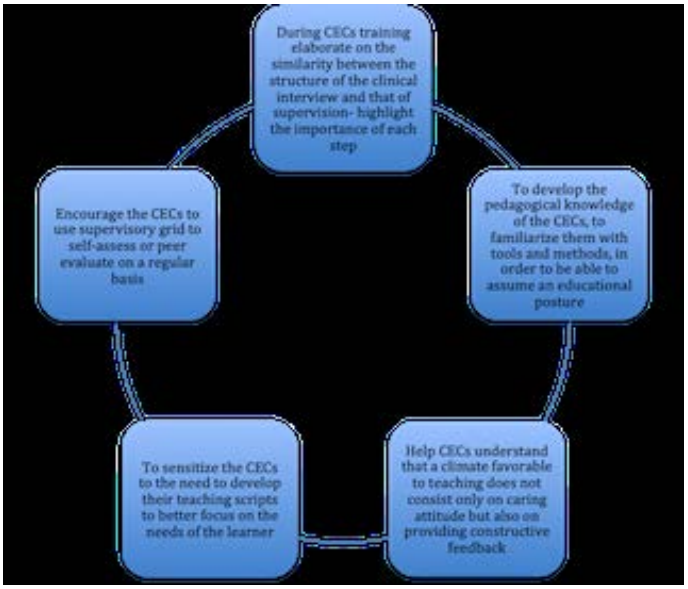
Introduction: Combining two roles, that of a clinician and of a teacher, remains a challenge for clinical teachers receiving students in their outpatient practices. During clinical supervision sessions, clinical teachers (CECs) need to be able to rely on solid pedagogical tools. They also need to commit themselves to a process of continuous pedagogical training in order to evaluate the acquisition and use of the tools.
Observing clinical teachers in clinical supervision combined with feedback provided by peers represents an established model for encouraging efficient learning. Sommer et al. created and validated a pedagogical skills' assessment grid that can be applied to clinical teachers during supervisions with the objective of developing their competencies.



[Recommendations for pedagogical support to clinical teachers (CECs)]

Methods: The data used came from the MEDTEACH study carried out in 2015 among 41 clinical teachers in four university institutes of primary care in the German and French speaking parts of Switzerland with the initial objective of better understanding the teaching methods of clinical teachers in outpatient settings.
Our study undertook a qualitative and descriptive analysis of the quality of the process and the pedagogical content of the supervisions of standardised students carried out by 20 clinical teachers in an outpatient context in the French speaking part of Switzerland, through the use of Sommer et al's pedagogical skills' assessment grid.
Results: The results reveal that the clinical teachers know how to create a supportive environment for learning, but have difficulties in providing specific pedagogical answers to the students' needs. They present gaps in using clinical supervision as a pedagogical tool and still need to develop their teaching scripts in order to reinforce their pedagogical role.
Conclusions: These results will help academic sectors to adapt their pedagogical training programs to the identified needs of the clinical teachers. Acquiring targeted pedagogical tools through an adapted teaching format will help clinical teacher develop their pedagogical stance and thereby train tomorrow's leaders in outpatient medicine.

Observation and learning tool for clinical supervision — Name : — J Sommer 2.4.2015

The supervisor	Level X (low-weak) : makes the learning unpredictable	Level Y (mean-good): has good teaching skills to enhance learning	Level Z (very good): has excellent teaching skills to enhance learning
Step 1 : organises the supervision			
1. Welcomes the resident	☹ does not put the resident at ease and concentrates on the clinical problem	☺ welcomes the resident and expresses his availability	☺☺ assures adequate time and space or suggests arrangements to put at ease
2. Drives the supervision according to the resident's needs	☹ listens to the case presentation without asking the resident's own question or needs to drive the supervision	☺ let the resident express the problem that prevents him to solve the case (before or just after the case presentation)	☺☺ clarifies/reflects what prevents the resident to solve the case (learning needs) (before or just after the case presentation) or discusses the case aiming explicitly at the resident's needs
Step 2: helps the resident to learn from the case			
3. Discusses the case and explores a. the clinical reasoning	☹ a. interrupts the resident so as to get more informations following his own medical reasoning or thinks aloud without implying the resident	☺ a. asks the resident what hypotheses has driven his reasoning Or speaks aloud involving the resident	☺☺ a. encourages the resident to argue or complete the hypotheses of his medical reasonning
b. the underlying medical knowledge	☹ b. questions/explains theoretical notions without clear link with the case or does not discuss any related knowledge	☺ b. teaches the knowledge related to the missing notions or wrong interpretations of the resident	☺☺ b. stimulates the resident to remember the relevant knowledge , or helps to find relevant missing knowledge (gives tools/references)
c. the relevant psychosocial elements and patient's perspective	☹ c. does not question or underline psychosocial context or patient's perspective relevant to solve the problem	☺ c. questions or underlines the relevant psychosocial or patient's perspective details	☺☺ c. underlines the link between patient's perspective or psychosocial elements and the relevance for the problem solving or values when the resident is taking it into account
4. Teaches or corrects a. the history taking or clinical exam	☹a. tells what the resident should do without explanation nor modeling Or does not teach the history taking or clinical exam	☺a. teaches history taking or clinical examination by explanation or modeling	☺☺a. lets the resident demonstrate a skill of history taking or clinical examination
b. an interpersonal/communicational skill	☹b. tells what the resident should do without explanation nor modeling or does not teach interpersonal skills	☺b. teaches relevant interpersonal /communicational skills by explanation or modeling	☺☺b. lets the resident demonstrate an interpersonal/communicational skill
c. a technical skill (technical procedure,venous puncture, joint puncture,stitching, etc)	☹c. tells what the resident should do without explanation nor modeling or does not teach technical skills	☺c. teaches relevant technical skill by explanation or modeling	☺☺c. lets the resident demonstrate a technical skill
5. Discusses the plan : a. developing an action plan	☹ a. after the diagnosis or definition of the problem, tells the resident what to do	☺ a. asks the resident to express an action plan (investigations, treatment and follow up) or expresses action plan involving the resident	☺☺ a.asks the resident to argue and discuse own action plan
b. adapting the action plan to the patient's psychosocial context and individual perspective	☹ b. does not take the psychosocial context (nor the patient's perspective) into account when defining the action plan	☺ b. encourages the resident to take into account the patient's psychosocial context and perspective when defining the action plan	☺☺ b. values an action plan that takes into account the patient's psychosocial context or perspective or stresses the importance to take it into account so as to improve the treatment
c. verifying the strategies of application	☹ c. does not check the residents strategies of application or tells the action plan to the patient without discussing it with the resident	☺ c. asks the resident if he feels confident to apply the action plan (the « what ») or offers help for the application of the action plan (to go with him to see the patient)	☺☺ c. checks how the resident will apply the action plan Or makes a role play
6. Adressing own limits of knowledge	☹ Expresses no doubt about the medical knowledge	☺ expresses the limits of his own knowledge or his doubts	☺☺ expresses the doubts or limits of his knowledge and defines with the resident a way to find the needed information to overcome the doubts
Step 3 : Ends the supervision			
7. States : a. strenghts /what is mastered	☹ a. does not value or reflect on residents strengths that helped him to solve the problem	☺ a. stresses the residents strengths that helped him to solve the problem and values them ☺ b. tells the resident what he should remember	☺☺ a. encourages the resident to reflect on own strengths before valuing them
b. new learning	☹ b. does not speak about what should be remembered		☺☺ b. asks the resident what he will remember and can add some suggestions (or asks for some transfer to other case) or asks the resident for some general principle/rules that can be deducted from present case
c. what has to be learned	☹ c. does not speak about what should be learned on behalf of the discussion	☺ c. suggests some ideas to enhance his ongoing learning	☺☺ c. defines with the resident a learning plan (actions, literature, timing, evaluation)
8. Evaluation of supervision process	☹ does not speak about the supervision process	☺ checks if supervision has answered his learning needs (content)	☺☺ checks if supervision has answered the learning needs and if supervision process is adequate or asks for suggestions of improvement in supervision process

[Teaching skills assessment tool. J. Sommer and al. 2016]

P66

Health, wellbeing and access to care of undocumented migrants in Geneva, Switzerland

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Introduction: Switzerland hosts 50'000 to 100'000 undocumented migrants, a vulnerable population in regard to access to health care and exposure to adverse living conditions. Limited evidence exist on their health status and wellbeing in Switzerland.
Methods: The Parchemins study prospectively assesses the impact of a pilot regularization policy in Geneva on undocumented migrants health and wellbeing using a mixed-methods approach. Recruitment took place in the community and in healthcare setting. In the quantitative part of the study, health and wellbeing are measured with standardized face-to-face questionnaires on a yearly basis over four years. Wellbeing is measured through self reported satisfaction with one's life on a 10-point Likert scale. We present here the results of the first wave.
Results: Participants were predominantly women (71.9%) from Latin America (63.2%), aged 44.2 (SD 10.4) years, with secondary or higher education (77.3%), living in Geneva with a partner (47.6%) and minor children (22.3%in) for an average of 11.8 (SD 5.4) years. While 82.2% reported good, very good or excellent health, 54% presented overweight or obesity and 21% declared suffering 3 or more chronic conditions. Self-reported prevalence of hypertension, hypercholesterolemia and diabetes were 17.6%, 7.6% and 4.9%, respectively. Screening for depression and anxiety using PHQ-9 and GAD-7 questionnaires was positive in 45.2% and 35.9% of participants. Only 29.9% had a health insurance. In the previous year, 74.8% had at least one medical consultation and 30.4% consulted in emergency. The mean number of medical consultations was 3.4 (SD 5.6) in the last year. Overall, 27% had renounced to seek care for economic reasons in the previous year with dental and general medicine care most frequently foregone. 5.9% suffered an accident leading to work interruption in the last 6 months. Only 2.7% were not exposed to any health hazard at the workplace. Overall, life satisfaction level amounted to 7.4 (SD 2.2) out of 10.
Conclusion: The initial results show a contrast between good self-reported health and wellbeing and frequent comorbid health conditions notably of mental origin, health-adverse working conditions and economic constraints in the ability to respond to their health care needs. While access to health insurance is limited, migrants are able to navigate the healthcare system.

P67

Self-reported screening practices of family physicians participating in the colorectal cancer screening program of the canton of vaud: a cross-sectional study

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Background: An organized colorectal cancer (CRC) screening program was implemented in the Canton of Vaud in Switzerland in 2015, offering the choice of the fecal immunochemical test (FIT) or colonoscopy via a visit with a family physician (FP). Given the central role of FPs in the program, this study aimed to compare the FP's preventive practices with the objectives of the program, namely "informing patients of the program" and "presenting the choice of colonoscopy and FIT", and to raise factors associated with FPs presenting the choice of colonoscopy and FIT.
Methods: A mixed-methods study using an online survey and semi-structured interviews. Participants were FP from the canton of Vaud who had included at least one patient in the screening program. Multivariate logistic regression was used to compare physicians who offered primarily colonoscopy to those who offered a choice of tests.
Results: The participation rate was 40% (177 respondents / 443 eligible). The majority of physicians (68%) reported informing more than 75% of their eligible patients about the CRC screening program. Regarding the screening method offered by FP, 20% (n = 36) of physicians prescribed only colonoscopy, 13% (n = 23) only FIT, 35% (n = 62) both while indicating their preferred test, 21% (n = 37) both screening methods on an equal basis and 9% (n = 16) both methods using a decision support tool. Lack of time (n = 86, 32,8%) was the principal reason cited for not informing patients. Predictors of offering only colonoscopy rather than a choice of screening tests included: first, FP reporting that they had chosen/would choose colonoscopy for his or her own screening (0.12 (0.02 - 0.54)**); second, having more than 20 years of experience (0.21 (0.05 - 0.76)*); and third, seeing 300 or more patients per month (0.33 (0.13 - 0.81)*). When asked what could improve the program, 17% (n = 31) wrote that patients should be informed in advance about the program by postal mail and large-scale communication campaign.
Conclusion: The majority of FPs reported CRC screening practices consistent with the objectives of the program. However, in order to obtain equal information and to gain time, patients should be informed in advance.

P68

"More time for patients": a reorganization of medical wards at the University Hospitals of Geneva

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Introduction: As part of 9 priority projects identified by staff and patients, the University Hospitals of Geneva designed the "More time for patients", a multidisciplinary projects that used Design Thinking and Lean methodology to simplify the organization of a health care unit.
Methods: We conducted 5 phases: (1) field observation (i.e."*gemba*"); (2) definition of objectives; (3) design and testing of solutions; (4) implementation in a go-live session; (5) continuous improvement (i.e. "kaizen"). The objectives identified by the team were to (a) increase the quantity and quality of the time spent with patients and relatives; (b) enhance patient involvement and shared decision making; (c) improve interdisciplinary collaboration by making processes more visible. We designed solution and tested before implementing them simultaneously as a new system the very same day.
Results: During the last 2 years, we reorganized 8 general internal medicine wards. For each unit, we issued 20 actionable standards, covering

multiple fields, such as organization of transmissions, rounds, material storage, or communication tools. We implemented visual tools throughout the unit to help monitor medical and nursing workload and respond to it. We improved patients involvement through a bedside chart containing daily relevant information (eg. name of carers, daily schedule anticipated time of discharge), as well as the main medical problems written with the patient in understandable words. Two five minutes structured interdisciplinary meetings were implemented daily to share the information, adjust priorities and manage unexpected events. Preliminary results regarding implication and satisfaction of patients evaluated daily showed 86.9% of patients feeling highly involved (CollaboRATE instrument), and 95.6% of satisfaction with the care received. Reviews of functioning are done every 6 weeks as well as a process of continuous improvement "Kaizen".
Conclusion: Quality improvement projects are hard to implement and often not sustainable. Preliminary results of our multidisciplinary project are encouraging regarding patient involvement, sustainability of implemented solutions and the quantity and quality of time spent with patients.

P69

Postmenopausal women at high risk of osteoporosis consume high amounts of fruits and vegetables but too little dairy products. The CoLaus/OsteoLaus cohort

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Introduction: the burden of osteoporosis (OP) in terms of health, human and economical impact is spreading in Switzerland. A healthy lifestyle, especially diet, plays a major role in the prevention of chronic diseases like OP. We aimed to evaluate the link between nutrients, diet patterns or compliance to dietary guidelines and bone health among postmenopausal women. We also evaluated for the first time the influence of nutrition on trabecular bone score (TBS), a surrogate marker of bone microarchitecture.
Method: we assessed 1475 women aged 50 to 80 years participating in the CoLaus/OsteoLaus cohort. Exclusion criteria were OP treatment and extreme energy intake. Bone mineral density (BMD), TBS and vertebral fracture were evaluated with dual x-ray absorptiometry; OP risk factors, calcium supplements, and prevalent major OP fractures were evaluated via questionnaire. Dietary intake was assessed using a validated, self-administered, semi-quantitative food frequency questionnaire.
Results: 1057 women (age 63.9±7.5 years, BMI 25.8±4.4 kg/m^2) met the inclusion criteria; 126 had OP according to BMD, 67 a low TBS (<1.23) and 110 prevalent OP fractures. In multivariate analysis, women with OP consumed more vegetal proteins (21.9±0.5 vs 20.2±0.2 g/d, p = 0.005), more fiber (18.8±0.6 vs 17.1±0.2 g/d, p = 0.01), less animal proteins (40.1±1.3 vs 43.9±0.5 g/d, p = 0.007), and less calcium (914±36 vs 1036±13 mg/d, p = 0.002). Women with OP had a higher compliance for the vegetables guideline: odds ratio (95% CI): [1.88: 1.03-3.43, p = 0.041], and a lower compliance for the dairy guideline: [0.34: 0.14-0.82, p = 0.016]. Women taking calcium supplements had a higher compliance to dairy products [1.72: 1.11-2.66, p = 0.015]. Dietary pattern "fruits and vegetables" was more prevalent in OP women: 1.77 (1.10-2.84), p = 0.019. No association was found between TBS values and nutrients, dietary patterns or compliance to dietary guidelines.
Conclusion: Postmenopausal women with OP consume a high amount of vegetables, a too low amount of dairy products and animal proteins. The negative effect of vegetables on BMD may be due to the lower value of vegetable proteins and decreased calcium absorption due to fibre. TBS does not seem to be influenced by diet, but further studies are needed to evaluate the influence of diet on TBS.

P70

Are thyroid hormones in the normal ranges associated with bone mineral density, microarchitecture or incident fractures in postmenopausal women? The 5-years follow-up CoLaus/OsteoLaus cohort

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Introduction: Several studies found that subclinical hyperthyroidism is associated with low bone mineral density (BMD) and increased fracture risk. In healthy postmenopausal women, the results regarding an association between TSH levels in the normal range and BMD are contradictory. The Trabecular Bone Score (TBS), a surrogate marker of bone microarchitecture, is often deceased in secondary osteoporosis. The aim of this study was to determine the association between the thyroid hormones (TSH and fT4) in the normal range and bone health, assessed by BMD, TBS, and incident fractures at 5 years.
Method: We assessed 1475 women aged 50 to 80 years participating in the CoLaus/OsteoLaus cohort. Exclusion criteria were treatment for OP, diabetes, hypo/hyperthyroidism, with hormonal replacement therapy or prednisone, and TSH or fT4 outside the normal ranges. We evaluated BMD at lumbar spine, femoral neck and total hip, TBS, and vertebral fracture with Dual X-ray Absorptiometry (DXA). Incident major OP fractures were evaluated 5-years later by questionnaire and DXA.
Results: 710 women (age 68.7±7.5 years, BMI 25.9±4.6kg/m^2, TSH 2.31±1.34 mU/l, fT4 15.45±2.00 pmol/l) met the inclusion criteria. There was no significant association between TSH or fT4 and BMD measures at any site. A positive correlation was found between TSH and TBS (p <0.001), even after correction for tissue thickness (p <0.001). This correlation was no more significant after multiple adjustments for age, BMI, renal function, and smoking history. There was no significant association between fT4 and TBS. Mean TSH (2.32±0.53 vs 2.15±0.18 mU/l) and mean fT4 (15.47±0.79 vs 15.18±0.24 pmol/l) were similar in women without or with major OP fracture 5-years later.
Conclusion: In postmenopausal women with TSH and fT4 in the normal ranges, neither BMD, nor major OP fractures incidence were associated with TSH or fT4 values. This is the first study showing a correlation between TSH and TBS. Lower TSH may lead to a weaker bone structure without affecting BMD, but further studies are needed to evaluate the influence of thyroid hormones on TBS.

P71

Can we modify internal medicine residents' extra hours? The MED2DAY study

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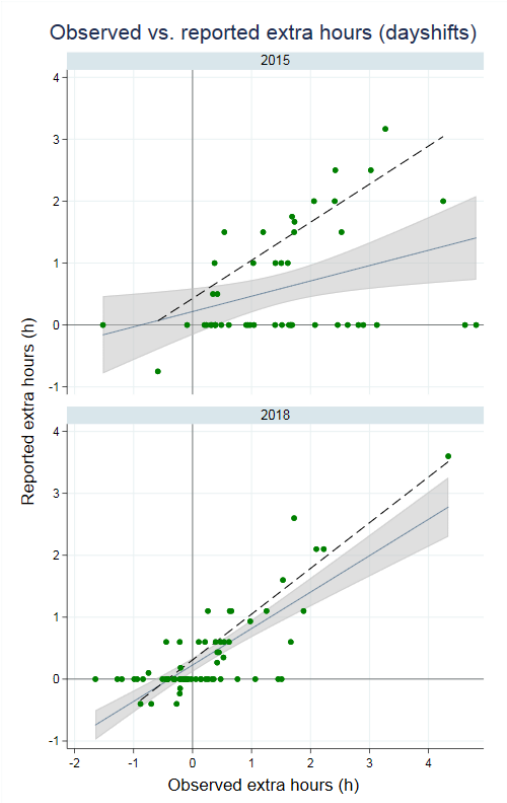
Introduction: Extra hours (EH) are common for residents, associated with burnout and remain under-reported in many hospitals. In 2016, our department management implemented a new regulation reducing weekly working hours (excluding lunchtime) from 47:30 to 47:00 from July 2017 on. We addressed EH burden by initiating major reforms in daywork organisation (**Table**). Our aims were to 1) assess how reforms and regulation changes impacted EH; 2) observe if residents reported EH reliably.
Methods: We conducted two time-motion studies in 2015 and in 2018, respectively. Trained observers followed residents and recorded their activities during dayshifts. Observed EH were defined as hours worked at the hospital after planned daily schedule. The lunchtime (0:30 in 2015 and 1:00 in 2018) was excluded from the official hour count according to labor regulation but was recorded in the study mostly as personal time activity. Monthly EH reported by residents were collected and aggregated with the POLYPOINT-PEP software. We compared reported and observed EH in both studies. If reported EH were missing, we considered no EH and allocated a zero.

Reform designation	*What was the aim of the reform ?*
Secretary allocation to residents	To increase the administrative support available for residents: each residents' secretary works in the same office as the residents to facilitate communication, collaboration and tasks delegation.
Interprofessional decision meeting	To discuss daily each patient's therapeutic plan, orientation after acute care and the discharge date. The 30 minutes meeting gathers all the medical staff (attending physician; chief resident; residents; students), the head nurse of the ward, the transition nurse and the residents' secretary and replace both (1) the daily handoff meeting and (2) the twice-weekly interprofessional meeting.

Day and week schedule reorganization	To limit work fragmentation and task switching with setting up interprofessional decision meeting at 8:00 AM, post-graduate teaching at 1:00 PM and postponing the start of the daily ward rounds at 10:00 AM to allow for more preparation time
Institutional project Gestion Proactive des séjours	To prepare the transition to hospital discharge better and shorten length of stay by early identification of the senior physician responsible for the patient's therapeutic plan.
Improvement of discharge summaries	To continuously improve the process of writing, correcting and dispatching the hospital discharge summaries.
Coordination with the Emergency Room (ER)	To speed up the transfer of patients from the ER to the hospital units. The target time spent in the ER was <6 hours.

[Table: Main 2016-2017 reforms]



[Figure: Observed vs. reported extra hours in 2015 (n = 49) and 2018 (n = 67).]

Results: We recorded 49 shifts in 2015 and 67 in 2018, with a total of 1290 hours of observation. Median of total shift time decreased from 11:35 to 10:41 hours (IQR 10:33 - 12:30 vs. 10:06 - 11:06, p <0.001). Personal time increased from 33 to 62 minutes (95% CI 22 - 44 vs. 53 - 72, p <0.001). Median observed EH decreased from 90 to 3 minutes (IQR 25 to 145 vs. -19 to 32, p <0.001). Percentage of residents performing EH decreased from 94% to 51% in 2018 (p <0.001). Monthly EH reporting was available for 36 shifts in 2015 and 59 shifts in 2018 (73.5% vs 88.1%, p = 0.044). For each EH observed, 0.25 EH were reported in 2015, vs. 0.59 in 2018 (95% CI 0.06-0.44 vs 0.47-0.70, p = 0.002, **Figure**: results are expressed as regression slope. The dashed slope corresponds to the regression after excluding non-reported (i.e. zero) EH values)).
Conclusion: Reforms succesfully allowed residents to contain and even reduce dayshift duration and observed EH despite new restrictive regulations. Residents did not limit EH by reducing lunchtime. Tighter control of monthly self-reporting improved reported EH but is still insufficient as almost one out of three EH remains unreported.

P72

Twelve-year trends in diabetes prevalence according to sociodemographic and health indicators in the canton of Geneva

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Introduction: It is well known that the prevalence of diabetes differs widely across sociodemographic groups in populations of high-income countries. To date, however, no study has assessed the sociodemographic patterning of diabetes in the canton of Geneva. We thus aimed to assess the trends in prevalence of diabetes according to a series of demographic, socioeconomic and health indicators.
Methods: Annual population-based cross-sectional study of adults residing in the canton of Geneva. We included data from 2005 to 2016, including 8574 participants (51% women; mean age (SD) = 49.2 (13.3)). We defined a diabetes case as having a previous diagnosis or having fasting plasma glucose ≥7 mmol/L. We categorized age into 18-44, 45-64, and ≥65 y; educational level into mandatory, secondary/apprenticeship, and tertiary; household income in CHF/month as <5000, 5000-6999, 7000-9499, and ≥9500; health insurance deductible as 300, 500, 1000-1500, and 2000-2500; body mass index (BMI) into 18.5-24.9, 25-29.9, and ≥30; high blood pressure was defined as having a previous diagnosis or blood pressure ≥140/90 mmHg; hypercholesterolemia was defined as having a previous diagnosis or having total blood cholesterol >6.2 mmol/L. We grouped survey years into five categories: 2005-2008, 2009-2010, 2011-2012, 2013-2014, 2015-2016.
Results: Over the twelve-year period, the prevalence of diabetes remained largely constant overall and across most sociodemographic groups (Table 1) and health indicators (Table 2). In 2015-2016, the prevalence of diabetes was 2.6% (1.6 - 3.6) in the younger age group and 16.8% (12.5 - 21.2) in the older age group. Men had a higher prevalence than women: 8.3% (6.6 - 10.1) versus 5.0% (3.7 - 6.1). Participants with the lowest level of education had a prevalence of 23.1% (12.9 - 33.2), while those with the highest educational level had a prevalence of 4.7% (3.4 - 6.1). Participants with the lowest income had more than double the prevalence of those with the highest income: 11.4% (8.1 - 14.6) versus 4.2% (2.7 - 5.7). Participants with BMI between 18.5 and 25 had the lowest prevalence without those with BMI≥30 had the highest: 3.4% (2.3 - 4.5) versus 19.7% (14.6 - 24.9).

	Total diabetes prevalence, % (95% CI)					
	2005-2008	2009-2010	2011-2012	2013-2014	2015-2016	p-trend
Diabetes cases / total N	64 / 854	162 / 1999	101 / 1676	144 / 2009	128 / 2036	
Overall prevalence	7.5 (5.8, 9.3)	7.5 (6.4, 8.6)	5.8 (4.7, 6.9)	7.5 (6.4, 8.7)	6.7 (5.6, 7.8)	0.45
Age group, y						
18-44	2.6 (0.9, 4.4)	4.1 (2.6, 5.7)	2.0 (0.9, 3.1)	2.7 (1.7, 3.8)	2.6 (1.6, 3.6)	0.57
45-64	9.5 (6.7, 12.4)	7.9 (6.3, 9.6)	7.0 (5.2, 8.9)	8.9 (6.9, 10.8)	7.1 (5.3, 8.9)	0.26
≥65	14.7 (8.2, 21.1)	16.6 (12.5, 20.7)	12.4 (8.5, 16.3)	16.9 (12.5, 21.3)	16.8 (12.5, 21.2)	0.59
p-value	<0.01	<0.01	<0.01	<0.01	<0.01	
Sex						
Men	10.3 (7.5, 13.1)	8.1 (6.5, 9.7)	6.9 (5.2, 8.5)	9.3 (7.5, 11.1)	8.3 (6.6, 10.1)	0.45
Women	5.0 (2.9, 7.1)	6.9 (5.4, 8.5)	4.9 (3.5, 6.3)	5.8 (4.4, 7.2)	5.0 (3.7, 6.4)	0.72
p-value	<0.01	0.20	0.06	<0.01	<0.01	
Educational level						
Mandatory	11.2 (0.0, 23.1)	19.6 (11.2, 28.0)	10.3 (3.2, 17.3)	15.4 (8.6, 22.1)	23.1 (12.9, 33.2)	0.30
Secondary	8.0 (5.6, 10.4)	8.1 (6.6, 9.6)	6.7 (5.1, 8.4)	7.4 (5.7, 9.1)	7.5 (5.8, 9.2)	0.57
Tertiary	6.8 (4.1, 9.5)	5.6 (4.0, 7.1)	4.5 (3.0, 5.9)	6.7 (5.0, 8.3)	4.7 (3.4, 6.1)	0.31
p-value	0.87	<0.01	0.23	0.07	<0.01	
Income, CHF/month						
<5000	8.1 (4.3, 11.8)	9.7 (7.2, 12.3)	7.8 (5.1, 10.5)	12.6 (9.3, 15.8)	11.4 (8.1, 14.6)	0.11
5000-6999	7.7 (3.6, 11.8)	11.8 (8.4, 15.2)	6.5 (3.8, 9.2)	8.7 (5.7, 11.6)	7.3 (4.4, 10.1)	0.55
7000-9499	8.7 (4.4, 12.9)	6.1 (3.9, 8.4)	4.4 (2.1, 6.7)	5.6 (3.2, 7.9)	7.5 (4.8, 10.2)	0.58
≥9500	6.9 (4.0, 9.9)	4.9 (3.4, 6.5)	4.5 (2.9, 6.2)	5.1 (3.4, 6.8)	4.2 (2.7, 5.7)	0.11
p-value	0.97	<0.01	0.40	<0.01	0.01	
Deductible, CHF/month						
300	10.0 (5.7, 14.3)	9.5 (7.4, 11.7)	7.3 (5.1, 9.4)	9.3 (7.1, 11.5)	9.3 (7.1, 11.5)	0.75
500	4.7 (1.6, 7.8)	9.7 (7.4, 12.1)	7.7 (5.2, 10.1)	9.6 (7.1, 12.2)	9.1 (6.5, 11.7)	0.08
1000-1500	5.2 (1.2, 9.3)	4.6 (2.6, 6.6)	3.3 (1.3, 5.2)	4.5 (2.1, 6.9)	4.7 (2.1, 7.3)	0.82
2000-2500	3.2 (0.1, 7.4)	2.6 (0.7, 4.4)	3.2 (1.3, 5.1)	3.5 (1.6, 5.4)	1.9 (0.7, 3.1)	0.65
p-value	0.26	<0.01	0.09	0.07	<0.01	

[Table 1. Diabetes prevalence in Geneva canton by to sociodemographic factors, Bus Santé 2005-2016]

	Total diabetes prevalence, % (95% CI)					
	2005-2008	2009-2010	2011-2012	2013-2014	2015-2016	p-trend
Diabetes cases / total N	64 / 854	162 / 1999	101 / 1676	144 / 2009	128 / 2036	
Overall prevalence	7.5 (5.8, 9.3)	7.5 (6.4, 8.6)	5.8 (4.7, 6.9)	7.5 (6.4, 8.7)	6.7 (5.6, 7.8)	0.45
Body mass index						
18.5-24.9	5.2 (3.0, 7.4)	3.0 (2.0, 4.0)	2.6 (1.6, 3.6)	4.2 (3.0, 5.4)	3.4 (2.3, 4.5)	0.39
25-29.9	7.4 (4.5, 10.2)	8.0 (6.1, 10.0)	6.5 (4.4, 8.6)	7.7 (5.7, 9.8)	7.5 (5.5, 9.5)	0.99
≥30	17.5 (10.8, 24.2)	24.9 (19.9, 29.8)	17.4 (12.6, 22.3)	20.4 (15.6, 25.2)	19.7 (14.6, 24.9)	0.95
p-value	<0.01	<0.01	<0.01	<0.01	<0.01	
High blood pressure						
No	4.1 (2.4, 5.7)	4.0 (3.0, 5.0)	3.3 (2.3, 4.3)	5.4 (4.2, 6.6)	-	0.36
Yes	14.5 (10.5, 18.6)	15.0 (12.4, 17.6)	12.0 (9.2, 14.8)	13.1 (10.2, 15.9)	-	0.34
p-value	<0.01	<0.01	<0.01	<0.01		
Hypercholesterolemia						
No	5.5 (3.4, 7.6)	5.0 (3.8, 6.3)	2.9 (1.8, 4.0)	3.6 (2.5, 4.8)	-	0.02
Yes	10.9 (7.6, 14.2)	10.8 (8.7, 12.9)	9.4 (7.3, 11.6)	12.9 (10.5, 15.3)	-	0.50
p-value	0.09	<0.01	<0.01	<0.01		

[Table 2. Diabetes prevalence in Geneva canton by health indicators, Bus Santé Study 2005-2016]

Conclusion: The prevalence of diabetes differs across sociodemographic groups in the canton of Geneva; however, over a twelve-year period, the prevalence of diabetes has remained stable overall and across sociodemographic strata.

P73

Pronostic value of precipitating factors in acute heart failure

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Introduction: Etiology of cardiac decompensation often dictates early management of acute heart failure (AHF). Whether the precipitating factor predicts outcome of the hospitalized patient is poorly studied. We aimed to clarify if the trigger of AHF is in itself a prognostic factor.
Method: Prospective register of AHF at the Geneva University Hospital. Consecutive hospitalizations for AHF in 667 patients with clinical presentation, lab tests, imaging, medical history, treatments and follow-up (18 months) were included. Patients were classified according to the precipitating factor of heart failure, and the most common were compared in a survival analysis. The primary outcome was overall mortality. Secondary outcomes were cardiovascular death and rehospitalization.
Results: The six most frequent precipitating factors were: new or poorly controlled atrial fibrillation (18,5%), hypertensive emergency (15%), bronchopneumonia or COPD decompensation (13%), poor medical or diet adherence (10.2%), acute coronary syndrome (6,4%), valvular disease (5,3%). A precipitating factor was not identified in 19% of patients. Valvular disease was associated with significantly increased mortality and morbidity: death of all causes (hazard ratio = 2.3, 95%CI 1.23 to 4.3, p = 0,00872), death related to cardiovascular cause (hazard ratio = 3.93, 95%CI 1.8 to 8.5, p = 0,000538), death and rehospitalization due to cardiovascular cause (hazard ratio = 1.99, 95%CI 1.2 to 3.3, p = 0,00671). There was no significant difference of prognosis between the other factors, with HR for overall mortality ranging from 1.19 to 1,22.
Conclusion: Amongst precipitating factors for AHF, valvular disease is associated with the poorest outcome. This was the case for both the primary and secondary outcomes. The other identified triggers were association with a similar and slightly better prognosis. These results, suggest that in the management of AHF, particular attention has to be given to patients with worsening valvular disease. Recent advances and effective and targeted management of AHF due to ischemic, rhythmic, hypertensive or non-cardiac triggers may explain the slightly better prognosis of these patients.

P74

Do residents flip around as they now run faster? The medical day study

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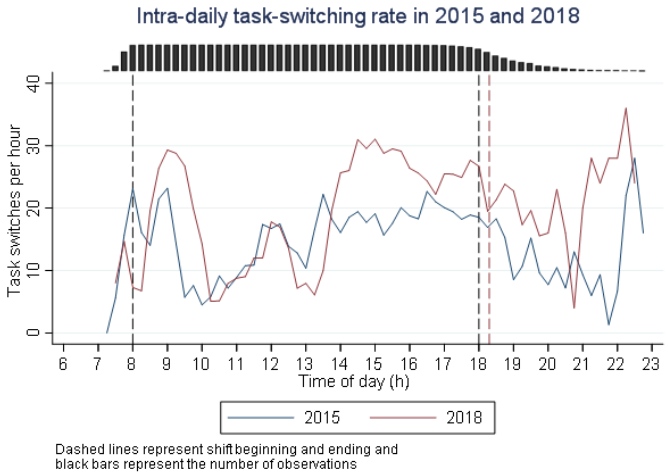
Introduction: Medical work organization has become a major concern on internal medicine wards due to more complex patients and administrative burden. In a 2015 time-motion study, our internal medicine residents switched tasks 15 times per hour. Since then, we initiated various reforms in our division designed to increase residents' work continuity and efficiency and observed a decrease of the average shift duration. We therefore aimed to assess whether a reduction of shift duration and the new work organisation impacted the task switching rate among internal medicine residents.
Methods: We repeated the same time-motion study between May and July 2018. All residents were followed during two days by trained observers recording 22 predefined activities and context (with a patient; using a computer). Task-switching was expressed in mean number of switches per hour and 95% confidence interval. We also adjusted results for the number of patients cared for per resident.
Results: We recorded 49 shifts in 2015 and 67 shifts in 2018, summing 1'289 hours of observation. The department activity grew dramatically between 2015 and 2018: admissions increased from 89 to 102 a week (+14.5%). Day shift duration decreased from 11.6 to 10.7 hours (95% CI 11.3 - 12.0 and 10.5 - 11.0, p <.001). On average, residents switched from one task to another 20 times per hour in 2018 (95% CI 19 - 21). They switched more frequently during activities indirectly related to the patient (+25%, p <.001) but less during personal time (dedicated to residents' needs, -42%, p = .001). Tasks directly related to the patient (e.g. patient rounds) remained at the lowest rate, i.e. 7 switches per hour.
Task-switching rate also varied across the day and was lower during the newly introduced morning meeting (08:00 to 08:30), medical rounds (10:00 - 11.00), lunchtime and teaching rounds (12:30 to 13:30), but higher during admissions and office work (after 14:00, **Figure**).
Conclusions: While shift duration has decreased and overall activity of the department increased, residents change task every 3 minutes (vs. every 4 minutes in 2015). High variations in task-switching rates during residents' working day may be a marker of efficiency rather than a risky attitude towards medicine practice.

	2015	2018	p-value
Directly related to the patient	6 [5 - 7]	7 [6 - 8]	0.38
Indirectly related to the patient	16 [14 - 17]	20 [19 - 21]	<0.001
Administrative tasks	8 [5 - 12]	10 [7 - 13]	0.41
Academic and training	29 [25 - 32]	37 [34 - 40]	0.001
Personal time	26 [21 - 31]	15 [11 - 20]	0.001
Transit to the next activity	57 [51 - 63]	59 [54 - 64]	0.51
Overall	**15 [14 - 17]**	**20 [19 - 21]**	**<0.001**

[Table: Taskswitching rate according to categories of activities in 2015 and 2018. Adjusted mean number of switch per hour [95% CI].]



[Figure: Intra-daily task-switching rate in 2015 and 2018]

P75

Identification of genetic determinants for central pain sensitization in fibromyalgia patients

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Introduction: Fibromyalgia syndrome (FMS) covers a spectrum of chronic pain conditions characterized by widespread pain and increased

sensitivity to nociceptive stimulus or tenderness. Central sensitization is thought to be one of the key mechanisms underlying FMS. This process can be described as a loss of the natural balance between transmission of pain stimuli to the CNS and the central pain inhibitory feedback mechanisms. While familial aggregation could suggest a potential genetic component in FMS development, isolation of genetic determinants has proven difficult due to the multi-factorial nature and complexity of the syndrome. We aim to identify some of these determinants.
Method: We used a customized Infinium CoreExome-24 BeadChip from Illumina to genotype 555'356 human genetic polymorphisms in 302 DNA samples from 225 FMS patients and 77 controls. Bioinformatic refinement will be provided by screening a subset of neurological expressed SNPs, matching case-controls, covariates interaction and population stratification.
Results: All samples call rates exceeded 99% and the genotype completeness exceeded 99% in 97.8% of the SNPs. The SNPs were evaluated using the Illumina cluster quality score and all SNPs with GenTrain score <0.700 were discarded. Following data quality control (CR >95% and HWE p $>10^{-5}$), 544'729 SNPs (98.1%) were cleared for further analysis, combining genome-wide and candidate gene approaches and using the nociceptive flexion reflex as a primary stratification determinant.
Conclusion: The characterization of our cohort will be used to confirm suspected genetic predisposition and identify new genetic determinants of FMS based on objective measurements of central sensitization. Follow-up work combining genomic, transcriptomic and proteomic techniques will aim to gain a better understanding of the various pathophysiological mechanisms underlying the disease and allow the development of optimized personalized treatments for FMS patients. International collaborations will allow replication of our findings in two independent cohorts.
Disclosure: This work is supported by the SNF grant n°320030_182686. The authors declare no conflict of interest.

P76

The ABC of primary care for university students: a three-step structured approach at the Geneva University Hospitals

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Background: University and college students represent a population of 18,000 people in Geneva, Switzerland. They present specific health issues with vulnerabilities related to mental health, sexual health, risk-taking behaviors and delayed access to primary care. A new outpatient clinic for students was created in September 2016 at the Geneva University Hospitals with the aim of responding to student's health needs. With this paper, we present our clinical management framework for a consultation with students.
Methods: The three-step approach (ABC) was designed using different sources involving literature reviews, guidelines and achieving an expert consensus from the Geneva University Hospitals and its network. A post-consultation satisfaction survey was conducted with students attending our services.
Results: The approach proposes 3 steps: general information (reason for consultation, medical history, participation in clinical trials, allergies and treatment); social evaluation (academic background, social network, health care providers, financial resources, protection factors, gender identity and sexual orientation) and preventive care (immunization status ; nutrition; oral health and ophthalmology; risk-taking evaluation; substance use or abuse; addictions without substance; exposure to and act of violence; mental health; sexual and reproductive health). The importance of offering a modern mean of communication (online appointment, email exchanges with clinicians) was underlined by experts. In November 2018, the survey conducted with 128 patients out of 449 consultations showed that 94,5% of them agreed or totally agreed to recommend the consultation to fellow students, 95,3% intend to be followed-up at the consultation and 89% felt the providers adequately addressed their specific student-related issues. 93% of them obtained from the physician the information they wanted and 94.5% noted that the doctor explained everything he did or noticed.
Conclusions: A specific approach is needed in primary care for university and college students. It requires specific competences in numerous domains. Through the 3-step structured approach, we aim covering the main health challenges faced by students and hopefully improve their health management. In the future, outcomes of this approach should be compared with those from non-structured approaches for student's primary care.

P77

Creation of a shared decision-making tool for the treatment of primary aldosteronism in primary care medicine

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Introduction: Primary aldosteronism (PA) is one of the main causes of secondary hypertension. Its prevalence in the general population is between 6% and 18% according to studies, but even higher in patients presenting severe or resistant hypertension. In unilateral forms (overproduction of aldosterone from one of the two adrenal glands), treatment can be either conservative or surgical. Results of both methods are comparable. Although different elements are taken into consideration for the choice of treatment, the final decision is based on a discussion with the patient, according to his preferences and values. It is, therefore, an ideal situation for shared decision making, a process in which physician and patient collaborate in order to choose between different treatment options. Our study's objective is to create a tool to help in shared decision making for the treatment of PA in primary healthcare. The tool's purpose will be to inform the patient on the evidence and the uncertainties of the various available treatment options. The patient will be then accompanied to make his decision according to his preference.
Methods: Creation of a shared decision-making tool based on the existing literature on the treatment of PA and shared decision-making. This tool will be validated by endocrinologists, therapeutic patient education and communication experts. Its utility and acceptance will be then evaluated on 5 patients diagnosed for PA and the tool will be reviewed based on their input.
Conclusion: Deciding for the treatment of unilateral PA is difficult because the two existing approaches are equivalent in terms of efficiency, and have advantages and drawbacks that only the patient can estimate. A guiding tool could facilitate this process for the patient and his physician.

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P78

Typing skills in medicine: how fast are physicians?

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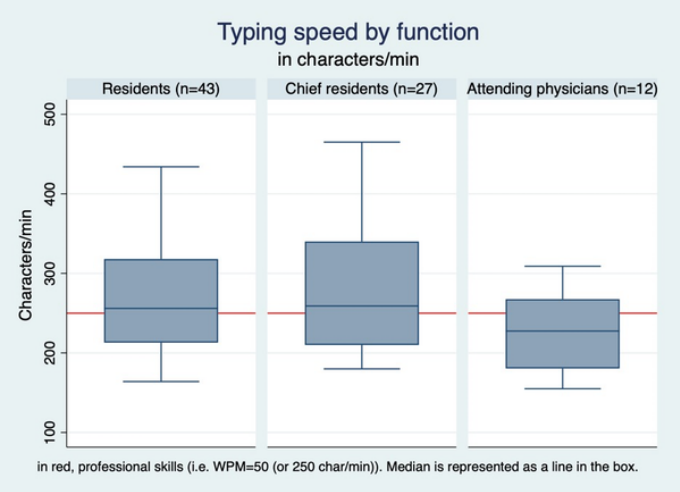
Introduction: The electronic health record has become the primary tool of the internist physicians: during a time-motion study in our Department, residents spent 5.1 hours a day in front of a computer screen. In comparison with data consultation and order prescription, documentation entry represents the most time-consuming burden. We explored the typing skills of residents, chief residents, and attending physicians. Are typing skills limiting in the daily work of physicians?
Methodology: We included all physicians of the Department of Medicine, in the Lausanne University Hospital (Switzerland) between July and October 2018. We used the one-minute TAKI test available on www.intersteno.org, that consists in reproducing a random text in French as faithfully and quickly as possible. A medical secretary led the test in a quiet environment. Contestants had the opportunity to repeat the test a second time; the best result was used for analyses. The outcomes were the typing speed expressed in characters per minute and words per minute (WPM, calculated as one word equals 5 characters). A WPM ≥50 was considered as a professional level. We also recorded the number of

errors per minute and a performance score (net characters per minute - 50 characters per error).
Results: 82 out of 82 physicians passed the test. The average typing speed was 266.9±71.5 characters/min (53.4±14.3 WPM) and the average error rate was 3.6±3.4. The lowest speed (155 characters/min) was much higher than the speed of handwriting. Residents and chief residents tended to be faster (273.3±72.8 vs 229.3±51.8 characters/min, p = 0.051) and were more accurate (3.0±2.9 vs 6.8±4.4 errors/min, p = 0.001) than attending physicians. Attending physicians had lower performance scores compared to other functions (28.0±76.0 vs 147.5±110.5, p <0.001). Overall, 57.3% of physicians had professional typing skills (WPM≥50). There was no correlation between typing speed or number of errors with gender (p = 0.787 resp. p = 0.648), country of medical degree (p = 0.946, resp. p = 0.864) or postgraduate training years (Spearman´s rho -0.184, p = 0.108 resp. Spearman´s rho 0.156, p = 0.174).
Conclusion: Just over half of Internists had professional skills in typing, though the remainder did not. Despite this performance, the documentation burden remains high and is therefore not related to low typing skills. Text synthesis, suitable ergonomics, data-to-text and voice recognition would be useful to diminish the encumbrance of data entry.



[Fig 1. Typing speed by function (in characters/min)]

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Access to innovation in medicine for all patients: some bugs are still setting back the most vulnerable of them

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Learning objective: Even if in some western countries refugees have a good access to health care, living conditions have a negative impact on their health status
Health professionals can feel helpless to change social context of underprivileged patients, but they have to document it, in order to advocate on social determinants of health.
Case: A 40 years-old Eritrean refugee, former soldier, arrived without appointment at the refugees' outpatient clinic of HUG. He complained that his right ear was ringing and blocked up since he waked up in the morning. The community nurse practiced an ear examination, and called the referent primary care physician because she saw a “black mark” in the external auditory canal. Ear examination by the physician showed a moving black insect inside the auditory canal, and the patient was immediately referred to the ENT specialist. Our colleague discovered a live adult cockroach together with a larva, and carefully managed to remove them. Eardrum and canal were slightly inflammatory, but all the symptoms went away after the insect was removed. No formal entomology identification was initiated, but a rapid internet research allowed recognising a German cockroach.
Discussion: Ear invading arthropods are rare in western medical practice. A review showed that 10 cases were registered in a two years period (2001-2003) in an ENT service in Cape-Town, South Africa, and 6 cases in the same period of time (2004-2005), in a university hospital of Mangalore, India. Within HUG, it was the second time in 20 years of practice that the Professor in charge of the ENT service of HUG saw an insect in an ear, but the junior doctor, who had a former experience as ENT in a military hospital in Algeria told us that she removed quite frequently alive insects from the ears of soldiers who camped out during military exercises.
The social welfare responsible of the centre where the patient was living with his three children was informed of the situation. The answer was that many cockroaches infested the building, and that the patient had a responsibility, because he did not clean enough his rooms. Finally eradication was performed.
This case shows that, even in western countries, living conditions and social context of vulnerable patients can have a direct impact on their health, leading to developing countries pathologies. Health care professionals, should be aware of that, and advocate on patients´ social determinants of health.

P80

Visual AIDS: experiences, representations and needs of patients and caregivers

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Introduction: Visual aids are increasingly used in medicine. Most of the studies on this subject demonstrate the clinical efficiency of a specific visual aid in a defined context and purpose. Our study aims to explore how visuals are integrated in the medical daily practice and also the representations and needs of caregivers and patients.
Method: A research group composed of two doctors, one graphic designer and one sociologist, have led a qualitative study based on Focus Groups (FG). A semi-structured FG guide and examples of visuals aids were used to stimulate discussions. The participants were health professionals working in Geneva in ambulatory practice and French-speaking outpatients. Inductive thematic analysis was carried out by two members of the group. The code list and the coding were systematically analyzed and modified if necessary, to find a consensus within the research group.
Results: Six FG gathered twenty-one caregivers from seven different professions and fifteen patients. Five themes emerged: 1. Tool identification, 2. Quality and access, 3. Usefulness, 4. Co-construction and reference, 5. Caregiver-patient relationship. Caregivers reported a wide variety of formats, sources and areas of use of visual aids. They questioned their quality and underlined the lack of easy access to referenced visuals. Patients had difficulty identifying what is a visual aid and its usefulness. They worried that the tool would replace the therapeutic relationship and communication with their caregiver. Both parties, caregivers and patients, agreed that while it can replace or supplement text, a good visual aid must be flexible during the medical consultation so that it can be adapted to the specific needs of the patient and to the message it conveys.
Conclusion: Visual aids in the field of care cannot substitute verbal explanation and the therapeutic relationship. They can create an opportunity of interaction and education, especially when the patient co-constructs the visual during the consultation. Future clinical research needs to be reoriented from « which » visual aid to choose, to « how » to use it in the most efficient way and integrate it into medical practice.

P81

Anticoagulant therapy for acute venous thrombo-embolism in cancer patients: a systematic review and network meta-analysis

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Background: Low-molecular-weight heparin (LMWH) is usually recommended for the treatment of cancer-associated thrombosis (CAT) but this treatment requires burdensome daily injections. We did a systematic review to compare the efficacy and safety of direct oral anticoagulants (DOAC), vitamin K antagonists (VKA) and LMWH in patients with CAT.
Methods: We searched Pubmed, Embase and CENTRAL for randomised controlled trials comparing DOAC, VKA and LMWH in patients with CAT. Pairwise and network metaanalyses were computed for venous thromboembolism (VTE) recurrence and bleeding complications.

Results: We identified 14 studies, including 4,661 patients. In pairwise comparison, DOAC were superior to LMWH to prevent VTE recurrence (HR 0.63; 95% CI 0.42-0.96) and LMWH was superior to VKA (HR 0.53; 95% CI 0.40-0.70). The rate of major bleeding was higher with DOAC compared to LMWH (HR 1.78; 95% CI 1.11-2.87). In the network meta-analysis, DOAC had a lower, but non-significant, rate of VTE recurrence compared to LMWH (HR 0.74; 95% CI 0.54-1.01). Both DOAC (HR 0.42; 95% CI 0.29- 0.61) and LMWH (HR 0.57; 95% CI 0.44-0.75) were associated with lower rates of recurrence compared to VKA. No significant difference in major bleeding rate was observed in the network meta-analysis. Inconsistency was observed between pairwise and NMA comparisons for major bleeding.
Conclusions: DOAC are effective to prevent VTE recurrence in patients with CAT but are associated with an increased risk of bleeding compared to LMWH. The choice of anticoagulant should be personalised, taking into account the patient's bleeding risk, including cancer site, and patient's values and preferences.

P82

Standing up with an hemoglobin at 18g/l: yes migrants patients can!

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Learning objectives:
· Identify barriers to care for migrants
· Acknowledge the extraordinary resilience of migrants towards illness
Case: A 36 year-old man consulted the HUG “outpatient clinic” for undocumented migrants (UM), complaining of thoracic pain, severe dyspnoea and extreme tiredness since one week. Physical exam showed a tachycardia at 100, a 3/6 systolic murmur and a major asthenia, reason why he was referred to the emergency room for further examination. Investigation highlighted an extremely severe anaemia with haemoglobin at 18 g/l and haematocrit at 7.6%. Acute cardiac ischemia was refuted and thoracic pain was considered secondary to the anaemia. He was hospitalized, received 4 blood transfusions and IV iron, without complications. The aetiology of the anaemia was a combination of chronic blood loss due to severe haemorrhoids (a proctology surgery was later proceeded), heterozygote sickle cell anaemia and iron deficiency. *Psychosocial context*: In 1999 aged of 18th, he fled civil war in Sierra Leone after the death of his parents and went to Guinea. Then, he reached Italy by boat and after a few weeks, applied for asylum in Switzerland. 3 years later, his demand was rejected because peace agreement where just signed in his home country. He since went clandestine during 15 years, living from intermittent jobs and avoiding contact with authorities and public services -health services included- in the fear of being checked. After the hospitalization, he was reintegrated in the asylum procedure due to his medical condition, and housing, minimal social assistance and medical insurance were provided again.
Discussion: This case illustrates the incredible resilience of the migrants towards illness, in particular UM. Such a severe anaemia, even if gradually established, has a huge impact on quality of life, and severe haemorrhoids too. But UM often wait the last moment before seeking care and support advanced illness and suffering. From a more philosophical point of view, this story also questions the beliefs of what if compatible with life and is a learning lesson for physicians as health professionals, but also as citizens.
And finally, it highlights the barrier to health care for people living “invisibly” in the society, in particular rejected asylum seekers who choose to live clandestinely. Unless specific health care facilities are offered, like in our hospital, they often self-limit their access to care.

P83

An unusual cause of torticollis

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Learning objective: Rappel sur le diagnostic différentiel à prendre en considération devant des cervicalgies fébriles.

Case: Un homme de 82 ans, connu pour un carcinome urothélial métastatique, est hospitalisé pour une bactériémie à *Escherichia Coli* multisensible associée à un violent torticolis apparu 3 jours auparavant et d'étiologie peu claire. Hormis une limitation de la mobilisation cervicale dans tous les axes, l'examen physique est normal. Les examens paracliniques révèlent un syndrome inflammatoire. Une ponction lombaire ne peut pas être effectuée ne raison d'une anticoagulation thérapeutique. Sur le plan infectieux, l'évolution est rapidement favorable sous antibiotique, avec néanmoins persistance des cervicalgies malgré un traitement symptomatique conséquent (AINS, morphine). Nous ouvrons un diagnostic différentielle vaste: méningite, ostéomyélite, spondylodiscite, métastase ou tumeur rachidienne. Le CT du cou une inflammation aigue retropharyngienne ; l'IRM conclut à à une migration des dépôts calciques entre C1 et C2 avec une importante réaction inflammatoire autour de la dent de l´axis (syndrome de la dent couronnée). Nous débutons un traitement antiinflammatoire par anti-IL-1 (abatacept) avec évolution favorable.
Discussion: Le torticolis aigu fébrile est un symptôme fréquent chez l'enfant, qui impose la recherche d'un abcès retropharyngé, complication d'une angine à Streptocoque. Chez l'adulte, il est souvent secondaire à une origine infectieuse telle qu'une méningite, une spondylodiscite ou un abcès épidural. Une origine rhumatologique, comme le syndrome de la dent couronnée chez notre patient, doit être évoquée.
Le syndrome de la dent couronnée est un diagnostic rare et difficile, radio-clinique (douleurs cervico-occipitale et limitation de la mobilité du rachis cervicale associées à une hyperdensité arciforme du ligament cruciforme entourant le processus odontoïde). [1]
Les cliniciens doivent connaitre ce diagnostic afin de limiter le recours à une ponction lombaire ou une biopsie non nécessaire. Le traitement repose sur la prise d'anti-inflammatoire (AINS, corticoïdes ; colchicine ou anti-IL-1 dans les cas résistants).
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A de Winter's tale

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Learning Objective: Recognize the STEMI-equivalent de Winter pattern
Case: A 56-year-old hypertensive man was admitted to the emergency department for typical chest pain. EKG showed upsloping ST-segment depression with tall and positive symmetric T waves in the precordial leads and slight ST-segment elevation in lead aVR. High sensitivity troponin T was 70 ng/l. A diagnosis of non-ST elevation myocardial infraction (NSTEMI) was done. He was treated accordingly and referred for non-urgent (6-hours later) coronary angiography which showed an acute occlusion of the left anterior descending artery (LAD). Percutaneous transluminal coronary angioplasty with thromboaspiration and stenting was performed. The patient recovered well. The initial EKG was re-read which led to a final diagnosis of the STEMI equivalent de Winter pattern.
Discussion: The ECG changes were suggestive of de Winter pattern, a STEMI equivalent.[1] First described in 2008 by de Winter et al., [2] it is a sign of acute LAD coronary artery occlusion and can be seen in ~2% of anterior MI. [3] Its classic features are upsloping depression of the ST segment with symmetric tall T waves in the anterior precordial leads; additionally, the ST segment can be elevated in lead aVR and depressed in the inferior and lateral leads. This pattern do not progress to ST elevation. [4] The pathophysiology of de Winter pattern may be related to a mutation of sarcolemmal K_{ATP} channels, that prevent ST elevation.[5] Clinicians should therefore be aware of this tricky presentation, since its recognition requires urgent coronary revascularization.

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Faut-il rechercher l'helicobacter pylori après une chirurgie bariatrique: réflexion à propos d'un cas

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Learning Objectives: l'*Helicobacter pylori* (HP) peut favoriser la décompensation et la révélation d'une maladie de Biermer.
Case: Une patiente de 41 ans, porteuse d'un bypass gastrique (Roux en Y) est hospitalisée pour asthénie. L'hémogramme objective une anémie macrocytaire profonde. Le frottis évidence une aniso-poïkilocytose et la présence de schizocytes. Les LDH sont élevées et l´haptoglobine effondrée ; le test de Coombs direct est négatif. Les reste du bilan est normale hormis un déficit en vitamine B12. On retrouve des Ac anti-facteur intrinsèque et anti-cellules pariétales positifs. Les biopsies gastriques révèlent une atrophie fundique, signe d'une la maladie de Biermer, et une gastrite active avec perte des glandes oxyntiques en présence d'HP. Après transfusion immédiate, l'éradication de le HP et la supplémentation en B12, la correction des perturbations biologiques est obtenue. La patiente n'a plus présenté d'anémie au follow-up.
Discussion: Nous pensons que l'infection à HP a favorisé le processus d'hémolyse intramédullaire qui révelateur d´une maladie de Biermer. L'infection à HP est cause reconnue de carence en B12,[1] qui favorise un avortement intramédullaire prématuré des précurseurs érythroïdes, avec hémolyse intramédullaire.[2] La chirurgie bariatrique a pu jouer un rôle dans la précipitation de l'anémie puisque la dérivation gastrique peut elle aussi affecter la stabilité de la membrane globulaire.[3] Ainsi nous pensons que la triple conjonction de la chirurgie bariatrique, de la gastropathie auto-immune et de l'infection à HP est à l'origine de l'anémie sévère de la patiente. Le dépistage systématique de le HP pourrait lors être discuté dans le bilan pré-opératoire d'une chirurgie bariatrique ou en cas d'apparition d'une hémolyse après chirurgie bariatrique,

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Like a bead on a string - Kawasaki in the adult

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Learning objective: Differential diagnosis of coronary arteries aneurysms in adulthood - Kawasaki disease
Case: A 43-year-old man presented was admitted for acute chest pain. His medical history was notable for coronary artery bypass grafting 6 months earlier. Cardiac work-up was normal. Coronary angiography showed instent restenosis that was treated with angioplasty and stenting. CT angiography was performed to investigate the presence of systemic vasculitis; this hypothesis was excluded. Instead, coronary artery disease was remarkable with diffuse aneurysms, like beads on a string. Anamnesis revealed that the patient developed a febrile rash during infancy, which persisted for several days. Extensive immune and infectious panel testing turned out negative. We hypothesise that the patient's coronary artery aneurysms occurred as a sequela of a Kawasaki disease unrecognised during infancy.
Discussion: Kawasaki disease (mucocutaneous lymphnode syndrome), is an acute, self-limited medium-sized-vessel vasculitis characterized by prolonged fever, skin rash, erythema of the oral mucosa, lips, tongue, palms and soles, bilateral conjunctival injection, and cervical lymphadenopathy. [1] Untreated, it can lead to cardiac death in the acute phase and to severe coronary sequelae on the long term, making it the leading cause of acquired heart disease among children in developed countries. [2] Coronary artery aneurysms (CAA) develop in ~25% of untreated cases; appropriate treatment decreases this risk to 3-5%. [3] The most common cause of coronary aneurysms in the adult is atherosclerosis. Less frequently, infectious diseases (syphilis), arteritis (e.g. Takayasu disease, polyarteritis nodosa), traumas and fibromuscular dysplasia can associate with CAA. Our case suggests that a previously misdiagnosed Kawasaki disease should be evoked in adults with CAA. Accurate anamnesis is fundamental.

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Tolerance to benznidazole and nifurtimox in patients with Chagas disease: a retrospective study

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Introduction: Nifurtimox and benznidazole are the only drugs available for the treatment of Chagas disease fifty years after their introduction. Few studies have compared their respective tolerance in clinical setting. We compared the completion rate and the frequency of side effects in a cohort of patients treated with benznidazole or nifurtimox following a standardized protocol at the Geneva University Hospitals.
Methods: We analyzed the data of all adult patients treated from 2008 to 2017. In absence of validated recommendations, drug availability was the main determinant in the choice of the first-line drug. Patients received benznidazole (5mg/kg/day, maximum 300mg/day) or nifurtimox (10mg/kg/day) for 60 days with clinical follow-up at 7, 21 and 60 days or in case of side effects. When the initial treatment had to be prematurely stopped, efforts were made to relay with the second drug to complete the 60-day therapy.
Results: Of the 176 patients, 92 (52.3%) received benznidazole and 84 (47.7%) nifurtimox as first-line therapy. Hundred forty-three (81.3%) were female, 173 (98.3%) were Bolivians, the mean age was 39.6 (SD 8.4) years and 142 (80.7%) were at the indeterminate phase of the chronic stage. Age was the only significant difference between groups (benznidazole group: 41.3, nifurtimox group: 37.7 years, $p < 0.005$). The mean duration of the first line therapy was 46 (SD 20.3) days and 110 (62.5%) patients completed the 60-day therapy with no difference between groups ($p = 0.571$ and 0.533, respectively). When combining first and second-line drugs, the rate of completion reached 64.8%. We found no predictive factor for treatment completion. Treatment was interrupted in 90 (51.1%) patients due to side effects, significantly more frequently with nifurtimox (59.5%) than with benznidazole (43.5%) ($p = 0.036$). The main side effects with benznidazole were asthenia (40.8%), headaches (40.2%), pruritus (37%), nausea (35.9%), mood change (31.5%) and rash (29.3%). Anorexia (73.8%), headaches (71.4%), asthenia (69.4%), nausea (54.8%) and insomnia (50%) predominated with nifurtimox.
Discussion: This pragmatic study highlights the high rate of treatment interruption and non completion due to poor drugs tolerance. We found no significant difference between drugs in terms of treatment duration and completion rate but nifurtimox entailed more frequent interruptions. This stresses the need for the development of better tolerated drugs for adults with Chagas disease.

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Impact of increased preparation time for residents before ward rounds: the MED2DAY Study

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Introduction: In 2015, we conducted a time and motion study in our Department to describe residents' time allocation during their shifts (the ME-DAY study). We found that residents switched from one task to another up to 15 times per hour, hilighting the fragmented nature of the residents' work. To address this issue, we decided to reform the work schedule and asked residents for their input. One point of improvement concerned a

lack of preparation time before ward rounds. This led us to postpone the start of rounds by one hour. We sought to assess the impact of increased preparation time on (1) the rounds' duration and (2) the allocation of residents' time during rounds.
Methods: We repeated the same protocol as in 2015. Between May and July 2018, trained observers followed residents and recorded 22 predefined activities, including patient rounds. All residents were included and observed twice. Only day shifts were considered. Endpoint was the total time dedicated to ward rounds. To capture the impact of our intervention, we focused on how residents' time was allocated to the contexts in which the round was conducted: with the patient, with another colleague and with the computer. Results were expressed as mean (95% confidence interval) or percentage. We adjusted results for number of patients cared for and for admissions/discharges per shift.
Results: We recorded a total of 49 day shifts in 2015 and 63 day shifts in 2018. On average, ward round duration was reduced by 25 minutes (95% CI 39 - 11; p <0.001), from 118 minutes in 2015 to 93 minutes in 2018.
Table 1 illustrates how residents allocated their time to the various contexts. Time allocated to patients decreased by 18 minutes, while the percentage of round time allocated to patients remained stable, corresponding to about half of the round. The most important evolution relates to computer use: the time spent with a computer was reduced by 25 minutes. A limitation of the study is that quality indicators of the rounds were not measured.
Conclusions: We found a 25 minute-reduction in both round total duration and time spent with a computer. This is certainly a gain in efficiency for residents and nurses, both of which are better prepared and less likely to look for information on the computer during rounds. However, we observed a reduction of the time spent with patients, an unintended consequence of our reform. Further improvements should target the round process itself.

Table 1 - Allocation of the ward round time to the various contexts

	2015	2018	p-value
With the patient, all occurrences			
Time (min)	60 [53 - 66]	42 [36 - 48]	<0.001
% ward round time	51 [46 - 56]	48 [43 - 52]	0.292
With the patient exclusively			
Time (min)	16 [11 - 20]	9 [5 - 13]	0.028
% ward round time	13 [8 - 18]	13 [8 - 17]	0.885
With the computer, all occurrences			
Time (min)	60 [52 - 67]	35 [29 - 42]	<0.001
% ward round time	51 [45 - 56]	37 [32 - 42]	<0.001
With the computer, exclusively			
Time (min)	9 [6 - 12]	2 [0 - 5]	0.002
% ward round time	8 [5 - 11]	3 [0 - 5]	0.007
With another colleague, all occurrences			
Time (min)	88 [76 - 101]	76 [65 - 87]	0.141
% ward round time	74 [67 - 82]	81 [74 - 87]	0.212
With another colleague, exclusively			
Time (min)	6 [3 - 9]	12 [9 - 15]	0.003
% ward round time	5 [2 - 8]	14 [12 - 17]	<0.001

[Table 1 - Allocation of the ward round time to the various contexts]

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Primary prevention of sexually transmitted infections in Switzerland: practices of family physicians and their determinants

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Introduction: Sexually transmitted infections (STIs) remain an important public health issue in Switzerland. General practitioners (GP) are key actors in the healthcare system and should play an important role against those diseases through primary prevention. The objective is to describe the prevention practices of GPs against STIs, as well as highlighting some predictive factors associated with them.
Methods: The study was carried out in 2015-16 using the Swiss Primary Care Active Monitoring general practitioners network (277 GPs). GPs answered an online questionnaire about their opinions, attitudes and practices regarding preventive care. Answers to the questions about providing counseling regarding STIs, as well as providing immunization against hepatitis A, B or HPV were analyzed through their links with the doctors' sociodemographic characteristics, their offices features and their thoughts about STI prevention.
Results: 167 GPs answered the questionnaire. About 80% of GPs consider prevention in the area of affective and sexual life as part of their job, and find discussing it easy. Most of them spontaneously give advice regarding STIs during a routine consultation. Regarding HPV immunization in adults, almost half of the GPs report never doing it, while almost 75% of them often or always immunize their adult patients against hepatitis B. Less than half systematically or often vaccinate children against hepatitis B. Opinions about hepatitis B immunization in babies are diverging (1/3 GP not in favor of it).
GPs who consider prevention of affective and sexual diseases as part of their duty are more likely to provide advice on the subject during a routine consultation ("totally" OR 2.79 [1.08-7.23]). GPs performing a higher number of consultations in a day seem to be weakly associated with administering more HPV vaccines to adults (OR 1.13 [1.05-1.23]) and vaccinating adults against hepatitis A (OR 1.17 [1.05-1.31]). Vaccinating children against hepatitis B is associated with practicing in rural area (OR 4.64 [1.20-17.98]). Having longer consultations is associated with giving advice on the topic of affective and sexual life during a first consultation (OR 1.08 [1.01-1.14]).
Conclusion: This study showed that many GPs in Switzerland are already involved in primary prevention against STIs and think of it as their responsibility. Opinions towards vaccinations are more mixed. Prevention practices are also associated with GPs' favorable opinions on prevention.

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Screening and assessing psychological intimate partner violence against women: a new role for primary care physicians?

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Background: Intimate partner violence (IPV) against women is frequent in Switzerland, with 1 in 7 women experiencing physical/sexual IPV, 2 in 5 psychological IPV. In our medical charts review (2011-2017), 96% of help-seeking women (n = 764) reported emotional or verbal abuse, controlling behaviours or threats of violence, with 4 in 5 women experiencing it alongside physical or sexual IPV. Psychological IPV has deleterious effects on women's mental, physical and sexual health, yet remains critically underexamined. Identifying severity thresholds, documenting consequences, and assessing risks in relationships marked with asymmetry are some of the issues that preoccupy PCPs.
Methods: Combining a documentary analysis and a series of focus groups and interviews with professionals (n = 65) in the health, social work, and criminal justice sectors, this ongoing research examines the relevance of guidelines and tools to assess psychological IPV. We address (1) types and categories of psychological IPV, including those fostered by technology; (2) underpinnings of abusive dynamics and perpetrators' motivations, and how these contribute to women's entrapment; (3) how IPV increases health problems and risk behaviours; and (4) promising avenues and gaps in screening and assessment across professional fields.
Results: Better understanding women's trajectories is critical to develop appropriate protocols. PCPs need to consider the logics of social workers who set up protective measures, and of criminal justice professionals who translate individual experiences into legal provisions. A process that requires time and "horizontal" case management, both interdisciplinary and intersectoral.
Categorizing highly personal experiences of abuse requires us to confront our experience with the women's discourse, the one of their significant others, and the one of our colleagues. And how we apprehend these situations is undeniably subjected to community and sociocultural influences. Common risks include secondary victimization and the instrumentalization of professionals, both in the clinical relationship and during the procedure, as well as the trivialization of psychological violence given its occurrence in various types of relationships (family, friendship) and across living environments (work, school). And though we focus on the role of PCPs at the bedside of women victims, let's not forget their responsibility confronting perpetrators and protecting children victims.

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Should we expand the eligibility for health insurance reimbursement of protein convertase subtilisin/kexin-9 inhibitors?

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Purpose: Discussions are ongoing to expand the eligibility for protein convertase subtilisin/kexin-9 inhibitors (PCSK9i) to all patients with cardiovascular disease and low-density lipoprotein cholesterol (LDL-c) levels above 1.8 mmol/l. The cardiovascular benefit of such strategies remains unknown. We aimed to compare the control of cardiovascular risk factors according to Swiss health insurance reimbursement criteria for PCSK9i among patients with acute coronary syndrome (ACS).
Methods: We analyzed a prospective Swiss cohort of patients hospitalized for ACS between 2009 and 2016 with available data for LDL-c at 1 year. We defined three mutually exclusive groups of patients at 1 year according to Swiss health insurance reimbursement criteria for PCSK9i: “well-controlled” for LDL-c <1.8 mmol/l, “not eligible for reimbursement” for LDL-c between 1.8 and 2.6 mmol/l, or between 2.6 and 3.5 mmol/l for patients who had experienced only one cardiovascular event, and “eligible for reimbursement” for LDL-c >3.5 mmol/l, or >2.6 mmol/l for patients who had several cardiovascular events. The well-controlled group was used as a reference for comparison.
Results: At 1 year, 3,025 patients were alive and had available LCL-c values: 1,071 (35.4%) were well controlled, 1,539 (50.9%) were not eligible for reimbursement, and 415 (13.7%) were eligible for reimbursement. Mean LDL-c levels were 1.4 mmol/l for well-controlled patients, 2.4 mmol/l for those not eligible, and 3.7 mmol/l for those eligible. The proportion of patients with systolic blood pressure >140 mmHg in the well-controlled group was similar to the group not eligible (27.6% vs 28.2%, p = 0.73), and lower compared to the group eligible (33.6%, p = 0.02). The proportion of current smokers in the well-controlled group was similar to the group not eligible (21.2% vs 22.4%, p = 0.52), and lower compared to the group eligible (28%, p = 0.02). The proportion of diabetics with glycated hemoglobin ≥7.5% in the well-controlled group was similar to the group not eligible (25.9% vs 24.2%, p = 0.72), and lower compared to the group eligible (35.7%, p = 0.2).
Conclusion: More than half of patients with high LDL-c after their ACS will not be eligible for PCSK9i. The control of cardiovascular risk factors other than LDL-c was better among patients currently not eligible for PCSK9i than among those eligible. Expanding the eligibility for PCSK9i based on LDL-c levels may therefore increase the prescription to patients at lower cardiovascular risk.

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How internal medicine residents' experience their daily work: the MED2DAY qualitative study

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Introduction: In a 2015 time-motion study, we showed that internal medicine residents spent a large amount of their time performing administrative tasks and using computers. Moreover, they switched tasks 15 times an hour. This prompted major reforms aimed at increasing residents' work efficiency and satisfaction. We introduced medical secretaries, specifically allocated to residents, and a new daily organisation in an attempt to reduce non-added value tasks and unnecessary interruptions. In this study, we explore how internal medicine residents experience their daily work organization.
Methods: 40 residents participated in four focus groups (FG). Each FG lasted about 90 minutes and was conducted by two experienced moderators (CB, FS) with no professional link to the participants. FG discussions were audio-recorded and transcribed verbatim. Data were analyzed with qualitative content analysis.
Results: Residents expressed positive attitudes towards work organization in their Department. Initial analyses indicate that residents' experience is concurrently characterized by (1) a sense of individual agency - referring to how residents come to alter, though not necessarily intentionally, the general structure and organization of work through their interpretation and understanding as well as their practical actions -, and (2) a sense of constraint or restricted agency. For instance, with regard to the sense of individual agency (1), a number of residents do not take the opportunity to delegate tasks to the medical secretary, arguing that they tend to rely on themselves or find the added value of the delegation process to be low as well as time consuming. As another example, some residents use a significant part of the time planned for the preparation of the ward round to take a coffee break with their colleagues. Conversely, a sense of restricted agency (2) was manifest in narratives of residents feeling pressured and constrained by the daily schedule, with an experience of being overwhelmed by the tasks to accomplish and the looming danger of unforeseen incidents as the day progresses.
Conclusion: Beyond the intended goal of increasing work efficiency and satisfaction, the consequences of a change in work organization in a medical Department have profound effects on residents' experience and feeling towards their work.

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Identifying patient-important practical issues for shared decision-making

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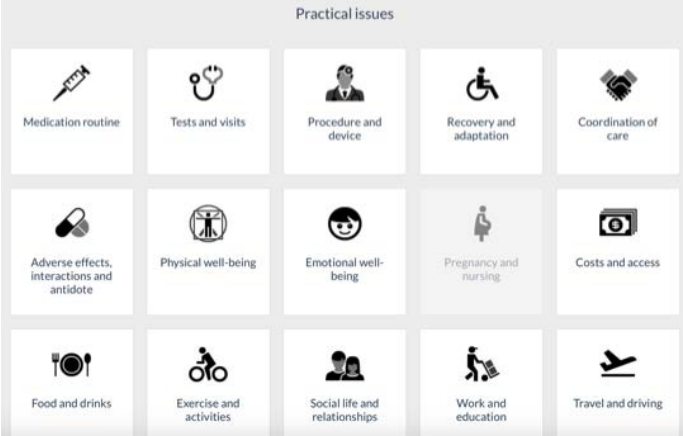
Introduction: To help patients and clinicians engage in collaborative deliberation, tools for shared decision-making (SDM) usually include evidence on the nature and likelihood of patient-important outcomes associated with management alternatives. However, patients face practical issues when implementing the chosen option in their daily life. Evidence summaries typically include the former but overlook the latter. Our objectives were to map and categorise patient-important practical issues related to treatment options and develop a generic framework for their incorporation into SDM tools.
Methods: We systematically reviewed and mapped two main sources (HealthTalk.org registry and Option Grids), which included a large sample of conditions and applied a rigorous methodology in identifying patient experience and questions. We
systematically screened every topic, abstracting all practical issues relevant to management options. Two independent reviewers grouped the issues into themes, compared results, resolved discrepancies, arriving at final a set of themes. We tested the applicability of this framework in identifying specific practical issues when creating 34 SDM tools. We incorporated this framework in a the MAGICapp, and authoring and publication platform for evidence summaries and decision aids.
Results: Thematic analysis identified 15 categories from 967 issues across 297 topics in HealthTalk.org and 29 Option Grids: five care-related (medication routine, tests and visits, procedure and device, recovery and adaptation, co-ordination of care); five related to daily life (food and drink, exercise and activities, social life and relationships, work and education, travel and driving); and five related to miscellaneous issues (adverse effects, interactions and antidote, physical well- being, emotional well-being, pregnancy and nursing, costs and access) - see Figure. We created 34 decision aids - published along our BMJ Rapid Recommendations (www.bmj.com/rapid-recommendations). All categories of practical issues were applicable and used to support SDM.
Conclusions: We identified 15 overarching themes of patient-important practical issues. This generic framework can complement trustworthy evidence summaries from systematic reviews and thus help create tools that are more helpful when discussing with patients the issues that matter to them.



[Framework of 15 Categories of practical issues incorporated in the MagicApp]

P94

Validation of seven type 2 diabetes mellitus risk scores in a population-based cohort. The CoLaus Study

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Objective: Assess the validity of seven type 2 diabetes mellitus (T2DM) risk scores in predicting the 10-year incidence of T2DM in a Swiss population based study.
Methods: prospective study including 5131 participants (55% women, age range 35 to 75 years) living in Lausanne, Switzerland. The baseline survey was conducted between 2003 and 2006 and average follow-up was 10.9 years. Five clinically-based (Balkau, Kahn clinical, Griffin, Swiss diabetes association and Findric) and two clinically and biologically based scores (Kahn CB and Wilson) were tested.
Results: 405 (7.9%) participants developed T2DM. The overall prevalence of participants at high risk ranged from 13.7% for the Griffin score to 43.3% for the Balkau score. Prevalence of participants at high risk among those who developed T2DM ranged from 34.6% for the Griffin score to 82.0% for the Kahn CB score. The Kahn CB score had the highest area under the ROC [value and 95% confidence interval: 0.866 (0.849-0.883)], followed by the Findrisc [0.818 (0.798-0.838)] while the Griffin score had the lowest [0.740 (0.718-0.762)]. Except for the Griffin and the Kahn C scores (for sensitivity) and the Balkau score (for specificity), sensitivities and specificities were above 70%. The numbers needed to screen ranged between 15.5 for the Kahn CB score to 36.7 for the Griffin score.
Conclusion: The Kahn (CB) and the Findrisc performed best of all scores. Findrisc could be used in the epidemiological setting, while the need of blood sampling for the Kahn (CB) score restricts its use to a more clinical setting.

P95

Prevalence and determinants of fatigue in the Swiss population

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Introduction: Fatigue is a highly prevalent symptom in clinical practice, but few studies have assessed its prevalence and determinants in the general population. We aimed to assess the prevalence and determinants of fatigue in a Swiss population-based sample.
Methods: We used a population-based cohort (n = 2848) (53.2% women, age range 45-86 years) from the general population of the city of Lausanne, Switzerland. Fatigue was defined as a score ≥4 using the Fatigue severity scale (FSS).
Results: The prevalence of fatigue was 21.9% (95% CI: 20.4% - 23.4%) in the total sample. On bivariate analysis, participants with fatigue were younger, had a higher BMI, a lower handgrip strength, and lower ferritin levels. Participants with fatigue were more frequently women, had a lower educational level, and presented more frequently with clinical insomnia, diabetes, anemia, depression, low TSH values, had a higher consumption of anti-histaminics, antidepressants and hypnotics, and rated more frequently their health as bad or very bad. Multivariable analysis showed that obesity [odds-ratio (OR) and 95% confidence interval: 1.40 (1.03-1.91)], insomnia categories (p-value for trend <0.001), depression [3.26 (2.38-4.46)], anemia [1.70 (1.00-2.89)] and low self-rated health status (p-value for trend <0.001) were positively associated, while older age (p-value for trend 0.002) was negatively associated with fatigue. Conversely, no association was found for diabetes, TSH levels, anti-histaminics or hypnotics.
Conclusion: In a population-based sample aged 45 to 86, fatigue was present in one out of five subjects. The major determinants of fatigue were obesity, insomnia, depression, anemia and antidepressant medication.

P96

General practice do not innovate with spiritual care: the need to move towards an embedded model

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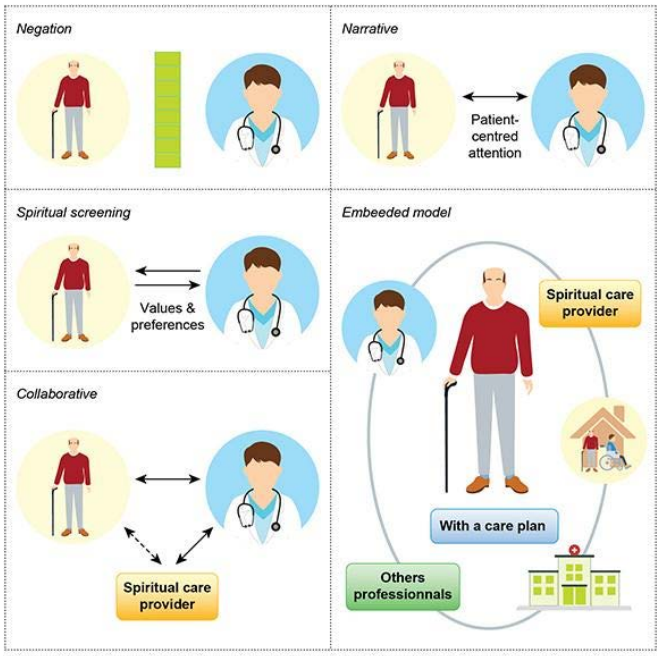
Introduction: In the past two decades, research into general practitioners' (GPs') provision of spiritual care has made little progress. Whilst the literature has reflected an aspiration for spiritual care in general medicine, it hasn't outlined concrete ways to operationalise it.
Methods: With a selective review, we have identified four models implicitly used in the literature about spirituality in general practice. A new theoretical model has been developed.
Results: GPs' have a wide range of attitudes and practices towards spiritual care:
Negation: spirituality is not part of the current allopathic medical field.
Narrative: GPs talk about spirituality (e.g. sense, values) without explicitly naming it, as part of the patient-centred narrative attention. This is currently the dominant model in general practice.
Spiritual screening: GPs take an active interest in spirituality, using simple screening tools or assessment guides to better understand the patient.
Collaborative: GPs emphasise the importance of spirituality in their daily clinical practice, as part of the whole person care. They collaborate with spiritual care providers for clinical care and for their own training.
Current challenges in general practice offers great avenues to embrace spiritual care as benefiting patients' health and well-being, and leading to increased efficiency and effectiveness for the whole health system. GPs will increasingly work in integrated and multidisciplinary primary care practices, where they will have the opportunity to formulate shared care plan with other health professionals, in a more proactive way. We developed an *embedded model*, were spirituality becomes part of the care plan in a health system. The embedded model includes spirituality and offers whole person care, rooted in a biopsychosocial-spiritual view of the person; the interdisciplinary coordination of interventions; and the integration of care settings, mainly community, hospital and nursing homes. This model offers a coordinated care plan of the biopsychosocial-spiritual network, with the GP at its centre.
Conclusion: the embedded model integrates spirituality and takes the patient's complexity and wholeness into account. It would provide compassionate and optimized care, and would give some answers to GPs as well as care institutions faced with ethical issues raised by the technical advances of medicine.
Note: a derived article has been published:
https://doi.org/10.3399/bjgp19X700613



[Models of spiritual care]

P97

Activities performed by general practitioners during home visits between 2006 and 2015: a billing-based observational study

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Introduction: In the context of an aging population, home visits made by GPs may contribute to maintaining elderly patient at home. The aim of the study was to describe the diversity of GPs activities during home visits and analyze the evolution of these activities.

Method: This was a descriptive observational retrospective study. We used billing data collected by the cantonal trust center for home visits made by GPs of the canton of Vaud from 2006 to 2015. We separated billed items from the Tarmed catalogue (Swiss tarification system for medical services), laboratory catalogue, medication, medical material and vaccines. We compared billing patterns between emergency and routine visits.

Results: From 2006 to 2015, for a total of 451'634 visits, there were 3'880 different items billed. GPs billed a median of 5 items per visit (range 2 - 95).

Regarding Tarmed catalogue, travelling expenses were billed in 417'733 visits (92.5%), physical examinations in 66'229 visits (14.7%), medico-surgical acts in 25'522 visits (5.7%), reports in 4'547 visits (1.0%) and additional investigations in 2'084 visits (0.5%).

Laboratory tests were performed in 43'197 visits (9.6%), the most frequent ones being coagulation tests (in 22'450 visits, 5%), blood counts (in 13'742 visits, 3.0%) and chemistry tests (in 10'051 visits, 2.2%).

Treatments were given in 3093 visits (0.7%). NSAIDs (1054 visits, 0.2%), corticoids (722 visits, 0.2%) and opiates (505 visits, 0.1%) were the most frequent ones.

Material use concerned 1'027 visits (0.2%) and perfusion sets (229 visits, 0.1%), wound dressings (198 visits, 0.0%) and various sets (141 visits, 0.0%) were the most involved.

Vaccines were administered in 2'678 visits (0.6%), mostly flu vaccines (2465 visits, 0.6%).

Finally, during emergency visits (89'977 visits, 19.9%), there were more prescribed drugs (1.7% vs 0.4%, p <0.001) and small material (0.3% vs 0.1%, p <0.001), but less laboratory tests (7.0% vs 10.2%) and vaccines (0.1% vs 0.7%, p <0.001).

Conclusion: There is a high diversity among contents of home visits made by the GP. Most home visits are not emergency visits, and include neither laboratory tests nor drug or vaccine prescription/administration. The proportion of treatment and material use is higher in emergency visits. Evolution over time of the GPs activity will be part of a typology analysis and will be presented during the congress

P98

A clinical prediction model for the diagnosis of pneumonia confirmed by CT-scan in elderly patients

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Background: Diagnosing pneumonia in emergency departments, particularly in the elderly, is challenging because accuracy of symptoms, signs and chest X-ray (CXR) is limited. Clinical prediction rules have low accuracy and have been developed in ambulatory settings, with a reference diagnosis based on CXR confirmation, which entails a significant risk of misclassification. We aimed to identify characteristics predictive of CT-scan confirmed pneumonia.

Methods: Predictors of pneumonia in a cohort of elderly patients hospitalized for suspected pneumonia was determined with multivariate logistic regression. The reference diagnosis was presence of pneumonia asserted by four experts (including one radiologist) using all available information, incorporating low-dose CT-scan in all patients. Identified variables were combined in a score.

Results: Two hundred patients (median age 84 years) were available for analysis. Pneumonia was confirmed in 133 (67%). Main alternative diagnoses were non respiratory infections, viral lower respiratory tract infections, heart failure and exacerbation of chronic obstructive pulmonary disease. Cough, male gender, urea and C-reactive protein (CRP) were independently associated with the presence of pneumonia (Table). Identification of pneumonic infiltrates on CXR by training physicians in charge of the patients was not independently predictive of the presence of pneumonia.

We built a score assigning one point for the presence of cough, gender, and dichotomized continuous variables (urea <7 mmol /L, CRP >70 mg/l). Prevalence of pneumonia increased from 33% (0 point) to 87% (4 points).The area under the receiving operating curve was 0.68 (95% CI 0.60-0.76). Performing a CT-scan in patients with <3 points (accepting a diagnosis of pneumonia in patients with 3 or 4 points) would result in a sensitivity of 95% and a specificity of 48%.

Conclusions: In a cohort of elderly patients hospitalized for suspected pneumonia, prevalence of the disease according to a reference diagnosis including CT-scan was only 67%. Though a few clinical and biological characteristics of the patients were independently associated with the presence of pneumonia, their combination in a score had low discrimination power.

Variable	Odd ratio (95% CI)	P value
Male gender	2.23 (1.12-4.44)	0.022
Cough	3.77 (1.51-9.40)	0.004
CRP (mg/dl)	1.01 (1.00-1.01)	<0.001
Urea (mmol/L)	0.92 (0.86-0.98)	0.007

[Table]

P99

Quitting smoking in detention facilities

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Introduction: Although smoking remains a preventable cause of death and one of the main risk factors for several chronic diseases, including cardiovascular and lung disease, it remains widespread throughout the world. In prisons, smoking prevalence is much higher than in the general population and can reach 90%, while intervention actions are much rarer than providing care for other addictions. We conducted a qualitative survey that showed an interest in quitting smoking. In addition to this, it shows a lack of knowledge of the different methods and treatments for stopping smoking. A literature search shows the absence of a specific counselling tool for smokers in detention.

Objective: The goal is to create a tobacco counselling tool adapted to the prison environment and to test its feasibility and acceptability.

Methodology: We created a first version with the participation of patients who smoke and the various caregivers according to an iterative process of evaluation and improvement until finalization.

Result: The tool consists of an A4 flipchart with illustrations on the patient side and clinical information and advice on the provider (caregiver) side. It can be used for brief or sustained intervention. The qualitative

results suggest that the tool is easily understandable, easy to use, relevant and useful in providing information in a systematic way not only on smoking, but also on cardiovascular diseases and risk factors.
Conclusion: The tool is innovative and allows a systematic approach to weaning management that we would like to present to all fellow caregivers.

P100

Medication safety: a tool for a novel and complementary approach to CIRS in a Swiss university hospital

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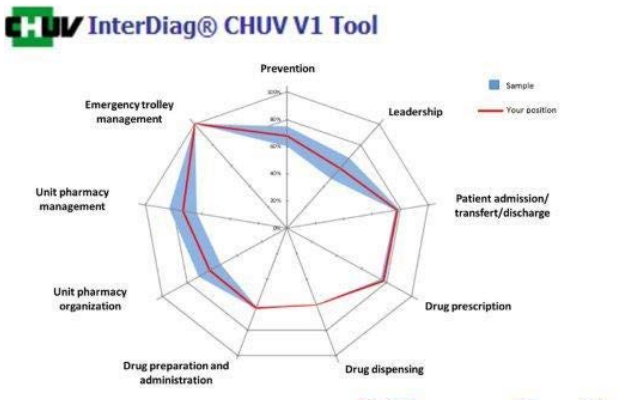
Introduction: Medication error is an important factor of morbidity and mortality. Numerous guidelines and recommendations exist to enhance patient safety. One fundamental component of risk management in health care system is the critical incident reporting system (CIRS), which offers an a posteriori approach, without identifying a priori the risk zones in drug processes.
Method: In order to bridge this gap, we performed a systematic review and identified English, French and German tools used to assess the medication safety practices in hospitals. One tool met our pre-defined requirements. Initially developed in France, InterDiag® is used in more than 300 hospitals in several countries. We needed to adapt the original, French tool, for our Swiss health care system, according to legal and local settings. The remodeled tool includes 167 items (38 original and 129 new). It is introduced since 2018 as an additional and complementary process to our CIRS. A multidisciplinary team from each clinical unit (doctors, nurses, pharmacists, risk managers, quality managers) are invited for a 2 hours workshop in order to map the risks in their medication processes.
Results: Three main themes (security policy, medication practices, storage safety) and nine security axes (prevention, leadership, patient admission/transfer/discharge, drug prescription, dispensing, preparation, administration, storage, emergency trolley management) are explored with this tool. The results are shown as radar (figure 1), but also as a precise map of the unit's drug safety related risks, of their strengths and vulnerabilities. A prioritized and specific action plan is generated in order to secure failures in medication processes. Our tool also provide pooled results from a micro-level (unit, ward) to a meso-level (department) and even macro-level (hospital), thus identifying transversal actions to be made.
Conclusion: Our tool allows a precise risk mapping of medication processes and permits to design and implement concrete actions in order to improve medication safety, with a shared priority assessment. This novel approach in medication risk management involves interprofessional teamwork for patient safety and promotes a strong safety culture.



		Your score	Min	Max
	Structural risk of your unit	73%	69%	77%
	High score means high risk			

	Security axis of your unit	*High score means high risk control*		
Axis 1	Prevention	68%	60%	75%
Axis 2	Leadership	57%	47%	68%
Axis 3	Patient admission/transfer/discharge	78%	76%	79%
Axis 4	Drug prescription	77%	75%	79%
Axis 5	Drug dispensing	60%	60%	60%
Axis 6	Drug preparation and administration	63%	62%	63%
Axis 7	Unit pharmacy organization	62%	53%	71%
Axis 8	Unit pharmacy management	73%	63%	83%
Axis 9	Emergency trolley management	100%	100%	100%

[Fig. 1: Rates of risk assessment expressed as percentage of risk control per security axis.]

P101

A cannabis use reduction program: content, concepts and organisational aspects

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Introduction: In the field of substance use disorders, abstinence is not the exclusive objective of treatment anymore since the 80s (Van Amsterdam et al.[1]). In particular with regard to alcohol use, there are increasing scientific arguments that controlled drinking is a valid alternative to abstinence, for excessive and moderate dependant drinkers not ready to abstain. The GREA (Groupement romand d'étude des Addictions) has implemented in 2007 the "Alcochoix+" program in the French speaking part of Switzerland. Its purpose is to promote controlled drinking in excessive drinkers and prevent alcohol dependence (Simoneau et al). In 2009, this program to help people to reduce their cannabis use was developed in Montreal, based on the experience with the "Alcochoix+" program.
Its implementation was hampered by the fact that cannabis was illegal and that health professionals could not recommend a “controlled use” of a forbidden substance.
However, recently, in several countries, cannabis legislation has changed from to legalisation with strict regulations (e.g. USA, Uruguay, Canada). In Switzerland several experimental programs are planned (e.g. Bern, Geneva). In this context interest is growing to offer a tool for people who consider their consumption is problematic and who wish to reduce.
Result: Description of the program:
The recently updated programme contains 6 steps which can be used by the user alone, with the help of a professional or in a group setting. The basic principles are: to know more about cannabis and the measures of harm reduction, to learn how to count own use, to be able to make self-observations, to determine personal objectives, recognize at risk situations and adopt personal strategies. This cannabis use reduction program is a part of a global set of “use reduction” programs for other substances and gambling, called « My Choices (Mes Choix) ». The programmes are developed in an international collaboration of French speaking countries, Canada (Quebec), Switzerland, France and Belgium.
Conclusion: Based on the positive experience with “controlled drinking programs” similar approaches for problematic cannabis (and other substances) have been developed. Future studies should include patient and provider satisfaction as well as effectiveness of these interventions.
1. Van Amsterdam J, Van den Brink W. Reduced-risk drinking as a viable treatment goal in problematic alcohol use and alcohol dependence. J Psychopharmacol 2013; 27: 987-997.

P102

Drinking rubbing alcohol in Switzerland, does it exist? A case-report

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Learning objective(s):
To understand that problematic alcohol drinking can include non-consumable household products
To understand the importance of assessing the risk of drinking household alcohol in an atypical alcohol history
To be able to give advices on treatment in case of alcohol dependence
Case: A 60-year-old-man, with no significant comorbidities, consulted in our unit, because of an excessive alcohol consumption since 13 years. The patient revealed that since 7 years he drank 0.5 L of household alcohol (“Migros spiritus”) corresponding to 400 grams (40 units) of ethanol per day. The reason of the choice of this [...] house detergent containing alcohol was the absence of smell, so he could “hide” his consumption. He presented an Alcohol Use Disorders Identification Test (AUDIT) test of 25 points (above 13 points, a high risk of alcohol dependency is to consider), and a diagnosis of dependence (3 on 6 criteria according the International Classification of Diseases and Health Problems (ICD-10).

His liver tests showed elevated GGT 231 UI/l, PAL 354 UI/l, but AST, ALT and bilirubin amounts were normal, as were other lab tests. He initially refused to fully abstain from drinking as we suggested, and asked for a "controlled consumption". We proposed a switch to consumable alcohol in a controlled drinking program (Alcochoix+) and prescribed thiamine.
Discussion: The chemical analysis of the household alcohol, in the School of Chemistry of the University of Geneva, showed a methanol concentration of 1g/l: 0.13%, which is less than the European legal limit for alcoholic beverage. Nevertheless, the household alcohol also contained heavy metals. Because of the risk of methanol toxicity: neurological (seizure, coma), renal (failure, metabolic acidosis), ophthalmological (retinal toxicity) and gastrointestinal, we did an extended medical evaluation which consisted of a neurologic examination, kidney function, ophthalmoscopy, and gastroscopy, all were normal. The "Alcochoix+ program" enabled the patient to stop his household alcohol consumption and switch to regular alcohol (wine), but also to decrease his total alcohol intake from 400 grams to 20 grams per day, 4 days per week. Still, after a few months, the patient realized it was too difficult to try to limit his consumption and lost control again; he finally choose to stop successfully during a prolonged period.

P103

Diagnostic value of adenosine deaminase in ascites

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Learning objective: To appreciate the diagnostic value of adenosine deaminase (ADA) in low albumin gradient ascites.
Case: A 38 year-old woman presents with diffuse abdominal pain and ascites. She reports a loss of 5kg in the last 3 months, along with nocturnal sweats. She originates from Mozambique, where she lived until the age of 21, when she moved to Switzerland. She has no personal or recent history of contact with active tuberculosis. Laboratory testing showed a small inflammatory syndrome, and her HIV-status is negative. Ascites workup showed a leucocytosis with lymphocytic predominance, low serum ascites albumin gradient (SAAG), elevated ADA value but negative *M. tuberculosis* Nucleic Acid Amplification Tests (NAAT).
Discussion: Tuberculosis is the worldwide leading cause of death from a single infectious agent. In high income countries, the incidence of pulmonary tuberculosis is gradually decreasing with a relative rise in the incidence of extrapulmonary manifestation, probably due to migration, HIV spread and use of immunosuppressive drugs. ADA is an enzyme highly abundant in active T-lymphocytes. Its concentration is markedly increased in tuberculous infection in contrast to non-tuberculous aetiologies. A recently published meta-analysis found a sensitivity of 93% and specificity of 94% for peritoneal tuberculosis with a positive likelihood ratio of 13.37 and a negative likelihood ratio of 0.11. In contrast NAAT has low sensitivity rates in non-respiratory samples with wide variations reported in the literature and no validated test for peritoneal liquid in Switzerland. The ADA test was positive for this patient; assuming a TB prevalence for non-cirrhotic ascites ranging from 30 to 45% in low-income countries, the post-test probability is 85-92%, strongly suggesting the diagnosis of a peritoneal TB. It is important to note that this value falls to 69% if considering the USA prevalence of 14%. The diagnosis was supported by the results, 3 weeks later, of a positive MTB culture in ascites. In conclusion ADA, an old, easily available and inexpensive test, has better diagnostic accuracy than expensive new generation NAAT. It can contribute to the diagnosis of abdominal tuberculosis and replace the necessity for an invasive test for histological sample, particularly in patients rising from low income countries.

P104

Participatory approach with a citizen advisory group: an iterative evaluation and adaptation of patient decision aids

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Introduction: Guidelines for the development of patient decision aids (DAs) recommend involving the target population throughout the creative process. We are developing cancer screening decision aids (DAs) for colorectal, prostate, and lung cancer. We wanted a pool of citizens who could participate in repeated meetings and contribute to the iterative, user-centered evaluation and adaptation of DAs. However, it can be challenging to recruit asymptomatic citizens aged 50 to 75 years, our target population. Further, there is little literature reporting on methods for the creation and maintenance of such groups.
Methods: We recruited a participatory group of citizens without previous cancer diagnoses using contacts with: a consumer association, a state association for elderly people, patients from our academic practice, and standardized patients from the medical school. We planned two qualitative evaluation cycles for each DA, each time with two in-person meetings of 10 people lasting 2 hours, and an evaluation by mailed questionnaire to remaining group members.
Results: We successfully recruited 50 citizens, though we had to adapt and intensify our communication strategy. For the DA on colorectal cancer screening, we have had 2 meetings with 8 and 9 of 10 people invited attending. Twenty-three of 28 participants mailed the questionnaire responded. We found that simultaneous in-person meetings and questionnaires provided complementary information and allowed us to reach more participants. For the prostate cancer DA, we had one meeting with 4 of 10 men invited. Eight of 8 mailed questionnaires were completed. Evaluation of that DA is ongoing. We are beginning development of the DA for lung cancer screening. Participants were very appreciative our participative approach. We have made numerous changes to our processes along the way, like optimizing the timing and length of questionnaires.
Conclusion: Our participative approach with a citizen group to evaluate patient DAs has provided us with valuable information and been evaluated positively by participants. The involvement of citizens on a volunteer basis has required extensive personalized communication. The creation of an initial pool of available people has resulted in a high participation rate. These results could help other research groups perform participative research in a way that is informative and feasible.

P105

Ten-year trend in polypharmacy in the Lausanne population

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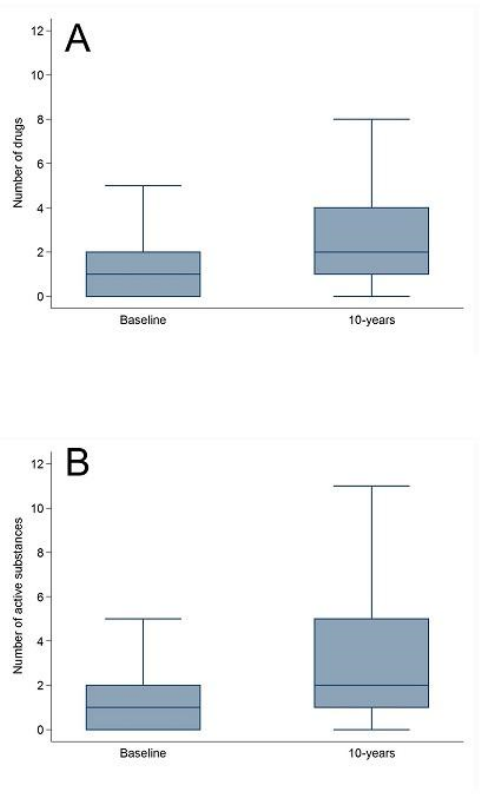
Introduction: Ageing and associated morbidities place individuals at higher risk of polypharmacy and drug-drug interactions (DDIs). How polypharmacy and DDIs change with ageing is important for public health management. This study aimed to assess the ten-year trends in prevalence of polypharmacy and potential DDIs in a population-based sample.
Methods: Baseline (2003-06) and follow-up (2014-16) data were obtained from a sample of 4512 participants (baseline age range: 35-75 years, 55.1% women) from the population of Lausanne, Switzerland. Polypharmacy and polyactive drug use were defined by the regular use of ≥5 medications and ≥5 pharmacologically active substances, respectively. DDIs were defined according to the criteria of the Geneva University Hospital.



[10.9-year trends in drug (panel A) and pharmacologically active substances (panel B) use in the over]

Results: The percentage of participants taking at least one drug increased from 56.1% to 79.5% (p <0.001). Among participants taking drugs, number of medications increased from 2.6±1.9 (average±standard deviation) to 3.8±2.9 after 10.9 years follow-up (p <0.001); the corresponding values for active substances were 2.7±2.0 and 4.0±3.0 (p <0.001). The prevalence of polypharmacy and polyactive substance use increased from 7.7% to 25.0% and from 8.8% to 27.1%, respectively (p <0.001). The presence of at least one potential DDI increased from less than one percent to almost one sixth of all participants.
Conclusion: In a community-dwelling sample, the prevalence of polypharmacy and polyactive substance use more than tripled during a 10-year follow-up, with an even greater increase in the prevalence of potential DDIs. Adopting policies and measures to control polypharmacy is mandatory to both improve patient safety and avoid extra financial burden on the healthcare system.

P106

Resources required for a systematic fecal immunochemical test outreach program for colorectal cancer screening

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Background: Strong evidence supports the use of mailed fecal blood tests and patient navigation to increase colorectal cancer (CRC) screening rates, particularly among underserved populations. However, few models exist for the scale-up of these interventions. Between 2006 and 2016, the implementation of the Kaiser Permanente Northern California fecal immunochemical test (FIT) outreach program coincided with a doubling of the proportion of members up-to-date with screening (from 40% to >80%), a 26% decrease in CRC incidence, and a 52% decrease in CRC mortality. We created a framework to assess the resources and costs needed for the functioning of this large-scale, mature, mailed-FIT outreach program.
Methods: We interviewed senior program leadership and key informants from regional laboratories, primary care offices and gastroenterology departments to create a detailed model of the outreach program, beginning with the identification of eligible health-plan members to completion of diagnostic colonoscopies. We identified all inputs of material, infrastructure and personnel. We then classified costs as related to start-up, programmatic and clinical activities, with programmatic costs being program management, service delivery and patient support, quality tracking, ongoing staff training, and similar activities.

Activity	Associated resources / costs
Core program management team	Clinical lead physician; Project manager; Information technology support; Liaison with outreach vendor; Customer support hotline; Health education department
Centralized outreach for all of KPNC	Automated generation of list of patients eligible for screening; Outside vendor paid to mail pre-letter, FIT kit, reminder letter, and administer robo-call
Local in-reach based in primary care	Medical assistants remind patients of FIT when they arrive for appointments in any department (electronic health record trigger); Medical assistants provide FIT kit to patients who do not have one available; Medical assistants contact patients by telephone or secure e-mail to remind about FIT
Central laboratory management of completed FIT	Manual verification of patient information; Follow-up of FIT tubes with missing information; Labeling of FIT tubes; Processing of FIT by automated machine (OC-Sensor Diana®)
Follow-up of test results	Mail notification of patients with negative tests; Primary care provider notifies patients of positive results; Gastroenterology department contact and reminders for colonoscopy scheduling; Performance of diagnostic colonoscopy

[Kaiser Permanente Northern California (KPNC) FIT outreach program activities]

Results: We identified five key program activities: a core management team; centralized outreach with automated generation of patient lists and an outsider vendor that mails FIT kits, reminders, and performs robo-call reminders; primary-care based, local in-reach activities, including personalized phone and in-person reminders by medical assistants during office visits; large-scale laboratory intake, analysis, and storage of completed tests; and finally, gastroenterology department-based management of patients with positive FIT results, including personalized instructions and reminders, and the completion of diagnostic colonoscopy (Table). A specific electronic health record add-on provides real-time lists of eligible patients and contacts to date.
Conclusions: This work provides the framework for detailed accounting of resources required for a systematic FIT-outreach program. These data and further quantification of staff efforts and system resources can inform cost-effectiveness analyses and the development of comprehensive, integrated cancer screening programs in different settings.

P107

Statin-induced autoimmune necrotizing myopathy: fatal issue due to oro-pharyngeal muscles involvement

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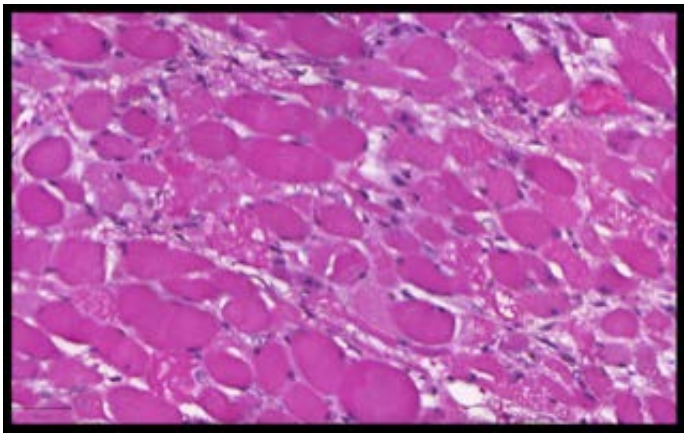
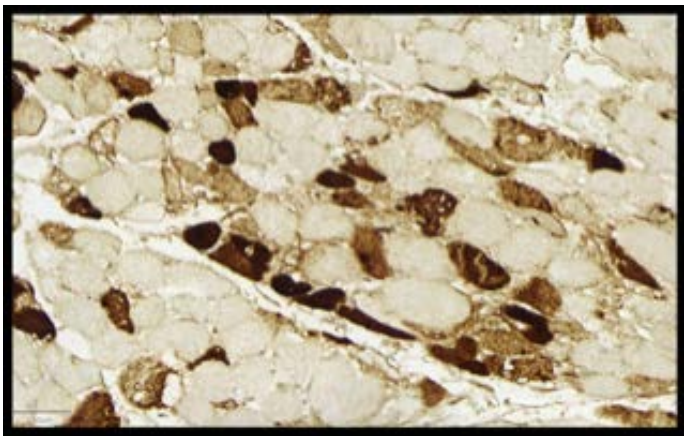
Learning objectives: Identification, diagnosis and early treatment of statin-induced autoimmune necrotizing myopathy (SINAM).
Case: A 77-year-old man, known for statin-treated hypercholesterolemia, Parkinson´s disease, depression and lumbago, was hospitalized due to generalized pain and diaphoresis since two days. Physical examination found arterial systolic hypertension at 180 mmHg, tetrahyperreflexia, lower limbs muscle contracture, myoclonus and swallowing disorder.
Creatinine kinase (CK) were at 5000 IU/L, troponin T >200 ng/l, aspartate amino-transferase (ASAT) at 574 U/l, alanine amino-transferase (ALAT) at 464 U/l and lactate deshydrosenase (LDH) at 899 U/l. Venlafaxin, tramadol were removed in suspicion of serotonin or neuroleptic malignant syndrome (day 1), but in the absence of improvement, this hypothesis

was excluded. ECG and cardiac ultrasound excluded myocardial infarction. Immunological testings (C3, C4, cryoglobulinemia, ANCA, antinuclear antibody), panel for myositis and viral infection (viral hepatitis and HIV) were negative. Contrast-injected thoraco-abdominal CT scan found no sign of malignancy. Despite discontinuation of statins, CK reached a peak at 7500 IU/L (day 5) and then decreased. Calf MRI showed signs of inflammatory myositis (day 12) but muscle biopsy was not performed due to the patient´s deterioration.
Despite intravenous immunoglobulin and methylprednisone (day 16), the patient died (day 20). Serology for the anti 3-hydroxy-3-methylglutaryl-coenzyme A reductase (HMGCR) antibody was positive. The autopsy found necrotizing myopathy of the oro-pharyngeal muscles and to a lesser extent the quadriceps, an old transmural infarction in the heart and bilateral inhalation pneumonia lesions.



[Pharyngeal muscle necrosis]



[Membrane attack complex C5b-9 marking]

Discussion: Statin, lowering cholesterol by inhibiting HMGCR, is frequently prescribed in the elderly. Five to 10% of treated patients present myalgia and weakness but only 3/100´000 develop SINAM, which can occur many years after the beginning of statin. In the elderly, diagnosis is challenging because of multiple co-morbidities and polymedication. To our knowledge, involvement of oro-pharyngeal muscles is uncommon. In this case, the differential diagnosis of SINAM was paraneoplasic myositis. Furthermore, muscle biopsy and anti-HMGCR antibody were delayed because of recurrent inhalation pneumonia and to the peculiar localization, postponing treatment initiation. This case is a good example of a rare but fatal side-effect of statin.

P108

Cannabinoid hyperemesis syndrome: a challenging differential diagnosis

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Learning Objective: Cannabinoid hyperemesis syndrome (CHS) is defined by cyclic episodes of nausea and vomiting and the learned behavior of hot bathing in individuals who have been consuming large doses of cannabis for several years. The differential diagnosis of this syndrome is challenging as it can be masked by symptoms typical to other diseases and can often lead to unnecessary and expensive medical investigations.
Case: A 43-year-old man, long term cannabis consumer, with a history of lower back pain and depression was transported by the paramedics to the emergency department of Saint Loup Hospital for an episode of heavy nausea, vomiting, and abdominal pain. His personal medical history revealed degenerative disc disease resulting in chronic pain treated with NSAID and opioids, a pulmonary emphysema, and a sliding hiatal hernia resulting in gastroesophageal reflux disease. An esophagogastroduodenoscopy with biopsies of gastric tissues performed 10 months before admission revealed mild chronic H. pylori-positive gastritis, despite treatment for eradication of H. Pylori infection nine years earlier. Upon admission to the emergency department he described episodes of cyclic nausea and vomiting for the past year that were alleviated by hot bathing. The patient reported cannabis consumption three times a day for over 10 years. Clinical examination and lab workup were unremarkable. In view of the typical clinical picture, we concluded that the nausea, vomiting and abdominal pain were due to CHS and the patient was advised to completely stop his cannabis consumption. Cessation of cannabis use resulted in alleviation of symptoms and the patient reported to be asymptomatic two weeks after diagnosis.
Discussion: Cyclic nausea, vomiting and abdominal pain in patients with a history of long-term cannabis consumption can lead to a differential diagnosis of CHS. It is important that physicians, based on detailed anamnesis concerning cannabis consumption and relief by hot impulsive showers, recognize this syndrome to avoid unnecessary medical testing and to help their patients understand that the only long-term treatment is complete cessation of cannabis use.

P109

Open complaints and compliments about electronic medical records: internists' top five

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Introduction: The electronic health record (EHR) is the internists' first tool for consultation, documentation, and prescription. Despite evolving over decades, EHR does not meet physicians' expectations because of the diversity of needs and the challenge of rendering huge amounts of clinical data apprehensible. Usability is therefore of outmost importance for clinicians. We aimed to identify critical topics for internists, needing prioritization in future EHR developments.
Methods: We assessed the local EHR (Cerner Soarian®, USA) usability twice, in 2014 and 2018, using a survey addressed to all junior and senior physicians of our internal medicine department. Eligible participants were all physicians working on the internal medicine ward for at least 3 months. In 2018, we added the assessment of the prescription module recently developed. Alongside quantitative Likert-type scaled questions, we invited participants to add free commentaries about major topics: admission, prescription, follow-up and discharge, administrative tasks and general comments. We listed all free-text comments of both surveys and classified them according to mentioned topics. In case of multiple topics, we split the comment into quotes. After ranking topics according to frequency, we selected the top-5 positive comments and the top-5 complaints.
Results: Out of the 286 participants, 256 returned a survey (89.5%). We collected 342 comments and split them into 625 quotes. Among these, 22 (3.5%) were positive, 603 (96.48%) negative, and 35 (5.6%) miscellaneous. We identified 10 compliment and 20 complaint topics. The top 5 compliments represented 2.1% and the top 5 complaints 54.2% of the 625 quotes. **Tables 1 and 2** present the results.
Internists appreciated the ability of the IT department to continuously improve the EHR and their initiative to collaborate closely with clinicians. However, development of reliable and synthetic presentations of clinical data should be strongly prioritized. We acknowledge the limitations of a monocentric survey of a single EHR with local settings and that users always talk more about flaws than virtues.

Conclusions: Internists give high priority to how data are accessed and presented. While IT departments have to deal with the technical constraints, we physicians should reinforce the necessity of medical informatics physicians, helping to develop future reliable and innovative EHRs.

Top 5 compliments		
Rank	**Topic**	**Number of quotes**
1	Improvement ability of the EHR	3
2	Usefulness of reinforced medical-IT collaboration	3
3	Order prescription possibilities	3
4	Helpful specialist-focused result screens	2
5	Effortless daily note documentation	2

[Table 1: Top 5 compliments]

Top 5 complaints		
Rank	**Topic**	**Number of quotes**
1	Poor information accessibility	154
2	Technical limitations of some item documentation	75
3	Lack of automated processes	40
4	Too many clicks for a task	40
5	Word processor rudimentarity	30

[Table 2: Top 5 complaints]

P110

Mismatch between resident schedule and reality: the MED2DAY study

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Introduction: Typical residency schedule is organised as such: patient rounds in the morning, supervision and admission in the afternoon. Work organisation is usually described in a week schedule of the department. In a 2015 time-motion study, we observed that residents carried out expected activities during the corresponding period less than two thirds of the time. As we identified this as a stress factor, we then reshaped the timetable by giving larger frames, reducing interlaced meetings, and shifting early morning teaching rounds to the afternoon. We aimed to evaluate if mismatch decreased afterwards.

Methods: We repeated the 2015 time-motion study between May and July 2018. Trained external observers followed the residents and collected their activities using a dedicated tablet application. Based on the official department work schedule, we identified which activities were expected or not, for each timeframe of the week. Mismatch was defined as an activity observed but unexpected in the related timeframe. We generated statistics using average ± standard deviation. Results were adjusted for the number of patients cared of for by resident.

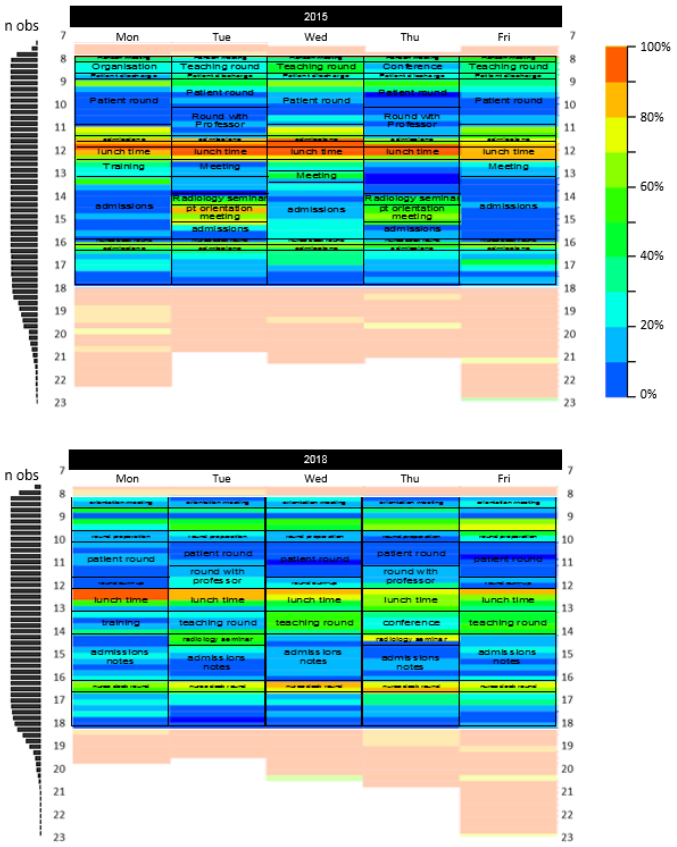
Results: We recorded 49 shifts in 2015 and 67 shifts in 2018 amounting to 62 residents, summing 1'289 hours of observation. Day shift duration decreased from 11.6 to 10.7 hours (95% CI 11.3 - 12.0 and 10.5 - 11.0, p <.001). Overall, daily mismatch decreased from 38.6 to 31.9 (95% CI 35.9 - 41.3 and 29.6 - 34.2, p <.001). Activities dedicated to the patient produced less mismatch, directly (-8.2%) or indirectly (-8.5%, **Table**), meaning that these activities occurred more during the planned timeframe of the day. Personal time (dedicated to resident's own needs) created more mismatch in 2018 (+ 14.3%, p <.001), meaning that a third of personal activities were carried out outside the dedicated timeframe. Looking at the weekly distribution of mismatch, hotspots remain just before lunchtime, at noon and during the nurse desk rounds at 16:00 (**Figure**). Less restrictive periods at the beginning of the day freed residents to resolve most urgent issues before ward wounds.

Conclusions: Successful reshaping of the timetable, by managing larger frames and freeing early part of the morning, has given residents more realistic timeframes. This could help residents work seamlessly.

	2015 (n = 49)	2018 (n = 67)	p-value
Directly related to patient	36.4 [31.8 - 40.9]	28.2 [24.4 - 32.1]	0.009
Indirectly related to patient	44.6 [41.1 - 48.1]	36.1 [33.1 - 39.1]	<0.001
Academic and training	25.2 [14.8 - 35.5]	30.9 [22.1 - 39.6]	<0.001
Administrative tasks	36.8 [31.8 - 41.7]	30.7 [26.4 - 35.0]	0.071
Personal time	20.7 [15.1 - 26.2]	35.0 [30.3 - 39.8]	<0.001
Transit to the next activity	11.0 [7.2 - 14.9]	7.6 [4.3 - 10.9]	0.19
Overall	**38.6 [35.9 - 41.3]**	**31.9 [29.6 - 34.2]**	**<.001**

[Table: Proportion of unexpected activities in the corresponding timeframe. Presented as mean percentage [95% CI]]

Figure: rate and distribution of mismatch between the residents' official work schedule and the observed activities over the week. More red means more unexpected activities according to the timeframe. N obs : number of observation.



[Figure: rate and distribution of mismatch over the week]

P111

Is there a gender difference in resident self-organization on the internal medicine ward? The MED2DAY study

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Introduction: Female internists keep increasing in proportion over the years. Studies suggest the presence of difference in practice patterns between male and female physicians that could influence important patient outcomes such as mortality or readmissions. Such practice differences are not well recognized yet. Our aim was to identify if time allocation of internal medicine residents differed according to gender.

Methods: We conducted a time-motion study in 2015 and 2018 in a tertiary internal medicine department. We included all residents, whom trained observers followed during dayshift. We recorded 22 predefined activities grouped into six categories, and four contexts (with a patient;

using a computer; using a phone; and with a colleague). We also computed task mismatch, i.e. the percentage of time spent in activities performed but not expected according to the official schedule. We calculated a rate of task-switching per hour, i.e. passing from one activity to another. Finally, we observed punctuality, defined as being under 5 minutes late, at the morning meeting and patient rounds. Comparisons were made using a mixed model and results were expressed in mean [95% confidence interval].

Results: We collected 49 shifts in 2015 and 67 shifts in 2018, observing 62 residents, and summing 1290 hours of observation. Women represented 58.1% of residents. After adjusting for period, no gender difference was found when comparing resident characteristics (**Table 1**). We found no significant pattern difference in day organisation (**Table 2**). Shift duration between men and women was similar (11.0 [10.7-11.3] vs. 11.2 hours [10.9-11.5], $p = 0.15$). Women did not spend more time with patients nor doing tasks directly related to them. Mismatch with the offical schedule was higher in women but did not reach significance (31.8% [29.1-34.5] vs. 35.1% [32.8-37.3], $p = 0.065$). Rate of task switching and punctuality were similar. One limitation was that we could not associate our results with patients' outcomes.

Conclusions: From a quantitative perspective, no significative difference was found between male and female physicians' daily organisation on the ward. Gender association with outcomes could be sought in more qualitative settings such as personality differences, corporate culture, and education.

Table 1: characteristics of participants. Results are expressed as number of participants (percentage) for categorical data, as average ± standard deviation or as median [interquartile range] for continuous variables.

	Men (n=26)	Women (n=36)	p-value
Swiss diploma (n, %)	18 (69.2%)	22 (61.1%)	0.510
Age (mean years ± SD)	29.6 ± 2.1	29.3 ± 2.1	0.620
Training (median months, IQR)			
Overall	36 [27 - 43]	31 [25 - 45]	0.573
Internal medicine	28 [24 - 41]	25 [21 - 36]	0.316

[Table 1: characteristics of participants]

Table 2: results for activities, contexts, mismatch, switching rate and punctuality. § Non-exclusive. Results are expressed with [95% confidence interval] or (standard deviation).

	Men	Women	p-value
Shift (n)	47	69	
Shift (h, mean)	11.0 [10.7-11.3]	11.2 [10.9 - 11.5]	0.154
Activities (mins per shift)			
Directly related to patient	172 [153 - 190]	180 [165 - 196]	0.487
Indirectly related to patient	243 [225 - 261]	250 [234 - 265]	0.590
Academic and training	49 [38 - 61]	46 [36 - 55]	0.641
Administrative tasks	118 [101 - 134]	120 [106 - 133]	0.849
Personal time	50 [39 - 61]	50 [40 - 59]	0.972
Transit to another	31 [27 - 35]	32 [29 - 36]	0.613
Activities done (mins per shift)§			
...with a patient	100 [87 - 114]	101 [90 - 112]	0.920
...using a computer	302 [281 - 324]	308 [290 - 325]	0.720
...on the phone	58 [50 - 66]	56 [49 - 63]	0.765
...with a colleague	286 [259 - 314]	295 [272 - 318]	0.651
Task mismatch (% of time)	31 [29 - 34]	35 [33 - 37]	0.065
Switches from one task to another /hour	19 [18 - 20]	18 [16 - 19]	0.117
Punctuality (%, only in 2018)			
Shift (n)	27	40	
Morning meeting	20 (74.1)	33 (82.5)	0.405
Patient rounds	15 (55.6)	19 (47.5)	0.518

[Table 2: results]

P112

The influence of patient's gender in low back pain management

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Introduction: There are differences in pain perception and expression between men and women, and studies have suggested that women receive less optimal pain management compared with men. The objective of this study was to assess the influence of patient's gender in the management of acute and chronic low back pain by physicians from emergency departments.

Methods: We submitted a clinical vignette to physicians of internal medicine and emergency departments from seven hospitals of the French speaking part of Switzerland. The vignette presented the case of a patient presenting at the emergency unit for an acute low back pain and coming back 3 months later with a chronic low back pain. Four patients 'profiles`, one man and woman with gender-neutral characteristics and two others with gender-stereotyped characteristics, were randomly distributed to physicians. We primarily assessed the influence of patient's gender and secondarily of physicians' gender on pain management. Finally, we assessed physician's stereotypes toward gender using the Gender Role Expectation of Pain (GREP) questionnaire.

Results: In total, 231 physicians answered the survey (participation's rate: 55%), 42% were women, there were 56% residents, 20% chief residents and 24% senior doctors. When presenting with acute low back pain, women patients tended to be less likely to be proposed imaging such as X-ray (7.5% vs. 12.0%, *p = 0.26)*, and were less likely to receive the recommended dose of ibuprofen 600 mg (34.0% vs. 47.0%, $p = 0.04$). Women tended to be more referred to a mental health specialist when suffering from chronic pain (73.5% vs. 65.5%, *p = 0.19*). The gender differences observed in pain management were exacerbated in clinical vignettes using patients with gender-stereotyped characteristics. Physician's gender also influenced management decision, women physicians being more likely to order imaging (18.0% vs. 7.5%, *p = 0.02*), and prescribing lower intensity analgesic treatment. Finally, the GREP scale suggested that men were considered as more sensitive to pain, having less endurance to pain and being more likely to report pain.

Conclusions: This study suggests that women are less likely to be proposed investigations for a pain complaint and are more at risk for oligo analgesia compared with men. Future prospective studies, in real clinical situations, would help better understand the influence of both patient's and physician's sex on pain management as well at its clinical impact.

P113

Primary care interventions to reduce cardiovascular risk behaviors in adolescents: a systematic review

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Introduction: Adolescence is a key period for the adoption of health-related behaviors. This offers a window of opportunity for the primary prevention of the main cardiovascular risk behaviors, i.e. smoking, low physical activity and unhealthy diet. Family doctors are well placed to individualize the key public health messages in relation to these behaviors and help adolescents reduce their health-compromising behaviors. Yet to date little is known about the effectiveness of primary care interventions targeting the three main cardiovascular risk behaviors (smoking, low physical activity and unhealthy diet) in adolescents.

Methods: We conducted a systematic review of studies documenting the effects of primary care interventions targeting smoking, low physical activity and/or diet in adolescents (10-19 years). We followed PRISMA recommendations and sought RCTs and cluster RCTs indexed in MEDLINE, EMBASE, PsychINFO, CINAHL, CENTRAL, ClinicalTrials.gov and ISRCTN databases. Primary outcomes were objective and self-reported measures of smoking, physical activity and diet, whereas secondary outcomes included measures such as body mass index or insulin resistance. Two independent reviewers screened articles, extracted relevant data and assessed study quality using the Cochrane risk of bias tool. A third reviewer was involved in case of disagreement.

Results: We scanned 5387 records and eventually took 34 records describing 21 studies into consideration in the narrative synthesis of the results. A large heterogeneity in outcome measures precluded conducting meta-analyses. Overall, the quality of the evidence in favor of effective preventive interventions was limited. Three of five interventions addressing smoking behavior were to some extent effective, mostly on the uptake of smoking. Although some interventions targeting physical activity and diet reported statistically significant reductions in anthropometric outcomes, they were often of limited clinical significance and were not associated with significant effects on self-reported adolescent behaviors. Features associated with the most effective interventions were the addition of technology-based modules and short boosters to the initial intervention by a family doctor.

Conclusions: Researchers and practitioners should join forces to develop more effective primary care interventions to limit the development of health-compromising behaviors in adolescents.

PROSPERO Registration: CRD42016028045

P114

Burden of treatment in multimorbid patients: a cross-sectional study of patients' and GPs' assessments in primary care

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Introduction: Higher treatment burden is associated with lower treatment adherence, worse health outcomes and higher health care costs. Our aim was to assess treatment burden in multimorbid patients from the perspective of patients and of GPs, and to identify the factors associated patients' and GPs' assessment of this burden in multimorbid patients in primary care

Methods: We used data from MMFM, a cross sectional study involving 100 GPs and 888 multimorbid patients across Switzerland. We used the Treatment Burden Questionnaire (TBQ, possible score 0-150) to measure self-perceived treatment burden from the patients' perspective, whereas GPs evaluated the treatment burden on a VAS from 1-9. Linear regressions were used to examine the association between patient or GP reported treatment burden and medical, social and psychological factors.

Results: Patients reported a median TBQ score of 20. GPs median assessment of the treatment burden on the VAS was 4. Both patients' and GPs' assessment of the treatment burden were inversely associated with patients' age and quality of life. Patients' reported treatment burden was higher if they had a higher deprivation score, a lower health literacy, of had diabetes or atrial fibrillation. GPs' assessment of the treatment burden was associated with the patient having a greater number or severity of chronic conditions and drugs.

Conclusion: Treatment burden appears to be higher in younger patients, both from a patient and a GP perspective. GPs' assessments of the treatment burden appears to be more strongly related to medical factors, whereas for patients the treatment burden is associated with socioeconomic and psychological factors. It could be interesting for GPs to confront their evaluation of the treatment burden with that of their patients to favor shared decisions about actions aimed at reducing patients' burden of treatment.

P115

The go-between: Swiss nurse practitioners provide synergisms, satisfaction and continuity within the interprofessional team on an acute medical ward. Experience of a three year project in a teaching hospital

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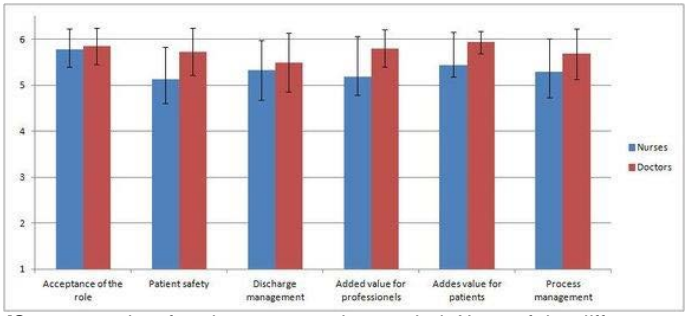
Introduction: Starting in 2015, the role of the Swiss Nurse Practitioner (SNP) was established on an acute medical ward of a large teaching hospital affiliated with the University Hospital of Zurich. This study analyzed the added value of SNPs for doctors and nurses in the daily patient management.

Methods: In June 2018, a survey was conducted among MDs and nurses involved, to detect whether the SNP role meets the required needs of the aforementioned professionals to ensure a successful interprofessional patient management. The scope of practice of an SNP in this project includes admission and discharge management, targeted physical examinations, focused assessments and coordination of treatments as well as transitional care.

42 questionnaires were delivered to MDs and nurses who collaborated with the SNPs. The response rate was 69%. 29 questionnaires were analyzed (MDs: 15, nurses: 14). The survey consisted of 21 items on a Likert Scale from 1 (not true) to 6 (true). The 21 items were summarized in 5 categories: patient safety, acceptance of the role, discharge management, added value for patients and professionals, process management.

Results: The SNP is highly accepted among doctors (5.85, ± 0.39) as well as nurses (5.78, ± 0.45). Both groups reported a high impact on patient safety (5.73, ± 0.51 resp. 5.12, ± 0.71) and an improvement on discharge management (5.49, ± 0.64 resp. 5.32, ± 0.66). Likewise they considered the SNP as an added value for their own work (5.80, ± 0.40 resp. 5.18, ± 0.88) as well as for patients (5.93, ± 0.25 resp. 5.43, ± 0.73). A clear improvement of process management was observed (5.68, ± 0.55 resp. 5.29, ± 0.72).

Conclusions: a) SNPs have an excellent acceptance withing the interprofessional team. b) There is a consensus on their added value for patients, process and quality. c) The close interprofessional exchange enables the residents to actively transfer and supervise specific tasks thus the SNP is perceived as an additional support in the patient care. d) Continuity of care is guaranteed by their presence and specific knowledge from Monday through Saturday all year long on the same ward. e) Attendings and head nurses considered the value of SNP as superior to an additional position of a fellow or nurse. f) SNP is a new position that provides synergisms and will not replace MDs nor nurses.



[Survey results after three year project period. None of the differences between doctors and nurses reached significance.]

P116

Severe nephrotic syndrome as initial manifestation of type 2 diabetes mellitus

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Learning objectives: Diabetes mellitus is the most common secondary cause of nephrotic syndrome in adults.

In contrast to albuminuria, nephrotic syndrome usually appears in late stages of diabetic kidney disease.

Nephrotic-range proteinuria should raise suspicion of nondiabetic causes warranting kidney biopsy.

Case: A 47 year-old previously healthy women with mild intellectual disability presented with severe generalized edema. She rarely visited a doctor, but reported a weight gain of 15 kilograms and foamy urine in the past few weeks; polyuria, polydipsia and fatigue were not complained.

Imaging showed bilateral pleural and pericardial effusions. Laboratory tests revealed hypoalbuminemia (16g/L), glomerular proteinuria (protein/creatinin ratio 1700 mg/mmol, equivalent to 17g/24 hours) and hyperlipoproteinemia, consistent with nephrotic syndrome. Noteworthy the glomerular filtration rate was not reduced.

Due to high blood glucose concentrations (40mmol/L), absence of significant ketosis at presentation, high demands of insulin and the lack of antibodies (glutamic acid decarboxylase and islet-antigen 2) we diagnosed type 2 diabetes mellitus.

Findings of renal biopsy were consistent with diabetic nephropathy. Further severe proliferative retinopathy and old cerebral infarcts were found. Prior to insulin therapy, RAAS blockade with highly dosed ACE inhibitor, loop diuretics, spironolactone, statin and anticoagulation were initiated.

Six weeks later edema resolved completely and the proteinuria was markedly reduced (protein/creatinin ratio 700mg/mmol).

Discussion: We present the case of a woman with an unusual first manifestation of type 2 diabetes mellitus, severe nephrotic syndrome. Considering the advanced retinopathy, diabetic nephropathy presumably existed years before the diagnosis was made without leading to noticeable symptoms. If the intellectual disability to some degree may have contributed to delayed diagnosis remains unclear.

The diagnosis of diabetic nephropathy is clinically defined as the presence of persisting significant albuminuria with concurrent presence of diabetic retinopathy and absence of signs of other forms of renal disease. Among others, vast proteinuria as in our case raises suspicion of a possible concomitant non-diabetic disease. Considering the age of the patient and the possibility of renal transplantation in the future renal biopsy was justified. Concomitant disease was excluded.

P117

Cumulative marijuana use and carotid intima-media thickness at middle age: the coronary artery risk development in young adults (CARDIA) study

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Background: Long-term cardiovascular health effects of marijuana are understudied. Carotid intima-media thickness (CIMT) is an established parameter for subclinical atherosclerosis, but no one has determined the potential effect of marijuana smoke on CIMT. We thus studied the association between CIMT in mid-life and lifetime exposure to marijuana and tobacco use.
Methods: We used data from the CARDIA Study, a cohort of 5115 black and white women and men, aged 18-30 years at baseline, with up to 6 follow-ups over 20 years. We computed cumulative years of exposure to marijuana (1 marijuana-year = 365 days of use) and to tobacco (1 pack-year = smoking 20 cigarettes/day for 365 days) using multiple assessments. We computed normalized composite CIMT by carotid ultrasound assessed at Year 20 by combining the maximal CIMT of the bilateral common carotid (CC) and carotid bulb (CB)/internal carotid (IC). We defined high CIMT at the 80th percentile of all examined CARDIA participants. We estimated the association between cumulative marijuana and tobacco use in multivariate adjusted logistic regression models, with the main exposure modeled using restricted cubic splines, and controlled for covariates, demographics, cardiovascular risk factors and other drug exposures. We further performed sensitivity analyses modelling CIMT as a continuous outcome
Results: At Year 20, 3549 participants were examined; 3257 had data on carotid ultrasound. 2722 (84%) reported past marijuana use; 1539 (47%) reported ever tobacco smoking. Among marijuana users, 12% reported ≥5 marijuana-years; 6% reported daily marijuana use. Among tobacco smokers, 46% reported ≥10 pack-years. We found a significant interaction between never- and ever-tobacco users on the association between cumulative marijuana use and CIMT (p = 0.02). Multivariate adjusted models showed no significant association with cumulative marijuana exposure. Among never smokers, the odds ratio (OR) of CIMT at the 80th percentile at 1 marijuana-years compared to no marijuana exposure was 0.81 (95% CI:0.56 to 1.17, p = 0.2) and 1.26 (95%CI:0.93 to 1.71, p = 0.2) among ever tobacco smokers. Cumulative exposure to tobacco was strongly associated with high CIMT (OR 2.00 at 20 pack-years compared to never smoking [95%CI:1.20 to 3.36,p <0.02]). Sensitivity analyses with CIMT modeled as a continuous outcome showed similar results.
Conclusion: Tobacco, not marijuana use was associated with CIMT-measured carotid atherosclerosis.

P118

An uncommon cause for febris uveoparotidea - mind the trap

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Learning objectives: Understanding the atypical clinical presentation, differential diagnosis and diagnostic algorithm of Whipple's disease.
Case report: A 43 year old patient presented with a two week history of fever, parotitis, uveitis and general malaise without improvement despite antibiotic therapy (amoxicillin-clavulanic acid). The patient reported no previous illnesses but personal history was remarkable for intermittent arthralgias the last 5 years. Physical examination at admission was remarkable for febrile temperature (40°C) and cervical lymphadenopathy. The clinical findings where consistent with “febris uveoparotidea” (Heerfordt syndrome). Blood analysis showed leucocytosis with neutrophilia and high levels of C-reactive protein >300mg/dl (<5 mg/dl). All other laboratory tests were normal (liver enzymes, creatinine, rheumatoid factor, ANA, ANCA, double strand DNS, SSA and SSB, complement proteins, protein electrophoresis). Serologic results were negative for EBV, CMV, mumps and syphilis. The Quantiferon test was negative. Culture analysis of blood and urine samples remained sterile. Computed tomography of chest and abdomen demonstrated diffuse lymphadenopathy of abdominal, mesenterial, mediastinal and cervical lymph nodes. Biopsy of a cervical lymph node showed an unspecific epithelioid cell granuloma with sporadic giant cells precluding a definitive diagnosis. Subsequent laparoscopic excision of a mesenterial lymph node showed granulomatous inflammation with giant cells and PAS positive macrophages. PCR-analysis was positive for Tropheryma whippleii. There was no evidence for disease activity in duodenal biopsies, cerebrospinal fluid analysis and transthoracic echocardiography - indicating that no other organs were affected. After intravenous treatment (ceftriaxone for 14 days) followed by indefinite oral therapy (trimethoprime/sulfamethoxazole) complete clinical remission was achieved promptly.
Discussion: The differential diagnosis of disseminated granulomatous lymphadenopathy is broad including various infectious and many non-infectious entities. Heerfordt syndrome is commonly considered pathognomonic for acute sarcoidosis. In the clinical context of our patient, empirical treatment with corticosteroids - as in sarcoidosis- would have been fatal. This case demonstrates the importance of obtaining bioptic analysis in unclear situations. Atypical Whipple's disease should be considered in patients presenting with febris uveoparotidea.

P119

Hydroxyurea induced pneumonitis in a patient with primary myelofibrosis

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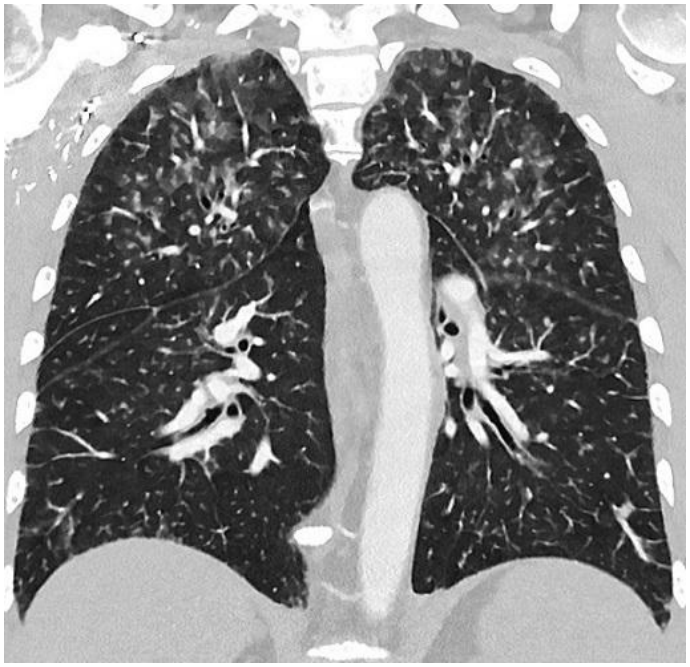
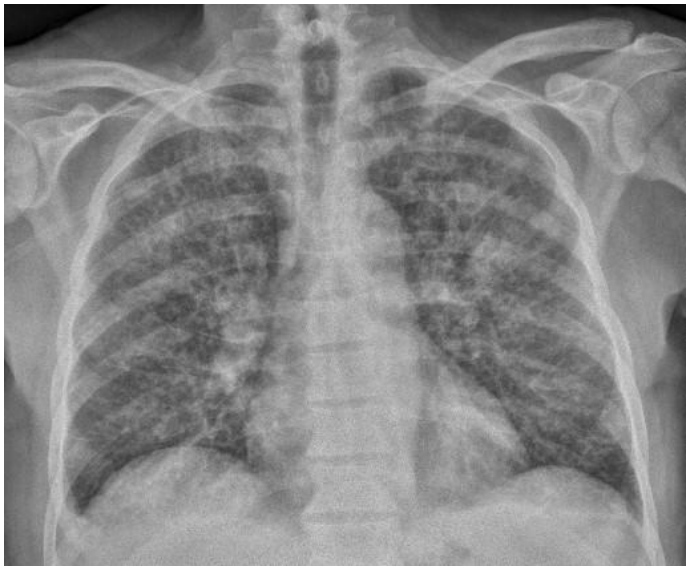
Learning objective: Drug induced pneumonitis is a rare though potentially life-threatening side effect of Hydroxyurea (HU) and can easily be misinterpreted as bacterial pneumonia.
Case: A 70 years old man presented with asthenia, dyspnea and dry cough since a few days. His medical history included primary myelofibrosis (MF) diagnosed 1.5 month earlier, treated with HU since 1 month due to thrombocytosis of 778 G/l. The patient had stopped the HU-treatment 4 days before because he suspected a causative association with the HU-therapy.
CT-scan ruled out pulmonary embolism but showed apical predominant patchy ground-glass opacities (pic.1). Elevated inflammatory markers were found in the serum (CRP 155 mg/l). Bacterial pneumonia was suspected and antibiotic treatment with Co-Amoxicillin and Clarithromycin was started with prompt remission of symptoms and inflammatory markers. On discharge, the therapy with HU was resumed.
2 day later the Patient returned with aggravation of dyspnea, cough and fever (39.9°C). Chest X-ray showed pronounced infiltration of the upper lobes (pic.2) with small bilateral pleural effusions. Neither in the blood culture nor in the bronchoalveolar lavage (BAL) an infectious cause was found. BAL showed an elevated cell count of 776 /ml with a mixed inflammatory cell pattern with predominance of lymphocytes (45% lymphocytes, 14% neutrophils, 5% eosinophils, 36% macrophages) compatible with hypersensitivity pneumonitis.
We suspected a drug induced pneumonitis by HU. HU was stopped immediately and treatment with prednisolone 80 mg (1 mg/kg body weight) was initiated. 1 week later, the symptoms had almost completely regressed. In the follow-up, after 2 and 4 weeks, the pulmonary infiltrates disappeared and the patient described no residual symptoms. Prednisolone was tapered over 7 weeks. Treatment with HU was not resumed and MF was treated with ruxolitinib without side effects.
Discussion: HU is a chemotherapeutic agent with low rates of serious side effects. Only a few cases (<20) of HU induced pneumonitis have been described in the literature.
The signs and symptoms of HU induced pneumonitis are fever, dyspnea, cough and non-specific radiological changes of the lungs, initially mostly misinterpreted as a bacterial pneumonia.
Most important is the immediate cessation of the HU-therapy. There exists no recommendation regarding corticosteroid treatment although in many cases different regimen of corticosteroids have been applied.



[pic.1: CT-scan showing apical predominant patchy ground-glass opacities]



[pic.2: Chest X-ray showing pronounced infiltration of the upper lobes with small bilateral pleural effusions]

P120

Offering patients a choice for colorectal cancer screening: a quality improvement pilot study in a quality circle of primary care physicians

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Introduction: Guidelines on colorectal cancer (CRC) screening recommend primary care physicians (PCPs) offer patients a choice between colonoscopy and fecal immunochemical test (FIT). Patients offered both tests tend to divide almost evenly between them, but in Switzerland, only a minority of eligible patients have been screened for CRC, and most are tested with colonoscopy. We trained PCPs in shared decision-making (SDM) within a quality circle (QC) to increase the likelihood they would offer CRC screening and FIT along with colonoscopy as a screening option. This quality improvement pilot study systematically assessed CRC screening status of eligible 50-75 y.o. patients and determined if SDM implemented within a QC increased the proportion of patients offered a choice of CRC screening and which test patients chose.
Methods: Working through 4 Plan-Do-Study-Act (PDSA) cycles in their QC, 9 PCPs adapted tools for SDM, implemented them in their practice, and surmounted organizational barriers by involving practice assistants (PAs)**.** In the first data collection, each PCP included 20 consecutive 50-75 y.o. patients; in the second, they included 40. They reported CRC status, the proportion of eligible patients with whom they could discuss CRC screening, and their patients' decisions.
Results: Qualitative results indicated that participating PCPs found it easier to use SDM communication tools for CRC screening than they had anticipated. PAs helped PCPs note patients' CRC screening status in the electronic medical record, and CRC screening was implemented in daily routine for eligible patients, thus increasing their chance to be offered screening; 176 patients were included in the first data collection and 320 in the second. CRC screening rates trended upwards over the course of a year, from 37% to 40%; FIT use increased from 2% to 7% ($p = 0.008$). Initially, 7/9 PCPs had no patients ever tested with FIT, but after the intervention the proportion dropped to 2/8.
Conclusions: PCPs in a QC systematically collected data on CRC screening status, made significant organizational changes, and implemented SDM tools in their daily routine after participating in a series of data-driven PDSA cycles. The intervention increased the proportion of patients who received a discussion on CRC screening and brought the expected proportion of patients who chose FIT and colonoscopy more into balance, suggesting that patients' values and preferences were better respected.

P121

Consumption today - A case of disseminated tuberculosis (Tbc) with aortic graft infection

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Learning Vignette: Side-Effects in treatment of Tbc are common and represent the most challenging aspect in a developed country.
Side-effects need to be addressed rapidly as they are harmful to compliance and can jeopardize treatment success.
Tuberculous aortic graft infection is a rare entity which has to be considered in patients with a migration background.
The Case: A 54-year-old women with a history of migration from the Philippines, underwent surgery for mechanical valve replacement and supra coronary aneurysm repair in 2017. One year later she presented with fever, weight loss, nausea and supraclavicular swelling. Initial imaging showed lymphadenopathy and biopsy revealed necrotic cell debris and lymphoma was suspected.
Laboratory test showed non-specific signs of inflammation. CT-imaging showed possible infection around the implanted aortic valve- and graft replacement. Microbiology samples obtained from BAL and blood showed mycobacterium tuberculosis in PCR and culture and diagnosis of miliary Tbc with aortic graft-infection was established.
Therapy was initiated with RIF, INH, PZA and ETB. During the first two months the initial regimen had to be changed multiple times due to drug induced liver - and renal failure. Furthermore the patient complained of nausea and dysphagia which made medication difficult and could not always be guaranteed. Unfortunately, the patient suffered from non-traumatic brain haemorrhage shortly after and died after about four months. The preliminary autopsy results did not show evidence of cerebral Tbc.
Discussion: Tbc in Switzerland is a rare disease, but the diagnosis has to be considered in any patient with migratory background. Pulmonary Tbc is the predominant presentation. 15% have extrapulmonary involvement and only 1-2% show haematologic dissemination with miliary tuberculosis. Infection of a vascular graft is exceedingly rare. An aggressive surgical approach is usually not necessary, although no treatment guidelines exist.
Tuberculostatic drugs are associated with a broad array of adverse effects; in this case ranging from hepatotoxicity, severe renal impairment to haematologic toxicity. Patients should be counseled regarding frequent and/or severe adverse effects and ways to minimize such reactions.

Adherence to treatment can be particularly challenging; the duration of treatment is usually six months or longer and side effects may be relevant. DOT therapy is an established way to enhance compliance.

P122

Persistent fever and cervical lymphadenopathy in a young woman - Kikuchi disease?

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Case: A previous healthy 28-year-old woman with Turkish origin presented at our outpatient clinic with a 6-week history of high fever, night sweat, cervical lymphadenopathy, arthralgia and reduced general condition. Physical examination was normal besides cervical lymphadenopathy with multiple, painful, enlarged lymph nodes on both sides. Routine blood tests showed mild leukopenia and inflammation (C-reactive protein: 12 mg/l). Active infections with HIV, CMV, EBV, Bartonella, Toxoplasma, Brucella, Francisella and mumps virus were excluded serologically. Thorako-abdominal CT-scan did not show involvement of additional lymph nodes or other organs. The punch biopsy of an enlarged cervical lymph node showed histiocytic cellular infiltration with necrosis, follicular hyperplasia and plasmocytosis, typically seen in *Kikuchi disease*. Moreover, there was no evidence for malignancy, lymphoma, sarcoidosis or tuberculosis and mycobacterial diagnostics remained negative. Within a month, lymphadenopathy, pain and fever had resolved spontaneously and the patients´ general condition was back to normal.
Discussion: *Kikuchi's disease* is a rare, benign disorder of unknown cause characterized by cervical lymphadenopathy and fever, typically affecting previously healthy young patients. Most common additional symptoms and signs include rash, arthritis, fatigue and hepatosplenomegaly. Laboratory findings are unspecific and often mild or absent, and may include cytopenia, inflammation, abnormal liver function tests and increased lactate dehydrogenase. Histology of affected lymph nodes is the best diagnostic modality to distinguish *Kikuchi disease* from other causes of lymphadenopathy. The pathogenesis is unknown, but clinical and histological features suggest an ongoing immune response dominated by T cells and histiocytes possibly to a previous infection with viruses (Herpesviruses, Parvovirus and others), bacteria (Yersinia) or parasites (Toxoplasma). Since symptoms usually resolve spontaneously within months, specific treatment is not required for *Kikuchi disease*.
Learning objective: *Kikuchi disease* is a rare, self-limiting cause of fever and cervical lymphadenopathy of unknown aetiology and pathogenesis. After exclusion of more frequent infectious causes, a biopsy of an affected lymph node should be performed despite the benign nature of *Kikuchi disease* - to firmly rule out more serious causes of lymphadenopathy.

P123

Hépatotoxicité médicamenteuse idiosyncrasique: l'exemple d'un cas clinique

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Introduction: L'atteinte hépatique médicamenteuse idiosyncrasique est souvent sous-diagnostiquée. Elle est pourtant responsable de la majorité des insuffisances hépatiques aigues aux Etats-Unis d'Amérique et représente la principale raison de retrait de médicaments du marché. De plus, ces atteintes peuvent parfois nécessiter une transplantation hépatique ou même mener au décès. Le but de ce rapport de cas est de rappeler l'importance de considérer une origine médicamenteuse dans le diagnostic différentiel d'une insuffisance hépatique aigue.
Cas clinique: Il s'agit d'une patiente de 76 ans, récemment traitée par co-trimoxazole pour une cystite simple, qui consulte en raison d'une fièvre et de douleurs de l'hypochondre droit. La patiente est ictérique et le bilan biologique met en évidence un syndrome inflammatoire avec une cholestase et cytolyse. Les investigations radiologiques permettent d'écarter une cholécystite. Dans un second temps, le bilan biologique est élargi et exclut une hépatite virale ou auto-immune. La patiente présente une évolution spontanément favorable avec disparition de l'état fébrile et diminution des paramètres hépatiques. En vue de l'évolution clinique, nous avons incriminé le co-trimoxazole évoquant une hépatite médicamenteuse idiosyncrasique probable (échelle de RUCAM à 8/14). Trois mois plus tard la patiente présentait encore de discrets signes biologiques de cholestase, sans symptôme associé.
Conclusion: L'atteinte hépatique médicamenteuse idiosyncrasique est due à des médicaments fréquemment utilisés et peut avoir des conséquences sévères sur la santé des patients. Une origine médicamenteuse devrait être considérée dans le diagnostic différentiel d'une hépatite et toute prescription médicamenteuse devrait être réfléchie attentivement sachant qu'elle s'accompagne d'un risque iatrogène non prévisible.

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P124

Active inclusion of the target group´s perspective through continuous quality improvement cycles. Experiences from the Bern Participatory Accompanying Group (BPAG)

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Introduction: Guidelines recommend shared decision-making (SDM) for CRC screening decisions for people between 50 and 75 years old. Primary care physicians (PCPs) need patient decision aids (PDAs) and training if they are to include SDM in routine primary care encounters. The International Patient Decision Aids Standards (IPDAS) recommend a participatory approach, working with the target audience to develop and adapt PDAs. We report on our experiences with the new Bern Participatory Accompanying Group (BPAG), which includes representatives of the target population for CRC screening initiatives, tests PDAs and communication material and discusses how to implement SDM in primary care.
Methods: We invited simulated patients between 50- to 75-year-olds already involved in training medical students at the Universities of Bern and Fribourg, to participate in the BPAG. We chose simulated patients because they are experts in receiving care. We excluded people with a history of CRC, but they could have had experienced CRC screening before. Participants were considered paid employees who received CHF 30 per hour, through a Swiss National Science Foundation grant. We scheduled two-hour sessions every 3 months.
Results: Of 55 invited simulated patients, 10 participated in the BPAG (18%); 7 to10 members of the BPAG participated in 4 sessions. The PBAG helped adapt a PDA and communication material developed for the CRC screening program in Vaud for use in Bern, where there is no organized screening program for CRC, and highlighted the need to ensure PDA messages are in harmony with the CRC outreach initiatives in pharmacies. The group also took a practical approach to the question of how to best discuss CRC screening with a PCP. For example, they felt that it would be best if PCPs talked about CRC at the end of an urgent visit. Participants felt physicians, pharmacists and gynecologists were the people they most trusted to discuss CRC screening.
Conclusion: It is feasible to adapt patient decision aids in consultation with members of the target population of CRC screening. Researchers and developers can benefit from feedback they might not have otherwise received and about problems they may have overlooked. We will continue to work with the BPAG to develop and adapt solutions that facilitate SDM in primary health care.

P125

Metal fume fever - a rare explanation for a flu-like syndrome

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Learning objective(s): During welding pollutants are usually produced. One of these particulate toxic pollutants is zinc oxide (ZnO). The inhalation of high concentrations of zinc oxide (ZnO) can cause a “metal fume fever”, a usually self-limiting systemic illness with flu-like symptoms.
Case: The 56-year old patient was seen in the emergency room due to fever (38.7°C), chills, strongest body aches, headaches, non-productive cough, hypersensitivity of the skin to touch and vomiting. The patient worked in a waste facility and had to cut galvanized steel sheets for 7

hours (07:00 - 14:00). The patient was protected with a standard protective mask and glasses. Around 17:30 on the same day the patient developed above mentioned symptoms.
In the clinical examination the patient had a normal blood pressure and was tachykardic. The oxygen saturation was 94% breathing ambient air. The auscultation of the heart and lungs, as well as the examination of the integument, abdomen and neurologic system was inconspicuous.
In the blood chemistry the c-reactive protein, electrolytes, liver- and kidney function test were all within normal limits; the blood count showed a leucocytosis. The arterial blood gas showed a slight respiratory partial insufficiency (paO2 8.9kPa). In the chest x-ray showed a normal finding, in particular there was no indication of a pneumonic infiltrate.
After consultation with toxinfo Suisse we postulated a “metal fume fever” due to zinc oxide inhalation and treated the patient with NSAID and acetaminophen. The symptoms improved promptly and we could discharge the patient on the same day. In a telephone interview on the following day the patient reported to be symptom-free
Discussion: The metal fume fever (MFF) is an acute systemic fever syndrome, resulting from the inhalation of metal oxide fumes (e.g. ZnO) and was first described in the mid- 1800. It is estimated that a minimum of 1500 - 2000 cases of MFF occur each year in the United States. The MFF is characterized by flu-like symptoms and sometimes a metallic taste that begin 3 - 10 hours after exposure. The diagnosis is based on clinical findings and the occupational history. The pathogenesis is not fully understood but it seems to be caused by the release of endogenous pyrogens and the production of metal proteinases. The treatment is symptomatic, there is no specific treatment. The clinical course is usually benign and the symptoms usually resolve within 24 - 48 hours spontaneously.

P126

Why a MRI-scan cannot replace clinical judgement

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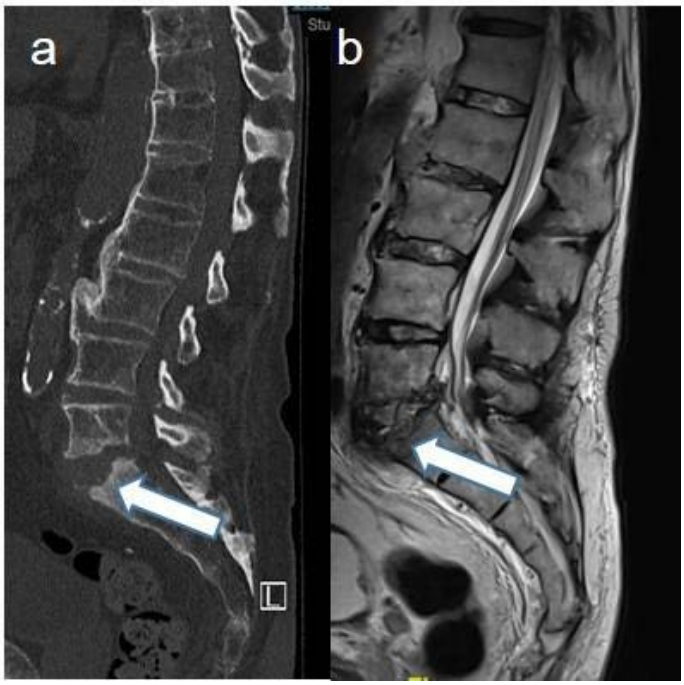
Learning Objective: One should always re-evaluate a seemingly conclusive diagnosis if the clinical course does not fit the original assessment. Particularly imaging results need to be interpreted in the clinical context and with caution.
Case: A 90-year old patient presented with acute exacerbation of chronic lower back pain. The back pain had been present after a fall at home 10 months ago, but within a few days suddenly became immobilizing. No new trauma had occurred. Physical examination revealed pain on palpation of the sacrum. No motor or sensory deficits were evident. Lab studies showed elevated inflammatory markers (leukocytes 10.5 x10^9/l, C-reactive protein 86.3 mg/l).The patient had no fever.
A CT-scan revealed inflammatory and erosive changes in the L5 /S1 vertebral segment and an older fracture of the sacrum, most likely associated with the aformentioned fall 10 months ago (picture 1a). In order to investigate the inflammatory changes further, a MRI-scan was performed, showing the typical, radiological features of acute spondylodiscitis (picture 1b). In the context of substantially elevated inflammatory markers (table 1) we suspected an infectious etiology. However, we were not able, neither with a CT guided- nor an open biopsy, to confirm this hypothesis.
The patient`s clinical condition deteriorated further while being treated with empiric antibiotic treatment post-biopsy (amoxicillin/ clavulanate iv 2.2 gr tid).
Eventually, the patient developed a painful swelling of his left knee, which prompted us to re-consider our initial hypothesis of an infectious etiology in favour of a possible crystal arthropathy. Subsequently, the biopsy specimens of the spine were re-examined and the presence of CPPD-crystals was confirmed. We initiated a steroid therapy, which led to a rapid pain relief and general clinical improvement.
Discussion: Despite seemingly conclusive radiographic and laboratory evidence we had to revise our initial assessment of infectious spondylodiscitis after the patient developed novel clinical symptoms. Non-infectious processes such as chondrocalcinosis or erosive osteochondrosis can mimic infectious spondylodiscitis in MRI-imaging, therefore need to be considered as potential differential diagnoses particularly when biopsy cultures are negative. Overall, CPPD arthropathy in the spine is rare. Usually it is located in the cervical spine (“crowned dens”), but a lumbar manifestation is also possible.



[a) CT-scan lumbar spine showing edema and contrast media enhancement b) MRI lumbar spine (T2)]

Day (Hospitalisation)	WBC (x10^9/l)	CRP (mg/l)	Therapy
1	10.47 x10S9/l	86.3	
7	11.94 x10S9/l	99.1	
10	18.75 x10S9/l	248.1	
11	18.62 x10S9/l	375.8	initiation of antibiotic therapy (Augmentin)
13	14.63 x10S9/l	247.5	
18	13.71 x10S9/l	142.5	initiation of steroid therapy
21	12.61 x10S9/l	46.5	
24	16.97 x10S9/l	49.1	

[inflammatory markers during hospitalisation]

P127

Clinical research from multi-modality data sources - the CREATE project

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New computational and mathematical methods have made it possible to analyze thousands of data points associated with an individual patient. Along with the "omics" technologies, this development has fueled personalized approaches to disease diagnosis and treatment in recent years. A limiting factor, however, is the collation of clinical data in a format that can be harmonized with other data, such as the results of genetic and other laboratory tests and used in large-scale data analyses. Furthermore, linking and merging data between individual hospitals and institutions remains a big challenge.
Patient medical data are usually stored in a multitude of heterogeneous systems and proprietary formats, making interoperability between systems and formats complicated, cost- and labor-intensive. Lack of flexibility and the difficulties involved in current data systems impede and limit

the quality of health care and the ability to deliver personalized health (PH) care. It is, however, technically possible to assimilate paper documents through digitization and optical character recognition and to directly index existing electronic documents and data files to make them searchable and algorithmically addressable.
To tackle this problem, we have developed and implemented the "Clinical REsearch from multi-modality big dATa sourcEs (CREATE)" system, enabling interoperability between systems and organizations. In the CREATE architecture, data are not copied into other systems or policy spaces via interfaces. Rather, they are referenced at their original location in the existing storage system to make them addressable for searches and algorithmic evaluation. Thus, the data remain in their corresponding policy spaces and need not be moved to archives or data warehouses. Using search engines, data can be linked and exchanged between systems and organizations. With the large volume of data that will become available for PH research, we also anticipate being able to meaningfully study rare conditions and events.
The architecture and function of the CREATE System will be described in detail and preliminary clinical study data presented demonstrating the potential applicability of the CREATE system for the purpose of clinical research and/or quality management as well as the potential feasibility of analyses of large amounts of difficult-to-access data.

P128

Successful pain control with bisphosphonates in bone marrow edema of the knee

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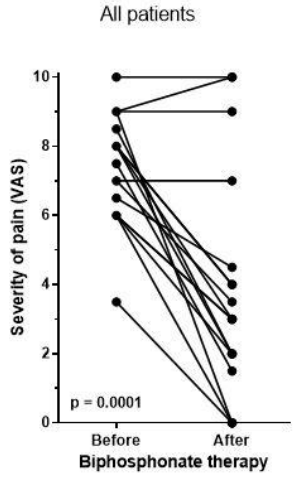
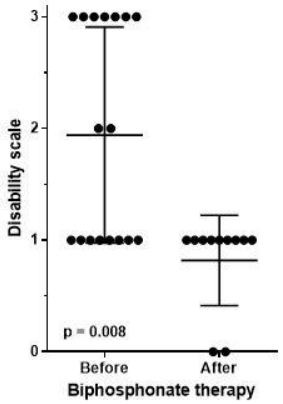
Introduction: Bone marrow edema is a disabling disease characterized by severe bone pain with or without prior trauma and insufficient response to analgetics and reduction of weight bearing. Several studies showed promising results by using bisphosphonates to inhibit the osteoclast activity. The aim of this study was to investigate if bisphosphonates (ibandronate) may relieve pain in patients with bone marrow edema of the knee and furthermore to precisely describe its presentation in magnetic resonance imaging (MRI). Moreover we aimed to identify subgroups who benefitted most of bisphosphonates by determining clinical and radiological criteria.
Methods: This is a single-center, retrospective study of 18 patients who received bisphosphonates due to a bone marrow edema of the knee between April 2012 and February 2016. Informations have been extracted from our clinical database and a questionnaire. Furthermore, all MRI diagnoses were reassessed by an experienced radiologist.
Results: Our results showed a significant reduction of pain overall (p = 0.0001, Fig. 1) as well as in the non-trauma group (p = 0.004). Results were not significant in the trauma group (p = 0.06) as the patient number was too small. Furthermore the disability in daily life also significantly decreased (Fig. 2): 55.6% of the patients stated to be pain-free in the follow-up and about the same amount didn´t use alternative therapies after completed therapy with bisphosphonates (e.g. regular use of analgetics, operation, local infiltration). However, there was no significant correlation between pain and radiologic findings.
Conclusions: Patients with bone marrow edema of the knee profitted from administration of bisphosphonates independently of the severity showed in MRI.



[Figure 1]



[Figure 2]

P129

Necrotizing pneumonia due to macrolide resistant *Mycoplasma pneumoniae* in an adult

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Learning objective(s): *Mycoplasma pneumoniae* is responsible for about 4 to 8% of community-acquired bacterial pneumonias. Usually, the infections follow a rather mild clinical course even in the absence of an antibiotic therapy. Severe necrotizing pneumonia has been described as a rare manifestation of *M. pneumoniae* infection in children but not in adults.
Case report: A 46-year old woman presented with productive cough, low grade fever and chills since 7 days without improvement despite the treatment with cefuroxim per os for 4 days. Clinically rales were still present in the basal section of the left lung. Routine blood tests were normal besides a c-reactive protein (CRP) of 114mg/L. The CT-scan of the lung demonstrated an infiltrate in the left inferior lobe. Suspecting a bacterial pneumonia, we intensified antibiotic therapy with amoxicillin/clavulanic acid iv. and clarithromycin per os, which was stopped after legionella was tested negative. The patient was discharged after some clinical improvement. However, 9 days later she presented again with persistent cough, fever and pleuritic chest pain. The repeat CT-scan showed a dense infiltrate with abscess formation (figure 1). Polymerase chain reaction (PCR) of the bronchoalvelar lavage was positive for mycoplasma and molecular resistance testing indicated a macrolide resistance. Therefore, the patient was treated with oral doxycycline for 17 days, which finally led to definitive clinical and radiological improvement.
Discussion: 1) Invasive diagnostics with bronchoscopy and BAL followed by molecular microbiology should be considered in patients with severe CAP not responding to appropriate empiric therapy.
2) Macrolide resistance is increasingly prevalent in *M. pneumonae* in Switzerland approaching 10% of clinical isolates. Therefore, molecular resistance testing or targeted treatment with doxycycline are options for rational management.
3) Also in adults severe, necrotizing pneumonia may be caused by *M. pneumoniae*.

[CT-scan of the pulmonary infiltrate with abscess formation]

P130

Localized nodular amyloidosis of the lung associated with systemic lupus erythematodes- a challenging differential diagnosis

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Learning objective: Nodular pulmonary amyloidosis is a rare localized form of amyloidosis and is mostly associated with immunoglobulin light chains (AL type). The most common underlying diseases are marginal zone lymphomas (e.g. MALT lymphoma) and autoimmune disorders, but in 1/3 of all cases no other condition can be identified. Careful surveillance and selected local therapies are the treatment of choice.
Case report: Here we report the case of a 55 year old woman of chinese origine living in Switzerland for more than 20 years. She was known to have lupus erythematodes for several years and was treated with chloroqine with no disease acitivty. While travelling in China, a CT scan of the lung was performed for thoracic pain and multiple disseminated lung nodules were detected. Back in Switzerland, a diagnostic bronchoscopy was performed and astonishingly, amyloidosis from type AL kappa was detected by immunohistology. Further diagnostic evaluation including bone marrow biopsy, panendoscopy and a complete CT scan did not demonstrate any systemic lymphoproliferative disorder or disease progression during the last 12 months. The role of lupus erythematodes in the development of amyloidosis remains unclear. No specific treatment was initiated and the patient is followed by regular surveillance.
Discussion: Amyloidosis is usually a systemic disease with the deposition of misfolded proteins, most frequently from the AL type. However, approximately 10% of all amyloidosis present with a localized form, most often in the respiratory and urogenital tract or the skin. The amyloigenic protein is usually deposited at the site of production and most patients are asymptomatic. In one third of all patients an autoimmune disorder can be detected, while another third are diagnosed with a lymphoproliferative disease, mostly MALT lymphoma. However, in one third of the patients, no other underlying disease can be detected. The treatment strategy consists usually in regular surveillance and local measures like surgical excision or radiotherapy. Progression of the disease is extremely rare and the prognosis is excellent.

P131

The NEW CATCH-Project: a new curriculum for attendings in internal medicine in Switzerland (CH)

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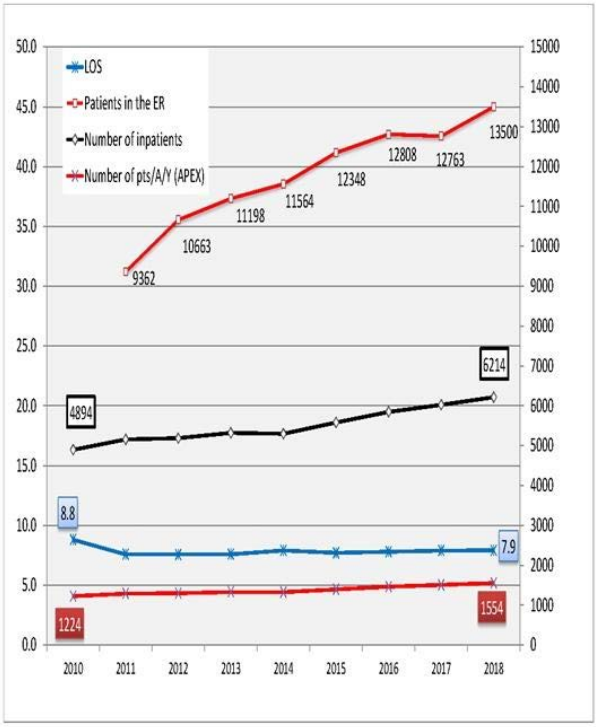
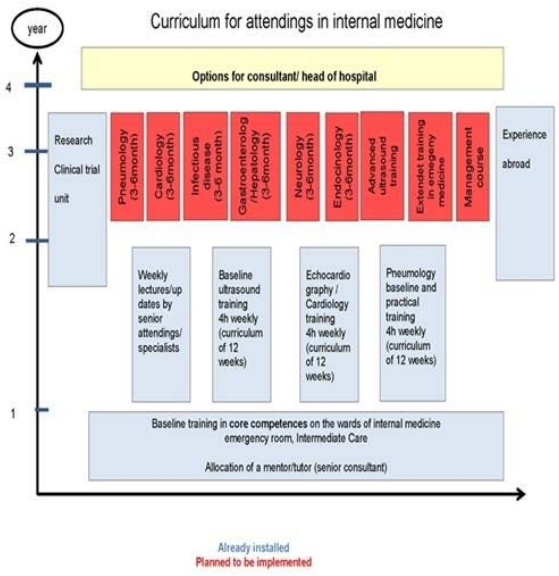
Introduction: There is a general and increasing unmet need for well trained and experienced attendings in internal hospital medicine including emergency medicine while attractiveness and appreciation appear to decline given the demanding workload including frequent night and weekend shifts. The aim of our study was 1) to show the increasing caseload and case complexity which our attendings are exposed to and 2) to generate pilot data for our structured, modular educational program for attending internists. 3) a first quality rating of the curriculum was obtained from 13 attendings on a Likert scale.
Methods: This study was conducted within a Department of Internal medicine of a 400-bed Swiss teaching hospital affiliated with the University of Zürich. To achieve aim 1 we have analyzed the number of hospitalized internal medicine patients on the wards and in the emergency room (ER), the case complexity (CMI) and the mean length of stay (LOS) for a period of 9 years from 2010 to 2018 and transformed them into a patient-exposure index per attending (APEX). For aim 2, we have established an individualized modular educational curriculum which appears equally attractive for our future attendings in training as well as for the institution, since it should attract high quality medical leaders and teachers.



[Fig1 number of patients in the ER, inhospital and APEX (patient exposure per Attending/y)]

Results: Fig1 depicts the inpatient data over the observed period of time from 2010 to 2018. The patient number in the ER increased by 45% from 9362 to 13'500. In-patient numbers on the ward went from 4894 to 6214 (+27%). The APEX on the ward increased from 1224 to 1554 patients per attending per year, whilst the LOS decreased from 8.8 days to 7.9 days and the CMI (case complexity index) increased from 0.976 to 1.147. fig. 2 depicts the educational program in a concise structure which can be maximally individualized. Cornerstones include the first year as a common core curriculum, followed by specific modules of emergency medicine, CTU, ICU, ultrasound, specialties, experience abroad, etc
The curriculum was extremely well rated by our attendings with a score of 8.9 on a Likert scale from 1 to 10 (SD 1.44).
Conclusions:
1) Our attendings are exposed to a higher number and more complex patients over time.
2) The new educational concept may attract more well qualified future attendings in internal medicine.

3) A favorable first response from the attendings concerning the new curriculum supports our new concept.



[Fig2 Curriculum for attendings in internal medicine]

P132

Acyl carnitines in out-of-hospital-cardiac-arrest patients have high potential to predict outcome

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Introduction: Out of hospital cardiac arrest (OHCA) is one of the leading causes of mortality in industrialised countries, yet the outcome prediction of this severe event remains poor.
Serum Acyl Carnitines (ACs), a biomarker of beta oxidation and energy source, have been associated with risk for cardiovascular events. We evaluated the association of 39 AC species with outcomes in a well characterised cohort of OHCA patients.
Methods: Adult OHCA patients were included in this prospective observational study upon intensive care unit (ICU) admission. ACs were measured using mass spectrometry at admission. The primary endpoint was 30-day-mortality. The secondary endpoint was neurological outcome using Cerebral Performance Category (CPC) scale.
Results: A total of 180 patients were included. 5 patients were lost to follow-up. 97 (55.4%) died after 30 days of admission and at hospital discharge 105 (58.3%) suffered from a bad neurological outcome. While most ACs were associated with the primary and secondary endpoint, the highest prognostic information was derived from AC C5DCC6OH with area under curve (AUC) of 0.71. After adjusting for age, gender and comorbidities, it remained a strong predictor for outcomes with AUC 0.82.
Conclusion: The ACs have high potential to predict outcome in patients after OHCA and may help to improve the pathophysiological mechanisms underlying these associations.

P133

Atypical presentation of metastatic melanoma

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Learning objectives:
1. Consider malignant melanoma of unknown primary (MUP) in the differential diagnosis of metastatic malignancy
2. Hepatitis is one of many immune-mediated complications of Pembrolizumab therapy

Case: A 81 year-old male patient presented with fatigue, stress intolerance, dyspnea NYHA II and 7,5% body weight loss within the last 18 months. Laboratory results were unremarkable except for mild iron deficiency anemia. At first coronary heart disease was diagnosed and minimally invasive direct coronary artery bypass surgery performed. Because of persistent symptoms after surgery, further investigations were undertaken, showing a tumor of the right adrenal gland with presumed vena cava infiltration and a circumferential wall thickening of the jejunum on abdominal computed tomography. PET/CT confirmed the two sites as metabolically active tumors. Plasma levels of metanephrines and normetanephrines were normal, thus allowing biopsy of the right adrenal gland, which revealed NRAS mutated malignant melanoma. Neither a dermatological examination nor the PET/CT provided evidence of a possible primary tumor. In stage-IV melanoma, treatment with Pembrolizumab was initiated. Immunotherapy was stopped after three cycles due to severe Pembrolizumab-induced autoimmune hepatitis, which was effectively treated with glucocorticoids. Nonetheless symptoms improved and the lesions showed good metabolic and morphologic response to therapy. Adrenalectomy and segmental resection of the jejunum could then be performed. Metastases of melanoma were confirmed by histology. After a follow-up period of 6 months the patient reported a good quality of life and there was no evidence of active disease.
Discussion: More than 90% of melanomas have a cutaneous origin. Other sites involve mucosal epithelium as in the alimentary, respiratory or genitourinary tract. The incidence of melanoma with unknown primary (MUP) is approximately 3%. We present a rare case of a patient diagnosed with MUP without site specific, but rather cytokine related symptoms, whose workup revealed adrenal and jejunal metastasis. Since there was no evidence of a cutaneous origin, initially mucosal melanoma originating from the jejunum was suspected. This could be ruled out histopathologically because of the subserosal location of the tumor in the resected jejunal segment. As in this case Pembrolizumab-induced hepatitis is a rare complication, usually responding well to corticosteroid treatment.

P134

Dengue in Switzerland: an inconvenient souvenir. or not? A case report

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Every day millions of people travel throughout the world for work or leisure, reaching by air transport and in a few hours destinations once unthinkable, therefore dealing with particular climatic and epidemiological conditions, being not infrequently unaware. Here we present a case of Dengue, diagnosed in a 49years old Swiss woman, who came to the emergency ward of our hospital seven days after returning from Maldives Islands, accusing fever, earache, articular pains, coated tongue, nausea. She had eaten raw fish. Blood test showed elevation of liver enzymes, without any inflammatory response; serology for hepatitis was negative; second level lab works resulted positive for acute Dengue.The event gives the opportunity for making a situation report in Switzerland-Tessin, for summarizing pathogenesis, diagnosis, clinical presentation, treatment, prophylaxis of Dengue, for a reflection on vectors dissemination and risk to public health.
Keywords: arthropod-borne disease, Dengue infection, WHO classification, diagnostic testing, treatment, vector diffusion, prophylaxis, internal general ward

P135

Newly established professional innovation management at the University Hospital Basel

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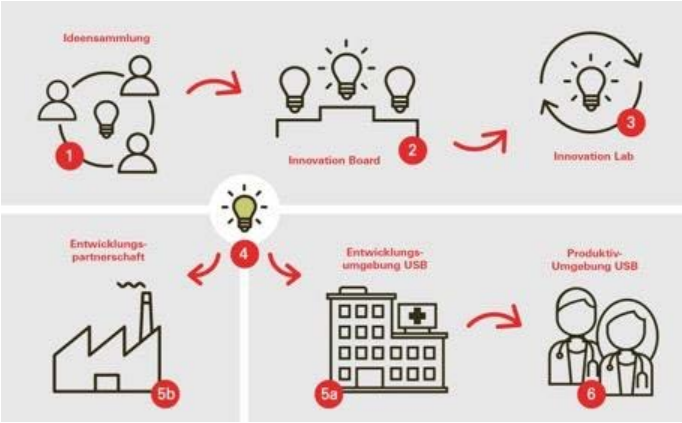
Promoting innovation is a strategic goal of the USB. In addition to the existing academic funding opportunities, there is now a professional innovation management system, which will support USB´s existing innovation projects and promote new ideas in a targeted manner (Figure 1).

All USB employees now have the opportunity to submit innovative ideas with a focus on digitalization via a simple contact form.
The *Innovation Office* contacts the applicant and adds information to the application if needed. The proposal ist then forwarded to the *Innovation Board* consisting of 10 professionals with different backgrounds. The board members evaluate and rate all incoming proposals. Based on this assessment, the *Innovation Office* compiles a ranking list.
Four times a year the representatives of the three top projects are invited to pitch their projects at the "*Future Friday*" to a larger audience. In addition to the added value of the networking character of the *Future Friday*, the members of the innovation management team vote on which of the three projects will receive funding. This support will enable the project team to focus on implementation for three months and develop a "proof of concept". Depending on the operational possibilities, this may include a partial exemption of the applicants ("protected time"), personal support and/or technical support from the ICT within the framework of the *Innovation Lab* and the *Data Science Competence Center*.
Six months after the successful presentation on *Future Friday*, the agreed proof of concept must be completed to reach the next round of innovation management. Successful projects are then evaluated by the *Sponsors* and, if successful, receive longer-term support as part of the regular project funding of the USB. Depending on the outcome of this development, a final step may follow providing advice and support for a possible successful commercialization.
Persons who are not employees of the University Hospital, eg. Students or employees of the University can participate in the selection process. The prerequisite is, that an internal USB employee is available as a sponsor and responsible for the project idea.
Illustration 1.
Schematic representation of the newly established innovation management at the University Hospital Basel.



[Figure 1]

P136

Pulmonary mucormycosis and aspergillosis: a diagnostic challenge

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Learning objective: Recognize indicators and limitations of diagnostic work-up for pulmonary mucormycosis in patients at risk for this life-threatening fungal infection. Appreciate the importance of autopsy studies to gain insight in this disease.
Case: A 67-year old male presented with fever and malaise. He was diagnosed 6 years earlier with myelodysplastic syndrome with excessive blasts (MDS-EB-1) and required regular transfusions for anemia and thrombocytopenia. A previous trial of azacitidine was not tolerated. On clinical exam we found a somnolent patient with stable vital signs, poor oxygenation on room air and cutaneous and mucosal bleeding. Lab results showed pancytopenia (hemoglobin 71g/l, platelets 8000/ul, neutrophils 700/ul) and markedly elevated CRP. Blood and sputum cultures as well as galactomannan assays remained negative. CT scans of the lungs disclosed a cavern in the left upper lobe, a necrotizing consolidation of the right upper lobe, bilateral pleural effusions, and subpleural noduli. Invasive diagnostic procedures were not possible due to bleeding and platelet count. Voriconazole was initiated with cefepime for suspected invasive pulmonary aspergillosis and neutropenic sepsis. Due to unfavorable progression, therapy was escalated to liposomal amphotericin B and meropenem. Unfortunately, 5 weeks after admission the patient died and autopsy of the lungs established the diagnosis of disseminated angioinvasive pulmonary mucormycosis and aspergillosis.
Discussion: Pulmonary mucormycosis is increasingly diagnosed over the past years. Especially patients with hematologic malignancies and concomitant neutropenia, poorly controlled diabetes, high-dose steroid therapy and a history of transplantation are at risk. Diagnosis is primarily based on histopathology. Galactomannan and beta-D-glucan tests are generally negative and in the bronchoalveolar lavage the typical hyphae of mucormycosis can be found only in 25%. Clinical discrimination between pulmonary mucormycosis and invasive pulmonary aspergillosis remains a challenge; indicators of the former are a previous prophylaxis or ineffective therapy with voriconazole, the inverse halo sign, caverns without a sickle sign, pleural effusions, and >10 pulmonary noduli. Our case illustrates that a) a high index of suspicion for mucormycosis in risk populations is required, b) further research on serum markers of mucormycosis is necessary and c) autopsy remains an important tool for quality control.

P137

Rolle der Hausarztpraxis bei einem Grossereignis mit einem Massenanfall von Verletzten

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Ziel: Entlastung der Notfallstation und Spitäler bei einem Grossereignis mit einem Massenanfall von Verletzten durch ein Netzwerk von Hausarztpraxen die die Betreuung von Patienten der Triagekategorien GRÜN (T3,III) und GELB (T2,II) übernehmen.
Nach der präklinischen Triage (Sichtung) die bei einem Grossereignis mit einem Massenanfall von Verletzten durch vom Rettungsdienst durchgeführt wird, werden die Patienten der unterschiedlichen Triage-(Sichtungs)kategorien Spitälern der Umgebung zugeteilt und abtransportiert.
Eine Grundstrategie bei der Verteilung dieser Patienten besteht darin die am Schadensort geographisch nächsten bzw. durch die Transportmittel am einfachsten zu erreichenden Spitäler für die Kategorie ROT Patienten *(sofortiger Handlungsbedarf- Immediate)* frei zu lassen und in zweiter Linie für die Kategorie GELB-Patienten *(Dringender Handlungsbedarf, Überwachung -Urgent*).
Es müssen diese dem Grossereignis "nahen" Spitäler auf keinen Fall durch die GRÜN-kategorisierten Pat. (nicht dringend) "vorzeitig besetzt bzw. überfüllt" werden, weil dies mit dem Eintreffen von Patienten einer kritischeren Kategorie (ROT und GELB) die Infrastruktur und personellen Resourcen einer Notfallstation sprengen können.
Da Hausarztpraxen im Territorium der Gemeinden gut verteilt sind, können sie eine entscheidende Rolle spielen um die Spitäler zu entlasten in dem sie anhand ihrer jeweiligen technischen - (Geräte) und Personellen (Fachgebiete und Erfahrung) , Infrastruktur, GRÜN kategorisierte und ev. auch Kategorie GELB Patienten (abhängig von dem Verletzungs- bzw. Krankheitsmuster) betreuen.
Da gerade die Kategorie GRÜN Patienten (Leichtverletzte). noch mobil sind, können sie sich individuell und „auf eigene Faust“ in die nächste medizinischen Betreuung begeben, was normalerweise in einem Grossereignis das Spital ist.
Obwohl vielen Patienten dieser Kategorie GRÜN bewusst ist dass sie auch bei ihrem Hausarzt, Apotheke oder auch in manchen Fällen sogar Alleine manche kleine Verletzungen beheben können, fühlen sie sich psychologisch durch die Wucht und Intensität des Ereignisses sehr betroffen und schätzen subjektiv ihre Verletzungen überproportional „schlimmer“ ein.
Interessierte Hausärzte und MPAs können in diesem Bereich fortgebildet werden; ihre Praxen werden dementsprechend gekennzeichnet und an der EinsatzNotrufZentrale der 144 bekannt gegeben damit sie nach Alarmierung und Anmeldung durch den Rettungsdienst bei einem Grossereignis angefahren werden können.

P138

An enteric souvenir from India

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Learning objectives:
Thyphoid fever is a common tropical febrile illness
Typical clinical presentation includes fever, abdominal pain, relative bradycardia and eosinopenia
Diagnosis by blood cultures and specific antibiotic therapy
Case: A 58- year old woman was referred to our emergency department with a history of headache, fever up to 39°C and reduced general condition over the last days. Medical history was unremarkable; but the patient had returned from a trip to India 18 days ago. The travel conditions had been rather basic. Malaria prophylaxis and preventive measures against mosquito bites were denied. During the trip, the patient had self-limiting diarrhoe and abdominal pain for 10 days. On admission to our ED the patient was found in a reduced condition. Vital signs and physical examination were unremarkable. Laboratory tests showed elevated levels of C- reactive protein (259mg/l), normal leucocytes and slighlty elevated liver enzymes. Testing for malaria was negative. Abdominal sonography and chest X-ray showed no pathological signs. An empirical antibiotic treatment (Amoxicillin/Clavulanic Acid) was started. The next day, another episode of diarrhoe, abdominal pain and fever occurred. The patient was hemodynamically unstable with hypotonia but normal heart rate. Blood analysis showed leukopenia (3.6xG/l) and eosinopenia (0.0xG/l). Blood cultures turned positive with the growth of gramnegative rods, consistent with a diagnosis of salmonellosis. Antibiotic therapy was switched to Ceftriaxon. One day later, the growth of Salmonella Typhi was confirmed and resistance to ciprofloxacin was reported. Recovery period was complicated by repetitive fever peaks (up to 39.8°C) and increasing levels of liver enzymes, suggestive for an accompanying hepatitis. With clinical improvement, antibiotic therapy was oralized (Trimethoprim/Sulfamethoxazol) and stopped after a total course of 14 days.
Discussion: Thypoid fever is rare in western countries. It is however among the most common etiologies for febrile illness in the returning traveller from tropical areas, especially South(-east) Asia and Sub-saharan Africa. Our case reports several classical findings in typhoid fever: i) febrile temperatures with relative bradycardia, ii) eosinopenia, iii) slow defervescence and iv) systemic mainfestation (e.g. hepatitis). Diagnosis is confirmed by positive blood cultures. Pretravel vaccination and safe food and water practices can prevent typhoid fever.

P139

The risk of peritonsillar abscess in group a streptococcus negative tonsillitis - a case-control study

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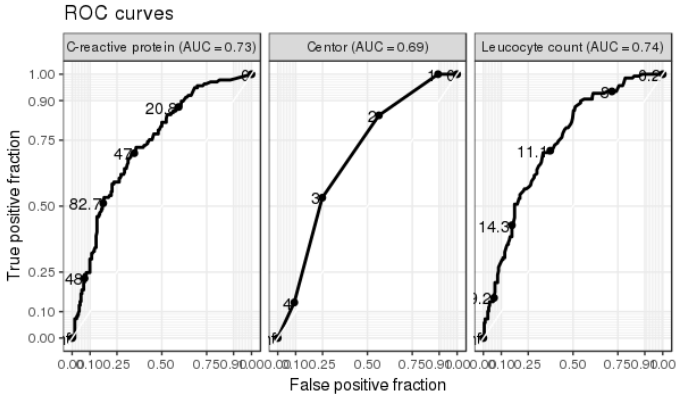
Introduction: Clinical guidelines recommend against prescription of antibiotics for Group A β-hemolytic streptococcus (GAS) negative tonsillitis. Suppurative complications from tonsillitis such as peritonsillar abscess (PTA) are more common than immunological complications and their incidence can be lowered by the use of antibiotics. The performance of clinical scores such as the Centor score and of laboratory tests such as C-reactive protein (CRP) to assess the risk of PTA in GAS negative tonsillitis remain unclear.
The aim of this study was to identify risk factors for development of PTA in acute GAS negative tonsillitis and to test the performance of existing clinical scores and laboratory tests to identify patients at risk for PTA in the setting of acute GAS negative tonsillitis.
Methods: In a retrospective case-control study, we identified all cases with peritonsillar abscesses at two regional hospitals in Northwestern Switzerland from January 2015 to June 2018. We used propensity score matching using age, gender and date of presentation to select 2 controls per case from all patients who had a rapid antigen GAS test in the emergency room. Exclusion criteria were age <18 years, negative consent and positive test for GAS. We abstracted data including age, gender, patient history, physical examination and results of laboratory testing.
Results: Preliminary results are shown in table 1. We identified 141 cases of PTA, matched with 282 controls. The Centor score was significantly higher in cases, but had a low performance for predicting PTA (see ROC curve in figure 1). Symptoms of the common cold (cough, coryza, conjunctivitis, myalgia and headache) were less frequent in cases. The presence of classical symptoms of PTA (difficulty swallowing, trismus and dyspnea), unilateral signs and symptoms (unilateral sore throat, earache, headache and swelling), tonsillar hyperplasia, tonsillar exsudate and cervical lymphadenopathy were more frequent in cases. Cases had higher CRP levels, leucocyte, granulocyte, monocyte and platelet counts than controls (see ROC curves in figure 1).
Conclusions: A clinical score to predict PTA as a complication of GAS negative tonsillitis might include absence of symptoms of the common cold, presence of symptoms typical for PTA, unilateral signs and symptoms, tonsillar hyperplasia and laboratory values such as CRP, granulocyte, monocyte or leucocyte count. Further analyses, including multivariate regression analysis, are pending.

Table 1: Summary statistics	N	all (n=423)		Cases (n=141)		Controls (n=282)		p-value[1]
Age (mean, standard deviation), years	423	38.6	15.6	39.1	15.6	38.3	15.6	0.6457
Female (n, percent)	423	191	45%	66	47%	125	44%	0.7040
Duration of symptoms ≤ 3 days (n, percent)	423	214	51%	64	45%	150	53%	0.1586
Sore throat (n, percent)	423	387	92%	136	97%	251	89%	0.0163
Difficulty swallowing (n, percent)	423	145	34%	107	76%	38	14%	<0.0001
Trismus (n, percent)	423	62	15%	62	44%	0	0%	<0.0001
Dyspnea (n, percent)	423	20	5%	14	10%	6	2%	0.0009
Symptoms of the common cold (n, percent)[2]	423	185	44%	30	21%	155	55%	<0.0001
Earache (n, percent)	423	88	21%	42	30%	46	16%	0.0020
Fever (n, percent)	423	178	42%	53	38%	125	44%	0.2230
Red throat (n, percent)	423	297	70%	99	70%	198	70%	1.0000
Tonsillar hyperplasia (n, percent)	423	217	51%	128	91%	89	32%	<0.0001
Tonsillar exsudate (n, percent)	423	143	34%	62	44%	81	29%	0.0026
Cervical lympadenopathy (n, percent)	423	215	51%	107	76%	108	38%	<0.0001
Abnormal otoscopy (n, percent)	423	20	5%	7	5%	13	5%	1.0000
Abnormal lung auscultation (n, percent)	423	13	3%	0	0%	13	5%	0.0220
Unilaterality of signs and symptoms (n, percent)[3]	423	169	40%	133	94%	36	13%	<0.0001
Centor score ≥ 3 (n, percent)	423	137	32%	69	49%	68	24%	<0.0001
C-reactive protein (mean, standard deviation), mg/l	339	69	74.1	97	74.1	49.9	73.7	<0.0001
Haemoglobin (mean, standard deviation), g/l	339	142	17	141	20	143	16	0.2793
Leucocyte count (mean, standard deviation), 10^9/l	339	12.3	6.1	14.8	7.0	10.6	4.6	<0.0001
Granulocyte count (mean, standard deviation), 10^9/l	270	9.4	6.9	12.4	9.2	7.6	4.1	<0.0001
Monocyte count (mean, standard deviation), 10^9/l	270	1	0.7	1.3	0.8	0.8	0.5	<0.0001
Lymphocyte count (mean, standard deviation), 10^9/l	270	2.3	3.8	2.7	5.9	2.1	1.4	0.2984
Platelet count, (mean, standard deviation), 10^9/l	338	224	76	245	72	210	75	<0.0001

[1] p-value was calculated by Pearson's Chi-squared test with Yates' continuity correction for binomial variables and by Welch Two Sample t-test for continuous variables
[2] Cough, Coryza, Conjunctivitis, Myalgia or Headache
[3] Sore throat, Earache, Headache or Swelling

[Table 1]



[Figure 1]

P140

An unexpected risk factor for tuberculosis: a case report

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Learning objectives: This case report intends to awaken physicians to an unusual but possibly underestimated risk factor for tuberculosis in healthy young people: Smoking water pipe.
Case: An otherwise healthy 20-year old man presented with a two month history of cough and hemoptysis with subfebrile temperatures. The patient's medical history was unremarkable and he is originally Swiss. On admission, the physical examination was except from slightly elevated temperature normal. The chest x-ray showed a probable infiltrate in the left superior lobe which was confirmed in the computed tomography as multiple caverns, highly suspicious of pulmonary tuberculosis. Eventually, the sputum PCR and culture determined Mycobacterium tuberculosis with a low level Isoniazid monoresistance. In this healthy young man, initially, no typical risk factors for tuberculosis could be found. He had no travel history, no exposure to tuberculosis and there were no implications for immunosuppression. However, it turned out that the patient used to smoke water pipe regularly, which we considered the major risk factor in our case. As can be found in literature, the practice of sharing a water-pipe mouth piece poses a serious risk of transmission. Further on, the water inside the Shisha apparatus can become an abode to the bacteria, which can result into the spread and transmission of the disease.
The patient was discharged from hospital with Rifampicin, Isoniazid, Pyrazinamid and Ethambutol for two months and Isoniazid, Rifampicin and, because of the low level Isoniazid monoresistance, additionally with Moxifloxacin for four more months. Daily-observed therapy in collaboration with the family doctor and the pharmacy took place.

No other active tuberculosis cases were found by contact investigations , conducted by the Lungenliga and the hospital hygiene team.
Discussion: This case emphasizes that water pipe smoking might be an additional risk factor for tuberculosis. Asking about smoking water pipe should be part of the anamnesis, especially, if tuberculosis is suspected.

P141

Chologenic diarrhea - a case of chronic diarrhea after ileum resection

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Case: We present an 87-year-old patient with a moderately differentiated neuroendocrine tumor of the small intestine who was admitted to our hospital. The patient had a history of imperative defecation and diarrhea since a right-sided hemicolectomy including a resection of 80 cm terminal ileum in 2015. Despite the tinkture opii (4 to 5 x 10 drops a day) and octreotide (30 mg subcutaneously per month), he had five to six daily watery stools shortly after food intake. The diarrhea was even worse after intake of food rich in fat and protein. He presented with an unintentional loss of 7 kg of body weight during a time period of 1 year. Because of the history of ileum resection, chologenic diarrhea (CD) was considered and a treatment with cholestyramine (Quantalan®) was started with a dose of 2 x 2 grams (morning and evening) per day. Shortly after cholestyramine was initiated the patient reported formed stool consistency. Five days later he even complained symptoms of constipation.
Discussion: Secondary CD, also called «bile acid diarrhea», may occur in different conditions, e.g. after ileum or gall bladder resection or in different diseases with malabsorption such as inflammatory bowel disease[1]. The leading symptom is chronic watery diarrhea. Severe CD eventually leads to steatorrhea[1]. In the present case treatment with the bile acid sequestrant cholestyramine immediately stopped the diarrhea with lasting effect.
Learning Objectives: Ileum resection of 30 to 100 may lead to CD, whereas a resection of more than 100 cm additionally leads to steatorrhea[2]. Bile acids increase colonic motility, cause water and electrolyte secretion in the colon, thereby increasing transit time of faeces resulting in diarrhea, i.e. osmotic diarrhea[3]. Cholestyramine, a bile acid binder (sequestrant), is very effective in reducing CD. However, to avoid gastrointestinal side effects such as flatulence, nausea, vomiting and fullness the drug has to be dosed carefully.

Literature:
1) Pattni S. & Walters J.R.R. (2009). Recent advances in the understanding of bile acid malabsorption. *Br Med Bull*; 92: 79-93
2) Yde J. et al. (2018). Chronic diarrhea following surgery for colon cancer - frequency, causes and treatment options. *Int J Colorectal Dis*; 33: 683-94
3) Vijayvargiya P. & Camilleri M. (2018). Update on Bile Acide malabsportpion: Finally ready for prime time? *Curr Gatroenterol Rep*; 26:20

P142

A pseudoaneurysm of the cystic artery as a rare cause of haemobilia, a case report

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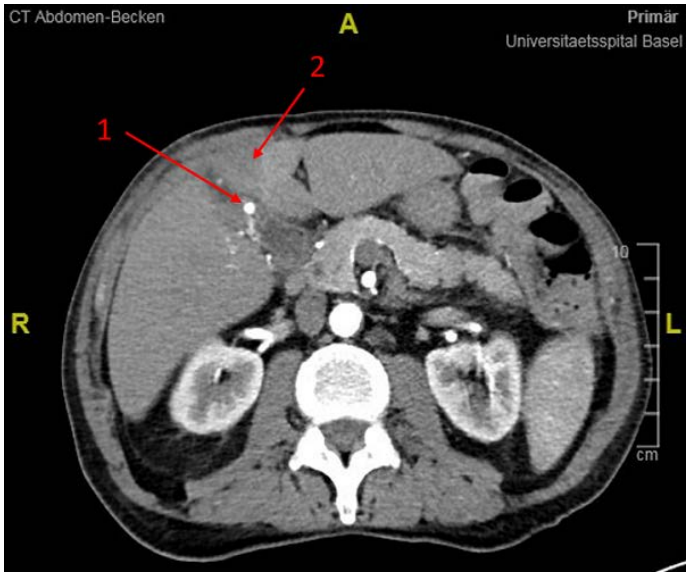
Learning objectives: Gastrointestinal (GI) bleeding is a common problem in hospitalized patients and a variety of causes has to be considered. Upper GI bleeding from a biliary source is usually associated with a surgical or endoscopic procedure, whereas haemobilia as a result of a cystic artery pseudoaneurysm is rare. In patients presenting with epigastric pain, jaundice and GI bleeding (Quincke's triad) a bleeding biliary source should be actively sought. Computer tomography (CT) angiography remains a preferred method of investigation, as it is easily available and noninvasive.
Case: A 75-year old male patient was admitted for the treatment of postherpetic neuralgia. On day four, he spiked a fever, and blood cultures were positive for *Klebsiella pneumoniae*. A MRI scan showed a 3cm liver abscess and multiple common bile duct stones. The patient was started on ceftriaxone followed by a sonographic guided drainage of the liver abscess and an ERCP with stone extraction. Four days later, he was switched to oral ciprofloxacin and discharged. Only four hours later, he suddenly developed severe abdominal pain in the right upper quadrant, which was followed by massive rectal bleeding. On presentation in the emergency department, laboratory findings were significant for a substantial drop in the hemoglobin (from 138 g/L to 93 g/L) and markedly elevated liver function tests with a mixed hepatobiliary injury pattern (AST 1068 U/L, GGT 1270 U/L). A CT scan demonstrated a small residual liver abscess. A bleeding source was not evident on gastroscopy. Due to the markedly elevated liver function tests, the abdominal pain and the bleeding of unknown origin, we suspected a biliary bleeding as a complication of the liver abscess.
A repeat CT scan with angiography confirmed the presence of an aneurysm of the cystic artery with evidence of bleeding into the gallbladder and the common bile duct. (Fig 1) In order to prevent repetitive bleedings, a laparoscopic cholecystectomy was performed some days later. Histopathology was consistent with chronic cholecystitis and a mural hematoma. Ciprofloxacin was continued as treatment for the liver abscess for three more weeks.
Discussion: Haemobilia due to a bleeding cystic artery pseudoaneurysm is rare and associated with trauma and infection. Clinicians need a high index of suspicion in particular in the presence of GI bleeding, abdominal pain and elevated liver function tests. Treatment may consist of arterial embolization or surgery.



[Figure 1: Abdominal CT scan showing a cystic artery aneurysm (1) and a liver abscess (2).]

P143

iAsk - an innovative option for patients to address questions to their care team

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Introduction: Communication remains one of the most important skills needed to care for patients. Digitalization opens up novel opportunities for patients to communicate with their care team. It is a well-known fact, that during rounds many questions are not asked and some not answered. We developed and tested an app that allows patients and their relatives to formulate questions to the care team via tablet and to be answered during the next rounds.
We were particularly interested in the acceptance of this technology in patients at different ages.
Methods: We conducted an exploratory evaluation with patients of the Department of Internal Medicine of the University Hospital Basel. Patients were informed and received a tablet with the app. They could post questions for the next morning visit at any time. The questions were sent to a central mail distributor and forwarded to the attending ward physician. Feedback from the participating patients was recorded using a standardized final interview.
Results: From July to August 2018, 47 patients used the app to ask questions for108 morning visits. In total, participants asked 138 questions (Ø 2.3 visits / participants with a range from 1 - 7; 2.9 questions/ participant; Ø 1.3 questions / visit / participants). Average age was 56 years (min.: 22, max.: 88 years). 43 out of 47 participants conducted the final interview. 33 patients showed an initial positive attitude towards the application. The operation of the app was rated 23 times very easy and

11 times pretty easy. In 19 cases, the medical profession regularly answered questions from the participants. Of these 19, 14 reported that application of the app had an impact on the conversation, 13 of which was positive.
Conclusions: The app meets the need to deposit questions to the care-team at any time and have it answered during the next rounds. It has a positive effect on the conversation during the morning visits. Our patients had no specific difficulties to use the app and could handle the tablet computer without problems. We recommend to optimize the app for ease of use, implement it into the daily rounds and perform a state of the art validation in a clinical trial.

P144

Seasonality of hyponatremia in hospitalized medical patients - data from a nationwide cohort study

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Introduction: Hyponatremia is the most prevalent electrolyte disturbance in hospitalized patients. Seasonal variation with higher incidence of profound hyponatremia during summer months has been described for patients in the emergency department setting. Whether this observation is also true among hospitalized medical is unknown. We therefore analyzed the seasonal in-hospital incidence of hyponatremia and explored sex and age specific differences.
Methods: In this nationwide cohort study, we analyzed medical inpatients with hyponatremia diagnosed between January 2009 and December 2015 using prospective administrative data. The primary outcome was the monthly alteration in in-hospital hyponatremia incidence. Secondary outcomes were the impact of the outdoor temperature on hyponatremia incidence and differences among sex and age groups.
Results: Of the 2,426,722 medical patients included in this study, 84`210 (3.5%) were diagnosed with hyponatremia with a 61% (n = 51,262) incidence in females. While we found the highest overall incidence of hyponatremia in July (9.2%), it was lowest in December (5.5%). Whereas the overall incidence of in-hospital hyponatremia was lower by 37% (OR 0.63 [95 CI 0.62 to 0.64]) in men compared to women, it was most reduced in the warmest (mean temperature 20.1°C) month of July (OR 0.57 [95 CI 0.54 to 0.59]). The association between seasonality and hyponatremia was even stronger in older female inpatients admitted during summer.
Conclusions: The incidence of diagnosed hyponatremia in medical inpatients increases during warm summer months. Associations were most pronounced in women and elderly inpatients.

P145

Prevalence and management of chronic insomnia in Swiss primary care: evidence from the Sentinella practice-based research network

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Introduction: Chronic insomnia (CI), defined as subjective sleep disturbance at least 3 nights/week for more than 3 months with concomitant daytime impairment (DSM-5), should first be treated with cognitive behavioral therapy (CBT-I), since it garners better long-term results than pharmacological treatment. Studies from other countries indicate primary care physicians (PCP), who often diagnose and manage CI, usually prescribe drugs and rarely refer patients to CBT-I. We set out to determine the prevalence of patients with CI who presented to PCP, and how they were treated.
Methods: We invited Swiss PCP of the Sentinella network to systematically collect data on the first 2 patients aged >18 years old per half-day who presented for a non-urgent visit, until they reached a total of 40 patients. PCP were to systematically ask each included patient if they had sleep problems. If patients had sleep problems, PCP documented the frequency, duration, and type of sleep complaints, comorbidities, and noted the ongoing treatment.
Results: Of the PCP we invited, 66% (n = 88/132) collected data on 3520 patients. PCP asked 74% of included patients about their sleep (n = 2491/3520; 52% women; mean age 58 years). Of patients who were asked, 23% (n = 806/2491) were reportedly diagnosed with “insomnia” at some point, 7% (n = 170/2491) were in remission under ongoing treatment, and 64% (n = 898/2491) had current subjective sleep problems. Of patients with sleep complaints, 32% (n = 278/898, 61% female) met DSM-5 criteria for CI; 75% (n = 210/278) of CI patients had comorbidities, mainly depression (49%, n = 103/210). Of CI patients treated (n = 78%, 216/278), most were prescribed medication (91%, n = 194/216). Half of these patients (49%, n = 106/216) took BZD or Z-drugs; 40% (n = 87/216) took antidepressants. Only 3 CI patients underwent CBT-I (1%). Over the entire sample, only 5 PCP prescribed CBT-I.
Conclusions: Two-thirds of patients presenting for a non-urgent visit in Swiss primary care complained about sleep problems; a third of this group met DSM-5 criteria for chronic insomnia. Most were treated with hypnotics and almost none received guideline-recommended first-line cognitive-behavioral therapy, suggesting PCP need to learn more about CBT-I and reduce the rate at which they prescribe hypnotics.

P146

Persistent wounds with sporotrichoid distribution: fish tank granuloma?

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Learning objective: Soft tissue infections due to *Mycobacterium (M.) marinum* are uncommon. History of a trauma, contact to a fish tank and lack of response to empiric antibiotic therapy should raise awareness.
Case: We report two cases of fish tank granuloma in immunocompetent patients.
Patient 1 - a 36-year old man - presented with multiple abscesses on his right hand and forearm weeks after a deep cut to his right small finger. Despite successive antibiotic treatment trials with amoxicillin/clavulanic acid, clindamycin and trimethoprim/sulfamethoxazol and surgical incision infection was progressive with formation of multiple new abscesses along the patient´s forearm.
Patient 2 - a 34-year old man - reported a persisting wound for two months after a cut injury to his left index finger with development of additional papules on the back of his hand despite antibiotic therapy with amoxicillin/clavulanic acid. On physical examination, both patients had a hardened erythematous plaque on the dorsum of the injured finger and further ascending lesions showing a sporotrichoid distribution along the respective lymphoid drainage. On specific interrogation, both patients reported to take care of fish tanks. Skin biopsies demonstrated necrotizing granulomatous inflammation without acid-fast bacilli. Based on history, clinical presentation and histopathological findings we diagnosed fish tank granuloma and initiated combination therapy with rifampicin, clarithromycin and ethambutol. Mycobacterial culture remained negative in patient 1 but became positive after 4 weeks with *Mycobacterium marinum* in patient 2. Ethambutol was stopped after clinical response was obvious and treatment was continued for a total of 6 months in patient 1 and 3 months in patient 2 according to the severity and extend of their disease. Both patient made a full recovery with some remaining scars.
Discussion: *M. marinum* is an environmental mycobacterium that lives in aquatic environments causing ´tuberculosis´ of the zebra fish. Occasionally, it may cause granulomatous skin and soft tissue infections in humans, called fish tank granuloma. Diagnosis is based on clinical presentation, history of exposure, histopathology and detection of mycobacteria by culture or PCR. Treatment, based on expert opinion, usually comprises 2-3 active drugs (mostly rifampicin, macrolide and/or ethambutol) for 3-6 months until resolution of symptoms.

P147

FORE! - golf holidays may be dangerous

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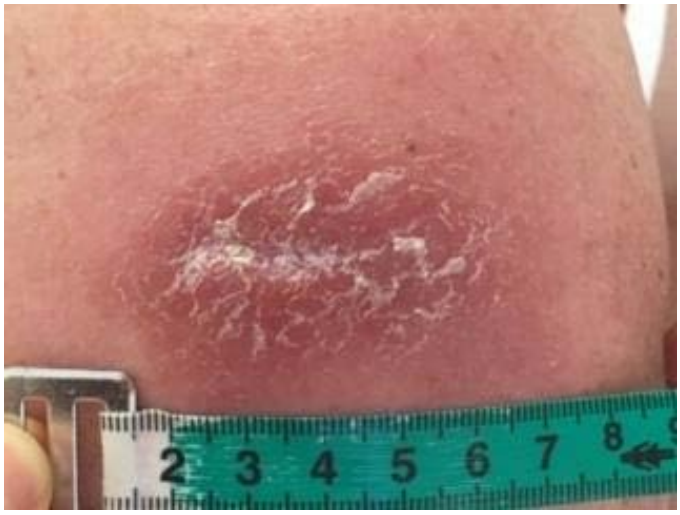
Learning objective: Cutaneous leishmaniasis - transmitted by female sand flies - is the most common form of Leishmania infection. Old World leishmaniasis is endemic in countries bordering the Mediterranean Sea.

The booming travel industry and refugee migration have led to an increased number of sporadic cases of cutaneous leishmaniasis in non-endemic areas.
Case: A 57-year-old patient detected a skin lesion on his right shoulder a few weeks after returning from a golf vacation in Mallorca. The initial lesion appeared as a small nodule but grew considerably in the following months. On admission, the patient was in excellent general health without fever, weight loss or night sweat. Physical examination including local lymph nodes and spleen size was normal besides a solitary oval plaque of 6x3cm with a slight central cavity on erythematous surface located on the right shoulder [Figure 1].



[Figure 1]

Routine blood tests including hematology, liver enzymes and inflammatory markers were normal. Skin biopsy of the lesion showed dermal infiltrates predominantly of histiocytes with phagocytosed Leishmania amastigotes and interspersed lymphocytes and plasma cells. Polymerase chain reaction (PCR) confirmed infection with *Leishmania infantum*. Because of the remarkable size of the lesion we excluded HIV and looked for other signs of immunodeficiency. The indirect immunofluorescent antibody test (IFAT) for Leishmania-specific antibodies was negative compatible with the absence of systemic infection. Due to the large size of the lesion we initiated local treatment with Paromomycin 15%/Methylbenzethonium 12% ointment twice a day for ten days. During therapy we observed a local inflammation and general symptoms like fever, which resolved after finishing the treatment and a local wound healing started.
Discussion: Human leishmaniasis should be subdivided in visceral, mucosal and cutaneous forms to guide intensity and form of treatment. However, a clear differentiation may sometimes be difficult due to geographical and clinical overlap. Cellular immunocompetence is critical to prevent spreading of localized (cutaneous) infection to visceral organs. Diagnosis of leishmaniasis is confirmed by detection of parasites in smear-specimens or biopsies of skin, lymph node, bone marrow, spleen or cerebrospinal fluid. Today, Leishmania-specific PCR is the most sensitive and specific detection method. Serology is useful for visceral disease but mostly negative in localized infection).

P148

Atraumatic splenic rupture due to cocaine abuse

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Learning objective: A splenic rupture should be ruled out in patients using cocaine and presenting with acute abdominal or thoracic pain.
Case: A 38-year old healthy male patient presented to the emergency department with severe pain in the left thorax and left shoulder. The symptoms occurred a few hours earlier during a train ride. The pain started in the left upper abdomen and spread out into the left thorax and shoulder. The patient reported no recent travel or trauma, nor did he experience any B symptoms. He worked as a construction worker and had a history of frequent cocaine abuse. On examination, he was normotensive, afebrile and had a slight pain located in the left upper abdomen. The only pathological laboratory finding was slightly elevated D-Dimers (table 1). Urine cocaine testing was positive. Electrocardiography was normal. CT scans to rule out pulmonary embolism or aortic aneurysm surprisingly showed diffuse bleeding of the spleen with perisplenic fluid and free fluid in the lower pelvis (figure 1).

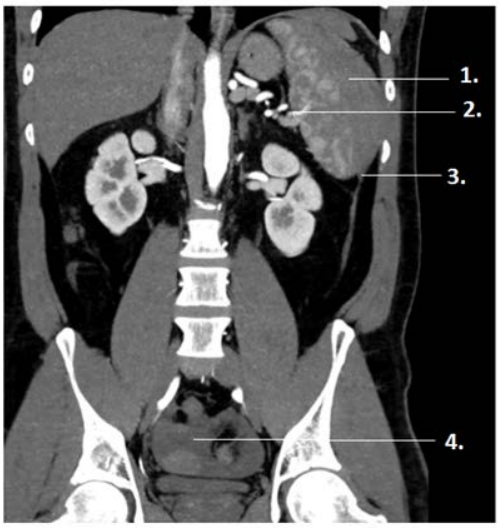

Figure 1: intravenous contrast enhanced CT-abdomen, coronal reconstruction, arterial phase. 1. Spleen. 2. Branch artery of the splenic artery and diffuse bleeding. 3. Perisplenic diffuse bleeding. 4. Free fluid in the lower pelvis area (excavatio rectovesicalis).

[Figure 1]

We diagnosed an atraumatic splenic rupture. Without any intervention, the patient stayed hemodynamically stable, and a conservative treatment strategy with intensive care was carried out. Serology showed past Epstein-Barr virus infection. The patient was dismissed from the hospital two days after the splenic rupture without any complications. On the day of discharge, a contrast enhanced ultrasound located the source of bleeding in the mid-part of the spleen without any sign of active bleeding. Unfortunately, the patient was lost to follow-up.
Discussion: Atraumatic splenic rupture is rare. The main reasons for atraumatic splenic ruptures are due to infection (e.g. EBV) or neoplasia. Splenic rupture with hematoma is an uncommon but severe complication in patients using cocaine. [1-3] In patients consuming cocaine presenting with thoracic or abdominal pain, a splenic rupture must be ruled out. Misjudgement of the clinical situation (i.e. ischemia or embolism) would lead to a deleterious situation. Finally, in the present case, conservative treatment was possible.

References:
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- Khan AN et al. Cocaine-induced splenic rupture. J Surg Case Rep 2017(3);rjx054.
- Azar F et al. Cocaine-associated hemoperitoneum following atraumatic splenic rupture. World J Emerg Surg 2013;8:33.

Table 1. Laboratory data

	patient	reference values
Hemoglobin	153 g/L	135-172 g/L
Leucocyte count	9.0 G/L	3.9-10.2 G/L
Platelet count	158 G/L	150-370 G/L
Aspartataminotransferase	55 U/L	0-55 U/L
Gamma glutamyltransferase	69 U/L	<60 U/L
Lactate dehydrogenase	168 U/L	0-250 U/L
Creatinine	82 µmol/L	59-104 µmol/L
C-reactive Protein	2.7 mg/L	0.00-5.0 mg/L
High sensitive Troponin T	<3.0 ng/L	0.00-14.0 ng/L
D-Dimers	0.63 µg/L	0.00-0.50 µg/L

[Laboratory Data]

P149

Hippocratic fingers in a patient with recurrent pneumonia

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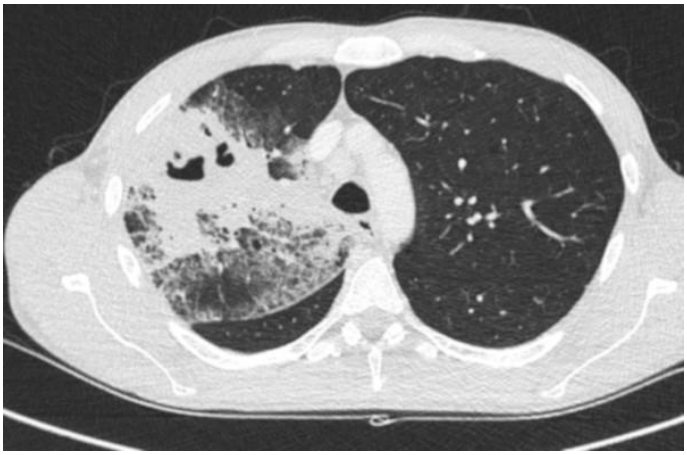
Learning objectives*:* Clubbing is an old clinical sign which is associated with a number of diseases. Its detection in a patient should prompt further diagnostic steps to detect the underlying etiology.
Case report: A 41-year old man with recurrent pulmonary infections was evaluated at our hospital after a computer tomography scan (CT scan) obtained by his family doctor showed a cavitating right upper lobe lesion.



[Computer tomography scan of the thorax revealing cavitated right upper lobe lesion.]

The patient reported a chronic cough accompanied by a weakness for 4 months. Pulmonary auscultation was significant for rales in the right upper lobe. Of note, the inspection of his hands showed the typical signs of clubbing with an increased angle of the nail projections from the nail bed and an increased interphalangeal depth.

[The patients fingers showing the increased nail fold angles and the increased phalangeal depth.]

The patient reported that the alteration of his fingertips had developed during the last 6 months. Laboratory testing showed a white-cell count of 15.2 G/l and a C-reactive protein of 159 mg/l. Staining for acid-fast bacilli, PCR testing for Mycobacterium tuberculosis in sputum samples and cultures from bronchoalveolar lavage were negative. There was no evidence of malignancy or organizing pneumonia on lung biopsy. Antibiotic therapy with amoxicillin/clavulanic acid was initiated and planned for 6 weeks. At the four-week follow-up a marked reduction of the pulmonary lesion and normal inflammation markers were observed. The clubbing had not yet resolved.
Discussion: Clubbing is a clinical sign which is associated with a number of different diseases. Hippocrates was the first to describe clubbing in a patient with pulmonary empyema 2500 years ago.[1] It is therefore believed to be one of the oldest clinical signs in medicine, although the frequency distribution of its underlying diseases has changed in an aging society. We present a case of a young patient with a prolonged and recurrent pulmonary infection, who developed clubbing. Previous evidence suggests that clubbing is caused by an abnormal expression of vascular endothelial growth factor (VEGF), in particular in the context of hypoxic conditions.[2] This results in a proliferation of the connective tissue between the nail matrix and the distal phalanx, and consequently in the characteristic enlargement of the terminal finger segments.
1. Hippocrates. The Genuine Works of Hippocrates. William Heinemann ltd 1923;2:7-55.
2. Martinez-L. M. Exploring the cause of the most ancient clinical sign of medicine: finger clubbing. Seminars in arthritis and rheumatism 2007;36:380-5.

P150

An unresolved but successfully treated case of macrophage activation syndrome

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Learning objective: The macrophage activation syndrome (MAS), an often life-threatening condition, is based on an uncontrolled inflammatory followed by an overproduction of inflammatory cytokines which leads to an excessive activation of macrophages.
Primary (genetic) forms are differentiated from various secondary forms that are most often triggered by viral and other infections, hematologic neoplasms and autoimmune diseases.
Diagnosis in adult patients follows the HScore. It was elaborated 2014 by Fardet et al. to replace the HLH-2004 Criteria for MAS in pediatric patients that was used in adults to date.
Considering MAS in any febrile patient with hepatosplenomegaly and typical laboratory findings (hyperferritinemia, bi- or pancytopenia, hypertriglyceridemia, hypofibrinogenemia) can promote early diagnosis which is crucial for timely treatment.
Case: A 53-year-old Portuguese man with known arterial hypertension presented himself to the emergency department because of abdominal pain sustained for several hours.
Physical examination revealed tachycardia and tenderness of the right upper abdomen without fever. A severe hepatopathy with elevated transaminases and cholestasis parameters, progressive pancytopenia and subsequent splenomegaly were found. The exceptionally elevated ferritin (311´905ng/ml) and high triglycerides lead to the diagnosis. MAS was confirmed with 220 points in HScore (96% probability of having MAS), even though no typical hemophagocytosis could be found in the bone marrow cytology.
Despite extensive investigations including anamnesis for triggering medication or intoxication, chest and abdomen CT Scan, MRI of the brain, blood and urin cultivation, testing for tuberculosis, for viral diseases such as HIV, acute Hepatitis, HSV, CMV, EBV, VZV, Parvovirus and other pathogens (Leishmania, T. pallidum, B. henselae, C. burnetii, F. tularensis, Leptospirosis, T. gondii), and screening for autoimmune diseases no possible etiology could be found.
A treatment with intravenous methylprednisolone (1g/day) that was initiated on the second day of admission and was followed by a tapering regime of oral glucocorticoids showed a rapid effect. After 9 weeks the steroid therapy could be stopped and the patient went on his planned holidays to Portugal.
Discussion:
An immediate start of therapy is associated with a higher success of therapy. Because no reversible related cause could be found this patient is thought to be at a higher risk of relapse.

Parameter	No. of points (criteria for scoring)
Known underlying immunosuppression (Human immunodeficiency virus positive or receiving long-term immunosuppressive therapy (i.e., glucocorticoids, cyclosporine, azathioprine).	0 points (no) or 18 points (yes)
Temperature (°C)	0 points (<38.4), 33 points (38.4–39.4), or 49 points (>39.4)
Organomegaly	0 points (no), 23 points (hepatomegaly or splenomegaly), or 38 points (hepatomegaly and splenomegaly)
No. of cytopenias (Defined as a hemoglobin level of ≤9.2 gm/dl and/or a leukocyte count of ≤5,000/mm^3 and/or a platelet count of ≤110,000/mm^3.)	0 points (1 lineage), 24 points (2 lineages), or 34 points (3 lineages)
Ferritin (ng/ml)	0 points (<2,000), 35 points (2,000–6,000), or 50 points (>6,000)
Triglyceride (mmoles/liter)	0 points (<1.5), 44 points (1.5–4), or 64 points (>4)
Fibrinogen (gm/liter)	0 points (>2.5) or 30 points (≤2.5)
Serum glutamic oxaloacetic transaminase (IU/liter)	0 points (<30) or 19 points (≥30)
Hemophagocytosis features on bone marrow aspirate	0 points (no) or 35 points (yes)
The best cutoff value for HScore was 169, corresponding to a sensitivity of 93%, a specificity of 86%, and accurate classification of 90% of the patients.	

[HScore (Acc. Fardet L. et al.)]

P151

Internistic optimizing patients for elective orthopedic surgery major obstacles to overcome

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Introduction: Surgical site infection is feared complication of surgery, leading to increases mortalitiy and morbidity and increases costs. It is known that several medical conditions are well established as risk factors for surgical site infections. We tried so identify treatable risk factors in patients undergoing elective prosthetic surgery with potential to optimize patients preoperatively
Methods: Low body mass index (BMI <18), Anemia (<120 gr/L for women, <130 gr/L for men), hypalbuminemia (<30 gr/L) and uncontrolled Diabetes mellitus (HbA1c >7.5%) were taken as screening parameters for possible intervention. Family doctors were asked to participate. At time of decision for the operation, an form was sent to the family doctor. He could decide to screen and optimize himself or sent the patient to the medical outpatients clinic. The outpatient clinic had to be informed in either case. If one of the screening parameters was out of the range, optimizing was performed, if possible.
Results: 157 patients were included in the program. In 77 patients (49%; CI95 41-56%), family doctors answered the form. In 50/157 patients, (32% CI 95 25-40%), all parameters were available. In 27/77 patients, family doctors answered but failed to obtain all demanded parameters.
In 11/77 patients (14%, CI 95 8.2-23%), potential for optimization was detected. Optimizing was performed in 7 of these patients.
No hypalbuminimia or low body mass index was detected
Conclusion: 14% of patients could profit by optimizing medical conditions prior to elective surgery. This percentage may even be higher in larger visceral or oncologic surgery. However, a response rate of 49% is too low. Including family doctors in a program for optimizing patients is difficult and major obstacles are still present.
Further investigation to resolve this problem is mandatory. The solution to exclude family doctors may, however, lead to irritation in referring physicians

P152

An unusual cause of neck pain

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Learning objective: Giant cell arteritis (GCA) is a systemic vasculitis with a variety of clinical presentations. Typical symptoms include scalp tenderness and jaw claudication caused by the inflammation of the temporal arteries. However, even if the localization of skin pain and headache is atypical, GCA should be considered.
Case: A 87-year-old female patient presented to the emergency department for further evaluation of persistent neck pain and elevated inflammation markers. The neck pain was lasting for 4 weeks, radiating to the occipital lobe and was described as a superficial skin tenderness. On physical examination, the skin over the neck was tender to palpation. Meningism was absent. Additionally, prominent temporal arteries were noticed. Laboratory findings were significant for an elevated C-reactive protein (106 mg/ml), a highly elevated erythrocyte sedimentation rate (105 mm/1h), mild anemia (hemoglobin of 117 g/l) and mild hyponatremia (132 mmol/l).
Initially, vertebral osteomyelitis was suspected. However, an MRI of the cervical spine was unremarkable and blood cultures yielded no growth.
Given the age, the systemic inflammatory response, the scalp tenderness and the prominent temporal arteries, a doppler ultrasound was performed and showed evidence of the classic "halo sign" of both temporal arteries, the left vertebral artery and the left occipital artery. Thus, the patient scored 4/11 points of the revised diagnostic criteria of the American College of Rheumatology for GCA and the presence of GCA was highly likely.

[Prominent right temporal artery.]

The patient was admitted, and oral prednisone 60mg/day (1mg/kg body weight) was administered. An MRI of the aorta excluded a relevant involvement of the large vessels. In order to confirm the diagnosis, a temporal artery biopsy was obtained. The biopsy showed discrete signs of inflammation of the media and adventitia, which were considered nonspecific by the pathologist.
Within one week after the first dose of prednisone clinical symptoms resolved completely. The CRP and ESR dropped to 24 mg/ml and 36 mm/1h, respectively. Three months later, she remains free of symptoms at a current prednisone dose of 20 mg/day.
Discussion: Although classified as a large vessel vasculitis, GCA often affects medium- and small-sized blood vessels, and then associated with distinctive symptoms. Our case highlights the heterogenic nature of GCA, which can lead to a variety of clinical presentations and thus often poses a diagnostic challenge.

P153

A rare sonographic finding: latticed pancreatic ascites

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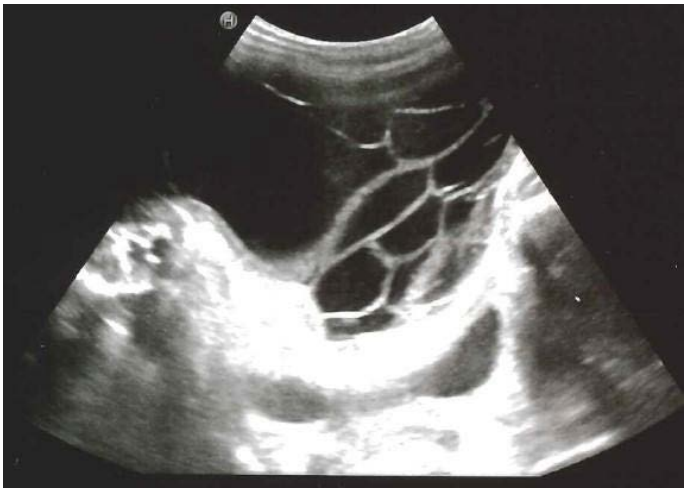
Learning objective: recognizing a unique sonographic manifestation of pancreatic ascites as a rare complication of pancreatitis
Case: A 53-year old man with a history of alcohol abuse presented with weight loss and epigastric pain. Physical examination revealed diffuse abdominal tenderness with guarding. Lab tests showed elevated lipase and CRP. Abdominal CT demonstrated a diffusely enlarged pancreas, multiple pre-existing pancreatic cysts, calcifications and small amounts of intra-abdominal fluid. A diagnosis of alcohol-induced acute-on-chronic pancreatitis was made; hydration and analgesics were established. Abdominal ultrasound on hospitalization day 28 revealed four-quadrant ascites without special features. Paracentesis confirmed spontaneous bacterial peritonitis that was treated with targeted antibiotics. Neither ascidic

cytology, nor MRI, nor biopsy of a questionable pancreatic lesion four months earlier, revealed malignancy. The hospital stay of the patient was further complicated by three pseudocysts, one of which was drained into the stomach. On the 50th day of hospitalization the patient showed a sudden onset of acute abdominal pain, clinical signs of peritonitis, fever and rising CRP levels. A CT-scan showed peritoneal enhancement, shrinkage of two remaining pseudocysts and large amounts of ascites. Ultrasound revealed multiple septae latticing the ascites into numerous compartments not visualized on CT (see picture 1). Drainage of one compartment revealed 150 ml of clear yellowish liquid containing high amounts of pancreatic enzymes (pancreatic amylase: 417 U/L; lipase: 2274 U/L), a serum-albumin ascites gradient (SAAG) <1.1 g/dL and a total protein level of 58.9 g/L; without evidence for malignant cells or microbiological growth, suggestive for pancreatic ascites.



[Picture 1: Latticed pancreatic ascites]

Discussion: This case shows an uncommon form of ascites that was attributed to a leakage of pancreatic fluid into the peritoneal cavity. Pancreatic ascites is a rare complication of pancreatitis that is characterized by amylase or lipase >3 times the plasma level, and high protein levels in the ascitic fluid, in combination with a SAAG <1.1g/dL. The occurrence of septae dividing the ascites into multiple compartments (not detected by CT but only by ultrasound) is not yet reported in the literature in relation to pancreatic ascites. However, it is described in relation to infectious and neoplastic causes.

P154

Case report: a rare case of dysphagia due to arteria lusoria

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Learning objective: Dysphagia is a common symptom in the general population. While most cases of oropharyngeal dysphagia are of neurologic origin, esophageal dysphagia may imply malignancy and need further investigation. In addition there are rare causes of swallowing disorders. The arteria lusoria is an aberrant right subclavian artery and occurs in about 0.5% to 2.5% of the population. Its anatomical course posterior to the esophagus may lead to esophageal compression and thus may cause dysphagia.

Case: We present a 68-year-old female patient hospitalized due to fever and right-sided upper abdominal pain. Laboratory investigations showed elevated inflammatory markers and raised levels of liver parameters. Blood cultures were tested positive for Klebsiella pneumoniae. Ultrasound scan showed normal wide intra- and extrahepatic bile ducts. Magnetic resonance cholangiopancreatography (MRCP) provided evidence for cholangitis with restricted diffusion and late-enhancement in liver segments VI to VIII. The patients general condition improved after she received antibiotics (Ceftriaxon followed by Amoxicillin/Clavulanic Acid) and transaminases returned to normal levels. However the patient reported dysphagia and right-sided chest pain. Computed tomography (CT) angiography showed no pulmonary embolism but an aberrant course of the right subclavian artery with compression of the esophagus. Esophagogastroduodenoscopy showed normal mucosa seven years after gastric bypass surgery with roux-en-y-reconstruction but slight impression in the middle thoracic esophagus. According to these findings we assumed arteria lusoria as a cause of dysphagia in this patient. We recommended dietary measures and discharged her in good general condition.

Discussion: Dysphagia lusoria describes dysphagia due to vascular compression of the esophagus. Arteria lusoria is a rare anatomic variation affecting about 0.5% to 2.5% of the population. Although in the majority of cases arteria lusoria is an incidental finding, the constitution may lead to swallowing difficulties. In our patient esophagogastroduodenoscopy showed normal mucosa after bariatric gastric bypass surgery performed in 2011. Computed tomography and endoscopy showed slight compression of the esophagus as a possible cause of the patient´s symptoms. According to current recommendations we discussed dietary measures to improve swallowing. In cases of severe esophageal compression vascular reconstruction should be considered.

P155

A case of Whipple's disease in a 58-year-old woman with marked systemic inflammation and a history of seronegative rheumatoid arthritis for more than 10 years

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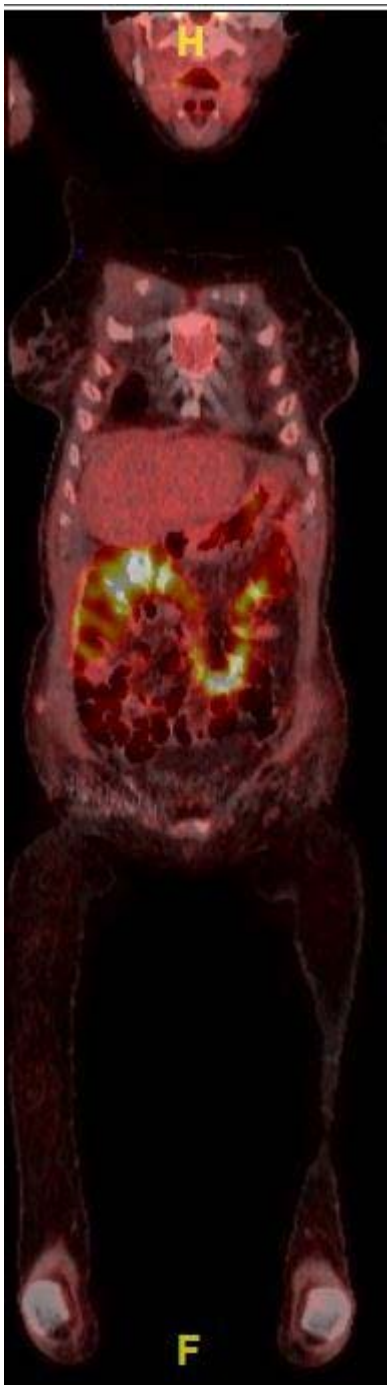
Learning objectives: Whipple's disease (WD) is a rare, systemic condition, which classically presents with arthralgia, weight loss and diarrhoea. Because of its rarity, there typically is a long delay until diagnosis. We present the case of a 58-year-old woman with an undetermined general inflammation (since ca. 2016), who was ultimately diagnosed with WD.

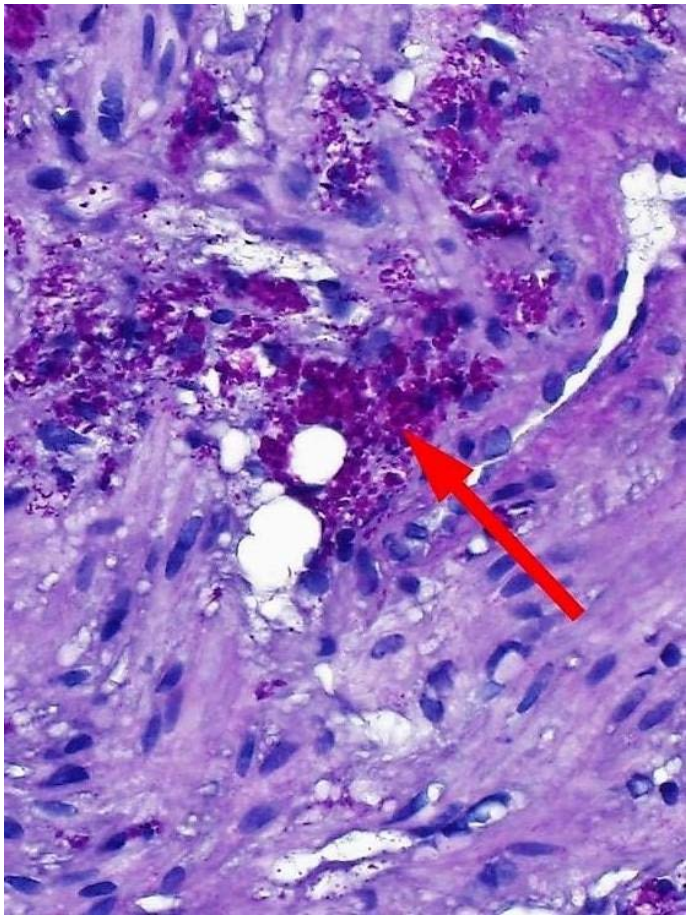
Case presentation: The patient was referred to our department in September 2018 with elevated inflammatory markers and progressive anaemia. Her chief complaints were progressive weight loss and decreased appetite, as well as recurrent oral aphtosis, dyspnoea on exertion and intermittent fevers. She denied any diarrhoea or arthralgia. In 2005 she was diagnosed with seronegative rheumatoid arthritis. Her past medical history was also significant for a restrictive pulmonary disorder of unknown aetiology and an episode of polyserositis in 2008. Antirheumatic treatment with biologicals was discontinued in 2015 due to drug intolerance, and steroid monotherapy was maintained. Consequently, inflammatory markers were mildly but consistently elevated. In November 2017, markedly elevated C-reactive protein (150-200 mg/l) and neutrophilia (up to 32 G/l) were first noted and persisted over the course of the following year. Abdominal imaging from January and June 2018 was significant for ascites and minimal wall thickening of the colon. In May 2018, histology from upper and lower endoscopies, however, did not disclose any pathology. On admission, physical examination revealed marked peripheral oedema and jugular vein distention. There was no evidence of arthritis. Bone marrow biopsy was consistent with reactive inflammatory changes. 18-FDG PET-CT and abdominal MRI confirmed progressive pancolitis and serositis (Fig. 1).



[Figure 1: 18-FDG-PET CT showing hypermetabolism of the colon]

However, biopsies only revealed a mild inflammatory infiltrate of PAS-positive macrophages in the terminal ileum, judged as non-specific as the *Trophyeryma whipplei* PCR was negative. It was not until a *T. whipplei* stool PCR was positive, that the patient was readmitted to hospital. At that point, duodenal biopsies were consistent with WD (Fig. 2), and PCR of cerebrospinal fluid was positive for *T. whipplei.* The patient was started on intravenous penicillin which led to an immediate decrease in inflammatory markers.

Discussion: WD should be considered in any patient with a chronic inflammatory state and unclear joint symptoms not responding to disease-modifying antirheumatic drugs.



[Figure 2: Duodenal biopsy with PAS-positive granula in the muscularis mucosa. PAS-staining]

P156

What shall we do with the drunken sailor- a modern presentation of an ancient disease

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Learning objectives: Scurvy is meant to be a historical disease, however it´s an emerging diagnosis especially in patients with heavy alcohol use. Clinical features and diagnosis of scurvy are discussed.

Case: Rare case of a 26-year-old female with a history of alcohol-induced liver cirrhosis and scurvy: The patient was admitted to our hospital because of exacerbating pain caused by hemorrhagic blisters of the feet and tension of the lower limb caused by massive edema.

Patient´s history revealed significant alcohol abuse for 13 years in combination with a personality disorder and depression. The main food source was reported to be white bread, beer and rice cakes, but no fruits and vegetables at all over the last years.

On clinical examination mulitple subcutaneous hemorrhages of the upper extremities, as well as palpable ecchymosis of the breast without reported adequate trauma could be found. Additional clinical findings were an opportunistic cystitis caused by Proteus mirabilis and Citrobacter freundii, as well as a fulminant genital candidosis with Staphylococcus aureus superinfection. A diagnostic hemostasis workup on presentation and 4 years-earlier, showed no pathological results, except for low Vitamin-K-dependent factors in the most recent evaluation. On day three of admission the patient suffered from gingival bleeding and angular cheilitis, which led to the suspicion of scurvy.

The serum Vitamin C level after 3 days of intravenous substitution of 100 mg ascorbic acid per day showed a still low level of 16 umol/L (normal range >26 umol/L). In combination with the distinct clinical features a case of scurvy was confirmed. After a week of intravenous supplementation of Vitamin C symptoms started to improve and oral bleeding as well as limb hemorrhages ceased.

Discussion: Scurvy is a well-known historical disease characterized by an insufficient collagen synthesis, which leads to brittle vessels and immune deficiency. Vitamin C is also involved in several biochemical reactions as an electron-donator, acting as an antioxidant. It was classically seen in sailors on long boat trips during several months aboard naval ships until the 19th century. It was Dr. James Lind´s (1716-1794) merit to conduct the first ever clinical trial and to find out that citrus fruits cured scurvy. However, it is important to be aware of scurvy even today, particularly when the clinical signs are present in Vitamin C malnourished patients.

P157

The off guideline decision making: macrothrombocytopenia, thrombosis of the hepatic artery, E. coli sepsis with acute kidney failure and a positive test for heparin induced thrombopenia

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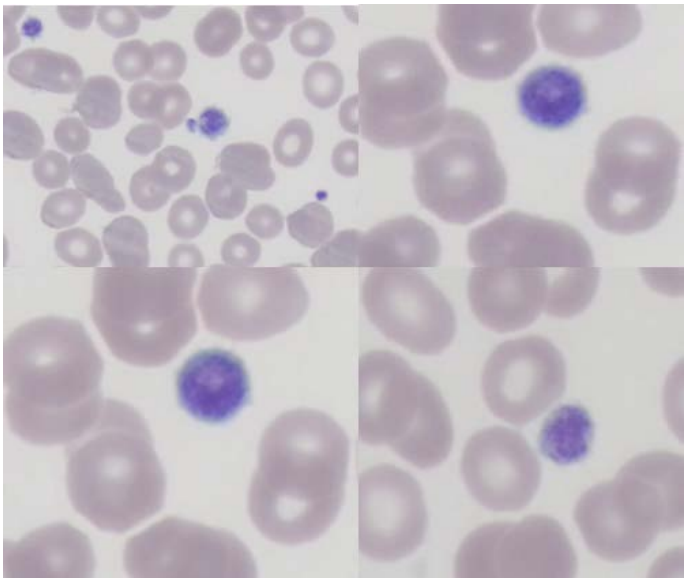
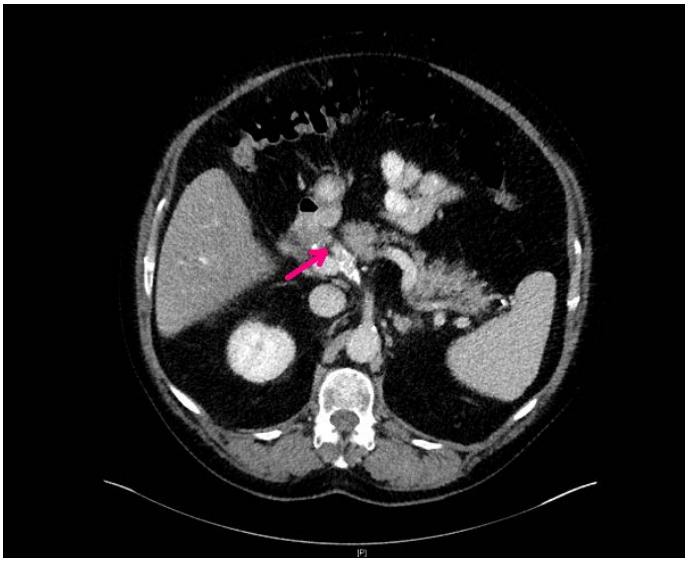
Teaching point: Balancing the risks of hemostasis and bleeding can be difficult in multimorbid patients with pre-existing coagulation disorders. An interdisclipinary approach may be helpful alongside with a careful management of anticoagulant therapy.
Case: A 60 y/o male presented with sepsis due to E. coli originating from an infected liver cyst which was treated with metronidazuole and ceftriaxone. He had a history of macrothrombocytopenia (**Fig. 1**) of 35 k/µl due to Bernard Souliers Syndrome (GPIX homozygous mutation) without prior bleeding episodes. Abdominal CT imaging, used for finding the infectious focus, revealed an asymptomatic thrombosis of the common hepatic artery (**Fig. 2**), which was interpreted as an incidental finding associated with the infection. After a single donor platelet transfusion due platelet counts of 18 k/µl, the liver cyst was drained by ultrasound-controlled puncture. Local bleeding from an intercostal artery could be controlled by compression, and low-dose anticoagulation (heparin 10.000 IU/24 h) was initiated after stabilization.



[Fig 1, manuel smear - macrothrombocytopenia]

The clinical course was complicated by sepsis-associated prerenal acute kidney failure (creatinine peak 442 µmol/l). After rehydration, renal recovery occurred. During recovery, livedo reticularis was noticed with unspecific elevation of cytoplasmic antineutrophil cytoplasmic antibodies. Further evidence for an underlying vasculitis could not be found and thorough screening for an occult tumor was negative. On day 7, his thrombocytopenia aggravated with a drop to 35 from 56 k/µl without schistocytes in blood smear. Screening for heparin-induced thrombocytopenia (HIT; intermediate pre-test probability) was positive and heparin was switched to danaparoid. Anticoagulation was controlled using Anti-Xa measurements aimed at sub-therapeutic target levels (0.3-0.5 IE/ml). Platelet counts recovered to 44k/µl and kidney function improved a creatinine clearance of 69 ml/min without further bleeding of thrombotic events.



[Fig. 2, CT thrombosis of a hepatica communis]

Discussion: The case illustrates the difficulties of decision making in high risk constellations for both bleeding and thrombosis. Low platelet counts, thrombocytopathy, thrombosis at unusual sites, kidney failure, sepsis and possible HIT make the choice of anticoagulant and haemostatic therapies challenging. Due to the lack of guidelines for such situations, interdisciplinary discussion of both generalists and specialists is helpful to determine the optimal treatment course.

P158

Acute necrotising encephalopathy in a patient with influenza B - a rare complication in a common infectious disease

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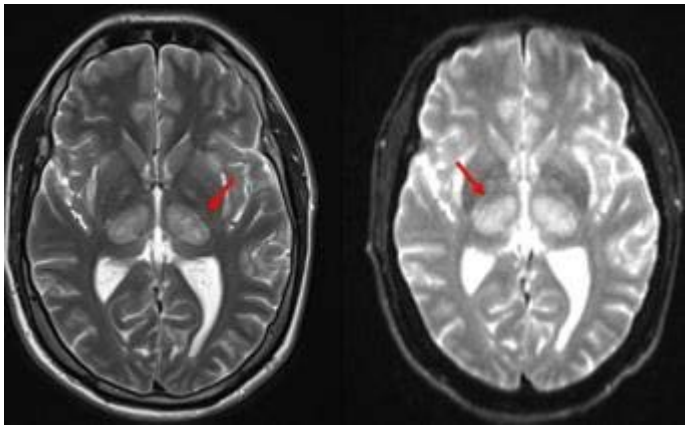
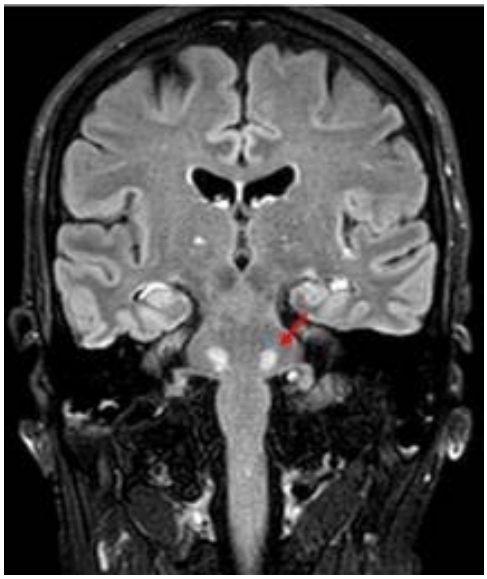
Learning objectives: Seasonal influenza is a common infectious disease. In Switzerland, consultations due to flu-like symptoms peaked in 2017/2018 with 3'950 cases per 100'000 inhabitants. However, rare neurological complications with variing severity from mild altered mental status to status epilepticus are described in association with influenza infections and summarised as influenza-associated encephalopathy (IAE). Acute necrotizing encephalopathy (ANE) is a specific neurological presentation described mainly in paediatric patients in Asia with bilateral symmetric thalamic, midbrain and/or hindbrain lesions occuring within days of an acute viral infection with influenza A, B or other viruses such as enteroviruses.
Case: A 40-year-old man presented with progressive headache for two days. He tested positive for influenza B in a nasopharnygeal swab. Laboratory findings demonstrated a slightly increased C-reactive protein (24 mg/L [<5]). A lumbar puncture revealed no abnormalities. The following night, the patient developed neurologic symptoms, i.e. altered mental status and unsteady gait. Contrast CT showed discrete symmetrical hypodensities in the basal ganglia. The patient's neurological condition rapidly deteriorated. We observed bilateral facial nerve paralysis, gaze palsy, increased muscle tone, abnormal flexion to stimuli to the extremities and bulbar symptoms (dysphagia, dysarthria). MRI revealed multiple necrotic lesions of the brain stem and the diencephalon (Fig. 1). These lesions combined with the clinical signs suggested ANE. The patient was treated with high-dose oseltamivir and, additionally, with aciclovir, corticosteroids and i.v. immunglobulins. Cerebrospinal fluid analysis obtained in a second lumbar puncture showed negative results in a meningitis/encephalitis PCR panel. One month later, an MRI detected partial regressive necrotic lesions symmetrical in both thalami and the pons (Fig. 2). Two months later, only dysarthria and logorrhoea persisted in neurologic clinical examination.
Discussion: We present a rare case of an acute necrotizing encephalopathy in an adult patient in Europe with headache, rapidly progressive neurological deterioration and pathognomic neuro-imaging. This case emphasises the importance of early diagnosis with MRI and exclusion of

other causes with lumbar puncture. Treatment with neuraminidase inhibitors should be initiated. The case underscores the importance of influenza vaccinations in all age groups.



[MRI: T2 (left) and FLAIR (right) with signal elevation and diffusion restriction in both thalami]



[MRI: T2 with symmetrical necrosis in the pons]

P159

A breathtaking competition

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Learning objectives: Swimming-induced pulmonary edema (SIPE) is a rare but important cause of acute respiratory distress in swimmers. The diagnosis is challenging since clinical manifestations are non-specific (haemoptysis, coughing and crackles). Management is usually supportive and a rapid complete resolution is a key feature of this entity.
Case: A 40-year old female was transferred to our hospital with acute dyspnoe. She was participating in a thriatlon competition when she developed dyspnoe and coughing during the swimming section. She continued swimming for a while before she had to give up. In the past she had completed other triathlons successfully and her past medical history was unremarkable. She was brought ashore for first aid. Initially, her oxygen saturation was 74%. The patient was immediately transported to our emergency department for further investigations. On admission, her oxygen saturation had already increased up to 92% under supportive measures. Clinical examination revealed bilateral crackles of the lung. Laboratory studies showed leukocytosis. The ECG was normal. The X ray revealed patchy perihilar consolidations. Non-invasive ventilation was initiated and the patient was observed at our intensive care unit. The next day her condition had significantly improved: Vital parameters had normalized, coughing was absent and the X ray findings had vanished. On day 3 she was asymptomatic and could be discharged home.
Discussion: SIPE is a type of immersion edema with a prevalence of 1-2% in triathletes. Its physiopathology is not yet completely clear, but it is suggested that immersion in water (extrinsic pressure) and cold exposure (peripheral vasoconstriction) result in an increase in central venous blood pooling and a subsequent elevation in cardiac preload. Recent studies have shown that these hemodynamic alteration -and not the consequence of altered permeability within the pulmonary capillary bed- result in fluid accumulation within the lungs. Acute treatment consists of oxygen supplementation, inhaled beta-2 agonists and diuretics. Full recovery is usually expected within 48 hours. Recurrence rate is rather high and found to be around 30%. In order to reduce pulmonary vascular resistance some studies suggested a benefit by oral sildenafil prior to the competition. Despite excellent prognosis, patients with SIPE should undergo extensive cardiopulmonary investigation should be informed about the likelihood of recurrence.

P160

Treatment patterns of acute migraine medication and migraine prophylaxis: a pharmacoepidemiological analysis prior to the introduction of calcitonin gene-related peptide antagonists

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Introduction: Migraine is one of the most common and highly disabling neurological disorders, which is often treated in primary care settings. Treatment with acute and prophylactic drugs is frequently associated with adverse effects or intolerances. Switzerland is the second country worldwide, where the newly developed calcitonin gene-related peptide (CGRP) antagonists - a novel treatment option for severe migraine - were recently launched on the pharmaceutical market. The present study quantifies the current burden and depicts associated treatment patterns of migraine drug use in daily practice, prior to the introduction of CGRP antagonists, which will impact current treatment strategies of severe migraine.
Methods: We used healthcare claims data from a large health insurance group in Switzerland, covering one million persons, to identify an adult cohort of migraine drug users, who received ≥1 triptan prescription in 2015/2016. Treatment patterns were defined by calculating subsequent triptan and prophylactic use (such as beta-blockers (BB) and topiramate) in 12 months (by quarter, Q1-4) after index-prescription.
Results: The patient sample comprised 10,090 triptan users (prevalence of 1.3%), with 82.6% using triptans only, 12.9% changing the therapy between triptans and prophylactics, and 4.5% combining both. For patients using prophylactics in addition to triptans in Q1, 48.6% received BB only, 40.7% other prophylactics than BB, and 10.7% combined both (BB, other prophylactics). About half (54.8%) of these “combi-users” had the drugs continuously across all quarters; among the BB users it was almost a third (30.2%). Among “combi-users”, 63.9% switched from one prophylactic drug to another multiple times within 12 months.
Conclusions: This population-based cohort study quantifies the population in potential need for new approaches for the management of migraine therapy. Patients who stopped prophylactic treatment shortly after prescription, indicate that the acceptance, benefit, or tolerance of these drugs may be limited in these patients. In contrast, users of combined prophylactics concurrently over a year, emphasizes the strong need for preventive medications. Describing the current treatment patterns in triptan and prophylactic users is important for future comparative evaluations after the introduction of CGRP antagonists. This may be helpful for developing future treatment recommendations of migraine patients in the primary care setting.

P161

Tuberculous meningitis

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Learning objectives: Tuberculous meningitis (TBM) is the most severe form of tuberculosis leading to death in almost 100% if left untreated. Particularly amongst elderly people the symptoms are nonspecific and

heterogeneous. Due to the low bacterial load in the cerebrospinal fluid (CSF) Ziehl-Neelsen staining demands a large volume of CSF and culture results are often negative and delayed. Therefore, a high index of suspicion is required to diagnose TBM.

Case: An elderly but sprightly female patient was referred to our hospital for treatment of a symptomatic urinary tract infection. Despite empiric antibiotic therapy with ceftriaxone vigilance decreased progressively followed by an epileptic seizure.

Cerebrospinal fluid was clear containing 126/µl white blood cells with relative monocyte predominance (85%). Serum levels of lactate, glucose and protein were 7.7 mmol/L,1 mmol/L and 2097 mg/l, respectively, indicating a serious barrier disturbance (Tab.1). PCR analysis and blood culture of eligible pathogens were all negative. A second liquor examination showed significantly increased cell count and lactate levels strongly suggesting a bacterial infection.

We expanded the broad-spectrum antibiotic therapy by adding acyclovir and amoxicillin to concomitant epileptic therapy. Brain imaging showed a hydrocephalus and an acute subcapsular ischemic stroke in the left hemisphere. The EEG results were abnormal. Blood laboratory exhibited a newly occurred hypoosmolar hyponatremia.

Extended pathogen diagnostics finally identified Mycobacteria tuberculosis in a PCR-based analysis. There was no coinfection with HIV. Pulmonary tuberculosis was suspected and subsequently diagnosed via suggestive CT scan followed by bronchoscopy with a positive PCR-result in the tracheal secretion. We established a combined therapy with Rimstar® via gastric tube in combination with vitamin B6 and high doses of dexamethasone, intravenously. Unfortunately, vigilance of the patient did not improve and she died.

Discussion:

TBM remains a fatal disease with increased risk of irreversible neurological damages and high mortality even with appropriate therapy. Early detection is challenging as culture results from the CSF are insensitive. Use of DNA amplification techniques by multiplex and nested PCR exhibit high grades of sensitivity (98%) and specificity (92%) with a positive predictive value of 88% and should be recommended to facilitate early diagnosis and treatment.

Qualities	Unit	*1*	*2*	*3*
Date		06.12.2018	12.12.2018	14.12.2018
Colour		Clear	Xantho-chromic	Clear
Cell count	*/µl*	126	786	454
Glucose	*(mmol/l)*	1	1.7	2.8
Lactate	*(mmol/l)*	7.8	12.8	11.7
Protein	*(mg/l)*	2097	3554	2698

[Tabular comparison of the repeated liquor results]

P162

Chronic diarrhea caused by Zollinger-Ellison syndrome

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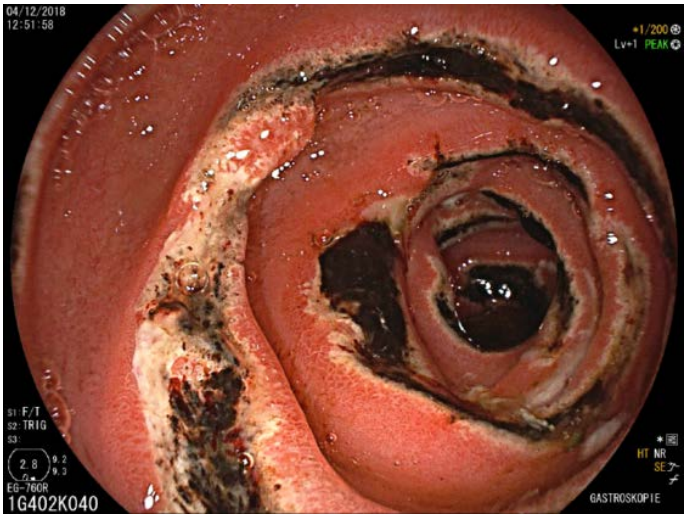
Learning objectives: Zollinger-Ellison syndrome (ZES) is a rare neuroendocrine tumor that secretes gastrin resulting in gastric acid hypersecretion and consecutive severe acid-related peptic ulcer disease and diarrhea. It most frequently occurs sporadically but in 20-30% it is diagnosed in association with multiple endocrine neoplasia type 1 (MEN1).[1]

Case report: A 55-year-old male patient was referred to our hospital due to acute kidney injury, diarrhea and vomitus. The patient has had a ten year history of diarrhea. The etiology remained unclear despite of prior broad diagnostic evaluations (normal stool levels of calprotectin and elastase, unremarkable stool cultures, normal colonoscopy five years ago). Solely an upper endoscopy 5 years ago had shown minimal gastric and duodenal erosions and hypolactasia. The patient received Pantoprazole 40mg qd since 2011 which was discontinued shortly prior to admission. The upper endoscopy revealed severe, necrotic ulcerations located in the jejunum, the duodenal bulb and the oesophagus and Zollinger-Ellison syndrome was suspected. Fasting-gastrin-level was 1330 ng/l. (Reference <115ng/l). On hospital day eight the patient had emergency surgery for perforated proximal jejunum ulcerations. High dose PPI (esomeprazole 40mg tid) was administered and led to almost complete healing of intestinal ulcers and complete remission of diarrhea. Endoscopic ultrasound revealed a hypoechogenic lesion of approximately 10 mm diameter in the cauda of the pancreas. A Ga-DOTATATE PET-CT showed positivity adjacent to the duodenum pars two and in the splenic sinus, interpreted as lymph node metastasis. There was no evidence of liver metastasis or for MEN I. In summary we diagnosed a sporadic case of ZES with lymph node metastases.

Discussion: Patients with severe peptic ulcers and especially with ulcers distal to the duodenum and/or chronic diarrhea that can't otherwise be explained should undergo evaluation for ZES. fasting gastrin level >10 times the upper limit of normal in the presence of a gastric pH <2 is diagnostic for ZES. Measurement of the gastric pH is important to exclude secondary hypergastrinamia due to achlorhydria. In patients with elevated gastrin levels that are not diagnostic secretin stimulation test is recommended[1]. Symptoms can often be controlled with high-dose PPIs and prognosis can be improved relevantly as up to 50% of patients with sporadic, non-metastatic ZES can be cured by surgery.[2]



[Figure 1: Extensive ulcerations in the upper jejunum due to Zollinger-Ellison-syndrome]

P163

Probability of target attainment with flucloxacillin in *Staphylococcus aureus* bloodstream infection: a prospective cohort study of unbound plasma concentrations and individual MICs

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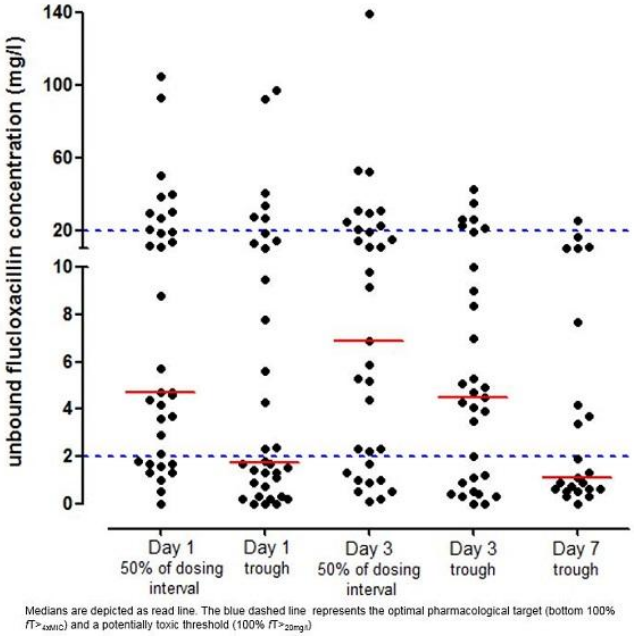
Introduction: Methicillin-susceptible Staphylococcus aureus bloodstream infection (MSSA-SAB) is associated with considerable mortality despite immediate treatment with β-lactam antibiotics. Contemporary data regarding the pharmacology of flucloxacillin, a highly protein bound anti-staphylococcal antibiotic, are scarce. The purpose of this ongoing study is to document the probability of pharmacological target attainment with standard intermittent bolus administration of flucloxacillin using individual minimal inhibitory concentrations (MIC) in patients with MSSA-SAB.

Methods: 34 MSSA-SAB patients were prospectively enrolled in a Swiss tertiary care center. Total and unbound flucloxacillin concentrations were measured using a validated LC-MS method at five time points during the first week, and oxacillin MICs of all strains were determined by Etest®. Target attainment ($fT_{>individual\ MIC}$) and associated factors were analyzed.

Results: Median age and SOFA score on admission were 63 years and 3, respectively, and 61.8% were admitted to the ICU. Median MIC of S. aureus strains was 0.5mg/L.

The probability of minimum, optimal and maximum target attainment at all time points were 91.2% (50% $fT_{>MIC}$), 67.6% (100% $fT_{>MIC}$) and 35.3% (100% $fT_{>4xMIC}$), respectively, and 17.6% had at least one trough level >20 mg/L (in the potentially toxic range). The unbound fraction showed a wide inter-individual (median 13.3%, range 2.8-64.7%) but not intra-individual variation (p = 0.6), and correlated positively with the SOFA score, lactic acid and respiratory rate, and negatively with renal function, platelet count, and albumin on admission (p <0.05). Optimal target achievement was significantly associated with more severe disease (ICU admission, higher PITT baceteremia score and lower systolic blood pressure on admission) and a higher daily flucloxacillin dose (12 vs. 8 gramm).

Conclusions: The unbound plasma fraction of flucloxacillin is substantially higher in MSSA-SAB patients (range 3-65%) than reported for healthy individuals (range 2-8%), in particular in patients with impaired renal function and more severe disease. The proportion of patients not achieving the optimal pharmacological target was significant, as was the proportion with excessive flucloxacillin concentrations. Therefore, therapeutic drug monitoring of unbound flucloxacillin concentrations in MSSA-SAB is desirable.



[Figure 1. Unbound flucloxacillin plasma concentrations during the first week of treatment.]

P164

Bilateral Horton´s arteritis

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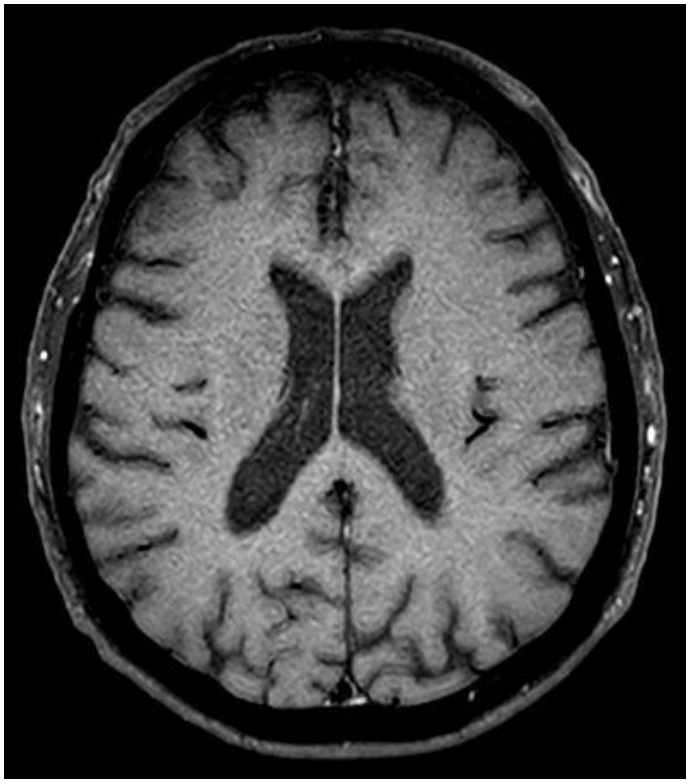
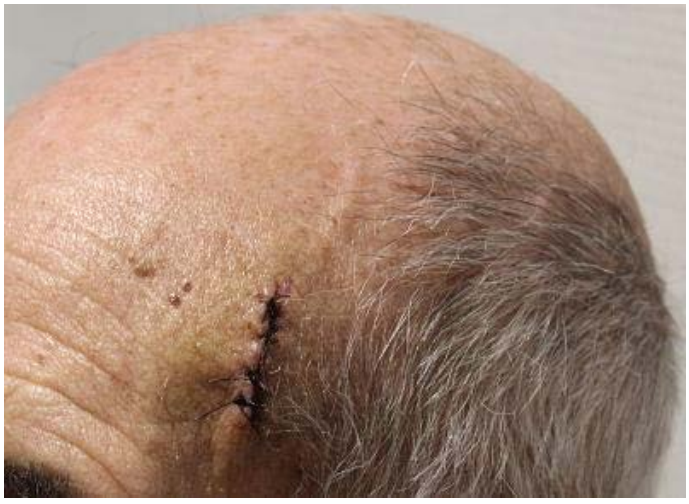
Learning objective: Atypical clinical case lead to use alternative exams to help for Horton´s arteritis diagnosis.

Case: We report the case of a 81-year-old man sent to the emergency unit for new frontal headache, jaw pain and persistent fever >38.5° since 3 weeks, associated with tiredness and anorexia. At admission neurological examination was normal. Laboratory investigations: leukocytes 12 G/L (neutrophils 9.7 G/l, lymphocytes 1.0 G/L, eosinophils 0.02 G/l), CRP 154mg/l, elevated sedimentation rate (ESR) 82 mm/h, Hb 121 g/l, ASAT 21 U/l, ALAT 29U/l, creatinine 72µmol/l, urine sediment with non glomerular hematuria and proteinuria. Symptomatic treatment was introduced with clinical observation. Because of persistent headache with fever and high CRP and ESR, cerebral IRM was performed, showing bilateral inflammation of temporal arteries, occipital arteries and subcutaneous soft tissues with parietal contrast enhancement. This result, associated with clinical symptoms and high value of ESR, lead to the suspicion of bilateral Horton arteritis, reflected by a positive ACR (American College of Rhumatology) score of 3/5 points (1). Ophthalmic neuropathy was ruled out. Rheumatoid factor and Lyme serology were negative. The histology of left temporal artery biopsy showed a florid arteritis. Negative ANCA measure, non glomerular hematuria and absence of arteritis signs on chest-abdominal CT angiography ruled out systemic vasculitis. We retained the diagnosis of bilateral Horton arteritis. Oral corticotherapy 0.5mg/Kg was started. The evolution was characterized by the regression of headache, loss of fever and normalization of CRP value.



[Bilateral Horton's arteritis]



[Left temporal artery]

Discussion: Horton syndrome is the most common arteritis in men aged >50 ans. Because of the broad spectrum of clinical and laboratory abnormalities, diagnosis is often difficult. Even if temporal artery biopsy has long been the gold standard for reliable diagnosis, contrast-enhanced brain IRM allows noninvasive assessment for inflammation of blood vessels in Horton's arteritis with good diagnostic certainty (2).

1. Hunder GG, Bloch DA, Michel BA, Stevens MB, Arend WP, Calabrese LH, et al. The American College of Rheumatology 1990 criteria for the classification of giant cell arteritis. Arthritis Rheum. août 1990;33(8):1122-8.
2. Bley TA, Uhl M, Carew J, Markl M, Schmidt D, Peter H-H, et al. Diagnostic Value of High-Resolution MR Imaging in Giant Cell Arteritis. Am J Neuroradiol. 1 oct 2007;28(9):1722-7.

P165

Stroke awareness in eastern Switzerland - The STRAW-II-survey

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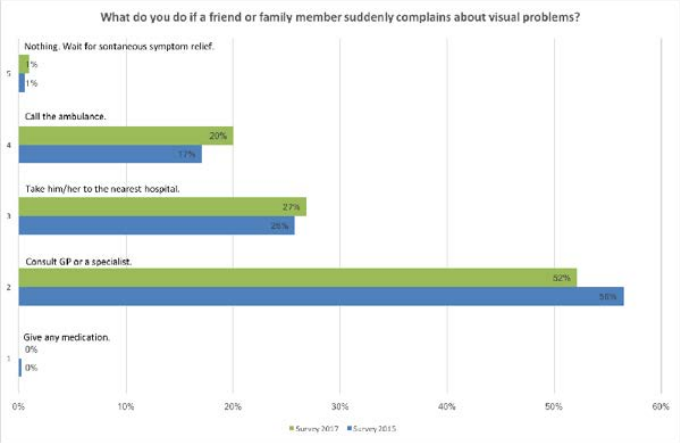
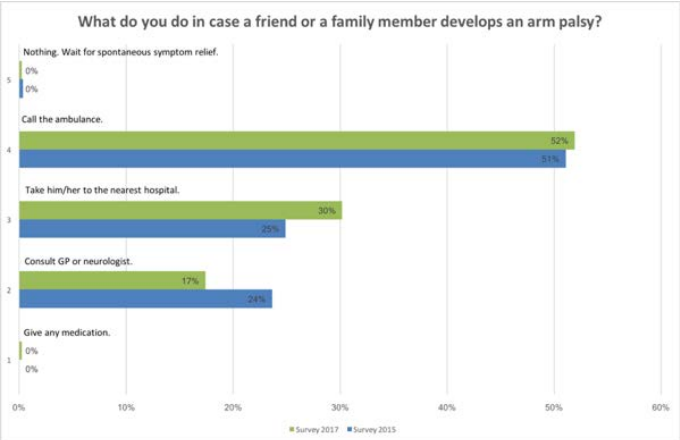
Introduction: Today there are efficient therapeutic options available leading to good functional outcomes and quality of life for patients suffering ischemic stroke. As “time” is one of the most relevant factors for a successful treatment, knowledge about stroke symptoms and immediate measures in case of an emergency situation is crucial for patients.
The aim of STRAW-II was to assess the knowledge about stroke symptoms and treatment in a rural population in Eastern Switzerland after a public campaign aiming at improvement of stroke awareness.
Methods: The survey was conducted from April to June 2017 in 12 different local GP offices. The questionnaire consisted of exactly the same 9 questions as in the 2015 survey.
Results: 405 people (169 men, 236 women) aged between 18 and 71 years took part in the survey. The distribution of age and educational level was comparable to 2015.
Our results show quite a good knowledge in a randomly chosen population as far as common stroke symptoms are concerned, except for eye symptoms. The intention to call the ambulance is fairly high. On the other hand, knowledge about acute stroke treatment is rather poor. The results differ only slightly from those obtained in 2015.
Conclusion: Despite public campaigning to improve people´s knowledge about stroke symptoms and the need for a quick referral to a specialized stroke center, the 2017 results show almost no difference when compared to those obtained in 2015. These findings are sobering and question the effectiveness of public campaigning.



[What to do in case of visual problems 2015 vs. 2017.]



[What to do in case of an arm palsy 2015 vs. 2017.]

P166

Changes of metabolic parameters in participants of a structured T2DM education program (KOMEKON)

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Introduction: Since 2011 the PizolCare managed care network is delivering an education program to patients with recently diagnosed type-2-diabetes mellitus in a rural, partly urban type settlement region of Eastern Switzerland. This program called KOMEKON consists of 12 hours of practical group education and - for reasons of sustainability - consecutive refresher courses, which are held three times per year. We wanted to know, how blood sugar levels, HbA1c, body weight, blood pressure and cholesterol levels developed in participants one year after they attended KOMEKON.
Methods: After obtaining informed consent from 100 participants we asked their GP's to report the current values for fasting blood glucose, HbA1c, body weight, blood pressure, LDL and HDL cholesterol one year after the participants concluded KOMEKON. The response rate was 70%. We then performed a statistical analysis using MS Excel for Mac version 15.33 and the Omni Calculator (www.omnicalculator.com) to compare the different parameters before and one year after KOMEKON.
Results: The baseline characteristics are described in table 1. Mean fasting glucose levels and HbA1c changed from 9.7mmol/l to 7.3mmol/l (CI 95%: 1.02, 0.54; p = 0.0007), and from 8.1% to 6.6% (CI 95%: 0.40, 0.14; p <0.0001), respectively. The mean BMI initially amounted to 32.0kg/m^2. One year after KOMEKON it was at 31.5kg/m^2 (CI 95%: 1.14, 1.44; p = 0.53, ns). Mean blood pressure changed from 137/83 to 136/80 mmHg (CI 95% for diastolic BP: 1.6, 2.1; p = 0.03). The mean HDL and LDL levels were at 1.3mmol/l and 3.0mmol/l before KOMEKON. One year after they remained unchanged at 1.3mmol/l, 2.9mm0l/l (p >0.05, ns), respectively.
Conclusion: Participating in a structured educational program for patients with recently diagnosed type-2-diabetes led to a significant improvement of fasting blood glucose and HbA1c-levels, as well as diastolic blood pressure. However, body weight, systolic blood pressure, LDL and HDL cholesterol levels were unaffected. In conclusion training type-2-diabetics within the KOMEKON education program showed a very promising outcome regarding glycemic control and blood pressure and a trend towards lower body weight after one year.

Patients (f 62, m 38)	**100**
Age (y)	61
Diabetes duration (y)	3.5
BMI (kg/m2)	32
BP syst (mmHg)	137
BP diast (mmHg)	83
HbA1c (%)	8.1
Fasting glucose (mmol/l)	9.7
HDL (mmol/l)	1.3
LDL (mmol/l)	3.0

[Table 1: Baseline characteristics (mean values).]

P167

Combined hypopuitarism caused of an acute myelocytic leukemia

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Learning objective: Case history and clinical examination are still the keys to diagnosis. However, even if a syndrome is found and the patient is getting better with acute treatment, it is worth finding out the possibility of an underlying disease.
Case report: A 72 year old male patient was assigned by his family doctor with acute polydipsia and polyuria. He drank 6l per day and lost 6kg weight. All this started 3 days ago with explosive frontal headache, which is no longer present.
In his past history there was an unprovoked pulmonary embolism half a year ago. Apart from that the patient was never in a hospital and always healthy.The clinical examination revealed a dry patient with viscous sputum and enoral coverings as part of an oral fungal infection.
In the laboratory blood analysis especially a bizytopenia (anemia and thrombocytopenia), hypernatremia (152 mmol/l) and a low TSH in normal free thyroid hormones were noticed. The urine examination showed a massive hypoosmolality (101 mosml/l).
The case history and clinically examination combined with blood and urine analysis were highly suggestive for the diagnosis of a diabetes insipidus. A water deprivation test was carried out, which was compatible with this diagnosis.
An initial MRI of the entire neurocranium was unremarkable. A targeted picture of the pituitary gland with better resolution revealed an process in the sella and suprasellar, primarily centered on the infundibulum. Futhermore we saw blasts in the blood smear, a bone marrow puncture releaved an acute myelocytic leukemia, ongoing from a myelodysplastic

syndrome. Later on, in the patient with increased fatigue and fever without a focus a deep morning cortisol was observed, so we found a secondary adrenal insufficiency and a secondary hypothyroidism.
Summarized the findings revealed a combined pituitary insufficiency involving the ADH, thyroid and adrenal axis. After hormone replacement the patient was asymptomatic. If the pathogenesis of the pituitary insufficiency is a direct infiltration of the blast-cells or an autoimmune reaction to the leukemia has to be discussed. We didn`t performe a biopsy of the pituitary gland.
Discussion: The pituitary insufficiency of both glands is very rare. It is very important to look for haematological malignancy or autoimmune processes. This case illustrates the workup of such patients is important. Furthermore initially independent diagnosis are in relationship in the evolution of a disease

P168

Disseminated intravascular coagulation as a complication of invasive meningococcal infection - a case report

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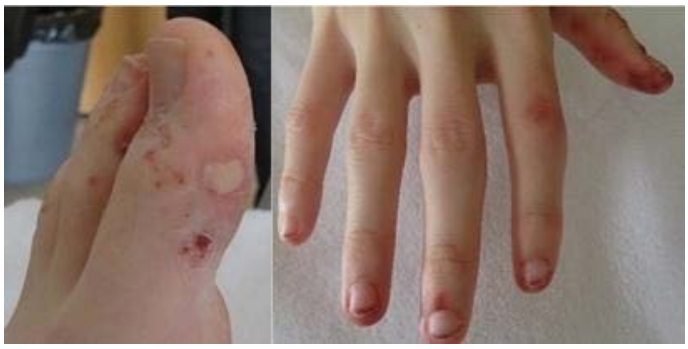
Kantonsspital Uri, Innere Medizin, Altdorf, Switzerland

Learning objectives: Septic shock with disseminated intravascular coagulation (DIC) is a frequent complication of meningococcemia and coincides with high lethality. Effective treatment of DIC is discussed controversially in the literature. However, early initiation of antibiotic treatment is the major determinant of a good outcome in underlying infective disease.
Case: A 18-year-old patient presented with sudden onset of acute vomiting, abdominal pain, headache and altered mental status. Clinical examination showed hypotension (78/52 mmHg), tachycardia (100/min), normal temperature (36.4 °C), cyanotic and poorly perfused extremities with petechia and nuchal rigidity. After obtaining blood cultures, antibiotic treatment with ceftriaxon was immediately started. Laboratory findings indicated acute DIC with activated coagulation, fibrinolysis und thrombocytopenia (prolonged prothrombin time 21% and aPTT 149 sec, low platelets 11x10^9/L, low fibrinogen <0.40 g/L, elevated D-dimer >20.00 ug/ml). Furthermore, laboratory tests suggested a current infection (CRP 156 mg/L, lactate 8.7 mmol/L), acute renal failure (serum creatinine 315 umol/L) and acute hepatopathy (ASAT 347 U/L, ALAT 439 U/L). Due to the low platelet count, no lumbar puncture was performed. A cerebral CT scan revealed no abnormalities. Further treatment included dexamethasone, aggressive fluid replacement, platelet transfusions and coagulation factors to reduce the risk of bleeding. Nevertheless, the patient developed microthrombotic lesions in his toes and fingers (see Figure 1). Subsequently, positive blood cultures for *Neisseria meningitidis* (serogroup W) confirmed the diagnosis of Waterhouse-Friderichsen Syndrome due to meningococcal infection. Within days of treatment laboratory findings revealed normal tests for coagulation and the clinical status of the patient improved.
Discussion: We report a case of a invasive meningococcal disease with disseminated intravascular coagulation (DIC) and multi-organ failure. Early initiation of antibiotic treatment in patients with suspicion of meningococcal infection is essential and should not be delayed by diagnostic testing. Clinical features of meningococcal infections range from classical meningitis signs and symptoms (fever, headache, photophobia, nuchal rigidity) to the cutaneous lesions as seen in the present case due to coagulopathy. Subsequent to a invasive meningococcal infection, evaluation of immunodeficiency and vaccination are recommended.



[Figure 1: Microthrombotic lesions on toes and fingers.]

P169

Cross-sectional validity and specificity of comprehensive measurement in lymphedema and lipedema of the lower extremity: a comparison of five outcome instruments

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RehaClinic Bad Zurzach, Forschung, Bad Zurzach, Switzerland

Background: Literature about validity of outcome measurement in lymphedema and lipedema is very sparse. This study aimed to examine convergent, divergent and discriminant validity of a set of five instruments in both conditions.
Methods: Cross-sectional outcome was measured by the generic Short Form 36 (SF-36), the lymphedema-specific Freiburg Quality of Life Assessment for lymphatic disorders, Short Version (FLQA-lk), the knee-specific Knee Outcome Survey Activities of Daily Living Scale (KOS-ADL), the Symptom Checklist 90-revised (SCL 90R), and the 6 minute walking test (6MWT). Construct con-/divergent validity was quantified by bivariate correlations and multivariate factor analysis; discriminant validity by standardized mean differences (SMD).
Results: Health was consistently better in lymphedema (n = 95) than in lipedema (n = 80). Highest construct convergence was found between the SF-36 and the KOS-ADL in physical health (bivariate correlations up to 0.80, factor loads up to 0.88, explained variance up to 60.1%). The second most important factor was mental/psychosocial health with both scales of the SCL-90R, SF-36 Mental health and FLQA-lk Social life (analogue parameters: 0.83, 0.81, 14.6%). Highest discriminant validity showed pain on the SF-36 and the FLQA-lk (adjusted SMD = 0.74 for both) followed by SCL-90R Interpersonal sensitivity (adjusted SMD = 0.44) and KOS-ADL Function (adjusted SMD = 0.38).
Conclusions: All five instruments have specific strengths and can be implemented according to the scope and aim of outcome examination. A minimal measurement set should comprise: SF-36 Bodily pain, SF-36 Vitality, FLQA-lk Physical complaints, FLQA-lk Social life, FLQA-lk Emotional well-being, KOS-ADL Symptoms, KOS-ADL Function, and SCL90R Interpersonal sensitivity.

P170

Cross-sectional and longitudinal validity of physical function scales in the outcome measurement of chronic low back pain

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[1]RehaClinic Bad Zurzach, Forschung, Bad Zurzach, [2]Institut für Psychologie, Universität Bern, Bern, Switzerland

Background: Functional impairment is seen as the leading consequence of chronic low back pain. Consequently, measurement of physical function is important for outcome quantification. The study aimed to determine the validity and specificity of various scales measuring physical function.
Methods: In a prospective cohort study, chronic low back pain patients were measured at baseline (before) and after a specific, 4 week interdisciplinary pain management program by the Short Form 36 (SF-36), the Multidimensional Pain Inventory (MPI), the Oswestry Disability Index (ODI), the Back Performance Scale (BPS) and the 6 minute Walking Distance test (6WD). Cross-sectional and longitudinal construct validity was quantified by bivariate correlations and with use of factor analysis. Specificity was examined by comparing effect sizes (ES).
Results: Patients (n = 142) were on average 44.9 years old (SD = 11.8) and 61.0% were female. Cross-sectionally, only few bivariate correlations between the function scales reached moderate levels (maximum: r = 0.67 between SF-36 physical functioning and the 6MD). In the multivariate analysis, the factor “physical function” ranked only on the second position (29.4% explained variance) behind the “psychosocial” factor (36.5%). On that, the SF-36, the BPS and the 6WD, but not the MPI nor the ODI showed high factor loads (>0.80). Longitudinally, all correlations between function scores were low to moderate (maximum: r = 0.45 between MPI interference with pain and ODI). Consistently, the highest explanatory factor was “pain and interference” (25.0% explained variance), on which MPI interference with pain and the ODI loaded maximal together with MPI pain severity (factor loads ≥0.72). The MPI interference with pain (ES = 0.61) and the BPS (ES = 0.41) were the most responsive function scales.
Conclusions: Overall, construct overlap of physical function scales was moderate to weak. The construct of physical function explained less variance of state and change of health in chronic low back pain than the

psychosocial domain. On the condition-specific instruments, namely the MPI interference with pain and the ODI (function), the simultaneous inclusion of responses about pain blurs the construct of specific function content. In contrast to those, the generic SF-36 (physical functioning) showed highest functional specificity and construct overlap to the functional performance tests.

P171

Treatment of rhabdomyolysis: curative role of the surgeon?

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Learning objective: to recognize the association between malignancy and immune-mediated necrotizing myopathy
Case: A 80-year old male patient was admitted to our emergency department with painless jaundice, recent weight loss and asthenia. Examination showed a patient in reduced physical condition and with yellowish pigmentation of skin and sclerae. Laboratory tests were remarkable for an elevation of alkaline phosphatase, gamma-glutamyltransferase and total bilirubin. Computed tomography and subsequent brush cytology of the common hepatic duct confirmed the presence of an adenocarcinoma of the pancreatic head. After placement of a biliary stent, cholestatic parameters declined to normal. Few days later, the patient developed symmetrical, proximal muscle weakness and myalgias. Blood analysis showed highly elevated levels of aminotransferases (AST 1763 U/l, normal <40 U/l; ALT 955 U/l, normal <41 U/l) and creatine kinase (92'573 U/l, normal <190 U/l), consistent with the diagnosis of rhabdomyolysis. Transabdominal ultrasonography was unremarkable. Muscle biopsy from the left tigh (M. vastus lateralis) showed necrotizing myopathy with necrotic muscle fibers suggesting immune-mediated necrotizing myopathy, probably of paraneoplastic origin. Treatment with glucocorticoids resulted in prompt clinical improvement. CK levels, however, remained persistently elevated. Complete resolution and sustained clinical response of immune-mediated necrotizing myopathy was achieved by surgical resection of the primary tumor.
Discussion: Immune-mediated necrotizing myopathy in the context of malignant diseases is rare but has been described as paraneoplastic disorder. In our case, complete resolution of symptoms and signs of rhabdomyolysis following resection of the primary tumor is suggestive for paraneoplastic rhabdomyolysis. Highly elevated levels of aminotransferases remind that both AST and ALT can be released from extrahepatic muscle tissue.

P172

Diabetic ketoacidosis with normal blood glucose in fasting patients treated with SGLT-2-Inhibitors while in hypovolaemic state

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Learning objectives: Patients with regular medication of SGLT2-Inhibitors could develop a severe ketoacidosis with normal blood glucose especially in patients with hypovolaemia and reduced intake of glucose.
Case: A 85-year-old woman was transferred to an acute geriatric unit after a hip fracture with surgical gamma nail implantation five days ago. Her general condition had been decreasing constantly since the operation; she ate and drank hardly anything the last days due to increasing nausea. In the clinical examination the patient seemed to be severely hypovolemic, she showed tachypnea together with low blood pressure and GCS was reduced to 9/15. Oliguria was noticed. There were no arguments for bleeding nor for sepsis.
A blood gas analysis showed a severe non-lactic metabolic acidosis with pH of 7.17 and a bicarbonate level of 6.4 mmol/l. Glucose level was 10.3mmol/l. Urin analysis showed strongly positive for ketone bodies.
The patient's history showed a type 2 diabetes mellitus. Whilst metformin had been stopped perioperatively, the SGLT2-inhibitor Empagliflocin was continued.
We inserted a central venous catheter in inguinal position and started with continuous administration of fluids, including sodium bicarbonate and potassium supplementation. The Acidosis was slowly corrected and a parenteral nutrition was started due to ongoing treatment-resistant nausea. With restitution of normovolemia and correction of acidosis, the level of consciousness and general condition improved.
Discussion: We describe a case of severe euglycaemic ketoacidosis under perioperatively ongoing SGLT2-inhibitor therapy in an orthopaedic surgery. Several cases of diabetic ketoacidosis with normal blood glucose in patients with type 2 diabetes and SGLT2-inhibitors while starving and/or in hypovolaemic state have been described. The pathomechanism is not fully understood today but could be related to lowering of the blood glucose and subsequently low insulin and increased glucagon levels which induces lipolysis and ketonaemia. Therefore patients with SGLT2-inhibitors in peri- and postoperative situations with risk factors like hypovolaemia due to blood loss and low glucose intake are at risk for this severe complication. There is need for further research, in the meantime it is prudent to withhold this medication in situations with the described risk factors.

P173

Unstable angina pectoris due to hyperviscosity syndrome testosterone induced secondary polycythemia

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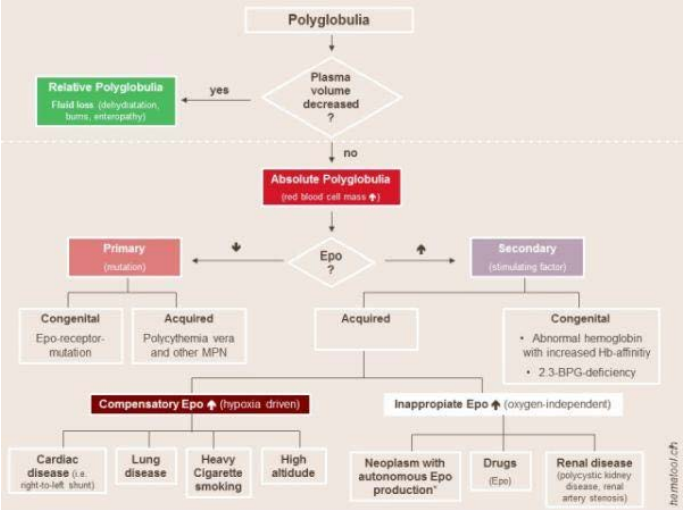
Learning Objective: Unstable angina pectoris can be seen in the context of an hyperviscosity syndrome as a complication of long-term testosterone substitution.
Case report: A 58-year old, active smoker (18 pack years) presented to the emergency department with unstable angina pectoris and dyspnoe on exertion as well as hyposensibility of his left hand. His medical history was positive regarding valvular heart disease but negative regarding coronary artery disease. Otherwise liver transplantation had been performed in 2007 due to hepatocellular carcinoma. The initial laboratory assessment showed a slightly elevated troponin T without relevant dynamic (@presentation 14ng/l, @3hours 18ng/l), and a hemoglobin level of 182g/l. The electrocardiogram showed no ST-elevation. Exercise testing revealed an impaired left ventricular ejection fraction of 39% and relevant diffuse ischemia. However, coronary arteriography did not show a relevant stenosis as an explanation of ischemia. Pulmonary workup showed only mild obstruction with normal HbCO. In consequence, we assumed that polycythemia was the main driver of myocardial hypoperfusion/ischemia. Further workup on the cause of polycythemia revealed a normal level erythropoietin (EPO). JAK2-V617F (exon 14) a driver mutation of polycythemia vera- was negative. Neoplasms with autonomous EPO production and renal disease as secondary causes could be excluded, however the patient eventually confessed to self-substituting testosterone subcutaneously for better performance at sports and treating signs of depression. Testosterone level was elevated at 33.5nmol/l (norm 6.7 - 25.7noml/l). Chest pain and dyspnea quickly resolved after several phlebotomies.
Discussion: Hyperviscocity syndrome with pulmonary or coronary symptoms can occur from changes of cellular or protein fractions of the blood such as it is found in polycythemia. Latter can be caused by primary or secondary causes, and a systematic workup including a detailed drug history is essential. Polycythemia after long-term testosterone substitution is a known side effect and well described . It is believed that testosterone leads to an elevated EPO- level that induces polycythemia but there might be an EPO independent stimulation as well. One should keep in mind that testosterone substitution is increasing, and is also used outside professional sports. Hence, testosterone use should be actively enquired in the medical history, even in non-athletic patients.



[Polycythemia: Diagnostic algorithm]

P174

Successful treatment of cryptogenic inflammatory bowel disease with corticoids, pentasa (5-aminosalicylic acid) and entocort

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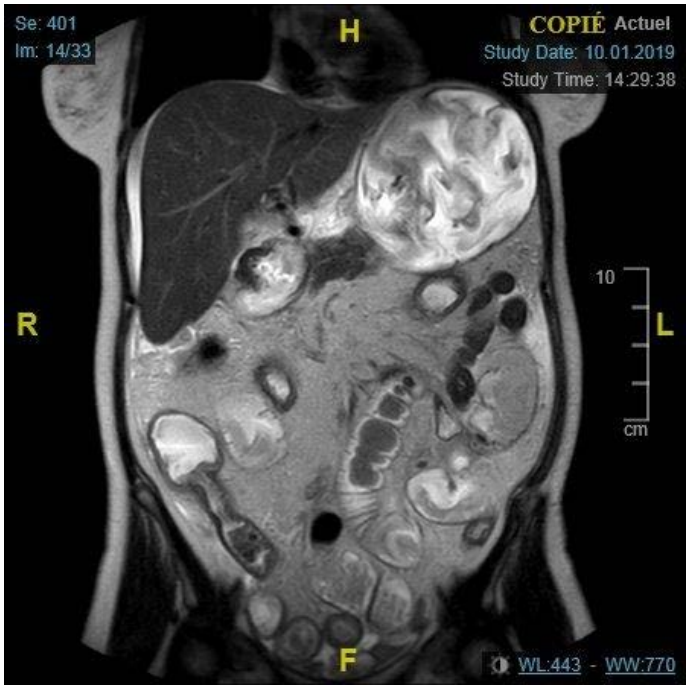
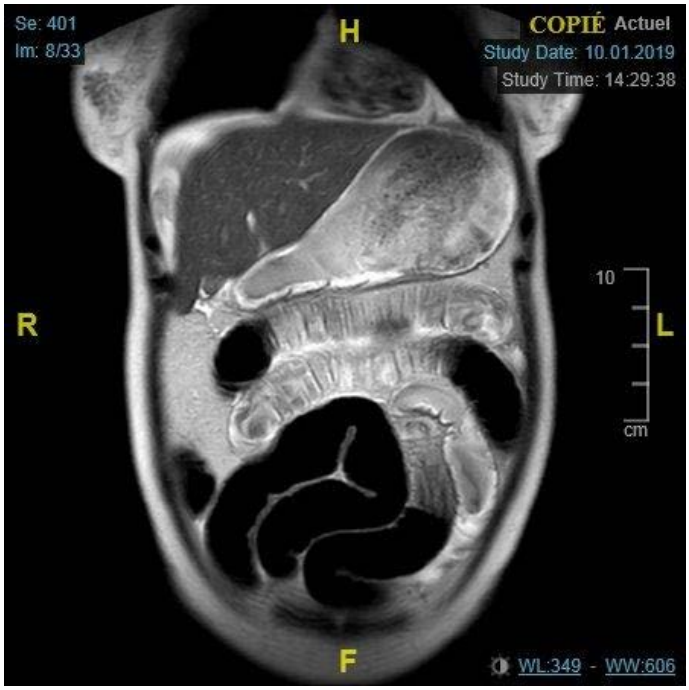
Introduction: Young 46 year old patient in good health, active smoker. Clinical presentation with asthenia, inappetence, diarrhea of several episodes per day associated with mild cramp-type abdominal pain and weight loss of 7 kg in 3 weeks without other associated symptoms. Progressive symptoms for about three months. Clinical condition mild diffuse abdominal pain with defense without relaxation. Abdominal noise decreased in frequency and tone.
Additional tests: Blood test: CRP 344 mg/l, and leukocytosis 16.8 g/l, fecal calprotectin more than 18.000 µg/g , and negative stool PCR.
MRI-abdominal: small ileus interesting especially the ileum with dilated loops about 3.6 cm in diameter and an impression of a stenosis at the junction ileocecal possibly responsible for part of the ileus. Clear contrast of the last ileal loop that can be part of an inflammatory bowel disease. Large amount of free liquid in this context, no visual air. Image of a gastroparesis in this context with a stomach filled with Mannitol.
Colonoscopy:strong suspicion of Crohn´s disease with multiple ulcerations between 70 and 20 cm from the anal margin.
Colon biopsy: histological appearance that may be compatible with Crohn´s disease, but it is not specific.
US-abdominal control during hospitalization for clinical and radiological follow-up avoiding irradiation of the patient showing moderately stenosing inflammatory thickening of the last ileal loop with some dilated loops, measured at 27mm in diameter. Ascites of very low abundance in inter-anse and at the cul-de-sac of the Douglas.
Conclusion: Under Solumedrol a clinical evolution is favorable. Then introduction of Pentasa and Entocort the patient presents a rapidly favorable evolution with stool formed, more abdominal pain and starts to feed well. The patient leaves our service under Pentasa and Entocort very satisfied. An outpatient follow-up is to be performed regularly at the gastroenterologist´s consultation.



[MRI-abdominal]



[MRI-abdominal]

P175

Association between lifetime cumulative and current marijuana use and major or minor electrocardiographic abnormalities by middle age

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Introduction: With increasing legalization for recreational and medical use, concern about possible health effects of marijuana is rising. Though its use has not been associated with an increased risk of cardiovascular

disease (CVD), we need to know if there is an association between marijuana use and subclinical CVD that might translate later in increased CVD incidence. ECG abnormalities are markers of subclinical CVD. We aimed to assess the association between marijuana use and ECG abnormalities in a large, long-term prospective study.
Methods: We used data from the Coronary Artery Risk Development in Young Adults (CARDIA) Study, a cohort of Black and white women and men aged 18-30 years at baseline in 1985-86 and followed over 20 years. ECGs were recorded at baseline, at the Year 7 and 20 examinations and abnormalities were coded as major or minor according to the Minnesota Code Manual of Electrocardiographic Finding. We computed lifetime cumulative years of exposure to marijuana and assessed current exposure in the last 30 days with repeated assessments of marijuana use collected at 2-5-year-intervals. We explored the association between ECG abnormalities at Year 0, Year 7, and Year 20 and current and cumulative marijuana use in separate multivariate adjusted logistic regression models, accounting for demographics, cigarette and alcohol use, physical activity and BMI.
Results: Of the 5,115 participants at baseline, 5,081 had an ECG at Year 0, 3,708 at Year 7, and 2,586 at Year 20. At Year 20, 1,867 (72%) reported past marijuana use and 282 (11%) current use. Major abnormalities were present in 171 (7%) and 936 (36%) had minor abnormalities. In multivariate-adjusted models, we found no association at any exam between lifetime cumulative or current marijuana use and ECG abnormalities. Results did not change after stratifying by sex and race.
Conclusion: In a middle-aged population, lifetime cumulative and current marijuana use are not associated with major or minor ECG abnormalities.

P176

Association between prolonged current and cumulative marijuana use and heart rate. The coronary artery risk development in young adults (CARDIA) study

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Introduction: Lower heart rate has been associated with lower risk of cardiovascular disease (CVD) in prospective cohort studies. While heart rate increases with current tobacco smoking, the association between marijuana use and heart rate is unclear and understudied. Studies conducted in laboratory settings around 1970 suggested that heart rate rises shortly after marijuana use, but that prolonged current use lowers heart rate. We set out to determine the association between heart rate and prolonged current and cumulative exposure to marijuana and tobacco smoking in a large prospective cohort study.
Methods: We used data from the Coronary Artery Risk Development in Young Adults (CARDIA) Study, a cohort of black and white women and men aged 18-30 years at baseline in 1985-86, followed over 30 years at 2-5-year intervals. At every visit, participants reported the number of days they had used marijuana over the last 30 days and the number of tobacco cigarettes they smoked per day. We computed cumulative exposure to marijuana and tobacco smoking. We used mixed longitudinal models to explore the association between heart rate and marijuana or tobacco exposure, adjusting for demographic factors, cardiovascular risk factors, alcohol and other illicit drug use, physical activity, and use of beta-blockers.
Results: The 5,115 participants at baseline provided us with data for 35,654 individual exams over 30 years. Of the 3,270 participants in the year 30 follow-up exam, 471 (14%) currently used marijuana and 470 (14%) smoked tobacco. In unadjusted models, mean heart rate was 68.4 (95% CI: 68.2 to 68.6) beats per minute (bpm) in those who did not use marijuana currently and 66.4 (95% CI: 65.8 to 67.1) bpm in daily users. In multivariate adjusted models, compared to no current use, weekly use of marijuana was associated with a lower heart rate of -0.66 bpm (95% CI: -1.01 to -0.32, p <0.001), and daily use with a lower heart rate of -2.12 bpm (95% CI: -2.96 to -1.28, p <0.001). Compared to no current smoking, smoking 20 tobacco cigarettes per day was associated with a higher heart rate of +2.68 bpm (95%CI: 2.21 to 3.15, p <0.001). Cumulative marijuana or tobacco use were not associated with changes in heart rate.
Conclusions: In a large prospective cohort study, prolonged current marijuana use was associated with lower heart rate. As expected, current tobacco smoking was associated with higher heart rate.

P177

Bacteraemia due to chromobacterium violaceum: a new entity in Switzerland?

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Learning objective: Chromobacterium violaceum is a rare gram-negative facultative anaerobe bacillus, associated with waterborne infections in tropical and subtropical regions. The clinical presentation usually starts with a localized skin and lymphadenitis after contact with stagnant water or soil and may progress to severe sepsis with up to 60% case fatality rates, particularly among immunosuppressed children or adults.
We describe the case of a 83-year-old woman with blood stream infection due to Chromobacterium violaceum after a minor injury of the leg in the Southern part of Switzerland.
Case: A 83-year-old immunocompetent woman presented in July 2018 with a 2-day history of fever without other complaints. She reported a minor injury resulting in a small wound on the right pretibial region that occurred by doing gardening 9 days before. The day after the injury she went swimming in a private pool.
On admission, the patient was in poor general conditions and had high fever (39.2°C). Blood pressure was 153/67 mmHg, and heart rate was 86 beats/min. On the pretibial region of the right leg, a wound of 3 cm of diameter was surrounded by local inflammatory reaction and lymphadenitis. Leucocyte count was 10.4x109 cell/L, platelet count 221x109 cell/L, and C-reactive protein was 155 mg/L (normal <5). X-ray of the chest was normal.
Empirical antibiotic treatment with amoxicillin-clavulanate was started. As the patient remained febrile with high C-reactive protein (159 mg/L), antibiotic treatment was switched to piperacillin-tazobactam 48 hours later. All blood cultures (4/4 bottles) yielded growth of Chromobacterium violaceum, resistant to ampicillin, amoxicillin-clavulanate and ceftriaxone. Under Piperacillin-tazobactam the clinical course was rapidly favorable with resolution of fever and soft tissue infection of the leg with lymphadenitis. Antibiotic treatment was then switched to Ciprofloxacin for 14 days.
Conclusions: Chromobacterium violaceum is very rare microorganism in Europe, and, to our knowledge, this is the first documented case in Switzerland. Potential effects of the global climate change include new geographical distribution of infectious diseases. Clinicians should be aware and promptly recognize these entities because a delayed adequate treatment may be associated with high fatality rates.

P178

Noro-Virus/Campylobacter- coinfection - a rare coincidence

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Case 1: We report a 41 year old, afebrile man with watery diarrhea for about 4-5 weeks and acut renal insuffiziency AKIN 3 (underlying kidney tranplantation insufficiency after IgA nephropathy). His working colleagues also had enteritis in den past few weeks. He was under immunosuppression with cyclosporin and mycofenolat-mofetil. A rehydration therapy was started with additional bicarbonat substitution and he was isolated.
Surprisingly the stool sample showed both a Noro-Virus and a Campylobacter.
Because of his immunosuppression an antibiotic therapy with ciprofloxacin for 7 days was given by our colleagues.
After ending of the diarrhea he was dismissed to outpatient care.
Case 2: A few days after admission of patient 1, a 41 year old man was referred by the general practitioner due to acut on chronic renal insuffiziency AKIN I and diarrhea and emesis like his grandchildren. He had a known kidney tranplantation insufficiency after chronic renal insufficiency of unknown origin. He was under immunosuppression with tacrolimus and mycofenolat-mofetil.

We started a rehydration therapy with additional bicarbonat substitution and isolated him. The stool sample showed also both a Noro-Virus and a Campylobacter. An antibiotic therapy with ciprofloxacin for 7 days was given by our colleagues.
After ending of the diarrhea he could be dismissed to outpatient care.
Discussion: Noro-Virus is globally prevalent and is responsible for a large majority of gastroenteritis in children and adults. They are usually transmitted via contact and smear infection and quickly trigger epidemics due to high infectivity and short incubation period. The disease is self limiting.
Nevertheless the infection endangers especially elderly patients and young children due to excessive loss of water.
Campylobacter is one of the most common bacterial diarrheal pathogen and is transmitted via contact and smear infection. The origin is mostly contaminated water or meat. The therapy is symptomatic. In severe cases or under immunosuppression an antibiotic therapy is indicated.
In the literature there is no association between Noro-virus and Campylobacter.
Both patients just had a misfortuned co-infection due to high risk time in the winter season for Norovirus and Christmas time for Campylobacter infection due to increased intake of Fondue Chinoise.
The antibiotic therapy with ciprofloxacin has to be discussed because of known High-Level Quinolone resistance of Campylobacter.

P179

The use of ultrasound in Swiss general practice: a mixed method study

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Background: Because of its diagnostic value, ultrasound use by non-radiologists have increased widely in the last years among general practitioners (GPs) in both developed and resource-limited settings. Ultrasound is used in Swiss primary care, however there is variation in use between language regions and scarce data on how it is applied. Hence, we aim to understand how often ultrasound is utilized in primary care, characterize types of ultrasound exams and patients, and explore the views of GPs and pediatricians on its current and future use.
Methods: It is a mixed method study, using data from (1) billing data in Central Switzerland, (2) questionnaires completed by physicians attending courses offered by Swiss Society of Ultrasound in Medicine (SGUM) throughout Switzerland, and(3) face to face interviews with course participants.
Results: *Billing data:*249 GPs and pediatricians consented to share their data, whereof 117 (47%) physicians were using ultrasound. A total of 138,443 ultrasound exams were done over 15 years, examining 73,211 patients. On average, 121 exams were done per physician-year. 64% of all exams were abdominal, and 41% of all patients had at least two scans during that period. 43,570 (60%) of patients with ultrasound had at least two morbidities.
SGUM courses: 140 physicians attending 17 out of 33 courses have completed the survey. 54 of the participants were GPs, 58% were females, 50% practicing in middle urban areas and mostly in German speaking regions. Ultrasound is used as standard of practice and for faster diagnosis among 65% of the physicians. 67% of pediatricians use ultrasound for the diagnosis of hip dysplasia. More than 50% of GPs use ultrasound for conditions in the upper abdomen (mostly free fluid, kidney congestion and gallbladder stones). 70% of physicians expressed interest to seek further ultrasound certification.
*Interviews:*6 GPs and 4 pediatricians were interviewed. 5 physicians received ultrasound training as part of their medical education. Lack of training, time, skills and the certification procedure are common barriers for ultrasound use. Easy, convenient, interesting, faster diagnosis and financial reward are common incentives for using ultrasound.
Conclusion: Use of ultrasound in Swiss general practice is broad and will grow based on many physicians expressing interest in ultrasound, especially if training and certification are efficient. Using ultrasound seems equally important to patients and physicians.

P180

Better look twice! Not every flutter wave in the ECG means atrial flutter

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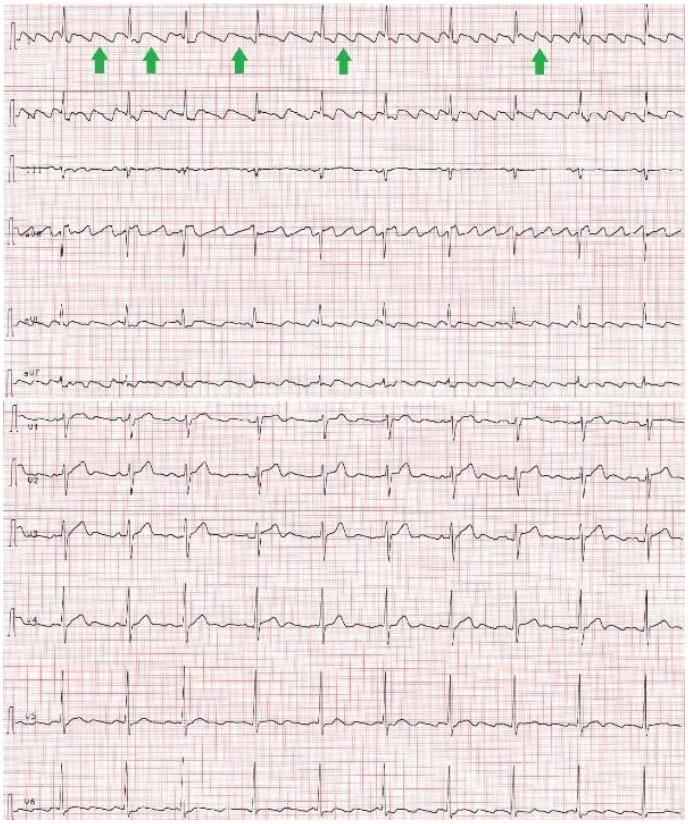
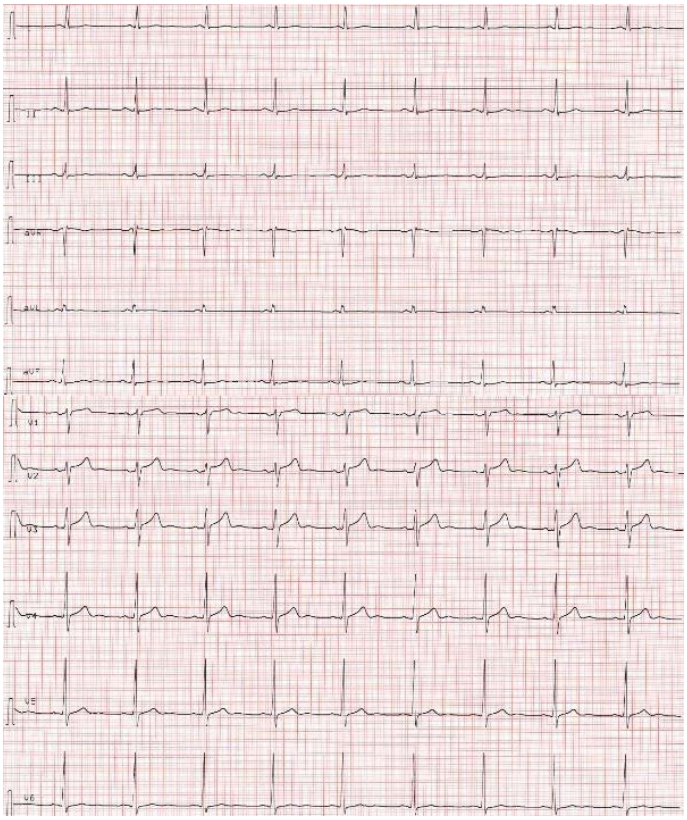
Learning objectives: Atrial flutter (AFL) is a fast atrial arrhythmia due to a macro-reentrant mechanism, often seen with typical flutter waves in the electrocardiogram (ECG). Although less frequent than in atrial fibrillation, ischemic stroke is a severe complication of AFL. Hence correct diagnosis and therapy of AFL is important.
Case: A 66-year old male patient was admitted to our emergency department with loss of sensibility and strength isolated in the left arm since 4.5 hours. Symptoms spontaneously decreased and disappeared completely, so diagnosis of transient ischemic attack was made. Upon admission, ECG was performed and showed flutter waves in leads I, II, aVR, aVL, and aVF (figure 1), suspicious for typical AFL. The patient denied chest pain or shortness of breath, cardiac history was uneventful. Upon closer inspection of lead III and precordial leads V1 to V6, a regular P wave was identified with the same frequency as the subsequent QRS complex. Additionally, flutter wave cycle length was not stable (figure 1, arrows), so diagnosis of AFL was refused. A second ECG, written 30 minutes later, showed normal sinus rhythm P waves in all leads; with no flutter waves anymore (figure 2). The reason for the artifact flutter waves in the initial ECG was either a technical problem of the electrocardiograph or trembling of the arms and legs due to known restless legs syndrome.



[Figure 1]



[Figure 2]

Discussion: Atrial flutter is a fast atrial arrhythmia due to a macro-reentrant mechanism, typically with atrial rates of 240 to 300 bpm. Ventricular rate response is limited by the atrioventricular node conduction, usually presenting a 2:1 or 3:1 response during AFL. Atrial rhythm in AFL is regular and organized, so atrial cycle length is stable. The most common type of AFL is called typical AFL and is located in the right atrium, involving the cavotricuspid isthmus. The ECG in typical AFL shows a saw tooth´s pattern in the inferior leads (constant flutter waves); this saw tooth's appearance could be easily registered when the ventricular rate response is controlled. If flutter wave cycle length is unstable or «additional» P waves are seen, diagnosis of AFL should strongly be reconsidered.

P181

A souvenir from Marrakech - Campylobacter jejuni-associated perimyocarditis

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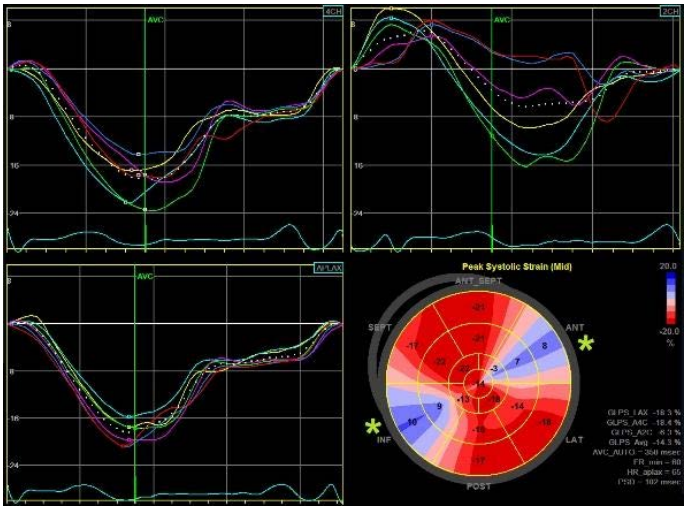
Learning objective: Perimyocarditis (PM) is a rare complication of Campylobacter jejuni (CJ) infection. Since CJ is one of the most common causes of bacterial gastroenteritis, PM should not be missed considering the risk of heart failure and arrhythmias.
Case: A 54-year old man was admitted due to acute onset of chest pain radiating to the left arm. Along he suffered from febrile diarrhea since his return from Marrakech (Morocco) one week ago. Beside of a painful abdomen clinical examination and electrocardiogram (ECG) were normal. Blood testing revealed elevated CRP (35 mg/l) and cardiac biomarker levels with distinct rise in troponin I after two hours (3996 ng/l to 9673 ng/l). Coronary angiography showed normal coronary arteries and left ventricular function, while reduced global longitudinal strain, particularly in inferior and anterior segments (figure, *), was seen by echocardiography. Microbiological analysis of the stool detected CJ. Thus diagnosis of CJ-associated PM was made. After antibiotic treatment (ertapenem, azithromycin), the patient's symptoms declined. Because of non-sustained ventricular tachycardia, beta-blocker therapy was added. The patient was discharged from the hospital and advised to avoid intense physical activity for 6 months. Cardiac magnetic resonance imaging (cMRI) two weeks later confirmed diagnosis with almost complete resolution of myocardial inflammation.



[Figure]

Discussion: CJ is one of the most common causes of bacterial gastroenteritis worldwide and mainly causes abdominal cramps, diarrhea, and fever. CJ infection is often self-limiting, antibiotic treatment is rarely indicated. Post-infectious complications are arthritis, meningitis, PM, endocarditis, and Guillain-Barré syndrome. CJ PM is a rare complication and affects mainly younger men; overall incidence is unknown, up to now only 32 items about CJ PM in PubMed exist (mostly case reports). Diagnosis is made of typical symptoms, ECG (PQ segment depression, ST segment elevation, or normal ECG), elevated cardiac biomarkers (troponin), exclusion of ischemic heart disease (coronary angiography), echocardiography, cMRI and evidence of CJ infection. Pathophysiology of CJ PM is still unclear, bacterial toxin or immunological mediated mechanisms rather than direct bacterial infection are assumed. Therapy of CJ PM includes antibiotic treatment, assessment for and therapy of arrhythmias, and management of heart failure, if present. Prognosis is good; most patients will fully recover.

P182

Swiss primary care physicians' interest in and knowledge about evidence-based insomnia treatment

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Introduction: According to European guidelines, cognitive behavioral therapy for insomnia (CBT-I) should be the first-line treatment for chronic insomnia, before prescribing drugs. But studies from other countries indicate that primary care providers (PCPs) are often unfamiliar with CBT-I and usually prescribe medication instead. Since PCPs play a central role in managing insomnia, we wanted to find out if Swiss PCPs are interested in learning about insomnia management and explore their familiarity with CBT-I.
Methods: We invited 820 Swiss PCPs from all regions to complete an online or paper-based survey. We asked them how interested they were in learning about non-pharmacological and pharmacological treatments of insomnia. Answers were scored on a 5-point Likert scale (“no interest” to “very strong interest'). We also asked them to rate their knowledge about CBT-I (“no knowledge” to “very knowledgeable”). To evaluate their perception of access to CBT-I treatment, we asked if they knew of a local specialist who offered CBT-I.
Results: Our response rate was 48%; 394/820 PCPs participated. Most (70%) were men; average age was 56 years. Their practices were evenly distributed across city, suburban and rural areas. Most said they had strong or very strong interest in learning more about non-pharmacological (78%, 280/394) and pharmacological (76%, 273/394) treatments. 19% knew nothing about CBT-I, about half (46%) thought they knew very little about CBT-I, 28% had some knowledge about CBT-I. Only 23% were aware of local specialists who provided CBT-I.

Conclusions: Swiss PCPs were poorly informed about CBT-I, but were very interested in learning more about insomnia treatment. This highlights the need to offer dedicated training in evidence-based insomnia management and treatment to Swiss PCPs and help them make connections with local specialists who provide CBT-I or inform them about existing online CBT-I offers to refer patients.

P183

Persistent headache in migrants - Think TB!

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Learning objectives: In migrant populations, patient history is often difficult to obtain because of language barriers. Symptoms reported may be misleading and minor complaints are of importance to establish diagnosis. Tuberculosis infection should be considered in migrants from high endemicity regions even years after entry, and immediate treatment initiated to disrupt transmission chains.
Case report: A 24-year old male presented in the emergency department with severe headache and vertigo that started only a few days ago. In addition, he reported a weight loss of >14 kg over 2 months, cough since several weeks with haemoptysis, and general malaise. He originates from Somalia and migrated to Switzerland by the Mediterranean route 4 years ago. His medical history is unremarkable. Clinical examination was without pathological findings, in particular neurological examination was unremarkable. He was afebrile. Initial laboratory results were normal apart from an elevated C-reactive protein level (170 mg/L). Chest X-ray showed a small irregularity in the upper left lobe. A sputum sample was positive for few acid-fast bacteria and Mycobacterium tuberculosis specific PCR (Xpert MTB/RIF and additional INH) with no genotypic resistances detectable. A CT scan confirmed a cavernous pulmonary tuberculosis. TB treatment with the standard 4-drug regimen was initiated. Because of a persistent headache, a brain CT scan was performed that demonstrated multiple tuberculoma. The consecutive lumbar puncture demonstrated an elevated leukocyte count with 96% polynuclear cells. Liquor microscopy and PCR testing was negative. Additional serologic and bacteriologic tests to exclude other possible causes remained negative. The TB treatment was complemented with steroids, and the patients´ condition improved rapidly with a respective sputum conversion on treatment.
Discussion: The incidence of TB infection in migrant populations is increasing. TB disease often arises several years after immigration. Diagnosis of active TB is often delayed, and a high suspicion in vulnerable population is mandatory for fast and reliable diagnosis to disrupt transmission chains. Additional symptoms may be unspecific and difficult to grasp because of language barriers. Additional diagnostic procedures to guide TB treatment duration are needed dependent on the patient history because TB infection may be disseminated.

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Hepatitis E as cause of fatal acute-on-chronic liver failure in a patient with cirrhosis

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Learning objectives: Acute-on-Chronic Liver Failure (ACLF) is a syndrome characterized by acute decompensation of underlying chronic liver disease, extrahepatic organ failure and a high short- and medium-term mortality rate of 50-90%. At the time 20-45% of the triggers of ACLF remain unknown. Hepatitis E infection is a rare but increasingly important cause and preventive measures are needed to reduce mortality.
Case report: A 59-year-old man presented with painless jaundice. Liver function tests demonstrated signs of hepatic injury (AST 145x upper limit of normal (ULN), Bili 364umol/l, INR 2.6). Tests revealed acute hepatitis E infection. A past history of alcohol abuse was not disclosed. A work-up for hyperferritinemia in conjunction with diabetes mellitus 2 years ago ruled out a HFE-gene-mutation and infectious hepatitis. The patient admitted consumption of uncooked pork some time ago. Liver ultrasound, elastography and splenomegaly suggested liver fibrosis/cirrhosis. ACLF due to hepatitis E infection was diagnosed. After admission transaminases improved rapidly, while INR and creatinine remained stable and bilirubin increased slightly. The prognostically important CLIF-C AD Score was 5 at day 7 with a probability of dying at 1 month of 4%. The patient was released on day 9 in good condition and managed in the outpatient clinic. On day 22 with Bili and INR strongly elevated Ribavirin was started but hepatitis E RNA was already negative. On day 24 the patient was admitted to the emergency department with multiorgan failure including brain, kidney and coagulation most likely caused by upper GI bleeding. Despite transferral to the university hospital and listing for liver transplant the patient died from complications on day 28.
Discussion: Autochthonous hepatitis E is a zoonotic infection of increasing importance in Switzerland. The majority of patients with symptomatic hepatitis E infection are men ≥ 50 years old, infections are mostly caused by genotype 3 and are most likely transmitted by undercooked meat from pork or game. Hepatitis E is a rare trigger of ACLF with a bad prognosis (mortality >50%). Preventive measures are needed to protect patients with liver injury. Patients should be advised not to consume meat products unless heated to at least 71°C. A vaccination would be desirable. Hecolin® developed in China is not available in Europe and may not protect against genotype 3. Once patients carry hepatitis E infection risk stratification is necessary.

P185

Frequency, predictors and outcome of palliative management in acute ischemic patients in a stroke center

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Introduction: There is growing interest in palliative care in stroke patients. However, little is known about predictors for the transition to palliative care in acute ischemic stroke (AIS) patients. Our goal was to analyze the proportion, predictors and the outcome of patients in a tertiary stroke center in patients where a palliative attitude was adopted at some stage during the acute hospital stay.
Methods: We retrospectively reviewed all patients with an AIS over 13 years from the prospectively constructed Acute STroke Registry and Analysis of Lausanne (ASTRAL). We compared patients who received a "palliative status" during their stroke unit stay with all others and identified associated variables in the acute and subacute phase with logistic regression analysis.
Results: A palliative attitude was adopted in 440/4264 (10.3%) AIS patients. The most powerful predictors of a palliative care decisions were transit through the intensive care unit, pre-stroke handicap, age, admission NIHSS, and initially decreased level of consciousness. In the subacute phase, active oncological disease, fever, and poor recanalization status were also predictors. 76.6% of these patients died in the stroke unit or ICU, 8% were transferred to old age homes and 6.4% to a specialized palliative care center.
Conclusions: Better knowledge of palliative stroke patients and predictors of transition to palliative care can help caregivers in management decisions and discussions with patients and their next of kin. Avoiding futile treatments and timely transition to comfort measures in appropriate cases can potentially improve the quality of life in this population.

P186

Cerebral venous thrombosis complicated by pulmonary embolism - are novel oral anticoagulants the optimal choice?

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Learning objectives: Pulmonary embolism (PE) secondary to cerebral venous thrombosis (CVT) is an uncommon form of venous thromboembolism. Here, 2 cases highlight the diagnostic and therapeutic challenge, and in this context, the choice of anticoagulation has to be carefully considered.
Case 1: 55 y/o male presented to the ED with pleuritic chest pain and self-limited calf pain a week before following immobilisation after minor surgery. CT pulmonary angiography (CTPA) showed lower left lobe PE. Rivaroxaban (RXB) was initiated and the patient discharged the next day after an unremarkable observation. Twelve days later, cranial MRI performed due to position-dependent headache showed partial left-sided thrombosis of the transverse and sigmoid sinus and the internal jugular vein. RXB was switched to LMWH and clinical follow-up at 2 months was unremarkable.

Case 2: 74 y/o male presented to the ED with syncope, confusion and tachycardia. Head CT showed no haemorrhage or ischemia, and CTPA demonstrated subacute bilateral pulmonary emboli. RXB was started. Mental slowing 5 days later prompted cranial MRI, which showed left-sided thrombosis of the sigmoid and transverse sinus with the thrombus reaching the internal jugular vein. RXB was switched to apixaban. Follow-up CT at one month showed persistent CVT and apixaban was successfully replaced by LMWH. Clinical follow-up at 2 months was unremarkable.
Discussion: Cerebral venous thrombosis is uncommon and presents a diagnostic challenge given the often unspecific symptoms. The close spatial relationship of the cerebral veins, jugular veins and the pulmonary circulation predisposes to its association with PE. Nevertheless, subsequent PE in patients with CVT is significantly lower than in patients with deep vein thrombosis (DVT). Unlike PE secondary to DVT, there is paucity of data regarding the choice of anticoagulation in CVT. Current guidelines prefer LMWH to heparin followed by vitamin K antagonists (VKA) and do not recommend using NOAC, especially during the acute phase. However, the recommendation on anticoagulation is based on a low quality of evidence and NOAC would present obvious advantages in terms of ease of administration. Compared to VKA, NOAC also have a lower risk for intracranial haemorrhage. Among the pathophysiological mechanisms, the lower permeability of the blood-brain barrier for NOAC may constitute a special situation regarding their antithrombotic efficacy in the cerebral sinusoidal veins.

P187

QT interval prolongation with new generation antipsychotics - it's time to use the new formula!

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Learning objectives: QT interval (QT) prolongation predisposes to torsade de-pointes and is a well-known side effect of older antipsychotic drugs. However, new-generation antipsychotics may also prolong QT, particularly in the presence of traditional risk factors, such as dyselectrolytemia. Tachycardia is also a common side effect of antipsychotic drugs, which highlights the importance of using QT correction formulae other than Bazett's, such as the Framingham or spline QTc formula.
Case: A 39-y/o male with paranoid schizophrenia presented with a one-week history of recurrent vomiting. Medication on admission consisted of risperidone at a daily dose of 3 mg. Serum potassium was 2.5 mmol/L. ECG showed sinus rhythm at 87 bpm with normal QRS duration and a QT interval of 453 ms. Using Framingham and Bazett's formulae, corrected QT interval (QTc) was prolonged at 501 ms and 545 ms, respectively. Intravenous and oral potassium and magnesium substitution was begun and the patient admitted under remote telemetry monitoring. Risperidone was continued. Two days later magnesium was normal and serum potassium had normalised at 3.8 mmol/L. Repeat ECG showed sinus rhythm at 97 bpm and QT of 386 ms, with QTc at 445 ms by Framingham and 491 ms by Bazett.
Discussion: QT prolongation by the new-generation antipsychotics was studied in the Pfizer 054 study. For the six antipsychotic drugs studied (haloperidol, ziprasidone, quetiapine, olanzapine, risperidone, and thioridazine), risperidone and olanzapine produced the least change in QTc, at up to 3.9 ms for risperidone. In the post-marketing phase, several case reports associated risperidone with QTc prolongation, most often in the presence of other risk factors. Hypokalemia itself may cause severe QTc prolongation, which leaves uncertainty in linking risperidone to QTc prolongation in our case. Nevertheless, the high normal QTc during normokalemia suggests that risperidone may have contributed to QTc prolongation.
Furthermore, our case highlights the crucial role of choosing the correct QT correction formula. The commonly used Bazett's formula was derived in 1920 on the basis of 39 young subjects and dramatically overestimates the QT at higher heart rates. Its use is discouraged in favour of newer QT correction formulae, such as Framingham, which is available in online calculators. Handling of the new spline QTc formula is cumbersome but has recently shown the best performance in correcting QT for heart rate.

P188

Secondary Hemochromatosis as a rare cause of diabetes

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Learning objectives: Hemochromatosis is an inherited or acquired disorder caused by excessive iron storage. Secondary Hemochromatosis usually develops in patients who have received multiple red blood cell-transfusions. Excessive iron accumulation can cause progressive damage to multiple organs. Endocrinopathies such as hypogonadotropichypogonadism and osteoporosis are commonlyassociated with hemochromatosis. Diabetes is the most frequently encountered problem.
Case: A 21-year old refugee from Syria was admitted to our Emergency Department with polyuria and polydipsia and involuntary weight loss of 4kg in two weeks. The medical history was remarkable for Beta-Thalassemia major. The patient underwentsplenectomy and received regular blood transfusions since early childhood. Physical examination revealed a slim patient (BMI 19.5 kg/m) with a greyish skin tone and localized hyperpigmentation, hepatomegaly, as well as testicular hypotrophy, genitalia pubertal stage Tanner II and very little facial hair growth.
Laboratory analysis showed: Hb 8.4 g/dl, transferrin saturation of 95% , ferritin levels of 4231 ng/ml and hyperglycaemia of 34 mmol/l without acidosis (HbA1c 10.9%). Islet cell antibodies and glutamic acid decarboxylase antibodies were negative. MRI scan revealed iron-overload in the pancreas, heart, and liver.
Pituitary function tests confirmed hypogonadotropic hypogonadism. The patient was hospitalized for treatment of new-onset diabetes with a basal-bolus insulin regimen and has refused testosterone supplementation so far. He is undergoing periodic transfusions with iron chelation.
Discussion: In our case, multiple blood transfusions (>100) caused secondary hemochromatosis with skin hyperpigmentation, diabetes mellitus, and pituitary involvement leading to secondary hypogonadism with halted pubertal development. Diabetes mellitus is due to the pancreatic iron overload, additionally, iron overload in the liver with insulin resistance may have contributed to the diabetes manifestation. Transfusions >15-20 units of RBC can cause clinically significant iron overload. This case illustrates the importance of evaluating secondary causes for diabetes mellitus with a careful history and clinical examination.

P189

Substitution for hypothyreosis can be life threatening - a case report

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Learning objectives: To learn in which clinical circumstances thyroxine substitution might be dangerous. To recognize the features of autoimmune polyendocrine syndrome type 2 (APS-2) and interpretation of the laboratory values due to the disease and the implications for treatment of such patients.
Case: A 33-years old woman presented with progressive fatigue and weight loss over 2 years. In the past Hashimoto's thyroiditis was diagnosed and treated with levothyroxine without improvement of her fatigue. Additionally she developed abdominal complaints. Further investigations resulted in diagnosis of celiac disease. Despite dietary changes, the abdominal complaints worsened over 2 months. She also observed darkening of her skin. On admission she suffered from abdominal cramps, vomiting and profound weakness. On examination her blood pressure was 110/67 mmHg, temperature was 35.9° centigrade. Blood analysis revealed hyponatremia (108 mmol/l; n: 136-145 mmol/l), potassium in upper norm (4.92 mmol/l; n: 3.6-5.5 mmol/l), decreased basal cortisol (22 nmol/l; n: 145-619 nmol/l), elevated ACTH (532 pmol/L; n: <10.3 pmol/L), elevated 21-hydroxylase antibodies, elevated TSH (10.56 µIE/ml; n: 0.27-4.20 µIE/ml) and elevated fT4 (26.67 pmol/l; n: 12-22 pmol/l), and fT3 5.65 pmol/l (n: 3.1-6.8 pmol/l). These values confirmed the suspected diagnosis of autoimmune adrenalitis with acute adrenal crisis. Intravenous therapy with hydrocortisone 400mg daily was started and changed to oral substitution when retained oral medication. The dose was subsequently reduced to 20mg daily. A mineralocorticoid substitution was added. The adrenal crisis was triggered by oversubstitution with levothyroxine, confirmed by high fT4. TSH was elevated due to loss of inhibition of TSH secretion by low cortisol secretion. The diagnosis of Schmidt syndrome as a part of autoimmune polyendocrine syndrome type 2 (APS-2) and celiac disease was confirmed. Other autoimmune disorders could be excluded at time of diagnosis.
Discussion Acute adrenal crisis is a life threatening condition, which requires intravenous hydrocortisone treatment. In 60% of patients, Addison disease is associated with autoimmune polyendocrine syndrome type 2 and is therefore often associated with autoimmune thyroiditis. Since

levothyroxine can trigger acute adrenal crisis, exclusion of adrenal insufficiency is crucial before introducing therapy with levothyroxine if there is clinical suspicion.

P190

Role clarification of advanced practice nurses and medical practice coordinators in swiss primary care: a qualitative study

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Introduction: A multimorbid, ageing population and a lack of general practitioners (GPs) in rural areas are challenges of today's Swiss primary care. Advanced practice nurses (APNs) and medical practice coordinators (MPCs) are two new professions implemented with the goal to tackle these challenges and to improve skill-mix in primary care. The two roles are slowly emerging in pioneer projects. Hence, our aims were to explore the APNs' and MPCs' scope of practices, potential role distinctions, and factors for effective collaboration in Swiss family practices where both roles are present.
Methods: We conducted 16 semi-structured interviews with APNs (n = 2), MPCs (n = 4) and GPs (n = 5) from two ongoing pilot projects in rural family practices located in German-speaking Switzerland. One APN, two MPCs and two GPs were interviewed twice. We also interviewed one APN working in a hospital with previous experience as a MPC. Data was analysed using a hybrid approach of thematic analysis, guided by the Canadian National Competency Framework for Interprofessional Collaboration.
Results: Four main themes emerged from the analysis: Firstly, the participants stressed the importance of understanding their own roles as well as the roles of other team members in terms of tasks, competencies, responsibilities and boundaries (role clarification). Secondly, both APNs and MPCs cited potential conflicts, such as overlapping tasks and responsibilities if communication is poor or role clarity has not been established (conflict potential). Thirdly, GPs are expected to provide leadership and be role models in collaborative teamwork. They should be open to new processes, ideas and have confidence in the new roles' abilities (collaborative leadership). Finally, the size and setting of the family practices as well as the team-mix influenced whether the new roles were successfully implemented; appropriate caseload and enough workspace for each team member emerged as particularly important (practice setting).
Conclusions: Our study highlights the pioneer character of APNs and MPCs working together in Swiss family practices. Clear job profiles with well-defined scope of practices for both roles appear essential in order to achieve role distinction and to avoid conflicts. Moreover, the practice setting and the GPs' attitudes towards interprofessional teamwork seem to be crucial for efficient collaboration.

P191

The "bluewhale challenge" - a life-threatening medical emergency

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Background: The "bluewhale challenge" is an online game in which the participants have to complete a series of tasks assigned to them by a so called "curator" over a period of 50 days. One task daily has to be fulfilled. Initially the tasks are harmless. Over time the requirements change and become more dangerous. They involve self-mutilation and finally the participant hast to commit suicide. If the participant fail to complete the tasks the curator threatens to harm next of kin or to release sensitive data they acquired by hacking the mobile device of the participant. 2016 the game originated in social networks mainly in Russia and was not taken seriously, but it spread through social networks and became a global phenomenon with reports of suicides and cases of self-harm related hospital admissions.
Case: A 21-year old female patient presented to the Emergency Department because she had swallowed three razorblades. This task was a part of the bluewhale challenge. She suffered a slight abdominal pain and was terrified because threats against her family and their dog were made through the curator.
The patient had a known history of a borderline personality disorder and Attention Deficit Hyperactivity Disorder, was treated with methylphenidate and she had contact to a psychiatrist on a regular basis.
Physical examination was normal. A low dose abdominal CT scan showed metallic objects located in the stomach without any signs of perforation. In the intensive care unit (ICU) she was intubated and endoscopic rescue of the razorblades was performed. Luckily the razorblades could be removed without difficulty and besides minor mucosal scratches there were no major injuries. On the following day the patient underwent an in-hospital psychiatric assessment to rule out suicidal tendencies. Arrangements for an intensive psychological outpatient care were made and the patient was discharged directly from the ICU. Furthermore, in agreement with the patient the institute of forensic medicine and the police were involved regarding a potential case of self-harm under influence by a third party.
Discussion: Social media has become a major aspect of our digitalized culture. The bluewhale challenge must be known to physicians as a potential life threatening online game. These threats to public health affect mostly vulnerable populations and are a real danger which has to be known and reported to the legally responsible institutions such as the police and forensic medicine.

P192

58-year-old patient with immune checkpoint inhibitor-mediated perimyocarditis, myositis and hepatitis

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Learning objectives: To illustrate the potential risks of modern antitumor therapy (esp. checkpoint-inhibitor-therapy), the importance of interdisciplinary collaboration as well as the possible therapeutic approach to immune checkpoint inhibitor induced autoimmune side effects.
Case: 58-year-old patient with malignant melanoma (initially pT4b, N0) and recurrence with progressive pulmonary metastases who presents with increasing dyspnea and muscle weakness six weeks after initiation of antitumor therapy with pembrolizumab (PD-1-inhibitor). Evaluation demonstrated three concomitant organ involvements: 1. Hs-Troponin I of nearly 3800 ng/l suggested a cardiac issue. A gradually decreasing echocardiographic ejection fraction of 45% two weeks after admission (compared to 65% at admission time) with an nt-BNP of 2450 ng/l combined with leftventricular wall motion abnormalities entailed a coronary angiography showing significant - but non-critical - stenosis in the distal left main stem and right coronary artery. Cardiac MRI additionally confirmed suspected perimyocarditis. 2. CK of close to 3700 U/l in combination with positive findings in the electromyogram as well as in the quadriceps muscle biopsy proved myositis. 3. Newly developed GPT of ten times the upper limit of normal without evidence of infection or sonographic abnormalities was suggestive of immune-mediated hepatitis. Soon after admission the patient received corticosteroids that improved symptoms and laboratory values (Troponin, CK and GPT). To taper off steroids and avoid a potentially deadly recurrence of symptoms we began an immunosuppressant therapy with mycophenolate. However, the course was complicated by agranulocytosis, septic shock with successful resuscitation and critical illness polyneuropathy under mycophenolate and high dose steroid treatment. Finally, the patient died and so far autopsy showed an ascending pyelonephritis as one potential cause. Other organs are still under investigation.
Discussion: As checkpoint-inhibitor therapy is an indispensable part of today's antitumor treatment, patients and treating physicians must be aware of the potentially life-threatening side-effects. Interdisciplinary approach and reasoning is an essential part of modern medicine.

P193

Persistent seizures due to cerebral nocardiosis

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Learning objectives: Management of pyogenic brain abscess includes size dependent neurosurgical drainage, microbiologic and histologic in depth analysis of intraoperative samples, appropriate empiric followed by targeted antimicrobial therapy and a thorough search for risk factors and underlying conditions (particularly immunosuppression).
Case: In September 2018, a 76-year old man was admitted to our ICU with severely reduced consciousness (GCS = 5) caused by persistent focal-complex seizures. Previously, the patient was an independently liv-

ing nursing home resident with COPD, chronic atrial fibrillation and possibly alcohol overconsumption. Beside GCS, vital signs were normal, he was afebrile and cardiopulmonary stable. After seizures were blocked with Levetiracetam CT-scan followed by MRI of the brain revealed a cerebral lesion in the frontal cortex with substantial perifocal edema suspicious for pyogenic brain abscess. Routine blood tests showed macrocytosis without anemia, slightly elevated liver enzymes and a C-reactive protein of 11 mg/L. After normalization of Rivaroxaban-inhibited coagulation, neurosurgical abscess aspiration was performed and empirical treatment with ceftriaxone, metronidazole and dexamethasone was initiated. Microscopy of the abscess showed Gram-positive rods and cultures became positive with *Nocardia* species that were later identified as *Nocardia farcinica* by 16s-rRNA-sequencing. Treatment was adjusted to Imipenem and Trimethoprim/Sulfomethoxazole (TMP-SXT). Additional workup excluded immunosuppression and other foci of nocardiosis. Since the patient developed loss of appetite, nausea, weight loss and renal impairment TMP-SXT was stopped. Nevertheless, the patient's condition deteriorated with development of a protracted delirium and he died 10 days after admission. An autopsy was not performed.
Discussion: Cerebral nocardiosis is a very rare condition in immunocompetent individuals. Most patients with systemic nocardiosis have profound cellular immune deficiency. Despite neurosurgical drainage and intravenous antimicrobial therapy mortality of CNS-nocardiosis remains at 30-50%.

P194

Dyspnoea, anemia and renal failure in a 17-year old adolescent. Looking for the rare

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Learning points: The onset of an anti-BM-antibody syndrome may present with unspecific symptoms (e.g. cough, flu- like symptoms) and can progress rapidly. Crucial signs are renal and pulmonary affliction.
Case report: Diagnosed with a simple bronchitis, the general practitioner initiated symptomatic therapy for his 17-year old patient. Within 7 days the adolescent developed a bloody tinged sputum, recurrent vomiting, left sided flank pain and oliguria. In addition to the deterioration of his state of health, the laboratory results showed an anemia (Hb 76 g/l) and signs of new onset renal failure with creatinine- serum levels of 675 umol/l.
At the patient's referral to the emergency department, we saw an ill-looking, pale tachypnoeic, hypertensive adolescent (34 breaths per minute and SpO2 of 82%, RR 144/75 mmHg). The urin analysis showed a significant proteinuria and no signs of hemolysis. Post renal failure could be ruled out in the abdominal ultrasonography. The chest x- ray showed diffuse, multiple alveolar bilateral infiltrates, coherent with signs of alveolar hemorrhage. Due to these findings, we suspected a vasculitis with pulmonary and renal affliction. The patient was referred to the Luzerner Kantonsspital (LUKS) for further treatment, where he received regular plasmapheresis, hemodialysis and immunosuppressive therapy with prednisolone and cyclophosphamide. Together with the emergency room (ER) - Team of the Kantonsspital Uri (KSU) and the Department of Hematology and Nephrology (LUKS) an anti-BM-antibody associated syndrome with pulmonary affliction, was confirmed early.
Discussion: Although anti-BM-antibody associated syndromes are a rare condition, good communication between the general practitioner, the ER-Team and the departments of hematology and nephrology can lead to finding the diagnosis swiftly. A rapid initiation of treatment may lead to a favorable outcome regarding survival and kidney function.

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High altitude emergency medicine - tourists presenting to a mountain hospital in Nepal

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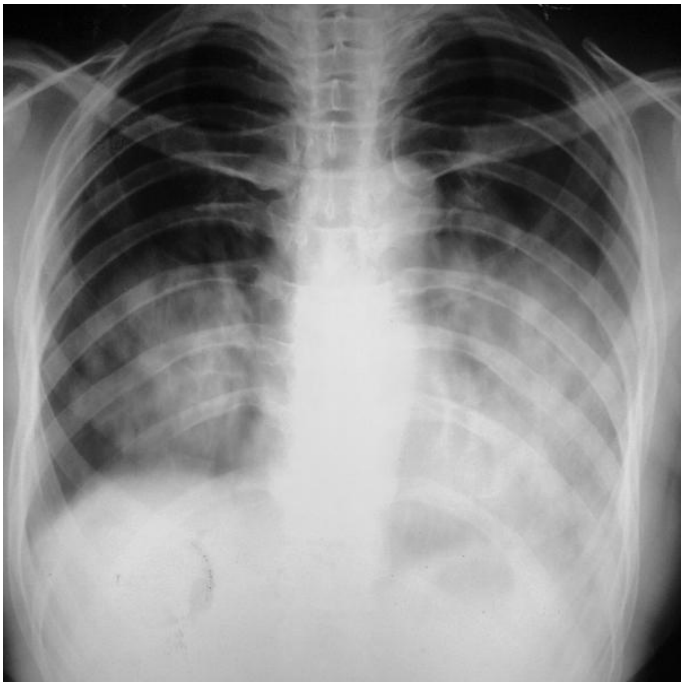
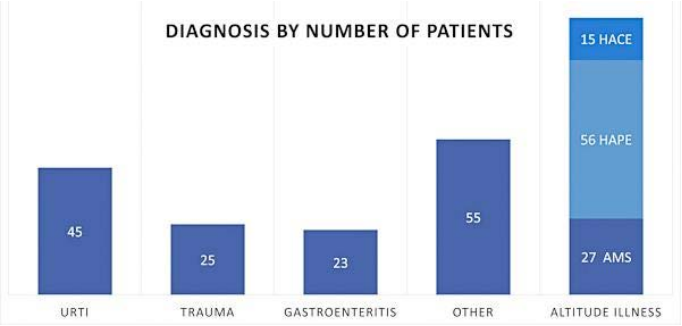
Introduction: The majority of trekkers coming to the Khumbu region plan to ascend to an altitude between 4860m above sea level (Gokyo) and 5380m (Everest Base Camp). As they often arrive badly acclimatized and experience important altitude differences, they are more susceptible to altitude-related illnesses than the local population. Acute mountain sickness (AMS) affects more than 25% of individuals ascending to 3500 m and more than 50% of those above 6000 m. When suffering from medical problems, they rely on local healthcare facilities like the HRA healthposts in Pheriche and Manang and the hospitals in Khunde, Lukla or Namche Bazaar. The hospital in Khunde and the Pasang Lhamu Nicole Niquille (PLNN) Hospital in Lukla are the only hospitals that are open year-round providing basic health care for the local community and tourists alike.
Methods: In this retrospective cohort analysis, we wanted to assess the prevailing medical problems of all non-Nepalese patients seeking medical help in PLNN Hospital between spring 2016 and 2017.
Results: 227 foreign patients presented to PLLN hospital in the study period, with a median age of 44 years. The analysis shows two peaks of presentation over the year coinciding with the main tourist seasons with up to 72 consultations per month.



[Figure 1: 24.7% of patients presented with high altitude pulmonary edema.]



[Figure 2: Diagnosis by number of patients.]

43.2% arrived by helicopter. Almost 20% of patients suffered from serious medical problems. 253 diagnoses were made with multiple possible diagnoses per patient. Of all diagnoses, 25 (10%) were trauma-related, 97 (38%) altitude-related, 45 (18%) upper respiratory tract infections (URTI) and 23 (9%) gastroenteritis [Fig.1; HAPE: high altitude pulmonary edema, HACE: high altitude cerebral edema]. 11.1% were admitted to the hospital ward, while 15.1% were transferred to Kathmandu for further management. 43.1% of patients presented with high-altitude illnesses, making this the most common diagnosis of all. 24.7% of patients presented with HAPE, of which 51.8% (n = 29) had a chest x-ray [Fig.2].

Conclusion: Our data indicate that altitude-related health problems largely contribute to the burden of disease of tourists in the Nepal Himalayas. Further education of tourists and guides is necessary to prevent this main cause of morbidity among trekkers in the region.

P196

A pimple on the valve

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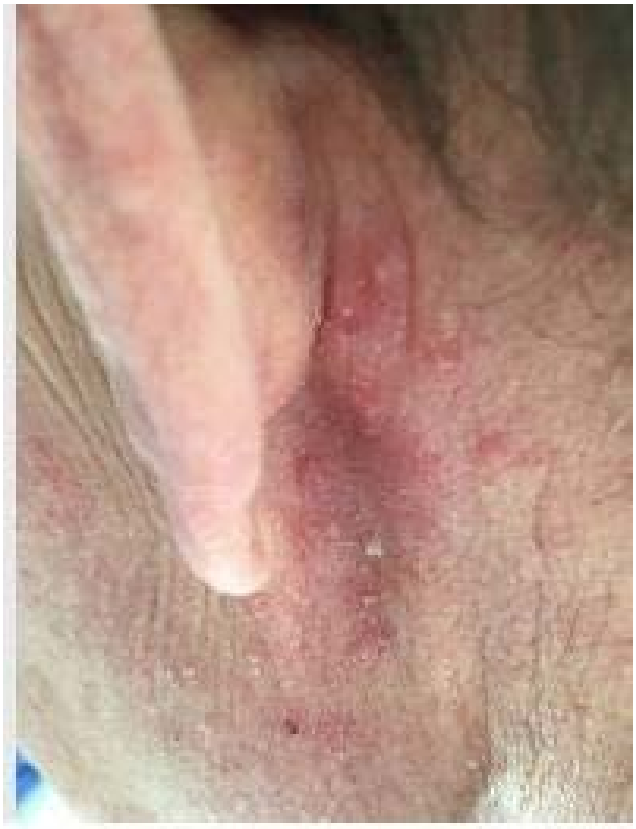
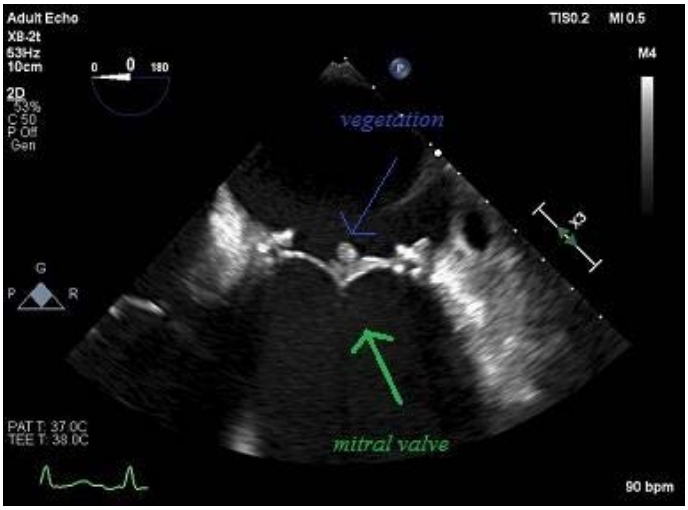
Learning objectives: Atypical presentation and rare bacterial etiology of endocarditis; importance of blood cultures for therapy.
Case: A 64 y.o. male presented to the emergency room with acute onset of fever (39.5°C) and shivering. He also reported lower back pain. The pain first occured after lifting a heavy trunk 3 weeks before. The clinical examination was without pathological findings. Laboratory tests demonstrated a slightly elevated C-reactive protein (12.9 mg/l) without leucocytosis. MRI of the spine showed a fracture of the 11th thoracic vertebra, without signs of spondylodiscitis. Past medical history included replacement of the mitral valve with a biologic prosthesis. An echocardiography revealed a vegetation of 14mm on the mitral valve, leading to the diagnosis of endocarditis. Septic embolisms were ruled out by further diagnostics. After a 5 day incubation period, blood cultures showed growth of *Cutibacterium acnes* (former *Propionibacterium acnes).* A psoriatic rash behind both ears, which the patient had been scratching, was found to be a possible entry site. The infection was treated with ceftriaxone (2 grams/day i.v.) and rifampin (450mg p.o. BID). Under antimicrobial treatment, the vegetation decreased in size (12mm) and the fever stopped.The psoriatic rash dissolved with topical application of Halometason. After 2 weeks, the patient was well enough to be discharged from the hospital. The antibiotics were continued for a total of 6 weeks.
Discussion: Most of the time, Staphylococci or Streptococci are the bacteria responsible for endocarditis. C. acnes is only isolated in approximately 0.9% of the cases.The bacteria typically infects prosthetic valves and blood cultures have to be incubated for up to 15 days to reveal its growth. There is very little data on how to treat an infective endocarditis with C. acnes. In the cases documented up to date, a surgical approach was often necessary. As repeated echocardography showed preserved function of the mitral valve and decreasing size of vegetation, we were fortunately able to follow a conservative treatment with antibiotics over the course of 6 weeks. After determination of the minimal inhibitory concentration, we chose ceftriaxone and rifampin. Both antibiotics show excellent activity against C. acnes. Ceftriaxone has the advantage of an OD application and rifampin has a good activity against microbial biofilms. Currently (day 28 of treatment), the patient has recovered well without complications.



[Retroauricular lesion]



[Transesophageal imaging of the mitral valve]

P197

The rare case of the board examination- not so rare after all? (Case Report)

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Case: A 48 year old female patient (BMI of 18kg/m2) without relevant medical history was admitted to the hospital with increasing swelling and pain over the last 2 weeks and acute redness affecting the upper ankle joint. An infectious arthritis was assumed (CRP 120mg/l, leucocytes 10.5Tsd/µl). A diagnostic puncture of the upper ankle joint was obtained and antibiotic treatment with Amoxicillin-Clavulanic was applied (3x2.2g intravenously). While the kidney function was initially normal (serum creatinine (sCr) 69µmol/l, correlating with a eGFR of 90ml/min/1.73m^2 by the CDK-Epi formula), the sCr rose to a maximal value of 160µmol/l (day 5) accompanied by macrohematuria. This resulted in a nephrological consult.

There was no history of NSAR or COX-2-Inhibitor use, nor had there been an examination with radiographic contrast. The blood pressure was low (90/55mmHg), but without signs of sepsis.
Sonographically the kidney presented normal in size and structure. In the urinary sediment crystals of thin needelshape were seen, isolated and in bunches. They proved to be birefringent; additionally many non-glomerular erythrocytes were seen.
The examiner remembered having seen a similar sediment at the nephrology board exam, where she had to admit to not have seen this picture during the 3 years of training. The literature review showed only case reports; never the less we diagnosed crystalluria due to amoxicillin.
After termination of the antibiotic therapy and intravenous hydration the kidney function normalized, while the crystals in the sediment disappeared and the hematuria resolved. In the sterile puncture of the upper ankle joint pyrophosphate crystals were found.
Discussion: Amoxicillin crystals in the urinary sediment were first described in a healthy volunteer, to whom amoxicillin was given intravenously to investigate amoxicillin excretion. Several case reports have described crystalluria since, in some cases crystals were the only renal manifestation, in some concomitant hematuria occurred and in some cases the situation was complicated by acute renal insufficiency. In all cases the renal manifestation was reversible after cessation of amoxicillin, rarely demanding short time renal replacement therapy.
Conclusion: Amoxicillin crystalluria is a rare but sometimes severe complication, at risk are patients with high amoxicillin doses, low diuresis and acidic urine. An urinary sediment is necessary to find the right diagnosis.

P198

Sensitization for peer handovers and its impact on working hours and job satisfaction: an observation

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Introduction: Efficient handover at shift end is essential for patient safety and the work-life balance of physicians. Hospitals in Switzerland provide a 24/7 service while being restricted by a maximum of 50 physicians' working hours per week. This requires timely handover at shift end. In this observation, we focused on handovers between resident physicians and report here the analysis of working hours and personal experience during a pre-defined observational period.
Methods: Structured handover tools for the communication between peers are already established in our clinic and include the acronyms "ÜBERGABE" (**Ü**bersicht - **er** ist in-/stabil - **g**enerell - **a**ktuell - **B**efunde - **E**reignisse/Plan) and "SOBP" (**S**ubjektiv - **O**bjektiv - **B**efund - **P**rozedere). Following an *"information month"*, during which the team was repeatedly reminded to focus on structured and efficient peer handover, October 2018 was defined as *"awareness month"*. For the analysis of personal experience each resident completed a questionnaire at the end of the observational period. Working hours were compared between October 2018 and October 2017.
Results: 29 of 50 questionnaire were returned and analyzed. 21 team members reported a successful handover in more than 50% of handover situations as compared to only 8 that experienced the handover in more than 50% as not satisfactory. This is in line with the fact that the majority (23) reported positive feelings when leaving the hospital. Although we discharged more patients in the observational period than in the comparison period (726 in 10/2018 compared to 706 in 10/2017), fewer overtime working hours accumulated (0 hrs. 10/2018 compared to 62 hrs. in 10/2017). These results indicate efficient peer handover with the opportunity to leave the shift on time. The most critical point reported was the lack of defined general conditions during peer handover (i.e. specified time point and defined team member). Conversely, it was acknowledged that the mere awareness and encouragement already facilitated the initiation of handover between peers.
Conclusions: This observation shows that encouragement and sensitization for peer handover help to reduce the accumulation of overtime and supports team members to leave work with positive feelings. Our data emphasize that encouragement for timely peer handover at shift end might contribute to team motivation. Further investigations are required to analyze patient safety and the long-term effects of such an intervention.

P199

A refractory atypical pneumonia

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Learning objective: Refractory atypical pneumonia caused by macrolide-resistant Mycoplasma pneumoniae
Case: A 58 year old female patient presented with cough and exertional dyspnea for twelve days after holidays in Salzburg, Austria. She had already been treated with amoxicillin/clavulanic acid for six days and additionally azithromycine for two days. Except a smoking history until 1998 (10py) and pneumonia at the age of eleven, her pulmonary history was unremarkable.
Clinical examination revealed subfebrile temperature (38.0°C), tachycardia (111 bpm) and bibasilar crackles predominantly on the right side. Laboratory findings included a leucocytosis with neutrophilia and a C-reactive protein of 134 mg/L. Chest X-ray showed an infiltrate in the right posterobasal lower lobe and diffuse smaller infiltrates. We started an intravenous treatment with amoxicillin/clavulanic acid and oral clarithromycine.
On this therapy the patient's condition worsened, signs of inflammation were increasing and a computed tomography showed bibasilar consolidations, infiltrations in both upper lobes and bilateral pleural effusion. The bronchoscopy revealed oedematous mucosa and unspecific inflammatory cells. We changed antibiotic therapy to levofloxacin. Because of respiratory insufficiency, the patient was transferred to the intensive care unit for respiratory support. Polymerase chain reaction in the bronchoalveolar lavage fluid was positive for Mycoplasma pneumoniae with a point mutation in the ribosomal rrl-gene, standing for high-grade macrolide-resistance. Under the treatment with levofloxacin, the patient's condition improved. After three days on intensive care unit and 18 days of hospitalization, she could be discharged to pulmonary rehabilitation.
Eight months after Mycoplasma pneumonia the patient is still suffering from a mild exertional dyspnea, has a mild obstructive ventilation disorder with normal diffusion capacity and the computed tomography shows mild residual ground-glass opacities matching a prolonged course.
Discussion: Mycoplasma pneumoniae is the most common pathogen for atypical pneumonia and responsible for up to 20% of all community acquired pneumonias. If treatment is required, Macrolides are first-line antibiotics for treatment of Mycoplasma pneumoniae. However cases with macrolide-resistant Mycoplasma pneumonia are increasing and should be considered in a patient not responding to the antibiotic treatment.

P200

Ich stelle mir eine Medizin vor... I imagine a medicine...

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Introduction: In our modern medicine with its impressive innovations of medical-technical possibilities there is a strong risk that the patient with its individual and contextual needs gets lost. To strenghten the quality of medical examinations and therapies and to reduce overdiagnosis and overtherapy a person centred approach may be an effective way. This means for the physician, to understand the patient with his / her inner pictures and the reality he / she constructs about his /her suffering, to balance it with the medical evidence and to co-create a common reality as base for a person-centred bio-psycho-social healing process.
Methods: Workshop: readings of passages of the book ´Ich stelle mir eine Medizin vor...´, Lisa Bircher und Bruno Kissling, rüffer&rub, 2018 as impulses for an interactive exchange of the participants about their personal doctor-patient experiences in their daily professional activities within hospitals and private practices.
Results: Awareness on the needs of the patient will foster a person centred approach to the patient leading to shared decision making with a more appropriate and meaningful medicine and in consequence to a better quality.

P201

Fever and elevated liver values: it is not always a calculous cholecystitis cholezystolithiasis

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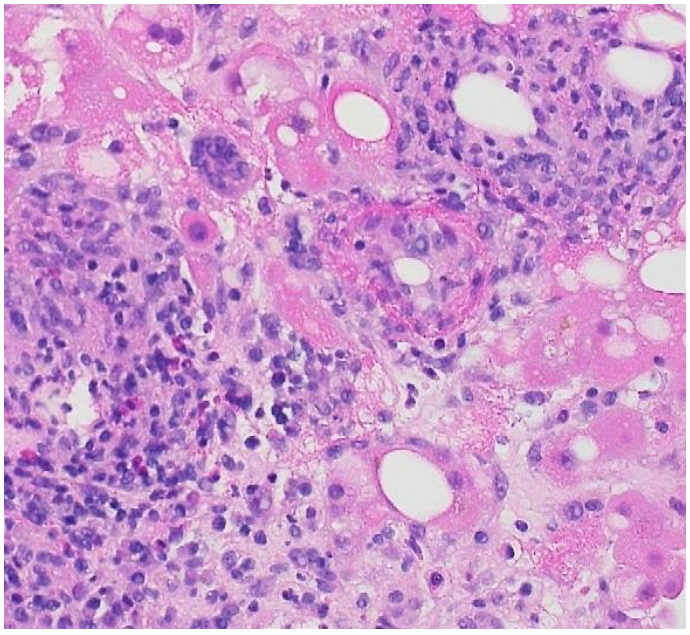
Learning objective: Acute Q-fever, a zoonosis, caused by *Coxiella burnetii*, can present with a variety of symptoms. Prolonged fever of unknown origin and elevated liver values are typical signs of *C. burnetii* hepatitis. In suspected cases of Q-fever the diagnosis has to be confirmed by serological testing since *C. burnetii* does not grow in routine blood cultures.
Case report: A 73-year-old male patient, author of local hiking guides, presented with high fever (38.8°C), cough, and diarrhea. Laboratory results showed an elevated c-reactive protein of 84 mg/L and elevated liver enzymes (alanine aminotransferase 400 U/L, γ-glutamyltransferase 84 U/L). On computer tomography a dilated common bile duct (CBD) without stone but with cholezystolithiasis was noted. Further imaging with magnetic resonance cholangiopancreaticography demonstrated a single stone in the CBD. With suspected cholangitis, an antibiotic treatment with piperacillin-tazobactam was started and endoscopic retrograde cholangiopancreaticography with sphincterotomy and extraction a single stone were performed. After intervention the liver enzymes did not decrease and fever persisted so further diagnostic work-up was performed: serology for Hepatitis B, C, E and alpha 1-antitrypsin were negative. On abdominal ultrasound there were new signs for acute calculous cholecystitis. Due to a markedly reduced performance status, a transcutaneous drainage of the gallblader was performed. Despite gallbladder drainage bilirubin continued to rise, so a liver biopsy was performed. The histology showed a marked subacute interstitial hepatitis with intrahepatic cholestasis and fibrin-ring granulomas, which are typically seen in patients with acute Q-fever. The diagnosis of an acute infection with *C. burnetii* was proven by highly-positive anti-phase II IgG (10240/DIL) and IgM (640/DIL). Doxycycline was started. The patient's fever decreased and his overall well-being improved rapidly. After 8 weeks of hospital stay he was dismissed to rehabilitation. At the 3-month follow-up the patient did well, liver enzymes had decreased to normal values.
Discussion: This case illustrates that initial diagnosis has to be re-evaluated if signs and symptoms persist. In our case the presence of a stone in the CBD mislead us to the diagnosis of a calculous cholecystitis. Finally the liver biopsy, which showed typical fibrin-ring granulomas, led to the diagnosis of *Coxiella burentii* hepatitis in line with acute Q-fever.



[Fibrinring granulomas]

P202

Necrotizing fasciitis of the lower extremities: comparison of two cases with opposite outcomes

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Learning objective: Necrotizing fasciitis (NF) is a rare but highly lethal soft tissue infection that affects the perineum and the extremities. The initial symptoms are not pathognomonic; hence it is often misdiagnosed. Immediate recognition and emergency surgical treatment are essential to improve survival, since untreated NF rapidly evolves into septic shock and multiple organ failure (MOF). Antibiotics and in some cases intravenous immunoglobulin play an important role but have little value in managing NF as an isolated intervention.
Case: Patient A (♀ 60y, history of congestive heart failure, hypertension and atrial fibrillation) was admitted to our emergency department with 2 weeks history of worsening left leg pain and dizziness. Patient B (♀ 48y, history of alcohol-abuse with no other known comorbidity) presented with rapidly progressive left leg pain, confusion, dizziness and anuria for 48h and a history of a domestic fall. Both patients showed erythema, swelling and tenderness of the affected leg. Patient B also displayed a subcutaneous hemorrhagic collection of the thigh, initially interpreted as a post-traumatic hematoma. Both presented symptoms of general toxicity including metabolic acidosis, coagulopathy and rapidly developed hemodynamic instability. Both were admitted to the intensive care unit (ICU), received antibiotic and inotropic therapy, continuous renal replacement therapy, intravenous immunoglobulin and hydrocortisone. Relatives of patient A opposed amputation; she underwent repetitive surgical debridement and recovered after a long ICU hospitalization. Patient B underwent proximal left femur amputation during the night of admission with early surgical revision because of progressive stump necrosis. Despite these procedures, she died of MOF 39h after admission.
Discussion: Patient A, though having an indication for amputation (septic shock requiring >1 inotrope), only underwent simple debridement and recovered, whereas patient B died in spite of broad leg amputation, challenging the concept that lack of radical intervention associates with increased mortality. The degree of metabolic imbalance appeared to be predictive: Patient B showed more severe hyponatremia, renal and liver impairment, lower platelet and higher white blood cell counts compared to patient A. Early diagnosis and intervention is key to improve survival. The virulence of pathogenic agents (S. dysgalactiae in A and S. pyogenes in B) may also play a role.

P203

Implementation of point-of-care ultrasound in the internal medicine department of a tertiary hospital in Switzerland

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Introduction: Point-of-care ultrasound (POCUS) is a valuable tool regularly used in the emergency department (ED) and is becoming a frequent and essential element for internists bedside assessment for in- and outpatient management. The additional information attained supports prompt clinical decision making. Nevertheless, high qualitative standards are crucial. In 2015, the Internal Medicine (IM) Department of the University Hospital Basel decided to set up a comprehensive POCUS service for in- and outpatients.
This abstract gives an overview on issues to consider, when implementing a POCUS service and indications for POCUS use in the first year after implementation.
Methods: *POCUS implementation:* A task force defined and worked on issues a-e:
a) Requirements for POCUS ultrasound and device selection
b) Discrimination POCUS vs specialist ultrasound
c) Process definition: image archiving, reporting, reimbursement
d) Quality assurance
e) Training period
Indication for POCUS use: The electronic data system was searched for POCUS reports, completed in the first year after implementation.
Results: *POCUS implementation:* 4 IM wards, IM outpatient clinic and IM ED were included in the project.
a) 4 mobile ultrasound devices (Mindray T7) were acquired after a test period
b) Indications and limits of POCUS were defined
c) Integration into the local image archiving system was verified - an electronic report was edited - reimbursement was specified
d) Written user instructions were generated - a supervisory service with accredited trainers (non-radiologists) was established - regular education courses were initiated
e) Initial 3-month pilot period was conducted
Finally, in January 2017 standardized POCUS was implemented.

Indications for POCUS use: In total, 1341 POCUS reports were identified and analyzed. Main indications were kidney and urinary tract-, soft tissue- and pleura examinations, accounting for >70% of all examinations. Table 1 summarized all indications. Indications with less than 1% occurrence were categorized as miscellaneous.
Conclusions: It is feasible to implement a POCUS service in IM clinics in a tertiary hospital. Suspicion of post-void residual urine and pleural effusion were common indications for POCUS and were simple and fast to diagnose when present. We observed that this had a valuable impact on patient management without the need of advanced technical skills.

Indication:	n (%)
Kidney and Urinary Tract	288 (21.5)
Soft Tissue (incl. Joints, Skin, Lymph Nodes etc.)	264 (19.7)
Post-void Residual Urine Volume	244 (18.2)
Pleura (Effusion, Pneumothorax)	173 (12.9)
Gallbladder and Biliary Tract	88 (6.6)
Bowel (Appendix, Hernia, etc.)	77 (5.7)
Ascites	66 (4.9)
Liver (Morphology, Lesions, etc.)	42 (3.1)
Volume status (Vena cava)	23 (1.7)
Deep Venous Thrombosis	17 (1.3)
Vascular (Aorta, Ultrasound Guided-Punctures)	15 (1.1)
Thyroid	14 (1.0)
Miscellaneous (Pancreas, Pericardial Effusion, Splenomegaly, Others)	19 (1.4)
Unspecified	11 (0.8%)

[Table 1: Indications for POCUS]

P204

How emotional stress impacts your heart and brain

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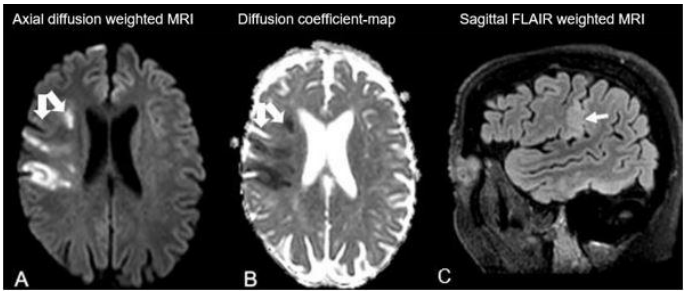
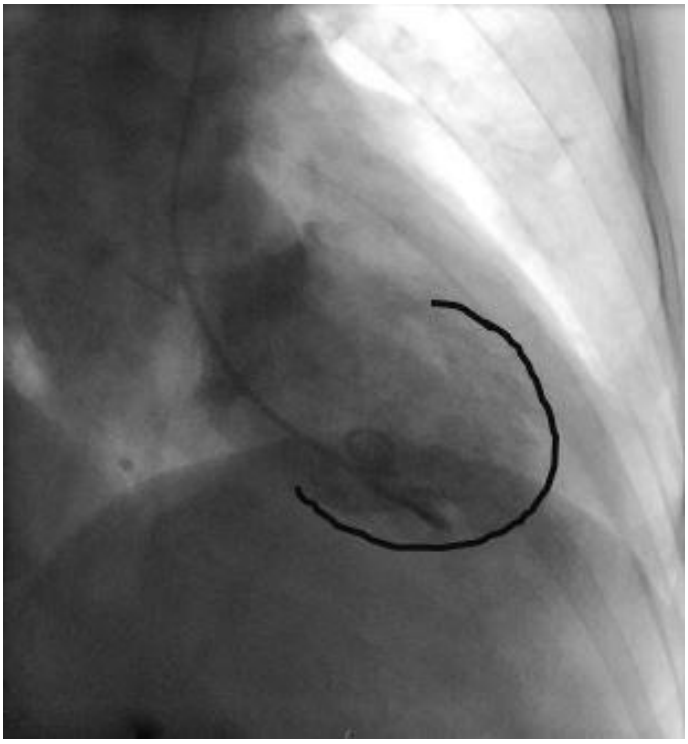
Learning objectives: Stress (Takotsubo) cardiomyopathy (TS) is an acute cardiomyopathy characterized by (transient) wall motion abnormalities. These can lead to intracardiac mural thrombus and consequently to thromboembolic complications such as ischemic stroke. Incidence of TS is often associated with previous emotional or physical stress. Here, we report the case of an elderly woman who, after being exposed to emotional stress, showed symptoms of TS and developed an ischemic stroke.
Case: A 76-year-old woman was hospitalized due to sudden onset of sensory disturbances in the left side of the body. Initially, the patient displayed only mild symptoms, which deteriorated over the next hours resulting in left-sided sensorimotor hemisyndrome, left-sided facial palsy, tactile neglect to the left and a dysarthria. The ECG showed T-segment depression in the inferolateral and anterior leads. Moreover, levels of hs troponin T and CK were increased. Brain MRI detected multiple acute ischemic areas in the vascular territory of the right middle cerebral artery (fig. 1). Transthoracic echocardiography revealed antero-apical akinesia and apical ballooning. This finding was confirmed in the laevo-cardiogram (fig. 2), whereas coronary angiography was without evidence of coronary thrombosis or relevant stenosis. In the work-up for stroke, we found no evidence for another embolic source, no signs of atherosclerosis or of vasculitis. Medical history revealed the recent death of her husband as a strong emotional stress. Therapy with ACE inhibitors and beta-blockers was initiated according to guidelines provided by the European Heart Journal. Due to persistent akinesia in the echocardiography, anticoagulation with rivaroxaban was started 7 days after acute ischemia.



[Fig. 1: MRI revealed acute ischemia (A, B) and cytotoxic edema during infarction (C) (white arrow).]



[Fig. 2: Laevo-cardiogram shows typical morphology in TS, namely apical ballooning]

Discussion: TS is often linked to physical or emotional stress and emphasizes the need for a comprehensive medical history. Furthermore, in our patient, TS was likely complicated by an embolic stroke, given the close temporal association and the fact that cerebral ischemia followed an embolic pattern with no other embolic source or stroke etiology identified. The development of thrombus and subsequent stroke has also previously been reported in TS. Our case thus highlights this potential severe complication of an otherwise benign and reversible cardiac disease. Monitoring for neurological complications and follow-up echocardiography to detect intracardiac thrombi in the course of TS is therefore advisable.

P205

Wasser auf dem Herz - Quelle im Darm

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Einführung: Bei dieser Patientin trat eine Influenza-B mit Myoperikarditis auf. Im Verlauf der Jahre traten rezidivierende Pleuroperikarditiden auf mit V.a. ein Zollikofer-Syndrom (postinfektiöse benigne Immunpleuroperikarditis). Schließlich wurde eine Colitis ulcerosa als Ursache der rezidivierenden Pleuroperikarditiden diagnostiziert.
Case-Report: Eine 34-jährige Patientin wurde im März 2015 mit einem Infekt zugewiesen. Bei V.a. virale Perimyokarditis mit Kreislaufinstabilität wurde sie katecholaminpflichtig und ans Zentrumsspital verlegt. Dort Bestätigung einer Influenza-B mit Perimyokarditis, Perikardtamponade und kardiogenem Schock, Behandlung u.a. mit Perikarddrainage und ECMO.

Im Juni 2015 trat ein Rezidiv auf. Es stellte sich zunächst der V.a. ein Zollikofer-Syndrom nach grippalem Infekt. Eine Proktitis mit klinisch Hämatochezie zeigte histologisch eine floride erosive Kolitis ohne Chronizitätszeichen. Ende 2016 kam es zu einem Rezidiv der Perikarditis mit Pleuraerguss links, unter Solu-Medrol und Ibuprofen gute Kontrolle. Rheumatologische Abklärungen (Antikörper, Komplementfaktoren) waren unauffällig.
Von 2015 bis 2018 traten rezidivierende Schübe der Pleuroperikarditis auf, mit jeweils gutem Ansprechen auf NSAR, Colchicin sowie Prednison.
Nach Diagnose der Proktitis 06/2015 konnte 01/2016 auch histopathologisch der V.a. einer Colitis ulcerosa werden, welche mit Azathioprin, NSAR sowie seit 09/2017 Vedolizumab therapiert wurde. Neu präsentierten sich Aphten, diffuse Arthralgien sowie eine seronegative Spondylarthropathie. Erneute rheumatologische Abklärungen, auch am Zentrumsspital, bestätigten den V.a. rezidivierende Polyserositiden, a.e. bei Colitis ulcerosa.
11/2018 erneute Perimyokarditis, klinisch fehlten gastrointestinale Beschwerden, koloskopisch sowie histopathologisch bestand eine leichtgradige entzündliche Aktivität, passend zu einer aktiven, gastrointestinal asymptomatischen Colitis ulcerosa. Deshalb Wechsel von Vedolizumab auf Infliximab mit auch Wirkung auf extraintestinale Manifestationen der Colitis ulcerosa.
Konklusion: Nach multiplen Rezidiven der Pleuroperikarditis und Nachweis einer gastrointestinal stummen, histologisch aktiven Colitis ulcerosa bei erneuter Pleuroperikardits interpretierten wir die Rezidive im Rahmen der Colitis ulcerosa.
Diskussion: Chronisch inflammatorische Darmerkrankungen können auch bei gastrointestinal asymptomatischer Situation extraintestinale Beschwerden, darunter auch Perimyokarditiden, verursachen.

P206

Paradoxical IRIS - a diagnostic chameleon

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Learning Objectives:
Immune reconstitution inflammatory syndrome (IRIS) in HIV-infected 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, alternatively, manifestation of a previously subclinical infection (unmasking IRIS)
Case: A 31-year-old female refugee from Ivory Coast was admitted to our Hospital in April 2018. In August 2017, active pulmonary Tuberculosis and HIV co-infection (CD4 count 9/µL; HI-VL 192'000/ml) was diagnosed in Italy. Intensive phase anti-tuberculous treatment (ATT) and ART were initiated resulting in sputum conversion and normalization of chest X-ray. Upon start with continuation phase ATT, the patient was lost to follow-up and treatment was interrupted.
In February 2018, the patient was admitted to our hospital: sputum smears were found positive for acid fast bacilli (AFB) and, in turn, both standard ATT and ART were re-initiated. Mycobacterial cultures were negative. The patient was discharged in good health with directly observed therapy.
In April 2018, the patient presented with fever, cough, hemoptysis and a papulopustular skin rash. Laboratory results showed a normal white blood cell count (Leukocytes 6.0 10^9/L) with eosinophilia (0.9 10^9/L,17.9%) and elevated IgE (3141 kU/L). CRP was 48mg/L (normal <5mg/l), CD4 count 134/µL, HI-VL <40/ml. Computed tomography of the lung showed bilateral consolidations, bilateral mediastinal and hilar lymphadenopathy and middle lobe atelectasis due to a necrotic endobronchial mass. Broncho-alveolar lavage (BAL) revealed a lymphocytic alveolitis (48% lymphocytes, CD4/CD8 ratio 2.4) without eosinophilia. BAL was negative for Pneumocystis jirovecii and bacteria, but positive for AFB. Mycobacterial cultures remained negative. Endobronchial and lung biopsies by video assisted thoracoscopy showed granulomatous inflammation, without AFB or evidence for parasites or malignancies. Serologies for parasites and culture negative bacteria were negative. Skin biopsies revealed an eosinophilic folliculitis.
A diagnosis of paradoxical IRIS was made. Treatment with methylprednisolone resulted in clinical improvement with resolution of pulmonary infiltrates and decrease of the endobronchial tumor.
Discussion: Paradoxical IRIS is a diagnosis of exclusion. This case highlights the different clinical manifestations, which impede prompt diagnosis and onset of treatment.

P207

Can pancreatic enzyme replacement therapy prevent severe kidney damage?

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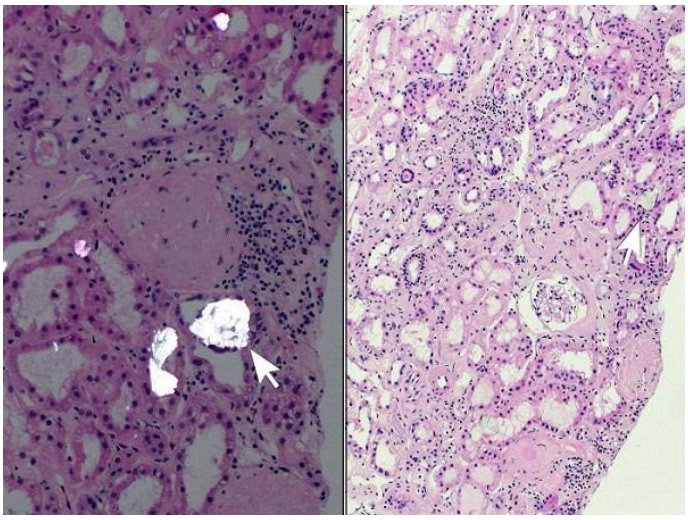
Introduction: Acute oxalate nephropathy is a severe complication of chronic pancreatitis.
Case: A 71 yo male patient presented with weeklong history of nausea, vomitus and diarrhea. His past medical history was remarkable for chronic pancreatitis (primary diagnosis >10 yrs ago), secondary diabetes mellitus and exocrine pancreatic insufficiency. He admitted to self-terminating his pancreatic enzyme replacement therapy 14 days earlier.
Physical examination: blood pressure 185/98 mmHg, heart rate 99/min, respiratory rate 18/min, SpO2 100%, neck veins collapsed at 0°, dry mucous membranes and uremic fetor.
Laboratory results: Renal failure (creatinine:1065 µmol/L), hyperkalemia (potassium: 6.1 mmol/l), metabolic acidosis (pH 7.28 [N:7.38-7.42], bicarbonate: 12.2 mmol/l [N:21-26 mmol/l]).
Kidney biopsy was performed showing extensive acute tubular damage and severe oxalosis with multiple calcium oxalate crystals both in the renal cortex and medulla. The diagnosis of severe oxalate nephropathy was made. Oral calcium and pancreatic enzyme supplementation was started. The serum oxalate was elevated (25.55 µmol/L [N: 4.31-8.55 µmol/L]), although the patient was already dialysed.
Despite withdrawing pre-existing ACE-Inhibitor therapy and administering crystalloid infusions, the patient remained oliguric and intermittent hemodialysis was initiated. One months after the initial renal failure persists and the patient remains on chronic outpatient hemodialysis.



[Acute tubular damage and birefringent oxalate crystals in polarized light (left), HE-stain (right)]

Discussion: In fat malabsorption syndromes such as chronic pancreatic insufficiency unabsorbed fatty acids competitively bind calcium leading to free enteric oxalate. Consequently, more free oxalate is reabsorbed into the bloodstream and filtered by the kidney. In the kidney oxalate binds to calcium resulting in oxalate nephrolithiasis/deposition. Increased oral calcium administration blocks this pathway. In our patient the selftermination of enzyme replacement therapy apparently triggered a rapidly progressive oxalate nephropathy by preexisting chronic kidney disease (serum creatinine 2 months before presentation 130uml/l).
Conclusion: The therapeutic effects of pancreatic enzyme replacement therapy exceeds the mere avoidance of diarrhea, especially in patients with preexisting chronic kidney disease (CKD) or acute kidney injury

(AKI). As physicians, we need to inform our patients about these additional effects of pancreatic enzyme replacement therapy to improve treatment adherence.

P208

Anticoagulant-related nephropathy: myth or reality?

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Introduction: The new oral anticoagulants (NOACs) have become very popular in medical practice since their appearance in the market, and are frequently the molecule of choice for the prevention of systemic embolization or stroke due to atrial fibrillation, for the treatment of venous thromboembolism or even due to their simpler use in comparison to warfarin. However, recent literature recognizes an increased risk of renal failure with both NACOs and warfarin.
Methods: We researched VigiAccess database for any evidence associating renal injury with all the NACOs as well as with warfarin, phenprocoumanone, acenocoumarol, heparin and enoxaparin. VigiAccess database is an international pharmacovigilance database from 134 countries from all around the world that are members of the World Health Organisation Programme for International Drug Monitoring.
Results: This data show that all anticoagulants can induce renal failure but particularly NOACs, as out of a total of 235,457 cases reported since 2003, 7,725 cases were renal side effects, the majority being an acute kidney injury (49.1%) or an unspecified type of renal failure (36.3%), see table 1. In addition, dabigatran and rivaroxaban were the drugs more frequently associated with renal injury: 4.4% and 3.3%, respectively, compared to 1.9% for apixaban and 1.7% for edoxaban. Of note, since the first case reported for both antivitamin K and heparin in 1968 only 2,145 and 2,263, respectively, of renal side effects have been reported, see table 1.
Conclusion: All anticoagulants can induce renal injury, being NOACs the most concerned. Therefore, medical doctors should be aware of this risk when prescribing a long-term anticoagulation to their patients.

Table 1 – Frequency and type of renal side effects for NOACs, antivitamin K and heparin retrieved from VigiAccess database from WHO Programme for International Drug Monitoring. Available in: http://www.vigiaccess.org/.

	NACOs	AVKs	Heparin
Total number of reported side effects	**N=235,457**	**N=117,015**	**N=80,508**
First case reported	**2003**	**1968**	**1968**
Renal side effects, n(%)	**7,725 (3.3)**	**2,145 (1.8)**	**2,263 (2.8)**
AKI	3,796 (49.1)	904 (42.1)	915 (40.4)
Renal failure unspecified	2,802 (36.3)	704 (32.8)	843 (37.3)
Renal haemorrhage	553 (7.2)	147 (6.9)	68 (3.0)
CKD	209 (2.7)	75 (3.5)	195 (8.6)
TIN	55 (0.7)	36 (1.7)	18 (0.8)
Other	310 (4.0)	279 (13.0)	224 (9.9)

All NACOs (rivaroxaban, apixaban, edoxaban and dabigatran) were included. Acenocoumarol, warfarin, phenprocoumone were regrouped as AVKs. AKI, acute kidney injury; AVKs, antivitamin K; CKD, chronic kidney disease; NACOs, new oral anticoagulants; TIN, tubulointerstitial nephritis.

[Table 1]

P209

Geriatric psychiatry in Swiss nursing homes - the view of general practitioners in the canton Basel-Stadt

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Introduction: The number of people living in nursing homes in Switzerland is increasing. Somatic diseases and particularly psychiatric disorders are common. Health care for nursing home residents in the Canton of Basel-Stadt is mainly provided by general practitioners (GPs) and no "Heimarzt-System" (= a designated physician solely responsible for a nursing home) is established in this canton. The aim of this study was to investigate the burden of psycho-geriatric conditions and their treatment among nursing home residents in Basel and to answer the question if GPs in Basel-Stadt wish to have an ambulatory psycho-geriatric service.
Method: A cross-sectional questionnaire study was performed. In total, 233 questionnaires were sent to all GPs in Basel-Stadt by post mail in November 2018. The questionnaire was created by the authors and included 31 questions after being revised by two GPs.
Results: Overall, 107 questionnaires were sent back (response rate 45.9%), and data of 88 GPs were analysed. Nineteen participants were excluded for three reasons: retirement, not caring for nursing home patients, incomplete data. One average, GPs cared for 16.5 (range 1 to 60) nursing homes patients and 20.5% worked in a single-handed, 23.9% in double-handed and 55.7% in group practices. One out of four (27.3%) had experience in psychiatry and 14.8% were certified in psychosomatic medicine. GPs stated that 62.9% of their patients had psychiatric symptoms. Dementia (61.8%), depression (23.7%) and sleeping disorders (10.5%) were the most common psychiatric conditions. Most common drug classes used by the GPs were neuroleptic agents (50%), and antidepressants (37.8%). Overall, 89.5% of GPs expressed a need for an ambulatory geriatric psychiatric service. Further, 72.3% of the GPs would support an optional "Heimarzt-System".
Conclusion: The vast majority of GPs in Basel-Stadt are in favour of the implementation of an ambulatory psycho-geriatric service and three out of four would support the option of a "Heimarzt-System". GPs reported a high percentage of psychiatric disorders among nursing home residents comparable to the literature. We found an imbalance between the most prevalent psychiatric condition and the most often used psychotropic drug class, a fact that should be further investigated.

P210

Influence of long-term outcome predictions on decisions to admit patients with and without advanced disease to intensive care

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Background: Decisions to admit patients to intensive care (ICU) should be based on patients' need for life-sustaining therapies, and long-term survival and functional prognosis. However, physicians' decisions are mostly influenced by the expected probability of improving patient survival in the short term. How long-term survival benefit and quality of life influence the ICU admission decisions is unclear.
Aim: Assess the influence of the estimated 6-month survival and functional status on ICU admission decisions.
Methods: Requests for ICU admission for medical in-patients were identified. The internist and the ICU physician involved were asked to estimate patient survival if admitted in the ICU and if staying on the ward (<10%, 10-40%, 41-60%, 61-90%, >90%), and 4 longer-term outcomes on a Likert scale. Advanced disease was determined based on diagnoses in the medical record. The admission decision and survival at 28 days were recorded.
Results: Among 201 patients, 105 (52.2%) had an advanced disease, and 140 (69.7%) were admitted to the ICU. The oldest patients (≥80 years) were less likely to be admitted. There was no difference between patients with or without advanced disease (p = 0.97). Physicians' estimates of patient survival at 6 months, functional recovery, and cognitive recovery were not associated with the admission decision. In the multivariate logistic regression models, only predicted short-term survival and older age were associated with the decision, for the whole population and for patients with advanced disease. Fifty-eight patients (28.9%) had died by day 28. Mortality was higher in patients with advanced disease (39.0% vs 17.7%).
Conclusions: ICU admissions were determined by short-term survival benefit, and not by long-term survival or functional prognosis, including for patients with advanced disease.
Funding: Swiss National Science Foundation, NRP 67 "End-of-life"

Gastgesellschaft SFGG / Société conviée SPSG

P211

Subacute cutaneous lupus erythematosus induced by omeprazole: a second effect to keep it mind

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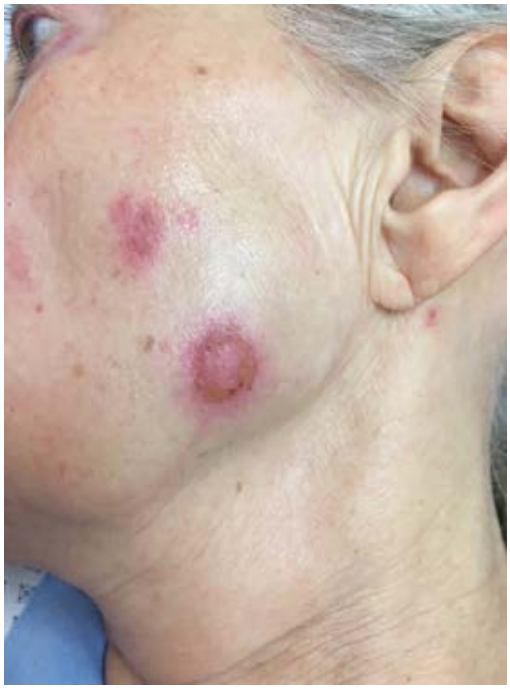
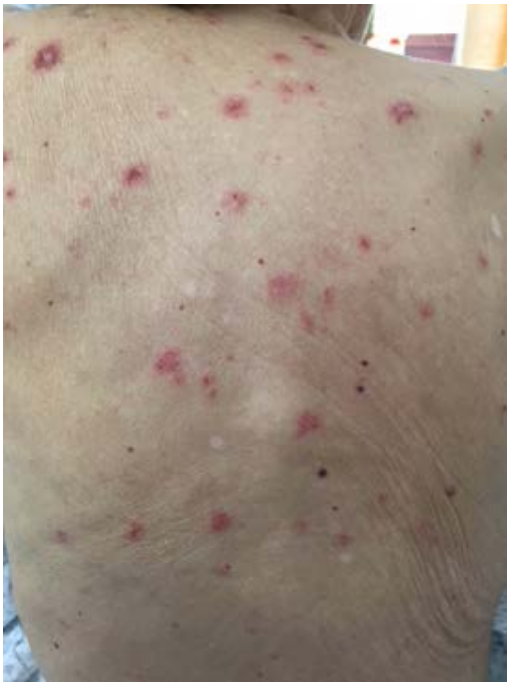
Learning objectives: Identification, diagnosis and treatment of Subacute Cutaneous Lupus Erythematosus (SCLE) caused by Proton pump inhibitors (PPIs).



[Fig 1: largeslightly squamous and purpuric macules on the face]

Case: A 81-year-old woman was admitted for pneumonia. Physical examination found erythemato-squamous lesions on the lips. During hospitalization, patient developed fever and erythemato-squamous plaques, evoluting to greyish and telangiectatic depigmentation on the face, trunk and external side of members (Figure 1 &2). We also noted two erythematous macules on hard palate. Biological inflammation persisted despite treatment with Piperacilline Tazobactam and good pulmonary evolution. Differential diagnosis was toxidermia, subacute lupus or undetermined viral rash. Skin biopsy was performed and histological examination found atrophic epidermal with abundant basal and suprabasal keratinocytes necrosis. Upper dermis showed an inflammatory cell infiltrate with mostly perivascular and interstitial lymphocytes with a lichenoid dermo-epidermal junction and mucine deposits. Direct immunofluorescence was negative. Laboratory tests found positive ANA (1/2580), with nucleoproteine specificity (119 unite) SSA/ SSB, and histone antibodies. DNA native were negative. Drug induced SCLE was therefore suspected. Omeprazole was started few months ago for epigastralgia. The diagnosis of systemic lupus erythematosus (SLE) was excluded because of the absence systemic organ failure. Omeprazole was stopped and patient was treated with topical corticosteroids and hydroxychloroquine. Two weeks after drug discontinuation we noticed that biological inflammatory syndrome and skin lesions decreased.

Discussion: To our knowledge, about 30 cases of SCLE induced by PPIs were reported. Pathophysiology can be explained by several mechanisms such as activation of specific drug's lymphocytes mimicking lupus biological and clinical presentation. The average delay between the introduction of PPIs and the onset of SCLE symptoms varied between 3 days and 4 months and the clinical recovery occurred within 4-12 weeks. A new diagnostic of SCLE is rare in the elderly. Therefore, clinicians have to think of drug-induced SCLE. Hydralazine, quinidine, isoniazid have been associated to systemic lupus. Because of co-morbidities requiring polymedication, elderly population is subject to a high risk of drug interaction and to side effects. SCLE induced by PPIs is a good example of a rare cutaneous side effect induced by a frequently prescribed drug.



[Fig 2: Disseminated typical subacute cutaneous lupus on the trunk]

P212

Multiple myeloma treatment induced DRESS syndrome

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Learning objective: Drug reaction with eosinophilia and systemic symptoms (DRESS) should be suspected in a febrile erythrodermia with eosinophilia and systemic involvement. Diagnosis is usually made only by the way of exclusion after exhaustive clinical investigations.

Case: We reported a case of a 77-year-old woman, treated since 3 weeks for Multiple Myeloma by chemotherapy of Lenalidomide and Bortezomib, taking Trimethoprim-Sulfamethoxazole as prophylaxis. After the 2nd dose of chemotherapy our patient developed progressive fatigue, fever, dyspnea with oxygen requirement and a pruritic maculopapular rash, involving total body and worsening in erythroderma with periorbital edema. Laboratory investigations showed leukocytosis 15.1 G/L with eosinophilia 3.58G/L (23.7%), high serum C-reactive protein (44mg/l) and acute renal injury (creatinine 121µmol/l) with proteinuria (0.45g/l). Liver and pancreatic enzymes were normal. The differential diagnosis included an exanthematous drug eruption, viral infection, paraneoplastic reaction and vasculitis. Blood cultures were declared sterile; the serology tests for hepatitis (HAV-HBV), CMV, EBV and HHV-6 acute infection were negative. Because of low rate of plasmocytes for chemotherapy treatment, paraneoplastic reaction was unlikely.

The clinical manifestations of maculo-papular rash, fever and eosinophilia, with a Regiscore of 7 points in favor of a definitive DRESS diagnosis and Japanese group score of 5 points for atypical DRESS, suggested a DRESS syndrome.

All medications were suspended and oral corticotherapy 1mg/kg was started. The evolution was marked by regression of rash, loss of fever and resolution of hyper eosinophilia. The histology of skin biopsy was consistent with drug eruption.

The eosinophilia kinetic and clinical manifestations 3 weeks after initiating chemotherapy suggested that Lenalidomide, Bortezomib and Trimethoprim-Sulfamethoxazole could be responsible for DRESS onset. Lymphocyte stimulation test was planned 4 weeks after cessation of corticotherapy in order to identify the casual drug. Meanwhile, the treatment of Multiple Myeloma was replaced by second line treatment.

Discussion: DRESS syndrome is a rare (1/1000-1/10000) delayed hypersensitivity reaction, that can be triggered by many drugs and can be potentially life threatening (mortality rate of 10%). Meticulous drug history and cessation of the causal drug are crucial for early diagnosis and prognosis.

P213

Charles bonnet syndrome - a case report

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Learning objective: Charles Bonnet syndrome is characterized by vivid, complex visual hallucinations. It occurs most often in elderly individuals with impaired vision with no psychiatric history. The diagnosis is based on a typical clinical presentation. Management requires awareness by physicians and primarily consists of providing empathy and reassurance. Effective treatments with antipsychotics, antiepileptics and SSRIs have been used with some benefits.
Case: A 86-year old woman came into our clinic with chronic low back pain without history of trauma and with visual hallucinations. Medical history was remarkable for vitreoretinal degenerations in both eyes with poor vision since childhood. Her visual acuity decreased rapidly in the last two months. She reported seeing unknown detailed images of people in her home, mostly at night in the last two months. She had full insight into the unreal nature of the hallucinations though with frightening potential. Her general practitioner reduced her fentanyl and pregabalin against her back pain to try to reduce her hallucinations without success. Her mini mental state showed a limiting performance due to poor vision and with no other pathology in her neurologic examination. She had no past history of any mental disorders. Haematological and biochemical findings were unremarkable. Cranial MRI showed an age related circumscribed frontal atrophy but no other abnormalities in the brain. Her EEG disclosed no pathology. We started pharmacotherapy with gabapentin and seroquel. The patient reported that the hallucinations disappeared. The medication has been well tolerated. The lower back pain was successfully treated with tapentadol. The patient was discharged after 1.5 weeks with no hallucinations and almost free of pain.
Discussion: There is a great lack of knowledge about Charles Bonnet syndrome among physicians. As our society ages, physicians are more likely to encounter it. It should be considered in elderly patients with visual hallucinations in the absence of any mental disorder. Awareness by physicians is critical to appropriate diagnosis and treatment to reassure patients that they are not suffering from a mental disorder. The diagnosis is based on a typical clinical presentation. Pharmacologic therapy may be considered in cases of disturbing hallucinations. Effective treatments with antipsychotics, antiepileptics and SSRIs have been used in elderly patients with visual hallucinations.

Gastgesellschaft SGKPT / Société conviée SSPTC

P214

Pharmacokinetic and tolerability profile of sultiame in healthy volunteers with in vitro characterization of its uptake by red blood cells

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Introduction: Sultiame (Ospolot®), an inhibitor of carbonic anhydrase, is a first choice treatment in several countries for benign epilepsy with centrotemporal spikes, a non-lesional epileptic syndrome of childhood. Its pharmacokinetic (PK) profile was scarcely studied in humans. It represents a suitable candidate for paediatric formulation optimization, as the current formulation of coated tablets of 50 or 200 mg allows neither precise and adapted dosing, nor convenient administration to young children. In that context, a pilot study aiming at specifying sultiame's PK was conducted.
Methods: Single oral doses of 50, 100 and 200 mg of sultiame (Ospolot®) were administered in open-label study during periods 1, 2 and 3 respectively, at 3-4 weeks intervals in four healthy volunteers. On each period, serial plasma, whole blood and urine samples were collected. A validated high performance liquid chromatography coupled to tandem triple quadrupole mass spectrometry method was used for the quantification of sultiame in whole blood, plasma and urine.
A spiking experiment was also performed to characterize sultiame's exchanges between plasma and erythrocytes observed in vivo.
PK parameters were evaluated using standard non-compartmental calculations and non-linear mixed effect modelling.
Results: The plasma concentration results showed striking non-linear disposition of sultiame with a tenfold increase, while doses were doubled. Conversely, whole blood concentrations increased less than dose-proportionally and remained much higher than plasma concentrations. Very quick uptake of sultiame into erythrocytes was observed in vivo and in vitro with minimal efflux. Plasma, whole blood and urine PK parameters computed using a non-compartmental approach accordingly showed dose-related variations. A three-compartment model (NONMEM®) incorporating a saturable ligand to receptor binding best described the data.
Conclusions: Sultiame's PK is described in details for the first time, including estimations of clearance and volume of distribution that were so far unpublished. Plasma-to-blood concentration ratio confirms sultiame's strong affinity for red blood cells, with saturable binding. This non-linearity is attributed to a strong affinity for carbonic anhydrase abundant in erythrocytes. Further studies and therapeutic monitoring interpretation should take this peculiarity into account.

P215

Therapeutic monitoring of direct-acting antivirals for the treatment of hepatitis C

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Introduction: Standard therapy of chronic HCV infection is currently based on direct-acting antivirals (DAAs), which are significantly more effective than pegylated interferon-alfa and ribavirin, have a good tolerance, and allow for short treatment durations. It is common practice to monitor treatment efficacy with measurements of blood HCV viral load. However, we do not have clear recommendations for this monitoring, based on viral kinetics under DAA-based treatment. The additional usefulness of DAA concentration monitoring is uncertain.
Methods: We conducted a retrospective observational study in chronic HCV infected patients. All patients were ≥ 18 years old, treated in our hospital from 2013 to 2017 with sofosbuvir-based DAA combinations.
Results: We included 202 patients (71% men, mean age 55 years). A sustained virologic response (SVR) was achieved in 193 (95.5%) patients, 9 (4.5%) patients had a post-treatment relapse. Patients in response and relapse groups differed for the rate of history of hepatocellular carcinoma (HCC) (10% vs. 56%, $p = 0.002$) and the prevalence of Child-Pugh scores B and C (11% vs. 33%, $p = 0.045$). Pretreatment levels of total bilirubin, prothrombin time, alkaline phosphatase, and creatinine were significantly higher in the relapse group (all $p < 0.05$), possibly as markers of a more advanced liver disease. Previous history of HCC, hepatitis B virus co-infection, and IL28B rs12979860 genotype CT/TT were independent predictors of treatment failure. We did not find any relationship between therapy outcome and either HCV RNA or alanine transaminase (ALT) at baseline, week 2, week 4, or at the end of treatment. None of these markers appeared of monitoring interest for response prediction. Plasma concentrations of the major sofosbuvir metabolite GS331007 and of daclatasvir tended to be lower in patients with relapse. However, the limited number of patients precludes any firm conclusion.
Conclusions: Beyond known pre-existing prognostic factors, confirmed in our study, there is no indication that regular follow-up of HCV RNA or ALT during DAA treatment could help to predict treatment outcome in HCV infected patients. The potential role of DAA plasma concentration monitoring deserves to be evaluated in a larger study.

P216

Pharmacokinetics and subjective effects of a novel oral LSD formulation in healthy subjects

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Background and Purpose: The aim of the present study was to characterize the pharmacokinetics and exposure-subjective response relationship of a novel oral solution of lysergic acid diethylamide (LSD) that was developed for clinical use in research and patients.
Experimental Approach: LSD (100 µg) was administered in 27 healthy subjects using a placebo-controlled, double-blind, cross-over design. Plasma levels of LSD, nor-LSD, and 2-oxo-3-hydroxy-LSD (O-H-LSD) and subjective drug effects were assessed up to 11.5 h.
Key Results: First-order elimination kinetics were observed for LSD. Geometric mean maximum concentration (C_{max}) values (range) of 1.7 (1.0-2.9) ng/ml were reached at a T_{max} (range) of 1.7 (1.0-3.4) h after drug administration. The plasma half-life ($T_{1/2}$) was 3.6 (2.4-7.3) h. The AUC_{∞} was 13 (7.1-28) ng´h/ml. No differences in these pharmacokinetic parameters were found between male and female subjects. Plasma O-H-LSD but not nor-LSD (<0.01 ng/ml) concentrations could be quantified in all subjects. Geometric mean O-H-LSD C_{max} values (range) of 0.11 (0.07-0.19) ng/ml were reached at a T_{max} (range) of 5 (3.2-8) h. The $T_{1/2}$ and AUC_{∞} values of O-H-LSD were 5.2 (2.6-21) h and 1.7 (0.85-4.3) ng´h/ml, respectively. The subjective effects of LSD lasted (mean ± SD) for 8.5 ± 2.0 h (range: 5.3-12.8 h), and peak effects were reached 2.5 ± 0.6 h (range 1.6-4.3 h) after drug administration. EC_{50} values were 1.0 ± 0.5 ng/ml and 1.9 ± 1.0 ng/ml for “good” and “bad” subjective drug effects, respectively.
Conclusions and Implications: The present study characterized the pharmacokinetics of LSD and its main metabolite O-H-LSD. The subjective effects of LSD were closely associated with changes in plasma concentrations over time.
The study was registered at ClinicalTrials.gov (NCT03019822).

P217

Drug safety screening at a tertiary care hospital - evaluation of a pilot phase

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Introduction Preventable medication errors are frequent causes of adverse drug events (ADE) and present a major public health burden. Drug safety screenings (DSS) can help to detect risk constellations and optimize drug treatment.
Methods Retrospective analysis of weekly DSS of patients on internal medicine wards. Diagnoses, medication list and lab results in electronic patient charts were screened by a clinical pharmacologist. We scanned for possible drug-drug interactions using software tools (youscript®, uptodate® and compendium®) and evaluated drug dosages based on kidney and liver function tests. For frequent risk-constellations, screening algorithms for SQL queries were developed. DSS findings were classified into five categories: pharmacokinetic (PK) or pharmacodynamic (PD) interactions, lack of indication, lack of dose adjustment or missing therapeutic drug monitoring (TDM). Findings were grouped as potentially critical or non-critical regarding possible clinical consequences, documented in the electronic patients charts and, if necessary, directly communicated to the treating physician.
Results During the 54-week pilot phase, 1091 screenings were performed on 871 patients resulting in 265 (24%) findings. The median age was 63 years (range 16-97 years). 148 (56%) of the findings were PD interactions, most frequently (83 cased, 56%) risk of QT-time prolongation. PK interactions were found in 73 (28%) of the cases. In 22 (8%) cases, a dosage adjustment was necessary, in 14 (5%) cases an adequate indication for a prescribed drug was lacking, and in seven (3%) cases adequate TDM was not performed. Eighty percent of the patients were discharged before follow-up, in the remaining patients, 73% (35 cases) of the DSS recommendations were implemented by the clinicians. 79 (30%) of the findings were classified as potentially critical. 102 ADE (occurring in 12% of the screened patients) were reported to the RPVC Bern.
Conclusions Regular DSS is an important tool to detect medication errors and adverse drug events in hospitalized patients. However, review of individual patient charts is inefficient and time-consuming. Semi-automated screening of electronic patient charts based on predefined algorithms can support DSS efforts. In the future, incorporation of DSS algorithms into Clinical Decision Support systems would be desirable to transform DSS from a reactive into a proactive process at the point of care.

P218

Dose optimization of intravenous metamizole in children less than 6 years old - a population pharmacokinetic analysis

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Introduction: Metamizole (dipyrone) is a prodrug that is utilized as second line treatment for acute pain and high fever in children. In Swiss pediatric hospitals it is routinely, but off-label, used intravenously in infants younger than one year at differing standard doses (in mg/kg). The objective of this analysis was to characterize the age- and weight-dependency of its pharmacokinetics (main active metabolite 4-methyl-amino-antipyrine MAA, and 3 further metabolites) in young children and to provide a rationale for optimal and harmonized intravenous dosing in infants and young children.
Methods: A population pharmacokinetic model was developed for MAA and the three other metabolites utilizing data from a recent pharmacokinetic study including 24 infants and children (1 to 6 concentration measurements per patient) aged 3 months to 6 years receiving 10 mg/kg metamizole intravenously. Covariate analysis was performed to investigate influence of weight and age on MAA clearance (CL) and volume of distribution (V). Stochastic model simulations were performed to (i) predict median and 95% prediction intervals of exposure (area under the curve, AUC) over age and weight and (ii) identify an optimized pediatric dose across relevant weight bands to achieve equal exposure as reported in adults.
Results: MAA concentrations were described with a one-compartmental distribution model with first-order building (hydrolization of metamizole to MAA) and elimination kinetics (hepatic metabolism). Standard allometric scaling was applied to account for weight effects on CL and V (power exponent of 0.75 and 1, respectively). Influence of age was best described by a sigmoidal relationship improving CL predictions for infants. Output from simulations revealed that that pediatric doses of 5 mg/kg in children <1 year, and 10-20 mg/kg in children >1 year of age, respectively, are required to reach similar median exposure as observed in adults receiving an absolute dose of 500-1000 mg.
Conclusions: Observed age effect on clearance indicated that the MAA elimination process undergoes maturation during the first two years of life. Taking this into account, we propose a lower weight-based intravenous dose for infants younger than one year than in older children, thereby completing the dose recommendation for the labeled age bands and providing a rationale for dose harmonization.

P219

The effect of food on the pharmacokinetics of oral ivermectin

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Introduction: The antiparasitic ivermectin (IVM) has been widely used since the 1980s for the treatment of conditions such as river blindness or scabies. It inhibits synaptic transmission by binding to glutamate-gated chloride channels in invertebrates. The human safety profile of ivermectin is considered excellent, but pharmacokinetic (PK) variability is high and still poorly understood.
For this analysis, we looked at the influence of fasted vs. fed dosing on the oral PK of IVM because published data so far are ambiguous. Guzzo et al. (2002) reported a 2.6x increase in the area under the curve (AUC) with high-fat meals. Miyajima et al. (2016) saw a 1.25x increase in AUC. Fed state dosing can enhance bile secretion, lead to better dissolution

by micellar solubilizing, and increase absorption of hydrophobic drugs. Higher plasma lipids could also improve solubility.
Methods: Data was taken from Duthaler et al. (2018, n = 12 with fed state dosing) and an unpublished pilot trial (n = 3, fasted state). Trials were performed in healthy volunteers with a single oral dose of 12 mg IVM. Population pharmacokinetic analysis was done using NONMEM. We used our previously published two-compartment model with transit compartment absorption. We attempted to improve the model by accounting for changes in oral bioavailability, transit compartments, and distribution volumes.
Results: In total, 348 post-dose measurements were available for analysis. The final model added a relative bioavailability term (F1), estimated at 0.82 for fasted dosing.
Conclusions: We estimated the availability of fasted-state dosing to lie at 82% of that of fed-state dosing, or, conversely, a food effect of 1.22. This is almost identical to data recently published by Miyajima et al. (2016) but much lower compared to Guzzo et al. (2002). This may be due to the high doses administered by Guzzo et al. (30 mg), whereas Miyajima et al. used 12 mg. An important shortcoming of this analysis is the small number of volunteers, esp. for the fasted-state condition. Overall, however, no considerably larger trials have addressed food effect in ivermectin. Aside from increase in sample size, it would be desirable to more closely investigate the oral absorption of ivermectin by, for instance, increasing the number of samples taken in the first few hours after dosing.
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P220

Crossover pharmacokinetics of the "Basel" phenotyping cocktail combination capsule with its individual components in healthy male adults

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Introduction: Cytochrome P450 (CYP) enzymes are responsible for the metabolism of endogenous and xenobiotic compounds. Drug interactions and disease states can alter CYP function substantially, regardless of the underlying genotype. Therefore, estimates of CYP activity are relevant for clinical decision making in drug therapy. We selected and tested six CYP isoform-selective probe drugs, which were administered in a single capsule at either low or sub-therapeutic doses.
The aim of the present study was to compare the phenotyping metrics of a combination capsule formulation to its individual components. Moreover, a reduced sampling regimen was elucidated to facilitate clinical applications.
Methods: We performed a crossover pharmacokinetic study in twelve healthy male subjects to compare the Basel phenotyping cocktail capsule containing six probe drugs with individual administration of the same drugs. Parent compounds and selected metabolites were quantified by liquid chromatography tandem mass spectrometry. Metabolic ratios for the area under the time-concentration curve (AUC) and single time point measurements were calculated and compared.
Results: Both cocktail formulations (capsule and individual probe drug administration) were well-tolerated and yielded in reproducible metabolic ratios between subjects, which were almost identical. Single time point ratios correlated well with the corresponding AUC ratios. However, due to different serum concentration profiles of the test compounds, phenotyping of all six CYPs could not be achieved with a single time point measurement. For both formulations, metabolic ratios at 6h correlated well (R^2 >0.76) with AUC ratios of caffeine (CYP1A2), efavirenz (CYP2B6), flurbiprofen (CYP2C9), and metoprolol (CYP2D6). Optimal midazolam (CYP3A4) sampling time points were at 2h (R^2 = 0.876) and 1h (R^2 = 0.885) for capsule and individual components, respectively. Omeprazole (CYP2C19) showed a highly variable absorption phase with good correlations (R^2 >0.73) at 6h and 1h for capsule and individual components, respectively.
Conclusions: The capsule formulation is well tolerated, easy to swallow, and provides reliable estimates for CYP activity. Optimal sampling points for the capsule formulation are 2 and 6 hours after intake.

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Influence of genetic polymorphisms within the serotonin system on the acute effects of 3,4-methylenedioxymethamphetamine (MDMA)

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MDMA (Ecstasy) even if recreationally used can lead to adverse events such as sympathomimetic toxicity or hyperthermia. Most of the acute effects of MDMA including its mood, cardiostimulant, and thermogenic effects can be attributed to the MDMA-induced release of serotonin (5-HT). Accordingly, we hypothesized that genetic variants including single-nucleotide polymorphisms and polymorphic regions in the 5-HT system genes influence the acute responses to MDMA in humans. We characterized the effect of common genetic variants within genes coding for the 5-HT system (TPH1 rs1800532, TPH2 rs7305115, 5-HTR_{1A} rs6295, 5-HTR_{1B} rs6296, 5-HTR_{2A} rs6313, and SLC6A4 5-HTTLPR and rs25531) on the acute physiological and subjective response to 125 mg MDMA compared to placebo in 124 healthy subjects (64 women) using data derived from eight similar randomized, double-blind, placebo-controlled crossover studies from the same laboratory. Differences in maximal effects (MDMA-placebo) were analyzed using one-way analyses of variance with genotype as between-subject factor. The area under the MDMA plasma concentration-time curve from 0-6 h was included as covariate in the ANOVAs. Carriers of the 5-HTR_{2A} rs6313 A-allele displayed higher scores of "good drug effect" compared to homozygous G-carriers (mean±SD increase: 80±25 vs. 66±29; $F_{1,121}$ = 6.93, p = 0.01). Individuals with a short-allele of the SLC6A4 5-HTTLPR had higher ratings for "good drug effect", "drug liking", and lower ratings for "bad drug effect" compared to homozygous long-allele carriers (79±27 vs. 70±27, 80±26 vs. 72±27, and 13±25 vs. 25±25, respectively; $F_{1,121}$ = 6.51, p = 0.01, $F_{1,121}$ = 5.06, p = 0.03 and $F_{1,121}$ = 4.94, p = 0.03, respectively). MDMA produced a higher peak increase in body temperature in G-allele carriers of the TPH2 rs7305115 compared to homozygous A-allele individuals (0.3±0.5 vs. -0.1±0.6 °C; $F_{1,121}$ = 4.84, p = 0.01). There was no difference in the cardiostimulant effect of MDMA associated to any of the genetic variants tested. After correction for multiple testing, none of the abovementioned effects of genetic polymorphisms within the 5-HT system that altered the response to MDMA remained statistically significant. The findings suggest that variations in genes coding for 5-HT system targets do not significantly influence the effects of MDMA in healthy subjects and are unlikely to play a role in MDMA intoxications despite the clear role of 5-HT as a mediator of MDMA's effects.

P222

The susceptibility to the metamizole metabolite MAA depends on the differentiation state of myeloid progenitor cells

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Introduction: Metamizole, an analgesic and antipyretic drug widely used due to its good tolerability and favorable overall safety profile, can cause life-threatening neutropenia in susceptible patients. Since previous results indicated that metamizole cytotoxicity may be limited to neutrophil precursor cells (unpublished data), our objective was to investigate the change in sensitivity of neutrophil precursors during differentiation and the accompanying enzymatic changes.
Methods: We initiated differentiation of promyelocytic HL60 cells into neutrophils and assessed the change in susceptibility of the cells to the cytotoxic combination of the main metamizole metabolite N-methyl-4-aminoantipyrine (MAA) with the hemoglobin break down product hemin. We monitored the differentiation progress morphologically by light microscopy and by expression of the cellular surface marker CD66a. We assessed the expression of anti-oxidative and heme degrading enzymes during neutrophil differentiation by PCR and Western blots. Accompanying susceptibility to cytotoxicity elicited by MAA and hemin was determined by detection of apoptosis and necrosis by Annexin V/PI staining.
Results: HL60 cells differentiated by around 45% into band and mature neutrophils within 5 days. At day 3 of the differentiation process, the cells consisted predominately of metamyelocytes and became significantly resistant to the combination of MAA and hemin, which was cytotoxic for

less differentiated promyelocytic HL60 cells. The expression of the anti-oxidative enzyme superoxide dismutase 2 (located in the mitochondrial matrix) increased significantly during differentiation, whereas the superoxide dismutase 1 expression (located in the mitochondrial intermembrane space and cytosol) decreased. Heme oxygenase-1, which degrades hemin, was progressively expressed during differentiation. Interestingly, the expression of cytochrome c reductase, which is needed for heme oxygenase-1 function, increased to a maximum at day 3 and decreased again with further differentiation. Further, the cellular glutathione content, an important anti-oxidant, increased during differentiation.
Conclusion: We showed that HL60 cells become resistant to the cytotoxic combination MAA/hemin on the metamyelocyte state of differentiation. We suppose that the increasing cellular anti-oxidative capacity and/or the ability to degrade hemin are responsible for the observed change in susceptibility.

P223

Implementation and outcomes of pharmacogenetic testing for evidence-based indications and screening using a panel with 16 target genes

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Introduction: There is an increasing number of evidence-based indications for pharmacogenetic (PGx) testing with expert-based specific recommendations for PGx-based patient management, as well as a growing demand for PGx screening tests. We report our experience from the implementation of PGx testing in routine clinical practice.
Methods Inpatients and outpatients with either evidence-based indications for PGx testing or patient-driven demand of PGx screening were identified in two departments of general internal medicine with collaborating experts in clinical pharmacology, clinical pharmacy, molecular biology and seamless integration of the SONOGEN XP expert system. After obtaining written informed consent we analyzed blood samples by using a 16-gene PGx panel (ABCB1, COMT, CYP1A2, CYP2B6, CYP3A4, CYP3A5, CYP2C9, CYP2C19, CYP2D6, CYP4F2, DPYD, OPRM1, POR, SLCO1B1, TPMT, VKORC1). Results were analyzed by SONOGEN XP, evaluated by experts in clinical pharmacology and pharmacy, and subsequently used for PGx-based pharmacotherapy decision-making.
Results: We analyzed 66 patients that underwent PGx testing; 45 men, 21 women, and 47 with evidence-based indication vs. 19 with patient-driven PGx screening. Primary indications were treatment with clopidogrel in 48%, oxycodone in 5%, tamoxifen in 5%, other medications in 6%, statin-induced myopathy in 6%, and PGx screening in 30%. In the 47 patients with an evidence-based indication we found actionable variants of the primary target genes in 23 patients (49%). The analysis of all 16 genes in all 66 patients identified at least one actionable variant in 100% of patients, yet naturally not all patients were currently taking drugs affected by these variants.
Conclusions: Comprehensive PGx-based personalized patient management requires specialized multidisciplinary networks and patient care. For evidence-based single target genes identification of variants had a clinically relevant impact on patient management in 49% of our patients, and cost-efficiency is mainly driven by the prevalence of actionable variants in the tested population. In contrast, the use of a 16-gene PGx panel led to the identification of actionable PGx variants in 100% of the tested population without substantial additional costs vs. single gene tests. Traditional single target gene cost-benefit calculations tend to underestimate this likely high efficiency of multigene PGx panels over the whole life-span.

P224

Pharmacokinetics, safety, tolerability and palatability of an innovative ethosuximide granule formulation designed for paediatric use

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Introduction: Ethosuximide is a first line therapy for treating childhood absence epilepsy, but the currently available syrup formulation has an unpleasant bitter taste and high sugar content, not adapted to the needs of paediatric patients. The aim of this collaborative European FP7 project named KIEKIDS was to develop an innovative sugar-free, tasteless and convenient ethosuximide formulation for paediatric use. This dual Phase I study evaluated two granule formulations (A, B) based on Lipid Multi-Particulate technology.
Methods: Panels A and B followed a randomised, placebo controlled, partly double-blind, 3-way cross-over design, comparing placebo granules, ethosuximide granules A or B, and the marketed syrup Zarontin® at a single dose of 10 mg/kg. The plasma pharmacokinetic profile and relative bioavailability of ethosuximide were compared, as well as palatability, safety and tolerability. Twelve healthy adult volunteers were enrolled (6 per panel). Ethosuximide concentrations were determined by high-performance liquid chromatography and UV detection. Visual analogue scales (VAS) were applied to assess palatability and neurological and digestive tolerability.
Results: The granules A in Panel A had a marked bitter taste and adhered to container walls. In contrast, the optimised granules B developed for Panel B presented an excellent palatability not different from placebo granules and were easy to administer.
The relative bioavailability of granule formulations compared to Zarontin® was based on dose-normalised C_{max} and $AUC_{0-\infty}$. Its mean estimate for granules A was 93.7 [90% CI: 76.3 - 115.1] and 96.1 [91.0 - 101.5], respectively. For the optimised granules B it reached 87.6 [81.6 - 94.0] and 92.5 [88.5 - 96.6], respectively. Interestingly, granules B displayed a delayed T_{max} of 0.75 h [0.5 - 4.05] compared to syrup 0.5 h [0.3 - 0.8].
VAS assessments for tolerability revealed slight transient dizziness, sedation, and anxiety, more pronounced and more frequently after syrup than after active granules. Other neurological and digestive VAS assessments were similar between treatments.
Conclusion: This innovative granule formulation of ethosuximide has achieved the target profile for paediatric use, including a favourable palatability profile and a pharmacokinetic bioequivalence within range 80 - 125%. A slightly slower absorption rate might explain the lower dizziness degree transiently reported after granule intake.

P225

Statins and insulin resistance

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Statins are drugs used to decrease serum LDL-cholesterol and contribute to reduce morbidity and mortality associated to cardiovascular diseases. They are well tolerated but are associated with skeletal muscle disorders and were reported, more recently, to induce insulin resistance and new-onset diabetes in treated patients, with an incidence close to 30% (Crandall et al., 2017). However molecular mechanisms underlying statin-induced insulin resistance are not fully elucidated to date. **Goals** of the study were to characterize the effects of simvastatin on glucose metabolism *in vitro* and *in vivo* and to unravel processes leading to simvastatin-induced insulin resistance in skeletal muscle cells.
C2C12 myotubes were treated with 10 µM simvastatin and/or 10-100 ng/mL insulin for 24 hours. Glucose uptake assays were performed. Insulin receptor pathway activation and GLUT4 translocation were analyzed with western blotting. Male C57BL/6J mice were treated with water or 5 mg/g/day simvastatin for 21 days. Basal glucose and insulin levels were measured in fasted mice. Intra peritoneal glucose tolerance test (IGTT) and glucose uptake were performed. Insulin concentrations at different time points were also measured.
Simvastatin reduced the glucose uptake by half in myotubes and insulin stimulation restored the glucose absorption rate. The insulin receptor phosphorylation was decreased in myotubes treated with simvastatin. Investigation of GLUT4, an insulin-sensitive glucose transporter, showed a significant decrease of its translocation to the cell membrane, explaining the impaired glucose uptake inside the cells. While fasting plasma

glucose and insulin were similar between water and simvastatin treated mice, glucose plasma concentrations were higher in mice treated with simvastatin during the IGTT. Insulin levels were higher in simvastatin treated mice, which showed also a higher HOMA-IR, indicating insulin resistance. Accordingly, the glucose uptake in gastrocnemius of simvastatin-treated mice was impaired.
Simvastatin disturbed glucose homeostasis, reduced glucose uptake and elicited insulin resistance in mice and C2C12 myotubes. Mechanisms involved were a defect of the insulin receptor activation and a decreased amount of glucose transporters at the cell membrane. Insulin prevented these adverse events when used in co-treatment. Future studies are needed to show if these mechanisms lead also to the development of diabetes in patients treated with statins.

P226

Presentations related to acute paracetamol intoxication in an urban emergency department in Switzerland

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Introduction: Paracetamol is the most commonly used drug worldwide for treatment of pain and fever. Although generally considered safe in recommended dosage, severe hepatotoxicity and fatalities have been reported in cases of overdose. The aim of this study was to analyze Emergency Department (ED) presentations related to acute paracetamol intoxication, in order to investigate prevalence, patterns, and susceptible groups.
Methods: Retrospective study of patients presenting to the ED of the University Hospital of Bern between May 2012 and October 2018 due to paracetamol overdose (defined as intake of >4g/24 h). Cases were identified using the full-text search of the electronic patient database (E.care) and were grouped in intentional (suicidal/parasuicidal) and unintentional intoxications (e.g. patient unaware of maximal daily dose and/or risks of overdose).
Results: During the study period, 181 cases were included, of those 143 (79%) were intentional intoxications. In the intentional compared to the unintentional group patients were more often female (85% vs 45%, p <0.001), younger (mean age 28 vs 43 years, p <0.001), had more often documented psychiatric comorbidities (93% (among them 49% borderline personality disorder) vs 24%, p <0.001), and paracetamol was more often taken as a single dose (80% vs 13%, respectively, p <0.001). Although the mean daily ingested dose was lower in the unintentional compared to the intentional group (9.9g vs 16.1g, p <0.001), patients in the unintentional group presented later to the ED (29% vs 84% within 24 h after ingestion, p <0.001), had more cases of acute liver failure (nine (24%) vs six (4%), p <0.001) and were more often hospitalized (24% vs 52% treated as outpatients, p = 0.002). There were no significant differences between the groups regarding drug induced liver injury (seven cases (5%) in the intentional and one (3%) in the unintentional group) or fatalities (one in each group).
Conclusions: The majority of ED presentations due to paracetamol poisoning were intentional, most commonly in female patients with borderline personality disorder. Patients with unintentional paracetamol intoxication also appear to be a vulnerable group with worse outcomes regarding acute liver failure and hospitalization. Future preventive measures should raise awareness regarding paracetamol toxicity in the general population and encourage particular attention and frequent follow-ups when prescribing paracetamol for vulnerable groups.

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Neutropenia associated with metamizole: a case-control study

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Introduction: Metamizole is a widely prescribed non-opioid analgesic prodrug, which rarely causes life-threatening neutropenia. Besides metamizole dose and treatment duration, various factors, including comedication, comorbidities, and allergic predisposition, may influence the risk to develop neutropenia during metamizole treatment. The aim of this study was to identify possible risk factors for developing neutropenia associated with metamizole use.
Methods: An observational, multi-center case-control study was performed. Cases of metamizole-associated neutropenia attended at the University Hospitals Basel and Bern between 2005 and 2017 were characterized and compared with tolerant controls, who took metamizole for at least 28 days without developing neutropenia, and with gender- and age-matched metamizole-naive healthy controls. Medical data and blood samples of all study participants were collected.
Results: Forty-eight cases, 39 tolerant controls, and 161 metamizole-naive healthy controls were included. Mean metamizole intake and median duration among cases was 1800 mg (± 1250 mg) for 17 days (1-382) until onset of the neutropenia compared to 1600 mg (± 1000 mg) for 177 days (30-5480) among tolerant controls without any adverse drug reaction. The median number of concomitant medication was higher among tolerant controls (n = 8) than cases (n = 5). Among both groups over 40% of patients additionally received drugs with reported risk to induce neutropenia according to a review of Andersohn et al. [1]. Accompanying infections were significantly more frequent among cases (50%) than among tolerant controls (26%). Conversely, tolerant control patients had more often preexisting autoimmune diseases 18% than neutropenia patients 8%. Anaphylactic reactions to drugs were almost equally frequent among cases (2.1%) and tolerant controls (2.6%) and absent among unexposed healthy controls.
Conclusion: Accompanying infections seem to be a possible risk factor for metamizole associated neutropenia. There was no association between concomitant medication, autoimmune diseases or drug allergy history and the development of neutropenia. A genetic association study is currently running analyzing the collected blood samples to identify potential genetic markers for metamizole associated neutropenia.

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P228

A systematic review of chemotherapy medication errors

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Background: The complexity of chemotherapy regimens contributes to the occurrence of medication errors at any point from prescribing to administration. The frequency of chemotherapy medication errors in prescribing, preparation, dispensing, and drug administration phases has not been compared to the best of our knowledge.
Objective: To curate peer-reviewed knowledge on the frequency of chemotherapy medication errors in prescribing, preparation, dispensing and administration phases.
Methods: We collected the data from studies that were published between January 1, 2000, and March 3, 2018. The articles were retrieved from online resources such as Medline/PubMed, PubMed Central, Agency for Healthcare Research, and Quality and the Cochrane Library. Only articles published in peer-reviewed scientific journals in English language were included in this systematic review. After, screening 11 articles were found to be eligible to include in the review and were assessed for quality. Error percentages were calculated from the ratio of error type (numerator) to sample size (denominator: medication orders or prescriptions).
Results: Chemotherapy medication errors ranged from 0.004% to 41.6% among the 11 studies included in the review. Out of these medication errors, 0.1% to 24.6% occurred during prescribing, 0.40% to 0.50% occurred during preparation, 0.03% occurred during dispensing, and 0.02% to 0.10% occured in administering phases of chemotherapy. Majority of the reports included both inpatients and outpatients (9 out of 11), reported medication errors in oral and intravenous routes of chemotherapy and were conducted mostly in adult populations.

Conclusion: Chemotherapy medication errors occurred to large extent during prescription phase and minimal errors were seen during dispensing phase. There is also a need for harmonizing reporting of medication errors. Reporting medication errors in a standard way may facilitate comparison of reports and find an early solution.

Reference: Ashokkumar R, Srinivasamurthy S, Kelly JJ, Howard SC, Parasuraman S, Uppugunduri CS. Frequency of chemotherapy medication errors: A systematic review. J Pharmacol Pharmacother 2018;9:86-91.

Article not published in Switzerland.

P229

Development of a new generation of integrin targeting drugs for the treatment of immune-mediated diseases

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Integrins are a family cell surface receptors which mediate cell-to-cell or cell-to-extracellular matrix interactions. They have been recognized as important therapeutic targets for immune-mediated, malignant and cardiovascular diseases. Despite their well-characterized roles in key disease processes, only six integrin therapeutics are approved to date, targeting four of the 24 known human integrins. The limitations of current integrin inhibitors reflect the challenges associated with integrin targeting pharmacologies. These include paradoxic agonism (i.e. elicitation of effects the inhibitors were designed to prevent), lack of selectivity as well as limitations related to antibody or peptidomimetic natures. New pharmacologic strategies are needed to overcome these limitations and to exploit the potential of integrins as therapeutic targets. Here we report the discovery and development of a new generation of small molecule inhibitors targeting the integrin lymphocyte function associated antigen-1 (LFA-1), an attractive therapeutic target for immune-mediated inflammatory diseases.

A virtual screening approach was utilized to identify allosterically acting compounds which stabilize LFA-1 in its inactive, non-ligand binding state. LFA-1-mediated cell adhesion was quantified by measuring leukocyte binding to ICAM-1. Downstream effect profiles were assessed in human PBMCs treated with novel LFA-1 inhibitors, monoclonal antibodies (mAbs) and ligand mimetic inhibitors.

The micromolar hits identified by virtual screening were turned into potent, orally available LFA-1 inhibitors by a chemical derivatization program. Selected compounds are currently profiled in appropriate models of immune-mediated diseases. Moreover, the novel allosteric LFA-1 inhibitors have been demonstrated to be truly selective over other members of the integrin family, in contrast to previous mAbs or ligand mimetic-based LFA-1 pharmacologies. Further, they do not induce unwanted paradoxic agonistic effects as associated with other LFA-1 targeting modalities.

The differential effects observed at cellular and molecular levels to date indicate that the newly discovered class of allosteric, non-peptidomimetic small molecule LFA-1 inhibitors may have the potential to resolve unwanted effects associated with previous LFA-1 targeting pharmacologies and may allow to fully exploit the potential of LFA-1 as a therapeutic target for immune-mediated diseases.

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Red flags in the use of Etoricoxib (Arcoxia®): a case report

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Learning objectives: Recognize patient characteristics as possible red flags for the treatment with COX-2 inhibitors ("coxibs").

Case: A 77-year old patient with known hypertension and dyslipidemia presented to the emergency department with dyspnea and cough since 8 days. His weight had increased by 10 kg in the last week. Clinically, a hypertensive (224/94 mmHg) patient presented with severe leg edemas and attenuated respiratory sounds. Blood results revealed an increased troponin level with no change in dynamics, which was interpreted as part of the cardiac decompensation and hypertensive deterioration. Chest X-ray showed beginning transudation and pleural effusion on the right side. Echocardiography showed pulmonary hypertension with an RV/RA gradient of 48 mmHg and normal left ventricular function. The definite cause of cardiac decompensation remained unclear. Prior to admission, the patient had been taking Etoricoxib (Arcoxia®) 60mg twice daily for approximately one month for symptomatic treatment of painful bilateral coxarthrosis. After admission, treatment with Etoricoxib was stopped and the patient rapidly recovered under optimized antihypertensive treatment.

Discussion: Etoricoxib is a selective cyclooxygenase 2 (COX-2) inhibitor indicated for the treatment of patients with painful arthritis. Clinical effects of COX-2 inhibitors range from intentional pain reduction to unwanted increase in blood pressure, increase of atherothrombotic events as well as reduction of renal blood flow. One of the potential cardiotoxic effects of coxibs is the occurrence of heart failure, due to a combination of fluid retention and increased blood pressure.

Preexisting risk factors for COX-2 inhibitor associated adverse events in our case were:

1.) *Dosage*: the risk of cardiovascular events increases with treatment duration and dose. Our patient took twice the maximum recommended daily dose of 60mg

2.) *Age*: In patients over the age of 65 years, coxibs should only be used with caution because of the increased cardiovascular comorbidities associated with age

3.) *Comedication*: with ACE inhibitors increases the risk for adverse renal effects.

4.) *Pre-existing renal disease*: pre-existing chronic renal insufficiency, which was present in our patient increases the risk of NSAID-induced acute renal failure

5.) *Pre-existing cardiovascular disease*: Coxibs are contraindicated in patients with coronary, cerebral or peripheral vascular disease

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Modification of the institute for healthcare improvement medication module trigger tool to enable its implementation in a Swiss university hospital

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Introduction: Determining the incidence of adverse drug events (ADEs) in hospitals is challenging. The Institute for Healthcare Improvement Medication Module Trigger Tool (IHI TT) helps health care institutions identify and monitor ADE occurrence in an efficient and consistent manner so that drug safety issues can be identified and corrected early.

IHI Trigger	Modification	Tools
M1 C. diff + stool*		B
M2 PTT > 100 s	Thrombinzeit 1 >120 s and Thrombinzeit 2 >13 s	A B
M3 INR > 6	INR > 4**	A B
M4 Glucose < 50 mg/dl	Glucagon or 50% glucose administration***	A B
M5 Rising urea or creatinine 2x > baseline		A B
M6 Vitamin K administration		A B
M7 Diphenhydramine administration	Antihistamine administration	A B
M8 Flumazenil administration		A B
M9 Naloxone administration		A B
M10 Antiemetic administration		
M11 Over sedation/hypotension	Hypotension (SBP <80 mmHg)*	A B
M12 Abrupt medication stop*		B

* non-digital triggers
** as per German IHI TT version
*** as per UK IHI TT version

[Table. IHI medication module triggers, their modifications and inclusion in tools and A and B.]

Methods: An investigator-driven, single-centre study using retrospective clinical data to develop and implement a modified IHI TT is currently underway. The IHI TT cannot be implemented directly because it utilises some laboratory tests and medication which are not used at our institution (Table). We have therefore modified the IHI TT accordingly, while also taking the accessibility of the clinical data in our institution into consideration and have developed a 9-trigger model (Tool A - using digitally extractable data only) and an 11-trigger model (Tool B - using digitally and manually extracted data) (Table). The performance of the two tools in correctly identifying ADEs will then be assessed by comparing their sensitivity and specificity.

Results: Based on the results of previous similar studies, we expect our modified TT to have a high specificity and a moderate sensitivity in detecting ADEs. If Tool B does not have a significantly higher specificity and sensitivity than Tool A, Tool A will be promoted for routine use at our

institution. This tool will then be used prospectively to assess 20 randomly chosen case records per month to determine ADEs per 1000 patient hospital days, ADEs per 100 admissions and the percentage of admissions with an ADE.

Conclusion: With a validated TT which has been modified for our institution, we aim to establish an efficient system for monitoring ADEs and therefore to enhance patient safety.

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Transfers from suburban hospitals: do we repeat too much exams? A retrospective study

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Introduction: Depending on the availability of specialized medical resources and specialist consultations, smaller hospitals often transfer patients to tertiary care emergency departments (ED). The receiving hospital may repeat laboratory and radiographic tests despite receiving the data from the sending facility. The aim of this study was to identify patients who were transferred to a tertiary care ED, and to calculate the frequency and inappropriateness of repeated procedures.
Methods: We conducted a retrospective chart review of patients transferred from one primary emergency center to our tertiary emergency department from January 2016 to December 2016. We considered as redundant a procedure repeated during the 8 hours following the transfer despite the availability of the results. Two authors independently assess the appropriateness of the redundancy. The inter-observer agreement was measured with a Kappa-coefficient. Factors predicting repetition of procedures were identified through a logistic regression analysis.
Results: During the year 2016, 432 patients were transferred from the primary emergency center to the tertiary center. 251 procedures were repeated: 179 patients had a repeated laboratory tests, 34 a repeated radiological procedure and 19 both. The only risk factors for a repeated blood test was an advanced age (>65 years old) (aOR = 1.8, 95%CI 1.2-2.7) and for a radiological procedure a surgical (versus a medical) problem (aOR = 1.9, 95%CI 1.0-3.7). Repeated procedures were judged as partially or totally inappropriate for 197 (99.5%) laboratory tests (Kappa = 0.57) and for 39 (73.6%) radiological procedures (Kappa = 0.82).
Conclusion: Over half of the patients transferred from another emergency department have a repeated procedure. In most of the case (94%), these repeated procedures were considered as inappropriate.

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Prehospital non-invasive ventilation decreases the need for field intubation and intensive care admission in acute cardiogenic pulmonary edema: a retrospective study

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Background: The effectiveness of Non-invasive Ventilation (NIV) has been largely validated in the Emergency Department (ED) and in the Intensive Care Unit (ICU). Its usefulness in cases of acute cardiogenic pulmonary edema (ACPE) occurring in the prehospital setting has been less well studied.
The aim of this study was to review the evolution of ACPE management in a physician-staffed medical mobile service following NIV implementation, and to determine whether its use had reduced endotracheal intubation (ETI) and ICU admission rates.
Methods: This was a retrospective "before-after" study based on patients treated for ACPE from 01.04.2007 to 31.03.2010 (control period) and from 01.04.2013 to 31.03.2016 (NIV period). It took place in the emergency medical mobile unit of Geneva ED admitting 65,000 patients annually. Adult patients were included if they were diagnosed with ACPE in the prehospital field. Exclusion criteria were a Glasgow coma scale less than 9 and any other concomitant respiratory diagnosis. NIV was performed using the Hamilton T1 ventilator (Hamilton Medical, Bonaduz, Switzerland). All prehospital physicians had received specific training for this device.
Patients for whom NIV was available were compared with patients for whom NIV was not available (control period) using univariate and multivariate logistic regression models. The primary outcome was the prehospital ETI rate and secondary outcomes were admission to an ICU during the 48 hours following ED admission and length of intervention in the prehospital field.
Results: This study included 1491 patients, 689 in the control period and 802 in the NIV period. During the latter period, 287 patients (35.8%) were treated by NIV. NIV was associated with a decrease in ETI rate, which dropped from 2.6% (n = 18) during the control period to 0.7% (n = 6) during the NIV period (p = 0.004) with an adjusted OR of 0.3 (95%CI 0.1-0.7, p = 0.009) after adjustment for abnormal oxygen saturation and abnormal respiratory rate.
NIV implementation was associated with an absolute decrease of 5.6% in ICU admission (18.6% to 13.0%) with an adjusted OR of 0.6 (95%CI 0.5-0.9, p = 0.003). There was no difference in length of field intervention between the intervention and the control period (43.6 versus 42.2, p = 0.06).
Conclusion: In a physician-staffed prehospital system NIV for ACPE is a safe technique that decreases the need for ETI and the rate of ICU admissions.

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Nonspecific reversal of DOAC at the emergency department compared to reversal of VKA: indications, patient characteristics and clinical outcomes

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Background: According to current guidelines prothrombin complex concentrate (PCC) is used for non-specific reversal of anticoagulant activity in patients on direct oral anticoagulants (DOACs) in analogy to the reversal of Vitamin-K antagonists (VKA).
While there is an increasing prevalence of DOACs and specific reversal agents are coming on the market, there is still a lack of evidence and clinical experience with DOAC reversal.
Methods: Our cohort study explores patient characteristics and indications for reversal of all DOAC patients receiving PCC at our university emergency department from 01.06.2012 to 01.07.2017 and compare them with patients on VKA and reports clinical ED outcomes.
Results: Out of 199,982 consultations, we included 346 patients which received PCC for reversal of DOAC (n = 74) or VKA (n = 272). The most common reason for reversal was bleeding in 86.7% without a group difference (p = 0.245). 37.3% of bleeding was traumatic (p = 0.666). The most frequent bleeding location was intracranial (61.6%, p = 0.881). Gastrointestinal bleeding was found more often in the DOAC group (18.9% vs. 8.8%, p = 0.014). More erythrocyte concentrates (EC) were given to DOAC patients (p = 0.014). Tranexamic acid was used more often (28.4% vs. 7.4%, p <0.001) in DOAC patients compared to VKA. No significant group differences were found for the patient outcomes in-hospital mortality, ICU stay, and length of stay at the ICU or in hospital.
Conclusion: Most of anticoagulant reversals were done because of acute bleeding incidences, most often for intracranial bleeding; about a third in trauma patients. Reversal of GIB was more common in DOAC compared to VKA. The reason for this as well as for the higher amounts of ECs needed in DOAC patients remain unclear. A better understanding of DOAC reversal especially in the light of new reversal agents is important and needs further research.

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