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Basel (Switzerland), May 29–31, 2024

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Schweizerische Gesellschaft für Allgemeine Innere Medizin
Société Suisse de Médecine Interne Générale
Società Svizzera di Medicina Interna Generale
Swiss Society of General Internal Medicine

8TH ANNUAL SPRING CONGRESS OF THE SWISS SOCIETY OF GENERAL INTERNAL MEDICINE (SSGIM)

BASEL, MAY 29–31, 2024

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FREE COMMUNICATIONS – SWISS SOCIETY OF GENERAL INTERNAL MEDICINE (SSGIM)

FM1

Acute kidney injury after major non-cardiac surgery - incidence, timing, determinants and impact on outcomes

R. Kaufmann[1], C. Puelacher[1,2], N. Glarner[1], M. Pargger[1], P. Lopez Ayala[1], D.M. Gualandro[1], G. Lurati Buse[3], R. Hidvegi[4], D. Bolliger[5], A. Lampart[5], K. Burri[5], H. Gerhard[1], S. Weder[1], S. Maiorano[1], R. Meister[1], C. Tschan[1], S. Osswald[1], L.A Steiner[5,6], L. Guerke[7], E.A Kappos[8], M. Clauss[9], M. Filipovic[10], N. Arenja[11], C. Müller[1], T. Breidthardt[1,12], BASEL-PMI Investigators

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Aim: The importance of acute kidney injury (AKI) after major non-cardiac surgery is incompletely understood. The aim of this study was to evaluate the association of AKI with short-term complications (e.g. perioperative myocardial injury (PMI); acute heart failure (AHF)), and long-term adverse outcomes (e.g. re-admission for AHF, all-cause mortality).

Methods: The prospective observational international multi-center BASEL PMI study (ClinicalTrials NCT02573532) screened inpatients aged 40-85 at high cardiovascular risk undergoing non-cardiac surgery at tertiary hospitals to detect asymptomatic PMI. This secondary analysis focused on AKI, with prospective adjudication of AKI, PMI and AHF by blinded experts.

Results: In 11'133 patient cases, the incidence of AKI within 7 days was 11.1%, classified as stage one (68.3%), two (15.4%) and three (16.3%). Pre- and perioperative determinants for AKI were male sex (OR 1.29), chronic heart failure (CHF, OR 1.45), the need for intraoperative blood transfusion (OR 1.56), pre-operative GFR (OR 1.02) and surgery duration (OR 1.01). Median time to occurrence of AKI was 2 days (IQR 1-4), in contrast to PMI (median 1, IQR 1-2) and AHF (median 5, IQR 2–9). 41% of all AKI patients experienced additionally a PMI. In multivariable Cox regression analysis, AKI (aHR 1.76, 95% CI 1.51-2.06) and PMI (aHR 1.21, 95% CI 1.02–1.45) were both independently associated with prediction of one-year all-cause mortality after adjustment for each other and confounding factors. The coincidence of AKI and PMI resulted in an additive effect on overall mortality. Importantly, patients with AKI showed more in-hospital AHF (aHR 2.08, 95% CI 1.49–2.91) within 30 days and higher readmission rates for AHF within one year (aHR 1.42, 95% CI 1.02–1.98) than patients without AKI, even patients without known heart failure (aHR 1.77, 95% CI 1.13–2.78).

Conclusion: AKI is a common complication, occuring in 11% after non-cardiac surgery. The high coincidence of AKI with PMI suggests common pathophysiological triggers. The occurrence of AKI was associated with increased risks for in-hospital AHF, AHF readmissions and all-cause mortality. Even AKI patients without previously known heart failure faced AHF rehospitalization. The occurrence of AKI unveiling previously unknown heart failure highlights the importance of systematic monitoring for AKI after surgery.

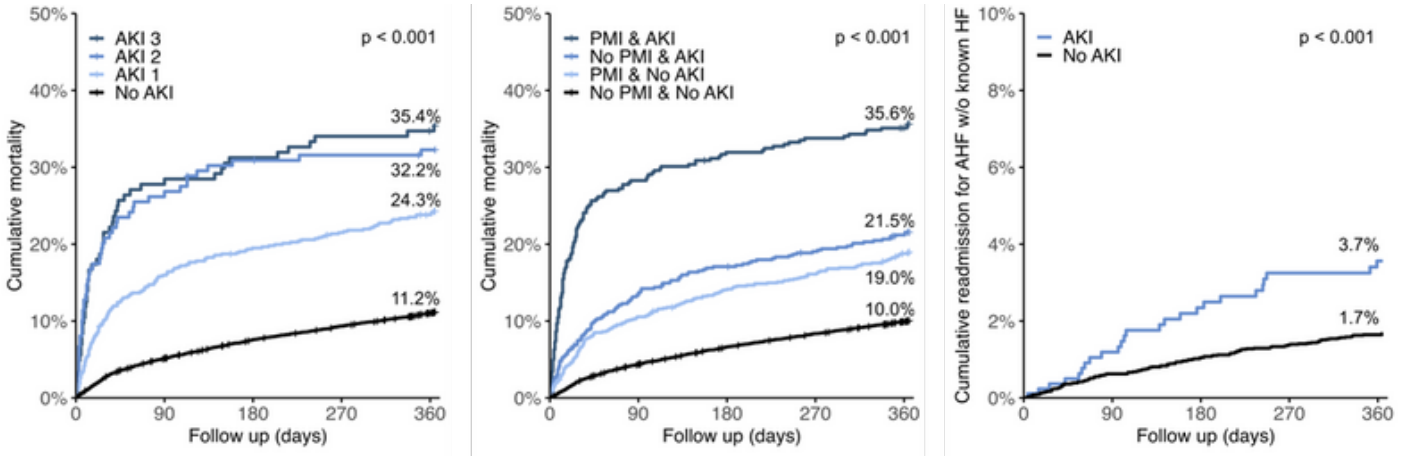

Figure 1. Kaplan-Meier curves for patients with AKI and PMI for all-cause death and for readmission for AHF

FM2

D-dimer Inversely Correlates with Neurocognitive Performance in Atrial Fibrillation: A 7-year Follow Up study

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Introduction: Atrial fibrillation (AF) is associated with cognitive impairment and dementia. D-dimer (DD) is a clinically well-established marker of coagulation, while beta-thromboglobulin (BTG) is a marker of platelet activation. Their role as markers for cognition in AF is unknown. We therefore aimed to determine the correlation between DD and BTG with cognitive function in AF patients.

Methods: The prospective ongoing multicenter Swiss Atrial Fibrillation study included 2,275 patients with AF. Plasma D-dimer and BTG levels were determined through standard ELISA (DD) and the Luminex Assay (BTG) at baseline. We performed a detailed neurocognitive assessment at baseline and follow-up. Validated neurocognitive assessment tools included global (Montreal Cognitive Assessment [MoCA], Cognitive Construct [CoCo]) and specific assessments (Semantic Fluency Tests [SF], Trail Making Test [TMT A&B], Digit Symbol Substitution Test [DSST]). We used mixed-effect linear regression models to determine the association of DD and BTG with cognitive assessments at baseline and over time. For conversion to cognitive impairment (defined as MoCA score <26), we performed cox-proportional hazards regression model. Two adjustment models were applied: model 1 and model 2 as described in the figure.

Results: Patients with AF (mean [SD] age, 73 [8.5]) with 9569 cognitive evaluations (mean [SD] follow-up, 3.6 [2.3] years) were assessed. We observed statistically significant negative associations between D-dimer and both global (MoCA, CoCo) and specific (TMT-A, TMT-B, DSST) cognitive assessments (table 1). Over time, we found that patients in the fifth quintile of DD (highest) are associated with increased risk of cognitive impairment with Hazards Ratio of 1.56 (95% CI 1.36–1.79, p <0.001) in model 2, compared to patients in the first quintile (lowest) (fig.1). The Kaplan-Meier curve (fig.2) demonstrated decreased probability of cognitive impairment-free patients in the higher quintiles of DD. In sharp contrast, BTG exhibited no association at all with neurocognitive assessments at baseline. Over time, only the highest quintile of BTG was associated with an increased risk of cognitive impairment (HR 1.17, 95%CI 1.04–1.31, p = 0.007).

Conclusions: DD is negatively associated with cognitive performance in AF at baseline and over time. Our results suggest that plasma D-dimer levels may serve as a potential biomarker for cognitive impairment.

Table 1: Forest plots of mixed effect linear regression models of DD and BTG and neurocognitive assessments at baseline

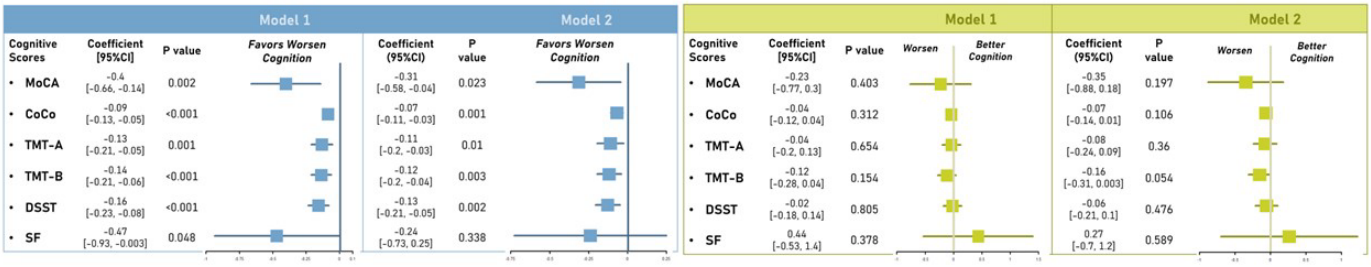

Figure 1: A forest plot on hazard ratio of risk of cognitive impairment over 7 years follow up

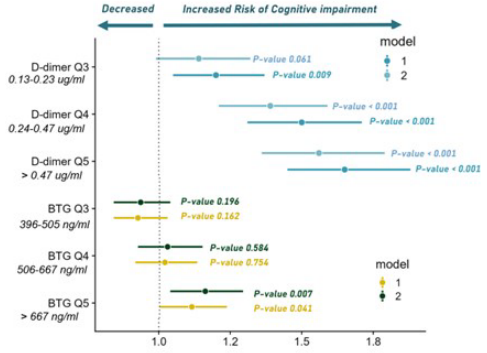

Figure2: Kaplan Meier curves for the probability of cognitive impairment and DD, BTG stratified into quintiles

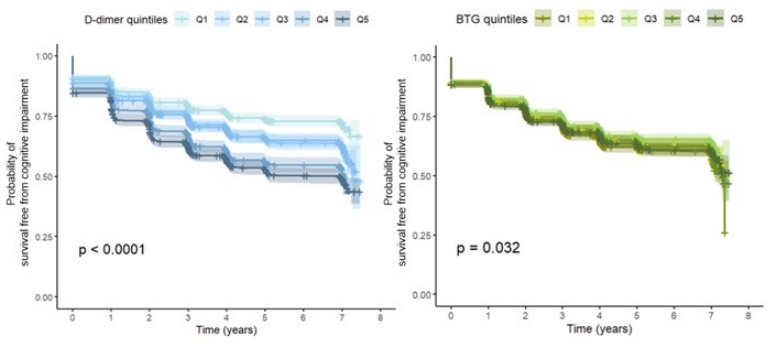

Table 1: Association between DD, BTG and neurocognitive scores at baseline using mixed-effect linear regression models (model 1 and 2).

Figure 1: Kaplan Meier curves for the probability of cognitive impairment, plotting the estimated proportion of patients free from cognitive impairment in each DD and BTG quintile, against time

Figure 2: A forest plot on hazard ratio and 95% confidence intervals associated with patients in the 3rd to 5th quintile of DD and BTG (compared to the first quintile) with time to cognitive impairment using multi-variable cox proportional hazard regression model adjusted for confounders according to model 1 and 2.

Abbreviations: *Montreal Cognitive Assessment (MoCA); Semantic Fluency Tests (SF); Trail Making Test (TMT A&B); the Digit Symbol Substitution Test (DSST); Cognitive Construct (CoCo)*
Model 1: adjusted for age, sex, and educational level
Model 2: adjusted for age, sex, educational level, history of stroke/TIA, AF type, heart rate, arterial hypertension, diabetes, coronary artery disease, BMI, chronic kidney disease, smoking status, alcohol consumption, geriatric depression scale, use of oral anticoagulation/antiplatelet medication.

FM3

Prevalence and predictors of fatigue two years into the COVID-19 pandemic: a cross-sectional population-based study in Geneva, Switzerland

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Introduction: The COVID-19 pandemic constituted a major stressor worldwide; little is known about the prevalence of severe fatigue or its association with COVID-19 infection among the general population since the beginning of the pandemic. This study aims (1) to assess the prevalence of severe fatigue among the general population of Geneva two years into the pandemic and (2) to identify pre-pandemic and covid-specific predictors of severe fatigue.

Methods: A cross-sectional population-based study was conducted as part of the Specchio-COVID19 cohort study. Adult participants randomly selected from the general population answered an online health survey between March and May 2022. The main outcome was self-reported severe fatigue measured by the Chalder Fatigue Questionnaire. We assessed whether the prevalence of fatigue varied by sociodemographic factors, comorbidities, and behavioural characteristics including sleep, physical activity, and recent self-reported COVID-19 infection.

Results: 4040/6870 (58.8%) participants took part in the survey. Overall prevalence of severe fatigue was 30.7% (95% confidence interval: 29.2–32.1%) (figure 1). After adjustment, significant predictors of fatigue were female sex, living as single parent with children, depression, health event not related to COVID-19 in the past year, poor sleep quality, diagnosis of chronic disease or allergy in the past year, obesity, partially active lifestyle, former smoking, and self-reported COVID-19 infection in the past year (table 1). While young adults (18–34) had greater unadjusted prevalence ratio of severe fatigue, this association disappeared after further adjustment for depression.

Conclusions: Prevalence of severe fatigue was high among the general population of Geneva two years into the COVID-19 pandemic. Heightened fatigue among young adults is partly explained by depressive symptoms, potentially an indirect effect of the pandemic. Recent COVID-19 infection is associated with severe fatigue, regardless of infection severity or post-acute COVID-19 syndrome.

Figure 1 – Prevalence of severe fatigue stratified by age (%, 95% confidence interval)

Severe fatigue prevalence is higher among younger participants (18-44 years-old), p-value < 0.001.

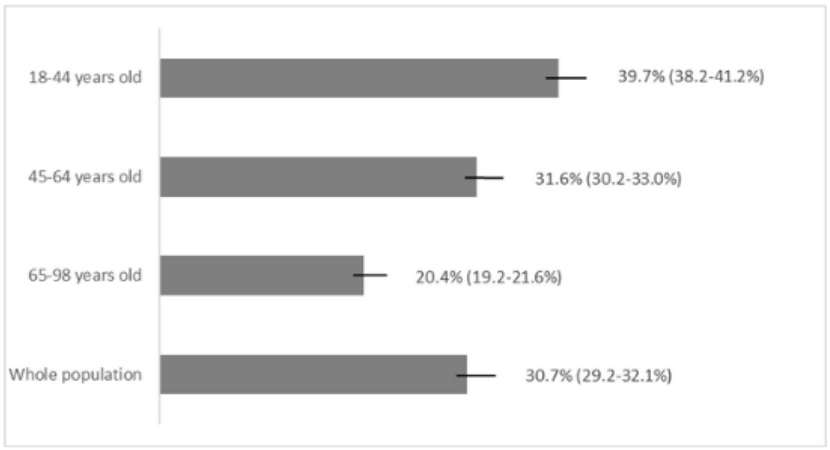

Table 1 – Univariate and quasi-poisson multivariable regression models with severe fatigue predictors

(a) Unadjusted univariate prevalence ratios (PR) with multiple imputation (MI).
(b) Adjusted and weighted prevalence ratios (PR) with multiple imputation (MI). Adjustments include sex, age, education level, chronic disease, and depression.

		Unadjusted PR with MI (95% CI) (a)	Adjusted and weighted PR (95%CI) with MI (b)
Age	45-54	Ref	Ref
	18-24	1.29 (0.99-1.66)	1.21 (0.97-1.52)
	25-34	1.20 (1.01-1.43)	1.16 (0.99-1.35)
	35-44	1.11 (0.97-1.27)	1.12 (0.99-1.28)
	55-64	0.87 (0.76-0.99)	0.88 (0.78-1.00)
	65-74	0.59 (0.50-0.70)	0.61 (0.52-0.72)
	75-98	0.64 (0.51-0.81)	0.66 (0.53-0.82)
Sex	Male	Ref	Ref
	Female	1.40 (1.26-1.55)	1.24 (1.13-1.36)
Household composition	Couple without children	Ref	Ref
	Single parent with children	1.53 (1.25-1.86)	1.23 (1.02-1.49)
BMI	Normal weight (BMI 18.0-24.9 kg/m2)	Ref	Ref
	Obesity (BMI ≥ 30.0 kg/m2)	1.21 (1.04-1.41)	1.18 (1.02-1.36)
Chronic disease or allergy diagnosis within the past year	No	Ref	Ref
	Yes	1.31 (1.19-1.45)	1.32 (1.21-1.45)
Health event not related to COVID-19 within the past year (1)	No	Ref	Ref
	Yes	1.60 (1.46-1.77)	1.44 (1.32-1.58)
Depression	No depressive disorder, (PHQ2 < 3)	Ref	Ref
	Major depressive disorder, PHQ2 ≥ 3	2.99 (2.76-3.23)	2.78 (2.56-3.01)
Self-reported physical activity (2)	Active	Ref	Ref
	Partially active	1.16 (1.03-1.32)	1.16 (1.04-1.28)
Smoking status	Non-smoker	Ref	Ref
	Former smoker	1.07 (0.96-1.19)	1.13 (1.02-1.25)
Sleep quality (3)	Good or very good	Ref	Ref
	Bad or very bad	1.62 (1.46-1.81)	1.43 (1.30-1.58)
Self-reported COVID-19 infection	No	Ref	Ref
	Yes	1.53 (1.38-1.70)	1.41 (1.29-1.56)

(1) Health event not related to COVID-19 includes hospital stay, accident requiring medical assistance, and pregnancy.
(2) Participants who engaged at least five times per week in 30 minutes of moderate activity (defined as activity requiring moderate effort that significantly accelerates heart rate) or at least twice per week in vigorous activity (defined as activity requiring considerable effort with shorter breathing and considerable acceleration of heart rate) were classified as being active. Participants who engaged between once to four times per week in moderate activity or once a week in vigorous activity were classified being partially active.
(3) Self-reported sleep quality was dichotomized as good or very good, and bad or very bad (single question).

FM4

Smarter Medicine guidelines: an effective tool to reduce proton-pump inhibitor overprescription in Switzerland ?

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Introduction: Proton-pump inhibitors (PPIs) are a key treatment for gastro-esophageal disease, but their frequent overprescription leads to potential adverse effects and an economic burden. In this retrospective study, we investigated the effect of a guideline suggesting to reduce prolonged treatment of gastrointestinal symptoms with PPIs, published by the Swiss Society of General and Internal Medicine for Smarter Medicine in May 2014 for general practitioners.

Method: PPIs sell-in data from pharmaceutical wholesale companies were provided by IQVIA, covering hospital and ambulatory sales in Switzerland from 2009 to 2019 (2020 was excluded due to increased variance during Covid-19 pandemic). Monthly PPI sales rates (per 100'000 habitants) were calculated using the annual Swiss population (age ≥20 years). The data were split in a pre- and a post-guideline group, and a seasonal autoregressive integrated moving average (SARIMA) model was fitted. Counterfactual data were predicted by the SARIMA model using pre-guideline data, and were compared to post-guideline PPI sales rates nationwide and across linguistic regions. Subsequently, a Bayesian algorithm called BEAST (Bayesian Estimator of Abrupt change, Seasonality and Trend) was used to calculate for each month the likelihood of a changepoint in PPI sales data, without knowing the intervention date.

Results: There was no significant immediate reduction of the PPI sales rate after guideline publication (step change, $p = 0.806$). However, post-guideline PPI sales rate trend was significantly reduced (slope change, $p < 0.001$, Figure 1), and similar results were obtained for linguistic region subgroup analysis. Using BEAST, we obtained $p = 0.953$ for a single changepoint, and $p = 0.948$ that the change occurred between January 2014 and January 2016 (Figure 2).

Conclusion: Our analysis revealed a significant downward trend in PPI sales following the guideline implementation, leading us to infer a similar trend in PPI prescriptions. We conclude that Smarter Medicine guidelines for general practitioners represent a simple and effective tool to reduce PPI overuse, and we encourage their further use for other medications.

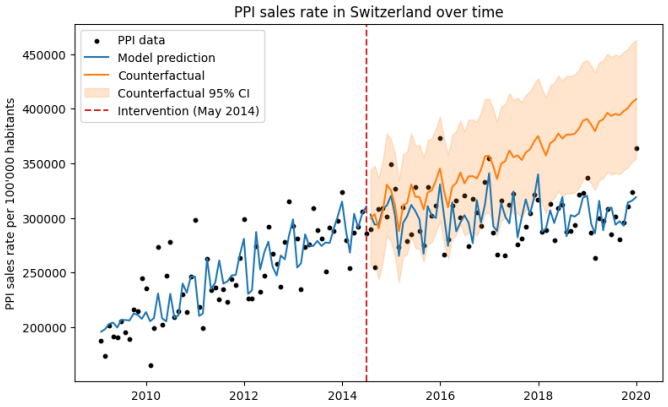

Figure 1: PPI sales rate over time. Blue: predictions by the SARIMA model fitted with pre- and post-guideline PPI data. Orange: counterfactual data predicted by the SARIMA model fitted only with pre-guideline data.

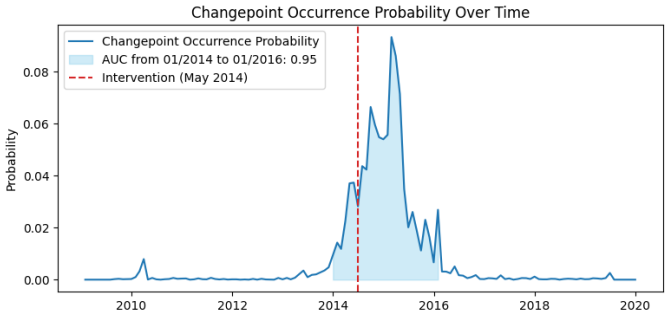

Figure 2: Changepoint occurrence probability over time, calculated by Bayesian algorithm.

FM5

Vitamin D supplementation among multimorbid older patients: do we choose wisely who we treat?

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Introduction: There are limited data about the proportion of multimorbid older patients receiving vitamin D supplementation and about the proportion receiving vitamin D without a specific reason. Our objective was to identify the prevalence of vitamin D supplementation and the percentage of participants with a lack of appropriate vitamin D supplementation ("potential underuse") or with potentially inappropriate vitamin D supplementation ("potential overuse") and associated risk factors.

Methods: Cross-sectional analysis from the OPERAM study, which was a multicenter cluster randomized controlled trial in 4 European countries (Belgium, Ireland, The Netherlands, Switzerland), including multimorbid (≥3 chronic conditions), ≥70 year-old adults with polypharmacy (≥5 chronic medications). Potential underuse was defined as presence of an indication (i.e. high-risk condition) but no vitamin D supplementation, whereas potential overuse was defined as vitamin D supplementation without a high-risk condition. High-risk was defined as indication for vitamin D supplementation according to the START criteria.version 2 for potential prescribing omissions in older peoplei.e., long-term systemic corticosteroid therapy, known osteoporosis or osteopenia (E2) , previous fragility fractures (E3), and housebound/in nursing homes or experiencing falls (E5). We used mixed effect logistic regression to identify factors associated with underuse and overuse.

Results: 2008 patients (mean age 79.4 ± 6.3 years, 45% female) were included, of whom 825 (41.1%) used vitamin D. We identified 681 potentially undertreated (69.7% of non-vitamin D users) and 204 potentially overtreated participants (24.7% of vitamin D users). In the multivariable logistic regression analysis, we found no association between age, BMI, smoking, alcohol or number of primary care physician visits during the last 6 months, and vitamin D underuse or overuse. However, males were more likely to have vitamin D underuse (Odds Ratio 1.31, 95%CI 1.06–1.62). The use and non-use of vitamin D was comparable among participants living in an institution/being housebound.

Discussion: One in three participants was potentially undertreated, while up to 10% were potentially overtreated. A better targeted prescription of vitamin D supplementation is warranted.

FM6

Do antibiotic prescriptions by Swiss family physicians match the treatment recommendations of the Swiss Society of Infectious Diseases? A cross-sectional study

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Introduction: Since 2019, the Swiss Society of Infectious Diseases (SSI) has introduced guidelines for common infectious diseases as an effort to reduce inappropriate antibiotic prescriptions. The question remains whether family physicians (FP) prescribe antibiotics according to these guidelines. Sentinella network unites approximately 200 FP and paediatricians who report to the Federal Office of Public Health on topics related to infectious disease surveillance, including antibiotic prescriptions. The aim of the study was to evaluate whether FP participating in Sentinella prescribe antibiotics according to SSI guidelines.

Methods: A cross-sectional study using 2017–2022 Sentinella data examined antibiotic prescription episodes by indication reported by FP for patients aged 16 or older. Following indications, corresponding to SSI guidelines, were included: pharyngitis, otitis media, sinusitis, exacerbation of chronic obstructive

pulmonary disease (COPD), pneumonia, upper and lower urinary tract infection (UTI). Descriptive analyses, including the proportion of prescriptions by indication not recommended by SSI and the proportion of the most common not recommended antibiotics were performed for the time period during which guidelines were in place. Chi-square test was used to compare proportions of not recommended antibiotics before and after guideline implementation.

Preliminary results: 38 228 out of 97 539 entries corresponded to the inclusion criteria. The most common indications were lower UTI (46%), sinusitis (14%) and pneumonia (12%). Indications with the highest proportion of prescription of not recommended antibiotics were sinusitis (38%), otitis media (36%), COPD exacerbation (33%) and pharyngitis (30%). The most common not recommended antibiotic classes were combinations of penicillins with beta-lactamase inhibitors for pharyngitis and macrolides for sinusitis, respectively 25% and 17% of prescriptions for these indications. Proportion of not recommended antibiotics decreased after the introduction of guidelines for sinusitis (from 47% to 38%, p <0.001) and pneumonia (from 19% to 15%, p <0.001), while for other indications no significant decrease could be observed.

Conclusion: Prescription of antibiotics by Sentinella physicians is not aligned with SSI guidelines for several indications. Guideline introduction only resulted in limited improvement. Knowledge gained can be used by decision makers for targeted antimicrobial stewardship interventions.

FM7

Is there an association between cholesterol levels and cardiovascular events in older adults in primary prevention?

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Introduction: While low-density lipoprotein cholesterol (LDL-C) is recognized as a modifiable cardiovascular risk factor, its relevance remains debated among older adults in primary prevention.

Methods: This secondary analysis of the Health ABC cohort study included participants aged between 70 and 79 years without preexisting cardiovascular disease or statin therapy. Main exposure was baseline LDL-C levels per 50 mg/dL (1.3 mmol/l) and predefined clinical cut-offs (<100 mg/dL [<2.6 mmol/l], 100-129 mg/dL [2–6–3.4 mmol/l], 130-159 mg/dL [3.4–4.1 mmol/l] and ≥160 mg/dL [≥4.1 mmol/l]). The primary outcome was major cardiovascular events (MACE), defined as a composite of myocardial infarction, stroke, and cardiovascular death. We estimated hazard ratios (HR) using Cox-regression models adjusting for traditional cardiovascular risk factors (socio-economic status, race, hypertension, diabetes, age, gender, smoking status, body mass index and frailty). We also assessed interaction by age, gender and race.

Results: Among 2'027 participants (54% women, 42% blacks), 479 had an incident MACE during a follow-up of 16 years. A total of 28% had LDL-C levels between 3.4 and 4.1 mmol/l and 14% had LDL-C ≥4.1 mmol/l. Higher levels of LDL-C levels were associated with higher risk of MACE (multivariate-adjusted hazard ratio (aHR) of 1.21 50 mg/dL increase, 95% confidence interval (CI) 1.05–1.39). The risk was particularly higher and statistically significant only for LDL-C values ≥4.1 mmol/L (adj HR 1.63, 95%CI 1.20-2.22, P for trend across LDL categories = 0.001, as shown in table 1). There was no consistent interaction by age, sex or race.

Conclusion

Among older adults in primary prevention, higher LDL-C levels are associated with increased risk of MACE, mainly when LDL-C is above 4.1 mmol/l. Clinical trials are warranted to strengthen the evidence of LDL-C lowering in older adults.

Table 1: Estimates of Cox regression model of guidelines LDL-C cut-offs on MACE

LDL-C values (mmol/l)	Number of participants	Number of events	Model 1: unadjusted HR			Model 2: adjusted* HR		
			HR	95% CI	p	HR	95% CI	p
< 2.6	482	124	Ref.			Ref.		
2.6-3. 4	704	170	1.06	(0.84-1.34)	.62	1.10	(0.87-1.39)	.41
3.4-4.1	563	121	1.06	(0.82-1.36)	.64	1.25	(0.87-1.39)	.41
≥ 4.1	278	64	1.37	(1.01-1.86)	.04	1.63	(1.20-2.22)	.002
			P for linearity: .046			P for linearity: .001		

HR: hazard ratio; CI: confidence intervals; LDL-C: low density lipoprotein; HDL-C: high density lipoprotein; TG: triglycerides.

*Adjustment for smoking status, gender, hypertension, diabetes, age, race, education, frailty, and body mass index.

FM8

Is type 2 diabetes a coronary heart disease risk equivalent among older adults? An individual participant data analysis of five prospective studies

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Introduction: Type 2 diabetes (T2D) is associated with increased risk of cardiovascular disease (CVD) and all-cause mortality in the general population. While some current guidelines consider T2D to be a coronary heart disease (CHD) equivalent for CVD risk, evidence is conflicting and sparse in older adults. Our aim was to assess the association between T2D and risk of CVD events and all-cause mortality, and to assess whether T2D is a CHD risk equivalent, in older adults.

Methods: We synthesized participant-level data on 82,723 individuals aged ≥65 years from five prospective studies (CoLaus, Health ABC, HRS, OPERAM, SHARE) conducted across the US and Europe in two-stage meta-analyses. We estimated hazard ratios (HRs) and 95% confidence intervals (CIs) of T2D on a composite outcome defined as time to (fatal and nonfatal) CVD event or all-cause mortality. Secondary outcomes were the components of the composite, i.e., CVD events and all-cause mortality. We evaluated CHD risk equivalence by comparing outcomes between individuals with T2D but no CHD versus individuals with CHD but no T2D. We conducted subgroup analyses by age, gender and history of CVD.

Results: The median age of participants was 71 years, 20% had T2D and 17% had CHD at baseline. Median follow-up was 5.5 years (range: 0.0 to 18.0), during which 29,474 (36%) participants experienced the composite outcome. Presence of T2D was associated with higher risk of CVD events or all-cause mortality compared to no T2D (HR 1.44, 95% CI [1.40-1.49]; Figure 1). The association was weaker in individuals aged ≥75 years vs. 65 to 74 years (HR 1.32, 95% CI [1.19–1.46] vs. 1.56 [1.50-1.62]; p-value for interaction = 0.032). Compared to individuals with CHD but no T2D, individuals with T2D but no CHD had a similar risk of the composite outcome (HR 0.95 [0.85–1.07]), but a lower risk of CVD events (HR 0.76 [0.59–0.98]; Figure 2).

Conclusion: T2D is a risk factor for CVD events and all-cause mortality in older adults, but the association is weaker among older age individuals. T2D without CHD conferred a lower risk of CVD events compared to CHD without T2D. Our findings suggest that T2D should not be considered a CHD risk equivalent in older adults.

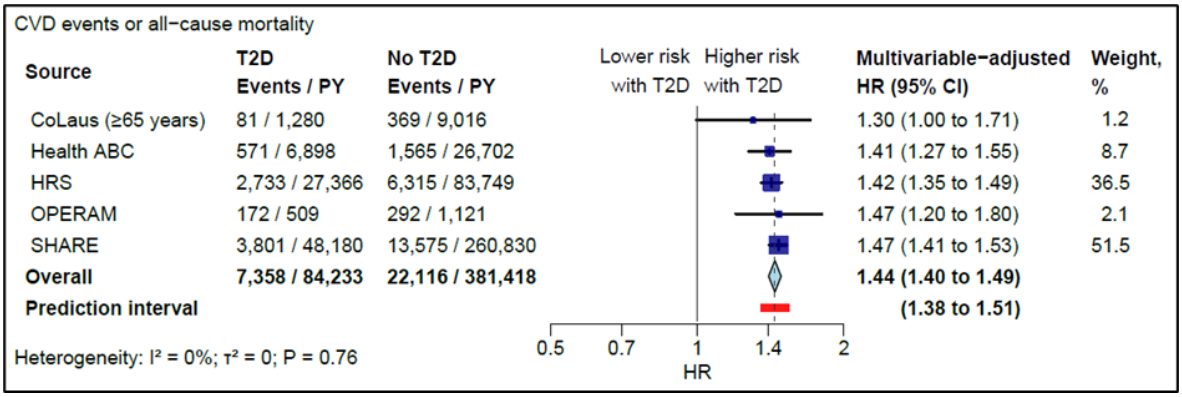

Figure 1 Association between T2D and CVD events or all-cause mortality.

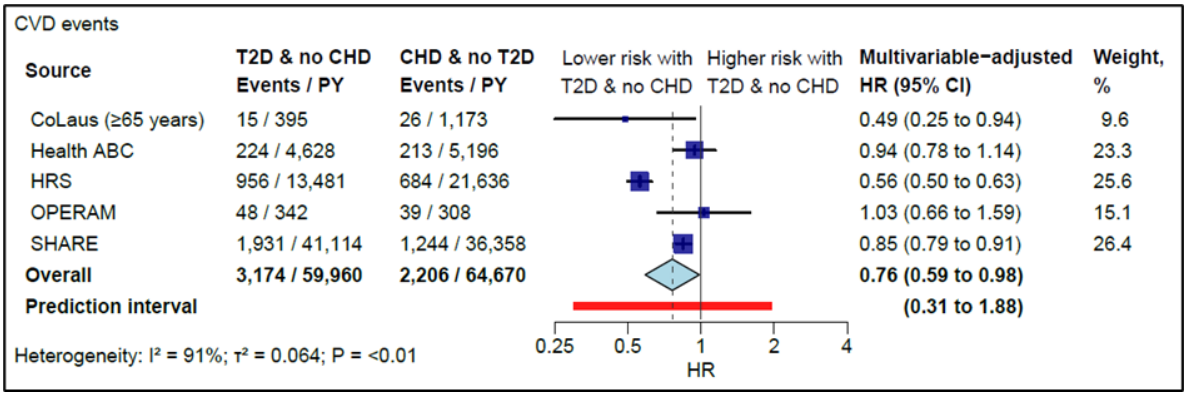

Figure 2 Association between T2D & no CHD versus CHD & no T2D and CVD events

FM9

Prevalence of Critical Errors and Insufficient Peak Inspiratory Flow in Patients Hospitalized with Chronic Pulmonary Obstructive Disease: A Cross-Sectional Study

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Introduction: The suboptimal use of inhalers in the treatment of patients with chronic obstructive pulmonary disease (COPD) is a major but poorly documented problem in hospitalized patients. We aimed to describe the prevalence of misused inhalers among patients hospitalized with COPD in an internal medicine ward.

Methods: We conducted a monocentric cross-sectional study in consecutive patients with a diagnosis of COPD and using an inhaler who were hospitalized between August 2022 and April 2023 in the internal medicine department of Fribourg Hospital, Switzerland. On admission, patients underwent an assessment of their inhaler technique and peak inspiratory flow (PIF) using the In-Check Dial G16®. The primary outcome was the prevalence of misused inhalers, defined as an inhaler used with a critical error and/or insufficient PIF. Secondary outcomes included the prevalence of patients using at least one misused inhaler.

Results: The study included 96 patients (male 63%, mean age 71.6 years) using 292 inhalers. After excluding 132 nebulizers considered to be used correctly, 160 inhalers were assessed on admission. Of these, 111 (69.4%; 95% confidence interval [CI] 61.6–76.4) were misused; 105 (65.6%; 95% CI 57.7–72.9) due to the presence of a critical error in the inhalation technique and 22 (13.8%; 95% CI 8.8–20.1) due to insufficient PIF. Concerning the secondary outcome, 79 patients (82.3%; 95% CI 73.2–89.3) used at least one misused inhaler.

Conclusions: Among patients hospitalized with a diagnosis of COPD, two-thirds of inhalers were misused. Suboptimal use was mainly due to the presence of critical errors, but also to the presence of an insufficient PIF. These data highlight the extent of the problem of inhaler misuse in patients admitted to hospital with a diagnosis of COPD.

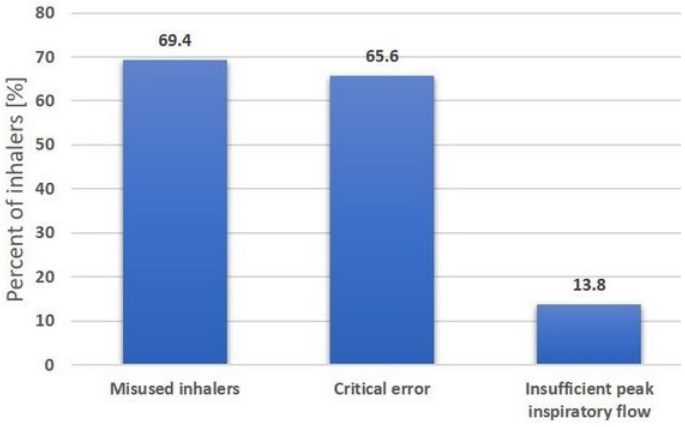

Fig. 1. Inhalers misused, used with critical error, with insufficient peak inspiratory flow at admission in internal medicine department (n = 160).

FM10

The comparative effectiveness of interventions to facilitate discontinuation of benzodiazepines and other sedative hypnotics: A systematic review and meta-analysis

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Introduction: Despite the risk of adverse events, many patients usebenzodiazepines and closely related sedative hypnotics (BSH) long-term for insomnia. The optimal strategies to facilitate discontinuation of BSH in chronic users is unclear.

Methods: Eligible studies randomized adults using BSH for insomnia or related conditions to interventions aimed at discontinuing BSH, strategies to implement these interventions in healthcare settings, or standard care or placebo. We searched MEDLINE, EMBASE, CINAHL, PsycInfo, and CENTRAL, from inception to February 2023, and reference lists of included studies. Screening of citation, data extraction and risk of bias assessment was done in duplicate. We grouped similar interventions together, performed frequentist random-effects meta-analysis, and assessed the evidence using GRADE.

Results: We identified 41 eligible trials, with 33,753 patients. Low certainty evidence suggests that education of patients (171 more per 1000 patients; 95% CI 82 more – 278 more) and pharmacist-led education of patients and physicians (491 more per 1000; 95% CI 234 more – 928 more) may increase the proportion of patients who discontinue BSH. Low certainty evidence suggests that cognitive behavioral therapy may have little or no effect on discontinuation of BSH (56 more per 1000; 95% CI 26 fewer – 179 more). Similarly, we found that tapering without pharmacologic support (92 more per 1000; 95% CI 23 more – 191 more) and a multicomponent intervention for pharmacists to send discontinuation letters to patients in cooperation with physicians may have little or no effect on discontinuation of BHS (4 more per 1000; 95% CI 62 fewer—158 more). The evidence on interventions aimed at educating physicians is very uncertain. There was no convincing evidence that pharmacologic-assisted tapering improved the proportion of patients who discontinued BSH. Finally, low certainty evidence suggests that multicomponent interventions may be more effective at facilitating discontinuation of BSH than single component interventions.

Conclusion: The evidence addressing the effectiveness of interventions to discontinue BSH is low certainty. Educating patients and enabling pharmacists to educate patient and physicians may increase the proportion of patients who discontinue BSH.

FREE COMMUNICATIONS – SWISS SOCIETY FOR GERIATRICS (SFGG/SPSG)

FM11

PharmVisit: Interprofessional ward rounds with clinical pharmacists have the potential to improve medication safety and foster interprofessional collaboration

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Introduction: Elderly patients are often multimorbid, polymedicated and cognitively impaired, all risk factors for medication-related problems. When admitted to the hospital, interfaces to outpatient care pose an additional risk for information gaps leading to medication discrepancies and potential treatment errors. Interprofessional activities like pharmacist-accompanied ward rounds can improve medication safety. Therefore, the Department of Geriatrics of the Bern University Hospital agreed to a pilot project, welcoming clinical pharmacists to ward rounds.

Methods: In this 6 months-pilot study, starting in July 2023, we implemented a weekly interprofessional ward round process (PharmVisit), focussing on medication safety. Systematic medication analysis of patients on a specific ward were executed 1 day prior to the PharmVisit by a clinical pharmacist, based on electronic patient information. The PharmVisits start with an exchange between physicians (mostly junior physicians), a clinical pharmacist and a regular nurse in the absence of the patient. Suggestions by clinical pharmacy are discussed before entering the patient rooms. Adjustments are either made directly in the IT system, declined or noted for further discussion with a senior physician. For each patient discussed during PharmVisit, we documented the problem identified by the pharmacist, the reason for the intervention, drugs involved (by ATC code), the intervention suggested, and the acceptance rate, using the GSASA classification system (www.gsasa.ch).

Results: Until mid January 2024, we saw 133 patients during 26 visits and discussed 294 potential interventions. The most common problem category was “risk due to medication therapy” (n = 134, 46%), followed by “untreated indication” (n = 47, 16%). Proposals related in particular to dose adjustment (19%, n = 14 too low, n = 42 too high) and additional medications (n = 46, 16%). 151 suggestions (51%) were accepted, 41 (14%) were rejected after discussion and careful evaluation, and 102 (35%) needed further clarification or were deferred to the primary care provider in the discharge report.

Conclusions: With PharmVisit, we piloted an interprofessional ward round process to improve medication safety that will be implemented into daily practice in 2024. While acceptance rate of clinical pharmacy suggestions was comparable to other studies, increasing routine might improve collaboration. A survey is planned to improve acceptance and efficacy of PharmVisit.

FM12

Prevalence of sarcopenia in a cohort of acute geriatric inpatients: preliminary results of the SARC-GERo study

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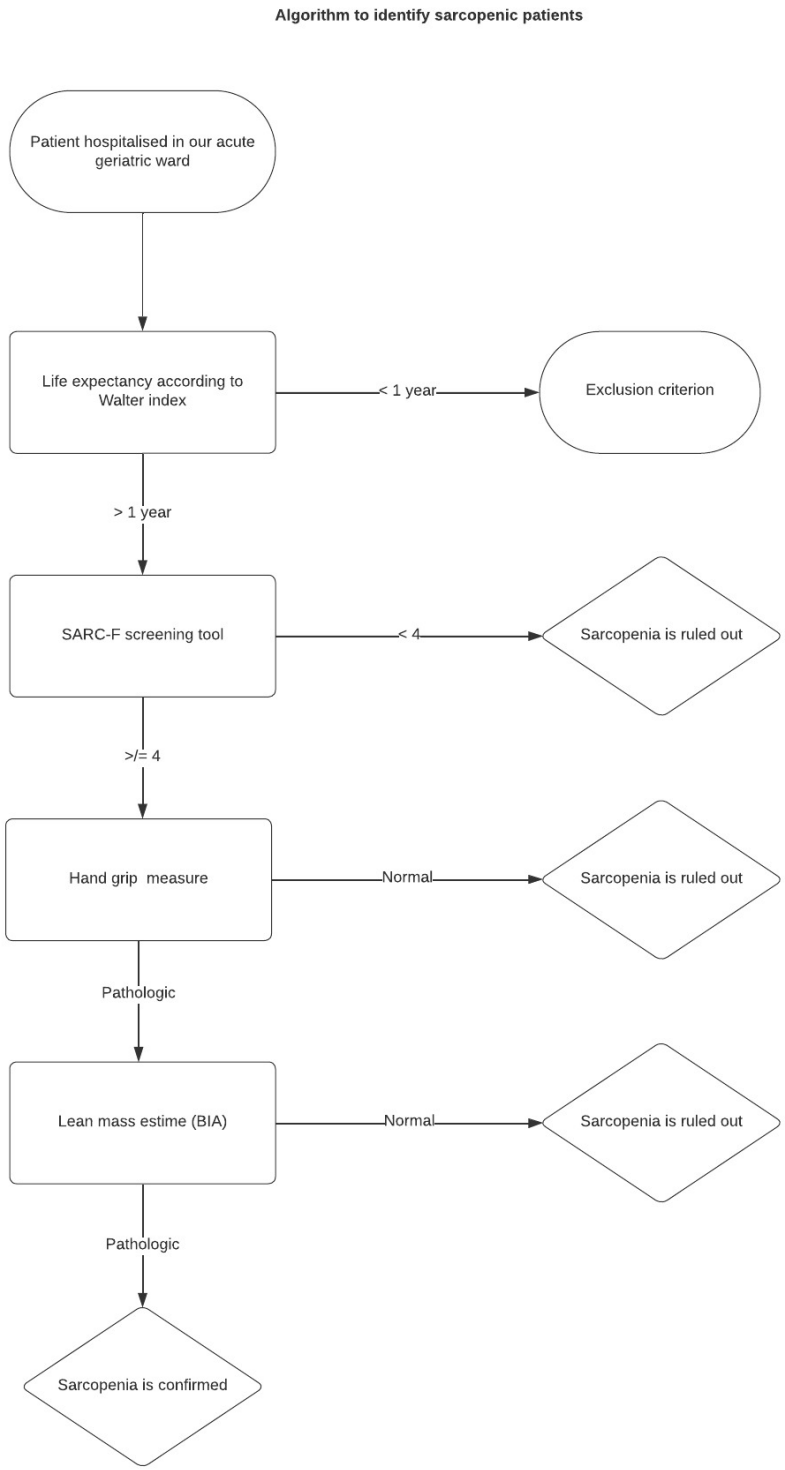
Introduction: Sarcopenia is a geriatric syndrome characterized by decline in muscle strength associated with reduced muscle mass and, possibly, function. It represents a huge public health concern due to its association with decrease in functional reserve, increased risk of falls and fractures, higher hospital costs, loss of independence with increased risk of institutionalization and mortality. A challenge for future geriatric medicine will be to prevent sarcopenia development in the aged population.

Methods: We are conducting a monocentric prospective observational study based on geriatric patients hospitalized in the acute ward of the University Hospital of Lausanne. Patients unable to provide consent or with a life expectancy lower than one year according to the prognostic Walter index are excluded. The sarcopenic patients are identified via the EWGSOP2 (2nd consensus of the European Working Group on Sarcopenia in Older People) algorithm: potentially sarcopenic patients are selected thanks to the SARC-F screening tool. If the SARC-F is positive, muscle strength is estimated by the hand-grip strength measure. If the hand grip is below the settled threshold for sarcopenia, patients undergo an evaluation of their body composition based on a bioelectrical impedance analysis (BIA).

Results: At the time of interim analysis (31.12.2023), we enrolled 290 patients. The mean age is 86.5 years old and 68.6% of them (n = 199) are women. Among these patients, 72.4% (n = 210) can be considered at risk of sarcopenia based on the SARC-F screening tool and 58.3% (n = 169) show a reduction in muscle strength at the hand-grip strength test. Nevertheless, in only 10.3% (n = 30) of patients the diagnosis of sarcopenia is confirmed according to the EWGSOP2 criteria. As expected, sarcopenic patients are older (mean age 89.8 vs 86.14 p 0.004) and with a lower BMI (mean BMI 19.75 vs 23.96 p <0.001).

Conclusions: The prevalence of sarcopenia in our cohort is aligned with previous data found in literature. Interestingly, a by far larger number of patients show a decrease in muscular strength, which is considered a marker of muscular dysfunction, although not yet sarcopenic according to the used criteria. Thus, the hypothesis of a pre-sarcopenic phenotype can be raised. The aim of our study is to confirm whether primary sarcopenia is a risk factor of adverse outcome in term of mortality at one year, difference in functional status and destination at discharge from hospital.



POSTERS – SWISS SOCIETY OF GENERAL INTERNAL MEDICINE (SSGIM)

P1

A closer look at the leaky pipeline: Personal and workplace-related factors associated with aiming for a leading position in General Internal Medicine

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Introduction: The existence of "leaky pipeline" in leadership for medicine in Switzerland is apparent: 60% of residents and 51% of attending physicians are women, but they represent only 32% of senior physicians and 16% serve as chiefs. As progress is needed, we assessed sex-specific and gender related factors potentially affecting career ambitions in physicians in General Internal Medicine.

Methods: We conducted a cross-sectional survey in General Internal Medicine physicians in Switzerland. Information was collected on demographics, career ambitions and gender-sensitive factors like family situation (e.g. having children) and workplace factors (e.g. perceived supervisor's support) using structured questions. Outcome was the probability of currently aiming for a senior position at hospital, defined as senior or chief physician. Responses were sex-specifically analyzed using Chi-square test and multiple logistic regression.

Results: Among 624 physicians included, 40% were men aged 37±11 years (mean±SD), and 60% women (35±10 years). Workplace consisted of 76% in hospitals and 21% in private practice. While no difference existed between sexes who had aimed for a leading position in the past when they were at medical school (men vs women: 14% vs 12%, p = 0.62), the difference between men and women become obvious in later progression of their career (men vs women: 17% vs 11%; p = 0.03). Age was positively and female sex was negatively associated with aiming for a leading position. In sex-stratified analyses, work dissatisfaction was negatively associated with aiming for a leading position in both sexes. In men, a pathological Physician Well-being index was negatively associated with aiming for a leading position. In contrast, perceived gender discrimination was associated with aiming for a leading position in women. A negative view on parenthood by supervisors was associated with aiming for a leading position in women, but having children or having adequate childcare were not associated with different desires for a leading position in either sex.

Conclusion: Both females and males are equally aiming for leading positions at the beginning of their career in medicine. However, a sex difference occurs in the career ambitions when facing different challenges during their career progression. Appreciation of existing differences and implementing targeted strategies for improvement may increase inclusivity and diversity to strengthen medical leadership.

P2

Associations Between Patterns of Physical Activity and Cardio-Metabolic Risk Factors. A Cross-Sectional Study

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Background: Moderate-intensity physical activity (PA) is recommended for health benefits, but optimal timing of PA remains unclear regarding cardiometabolic parameters. We assessed the impact of the time of day of accelerometery-assessed PA on cardiometabolic outcomes.

Methods: Data from 2'465 participants of the CoLaus|PsyCoLaus study (55.3% women, mean ± SD 61.2 ± 9.7 years old), a prospective study conducted in the population of Lausanne, Switzerland. PA was assessed using a wrist-worn triaxial accelerometer. Daily PA patterns were assessed using K-means clustering. We examined associations between PA pattern clusters and BMI, waist circumference, blood pressure, blood glucose and lipid levels using bivariate then multivariable analysis.

Results: Four distinct PA patterns were observed (figure 1): cluster 1 PA decreases late in the evening; cluster 2 has an early morning peak of PA; cluster 3 has a PA peak in the late morning, and cluster 4 PA increases in the early evening. On bivariate analysis, clusters differed regarding age, sex, education, smoking status, chronotype, total, HDL and LDL-cholesterol, systolic blood pressure and prevalence of antihypertensive and hypolipidemic drug treatment (table 1). After multivariable adjustment, most differences were no longer statistically significant, except for cluster 2 (early morning PA) that had an increased likelihood of hypertension [OR of 1.36 (1.00 - 1.84, 95% confidence interval)], and cluster 3 (late morning PA) that had higher total and LDL cholesterol values. Reported chronotypes were more frequently in adequacy with observed chronoactivity in clusters 1 and 2, that are most active in the evening and morning, respectively.

Conclusion: Predominance of PA in the morning was associated with an increased odds ratio for hypertension, and higher total and LDL cholesterol in a population drawn from a population-based cohort.

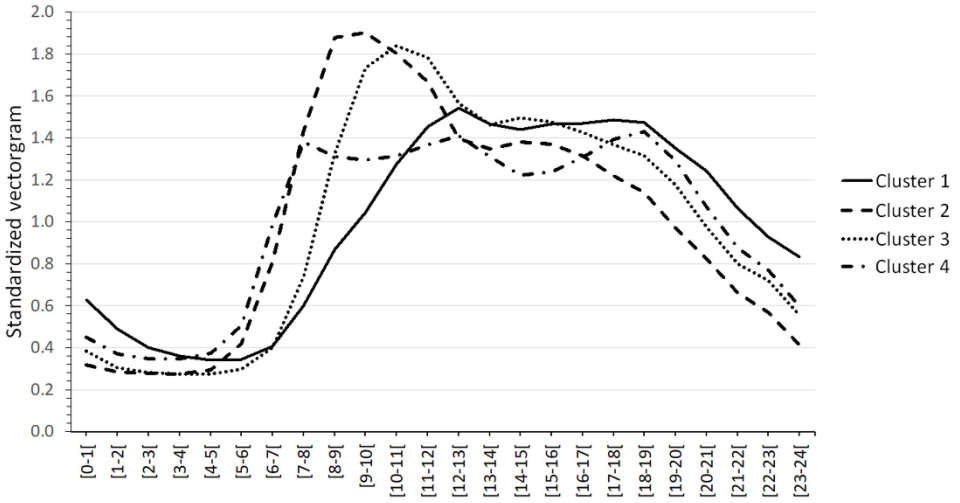

Figure 1 – Relative PA patterns clusters

Table 1 – Participant characteristics by PA timing clusters, bivariate analysis

Cluster number	1	2	3	4	P-value
N	481	453	790	741	
Female Sex, N (%)	261 (54.3)	260 (57.4)	500 (63.3)	341 (46.0)	<0.001
Age (years)	59.8 ± 9.4	64.2 ± 10.2	64.1 ± 9.3	57.1 ± 8.4	<0.001
Educational level, N (%)					<0.001
Compulsory education	66 (13.7)	98 (21.6)	129 (16.4)	60 (8.1)	
Apprenticeship	142 (29.5)	199 (43.9)	292 (37.0)	250 (33.7)	
Secondary school	71 (14.8)	42 (9.3)	77 (9.8)	92 (12.4)	
High-school degree	74 (15.4)	55 (12.1)	138 (17.5)	111 (15.0)	
University degree	128 (26.6)	59 (13.0)	153 (19.4)	228 (30.8)	
Sleep chronotype, N (%)					<0.001
Morning person	53 (11.0)	259 (57.2)	266 (33.7)	293 (39.5)	
Evening person	308 (64.0)	82 (18.1)	305 (38.6)	221 (29.8)	
Other	120 (25.0)	112 (24.7)	219 (27.7)	227 (30.6)	
Alcohol consumption, N (%)					0.062
None	121 (26.5)	122 (29.3)	165 (22)	143 (20.3)	
1-13/week	270 (59.1)	240 (57.7)	484 (64.5)	456 (64.9)	
14-27/week	55 (12.0)	43 (10.3)	84 (11.2)	88 (12.5)	
28+/week	11 (2.4)	11 (2.6)	18 (2.4)	16 (2.3)	
Smoking status, N (%)					<0.001
Never	182 (37.8)	192 (42.4)	355 (44.9)	323 (43.6)	
Former	182 (37.8)	192 (42.4)	323 (40.9)	276 (37.3)	
Current	117 (24.3)	69 (15.2)	112 (14.2)	142 (19.2)	
Body mass index (kg/m^2)	26.2 ± 4.9	26.4 ± 4.5	26.1 ± 4.5	26.5 ± 4.7	0.513
Waist circumference (cm)	90.9 ± 13.5	91.3 ± 13.1	90.7 ± 12.9	92 ± 13.3	0.293
Diabetes, N (%)	33 (6.9)	37 (8.2)	66 (8.4)	54 (7.3)	0.737
Antidiabetic treatment, N (%)	24 (5.0)	29 (6.4)	51 (6.5)	35 (4.7)	0.386
Diabetes markers					
Glucose (mmol/l)	5.3 ± 0.9	5.4 ± 1.1	5.4 ± 0.9	5.4 ± 1.0	0.573
HbA_1c (mmol/mol)	37.4 ± 6.3	38.0 ± 6.7	37.9 ± 5.7	37.1 ± 6.0	0.036
Insulin (µIU/mL)	7.7 [4.8 - 11.5]	7.6 [5.1 - 11.1]	7.5 [5.3 - 11.45]	7.3 [5 - 11]	§ 0.383
Lipid levels (mmol/L)					
Total cholesterol	5.4 ± 0.9	5.4 ± 1.0	5.5 ± 1.0	5.3 ± 0.9	<0.001
HDL cholesterol	1.6 ± 0.5	1.7 ± 0.5	1.6 ± 0.4	1.5 ± 0.5	<0.001
LDL cholesterol	3.2 ± 0.9	3.2 ± 0.9	3.3 ± 0.9	3.2 ± 0.8	0.007
Triglycerides	1.1 [0.8 - 1.5]	1.0 [0.8 - 1.4]	1.1 [0.8 - 1.5]	1.1 [0.8 - 1.5]	§ 0.597
Cholesterol-lowering medication, N (%)	53 (11.3)	78 (17.9)	124 (16.2)	84 (11.7)	0.002
Blood pressure (mm Hg)					
Systolic	124 ± 17	128 ± 18	127 ± 18	123 ± 17	<0.001
Diastolic	77 ± 11	77 ± 10	78 ± 11	78 ± 11	0.735
Antihypertensive treatment, N (%)	112 (23.3)	163 (36.0)	231 (29.2)	171 (23.1)	<0.001

Results are expressed as number of participants (column percentage) for categorical variables and as average ± standard deviation or median [interquartile range] for continuous variables. Between group comparisons performed using Pearson chi square test for categorical variables and ANOVA or Kruskal-Wallis test (§) for continuous variables.

P3

Cluster-Randomized Trial of Checklist-guided Shared Decision-Making for Code Status Discussions in Medical Inpatients

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Introduction: Discussions regarding the potential initiation of resuscitation attempts during a cardiac arrest upon hospital admission are crucial for understanding patients' individual preferences. Such decisions can bear significant medical and economic implications. The aim of our study was to compare checklist-guided shared decision-making to usual care regarding patients' code status preferences and different aspects of decision-making quality.

Methods: In this cluster-randomized, controlled trial conducted across six Swiss teaching hospitals which was conducted between 2019 and 2023, 206 medical residents caring for 2,663 newly admitted patients were randomized either to checklist-guided shared decision making or usual care. The intervention included utilizing a shared decision-making checklist and decision aids. The primary endpoint was patient's preference for a do-not-resuscitate (DNR) code status. The key secondary endpoint was the level of patients' decisional uncertainty, assessed through the patient's scores on the Decisional Conflict Scale (DCS).

Results:

Compared to patients in the usual care group, patients in the checklist-group had a significantly higher likelihood for a DNR code status (481/1293 (37.2%) vs. 685/1370 (50.0%), adjusted odds ratio 1.37 (95%CI 1.25 to 1.50), p <0.001) and significantly lower measures of uncertainty based on the DCS (21.8±20.2 vs. 14.4±15.3, adjusted difference -7.06 (95%CI -9.43 to -4.68), p <0.001. Patients in the checklist-group also had significantly better knowledge about resuscitation measures and felt more involved in the decision-making process

Conclusion: Use of a checklist and decision aid to discuss the code status with medical inpatients, as compared to usual care, increased the preference for DNR code status, reduced the uncertainty with the decision and improved different measures of satisfaction and knowledge. These findings are important for implementation strategies to improve code status discussion in the future.

P4

Implementation of a checklist to structure interprofessional daily ward rounds to improve adherence to standards of care

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Introduction: Interprofessional ward rounds (WRs) are a crucial activity for patient care on internal medicine (IM) wards. However, junior doctors tend to lack experience of WRs and are often insufficiently prepared for WRs during undergraduate studies. This can lead to omissions and errors with a potential negative impact on patient outcomes. The implementation of structured tools, such as checklists, could improve the WR process, increase patient safety by avoiding omissions and improve communication within the healthcare team, as well as with patients.

Methods: Based on a literature review of standard-of-care protocols, we developed a new approach to WRs built on three main pillars: 1) a checklist which structures interprofessional communication, lists key clinical items to be addressed daily, and encourages dedicated patient time; 2) a prompting system to consolidate checklist use; 3) protected time to prepare for WRs. The checklist underwent an iterative multidisciplinary development and validation process. The final version included 19 clinical items. Our project involved the implementation of a set of interventions supporting the introduction of a checklist to guide WRs aiming to increase the number of standard-of-care and patient safety issues discussed by the healthcare team during WRs. To evaluate the impact of our project, we conducted an observational before-and-after study (January to April 2023) in all units of the IM department at the University Hospital of Lausanne (CHUV).

Results: After the implementation of our checklist, we found a statistically significant increase in the number of items discussed per round (median 11 (IQR 4.5) vs. 16 (IQR 4); p <0.01). We also observed a reduction in the proportion of urinary and venous catheters in place, especially the proportion of venous catheters in place without an adequate indication. WRs were more frequently performed at patient's bedsides (+ 31%, p 0.02), without a clinically relevant increase in WR duration (median + 6 minutes, p 0.03).

Conclusion: Our study showed that the implementation of a checklist with prompting to structure daily interprofessional WR in an IM division significantly increased adherence to standard of care practices and improved the frequency of discussion over key points of patient management. This did not increase WR duration in a clinically relevant way. The strong adherence by the healthcare team to the new WR model probably contributed to positive results.

P5

Improving uptake of colorectal cancer screening by complex patients at a Swiss academic primary care practice: a feasibility study

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Introduction: Regular screening reduces mortality from colorectal cancer (CRC). The Vaud CRC screening program offers the choice between faecal-immunochemical tests (FIT) or colonoscopy. Patients of the primary care outpatient unit of Unisanté, often with complex psycho-somatic and socio-economic backgrounds, tend to participate less in screening programs than the general public. Randomized trials from other settings support patient navigation interventions to increase access to CRC screening. This has not been tried in Switzerland.

Method: We tested the feasibility of a patient navigation intervention for complex patients at an academic primary care practice. We first reviewed medical charts to identify the number of screening tests done outside the Vaud program. From 02.2023 to 05.2023, we offered patient navigation to complex patients, an in-person or a telephone interview, to increase screening participation. Patients were considered complex if they met one

predefined socio-economic or psychosomatic complexity criteria. Based on the RE-AIM framework, we collected the following variables: intervention participation and refusal, screening acceptation and completion, patient and medical assistant acceptability. We refined the intervention iteratively using these data.

Results: The chart review of 328 patients revealed that 51% were up to date and 20% not up to date with screening. Amongst the not up-to-date patients, 18% were complex (Figure). Only 4 (7%) patients participated in the in-person patient navigation test phase, mainly due to scheduling problems. The screening acceptance rate of these 4 patients was 100% and the completion rate 50%. We piloted a telephone intervention to bypass scheduling issues, but it couldn't be tested due to patients' refusal and mistrust. Both patients and medical assistants appreciated in-person navigation, as they felt more confident in familiar surroundings. The global screening rate 2 months after the intervention increased by 5% (51% to 56%). The medical chart review was time-consuming (approximately 20 hours). The navigation required a fully dedicated member of the team.

Conclusion: Our overall approach was resource-intensive and had little impact on the overall participation rate. It was likely not sustainable. New approaches and specific reimbursement for patient navigators are needed to increase CRC screening of complex patients.

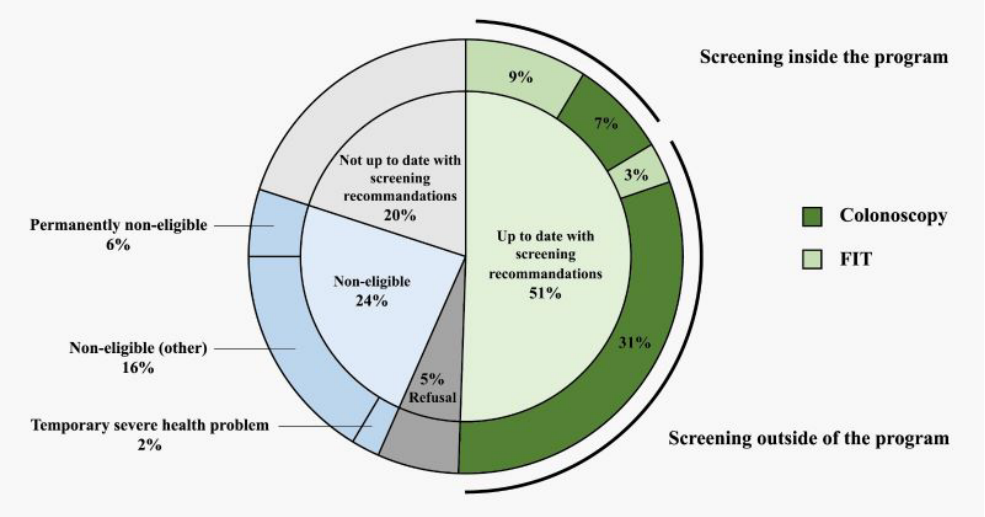

Figure: Patients' screening status according to the medical chart review.

P6

Long term efficacy outcomes of electronic nicotine delivery systems (ENDS) for smoking cessation: 12- and 24- months follow-up of the Efficacy, Safety and Toxicology of ENDS (ESTxENDS) randomized controlled trial

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Introduction: Randomized controlled trials (RCT) testing the efficacy of electronic nicotine delivery systems (ENDS) for smoking cessation have shown promising short-term results, but no RCT followed participants for more than 12 months. We tested the efficacy of combining ENDS with standard-of-care smoking cessation counseling (SOC), comparing it to SOC alone at 6-months; ENDS effectively helped smokers quit smoking. We extended follow-up to 12- and 24- months.

Methods: Our pragmatic, open label, randomized controlled trial at 5 study sites in Switzerland randomized persons smoking at least 5 tobacco cigarettes per day and willing to set a quit date. For 6 months, the intervention group received ENDS with e-liquids plus SOC; the control group received only SOC. After the 6-month intervention period, participants in both groups were followed up for 12- and 24- months after quit date. Primary outcome was 7-day point prevalence abstinence, validated by exhaled carbon monoxide 12- and 24-months after target quit date. Stabilized inverse probability weights accounted for attrition.

Results: We randomized 1246 participants, which were included in the intention-to-treat analyses. Twelve-month follow-up rate was 62% (n = 768) for self-reported smoking status; 87 participants withdrew (3.4% (n = 21) in the intervention and 10.6% (n = 66) in the control group). In the intervention group, 29.4% (n = 182) were lost to follow-up vs. 33.1% (n = 206) in the control group. Validated 7-day point prevalence abstinence rate at 12 months was 25.7% (n = 160) in the intervention and 15.9% (n = 99) in the control group (multivariable adjusted relative risk (RR): 1.50; 95% confidence interval (CI): 1.19 to 1.90). At 24-month follow-up, 56% (n = 696) reported on their smoking status: 102 withdrew (4.5% (n = 28) in the intervention group and 11.9% (n = 74) in the control group); 446 were lost to follow-up (35.0% (n = 217) in intervention and 36.8% (n = 229) in the control group). Validated 7-day point prevalence abstinence at 24 months was 22.7% (n = 141) in the intervention and 16.4% (n = 102) in the control group (adjusted RR: 1.30; 95% CI: 1.00 to 1.69).

Conclusion: At 12-month and 24- month follow-up smokers who received ENDS combined with standard-of-care smoking

cessation counseling for 6 months were more likely to quit smoking cigarettes than those who received standard-of-care alone.

P7

The evolution of self-rated health in Switzerland during the COVID-19 pandemic

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Introduction: Self-rated health is an indicator of overall health, with a powerful prognostic value[1], even though the measurement is subjective in nature. Self-rated health can be influenced by multiple factors including physical health, mental health and socio-economic determinants[2]. While information on COVID-19 status, infections and overall mortality was available in Switzerland during the pandemic, data on the evolution of self-rated health for the general population were lacking. This study investigates the longitudinal evolution of self-rated health in Geneva, Switzerland during the COVID-19 pandemic, focusing on potential predictors.

Methods: The Specchio cohort is a population-based study launched in December 2020[3]. Participants completed a questionnaire at baseline, and regular follow-up questionnaires (March 2021, March 2022 and March 2023). Self-rated health was assessed alongside factors like physical and mental health, socio-economic status, and lifestyle behaviors, using validated scales. Resilience was defined as consistently favorable self-rated health over the study period. Logistic regression was used to study the association of resilience with exercise, diet, screen habits, and sleep habits as well as any change in these habits during the COVID-19 pandemic.

Results: The study included 7,006 participants in 2021, and 3,888 participants who answered all 3 follow-ups (2021, 2022 and 2023). The evolution of self-rated health is shown in figure 1. Overall, 29.1% had a worsening in their self-rated health between 2021 and 2023. A subset of participants (12.1%) maintained very good self-rated health throughout, considered as resilient. Positive health behaviors were associated with resilience including exercise, healthy diet, less screen time and better sleep quality (figure 2).

Conclusion: The study underscores the significance of healthy lifestyle choices in maintaining favorable self-rated health, particularly during challenging times like the COVID-19 pandemic. Continuously monitoring healthy behavior even in young and otherwise healthy adults is important to prevent degradation of self-rated health and health in general.

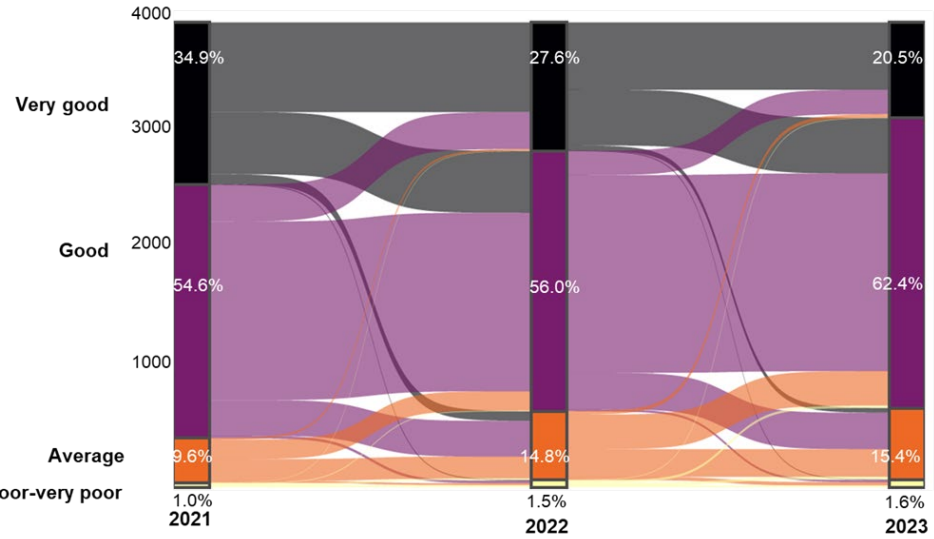

Fig 1. Longitudinal evolution of self-rated health 2021–2023

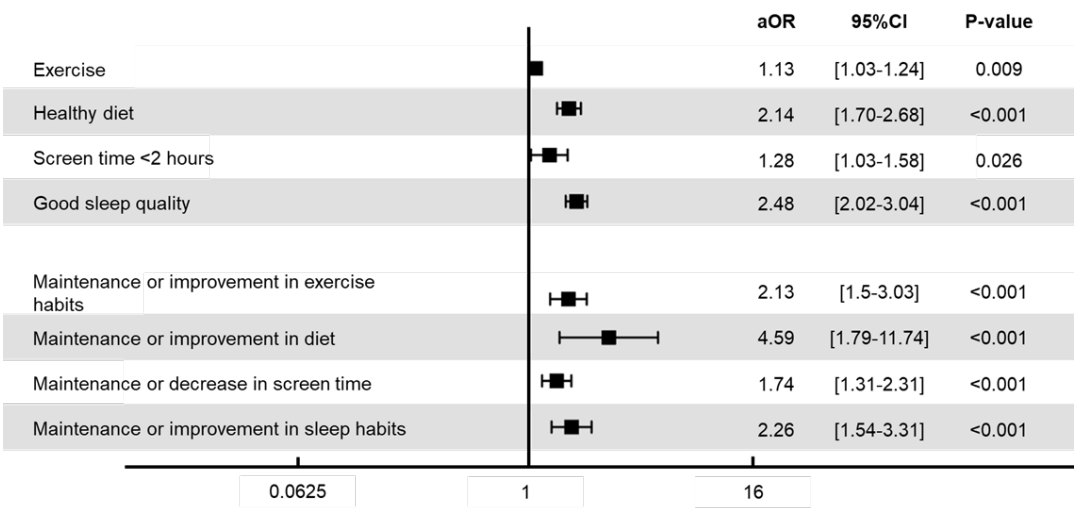

Fig 2. Association between health behaviors and resilienceaOR: adjusted odds ratio, adjusted for age groups, sex, education, profession, living status, household income, pre-existing comorbidities alcohol, smoking, social support, and mental health.

P8

Trends in sedative medication use among hospitalized patients – a single-center cohort study

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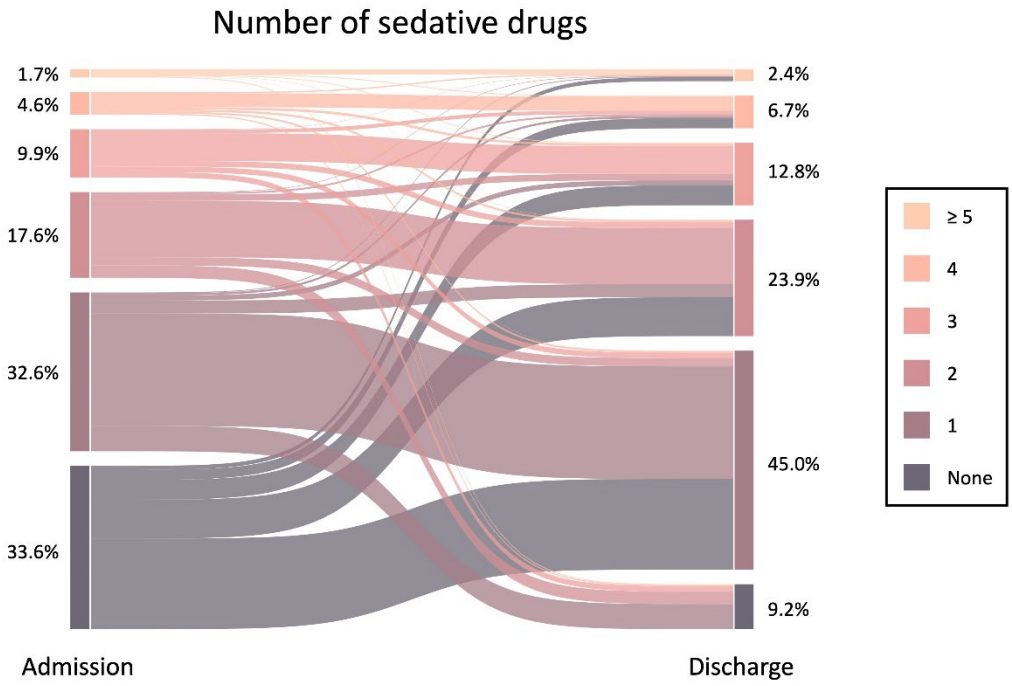
Introduction: Swissmedic and the U.S. FDA approve second-generation antipsychotics for neuropsychiatric disorders, but their sedative properties have led to growing off-label use in hospitals. The 2023 Smarter Medicine recommendation discourages continuing antipsychotic prescriptions at discharge when initiated for insomnia or agitation during hospitalization. This study aims to assess the issue's prevalence before the recommendation's introduction.

Methods: This cohort study, based on electronic health record data from Cantonal Hospital Aarau, examines 17,022 hospitalizations spanning 2019 to 2022. We investigated the prescription trends of sedative medications (benzodiazepines, anxiolytics, antipsychotics, hypnotics, and antidepressants) overall and stratified by diagnoses such as schizophrenia, psychosis, dementia, mood disorders, or cancer. Quarterly trends in prescription patterns are analyzed at admission and discharge.

Results: Over time, there has been a notable rise in the prescription of hypnotics and antipsychotics at admission (hypnotics: 18.4% [2019] vs. 22.4% [2022] , p for trend <0.01; antipsychotics: 21.4% [2019] vs. 27.6% [2022], p for trend <0.01) and discharge (hypnotics: 20.6% [2019] vs. 23.1% [2022] , p for trend = 0.02; antipsychotics: 24.4% [2019] vs. 33.4% [2022], p for trend <0.01), whereas trends for other medication categories have remained relatively stable. Patients who received a sedative medication at any point during hospitalization showed an increased number of prescribed drugs at the time of discharge compared to admission (Figure 1). Additionally, there is a trend towards a decreased proportion of patients without any sedative medication both over the years (discharge: 61.6% [2019] vs. 60.3% [2022], p for trend = 0.33) and during hospitalization (66% [admission] vs. 62% [discharge]).

Conclusions: This study illuminates the changing patterns of sedative medication prescriptions during hospitalization prior to the adoption of the Smarter Medicine's 2023 Big 5 list recommendation. The results reveal a troubling rise in sedative usage and an increasing frequency of prescriptions. Ongoing vigilance and continued monitoring is crucial to safeguard patient well-being amid shifting prescription practices.



P9

Validation of the Frailty adjusted Prognosis tool for 30-day mortality in older patients presenting to the Emergency Department

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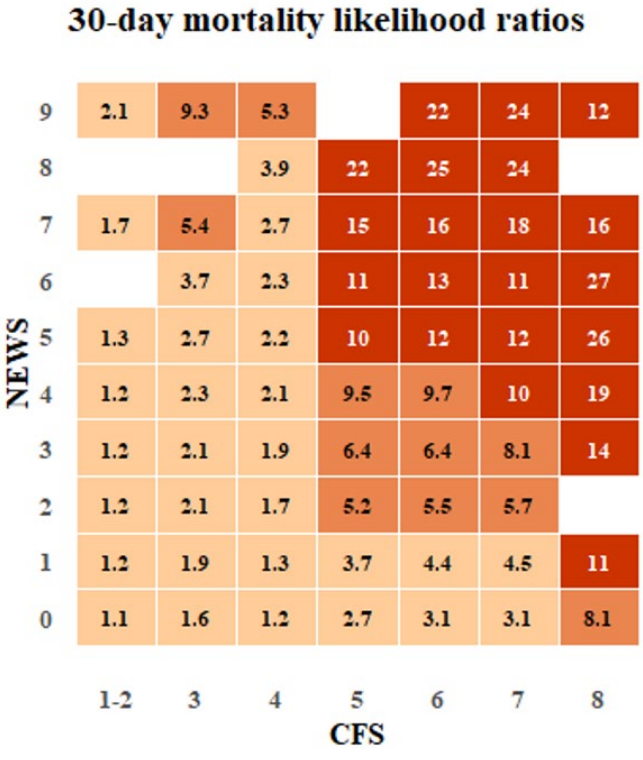
Introduction: Emergency departments (EDs) are seeing an increasing number of older patients presenting with higher levels of morbidity. Prognostication is crucial to guide appropriate management in this population. Risk stratification in the older population is challenging, and relying on vital signs alone is insufficient. Frailty and vital signs are independently associated with mortality. The Frailty adjusted Prognosis tool (FaP-ED) was developed to predict 30-day mortality in older people presenting to ED by combining vital signs with degree of frailty. We aim to validate FaP-ED in an independent ED population.

Methods: This study is based on a single-centre, observational prospective cohort of undifferentiated ED patients aged 65 or older, consecutively sampled upon ED presentation at the University Hospital Basel between 25.04. and 30.05.2022. The National Early Warning Score (NEWS) is an aggregated scoring system for vital signs developed for use at presentation as a measure of illness severity and to detect clinical deterioration after treatment instigation. The Clinical Frailty Score (CFS) is an ordinal scale describing increasing levels of frailty. FaP-ED combines NEWS and CFS in multivariable logistic regression. We assess discrimination of FaP-ED with area under the receiver operating characteristic curves (AUROC) and calibration using slope and intercept.

Results: In total, 1349 patients aged 65 and older were included in the cohort. Median age was 78 (interquartile range (IQR): 13), and 53% (N = 704) were female. CFS was missing in 9.0% (N = 121), 4.0% (N = 54) were lost to follow-up, 0.4% (N = 5) were terminally ill, that is CFS 9, and 0.7% (N = 10) came in under CPR/intubated leaving 85.9% (N = 1159) for analyses. In total, 3.0% (N = 40) died within 30 days of presentation to ED. Median NEWS was 1 (IQR: 2), and median CFS was 4 (IQR: 2). FaP-ED showed good discrimination regarding mortality with an AUC of 0.841 as well as good calibration (slope 1.05; intercept –0.27). Further analyses are currently in progress.

Conclusions: FaP-ED enables more accurate risk prediction among older patients in the emergency department, compared to aggregated vital signs alone, making it a promising clinical decision-aid. FaP-ED could be implemented as an integral adjunct in addition to holistic, pragmatic, patient-centred discussions regarding care of the older population.



P10

What are risk factors for in-hospital falls among medical patients? A systematic review and meta-analysis

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Background: In-hospital falls are frequent, occurring in up to 7% per hospitalization day. They often cause injuries, resulting in extended lengths of stay as well as higher costs. Screening tools to identify individuals at risk are no longer recommended due to lack of demonstrated predictive performance. Instead, guidelines advocate for multifactorial risk assessment. There are no recent studies summarizing the available evidence on risk factors. To address this gap and to help prioritize preventive measures, we conducted a systematic review and meta-analysis aiming to provide clinicians with a list of valid risk factors for in-hospital falls.

Method: We systematically identified and extracted data from studies reporting odds ratios (OR) of potential risk factors for in-hospital falls. We used random effects models to pool each risk factor's effect size.

Results: Of 5,067 records retrieved, we included 119 original publications. We identified 23 risk factors reported in five or more studies with low-to-moderate risk of bias. We found largest effect sizes for Parkinson's disease (OR 3.67, 95% CI 2.37–5.69), mobility disorders (OR 2.79, 95% CI 1.88-4.14), anticonvulsants (OR 2.76, 95% CI 1.61–4.74), history of falls (OR 2.50, 95% CI 1.90-3.28), antidepressants (OR 2.30, 95% CI 1.99–2.65), incontinence (OR 2.30, 95% CI 1.19–4.44), psychotropics (OR 2.22, 95% CI 1.75–2.81), dementia (2.15, 95% CI 1.40-3.29), cognitive impairment (OR 2.12, 95% CI 1.69–2.66), and age older than 65 years (OR 2.06, 95% CI 1.82–2.32).

Conclusion: This comprehensive list of risk factors for in-hospital falls, which specifies strength of evidence and effect sizes, can help prioritize preventive measures and interventions. Moreover, it could contribute to the development of innovative and evidence-based clinical prediction models.

P11

Adverse drug events of immune checkpoint inhibitors - Preliminary results of a retrospective real-world data analysis

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Introduction: Immune checkpoint inhibitors (ICI), specifically anti cytotoxic T-lymphocyte associated protein 4 (CTLA-4) antibodies, anti-programmed death-1 (PD-1) and programmed death-ligand 1 (PD-L1) inhibitors, are important accomplishments in cancer therapy. However, the promising substances have a wide range of immune-related adverse events (irAEs). IrAEs can occur in almost every organ system [1,2] . Whereas several clinical phase I-III trials with specific substances and their side effects exist [2], little research has been done with real-world patient data. The aims of this study were (1) to summarize and analyze occurred irAEs of ICIs in a real-world setting, (2) to analyze possible correlation between irAE severity and affected organ with sex, cancer type, and therapeutic agent, and (3) to suggest a template for structured reporting of irAEs related to therapy with ICIs for the daily clinical practice.

Methods: We performed a retrospective, monocentric, observational study including in- and outpatients aged ≥18 years old in the Lucerne Cantonal Hospital, treated between the 1st of January 2020 and the 31st of May 2023 with a CTLA-4 antibody (Ipilimumab) or a PD-1 inhibitor (nivolumab, pembrolizumab, and cemiplimab) or a PD-L1 inhibitor (atezolizumab, avelumab, and durvalumab). Collected data of eligible patients were age, sex, cancer type, ICI substance used, total cycles of therapy, duration of therapy, diagnoses, date of death, if deceased, and data about occurred irAEs.

Results: Of 527 screened records, 500 were included. 43.2% of patients had documented irAE, of which 98% were grade 1–3. Of all irAE, 35.3% were dermatological, 30.2% gastrointestinal, 25.1% endocrine, 11.2% musculoskeletal, 8.8% pulmonary, 8.4% systemic, 6.0% neurological, 3.3% cardiac, 3.3% renal, 0.9% hematological and 0.5% ocular. In 43.8% of patients with occurred irAEs, the irAE was not documented in the diagnosis list but only in medical record notes.

Conclusion: The incidence of irAE was lower than expected. Potential reasons could be a lack in documentation of irAE, or confounding irAEs as tumor-related symptoms. Most affected organ systems were the skin, the gastrointestinal tract, and endocrine organs. In over 40% of patients with occurred irAEs, the irAE was not documented in the diagnosis list. We suggest implementing a structured documentation of irAE to enhance patient safety during therapy with ICI.

P12

Development and implementation of a patient information sheet in family practice

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Introduction: Primary care physicians (PCPs) play a key role in educating patients, especially when newly diagnosed with a chronic disease. Some patients may have difficulty remembering all of the lifestyle and health behavior advice they receive. In these situations, providing written information can reinforce messages, contribute to sustained health behavior change, increase adherence, improve patient satisfaction, and promote patient autonomy. In a previous study, we found that patient information sheets (PIS) were rarely used and that actively involving PCPs in the development of such tools may increase their motivation to use them. The present study, conducted as part of a master's thesis, aimed to develop a new PIS and implement it in family practice using a participatory method to overcome these barriers.

Methods: The study was conducted in 3 steps involving six PCPs from Geneva, Switzerland. First, a group discussion was conducted using the Nominal Group Technique to define the topics for which a PIS would be most useful. Second, a PIS was developed (Figure), based on published guidelines for the development of such sheets and with the assistance of a graphic designer. The content was validated by the PCPs and members of the public. Finally, the PCPs implemented the PIS in their practice over a two-month period. Implementation was evaluated by counting the number of sheets given to patients and by assessing PCP satisfaction.

Results: Hypercholesterolemia emerged as the preferred topic for the PIS among participating PCPs. During the implementation period, three of the six PCPs effectively delivered the PIS to patients, resulting in 21 sheets distributed, more than in the previous study. PCPs were generally satisfied and indicated that they would recommend the use of this PIS to their professional peers (mean rating of 8.5 on a 10-point scale).

Conclusions: This study demonstrated that a participatory process involving PCPs in the development of a PIS facilitated its implementation, resulting in a higher number of sheets distributed than in a previous project. Future research should evaluate whether such initiatives can be implemented on a larger scale and in the long term, and should examine patient-related outcomes, such as the extent to which all eligible patients receive the recommended PIS, patient satisfaction with the information and its impact on health-related outcomes.

AVOIR DU CHOLESTEROL

«VOUS AVEZ DU CHOLESTEROL»

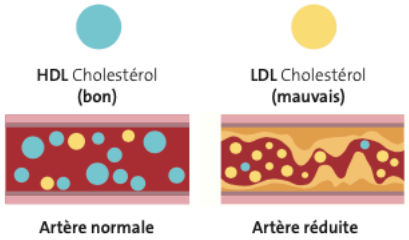
Qu'est-ce que cela veut dire?

Le cholesterol est fondametal dans la construction des cellules. Cependant, un taux trop elevé de cholestérol peut vous rendre malade. Nous contrôlons 3 types de graisses:

HDL (le «bon» cholestérol; il transporte le mauvais cholestéol LDL vers le foie).

LDL (mauvais cholestérol qui peut s'accumuler dans les artères).

Triglycérides (stockage de graisse qui est mauvais en excès).



MANIFESTATION

L'hypercholestérolémie est une maladie silencieuse car dans la majorité des cas il n'y a pas de symptômes.

DIAGNOSTIC

Le diagnostic se fait par une prise de sang.
En Suisse, le dépistage est recommandé dès 35-40 ans.
Ce dépistage peut être proposé plus tôt en cas de maladie cardiaque connue ou en présence de facteurs de risque cardiovasculaires comme: l'obésité, le tabac, le diabète, une hypertension mal contrôlée ou un manque d'activité physique (sédentarité).

RISQUES

Le mauvais cholestérol (LDL) en excès, va boucher peu à peu les artères formant une plaque, appelée athérosclérose. En cas de rupture de cette plaque, une obstruction par un caillot de sang (thrombose) se forme et peut provoquer:

- Infarctus du myocarde
- Accident vasculaire cérébral (AVC)
- Obstruction des artères des jambes

PRISE EN CHARGE

La prise en charge est individualisée pour chaque patient. Le médecin adapte le traitement en fonction de votre âge, votre taux de cholestérol et de vos facteurs de risque cardio-vasculaire. Dans tous les cas, l'élément de base reste les mesures hygiéno-diététiques, qui comprennent des changements alimentaires et de l'activité physique. A voir la fiche recommandations nutritionnelles et d'activité physique.
Existe-t-il un médicament pour diminuer le cholestérol? Selon vos risques cardiovasculaires, le médecin peut vous proposer des médicaments en plus des mesures hygiéno-diététiques.

QUAND CONSULTER

Il est important que vous ayez un suivi régulier. Il est recommandé de contrôler votre taux de cholestérol 3 à 6 mois après la mise en place des mesures hygiéno-diététiques. Si un médicament est introduit, un contrôle sanguin sera nécessaire.

Rédaction: Paulo De Sousa Mendes, juillet 2022
Sources: Stratégies SMPR dyslipidémie 2022 (HUG), Office fédéral du sport (OFSPO), ESC 2021, www.ottawaheart.ca/heart-condition/high- cholesterol consulté en avril 2022, www.addictionsuisse.ch, FIP Cholestérol 2016 de la Dre M. Sustersic. **Relecteur:** Pre D. Haller, Dr Christopher Chung. **Illustrations:** Canva.com, Macrovector / Freepik, Flaticon, Pascal Fessler

FACULTÉ DE MÉDECINE

UNIVERSITÉ DE GENÈVE

RECOMMENDATIONS NUTRITIONELLES ET D'ACTIVITES PHYSIQUES

J'AI TROP DE CHOLESTEROL: ATTITUDES POUR LE RÉDUIRE

Il est important d'avoir une alimentation équilibrée pour améliorer votre taux de cholestérol

Limiter la consommation d'alcool à <2 verres/jour pour l'homme et <1 verres/jour pour la femme

Une perte de poids permet de réduire l'excès de tryglicérides, LDL et d'augmenter le bon cholestérol (HDL)

Limiter les boissons sucrées y compris le jus de fruit. Le sucre non utilisé est stocké sous forme de graisse

Faire 2h30 d'activité physique modérée (faire du vélo, jardiner...) ou 1h30min d'activité physique intense (course à pied, ski de fond) par semaine.
Idéalement 30 min/jour
L'activité phyisique peut être implémentée dans la vie quotidienne comme monter des escaliers et aller au travail à vélo ou à pied

A éviter

Huile de palme, de coprah, de tournesol, d'arachides, de maïs, de carthame, de pépins de raisin	Eviter
Fritures et autre modes de cuisson gras	Eviter
Crème, graisse ou lait de coco, saindoux	Eviter
Beurre	Max 10 g/j
Viande grasses, charcuterie, abats	Max 1-2x/mois
Oeufs	Max 6/semaine
Fromages à pâtes dures et molles	Max 1 petit morceau 3x/semaine
"Fast food" et plats gras	Max 2x/mois
Snacks et pâtisseries	Max 2x/semaine

A privilégier

Huile d'olive et de colza	2 cuillères à soupe/jour
Poisson	≥ 2x/semaine
Viandes maigres ou de volaille (sans peau)	4x/semaine
Céréales complètes et légumes secs	Plus de 2x/semaine
Fruits et légumes	3-5x/jour
Lait et yaourts	2-3x/jour
Noix, graines, olives, avocats	Max 1 poignée/jour
Herbes aromatiques, ail, oignon, épices	Sans limite
Eau	Min 1.5-2l/jour

P13

Experiences of an Interprofessional Education Training Unit in Internal Medicine in a Tertiary Setting from the Healthcare Trainees' Perspective: A Qualitative Study

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Abstract: Increasing complexity and specialization in healthcare require interprofessional expertise. The aim of our study is to explore students' perception of interprofessional collaboration during a pilot phase of an interprofessional education (IPE) training unit, where they are directly involved in treating hospitalized patients.

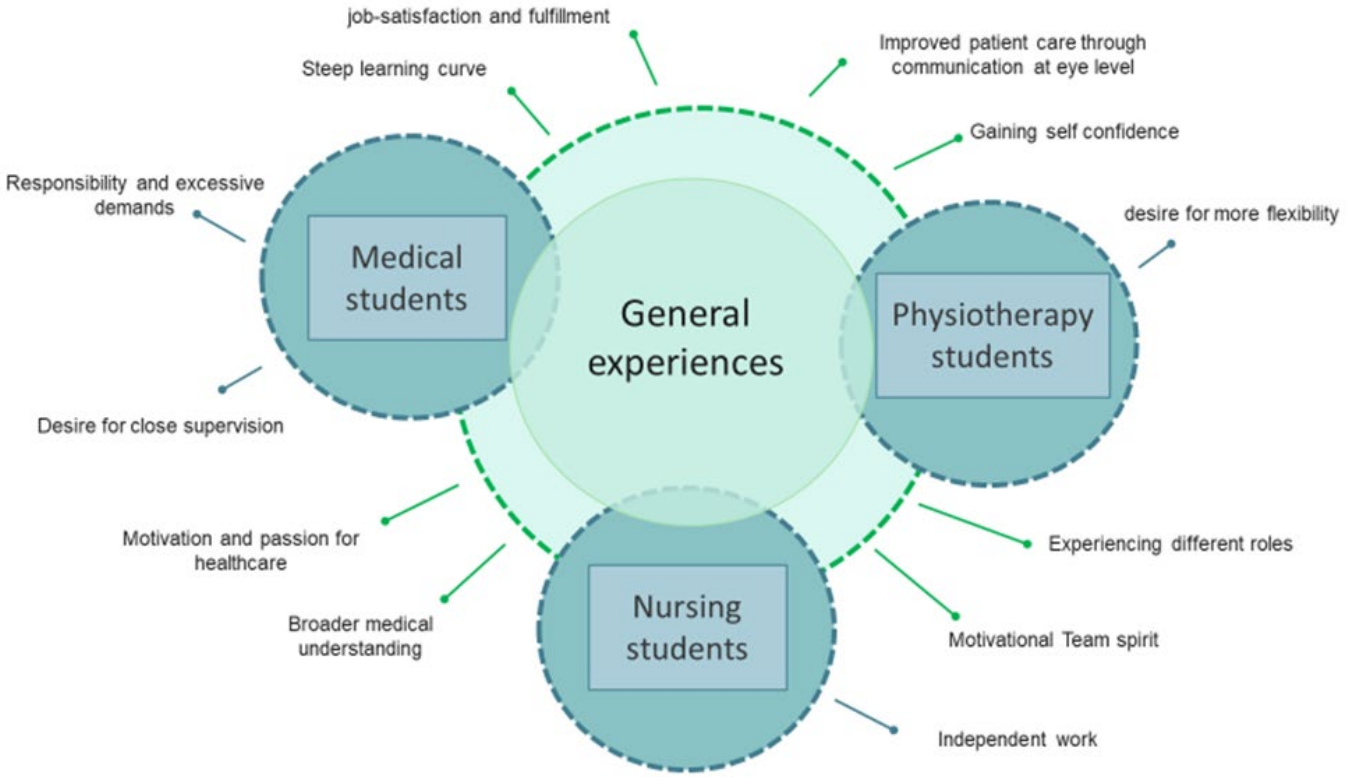
Summary of Work: During a 4-week pilot project, seven trainees in medicine, nursing, and physiotherapy in their final year of education, took direct charge of the care for eight multimorbid patients in an internal medicine ward of a tertiary hospital. Under supervision of senior staff, they treated patients collaboratively. We performed individual semi-structured interviews, transcribed, and analyzed them using a thematic analysis in an iterative process.

Summary of Results: All trainees reported benefits linked to increased responsibility and the building of a collaborative, motivational team spirit, where respectful interaction, better understanding of the different roles and communication at eye level were key elements. Development of self-confidence and trust in the team resulted in a notable personal and professional growth. From the perspective of all trainees, patient care adhered to exemplary standards, benefiting from the synergistic effects of interprofessional care. However, close supervision was perceived as a main requirement for successful performance. Discernible disparities were observed among trainees in relation to their chosen careers. Medical students indicated a pronounced need for rigorous supervision and voiced concerns about balancing professional responsibilities with personal wellbeing. Nursing and physiotherapy trainees experienced an accelerated transition to independent patient management.

Discussion: Working in an interprofessional team contributed to trainees` enhanced comprehension of the different roles and improved team work. Key factors were positive and respectful interactions with team members, coupled with close supervision from senior professionals.

Conclusion: Working on an IPE training unit positively influences communication, interprofessional competencies, professional development, and patient care.

Take-home Message: IPE promotes constructive communication, collaborative team-spirit, and patient care and is possible even on wards with acutely ill, multimorbid patients.



P14

How to measure medical students' empathy during OSCEs?

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Introduction: Empathy, a key element in medical practice, is considered as a multidimensional construct including cognitive, affective, and behavioral dimensions. During OSCEs (Objective Structured Clinical Examination) or real consultations, behavioral empathy can be assessed from three perspectives (self-evaluation, patient perception, and external observer perception) with either a questionnaire or a global rating. However, there is no consensus on which types of measures should be used to assess medical students' behavioral empathy. The aim of this study was to explore which measures of medical students' empathy show the highest correlations with behavioral empathy.

Methods: Fourth and sixth year medical students from the Faculty of medicine of Geneva were invited to participate to a formative OSCE with simulated patients (SPs). Self-perceived empathy scoring was completed by the students after the OSCE. SPs and the external observer filled in the Jefferson Scale of Patient's Perceptions of Physician Empathy (JSPPPE), and also provided a global empathy score. Students' behavioral empathy was objectively measured using the Verona Coding Definitions of Emotional Sequences (VR-CoDES-P) for verbal empathy; five dimensions of non-verbal behavior were also assessed using a five level Likert scale. We estimated the correlations between these different measures.

Results: Participants included 26 4th year and 30 6th year students. There was no or very weak association between students' self-perceived empathy and the SP's/observer's perceived empathy or behavioral empathy (ρ = 0.06 to 0.21). SP's and observer's measures of empathy correlated with verbal empathy (global ρ 0.27 p-value<0.05 and 0.56, p-value<0.01) (JSPPE ρ = 0.35 and 0.45 p <0.01) and non-verbal behaviour (ρ = 0.39 and 0.66, p-value <0.05). Verbal empathy correlated with non-verbal behavior (ρ = 0.38, p <0.05). Among non-verbal behaviors, the head movement (ρ = 0.28 to0.35), bodily posture (ρ = 0.27 to 0.49), and tone of voice (ρ = 0.35 to 0.44), were associated with perceived or objective empathy.

Conclusions: This study suggests s that the global ratings of SPs or an external observer are valid measures to assess medical students' empathy. Because the external observer' perceptions of verbal empathy and non-verbal behavior are closely correlated, the assessment of non-verbal communication may be a promising tool to measure students' empathy.

P15

How to stimulate clinical reasoning among pre-clerkship medical students– a near peer led board game

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Introduction: Clinical reasoning is a key component of patient care. Pre-clerkship medical students face challenges learning this skill due to limited patient exposure. They often resort to a checklist approach in practicing clinical skills with real or simulated patients. The aim of the study was to implement a near peer led board game aiming at enhancing clinical reasoning skills among pre-clerkship medical students and measure its impact through self-perceptions.

Methods: 4–6th year medical students developed a board game to teach clinical reasoning using a case-based approach at the Geneva Faculty of Medicine. It consisted of a 2-hour collaborative game during which three junior (3rd year) medical students interact with a senior student acting as game master and patient in two different scenarios. First, the senior student stimulates hypothesis generation by placing a card containing the main patient complaint on a board and asking junior students to first name the anatomic systems potentially involved and then the diagnostic hypotheses related to these systems (cards subsequently placed on the board). Secondly, junior students take the history from the senior student (role playing the patient) and than prioritize the diagnostic hypotheses cards. Third, junior students receive physical exam findings after a question-based physical examination. Finally, they summarize the relevant findings and select the three main diagnostic hypotheses before receiving feedback from the senior student on the clinical reasoning process. Both junior and senior students were asked to fill-in an online survey evaluating their self-perceptions regarding the game and its usefulness (Likert scale 1–5).

Results: 84 junior and 17 senior students took part into the board game. Both student groups considered the game to be well-conceived (4.8 (SD 0.6) and 4.4 (SD 0.8)), collaborative (4.8 (SD 0.7) and 4.5 (0.9)), useful for reasoning skill development (4.8 (SD 0.6) and 4.5 (SD 1.2)). Junior students reported that the senior student mastered the clinical reasoning skills to teach (4.9 (SD 0.6), stimulated their clinical reasoning during all steps of the game (4.9 (SD0.6)), taught concisely and meaningfully (4.6 (SD0.8)) and gave constructive feedback (4.5 (SD 0.9)).

Conclusions: Using a board game and involving near peer students to teach clinical reasoning skills is a promising way to stimulate pre-clerkship students to apply clinical reasoning while interacting with patients.

P16

Nationwide Analysis of Spontaneous Reports of Adverse Reactions of Drugs Used in Pain Therapies

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Introduction: Pain therapies are prescribed to a significant proportion of the population and associated with adverse drug reactions (ADRs). The prescription of pain therapies requires careful consideration of their safety profiles in the context of patient-specific characteristics.

Methods: A comprehensive search for individual case safety reports (ICSRs) from Switzerland related to drugs used in pain therapy (standardized drug grouping) between September 29, 1991 and December 31, 2022 was conducted in the WHO database Vigibase. Adults (≥18 years) with known sex and age (categories 18-74 vs. 75 years and older), were included in the analysis. Patient demographics, report characteristics, the reported drugs used in pain treatment and the corresponding reactions were analyzed.

Results: A total of 17,228 ICSRs were analyzed after exclusion of duplicates (n = 1,243), cases with unknown age or sex (n = 5,248), age <18 (n = 1,004) and pregnancy cases (n = 638). Of these cases, 58% were female, and 23% were 75 years or older.

The substances with the most ADRs reported were paracetamol, acetylsalicylic acid (ASS), venlafaxine, ibuprofen, and diclofenac. In both groups, ADRs were most commonly related to the nervous system, gastrointestinal disorders, and general disorders and administration site conditions. Additionally, blood and lymphatic system disorders were frequently reported in the older adults. Generally, serious reactions were more frequent in older vs. younger adults (69% vs. 54%). Specifically, serious reactions in older adults frequently involved hospitalization (71%) and/or resulted in death (10%). Older males exhibited the highest risk, with serious and fatal outcomes 1.3 and 2.3 times more frequently, respectively, compared to the entire analyzed population. In older adults, reactions like anaemia, gastrointestinal haemorrhage and acute kidney injury were associated primarily with NSAIDs, while a confusional state, somnolence, and falls occurred foremost with the use of opioids. Finally, hyponatremia was reported with psychotropic drugs and anticonvulsants in older adults.

Conclusion: This comprehensive analysis underscores the substantial burden of ADRs associated with drugs used in pain therapies in Switzerland: Especially in older adults the reported ADRs frequently led to hospitalization or death. A deeper understanding of the safety profiles of these substances may guide healthcare professionals towards improved treatment choices.

P17

Prevalence and Determinants of Shifted ST Segment and T Wave in aVR: A Population-Based Study

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Introduction: Changes in lead aVR are often neglected, although they can be helpful in the diagnosis of many clinical entities and provide additional prognostic information. We aimed to describe the prevalence and determinants of shifted ST segment and T wave amplitude in aVR in the general population.

Methods: Clinical and electrocardiographic data from 3806 participants (54% women, 61.9±10.0 years) was obtained from the second follow-up (2014–2017) of CoLaus|PsyCoLaus, a prospective, population-based cohort study conducted in Lausanne, Switzerland. Results are presented in mean (± SD) and using Spearman's rank correlation coefficients.

Results: Mean ST segment position was -21.7 µV (± 21.9). ST segment position in aVR was significantly (p <0.05) positively correlated with age (r = 0.276), systolic blood pressure (r = 0.151), heart rate (r = 0.070), HDL cholesterol (r = 0.110), total cholesterol (r = 0.054) and negatively correlated with height (r = –0.194), weight (r = –0.097) and potassium (r = –0.086) (Figure 1). Mean T wave amplitude was -239.88 µV (± 87.62). T wave amplitude was positively correlated with age (r = 0.238), systolic blood pressure (r = 0.080), heart rate (r = 0.153), triglycerides (r = 0.086), body mass index (r = 0.066), and negatively correlated with height (r = –0.106) and potassium (r = –0.065) (Figure 2). In the multivariate analysis, mean ST segment position and T wave remained associated with age, height, heart rate and potassium. Moreover, ST segment remained associated with systolic blood pressure and HDL cholesterol, and T wave remained associated with triglycerides.

Conclusion: As expected, anthropometric and electrophysiological factors are associated with both shifted ST segment and T wave amplitude in aVR in the Swiss population. Further studies should clarify association with cardiovascular risk factors (cholesterol, systolic pressure, and weight).

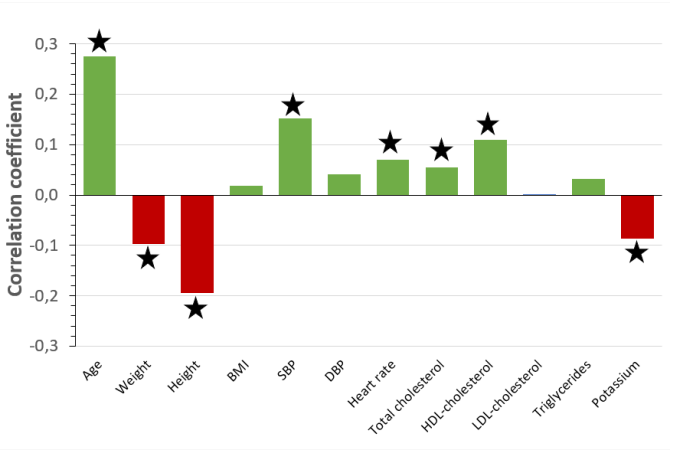

Figure 1: Correlation coefficients between ST segment position in aVR and health variables in the Colaus/PsyCoLaus population * (p <0.05)

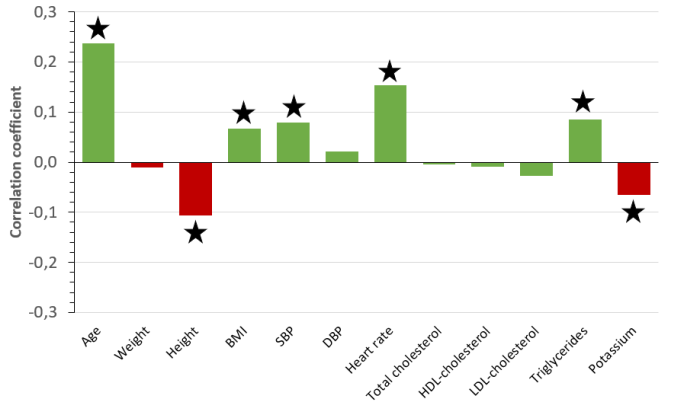

Figure 2: Correlation coefficients between T wave amplitude in aVR and health variables in the Colaus/PsyCoLaus population * (p <0.05)

P18

The Primary Care Physicians' Opinion on the Healthcare System in Switzerland

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Introduction: The healthcare system finds itself in an important phase of transformation and consolidation to meet the population's needs. We observed this evolution by studying the Swiss primary care physicians' (PCPs) opinion on the healthcare system in 2012, 2015 and 2019.

Methods: This secondary analysis is based on the Commonwealth Fund International Health Policy Survey of Primary Care Physicians carried out in 2012 (n = 1025), 2015 (n = 1065) and 2019 (n = 1095). The survey collects the opinions of a nationally representative random sample of PCPs. The present analysis focuses on three aspects: the *performance* of the healthcare system, the evolution of its *quality*, and the *quantity* of medical care provided and how these variables changed in the three Swiss linguistic regions, depending on gender, age and practice location. We first produced descriptive statistics in 2012, 2015

and 2019. Then we carried out a weighted, mixed-effects, ordered logistic regression measuring the association between the three outcomes and the sociodemographic variables in 2019.

Results: In 2012, 2015 and 2019, the performance of the healthcare system was perceived as good to very good by the majority of PCPs. As for the evolution of the quality, the majority of the PCPs felt that it stayed about the same from 2012 to 2019. Finally, the quantity of medical care was considered just about right by a majority of PCPs in 2012 and 2019. In 2015, more than half of the PCPs considered there was too much medical care. The multivariable modelling revealed that lower performance was described in the French and the Italian parts of Switzerland than in the German part. Concerning the evolution of the quality, the age bracket under 35 reported less degradation than the PCPs aged 65 and more. Fewer women than men considered the quantity of medical care provided inadequate. In contrast, younger PCPs reported more inadequate quantity of medical care than PCPs aged 65 and more.

Conclusions: We observed that the opinions on the performance, the quality and the quantity of medical care are rather positive and constant from 2012 to 2019, with little association between the sociodemographic characteristics of the PCPs and their opinions. Many explanatory factors would be worth a discussion. This study allows us to reflect on what good healthcare means, and the PCPs' opinions, although subjective, open new inputs and possible fields of action to strengthen the primary healthcare system.

P19

Transformative Learning and Professional Identity Development During Medical Students' Clerkships: A qualitative study

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Introduction: Fourth-year clerkships constitute the first long-lasting (18-weeks) clinical immersion for medical students at our university. While fostering clinical skills, clinical practice also exposes students to the inherent clinical constraints and ethical dilemmas. Since 2021, we mandate students to produce narrative reflexive reports detailing disorienting situations encountered during clerkships. Utilizing the Mezirow transformative learning framework, we examined these narratives to better appreciate what disorienting dilemmas face students and what changes in students' perspective on themselves and on the profession they produce.

Methods: Employing a qualitative description approach, we analyzed narrative reflexive reports from all fourth-year medical students. Anonymized data underwent reflexive thematic analysis independently by three authors.

Results: All students (n = 195) consented to share anonymized reflexive reports. Analysis uncovered nine categories of disorienting situations: ethical dilemmas, complex bio-psycho-social situations, end-of-life scenarios and death, patients refusing treatments, medical errors, time constraints, good and bad role models, interpersonal conflicts, and assuming the role of caregiver. These situations prompted perspective transformations, organized around four main critical reflections: 1. Navigating emotional distance in extreme clinical and human situations, 2. Beyond knowledge and skills, the importance of compassion and relationship-building, 3. The pivotal role of interprofessional and multidisciplinary collaboration in complex situations, 4. Adopt the appropriate attitude facing the limitations of medicine. We found that, identical situations elicited diverse responses from students.

Conclusions: Clerkships provide rich experiences for transformative learning. Understanding these components offers educators opportunities to support students and foster their professional identity development.

P20

Vitamin supplements and cognitive decline

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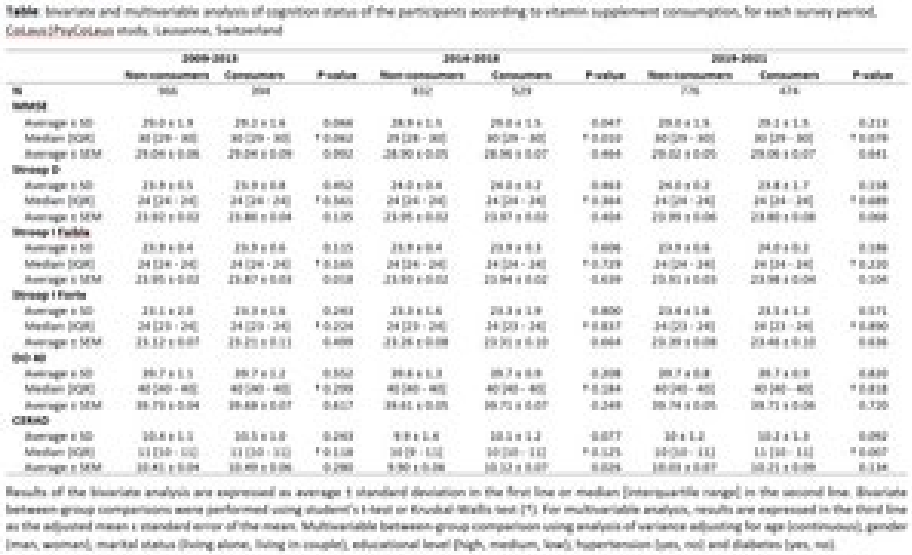
Introduction: The proportion of the population aged 65 and over is increasing in Switzerland and there is an association between age and the incidence of dementia. A significant portion of the Swiss population takes vitamin-mineral supplements (VMS), believing that VMS will enhance their health. We aimed to assess the association between VMS intake and cognition.

Methods: This study used data from the population-based CoLaus|PsyColaus cohort in Lausanne, Switzerland. Recruitment began in June 2003 and ended in May 2006. Three follow-ups were performed in periods 2009–2013, 2014–2018, and 2019–2021. Participants were eligible to participate if they were aged ≥65 years and were categorized as VMS consumers or non-consumers. Multiple cognitive tests were conducted: MMSE, Stroop color test, DO 40 (*Epreuve de dénomination orale d'images*), and the CERAD praxis items, lexical and semantic fluency tasks.

Results: There were 1360, 1361 and 1250 participants from the first, second and third follow-up, respectively. No significant differences were found in the bivariate and multivariable analyses regarding almost all cognitive tests (see table). The only exception was CERAD, where VMS consumers had a statistically better (but clinically irrelevant) performance than non-consumers at the second follow-up.

Conclusion: This study found no clinically significant association between VMS use and cognitive performance.



P21

A Case of New Onset Refractory Status Epilepticus (NORSE)

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Learning objectives: New Onset Refractory Status Epilepticus (NORSE) is a syndrome describing treatment-refractory generalized seizures and status epilepticus of unclear etiology, often in the setting of a prodromal febrile illness suggesting a viral encephalitis. (1) NORSE is defined as a specific clinical presentation of new-onset refractory status epilepticus in patients without previously known epilepsy or neurological disorders and without a clear acute or active structural, toxic or metabolic cause. (2) The most common cause (ca. 36%) is autoimmune encephalitis followed by infectious causes (ca. 8%). In 50% of cases, the trigger remains unclear (cryptogenic NORSE). (3) Therapeutic options are antiseizure and sedating medications as well as immunmodulatory therapies.

Case: A previously healthy 40-year-old patient presented to the emergency ward due to altered mental status and apraxia that had been present since the evening before. One week earlier, the patient had a viral respiratory infection. In the clinical examination no meningism or focal neurological deficits could be found. Laboratory findings were normal. During cerebral imaging, an epileptic seizure occurred and could be interrupted by the i.v. administration of midazolam. Computed tomography showed no pathology. The lumbar puncture yielded 10 cells/uL and slightly elevated liquor proteins. Despite high doses of midazolam, propofol and levetiracetam, persistent and refractory epileptic seizures occurred. We transferred the patient to an stroke unit of a tertiary hospital. There, add-on therapy with valproate and lacosamide was established for persistent motor convulsions. All further investigations (MRI, viral PCR, autoimmune encephalitis screening, liquor culture, etc.) were subsequently unremarkable. Under steroid therapy (5 days à 1g), the patient's condition improved rapidly, nevertheless at the time of relocation to neurorehabilitation cognitive deficits persisted. In summary, the findings were evaluated in the context of a cryptogenic NORSE.

Discussion: Patients with NORSE often do not promptly respond to antiseizure medications. Mortality and morbidity are high with fatality rates of 20–30% or more, and <25% return to their prior baseline health (3, 4). An extensive search for infectious, autoimmune and neoplastic causes should be carried out and transfer to a stroke unit as well as the administration of highly sedating pharmacologic therapy to suppress seizures are recommended.

P22

Antibiotic use and resistance: Knowledge, attitudes and behaviour of Swiss healthcare workers

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Introduction: Antibiotic resistance poses a global challenge, with healthcare workers (HCW) playing a pivotal role in antibiotic use and prevention of the spread of resistant pathogens in healthcare institutions. This survey aimed to assess knowledge and behaviour regarding antibiotic use and resistance among HCW.

Methods: In November 2022, participants of the "SURPRISE study", a cohort of HCW from 14 institutions in North-Eastern Switzerland, were invited to complete a 141-item questionnaire on their knowledge of and attitudes towards antibiotic prescribing, self-use of antibiotics, and antimicrobial resistance.

Results: Out of 3514 invited HCW, 1'878 (53%) filled in the survey; thereof 10% physicians, 44% nurses, 18% paramedics and 29% other professionals. 1637 (87%) of respondents claimed to have adequate knowledge about antibiotic resistance, with 1409 (75%) asserting sufficient knowledge about antibiotic use for daily work. 1295 (69%) expressed concern about antibiotic resistance in Switzerland and 1133 (60%) believed that, in general, too many antibiotics are prescribed whereas only 433 (23%) believed that too many antibiotics are prescribed in their own institutions. However, only 71 (37%) of physicians and 114 (7%) of other professionals perceive themselves as having a key role in controlling antibiotic resistance. Physicians stated that their decision to prescribe antibiotics is influenced by the following factors: patient's state of health (98%), adherence to guidelines (99%), and consultation with the infectious disease service (95%). 1235 (66%) of participants stated to be aware of infection prevention measures within their institution and to

considered them as important. 326 (18%) reported self-use of an antibiotic in the 12 months preceding the survey; primarily for urinary or respiratory tract infections. Higher use of antibiotics was observed among physicians and nurses. 92 (50%) of physicians and 499 (61%) of nurses expressed a desire for more education on this subject. Only 97 (51%) of physicians and 430 (26%) of the other professionals felt that antibiotic resistance was adequately addressed in their workplace.

Conclusion: While the majority express concern about the over-prescription of antibiotics in general, the perception of playing only a minor role in combating resistance is concerning. Our findings signal opportunities for targeted interventions to enhance awareness and knowledge in the ongoing fight against antibiotic resistance.

P23

Case report: Calciphylaxis in end-stage kidney disease

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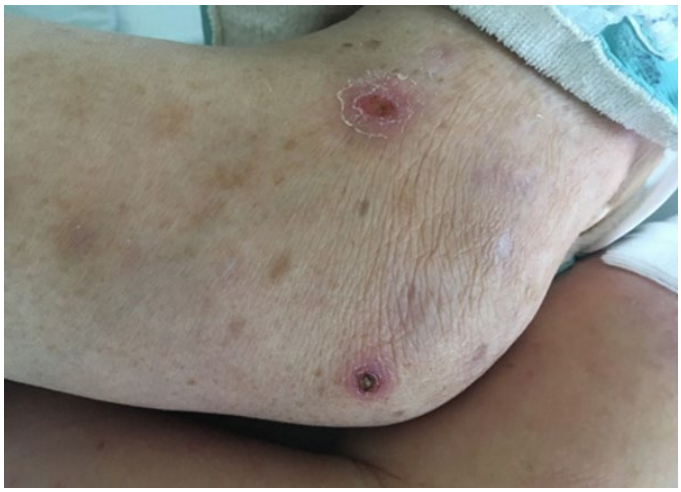
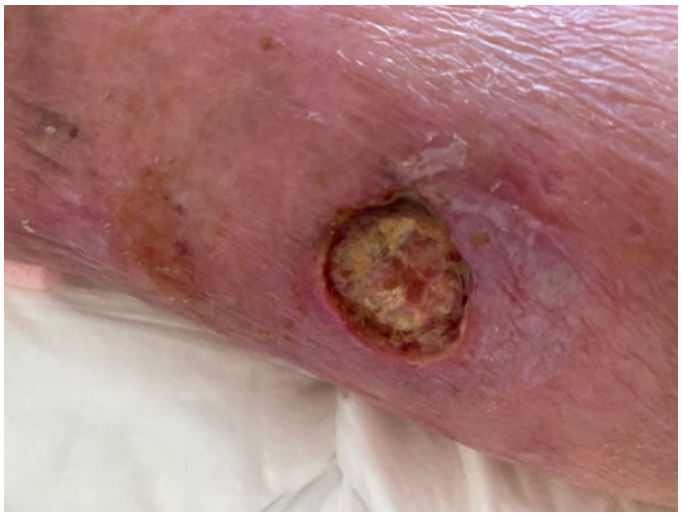
Learning objectives: Foster knowledge on calciphylaxis, a rare complication in end-stage kidney disease

Case: A 81-year old female patient with end-stage kidney disease, diabetes mellitus type 2 and hypertensive heart disease was referred from the dialysis unit due to painful cutaneous lesions of varying age and size across her face, trunk, abdomen and extremities (fig 1).The right medial malleolus and distal right lower leg had deep skin ulcera (fig 2). The peripheral pulse status was weakly palpable but well dopplerable. Laboratory tests showed a renal anemia, elevated levels of C-Reactive Protein (CRP) and creatinine and secondary hyperparathyreoidism. The duplex ultrasonography diagnosed a peripheral arterial disease stage I on the right side with distally pronounced arteriopathy. The clinical presentation was consistent with calciphylaxis. The patient was subjected to intensified dialysis, vitamin D and calcium supplements were stopped and opioid analgesia was started. The patient unfortunately died soon after.

Discussion: Calciphylaxis is a rare and serious disorder that presents with skin ischemia and necrosis and is histologically characterized by calcification of arterioles and capillaries in the dermis and subcutaneous adipose tissue [1]. The estimated six-month survival is of approximately 50%[2]. The skin lesions result from reduction in blood flow caused by arteriolar calcification, subintima fibrosis and thrombus formation primarily involving dermo-hypodermic arterioles. Microvascular calcification occurs first, likely via an upregulation of factors involved in osteogenesis and bone remodeling. Vascular endothelial injury causes cutaneous arteriolar narrowing and thrombosis leading to tissue infarction [3,4]. Risk factors are vitamin D substitution, hyperparathyreoidism, hyperphosphatemia, chronic inflammation and vitamin K deficiency. The clinical diagnosis is made through findings of painful ulcera that are covered by a black eschar. The treatment consists in wound care, pain management, treatment of electrolyte and parathyroid hormone abnormalities, dialysis optimization, trial of sodium thiosulfate (off-label: vasodilatory and antioxidant properties) and avoidance of ferrum, vitamin D and coumarin derivates [5].

Conclusion: Calciphylaxis is a rare disease associated with a high morbidity and mortality. Infection is the primary cause of death. Unfortunately, current treatment remains largely unsatisfactory.





P24

Challenges in diagnosing a Mycobacterium bovis infection in a patient under Adalimumab Therapy: Navigating the Diagnostic Maze

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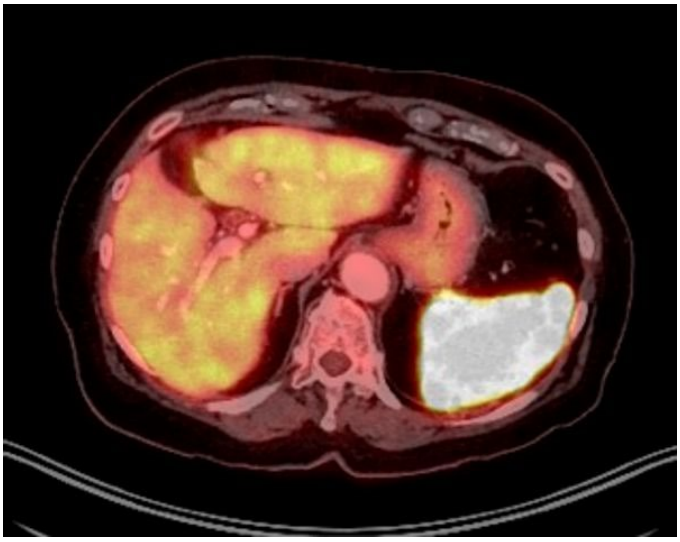
Learning objectives: Tuberculosis is an important differential diagnosis of granulomatous inflammation. In patients treated with Tumor Necrosis Factor Inhibitors (TNF-I) histological findings are difficult to separate from sarcoidosis, due to missing necrosis. Infections with M. bovis are often extrapulmonary due to the intestinal route of transmission. What seemed to be atypical for tuberculosis (extrapulmonary, non-caseating granulomas) was typical for M. bovis infection in a patient treated with TNF-I.

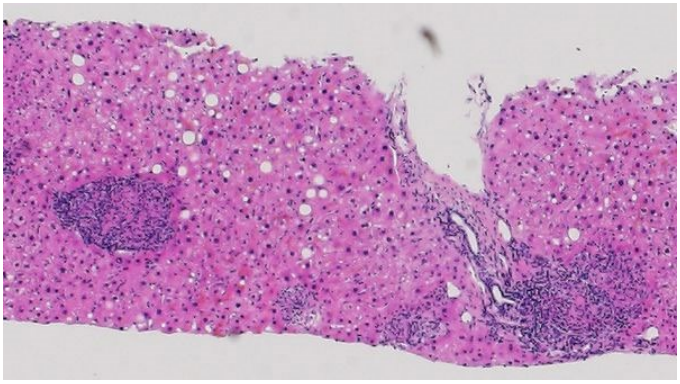
Case: A 78-year-old female presented with fatigue and weight loss. The patient had been treated with adalimumab for three years due to rheumatoid arthritis. PET-CT showed a hypermetabolic spleen and two foci in the liver. Biopsy revealed non-necrotizing granulomas. The patient was treated with steroids for suspected sarcoidosis. A T-spot test, initially negative in 2019, now returned positive. However, PCR tests on spleen and liver biopsies came back negative. Eventually positive urine cultures revealed M. bovis. In the light of negative biopsies, treatment with steroids and adalimumab was partly continued until final diagnosis. Whilst awaiting culture results the patient developed miliary tuberculosis. Therapy was poorly tolerated and

stopped after six weeks due to severe side effects and in respect of the patients will.

Discussion: Infections with M. bovis are rare in Switzerland. Switzerland's cow population is free of bovine tuberculosis since 1959, except for isolated cases. Transmission typically occurs through the consumption of raw milk. As the entities of granulomatous inflammation could not be differentiated, probably due to TNF-I, the patient was initially treated with steroids for suspected sarcoidosis. Elevated ACE, sIL-2-R, neopterin, calcium and 1,25-Di-OH vitamin D are not specific and histology without necrosis was misleading. PCR from biopsy does not rule out tuberculosis. A microbiological examination of the biopsies could not be done due to formaldehyde fixation. Urine culture is a noninvasive possibility to identify abdominal infection with mycobacteria. History taking remains pivotal as the patient reported later to have lived on a farm consuming raw milk from time to time.



Hypermetabolic splenic lesions



Liver biopsy: non-necrotizing epithelioid and giant cell granulomas

P25

Does the use of structured interventions to guide ward rounds affect patient outcomes? A systematic review

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Introduction: Ward rounds (WRs) are an essential activity occurring in hospital settings. Despite their fundamental nature in guiding patient care, there is no standardised approach to performing them. Studies have shown that the implementation of structured interventions, such as checklists, during WRs improves non-clinical outcomes such as efficiency[1], documentation[2] and communication[3], as well as reducing errors and omissions[4, 5] by improving adherence to process-of-care guidelines. However, whether these improvements have a subsequent impact on more clinical outcomes still needs to be established. We performed a systematic review of the current literature to answer this question.

Methods: We performed a systematic search on Embase, Medline, CINAHL, ERIC, Web of Science Core Collection, the Cochrane Library (Wiley) and Google Scholar. We included peer-reviewed, original research studies examining the use of structured interventions during WRs on patient outcomes which had to be clinical in nature. All hospital specialties except psychiatry were included. We excluded papers looking at board, teaching or medication rounds. Studies looking at outcomes related to documentation, communication or satisfaction were excluded. The quality of studies was assessed using the Joanna Briggs Institute checklists[6] and was performed independently by two authors.

Results: Our initial search yielded 1509 articles. 94 were kept during the first screening. The second screening identified 28 articles that fit all inclusion criteria. Except for one randomised-controlled trial (RCT), all the studies included were quasi-experimental interventional studies, most with uncontrolled before-and-after designs. The majority were conducted in adult or paediatric intensive care units. The main clinical outcomes reported were length of stay (LOS), in-hospital mortality, infectious complications, and duration of mechanical ventilation. The only RCT included did not show a significant reduction in these outcomes. Some, but not all, quasi-experimental studies showed a reduction in LOS, duration of mechanical ventilation and ventilator-associated pneumonia.

Conclusions: Although evidence suggests improved adherence to process-of-care standards and better communication with the implementation of structured interventions to guide bedside WRs, our systematic review did not find sufficient high-quality evidence of an associated improvement in clinical outcomes.

P26

Evaluation of risk scores for the outcome of COVID-19 on a 2-year Swiss cohort – A retrospective observational study

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Introduction: Considerable research regarding the prediction of a severe course of COVID-19 has been conducted since the outbreak of the pandemic in early 2020. In clinical practice, several scoring systems have been used for COVID-19 risk stratification. These include pre-existing scores, as well scores specifically designed to predict COVID-19 outcome. The aim of this study was to evaluate the performance of different scores for the prediction of COVID-19 outcome on a large, heterogeneous, Swiss cohort.

Methods: Clinical routine data of patients hospitalized for COVID-19 at the Cantonal Hospital Baselland between January 2020 and December 2021 was retrospectively collected. The data was used to calculate the following scores at the time of admission: quick Sequential Organ Failure Assessment (qSOFA), CURB-65 score, MuLBSTA score, 4C mortality score for COVID-19 (4C), and the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC) score. The five scores

were compared with regard to their performance to predict in-hospital death, 60-day mortality, and intubation by means of receiver operating characteristic (ROC) curves and the respective area under the curve (AUC).

Results: Data of 1081 patients were included into the analysis. The 4C mortality score performed best in the prediction of in-hospital and 60-day mortality (AUC: 0.84 and 0.83), closely followed by the SEIMC score (AUC: 0.83 and 0.83) and the CURB-65 score (AUC: 0.82 and 0.80). Intubation was best predicted with the MuLBSTA score (AUC: 0.71), while all other scores performed poorly (AUC <0.7). The qSOFA score did not reach an AUC > 0.7 for any of the analyzed outcomes (see Figure 1).

Conclusion: Predictive power of both 4C and SEIMC scores for in-hospital and 60-day mortality in COVID-19 is equally good. MuLBSTA, which was designed to predict viral pneumonia mortality, performs acceptably in the prediction of intubation. A new scoring system that combines the factors used in the evaluated scores could potentially improve the predictive power for COVID-19 outcomes.

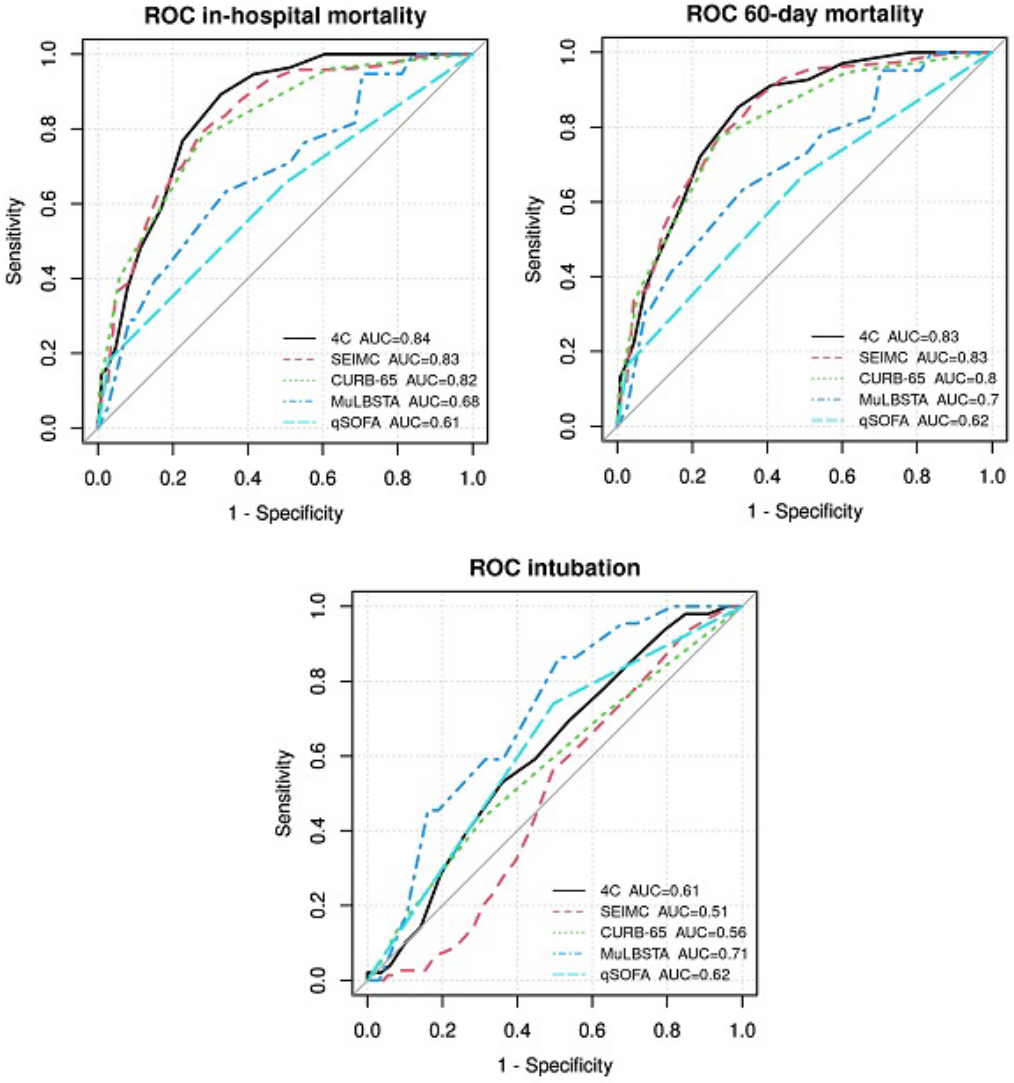

Figure 1: Receiver operating characteristic (ROC) curves for scoring systems.

P27

Hepatitis E – the great imitator (of cholangitis)

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Learning objective: Hepatitis E and cholangitis with consecutive renal failure can present similarly. Hepatitis E should be suspected in case of jaundice with accompanying renal failure even in the absence of a classic history of raw meat consumption and/or history of travel.

Case: A 72-year old patient presented to the emergency department with fatigue, ataxic gait, confusion, and recurrent falls. Nine days prior, he had been hospitalized elsewhere for a suspicion of stroke when he presented with recurrent episodes of aphasia. MRI imaging was unremarkable, and the patient was discharged after 72 hours. When he presented this time, he was afebrile, normocardic, normotensive, alert but confused to time, situation, and place. Physical examination revealed no abdominal pain but jaundice. Laboratory findings included severely elevated aspartate transaminase (AST), alanine transaminase (ALT), and bilirubin, as well as a significantly elevated

creatinine (Figure 1). Abdominal ultrasound showed slight thickening of the gallbladder wall along with the suspicion for dilated intra- and extrahepatic bile ducts. No evidence of postrenal obstruction was detected, and the dilation of bile ducts could not be confirmed in an abdominal CT scan. Suspecting obstructive cholangitis, antibiotic treatment with ceftriaxon and metronidazol was initiated. An ERCP did not reveal a bile duct obstruction, nor was the insertion of two pigtail drains helpful in relieving the cholestasis. Therefore, further diagnostic workup was initiated. Hepatitis A, B and C serology was negative. Additional tests were performed, especially because of the accompanying renal failure. Those revealed a positive HEV-RNA-PCR (109'000 IE/ml) which confirmed the diagnosis of an acute hepatitis E infection. Liver enzymes and creatinine peaked six days prior to confirmation of hepatitis E and decreased subsequently. The neurological presentation was interpreted in the context of the uremic encephalopathy, as well as the hepatitis E infection itself which can lead to ataxia. The patient denied the consumption of raw meat in the previous weeks before symptom onset.

Discussion: Even when suspecting septic cholangitis (especially when the patient is afebrile), accompanied by renal failure, further diagnostic tests for hepatitis E should be carefully evaluated. Both entities can present very similarly.

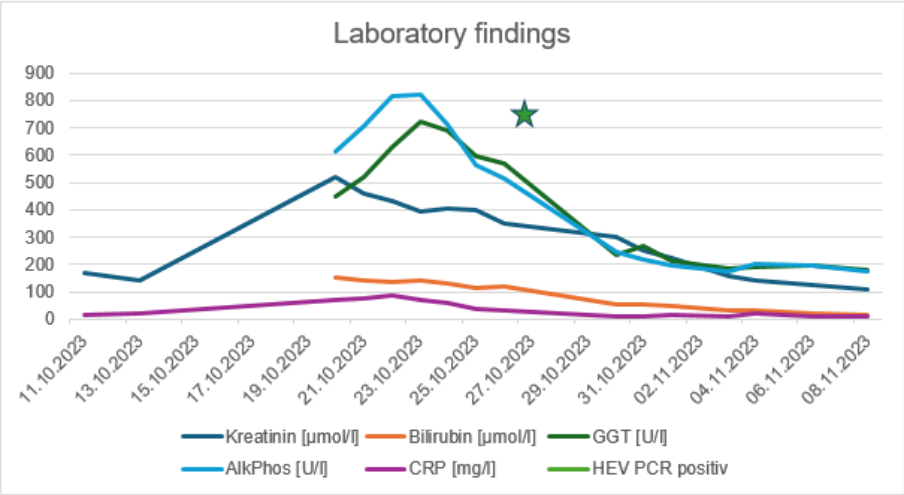

Figure 1: Course and peak of CRP, liver and renal parameters as well as diagnosis of Hepatitis E virus (HEV)

P28

Hospitalization Characteristica and Outcome of Covid-19-Infection during Fall 2023

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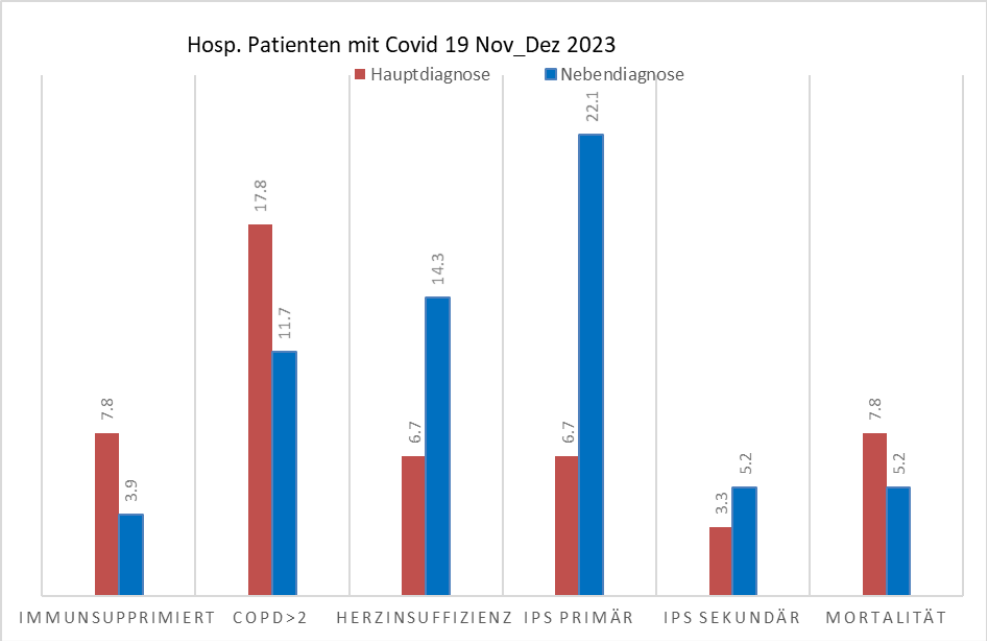
Introduction: Four years into the Covid-19 pandemic, community immunity remains elevated due to vaccination and recurrent infections. Despite this, a significant number of individuals, especially the elderly and those with multiple comorbidities, require hospitalization. It is uncertain whether these hospitalizations are primarily attributed to Covid-19 infection or if it is a secondary reason for admission. While the current viral strain appears less virulent than the early stages of the pandemic, the outcome for hospitalized patients in the fall/winter of 2023 remains uncertain.

Methods: We conducted a retrospective analysis of medical records for all patients admitted to Kantonsspital Olten between October 15 and December 31, 2023. The investigation focused on the reason for hospitalization (Covid-19 as the primary or non-primary cause), duration of symptoms before admission, length of hospital stay, and mortality.

Results: Over the 11-week period, 167 patients were hospitalized, with 51% being male. Nearly half (48%, CI95 40%-55%) presented symptoms for less than 5 days, and 53% (CI95 46%-61%) had Covid-19 as the primary reason for admission. In-hospital mortality was 7.8% (CI 3.8%-15.2%) for patients with Covid-19 as the primary diagnosis and 4% (CI95 2.1%-12.6%) for those with Covid-19 as a concomitant disease. The mean age for patients with the primary diagnosis was 86±5.0 years and 83±4.4 years for patients with Covid19 as concomitant diagnosis. Hospitalization lasted 7.1 days for patients with Covid-19 as the primary diagnosis and 11.4 days for those with other primary diagnoses.

Conclusion: Mortality rates among hospitalized patients with Covid-19 remain high, exceeding those for influenza A. Nearly half of the patients are admitted early in the infection, potentially qualifying as candidates for antiviral treatment. Fifty-three percent of hospitalizations are directly attributed to Covid-19, while in 47% of cases, Covid-19 is only a concomitant diagnosis.



P29

Intermediate and long-term blood pressure outcome in postpartum hypertension – an interim analysis of the Basel Postpartum Hypertension Registry

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Introduction: Postpartum hypertension (PPHT) affects 10% of all pregnancies and has various aetiologies including chronic hypertension (CH), hypertensive disorders of pregnancy (HDP) including preeclampsia (PE) and de novo PPHT. Women with PPHT are at an elevated risk for persistent hypertension and for developing cardiovascular and renal disease, but most outcome data is based on PE. Here, we investigated mean 24-hour blood pressure (24hBP) and renal target organ damage using microalbuminuria as a surrogate marker in the intermediate and long-term postpartum period.

Methods: In total 370 participants were prospectively enrolled in the PPHT registry including women with HDP and/or PPHT. 24hBP measurement and urinary analysis were conducted 3 (V3) and 12 (V12) months after delivery. Normotensive 24hBP was defined as mean systolic/diastolic 24hBP <130/<80 mmHg and microalbuminuria was defined as albumin/creatinine ratio ≥3 mg/mmol.

Results: Mean age was 34.0 (±5.4) years. The proportion of CH was 44/370 (11.9%), gestational hypertension 118/370 (31.9%), preeclampsia, eclampsia or HELLP 205/370 (55.4%) and de novo PPHT 68/370 (18.4%). Data regarding V3 and V12 was available in 246 and 114 participants. Antihypertensive treatment was prescribed at baseline, V3 and V12 in 85.4%, 18.7% and 18.4% participants. Prevalence of microalbuminuria at baseline, V3 and V12 was 84.9% 29.9% and 16.9% respectively. Mean (standard deviation) systolic 24hBP at V3 was 121.7 (11.0) mmHg and mean diastolic 77.3 (8.6) mmHg respectively. At V12, mean systolic 24hBP was 119.5 (8.5) mmHg and diastolic 24hBP 75.6 (6.9) mmHg. Detailed 24hBP values and proportions of systolic and diastolic blood pressure control in participants with and without antihypertensive treatment are presented in Table 1.

Conclusion: One year after giving birth, elevated albumin/creatinine ratio as a surrogate for renal target organ damage persisted in approximately 1 out of 6 participants. Blood pressure control was documented in approximately 3/4 of the participants at the one-year postpartum follow-up. Nevertheless, a relevant number of participants were hypertensive or still under treatment one year after birth. Therefore, continued follow-up and cardiovascular risk assessment in this population should be warranted.

	V3 n=246	V12 n=114
Participants with 24hBPM	**n=215*/246**	**n=99*/114**
mean (SD) 24 h systolic mmHg	121.7 (11.0)	119.5 (8.5)
mean (SD) 24h diastolic mmHg	77.3 (8.6)	75.6 (6.9)
24hBP systolic normotensive n, %	164/215 (76.3%)	90/99 (90.9%)
24hBP diastolic normotensive n, %	127/215 (59.1%)	73/99 (73.7%)
24 h BPM normotensive <130/80 mmHg	**n=121***	**n=72**
24 h systolic AND diastolic normotensive n, %	121/215 (56.3%)	72/99 (72.7%)
with treatment	**n=17/121 (14.0%)**	**n=11/72 (15.3%)**
mean (SD) 24 h systolic mmHg	114.4 (6.2)	118.3 (4.1)
mean (SD) 24h diastolic mmHg	70.2 (4.5)	74.1 (3.0)
without treatment	**n=103/121 (85.1%)**	**n=61/72 (84.7%)**
mean (SD) 24 h systolic mmHg	115.1 (7.7)	116.0 (5.8)
mean (SD) 24 h diastolic mmHg	71.6 (5.5)	72.1 (5.1)
24 h BPM hypertensive ≥130/80 mmHg	**n=94***	**n=27***
24 h systolic AND/OR diastolic hypertensive n, %	94/215 (43.7%)	27/99 (27.3%)
with treatment	**n=25/94 (26.6%)**	**n=8*/27 (29.6%)**
mean (SD) 24 h systolic mmHg	134.6 (9.6)	129.5 (10.7)
mean (SD) 24 h diastolic mmHg	86.9 (5.8)	83.5 (3.3)
24 h systolic hypertensive n, %	17/25 (68.0%)	4/8 (50.0%)
24 h diastolic hypertensive n, %	24/25 (96.0%)	8/8 (100.0%)
without treatment	**n=68/94 (72.3%)**	**n=17*/27 (63.0%)**
mean (SD) 24 h systolic mmHg	128.5 (7.6)	127.4 (9.1)
mean (SD) 24 h diastolic mmHg	84.2 (5.1)	84.4 (3.9)
24 h systolic hypertensive n, %	33/68 (48.5%)	4/17 (23.5%)
24 h diastolic hypertensive n, %	63/68 (92.6%)	16/17 (94.1%)

Table 1 – The data were presented as means (± standard deviations) and percentages.

* data missing regarding medication in two subjects at V3 and V12

P30

Interprofessional collaboration in an internal medicine department between physicians and clinical pharmacists: current state of practice during hospital stay and at discharge

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Background: Interprofessional collaboration between physicians and clinical pharmacists has become very useful with the growing complexity of patient care during hospital stay. This synergy can be mediated by various types of interactions aimed at optimizing the quality of care through medication safety and ensuring the appropriateness of prescriptions.

Objective: To describe the current pharmaceutical services provided by clinical pharmacists in the internal medicine department of a regional hospital (120 beds).

Method: A qualitative description of the current activities involving physicians and clinical pharmacists in January 2024 was made from the activity records of the hospital pharmacy.

Results: Clinical pharmacists provide the following activities:

Medical rounds and medication review: Clinical pharmacists participate in medical rounds twice a week. Patients' treatments are critically reviewed and suggestions for drug therapy management are transmitted to the physician. Medication review is additionally performed twice a month and discussed between the pharmacist and each training physician.

Pharmaceutical hotline: a clinical pharmacist can be reached during working hours for any questions relating to drugs (dosage, interactions, side effects, administration, alternatives). Medication reconciliation at discharge: all patients taking ≥7 drugs are identified on the day before discharge through the clinical information system. A clinical pharmacist carries out therapeutic reconciliation when appropriate. Modifications of treatments or dosage are highlighted in the discharge documents. Education on drug-related topics: short formal teachings are given to physicians every two weeks. Various topics issued from clinical visits or questions from the hotline are presented. Clinical decision support system: Pharmaclass® detects patients at risk of iatrogenic events related to the use of a drug. The algorithm considers drugs prescribed, vital parameters, laboratory values and patient characteristics. Clinical pharmacists receive alerts and decide depending on the clinical context if the physician needs to be informed. After a 3-month pilot phase in 2023, the activity will be effective mid-2024.

Conclusion: Several activities are now implemented in our hospital involving close collaboration between physicians and clinical pharmacists. The aim is to promote a rational use of drugs and contribute to quality of care during hospital stay and at discharge.

P31

Kidneys gone yellow: a case of cholemic nephropathy?

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Learning objective: Acute kidney injury is common and associated with significant morbidity and mortality. Cholemic nephropathy, also known as bile cast nephropathy, is a rare but important entity in cholestatic or advanced liver disease. Bilirubin excess leads to direct tubular epithelial injury, renal tubular obstruction caused by cast formation and systemic and renal hemodynamic disturbances. Treatment of cholemic nephrophathy consists of supportive care and treatment of the underlying disease.

Case: A 77-year old patient presented to the emergency department with a five-day history of jaundice and pruritus. Except for jaundice, physical examination showed no abnormalities. In addition to elevated serum creatinine, laboratory findings revealed a cholestatic pattern with very high bilirubin and moderately increased aspartate transaminase and alkaline phosphatase. The urine was brownish in color with bile salts and urobilinogen as well as granulated and bile-stained cylinders. There was non-selective glomerular and tubular proteinuria present. The cause of the hyperbilirubinemia was found to be choledocholithiasis, treated with endoscopic retrograde cholangiopancreatography (ERCP) and insertion of pigtail drains into the bile duct. Extended laboratory analysis and ultrasound of the liver with elastography revealed unspecific advanced chronic liver disease without signs of portal hypertension or cirrhosis. Renal function deteriorated progressively and the patient became hypotensive and catecholamine-dependent despite volume administration. Due to suspected cholangitis - despite only slightly elevated inflammatory markers and absence of fever or abdominal pain - empirical antibiotic therapy was started. Six days after admission, dialysis was initiated due to anuric kidney failure with uremia and severe metabolic acidosis. Eight months later the patient is still on dialysis.

Discussion: After exclusion of alternative causes, cholemic nephropathy should be considered in patients with acute kidney injury, hyperbilirubinemia and tubular proteinuria. The diagnosis is confirmed by kidney biopsy. So far, there is no specific non-invasive diagnostic test strategy. Nevertheless, urinalysis is a very important and inexpensive test that can support the clinical suspicion.

Table 1: Serum chemistry on admission on 19.04.2023. Reference values in brackets

Bilirubin (<20.5 µmol/l)	743.4 µmol/l
ASAT (GOT) (<34 U/l)	48 U/l
ALAT (GPT) (<55 U/l)	22 U/l
Alkaline phosphatase (40-150 U/l)	269 U/l
Creatinine (64–111 µmol/l)	248 µmol/l

Table 2: Urinalysis on 23.04.2023. Reference values in brackets. Low power field (LPF)

Protein/creatinine ratio (<300 mg/g)	1019 mg/g
Albumine/creatinine ratio (<30 mg/g)	354 mg/g
Alpha-1-microglubulin/creatinine ratio (<14 mg/g)	335 mg/g
IgG/creatinine ratio (<10 mg/g)	103 mg/g
Bile casts	1–3 casts/LPF
Granular casts	1–3 casts/LPF

P32

Lymphome gastrique malgré éradication d´Hélicobacter pylori – un cas clinique

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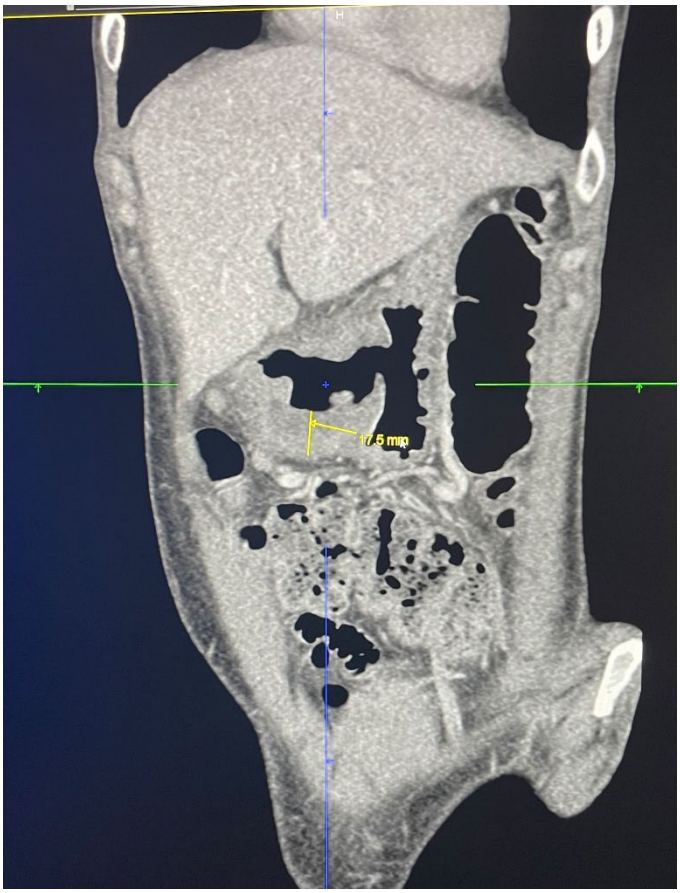
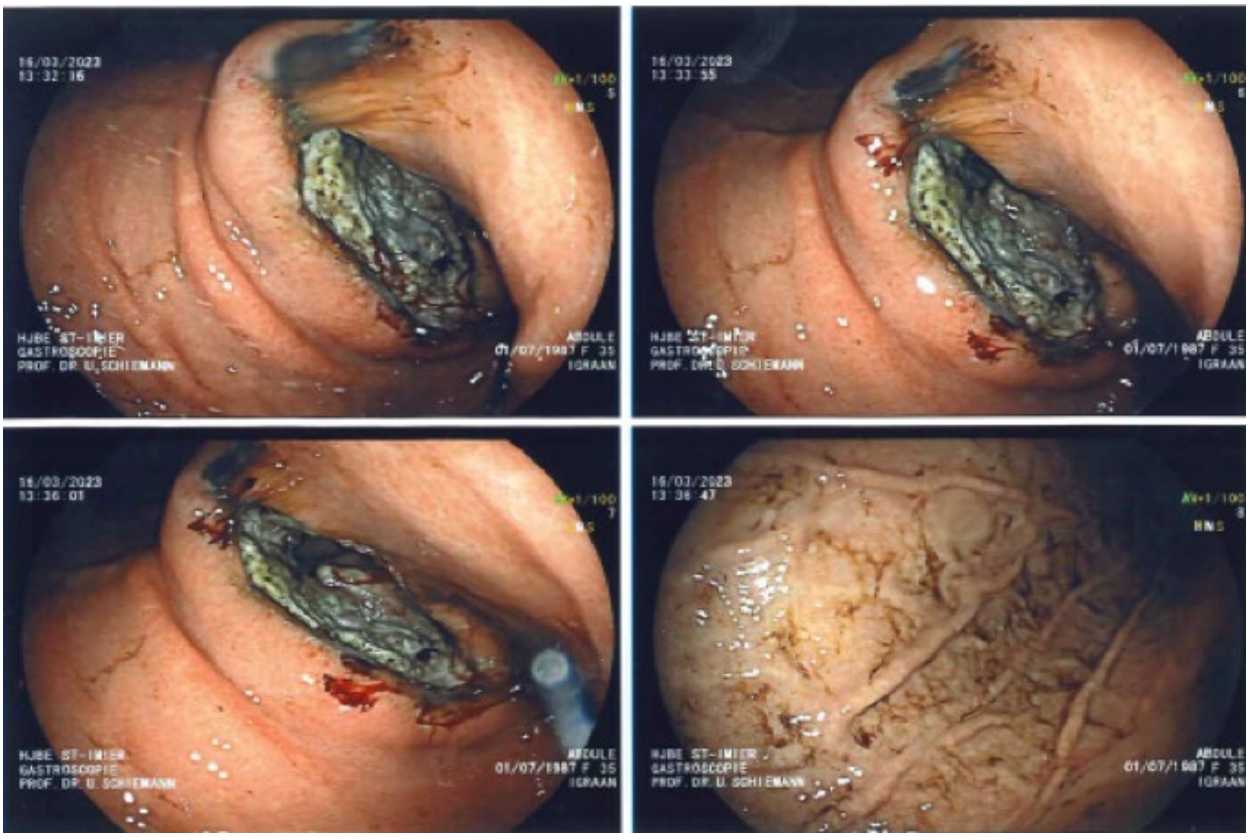
Objectif d'apprentissage: Un lymphome gastrique peu se manifester malgré une éradication de H.pylori.

Cas: Une patiente de 36ans consulte notre service des urgences pour des fortes épigastralgies avec nausée, hématémèse, méléna et perte pondérale de 20kg en quelques mois. Une gastroscopie à l´extérieur a montré un ulcère duodénal Forrest IIc, s´étendant dans l´antre de l´estomac, et une pangastrite à H.pylori qui a été traité par Pylera et Pantoprazole. Un contrôle endoscopique quelques semaines plus tard montre peu de changement de l´ulcère dont les biopsies ne montrent pas de signes de malignité. Les biopsies étagées de l´estomac sont revenus négatifs a H. pylori. A l'examen clinique on trouve une douleur épigastrique avec défense. Notre bilan biologique montre des troubles électrolytiques, une légère perturbation des tests hépatiques, un syndrome inflammatoire avec leucocytose à 27.7g/l et CRP 59mg/l et une hémoglobine de 100g/l. Une électrophorèse de protéines est sans particularité. Au scanner abdominal nous retrouvons un épaississement pariétal de la partie basse de l'estomac et de la région du pylore. Un traitement par IPP i.v. a été initié e nous procédons à une gastroscopie qui montre une grande ulcération antrale et intra-pylorique, sténosante. Les biopsies reviennent positives pour un lymphome a cellules T, ALK négatif, CD30 positif. Le bilan est complété par une ponction de moelle osseuse qui montre une lymphocytose T de bas grade sans preuve d'atypie et le staging-CT ne montre pas d'autre manifestation de lymphome, mais une découverte fortuite d'un carcinome papillaire de la vessie. La patiente bénéficie d´une chimiothérapie A-CHP ainsi qu'une résection transurétrale de la vessie.

Discussion: Les lymphomes gastriques primaires sont des tumeurs rares, ils représentent moins de 5% de tous les néoplasies gastriques. La physiopathologie des lymphomes gastriques n'est pas complétement élucidée, mais le rôle primordial de l'infection à *H. pylori* est bien reconnu. Les symptômes sont aspécifiques comprenant épigastralgie, nausées, vomissements, anorexie, perte pondérale, saignement gastrointestinal, satiété précoce. Un ulcère réfractaire au traitement habituel doit faire penser à cette rare entité de maladie.



1)Scanner abdominale avec épaississement gastrique et duodenale



2)Image endoscopique de l'ulcère gastrique

P33

Medication reconciliation at hospital admission: findings and learnings from a pilot study on a Swiss general internal medicine ward

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Introduction: Transitions between care settings increase medication risks. Medication reconciliation at hospital admission mitigates errors and can therefore improve medication safety. This study aimed to develop and pilot a medication reconciliation process for elderly, polymedicated patients at hospital admission to a general internal medicine ward.

Methods: The pilot study started on 13.11.2023. Eligible patients, aged ≥65 years, admitted via emergency department to a designated general internal medicine ward with ≥7 medications, had their outpatient medication lists requested and reconciled by a pharmacist within 24 hours of admission. The admission medication lists were then updated to reflect the most accurate medication history, with treating physicians notified of discrepancies via progress notes. For each enrolled patient, we documented demographics, discrepancies, and involved medications. Furthermore, we assessed the resolution or acceptance of identified discrepancies and proposed interventions.

Results: Until 12.01.2024, 24 patients (mean age: 80.3 ± 7.0 years) with 160 discrepancies were included. Patients were taking 11.3 ± 4.5 regular and 3.5 ± 3.2 as-needed medications. Mean discrepancies per patient were 6.7 ± 4.8. Common discrepancies included omitted medications (n = 89), unknown manufacturer (n = 34), and unknown dose (n = 12). Other dosing issues (e.g., dose too low or high) totaled 22 discrepancies. Of 116 discrepancies with proposed interventions (e.g., starting a medication), 66% were accepted by the treating physicians. Interventions involving regular medications had a higher acceptance rate (76%) compared to as-needed medications (48%). Proton pump inhibitors (n = 10), loop diuretics (n = 6), vitamin D, statins, and paracetamol (each n = 5) were frequently involved. Medication reconciliation was not possible for two patients with no recent general practitioner visits. Information transfer, especially incomplete or unclear medication lists, posed additional challenges. Additional data will be presented at the conference.

Conclusions: The implemented medication reconciliation process for elderly, polymedicated patients upon hospital admission identified predominantly omitted medications, with a notable acceptance rate of proposed interventions. Challenges in information transfer highlight the need for improved communication across interfaces of care to enhance medication reconciliation effectiveness and, ultimately, patient safety.

P34

Miniaturized telephone list on a sticker

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Introduction: In practice time and cognitive focus are limited resources. Doctors and nurses loose time while searching for telephone numbers. Communication systems provide access to specific employees by name, but do often not reflect "single point of contact" numbers, e.g. the cardiologist on duty, requiring the clinician to consult additional sources to find the relevant number. Traditionally teams use laminated or foldable lists in the lab coat or large printouts on office walls to counter this. These measures, however, don't seem to be resilient enough to guarantee access to communication partners as the a case report illustrates:

Case report: A young attending of our emergency department was urgently called to the catheter lab. There he was confronted with the cardiologist's diagnosis of an A-type aortic dissection. Transport to a tertiary hospital had to be arranged immediately. In the situation he was not able to recollect the number of the emergency coordinator and was thus forced to walk 200m and three stories down to inform the coordinator in person. Valuable time was lost, but the patient could be transferred safely. For hygiene reasons he had only carried his hospital phone, pen and stethoscope but no phone list.

Method: During the debriefing of the incident it was concluded, that a phone list had to take a form that cannot be lost or forgotten and poses no further hygiene risk.

Result: The result is the depicted sticker (Figure 1), that can be tagged to the personal badge or smartphone. A thermo-transfer printer was used to print on abrasion- and chemical-resistant plastic to deploy a durable, cost-effective sticker to our team of residents and attendings. (material cost of CHF 0.07/Sticker)

Open access label generator: Because of positive feedback, we created a simple web application for public use, that supports the design of such stickers. The app works with label printers or normal printers (multiple labels on A4). Webapp available at: https://sucherliste.ch

Discussion: Telephone communication systems often provide insufficient options to represent number for single points of contact. Lists on laminated paper are well established but a list can be lost or forgotten. Printing lists on plastic stickers can be a reliable and cost effective way to ensure that teams have relevant numbers available at any time

Figure 1: Badge with our miniaturized list

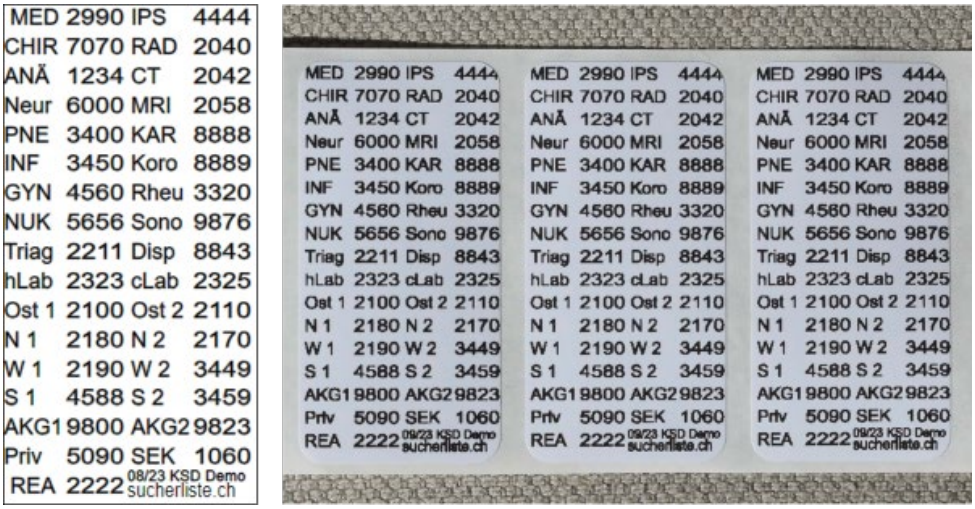

Figure 2: Rendered image and printout generated by the web app

P35

Necrotizing Herpes simplex virus type 2 lymphadenitis in a patient with untreated lymphoma

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Learning objectives: The prevalence of Herpes simplex virus type 2 (HSV-2) is lower than HSV-1 (20% vs. 70%) with a female predominance. Primary HSV-2 infection and symptomatic reactivations are typically associated with vesicles or ulcers in the anogenital region together with local lymphadenitis and may include systemic symptoms like fever. Extensive rash and severe lymphadenitis are mostly associated with significant immunodeficiency. Anti-virals are successful, in some cases IVIG-therapy should be evaluated.

Case: A 72-year-old female patient was referred to the hospital with painful and progressive right inguinal lymphadenitis despite empiric treatment with Amoxicillin/Clavulanic acid. A small lymphocytic lymphoma was diagnosed years ago and monitored regularly but left untreated due to no apparent symptoms. Initially, there was redness and swelling of the right groin, later general deterioration and subfebrile temperatures developed. There was no history of travel abroad, contact with animals or sexual exposure. Laboratory results showed highly elevated CRP (281 mg/l), moderate anemia and normal leucocyte count with mild left shift. Autoimmunologic screening, Hepatitis A, B, C as well as *F. tularensis*-serology were negative. CT scan showed right-sided retroperitoneal, iliacal and inguinal lymphadenopathy with necrosis. A right inguinal lymph node excisional biopsy to exclude high-grade lymphoma transformation revealed extensive necrotizing granulomas. In the necrotic debris ghost cells with intranuclear viral inclusions were detected, strongly positive for HSV by immunohistochemistry and for HSV-2 by PCR. Retrospectively, the patient reported having noticed transient vesicles in the genital area 2 weeks prior to symptom onset. Treatment with Valacyclovir was initiated, which led to rapid recovery. A tapering dosage as well as a secondary prophylaxis were prescribed.

Discussion: The present case shows a patient with severe, disseminated and necrotizing HSV-2 lymphadenitis. Systemic pronounced manifestations are rare for HSV infections but should carefully be evaluated in the context of viral reactivation when immunodeficiency or hematologic malignancies are known. On the other hand, if such a severe HSV-infection is detected, a thorough workup regarding underlying comorbidities is required.

P36

On-site Physiotherapy in Emergency Department Patients presenting with Nonspecific Low Back Pain: A Randomized Controlled Trial

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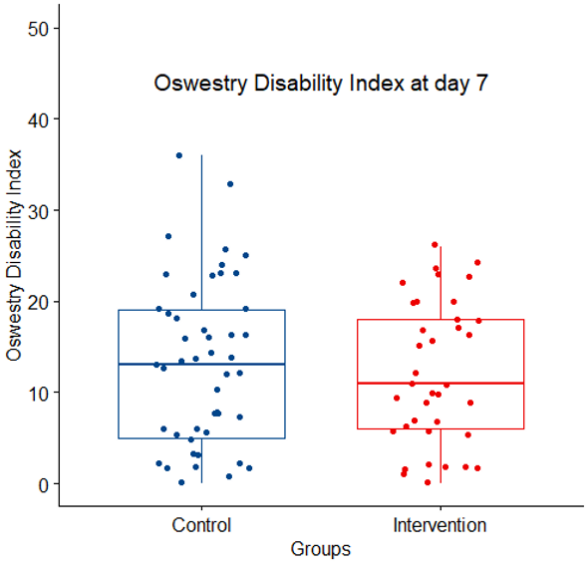
Introduction: In Emergency Departments (ED) patients often present with nonspecific Low Back Pain (LBP), but there is a lack of knowledge on emergency physiotherapy for LBP. The effect of on-site physiotherapy in these patients was therefore never proven. We assessed short-term outcomes, feasibility and patient satisfaction with physiotherapy in ED patients presenting with nonspecific LBP.

Methods: Block-randomized, controlled, open-label trial with a follow up of 42 days. Patients aged 18 years or older presenting to ED with nonspecific LBP were prospectively enrolled. The intervention group received self-management instructions on back-friendly behavior, were taught three exercises for daily self-guided therapy, and a short physical performance test was performed by a certified physiotherapist. The control group received a written information explained by the non-physiotherapy study team without a physical performance test. Primary outcome was the difference in the Oswestry Disability Index (ODI) between groups after 7 days. Other outcomes were improvement of pain after 7 days, feasibility of the intervention and patient satisfaction with ED work-up.

Results: We included 86 patients (intervention: n = 37; control: n = 49) in the primary analysis. Median age was 40 and 40.7% were female. At day 7, the median ODI was 2 points lower in the intervention group compared to control group (p = 0.854, effect size = 0.02 [95% confidence interval (CI) –0.407 to 0.447]) (see Figure). There was no between-group difference in pain at day 7. Patients who received physiotherapy felt significantly more confident with the exercises they were taught (p = 0.004, effect size = 0.3 [95% (CI) –0.117 to 0.737]).

Conclusions: On-site physiotherapy in ED patients presenting with nonspecific low back pain is associated with higher patient satisfaction, compared to standard of care. The effect of physiotherapy was small, with only minimal improvement in disability using the ODI, but without reduction in pain. The observed effect size is very small, but may help to plan further studies or the allocation of resources in the ED.



P37

On-site Physiotherapy in Older Patients Presenting to the Emergency Department After a Fall: A Randomized Controlled Trial

J. Benhamou[1], T. Espejo[1], H.B. Riedel[1], T. Dreher-Hummel[1], A. García-Martínez[2], B. Gubler-Gut[3], J.-A. Overberg[3], J. Kirchberger[3], G. Perrot[3], R. Bingisser[1], C.H. Nickel[1]

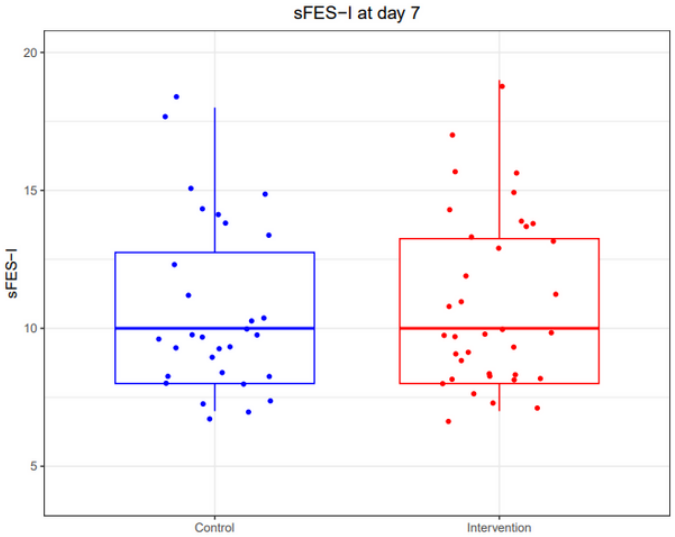
[1]Universitätsspital Basel, Notfallzentrum, Basel, Schweiz, [2]Hospital Clínic, Barcelona, Spanien, [3]Universitätsspital Basel, Therapien, Basel, Schweiz

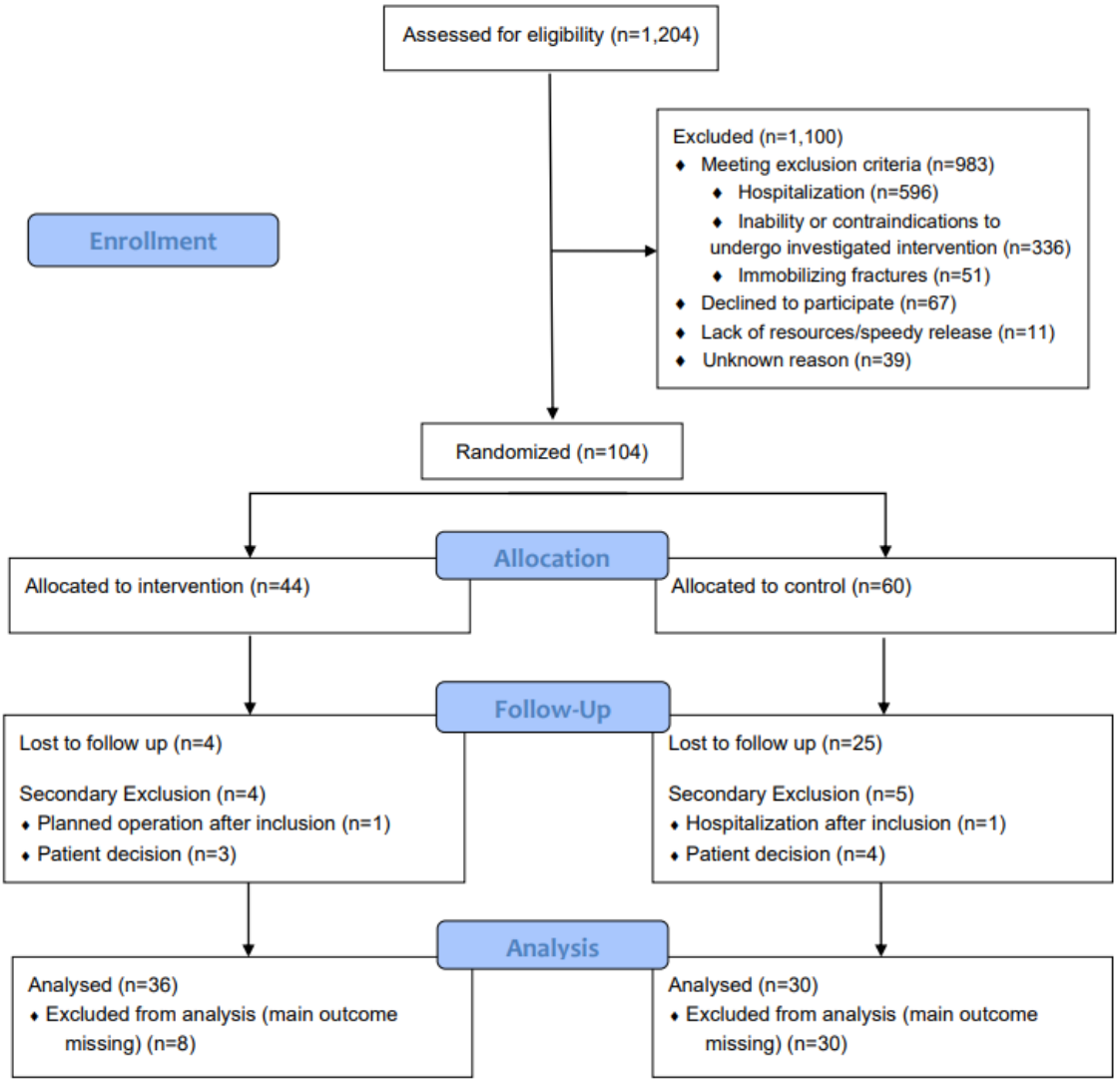
Background: Falls are a prevalent cause of emergency department (ED) visits for individuals aged 65 years and older. Higher fear of falling (FOF) has been associated with an increased risk of falling in older patients. This randomized controlled trial (RCT) aims to assess the impact of physiotherapy on FOF in older patients presenting to the ED and investigating the feasibility of such an intervention in the ED setting.

Methods: Monocentric, block-randomized, controlled, open-label, parallel-group trial. All patients aged 65 or older, who presented to the ED of the University Hospital Basel after a fall between January 2022 and June 2023 were screened for inclusion. Participants were assigned to an intervention or control group depending on the randomized presence or absence of a physiotherapist (PT) at inclusion.

Results: Of the 1,204 patients screened, 104 older adults with a recent fall could be included (intervention: n = 44, control: n = 60); median age was 81 years and 59.1% were female. There was no between-group difference in FOF as measured by short International Falls Efficacy Scale (sFES-I) within a week of inclusion (p = 0.663, effect size = 0.012 [95% confidence interval (CI) - 0.377 to 0.593]). There was no significant between-group difference regarding use of medical resources during the 42-week follow-up. Despite the intervention being deemed feasible from the PT's perspective, the study encountered challenges, such as low recruitment and a notable dropout rate.

Conclusions: An individually adjusted physiotherapy intervention in the ED showed no improvement in fear of falling when compared to a control group. Low recruitment and high dropout rates raise questions about the feasibility of such an intervention in an ED setting.





P38

Probability of optimal target attainment of amikacin in patients treated for a hematological disorder: a prospective, single-centre study

S.L. Müller[1,2], S. Bausch[1], M. Weisser[3], J. Halter[4], K. Rentsch[5], S. Bassetti[1], M. Osthoff[1,2], S. Dräger[1,2]

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Introduction: Amikacin is commonly used as an adjunct to cefepime for empirical treatment of patients with febrile neutropenia. The maximum concentration (C_{max}) or the area under the curve (AUC) are used as predictive pharmacokinetic parameters of clinical response. A peak concentration of ≥60 mg/L should be targeted to improve clinical outcome. We aimed to assess the probability of target attainment of amikacin among patients treated for impending or present febrile neutropenia.

Methods: This is an ongoing prospective observational single-centre study conducted at the University Hospital Basel, Switzerland. Adult patients with an underlying hematological disorder and planned to be treated with intravenous amikacin in case of impending or present febrile neutropenia were included. Amikacin was administered intravenous over 30-60min for one to three days. Total amikacin concentrations in blood plasma were determined 60min and 8h after the start of each administration by the use of an immunoassay. The primary objective was to evaluate the probability of target attainment (Cmax ≥60 mg/L) after the first administration.

Results: So far, 30 patients have been included into the study. The majority (70%, n = 21) was male, and the median age was 61 years (interquartile range (IQR) 53–68). Allogeneic stem cell transplantation was performed in 18/30 (60%) of the patients. Almost all patients (90%) received an amikacin dosage of 1000 mg. The median amikacin peak concentration was 39.1 mg/L (IQR 30.4–52.1). The primary outcome, i.e., Cmax ≥60 mg/L, was only attained in 2 patients (Figure 1). A positive correlation between amikacin concentration and body weight was observed (Figure 2). The in-house dosing recommendation (15 mg/KG bodyweight in case of normal renal function) was adhered to in only 30% of patients (n = 10). The most common reason for non-adherence was a lower than recommended dosage in 16/20 patients (80%).

Conclusions: Only a minority of patients achieved the recommended amikacin peak concentration of Cmax ≥60 mg/L. Adherence to in-house dosing recommendations was low. Dosing optimization is needed to improve target attainment of amikacin in patients with hematological disorders.

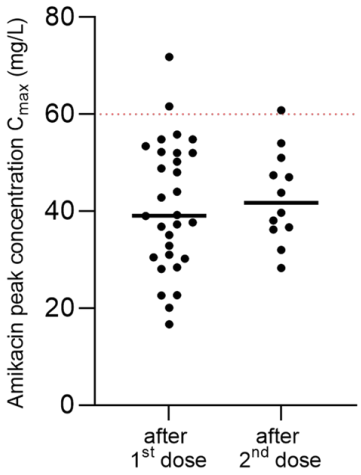

Figure 1. Amikacin peak concentration after the first and second administration. Red dashed line: targeted C_{max} of 60 mg/L.

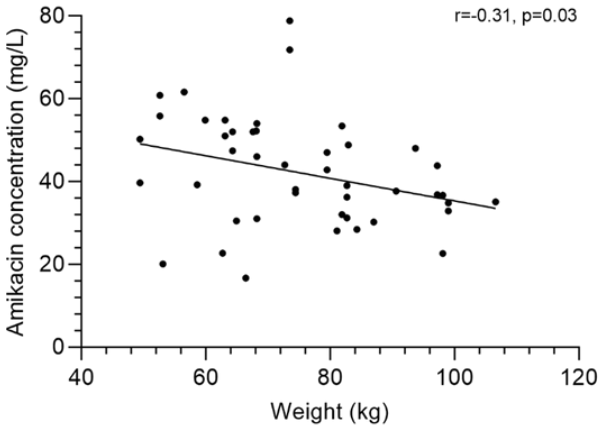

Figure 2. Correlation between body weight and amikacin concentration. Pearson correlation coefficient test was used.

P39

Radiologic imaging in patients with febrile urinary tract infection: a retrospective cohort study

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Introduction: Febrile urinary tract infection (fUTI) are common infections. Despite consensus that not all fUTI patients need a radiological imaging, overlooking urgent urological disorder can result in unfavourable outcome. Recent recommendations from the European Association of Urology (EAU) and a prediction rule by Van Niewkoop *et al.* proposed straightforward criteria to decide which patient should receive an imaging in the initial management. The aim of this study was to analyze the frequency of imaging in initial management and their adequacy to the above criteria. We also investigated clinical factors related with pathological imaging.

Methods: We conducted a retrospective analysis of fUTI patients from four hospitals in Western Switzerland. We used both Van Nieuwkoop's clinical rule and guidelines from the European Association of Urology (EAU) to evaluate the suitability of radiologic evaluation. We used logistic regressions to assess clinical factors related to abnormal radiologic findings.

Results: Sixty-two (58%) of our 107 fUTI patients had an imaging, among which 69% (95%CI: 59–77%) and 64% (95%CI: 54–73%) were conducted in line with Van Nieuwkoop's rule and EAU guidelines, respectively. Macroscopic haematuria (OR = 5.9; 95%CI: 1.6–22.1), known urogenital anomalies (OR = 5.7; 95%CI: 1.8–18.2), and past urolithiasis (OR = 11.8; 95%CI: 3.0–46.5) were associated with clinically relevant findings on imaging. Among the 16 patients with clinically significant radiologic findings, six (38%) displayed no criteria for imaging as per Van Nieuwkoop's rule or EAU guidelines.

Conclusion: We found a low compliance with guidelines, particularly when radiologic imaging was not recommended. Development of a more efficient clinical predictive rule should be considered as both our study and recent literature suggest further factors linked to pathological imaging.

P40

Small tablet, large effect: statin-induced rhabdomyolysis

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We report the case of a 48-year-old patient diagnosed with statin-induced rhabdomyolysis. As a complication, the patient developed bilateral numbness and muscular weakness of both feet together with tibialis anterior compartment syndrome of the right lower leg, requiring multiple surgeries. In patients presenting with rhabdomyolysis, close and early monitoring for compartment syndrome is crucial. The indication for primary preventive statin therapy should be considered carefully. A 48-year-old man presented with a first episode of lower back pain, bilateral numbness and muscular weakness of the feet. Additionally, he reported having dark urine. Further evaluation demonstrated markedly elevated creatinine kinases (100'116 U/L, ref.range <190 U/L), elevated transaminases (ASAT 2'237 U/L, ALAT 424 U/L, ref.range 10-50 U/L) as well as elevated proteinuria and erythrocyturia. The patient had been taking atorvastatin, so statin-induced rhabdomyolysis was diagnosed. Under rehydration therapy, CK levels decreased. On the second day of hospitalization, the patient developed tibialis anterior compartment syndrome of the right lower leg. Operative fasciotomy was performed, followed by extensive necrosectomy of the tibialis anterior muscle. Back pain and motor and sensory losses of the left foot diminished over time, whereas sensory and motor deficits were persistent in the right foot. Rhabdomyolysis is a syndrome characterized by muscle necrosis, resulting in the presence of myoglobin in the urine, which causes a red-brown color and elevated levels of CK and transaminases. Acquired rhabdomyolysis can be caused by myotoxic medications, recent trauma and strenuous physical exertion. Statin therapy as a cause for rhabdomyolysis is well known but rarely observed (0.44 per 10000 patient years[1]). For our patient, no triggering factors apart from long term statin therapy could be found. Compartment syndrome is a severe complication of rhabdomyolysis due to muscular swelling. Prompt surgical therapy is necessary. Peripheral numbness and motor deficits accompanying an episode of rhabdomyolysis are rarely reported in literature and several mechanisms like compressive injury caused by edematous muscles, local inflammatory processes and ischemia have been proposed as a cause for peripheral nerve damage[3]. For our patient, primary preventive statin therapy was indicated, however, each prescription of statins should be carefully considered in light of potential harm.

P41

The spinnaker effect: when a pleural tap leads to a profound cyanosis

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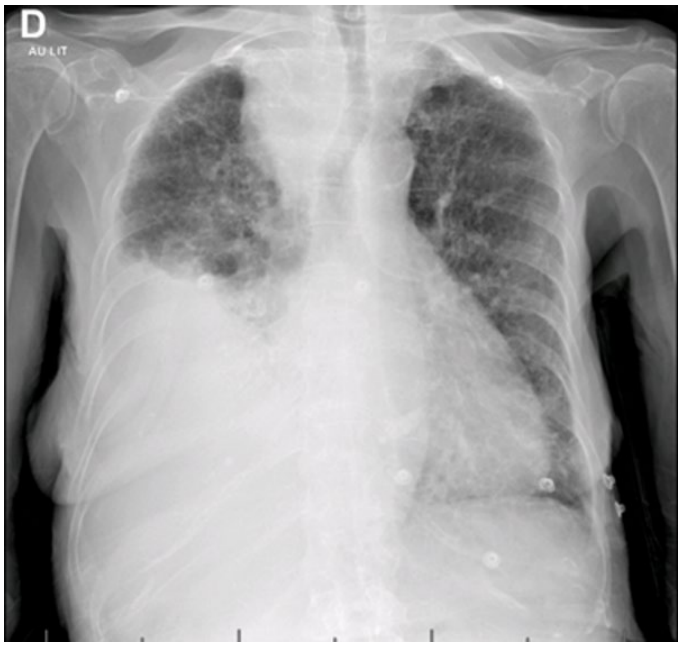
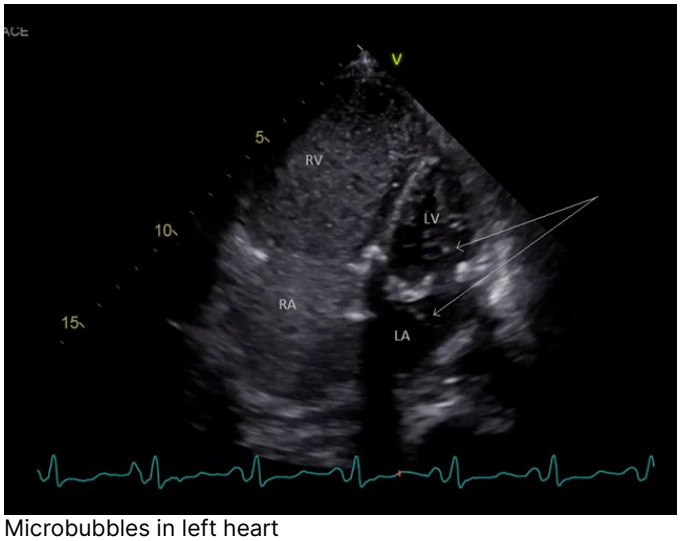
Learning objectives: To report platypnea-orthodeoxia syndrome complicating a pleural tap

Case: A 90-year-old woman was admitted for severe dyspnea and worsening hypoxemia. Chest X-ray (CXR) showed signs of interstitial lung disease (known lung fibrosis) and a right-sided pleural effusion. A therapeutic pleural tap was done, with the patient sitting, under ultrasound (US)-guidance. 500 ml of fluid was drained without difficulty. Immediately after removal of the catheter, the patient presented profound central cyanosis and reduced alertness, with a drop of SaO2 to 74%. Bedside US and CXR showed partial regression of the pleural effusion and excluded pneumothorax and pulmonary edema. The patient was placed in a semi-recumbent position and high-concentration oxygen was applied with a non-rebreathing mask. Cyanosis resolved immediately and SaO2 returned to previous values. Echocardiography (ETT) subsequently showed severe right heart dilatation, pulmonary hypertension, and a large right-to-left shunt through a patent foramen ovale (PFO).

Discussion: This patient presented transient, profound cyanosis immediately after a pleural tap. Pneumothorax and re-expansion lung edema were excluded, and other causes of acute hypoxemia were improbable. Spontaneous correction after semi recumbent positioning suggests the so-called platypnea-orthodeoxia syndrome (POS). POS is characterized by a drop of Sa02 > 5% and dyspnea that manifests in the upright position and improves when lying flat. The pathophysiology is mixing of deoxygenated venous blood into the arterial blood by a right-to-left shunt. Intracardiac POS requires an anatomical intracardiac communication (mainly PFO or atrial septal defect). In the standing position, right-to-left shunting is induced or increased because a second factor (e.g. aortic root aneurysm, diaphragmatic paresis) re-routes the blood flow from the inferior vena cava towards the anatomical shunt. Our patient had permanent right-to-left shunt through a PFO secondary to severe pulmonary hypertension. We think that the Valsalva maneuver effected when the pleural catheter was withheld, induced wider opening of the PFO and acutely increased the shunt. Billowing of the atrial septum towards the left atrium following the Valsalva maneuver has been observed by others in similar conditions, a phenomenon called the “spinnaker effect”. Clinicians should be aware of POS as a cause of cyanosis in standing patients.



CXR



Microbubbles in left heart

P42

Unraveling the Paraneoplastic Puzzle: Hypertrophic Osteoarthropathy presenting with Fever and Joint Pain in a Patient with Lung Squamous Cell Carcinoma

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Learning objective(s): Considering paraneoplastic syndromes in patients with cancer, especially when presenting with atypical symptoms. Recognizing fever as a potential paraneoplastic manifestation. Comprehensive treatment strategy that addresses both the symptoms of paraneoplastic syndrome and the underlying cancer.

Case: A 54-year-old woman with a history of smoking, chronic obstructive pulmonary disease and localized squamous cell carcinoma of the lung (SCCL), presented at our internal medicine clinic with persistent fever and joint pain. She had been experiencing these symptoms, especially notable in the knees and ankles, for approximately one month. Her lung function deemed her inoperable, leading to the recommendation of radiation therapy. Physical examination showed diminished breath sounds, swelling with tenderness in the knee and ankle joints, along with tenderness along the tibia. Additionally, clubbing of the fingers and toes was noted – Figure 1**.** Laboratory tests showed an elevated CRP level of 183 mg/l. An extensive workup, including serial blood cultures, urinalysis, computed tomography scan, returned negative results. Despite a course of empirical antibiotics, her fever persisted and inflammatory markers remained elevated. Suspecting paraneoplastic hypertrophic osteoarthropathy (HOA), we conducted a skeletal scintigraphy. The scan revealed diffuse increased uptake in the diaphyses of the long bones, particularly in the femur, tibiae, ulna, and humerus, suggesting periosteal reactions. Notably, there was symmetrical linear enhancement along the diaphyses, known as "The tram-track sign" consistent with hypertrophic osteoarthropathy. Initially, NSAIDs were prescribed to manage the patient's pain and inflammation. Due to the persistence of symptoms, zolendronic acid was administered.

Discussion: Our case report highlights the complexities in diagnosing and managing HOA in the context of cancer. The atypical presentation of HOA with fever and systemic inflammation underscores the need for considering paraneoplastic syndromes in differential diagnoses. The effective management of symptoms with zoledronic acid, a bisphosphonate, emphasizes the drug's efficacy in treating HOA-related pain and inflammation but also underscores the need for new approaches to manage this orphan syndrome.

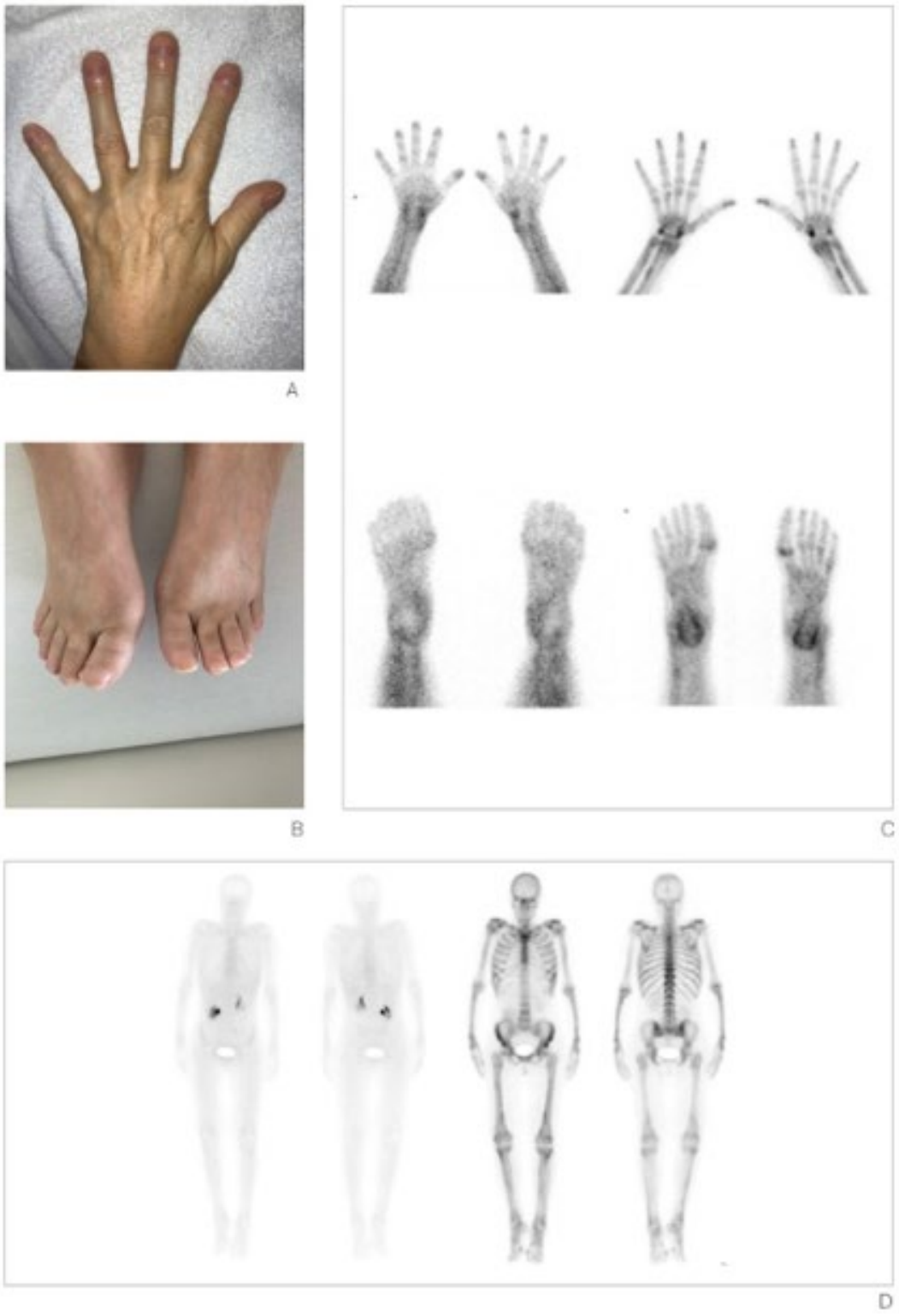

Figure 1. A, B – Clubbing of the fingers and toes. **C, D, E –** Diffuse increased uptake with symmetrical linear enhancement along the diaphyses "The tram-track sign."

P43

When malign does not refer to cancer

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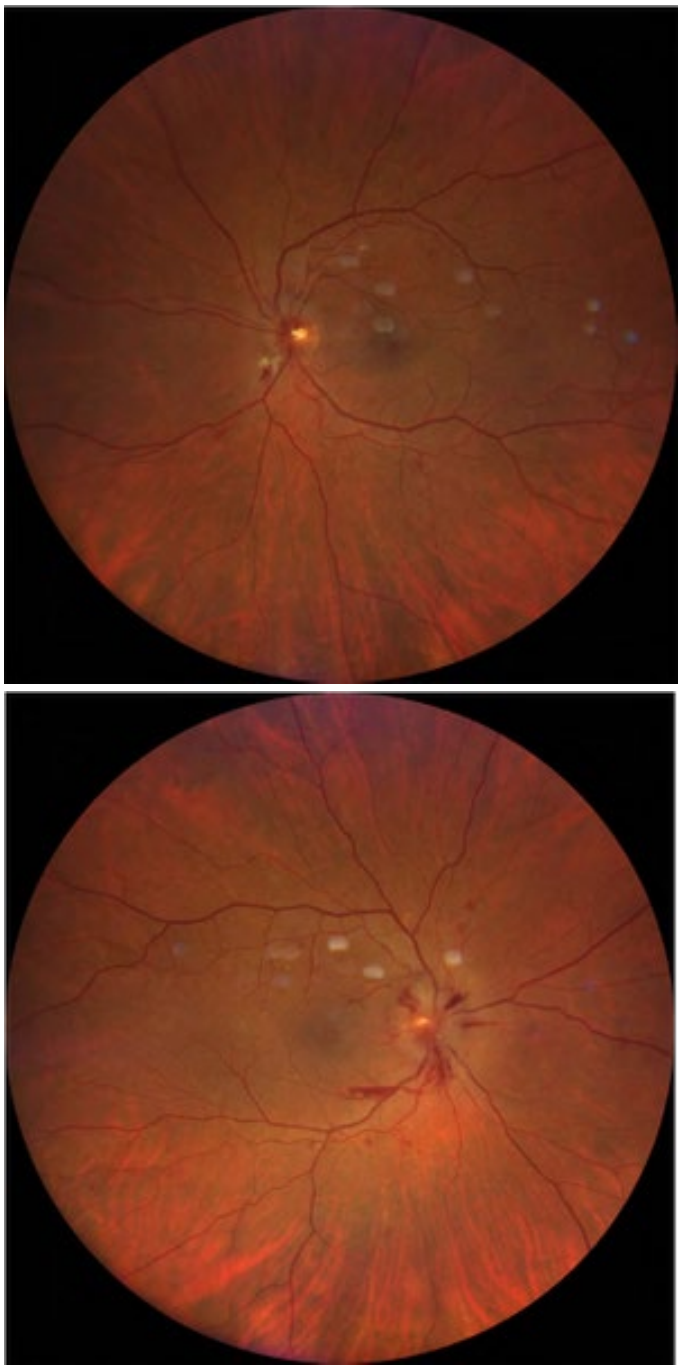
Learning objective: Prompt fundoscopy in hypertensive emergencies should be used to identify malignant hypertension, a condition with high morbidity and mortality that needs interprofessional management to improve its outcome.

Case: A 62-years old patient, without previous medical conditions, was referred by its general practitioner to the hospital because of a hypertensive emergency with presumed acute kidney failure. Upon admission to the hospital the patient reported blurred vision with visual scotoma and exertional dyspnea during the past weeks. The blood pressure was 260/150 mmHg and the serum creatinine 274 µmol/l without pathological findings on the clinical evaluation. A hypertensive emergency was diagnosed, acute aortic dissection ruled out and a therapy with intravenous alphablocker was started. The patient was monitored until sufficient blood pressure control was achieved. Assessment for secondary organ complications revealed hypertensive cardiopathy, acute kidney injury (AKI 2) and hypertensive retinopathy Stadium IV with bilateral papilledema on fundoscopy, which confirmed the diagnosis of malignant hypertension. Secondary reasons for hypertension were ruled out: No stenosis of the kidney artery was found and normal serum levels of normetanephrine, metanephrine, TSH and renin/aldosterone ratio were measured.

Discussion: Malignant hypertension is defined as severe blood pressure elevation (commonly >200/120 mmHg) with advanced bilateral retinopathy (haemorrhages, cotton wool spots, papilledema). It is also associated with extensive microvascular damage affecting especially the kidney, heart and brain. The prevalence of malignant hypertension is estimated 1–2 cases per 100’000 person-years. Before the availability of antihypertensive drugs this condition was characterised by an extremely poor prognosis with 1-year mortality rate of 79%. With effective antihypertensive medications the prognosis improved but 5 years mortality is still 20%, mainly due to end-stage renal disease, heart failure or stroke. In patients with hypertensive emergency, malignant hypertension with severe bilateral retinopathy (haemorrhages, cotton wool spots, papilledema) is a presentation which may be missed. Fundoscopy is a readily available method to assess the fundus of patients presenting with hypertensive emergency.



[Bilateral fundus oculi with papilledema and circumferential bleeding, macular edema, diffuse cotton-wool spots and punctual peripheral bleeding]

P44

Anemia and long-term prognosis in older patients with acute venous thromboembolism

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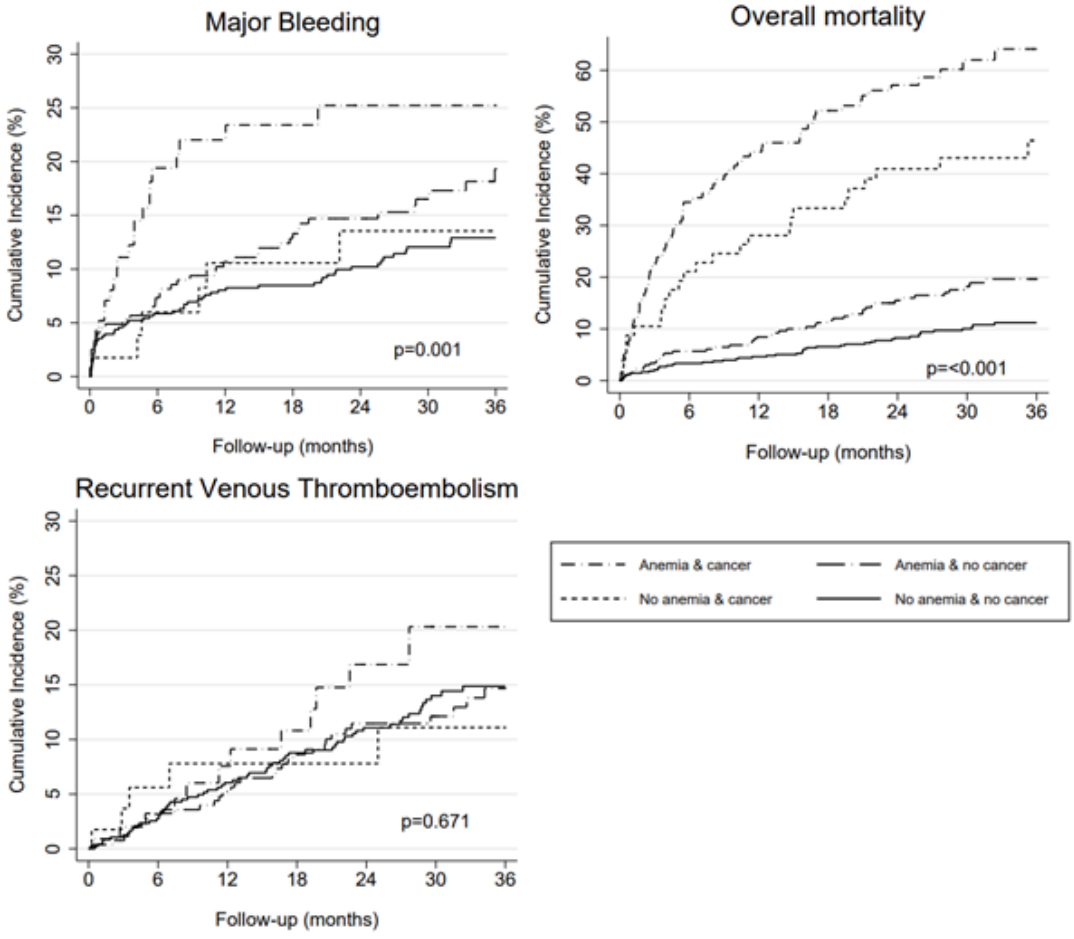
Introduction: Although anemia is a common comorbid condition in older patients with acute venous thromboembolism [VTE], the prognostic impact of anemia is not well studied in this patient population. We thus aimed to examine the association between anemia at the time of presentation and long-term clinical outcomes in older individuals with acute VTE.

Methods: The study was conducted as part of the SWIss venous Thromboembolism COhort study 65+ (SWITCO65+), a prospective multicenter cohort study of consecutive in- and outpatients aged ≥65 years with acute symptomatic VTE. The patients were enrolled at 9 Swiss hospitals and followed up to assess long-term clinical outcomes. We defined anemia as a hemoglobin [hb] of <130g/L for men and <120g/L for women according to the WHO definition. Outcomes were major bleeding [MB], recurrent VTE, and overall mortality. We compared the cumulative 36-month incidence of clinical outcomes by anemia and cancer using Kaplan-Meier analyses and the log-rank test. We examined the association between anemia at baseline and adverse clinical outcomes using competing risk or Cox regression, adjusting for potential confounders and periods of anticoagulation as a time-varying covariate.

Results: Among 991 patients with VTE, the prevalence of anemia was 42% and 18% had cancer. The median follow-up was 30 months (interquartile range 19–36 months), during which 132 patients (13%) had MB, 122 (12%) recurrent VTE, and 206 (21%) died. Patients with anemia and cancer had a statistically significantly higher cumulative 36-month incidence of MB and death than those without anemia and no cancer (**Figure**). After multivariate adjustment, anemia was statistically significantly associated with overall mortality (hazard ratio 1.53, 95%CI 1.11–2.11), but not with MB (sub-hazard ratio [SHR] 1.3, 95%CI 0.90-1.93) or VTE recurrence (SHR 0.93, 95%CI 0.61–1.43).

Conclusion: A substantial proportion of older patients with acute VTE are anemic at the time of presentation, and those with both anemia and cancer have the highest cumulative incidence of MB and death. Compared to patients without anemia, anemic patients have a 1.5-fold increased long-term risk of overall mortality.

Figure: Cumulative 36-month incidence of adverse clinical outcomes by anemia and cancer status



P45

Baseline platelet count and long-term clinical outcomes in patients with acute venous thromboembolism: results from a prospective cohort study

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Introduction: An abnormal platelet count (PC) is common in acute venous thromboembolism (VTE) but its relationship with clinical outcomes remains ill-defined. We aimed to explore the association between baseline PC and long-term risk of clinical outcomes in a prospective cohort of 991 patients with acute VTE.

Methods: We used data from the SWIss venous Thromboembolism COhort study 65+ (SWITCO65+), a prospective multicenter cohort of consecutive in- and outpatients aged ≥65 years with acute symptomatic VTE who were enrolled at nine Swiss hospitals and followed up over time. We classified patients into four PC groups: very low (<100 G/l), low (≥100 to <150 G/l), normal (≥150 G/l to ≤450 G/l), and high (>450 G/l). The primary outcome was major bleeding (MB); secondary outcomes were recurrent VTE and overall mortality. We examined the association between PC and clinical outcomes using competing risk regression analysis, adjusting for confounders and periods of anticoagulation.

Results: Of 991 patients with VTE, 35 (3.5%) had a very low, 105 (11%) a low, 759 (77%) a normal, and 29 (3%) a high PC. After a median follow-up of 30 months and a median anticoagulation duration of 8 months, 132 (13%) of patients experienced MB, 122 (12%) had recurrent VTE, and 206 (21%) died. After multivariable adjustment, patients with a very low PC had a sub-distribution hazard ratio (SHR) for MB of 1.23 (95% confidence interval [CI] 0.52–2.91) and those with a high PC a SHR of 1.88 (95%CI 0.82–4.29) compared to those with a normal PC. Patients with a low PC had a 2-fold increased VTE recurrence risk (SHR 2.05, 95%CI 1.28-3.28) and those with low and very low PC had a hazard ratio (HR) for mortality of 1.43 (95%CI 0.99–2.08) and of 1.55 (95%CI 0.80-2.99), respectively. A PC <150 G/l was associated with an almost 2-fold risk of death (HR 1.76, 95%CI 1.09–2.83) in the subgroup of patients with active cancer only.

Conclusions: Although a very low and high PC was associated with a higher risk of MB, a low PC with an increased risk of recurrent VTE, and a very low PC with a higher mortality risk, the magnitude of these associations was rather small and for the most part failed to achieve statistical significance. Overall, we found no consistent association between baseline PC and long-term clinical outcomes in patients with acute VTE.

P46

Carotid plaque progression and regression in cardiological patients: an observational long-term study on atherosclerosis management

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Introduction: We hypothesize, that carotid plaque progression compared to plaque stabilization or regression is associated with a worse control of cardiovascular risk factors and increases cardiovascular events.

Methods: Patients were assessed for diabetes mellitus (DM), lipids, office blood pressure (BP), smoking, body-mass-index (BMI) in the Kardiolab cardiological practice in 2022–2023. Higher or equal amounts of carotid total plaque area (cTPA) in previous visits were regressors and patients with the highest cTPA in 2022 or 2023 were progressors.

Results (Table): In 404 patients (37% women) with 17% history of ASCVD and 13% with DM, median age was 57 years. In progressors and regressors, risk factors were well controlled regarding BP and lipids (p = NS). Risk factors were not significantly different between groups both at baseline and at the final visit. Extrapolated 10-year ASCVD event was 15% in progressors and was 5% regressors (Chi^2p = 0.01, ROC p = 0.003, Kaplan Meier p = NS). The only identifier of events was Diabetes Mellitus at follow up (p = 0.02, Cox regression analysis) and the only identifier of the regression group was the LDL difference between first and last visit in Cox regression analysis(p = 0.02).

Conclusion: DM significantly affected event free survival and higher decrease in LDL-C reduced cTPA better over time. 10-year extrapolated ASCVD event-rate is about 5% in plaque regressors and about 15% in plaque progressors despite similar control of risk factors over an average of 7 years of follow-up. About 38% of patients are carotid plaque progressors, where additional investigations for cardiovascular risk factors may be indicated, e.g. Lp(a), Homocysteine, depression, or social stress. cTPA offers the possibility to detect such potentially vulnerable patients and to treat them earlier and more intensively for their cardiovascular risk factors. Atherosclerosis Imaging appears to have a clinical role for a more personalized atherosclerosis management.

		Baseline	Baseline			Follow Up		
VARIABLES		**ALL**	**Progressors**	**Regressors**	**P**	**Progressors**	**Regressors**	**P**
Number (N)	Kardiolab 2022/23	404	155	249		155	249	
AGE (YEARS)	Median (95% CI)	57 (56-59)	56 (54-58)	58 (57-60)	**0.03**	67 (65-69)	65 (63-67)	0.33
BP SYSTOLIC (mmHg)	Median (95% CI)	125 (124-127)	124 (122-127)	126 (124-128)	0.46	130 (126-132)	130 (127-132)	0.37
BODY MASS INDEX (BMI)	Median (95% CI)	26.8 (26.4-27.2)	26.4 (25.8-27.2)	27.1 (26.5-27.8)	0.38	26.2 (25.7-26.9)	27.1 (26.5-27.8)	0.11
Cholesterol (mmol/l)	Median (95% CI)	5.4 (5.3-5.7)	5.6 (5.3-5.8)	5.4 (5.2-5.6)	0.59	4.2 (3.9-4.4)	4.1 (4.0-4.3)	0.37
HDL-C (mmol/l)	Median (95% CI)	1.3 (1.3-1.4)	1.3 (1.2-1.4)	1.4 (1.3-1.4)	0.24	1.4 (1.3-1.4)	1.4 (1.3-1.4)	0.84
LDL-C (mmol/l)	Median (95% CI)	3.3 (3.2-3.5)	3.4 (3.2-3.6)	3.3 (3.2-3.4)	0.97	2.2 (2.0-2.5)	2.0 (2.0-2.2)	0.07
TOTAL PLAQUE AREA (cTPA)	Median (95% CI)	57 (50-66)	46 (35-60)	68 (55-76)	**<0.001**	81 (65-104)	36 (30-42)	**<0.001**
SEX FEMALE	N (%)	149 (37)	50 (32)	99 (40)	0.08			
DIABETES MELLITUS	N (%)	53 (13)	16 (10)	37 (15)	0.07	28 (18)	37 (15)	0.04
CURRENT SMOKER	N (%)	67 (17)	28 (18)	39 (16)	**0.03**	34 (22)	44 (18)	0.05
BMI>30	N (%)	112 (28)	38 (25)	74 (30)	0.06	31 (20)	70 (28)	0.09
ASCVD	N (%)	67 (17)	31 (20)	36 (14)	0.07			
EVENT (ASCVD)	N (%)					15 (10)	9 (4)	**0.01**
EVENT 10 YEARS (ASCVD)	EXTRAPOLATION					15	5	
TIME TO EVENT (ASCVD)	YEARS (AVERAGE)					6.5	7.6	
KAPLAN-MEIER (ASCVD)	EVENT SURVIVAL							0.25
DIABETES MELLITUS (FU)								**0.02**
TPA Difference (FU-baseline)							0.68	**0.003**

P47

Diagnostic and Prognostic Value of Complement Lectin Pathway Components (H-ficolin, Mannose-Binding Lectin, and Map19) in Functionally Relevant Coronary Artery Disease

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Background: Although experimental studies have confirmed the complement system's ability to modulate the atherosclerotic process, clinical data are still extremely limited. This study aimed to examine the diagnostic utility of H-ficolin, mannose-binding lectin (MBL) and MAp19 for detecting functionally relevant coronary artery disease (fCAD), as well as their prognostic value regarding long-term cardiovascular risk.

Methods: This prospective cohort study, 1571 consecutive patients with suspected fCAD were included. Functionally relevant CAD was adjudicated using single-photon emission computed tomography. We measured MBL, H-ficolin, and Map19 levels in participants at rest, during peak stress tests, and two hours post-stress. Over a five-year follow-up, we assessed incident cardiovascular death and nonfatal myocardial infarction.

Results: Among the patients, 32.3% were women, with those in the confirmed fCAD group being older and having more comorbidities. A significant increase in MBL, H-ficolin, and Map19 concentrations was observed at the peak of the stress test, followed by a return to baseline levels within 2 hours. However, there was no significant difference in the concentrations of H-ficolin, MBL, and Map19 between subgroups divided according to ischemia size. None of the markers showed sufficient diagnostic ability to distinguish between patients with and without fCAD; the AUC for H-ficolin was 0.55 (95% CI 0.50–0.59), for MBL was 0.56 (95% CI 0.48–0.65), and for MAp19 was 0.51 (95% CI 0.47–0.55). During the follow-up, 107 patients (6.8%) had non-fatal myocardial infarction and 99 patients (6.3%) experienced cardiovascular death. Neither MBL nor H-ficolin showed predictive power. In Kaplan-Meier analysis, patients with lower concentrations of MAp19 had a lower incidence of myocardial infarction (p = 0.01, Log-rank test). Although the prognostic value of MAp19 was modest (HR 1.002, p = 0.001), it confirmed its predictive value for myocardial infarction in Cox regression analysis after adjustments for age, sex, hypertension, hypercholesterolemia, history of myocardial infarction and stroke, diabetes mellitus, family history of cardiovascular disease, and smoking.

Conclusion: The study confirms the involvement of the lectin pathway of the complement system in the pathogenesis of CAD and demonstrates a connection between Map19 concentration and the risk of non-fatal myocardial infarction.

P48

Prediction of Outcomes after Cardiac Arrest by a Generative Artificial Intelligence Model

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Introduction: To investigate the prognostic accuracy of a generative artificial intelligence model (Chat Generative Pre-Trained Transformer 4[ChatGPT-4]) in prediction of death and poor neurological outcome at hospital discharge based on real-life data from cardiac arrest patients.

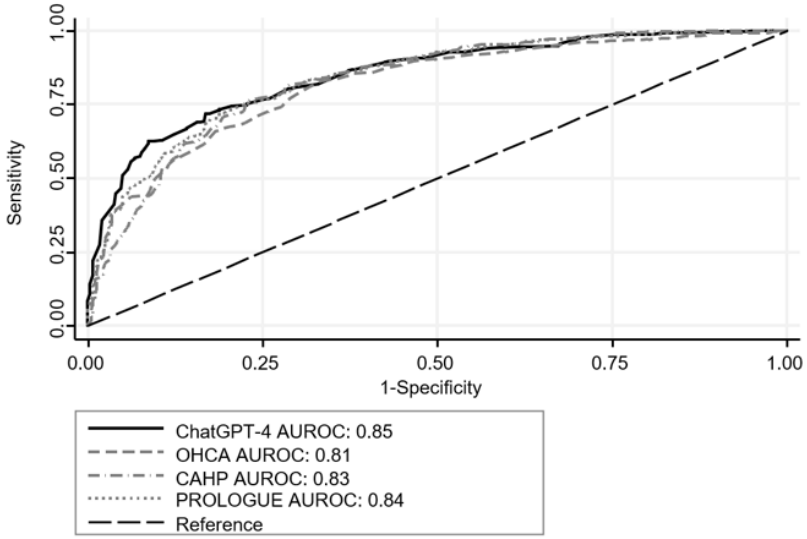
Methods: This prospective cohort study investigates the prognostic performance of ChatGPT-4 to predict outcomes at hospital discharge of adult cardiac arrest patients admitted to intensive care at a large Swiss tertiary academic medical center (COMMUNICATE/PROPHETIC cohort study). We prompted ChatGPT-4 with sixteen prognostic parameters derived from established post-cardiac arrest scores for each patient. We compared the prognostic performance of ChatGPT-4 regarding the area under the curve (AUC), sensitivity, specificity, positive and negative predictive values, and likelihood ratios of three cardiac arrest scores (Out-of-Hospital Cardiac Arrest [OHCA],

Cardiac Arrest Hospital Prognosis [CAHP], and PROgnostication using LOGistic regression model for Unselected adult cardiac arrest patients in the Early stages [PROLOGUE score]) for in-hospital mortality and poor neurological outcome.

Results: Mortality at hospital discharge was 43% (n = 309/713), 54% of patients (n = 387/713) had a poor neurological outcome. ChatGPT-4 showed good discrimination regarding in-hospital mortality with an AUC of 0.85, similar to the OHCA, CAHP, and PROLOGUE (AUCs of 0.82, 0.83, and 0.84, respectively) scores. For poor neurological outcome, ChatGPT-4 showed a similar prediction to the post-cardiac arrest scores (AUC 0.83).

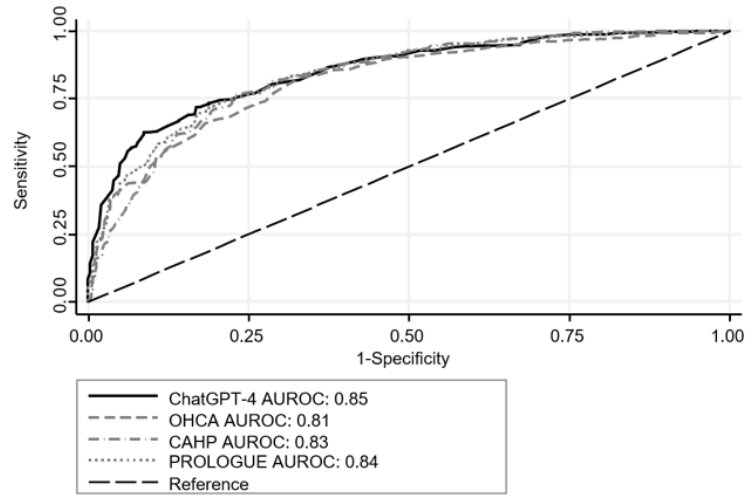
Conclusions: ChatGPT-4 showed a similar performance in predicting mortality and poor neurological outcome compared to validated post-cardiac arrest scores. However, more research is needed for a potential incorporation of an LLM in the multimodal outcome prognostication after cardiac arrest.

Figure 1. Comparison of ROC curves for mortality at hospital discharge



Abbreviations: AUROC Area under the receiver operating characteristics curve; CAHP Cardiac arrest hospital prognosis; ChatGPT-4 Chat Generative Pre-Trained Transformer 4; OHCA Out-of-hospital cardiac arrest; PROLOGUE Prognostication using logistic regression model for unselected adult cardiac arrest patients in the early stages

Figure 2. Comparison of ROC curves for poor neurological outcome at hospital discharge (Cerebral Performance Category Scale 3-5 including death).



Abbreviations: AUROC Area under the receiver operating characteristics curve; CAHP Cardiac arrest hospital prognosis; ChatGPT-4 Chat Generative Pre-Trained Transformer 4; OHCA Out-of-hospital cardiac arrest; PROLOGUE Prognostication using logistic regression model for unselected adult cardiac arrest patients in the early stages.

P49

Prognostic value of leucine and other branched chain amino acids in malnourished inpatients A secondary analysis of the randomized clinical trial EFFORT

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Background: The essential branched-chain amino acids (BCAA) leucine, isoleucine and valine have important metabolic signaling functions. In the liver, BCAAs stimulate muscle protein synthesis, muscle recovery and have also a positive influence on the glucose homeostasis. Recent studies in critically ill patients have demonstrated that depletion of plasma leucine levels is associated with increased mortality, but data in the non-critical care setting are lacking.

Methods: We investigated the impact of leucine, isoleucine, and valine metabolism on clinical outcomes in a secondary analysis of the *Effect of Early Nutritional Support on Frailty, Functional Outcomes, and Recovery of Malnourished Medical Inpatients Trial* (EFFORT), a randomized controlled trial comparing individualized nutritional support to usual care in patients at nutritional risk. The primary endpoint was 180-day all-cause mortality.

Results: A total of 238 patients with available metabolite measurements were included. Low serum levels leucin was associated with a doubling in risk of 180-day all-cause mortality in a fully adjusted regression model (adjusted HR 2.2 [95% CI 1.46–3.30]). There was also a significant association for isoleucine (1.56 [95% CI 1.03–2.35]) and valine (1.69 [95% CI 1.13–2.53]) and mortality. When comparing the effects of nutritional support on mortality in patients with high and low levels of leucin, there was no evidence for differences in effectiveness of nutritional support. The same was true for isoleucine and valine.

Conclusion: Our data suggest that depletion of leucine, as well as isoleucine and valine, is associated with an increase in long-term mortality. However, patients with low metabolite levels did not show a pronounced benefit from nutritional support. The potential effects of BCAA-enriched nutritional supplements must be further investigated in this patient population.

P50

A quantitative and qualitative national survey regarding interprofessional ward rounds among nurses and physicians in Swiss internal medicine departments

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Introduction: Interprofessional ward rounds are a cornerstone of patient-centered care and offer the opportunity to discuss and coordinate patients' treatment and management. This study aims to identify factors that are associated with low satisfaction of physicians and nurses and inefficiency in interprofessional ward rounds.

Methods: We performed an anonymous Swiss nationwide online survey among physician and nurses of 84 Swiss medical in-patient departments from August 9th to October 19th, 2023.

The primary outcome was physicians' and nurses' perceived low satisfaction with ward rounds. Secondary outcomes were inefficiency reported by the treating teams and preferences concerning interprofessional collaborations during ward rounds. Primary and secondary outcomes were measured on Visual Analogue Scales from 1–10. Also, potential factors associated with the endpoints (e.g., age, sex, position, function, experience) were assessed.

Results: From 2530 persons contacted 816 participants (32.5%) responded. The final analysis included 547 physicians (254, 46.5%) and nurses (293, 53.5%) aged 18-73 (mean age, [SD] 38.86 [10.91]; 402 [73.5%] female). 341 participants reported low satisfaction with ward rounds. Independent predictors for a perceived low satisfaction with ward rounds were female gender (adjusted OR 1.95, 95%CI 1.32, 2.9; p <0.01), working as a nurse (adjusted OR 2.33, 95%CI 1.58, 3.43; p = 0). 380 participants perceived the ward round as inefficient and significant predictors were working as a nurse (adjusted OR 1.95, 95%CI 1.3, 2.93; p <0.01). Adherence to inhouse guidelines for the ward rounds was associated with lower risk for low satisfaction (adjusted OR 0.41, 95%CI 0.37, 0.8; p <0.01) and lower risk for low efficiency (adjusted OR 0.48, 95%CI 0.33, 0.71; p = 0). Doctors and nurses preferred to perform ward rounds in an interprofessional team (448 participants, 231 doctors, 217 nurses). Results of the qualitative analysis emphasize the importance of a structured interprofessional ward round as a predictor for a high satisfaction and efficiency.

Conclusion: This nation-wide survey in Swiss doctors and nurses performing ward rounds in medical in-patient departments show an overall low satisfaction with interprofessional ward rounds and low efficiency. Yet, participants report preferring an interprofessional ward round. Providing specific guidelines may increase satisfaction and efficiency and enhance interprofessional collaboration and patients' treatment.

Table 1: Primary Endpoint - Perceived satisfaction in interprofessional ward rounds

Factor		n	All	low Satisfaction	high Satisfaction	p-value	Univariable OR (95%CI)	p-value	Adjusted OR (95%CI) adjusted for age, gender and university hospital	p-value
Sociodemographic factors		N	547	341	206					
Age (years), mean (SD)		547	36.86 (10.91)	35.99 (10.69)	38.29 (11.14)	**0.02**	0.98 (0.97, 1)	0.02	0.98 (0.97, 1)	**0.03**
Gender, n (%)	Female	547	402 (73.5%)	270 (79.2%)	132 (64.1%)	**<0.001**	2.13 (1.45, 3.14)	0	1.95 (1.32, 2.9)	**<0.01**
Professional experience (years), mean (SD)		547	11.94 (10.34)	11.40 (10.01)	12.83 (10.83)	0.12	0.99 (0.97, 1)	0.12	1.01 (0.97, 1.04)	0.72
Profession, n (%)	Physician	547	254 (46.4%)	128 (37.5%)	126 (61.2%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Nurse		293 (53.6%)	213 (62.5%)	80 (38.8%)		2.62 (1.84, 3.74)	**0**	2.33 (1.58, 3.43)	**0**
Position (Physicians), n (%)	Resident	254	130 (51.2%)	78 (60.9%)	52 (41.3%)	**<0.01**	(ref)	n.a.	(ref)	n.a.
	Attending physician		67 (26.4%)	31 (24.2%)	36 (28.6%)		0.57 (0.32, 1.04)	0.07	0.68 (0.35, 1.33)	0.27
	Consultant		29 (11.4%)	12 (9.4%)	17 (13.5%)		0.47 (0.21, 1.07)	0.07	0.68 (0.21, 2.25)	0.53
	Chief physician		28 (11.0%)	7 (5.5%)	21 (16.7%)		0.22 (0.09, 0.56)	**<0.01**	0.4 (0.09, 1.75)	0.22
Position (Nurses), n (%)	Healthcare Assistant, Federal Diploma	293	20 (6.8%)	15 (7.0%)	5 (6.3%)	0.75	(ref)	n.a.	(ref)	n.a.
	Licensed Practical Nurse (LPN)		195 (66.6%)	143 (67.1%)	52 (65.0%)		0.92 (0.32, 2.65)	0.87	0.95 (0.32, 2.81)	0.93
	Head nurse		48 (16.4%)	32 (15.0%)	16 (20.0%)		0.67 (0.21, 2.16)	0.5	0.6 (0.18, 1.99)	0.4
	Care expert nurse		30 (10.2%)	23 (10.8%)	7 (8.8%)		1.1 (0.29, 4.1)	0.89	1.15 (0.3, 4.46)	0.84
Hospital specific factors										
Ward round guidelines, n (%)		547	440 (80.4%)	271 (79.5%)	169 (82.0%)	0.46	0.85 (0.54, 1.32)	0.46	1.01 (0.64, 1.59)	0.97
Ward round checklist, n (%)		166	166 (30.3%)	102 (29.9%)	64 (31.1%)	0.78	0.95 (0.65, 1.38)	0.78	1.04 (0.71, 1.54)	0.83
Ward round SOP/Memo, n (%)		205	205 (37.5%)	119 (34.9%)	86 (41.7%)	0.11	0.75 (0.52, 1.07)	0.11	0.89 (0.61, 1.29)	0.53
Verbal ward round guidelines, n (%)		122	122 (22.3%)	69 (20.2%)	53 (25.7%)	0.13	0.73 (0.49, 1.1)	0.14	0.75 (0.49, 1.14)	0.18
Adherence to ward round guidelines, n (%)	yes	247	247 (45.2%)	128 (37.5%)	119 (57.8%)	**<0.001**	0.44 (0.31, 0.63)	**0**	0.41 (0.29, 0.59)	**<0.001**
University Hospital, yes, n (%)	University Hospital	547	166 (30.3%)	88 (25.8%)	78 (37.9%)	**<0.01**	0.57 (0.39, 0.83)	0.01	0.54 (0.37, 0.8)	**<0.01**

Table 2: Secondary Endpoint - Perceived efficiency in interprofessional ward rounds

Factor			All	low Efficiency	high Efficiency	p-value	Univariable OR (95%CI)	p-value	Adjusted OR (95%CI) adjusted for age, gender and university hospital	p-value
Sociodemographic factors		N	547	380	167					
Age (years), mean (SD)		547	36.86 (10.91)	35.93 (10.66)	38.97 (11.20)	**<0.01**	0.98 (0.96, 0.99)	**<0.01**	0.97 (0.96, 0.99)	**<0.01**
Gender, n (%)	Female	547	402 (73.5%)	291 (76.6%)	111 (66.5%)	**<0.01**	1.65 (1.11, 2.46)	**<0.01**	1.46 (0.97, 2.21)	0.07
Professional experience (years), mean (SD)		547	11.94 (10.34)	11.31 (10.17)	13.38 (10.63)	**0.03**	0.98 (0.96, 1)	**0.03**	1.01 (0.97, 1.04)	0.63
Profession, n (%)	Physician	547	254 (46.4%)	156 (41.1%)	98 (58.7%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Nurse		293 (53.6%)	224 (58.9%)	69 (41.3%)		2.04 (1.41, 2.95)	**0**	1.95 (1.3, 2.93)	**<0.01**
Position (Physicians), n (%)	Resident	254	130 (51.2%)	98 (62.8%)	32 (32.7%)	**<0.001**	(ref)	n.a.	(ref)	n.a.
	Attending physician		67 (26.4%)	34 (21.8%)	33 (33.7%)		0.34 (0.18, 0.63)	**<0.01**	0.29 (0.14, 0.59)	**<0.01**
	Consultant		29 (11.4%)	14 (9.0%)	15 (15.3%)		0.3 (0.13, 0.7)	**<0.01**	0.18 (0.05, 0.65)	**<0.01**
	Chief physician		28 (11.0%)	10 (6.4%)	18 (18.4%)		0.18 (0.08, 0.43)	**0**	0.09 (0.02, 0.45)	**<0.01**
Position (Nurses), n (%)	Healthcare Assistant, Federal Diploma	293	20 (6.8%)	15 (6.7%)	5 (7.2%)	0.96	(ref)	n.a.	(ref)	n.a.
	Licensed Practical Nurse (LPN)		195 (66.6%)	148 (66.1%)	47 (68.1%)		1.05 (0.36, 3.04)	0.93	1.14 (0.38, 3.4)	0.81
	Head nurse		48 (16.4%)	37 (16.5%)	11 (15.9%)		1.12 (0.33, 3.78)	0.85	1.14 (0.38, 3.4)	0.81
	Care expert nurse		30 (10.2%)	24 (10.7%)	6 (8.7%)		1.33 (0.35, 5.15)	0.68	1.63 (0.4, 6.59)	0.49
Hospital specific factors										
Ward round guidelines, n (%)		547	440 (80.4%)	295 (77.6%)	145 (86.8%)	**<0.01**	0.53 (0.32, 0.88)	**<0.01**	0.59 (0.35, 1)	**<0.05**
Ward round checklist, n (%)		166	166 (30.3%)	100 (26.3%)	66 (39.5%)	**<0.01**	0.55 (0.37, 0.8)	**<0.01**	0.57 (0.39, 0.85)	**<0.01**
Ward round SOP/Memo, n (%)		205	205 (37.5%)	129 (33.9%)	76 (45.5%)	**<0.01**	0.62 (0.42, 0.89)	**<0.01**	0.68 (0.46, 1)	**<0.05**
Verbal ward round guidelines, n (%)		122	122 (22.3%)	88 (23.2%)	34 (20.4%)	0.5	1.18 (0.75, 1.84)	0.47	1.22 (0.78, 1.93)	0.39
Adherence to ward round guidelines, n (%)	yes	247	247 (45.2%)	152 (40.0%)	95 (56.9%)	**<0.001**	0.51 (0.35, 0.73)	**0**	0.48 (0.33, 0.71)	**0**
University Hospital, yes, n (%)	University hospital	547	166 (30.3%)	104 (27.4%)	62 (37.1%)	**0.02**	0.64 (0.43, 0.94)	**0.02**	0.59 (0.4, 0.88)	**<0.01**

P51

Advance care planning in heart failure patients considered for LVAD or heart transplant

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Introduction: palliative care and advance care planning (ACP) for patients with advanced heart failure, including those considered for mechanical circulatory support or heart transplantation, are recommended by cardiology professional guidelines. However, they occur infrequently and patients may be reluctant to engage in ACP. We aimed to determine the acceptance of ACP initiated during a systematic palliative care consultation included in the medical workup for left ventricular assist device (LVAD) / transplantation, and the content of the discussion.

Methods: retrospective review of patient electronic medical records. All heart failure patients addressed to the palliative care consultation during the workup stay in the Geneva University Hospitals between 1 March 2020 and 15 January 2024 were included. The patients were seen by a palliative care physician.

Results: out of 27 patients, 20 (74%) were men. Median age was 58 (range 38-76). Eight patients (29.6%) did not have the consultation, 4 because their condition deteriorated or because they died, and 4 because a date could not be found. A minority of patients (n = 8; 29.6%) were transplanted or had a LVAD inserted. Among them, two had both interventions. As of January 2024, 20 patients were alive, 5 had died, and 2 were lost to follow-up. ACP was discussed with all the 19 patients seen. Among them, 3 had reservations about the intervention, the others were positive and confident in its success, while aware of the risks. One patient had advance directives and 6 expressed an interest in them. Most patients (n = 13; 68.4%) orally designated a health care surrogate, 2 were interested but socially isolated, for 2 patients, the issue was not relevant at the time, 1 patient was not specifically asked about it, and one patient could not talk with his children. All the patients shared their life experience, values, and preferences, which could be documented in an advance treatment plan. “To be alive” was a major value. Patients considered the intervention a means to live longer, but more importantly to live a meaningful life.

Conclusions: Advance care planning can be initiated with patients considered for LVAD or heart transplant, and relevant issues are addressed. The designation of a health care surrogate was possible for most patients.

P52

Audit of pulmonary embolism management and factors associated with delayed initiation of anticoagulation in a Swiss general hospital

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Introduction: Diagnosing acute pulmonary embolism (PE) poses challenges due to diverse symptoms and potential differential diagnoses. Medical professionals walk a thin line between performing all essential examinations and avoiding unnecessary testing. The study aim was to retrospectively audit whether diagnosis and treatment of acute PE at a Swiss general teaching hospital were performed according to current guidelines and to identify factors associated with a delayed initiation of anticoagulation in patients diagnosed with PE.

Methods: In this retrospective observational cohort study, we evaluated all adult patients hospitalized with PE between November 2018 and October 2020 for whom the diagnosis was made within the first 12 hours of their arrival at the emergency department (ED). LASSO regression was used to evaluate whether specific clinical characteristics were associated with delayed initiation of anticoagulation.

Results: 197 patients were included (mean age: 70 years old, 54% female). Diagnostic work-up was performed according to the guidelines in 57% of the cases; often (n = 59), D-dimers were measured even though this would not have been required if strictly following the guidelines. Pretest probability with Wells or Geneva score was assessed in 3%, and risk assessment via PESI score was conducted in 21% of the cohort. Complementary ultrasound of the leg arteries was performed in 57% of the cohort; in 38%, this was done although the legs had not been examined for deep vein thrombosis signs. In 17% of the patients, the timeframe for the anticoagulation duration was not determined in the discharge report. A follow-up inspection after discharge was suggested in 75% of the patients and a follow-up cancer search in 48%. A long timespan between ED arrival and CT scan, a distended jugular vein in the clinical examination, ED entry time in the morning, and weakness/tiredness as a presenting symptom were associated with a delayed start of anticoagulation.

Conclusions: Recognizing PE as a potential diagnosis and following current guidelines are crucial for prompt anticoagulation initiation. The audit showed that although the management in diagnosing and treating PE patients is of a high standard, areas for enhancement include better use of pretest probability and D-dimers measurement, risk assessments using PESI score, conducting complementary leg ultrasound, clarifying the duration of anticoagulation treatment, and optimizing follow-up examinations.

P53

Development and implementation of gout quality criteria in an electronic health record-based gout register: a feasibility study

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Introduction: Gout, a common inflammatory arthritis, is often undertreated. There is a lack of high-quality data on current management quality, particularly outside specialized rheumatology settings. We outline the development of electronic quality criteria from existing guidelines and their application to an electronic health record (EHR)-based gout register for both in- and outpatients.

Methods: We selected all grade A recommendations from the 2016 European Alliance of Associations for Rheumatology (EULAR) (1) and 2020 American College of Rheumatology guidelines for gout management (2), as well as the 2018 EULAR recommendations for gout diagnosis (3). We then assessed the recommendations for feasibility of implementation in an EHR-based gout register from the Geneva University Hospital, containing 5'138 patients as of 31.12.2022 depending on available data, and show results for one criterion.

Results: The 3 sets of guidelines contained 61 recommendations corresponding to 87 statements associated to a grading of evidence (Figure 1). Of the 27 statements with grade A evidence, 4 were excluded because of redundancy with other criteria, and 10 because of non-extractible data. Of the remaining 13 criteria deemed feasible (Table 1), 6 were related to acute flare treatment, 3 to urate-lowering therapy indication (ULT), 3 to recommendations for patient under ULT and 1 to diagnostic. The criteria concerning indication for ULT in patient with recurrent flares (i.e. at least two flares during one year, n = 163) showed a prescription of a ULT in 66.9% of the patients within a year, in patients that visited the hospital again. Among patients with documented tophi (n = 72), 20.8% of patients did not receive a ULT within a year.

Discussion: We outline the creation of electronic quality criteria for gout management and diagnosis based on existing guidelines. Through one illustrative example, our study highlights the evident margins for improvement in gout care. Automatically applied to an EHR-based gout register encompassing all specialties of a university hospital, these criteria will serve as quality indicators of gout management, enabling monitoring over time and assessment following improvement projects.

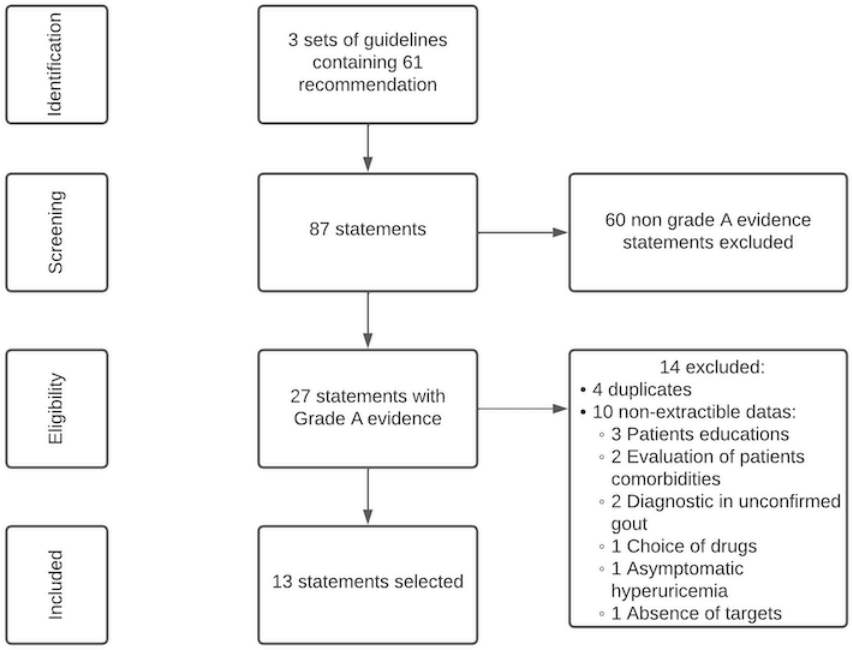

Figure 1: Process of selection of the electronic quality criteria from three guidelines on gout management and diagnosis

Table 1: Selected grade A statements to be used as electronic quality criteria in an electronic health record-based gout register.

Criteria	Source
Recommended first-line options for acute flares are colchicine (within 12 hours of flare onset) at a loading dose of 1 mg followed 1 hour later by 0.5 mg on day 1 and are NSAID (plus proton pump inhibitors if appropriate) and are oral corticosteroid (30–35 mg/day of equivalent prednisolone for 3–5 days) and	2016 EULAR
Colchicine and NSAIDs should be avoided in patients with severe renal impairment	2016 EULAR
Colchicine should not be given to patients receiving strong P-glycoprotein and/or CYP3A4 inhibitors such as cyclosporin or clarithromycin	2016 EULAR
Current infection is a contraindication to the use of IL-1 blockers.	2016 EULAR
ULT should be adjusted to achieve the uricaemia target following an IL-1 blocker treatment for flare	2016 EULAR
For patients who may receive NPO, we strongly recommend glucocorticoids (intramuscular, intravenous, or intraarticular) over IL-1 inhibitors or ACTH.	2020 ACR
ULT is indicated in all patients with recurrent flares, tophi, urate arthropathy and/or renal stones	2016 EULAR
In patients with normal kidney function, allopurinol is recommended for first-line ULT, starting at a low dose (100 mg/day) and increasing by 100 mg increments every 2–4 weeks if required, to reach the uricaemia target	2016 EULAR
If the SUA target cannot be reached by an appropriate dose of allopurinol, allopurinol should be switched to febuxostat	2016 EULAR
Febuxostat is also indicated if allopurinol cannot be tolerated	2016 EULAR
In patients with crystal-proven, severe debilitating chronic tophaceous gout and poor quality of life, in whom the SUA target cannot be reached with any other available drug at the maximal dosage (including combinations), pegloticase is indicated.	2016 EULAR
For all patients taking ULT, we strongly recommend continuing ULT to achieve and maintain an SU target of <6 mg/dl over no target	2020 ACR
Plain radiographs are indicated to search for imaging evidence of MSU crystal deposition but have limited value for the diagnosis of gout flare	2018 EULAR

P54

Diagnosis and treatment of acute heart failure - a retrospective observational study and medical audit

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Background/Objectives: Acute Heart Failure (AHF) is one of the leading reasons for hospitalizations and continues to be an increasing socioeconomic burden. To ensure quality control, the execution of audits has been recommended by healthcare experts. However, these have revealed significant regional differences and a lack of adherence to local guidelines. Notably, in Switzerland, no such audit or registry has been conducted yet. The main goal of this study was to assess adherence to existing guidelines in a public teaching hospital to identify areas with potential for improvement.

Methods: In this retrospective, single-center observational study we collected clinical routine data of all adult patients who were hospitalized for AHF at the Cantonal Hospital of Baselland, Switzerland in the years 2018 and 2019. Performed diagnostics, treatment, and discharge planning were compared to the 2016 guidelines of the European Society of Cardiology for acute and chronic heart failure.

Results: In total, 760 patients were included in the study with a median age of 84 years and 50.3% were female. NT-pro-BNP levels were measured in 92.2% of patients. Electrocardiography was performed in 95.3% and chest X-rays in 89.9% of cases. Echocardiography was conducted in only 53.9% of all patients and in 62.7% of those with newly diagnosed AHF. Intravenous furosemide was initiated in 76.3% of cases. By discharge, in the subgroup of HFrEF patients, 85.9% received beta-blockers and 68.7% were given angiotensin-converting enzyme inhibitors or angiotensin receptor blockers. Among the HFrEF group with LVEF ≤35%, 55.2% were prescribed MRA. Smoking cessation advice was recommended to only 4.5% of active smokers at discharge. Additionally, no recommendations were made regarding alcohol intake reduction at discharge.

Conclusion: In our audit, there was generally good adherence to guideline recommendations. However, several improvements should be made. Specifically, initial assessment and documentation were suboptimal. Enhancements are also necessary in particular areas of diagnostic evaluation such as echocardiography. Additionally, guidelines regarding discharge medication and lifestyle recommendations were not implemented comprehensively. Compared to other studies, our diagnostic workup was more aligned with guidelines, while other results were comparable.

P55

Effect of nudge-based intervention on therapeutic patient education program in nephrology

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Introduction: Therapeutic patient education (TPE) is a psychopedagogical practice developed to strengthening the skills and the empowerment of patients. Apart from specific nephrological treatment, the adoption of lifestyle rules makes possible to slow the CKD progression. In these circumstances, the TPE has all the legitimacy in preventing the evolution of CKD. The problem of TPE in nephrology lies in its low recognition and modest results. One help might come from the behavioral sciences. This is represented by the nudge management widely tested in the economic world. However, its implementation in nephrology is not well established.

Aims: To analyze the effects of nudge strategy on TPE program in nephrology. To this end, we conducted a prospective, randomized controlled single center trial (RCT) between January 2021 and January 2023. In parallel, a cross-over evaluation was conducted to confirm our hypothesis.

Methods: In the first trial, 30 CKD patients aged 60-75 years were randomly assigned either to the 6 months TPE program (control group), or to the nudge-based strategy integrated into the TPE program (nudge/TPE – intervention group). Ten CKD patients aged 60-70 years were included in a 6 months cross-over trial (TPE to nudge/TPE). The main outcome was adherence to both studied programs at 12, 18 and 24 months. The secondary endpointds were evaluation of quality of life (QoL assessed by SF-36 survey), salt intake, hydration, blood pressure, weight, kidney function (Glmerular filtration rate - GFR) and proteinuria.

Results: AT 24 months, the probability of adherence to medical recommendations was higher among participants who received the nudge-based program compared with those of the TPE group (22.6% *vs.* 16.2% - difference, +6.4 percentage points [pp]; 95% CI, +1.8 to +5.3; p = 0.01). Regarding secondary outcomes, nudge intervention presented a statistically significant impact on QoL (p = 0.02). All other items measured showed statistically better results in the nudge/TPE group (P = 0.03 to 0.01) compared with the TPE group except for GFR (P = 0.08). These results were confirmed in the cross-over trial. Furthermore, the six-month overall trial allowed us a better understanding of the cognitive biases of the CKD patients at the origin of their brakes.

Conclusions: The behavioral economics intervention tested in this small RCT showed a significant effect on changing behavior or improving health outcomes in CKD patients entering a TPE program.

P56

Evaluating the implementation of Smarter Medicine: development of an audit tool and process

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Introduction: The Smarter Medicine (SM) campaign is growing and often cited as a means of reducing inappropiate tests and treatments. Yet, evaluating the implementation of the SM Top 5 items (TFI) in clinical practice is a challenge. While institutional benchmarking contributes to reducing overall TFI use, it does not permit evaluating the appropriateness of a TFI in a given clinical situation. Our aim was thus to develop a medical chart audit tool to support baseline and follow-up assessment of TFI use, monitoring of implementation and identification of cases for teaching.

Method: First, the interdisciplinary SM team of our outpatient clinic for general internal medicine developed and iteratively tested an algorithm for extracting data of tests and treatments that were possibly low-value care as defined by a TFI. Inclusion criteria for data extraction were *Patient at the outpatient clinic, Time interval year 2022, test done within this interval*. Second, we designed and tested online questionnaires (REDCap®) for collecting sociodemographic information and determining appropriateness of each TFI. Third, we tested and described the audit procedure.

Results: We included 1,215 TFIs (n): Vitamin D screening (680), PSA screening (132), knee imaging (12), lumbar imaging (146), intravenous iron (245) and hypercholesteremia screening >75 years of age (413). We included 5% of or at least 10 patients

from each in the audit. Mean total audit time / questionnaire completion was 15 minutes. About 30% of demographic variables were missing. The TFI questionnaires include event date, patient age, appropriateness (yes/no/grey zone), need for and result of double audit, suitability for case discussion, free text explanation. The audit development consisted of introductory audits in pairs (n = 10) and iterative procedure refinement, discussion of grey zone cases in pairs with optional involvement of a third auditor. Of 102 completed audits of 111 patients, TFIs in 25 were rated not applicable, 20 grey zone and 19 inappropriate.

Conclusion: Our preliminary results indicate an acceptable workload of the audit and adequate usability of the tool. Extraction of TFIs without entries in institutional registries requires a different approach. Adaptation of the tool for other Top 5 lists should be reasonably easy. We identified potentially inappropriate tests and treatments among patients at our clinic. However, Top 5 criteria did not apply to all cases, and some are in a grey zone.

P57

Giving doctors feedback on the handling of urinary catheters – A intervention study to reduce urinary catheter days and catheter-associated urinary tract infections

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Introduction: To prevent catheter-associated urinary tract infections (CAUTIs), urinary catheters should be restricted to patients that require them and only remain as short as possible. CAUTIs contribute to substantial morbidity/mortality. In this quality improvement project, we provide feedback to resident physicians about the indication for urinary catheter, the number of catheters in patients hospitalized in their wards, and the number of CAUTIs. The aim of this study was to assess the knowledge of physicians on indications for urinary catheters and other aspects of CAUTIs before and after providing monthly CAUTI feedback.

Methods: We conducted a survey in all physicians before the intervention. We initiated a monthly CAUTI feedback on a dedicated floor in 11/2023. We repeated the survey in physicians that received feedback during their time working on the intervention floor in 01/2024.

We assessed their responses to (1) indications for urinary tract infections, (2) the estimated percentage of patients receiving urinary catheters during the hospitalization, (3) the percentage of CAUTIs and the risk for bacterial growth per urinary catheter day. Groups were compared using Fisher's exact test.

Results: The baseline assessment was completed by 38 physicians (35% response rate). In total 13 physicians completed the survey in 01/2024 (41% of physicians working on the floor). The only indication that was reported by almost all physicians was acute urinary retention (95%, Table 1). Almost all physicians identified urinary incontinence and comfort as false indications. In total 55% reported ICU care to be an indication for urinary catheter. Although we observed for all indications an increase in the proportion of correct answers in residents working in the intervention ward, the increase was only significant for accurate measurement for urinary output (increase from 50 to 84%, p = <0.05). Residents overestimated the proportion of patients with urinary catheter (38% baseline, 39% intervention ward, correct 20%), the proportion of nosocomial infections due to CAUTIs (baseline 41%, intervention ward 46%, correct 15%), and the risk of bacterial colonization per catheter day (baseline 27, intervention ward 30%, correct 3–7%).

Conclusions: Residents overestimated the prevalence of urinary catheter, the risk of CAUTIs, and the risk for bacterial colonization. Interventions with monthly feedback increased the awareness correct indications for urinary catheter with a significant increase in the awareness of urinary catheters for accurate measurement of urinary output.

Table 1: Responses on indications for urinary catheter

	Proportion of correct responses		**p-value**
	Baseline: n = 38	**Intervention: n = 13**	
True indications			
Prolonged immobilisation	40%	46%	>0.05
Acute urinary retention	95%	100%	>0.05
Accurate measurement of urinary output	50%	84%	<0.0484
False indications			
Incontinence	86.5%	100%	>0.05
Comfort	92%	92%	>0.05
Intensive care	55%	39%	>0.05

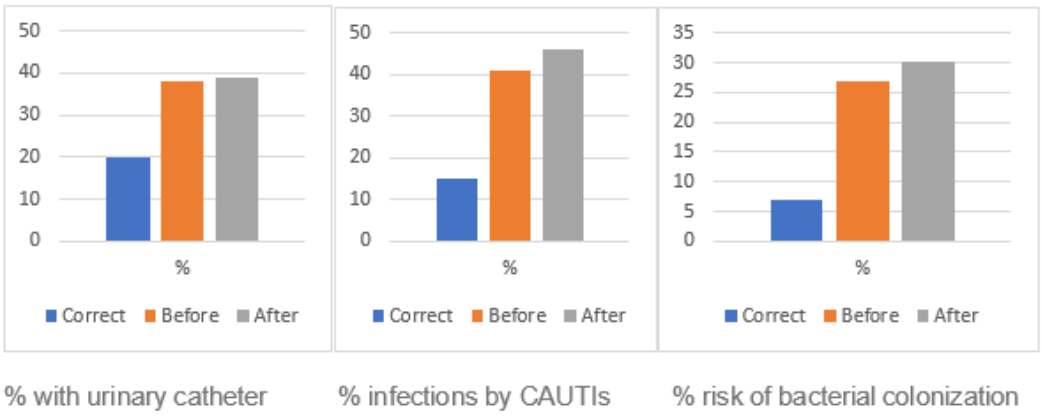

Figure 1: Estimates for proportion of patients with urinary catheter, risk of CAUTIs, and risk of bacterial colonization.

P58

Intervention to systematize fall risk assessment and prevention in older hospitalized adults: a mixed methods study

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Introduction: Fall-prevention interventions are efficient but resource-requiring and should target persons at higher risk of falls. However, such quality improvement interventions are frequently lacking systematic evaluation, placing those implemented in hospitals at a high risk of failure.

Methods: We conducted a quality improvement intervention to systematize fall risk assessment and prevention in older adults hospitalized on general internal medicine wards. The intervention targeted clinicians (including nursing staff and residents) in two tertiary hospitals of two different language and cultural regions of Switzerland (Bern University Hospital, Lausanne University Hospital). The intervention comprised an oral presentation, an e-learning, and reminder quizzes. In a mixed methods process evaluation, we assessed the feasibility and acceptability of the intervention using interviews and a survey. We analyzed quantitative data descriptively and approached qualitative data with a mixed deductive and inductive method. We integrated the results through meta-inferences.

Results: Among 544 clinicians, participation rate for the intervention was 86% for the German-speaking hospital and 45% for the French-speaking hospital. For the process evaluation, the participation rates were 39% and 6%, respectively. Seventy-four percent of clinicians found the intervention useful, and 25% reported an increase in interprofessional team working. A reward system, offering the chance to win an iPad upon completing the e-learning and all quizzes was deemed motivating by 33% of clinicians. Main implementation barrier was the high workload. Concise content, multimodality, interprofessionality, and regular reminders were perceived as facilitators.

Conclusions: A concise and multimodal quality improvement intervention with regular reminders was feasible and well-accepted among clinicians. Future quality improvement intervention projects should consider the barriers and facilitators identified in this project to improve quality of care in older hospitalized adults.

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Less can be much more than you think: when smarter and greener medicine meet

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Introduction: The health system has a significant environmental impact, constituting 5–10% of greenhouse gas emissions. 25–33% of them can be attributed to prescribed drugs. In addition to their impact on climate change, drugs also cause biodiversity loss and bacterial multiresistance, which are also among the major threats to humanity in the 21st century. Choosing Wisely (CW) recommendations have identified several categories of medications that may cause more harm than benefits to patients. CW campaigns can lead to environmental co-benefits. To the best of our knowledge, there is no published data combining the principles of CW campaign and of environmental health. For this reason, we decided to rely on both approaches in this pragmatic analysis about the double harm related to some categories of drugs.

Methods: We gathered the primary drug categories featured in the top five lists associated with the Smarter Medicine Switzerland campaign. These drugs are identified as having low added clinical value in specific clinical settings. Then we started a pragmatic review of the main ecotoxicological data about these drugs by using the following MeSH terms on Pubmed and Google Scholar: ecotoxicology (or) environment (or) climate AND the name of each specific drug or category of drugs. We categorized our findings and we identified a top five list of drugs of common use, with a low clinical value and a high environmental impact.

Results: We identified five classes of drugs that raise environmental concerns and offer no or low added value in some specific settings. They can be readily substituted with effective alternatives:

– Inhaled bronchodilators and corticosteroids

– Flurorinated anesthetics and nitrous oxide

– Some antibiotics

– Non steroidal anti-inflammatory drugs

– Some benzodiazepines and antidepressants

Definitive results will be available in March 2024.

Conclusion: Sustainability is one of the major challenges medicine is facing in the next decades. Reducing unnecessary drugs prescriptions impacts individual patients' quality of care by decreasing drug interactions and side effects, and also decreases planetary harm. To achieve this, it is imperative to shift away from siloed thinking and embrace collaborative models that consider not only effectiveness but also the human, social, environmental, and economic costs associated with drugs. Integrating CW Smarter Medicine and environmental health serves as a paradigm for such a model.

P60

Low awareness for overweight and obesity in hospitalised patients

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Introduction: Obesity is a multifactorial chronic disease causing increased mortality and risk of type 2 diabetes mellitus (T2DM), dyslipidemia, hypertension, steatohepatitis and various cancers. Therapeutically, GLP-1 receptor agonists and dual GIP and GLP-1 receptor agonists are available for weight management. The most effective treatment remains bariatric surgery. Obesity care usually takes place in an out-patient setting, where it is often underdiagnosed and, hence, undertreated. Practices of primary care providers have already been studied, but data on adult in-patient obesity awareness among clinicians, management, and hands-on guidelines for referral and treatment are widely missing.

Methods: We retrospectively included all hospitalized patients during October 2023 at the Department of Internal Medicine and Geriatrics, hospital of Bülach. Patients who died in the hospital were excluded. We quantified the registration of a diagnosis of overweight or obesity and follow-up procedures in the discharge letter. Likewise, T2DM, hypertension, and dyslipidemia were registered to compare the awareness among clinicians for overweight to other cardiovascular risk factors.

Results: 275 patients were included, and 242 patients (88%) had a documented BMI. Of these, 107 patients had a BMI of ≥25 kg/m^2 (44%). The diagnosis of overweight was missed in 80 out of 107 patients (75%). Of the 46 patients with obesity (BMI ≥30

kg/m^2), only 22 patients had a diagnosis of obesity registered (48%). Among the 67 patients with T2DM, there was a procedure registered in 20 patients (30%), and among the 154 patients with hypertension, 42 patients had procedures registered (27%). Of the 28 patients diagnosed as overweight, only 3 had a procedure registered (11%). Considering all 107 patients with overweight, a follow-up procedure was registered in 4 patients (4%).

Conclusion: Only ¼ of the patients with overweight and obesity had a diagnosis registered in the discharge letter, and only 4% had a follow-up, suggesting generally a low awareness for obesity as a treatable chronic disease in the studied in-patient setting. When overweight was diagnosed, only 1 out of 10 cases led to a respective follow-up, while this was the case for 3 in 10 cases in hypertension and T2DM, suggesting a specific lack of awareness for overweight among clinicians. Interventions to increase overweight and obesity awareness in hospitals are needed to improve obesity follow-up and treatment.

P61

Quality improvement – is it worth the effort? Adverse events during a hospitalization in an acute internal medicine ward

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Background: Poor information management and miscommunication between healthcare professionals can result in medical errors (ME) and, therefore, preventable incidents and adverse events (AE). Identifying underlying trends and patterns of AE is an important step in limiting preventable and more serious harm associated with medical treatment and improving patient safety. The aim of this study was to assess ME, AE, and preventable AE (pAE) in patients hospitalized in acute internal medicine wards. The study was part of a quality improvement project to implement standardized handoff to prevent AE.

Methods: The electronic health record (EHR) of 250 patients discharged between 01–03/2023 were randomly selected. All EHRs were screened for potential AE using the Global Trigger Tool (GTT), a validated chart review tool that identifies triggers frequently linked to AE. Identified AE were categorised by severity and type. An AE was defined as any untoward event that was likely attributable to medical management. Preventable AE's (pAE) were defined as any event that was caused by medical errors. The primary outcome was the rate of AE per 100 hospitalizations and the rate of AE per 1000 hospitalization days.

Results: In 250 EHR, we identified 186 AE (42% of all patients experienced at least one AE), which translates into a mean 0.73 AE per patient. The rate of AE was 60.4 per 100 admissions or 48.4 AE per 1'000 patient days. 88 AE (47.3%) were potentially preventable resulting in 36 pAE per 100 admissions or 48.4 pAE per 1'000 patient days. Most frequently pAE were nosocomial infections (n = 16) and medication safety or general therapy events (n = 43). Whereas most AE and pAE resulted in minor, transient harm (69.4%, Table 1), 21.5% resulted in prolonged hospitalization, and 9.2% severe and/or long-lasting harm or even death. More than 50% of these AE were considered pAE.

Conclusion: Two out of five patients hospitalized in acute internal medicine wards experienced at least one AE. Every second AE was deemed to be preventable and one in three AEs caused substantial or long-lasting harm. Thus, interventions to reduce AE are urgently needed and will result in patient-related and economic benefits.

Table 1. Overall number, type and severity of adverse events (AE). Severity was assessed using the Taxonomy of Medical Errors of the National Coordination Council for Medication Error Reporting and Prevention (NCC-MERP).

N = number

SD = Standard Deviation

	Overall AE		**Preventable AE**	
	n / mean	% / [SD]	n / mean	% / [SD]
Number of AE	**186**		**88**	47.3
Rates of AE				
Number of AE per Patient	**0.74**	[1.15]	**0.36**	[0.66]
Rate per 100 admissions	**60.4**		**36**	
Rate per 1000 patient days	**48.4**		**48.4**	
Type of AE				
Bleeding Event	**15**	8.1	**4**	4.5
Major Deterioration	**25**	13.4	**12**	13.6
Medication Safety or General Therapy Event	**77**	41.4	**43**	48.9
Neurologic Event	**19**	10.2	**5**	5.7
Nosocomial Infection	**24**	12.9	**16**	18.2
Renal Event	**26**	14	**8**	9.1
Severity of AE				
(D) Required Monitoring	**23**	12.4	**0**	0
(E) Temporary harm requiring intervention	**106**	57	**57**	64.8
(F) Temporary harm requiring prolonged hospitalisation	**40**	21.5	**22**	25
(G) Permanent harm	**2**	1.1	**1**	1.1
(H) Life-threatening harm	**11**	5.9	**6**	6.8
(I) Death	**4**	2.2	**2**	2.3

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Quality indicators for chronic non-cancer pain management: an integrative review

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Background: Chronic non-cancer pain (CNCP) affects a substantial proportion of elderly patients, affecting their physical function, psychological well-being and social relationships. Elderly patients, in particular, experience more medication-related problems while often receiving inadequate pain therapy, posing a threat to the quality of their care and, ultimately, their overall health and quality of life. Quality indicators are a valid tool for assessing quality of care and identifying gaps in quality of care. They can be used to prioritise patients and processes for quality improvement initiatives. This integrative review aims to compile quality indicators specific to CNCP care for the elderly.

Methods: Adhering to the PRISMA statement, we systematically searched Medline and Embase via Ovid, CINAHL via the EBSCO database, SCOPUS, and Google Scholar. We used citation chasing to identify additional relevant studies. Two independent reviewers conducted title-abstract and full-text

screening, extracted relevant data and assessed the risk of bias.

Results: Out of 3821 identified articles, we included 70 studies. Quality indicators covered various aspects of CNCP care, including pain assessment, monitoring, and adequate treatment. Quality indicators on pain assessment emphasised the importance of a comprehensive assessment, incorporating validated screening tools and addressing pain interference. Quality indicators on adequate treatment underscored the value of an interprofessional and multidimensional treatment approach. Drug-related indicators focused on dosing recommendations, drug-drug and drug-disease interactions, and routes of administration. The detailed data extraction process is currently ongoing and will be completed by the conference date.

Conclusion: This integrative review compiled a set of quality indicators for the care of elderly patients with CNCP. These indicators will need to be validated by an expert consortium in the next step. Once validated, they may serve to map the quality of care in and between institutions and in combination with an electronic algorithm to flag patients at risk of decreased quality of care. Flagging patients at risk will allow for targeted interventions to ultimately improve medication safety.

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Severe hypothyroidism – Etiology, clinical symptoms and signs in patients with very high thyroid stimulating hormone

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Background and aim: Severe hypothyroidism is a potentially fatal condition. Because severe forms of hypothyroidism are uncommon, clinicians may miss clinical signs and symptoms. We assessed in a patient cohort with severely elevated TSH levels, potential underlying reasons, clinical symptoms and signs, and the clinical diagnosis of the treating physician. The aim was to assess if key signs leading to the diagnosis of severe hypothyroidism were identified.

Methods: Retrospective chart review of patients with potentially severe forms of hypothyroidism (defined as TSH levels of >100 mU/L). Excluded were patients with thyroid carcinoma and patients who did not agree that their patient information is used for research. We assessed, whether clinical findings were described in discharge letters and whether the clinical diagnosis was correct.

Results: We identified 25 patients with TSH levels of > 100 mU/l with a mean age of 71 years (SD 21.7), 68% were women. The mean TSH was 168 mU/l (SD 63.4; minimum 101, maximum 365). The main clinical diagnosis in the discharge letters were hypothyroidism due to medications (amiodarone (n = 5, 20%), immunotherapy (n = 5, 20%), and Graves' disease (n = 5) and Hashimoto's hypothyroidism (n = 4). The discharge diagnosis was considered to be correct in 16 cases (64%). In 6 patients, a potential alternative diagnosis was identified: additional amiodarone intake (n = 2), known history of Graves' disease not reported, incomplete assessment (n = 4) due to unclear therapeutic benefit. Clinical signs and findings potentially associated with severe hypothyroidism included pleural effusion (n = 5), heart failure (n = 4), acute kidney injury (n = 12). In two patients, review of the ECG showed changes that may be attributed to severe hypothyroidism not identified by the treating clinicians.

Conclusion: In patients with severe hypothyroidism, 40% were related to medications including amiodarone and cancer immunotherapy. Key signs leading to the diagnosis of severe hypothyroidism may be missed in these patients and need to be in mind for this chameleon-like diagnosis.

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The implementation of exercise and education as first-line interventions for osteoarthritis and low back pain in Switzerland

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Introduction: International clinical guidelines for hip and knee osteoarthritis (OA) and for persistent or recurrent low back pain (LBP) management recommend exercise and education as first-line interventions. The GLA:D (Good Life with osteoArthritis in Denmark) initiative translates these guidelines into standardized but individualized programmes (GLA:D-OA and GLA:D-Back). Given the high prevalence of OA and LBP, the GLA:D programmes are implemented in clinical practice internationally.

Methods: In Switzerland, the GLA:D programmes have been systematically implemented since 2019. The three core elements of GLA:D-OA and GLA:D-Back are 1) certification of physiotherapists (PTs) for uniformly providing the GLA:D programmes in their institution; 2) programmes for people with hip and knee OA or LBP, consisting of 4 individual sessions and 14 group sessions (2 patient education sessions and 12 supervised training sessions); 3) collection of all assessment and questionnaire data by PTs and patients in a national registry at entry, after completion, after 6 months (LBP only) and after 1 year. The data are analysed annually for quality monitoring.

Results: So far, a total of 848 certified GLAD-PTs for OA and 402 PTs for LBP treated a total of 4662 hip and knee OA and 574 LBP patients in all three language regions in Switzerland. After the intervention, the 2462 knee OA and 741 hip OA patients with complete data showed improvements in pain of 24% and 23%, walking speed of 12% and 6%, quality of life of 22% and 16%, and pain medication use of 18% and 15%, respectively. Pain, function and quality of life remained substantially improved also after one year. The 300 LBP patients with complete data improved by 30% in pain intensity, 26% in pain medication consumption, 18% in physical function, and 20% in fear of physical activity. These improvements remained after 6 months.

Conclusion(s): The evaluations showed that the standardized, individually adapted, and evidence-based GLA:D programmes achieved substantial improvements immediately after participation and at 6 and/or 12 months. These successful long-term outcomes point out the relevance of exercise and education in hip and knee OA and LBP and make an important contribution to best practice. The number of participating patients is satisfactory, however more effort and systematic implementation strategies are necessary to further and successfully implement the GLA:D programmes in the Swiss health care system.

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Colorectal cancer screening based on predicted risk: a pilot randomized controlled trial

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Introduction: Colorectal cancer (CRC) screening in many settings relies primarily on colonoscopies. Colonoscopy resources may be better allocated by providing individuals with their CRC

risk and a corresponding recommendation for fecal immunochemical test (FIT) or colonoscopy (personalized screening). We aimed at studying the effect of personalized screening recommendations on appropriate test uptake in an organized screening program.

Methods: Randomized controlled trial among residents eligible for screening aged 50-69 years old not yet invited for screening in Vaud, Switzerland. Risk for CRC at 15-years was calculated using the QCancer calculator. The intervention consisted of a mailed brochure communicating individual, 15-year CRC risk and an appropriate screening recommendation: FIT if <3% (low) risk, FIT or colonoscopy if ≥3% and <6% (moderate), colonoscopy if ≥6% (high) risk. The control group received the brochure offering FIT and colonoscopy used by the Vaud program. Self-reported appropriate screening uptake was assessed by mailed questionnaire at 6 months (primary outcome), as well as overall screening uptake. Anxiety after receiving mailed information was measured with the short version of State-Trait Anxiety Inventory.

Results: Of 5,396 invitations, 1,059 people responded (19%), of whom 515 were randomized (49%). Reasons for exclusion included incomplete consent (13%), being up to date with screening (44% colonoscopy and 9% FIT), and symptoms potentially requiring medical evaluation (23%). Participants had an average 15-year risk of 1.4% (SD 0.5), age of 52.2 years (SD 2.2), and 51% were women. The vast majority (98%) were at low risk and none were at high risk. Risk appropriate screening completion was 37% in the intervention group and 23% in the control group (difference 14%, 95%CI 6 to 22%, Table). Overall screening uptake was 50% in the intervention and 49% in the control group (difference 1.4%, 95%CI -7 to +10%). Anxiety was low: M = 1.5/5 in the intervention and M = 1.6/5 in the control group (p = 0.15).

Conclusions: In a low-risk population not yet invited to screening, providing personalized CRC risk and appropriate screening recommendations improved risk appropriate screening without impacting overall screening uptake. Further research can measure the effect of this approach in high-risk populations and its impact on the detection of advanced neoplasia.

Trial registration: Clinicaltrials.gov NCT05357508

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Diagnostic accuracy of Spectrophotometric Intracutaneous Analysis (SIAscope) in assessing Pigmented Skin Lesions: A Systematic Review

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Introduction: With the recent significant increase in incidence of skin cancers it is imperative to improve the diagnostic accuracy of the screening of skin lesions. Spectrophotometric intracutaneous analysis (SIAscope) scope has the potential ability to screen skin lesions and decide on further invasive diagnostic measures with less subjectivity compared to current practice. However, the diagnostic accuracy of SIAscope in assessing skin lesions has not yet been reviewed systematically. The primary objective of this systematic review is to determine the diagnostic accuracy of SIAscope in assessing pigmented skin lesions compared to skin biopsies or other diagnostic tools. The secondary objectives are to determine the diagnostic accuracy of SIAscopy for different skin pathologies and it's effect on referral of skin lesions.

Methods: Eligible articles were searched with defined search strategies on 7 electronic databases, grey literature and reference list reviewing. After de-duplication, studies were screened by abstracts, followed by full text screening, data extraction and assessment of study quality by the primary author. RevMan software was used for statistical analysis.

Results: Following de-duplication of 2555 articles, 2121 studies were screened. 259 articles were eligible following abstract screening, of which 13 studies were finally included following full text screening. The sensitivities ranged from 0.24 (95% CI 0.10 to 0.44) to 1.00 (95% CI 0.63 to 1.00) and the specificities from 0.40 (95% CI 0.29 to 0.51) to 1.00 (CI 0.74 to 1.00). Due to significant heterogeneity, meta-analyses could not be conducted. Only 1 out of 13 studies showed low risk of bias across all domains. Subgroup analysis was conducted for different reference standard groups, SIAscope scoring systems, skin malignancies and SIAscope skin lesion features.

Conclusions: There is a requirement for further high quality studies on the diagnostic accuracy of SIAscope in assessing skin lesions in order to discern a more precise picture. Due to the significant heterogeneity, no specific correlation could be ascertained about the sensitivity and specificity of the SIAscope in diagnosis malignant skin condition. Therefore the SIAscope cannot be recommended as a replacement test for dermoscope. However there is potential use as an additional tool with the dermoscope and also could potentially more useful in the hands of less experienced clinicians such as general practitioners.

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Electronic cigarette for smoking cessation: a fast-track Delphi consensus of French-speaking experts

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Introduction: Despite growing evidence of the potential of electronic cigarettes (e-cigarettes or electronic nicotine delivery systems) for smoking cessation, their use is still a matter of debate among tobacco control professionals. This study used the *fast-track* Delphi process, recently developed by Unisanté, to identify and quantify consensual agreements between members of the Société Francophone de Tabacologie (SFT) on the use of e-cigarette for smoking cessation.

Methods: The *fast-track* Delphi process is a hybrid process combining three steps: a modified version of the Nominal Group Technique (step 1) and aspects of conventional Delphi surveys (e-questionnaires, steps 2 and 3). Members of the SFT were recruited as experts. The target question was: "What is the place and usefulness of vaping in the clinical care of smokers?". In both e-questionnaires, the experts were asked to quantify their opinion on each statement on a 9-points Likert-scale and to comment. The R code, created as part of the methodological development of the *fast-track* Delphi approach, enabled us to automatically extract, process and summarize the data into reports.

Results: The whole process took 40 days in autumn 2023. Eleven experts participated in step 1 (48%). Eighty-seven additional members participated in step 2 (53%), and 48 respondents of step 2 also participated in step 3 (55%). Thirty-four statements were selected by the experts during step 1 (79%). Most of the statements reached consensual agreement (26/33; 79%). In summary, the experts considered that: e-cigarette is effective and useful in smoking cessation; the e-cigarette is also very likely to reduce the risks compared to smoking; the e-cigarette is useful as a nicotine replacement tool and in conjunction with nicotine replacement therapies; smokers should

be offered both pharmacological treatments and the e-cigarette, with clear explanations of the advantages and disadvantages.

Conclusion: Participating experts agree that e-cigarette can help for smoking cessation and harm reduction. Agreeing on priority actions for smoking cessation is a base to develop clinical guidelines and trainings, and to tackle the industry-lead tobacco epidemic.

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Information needs of the at-risk population for lung cancer screening: a qualitative study

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Introduction: Lung cancer is the leading cause of cancer death in Switzerland. Screening using low-dose chest CT scans reduces the risk of death from lung cancer by 20-25%. A lung cancer screening pilot project in the Canton of Vaud will include 1,000 high-risk people (i.e. current or former smokers aged 50 to 79 years of age) for annual screening from 2024 to 2027. A key challenge is to identify an awareness-raising strategy likely to encourage the participation of the target population. The current study aimed to identify the needs and expectations of the target audience in terms of information about lung cancer screening, as well as the most appropriate ways of conveying this information.

Method: User participants were recruited via a social media advertising a short questionnaire about lung cancer screening; health professionals were recruited via personal contact. Based on the transcription of all the data, we carried out a thematic analysis focusing on information needs and improvements in communication.

Results: We conducted one focus group and ten interviews with members of the target population (N = 18) which was composed by 9 women and 9 men, mean age 60, and six interviews with healthcare professionals (N = 6) composed of 3 women and 3 men, mean age 50, in August and September 2023. Participants felt that the information must be transmitted via multiple channels: their general physician, their pneumologist, and via an official letter and social networks. The information must be clear, with a level of detail fitting their literacy. Despite a desire for simplicity, participants were inquisitive. Communication must focus on the positive outcome of early screening, without sounding tragic. Any moralizing or stigmatizing messages about their smoking habits should be avoided. Screening only people who are active or long-standing smokers felt unfair for certain participants, as well as some professionals, particularly in case of a positive family history. The inclusion criteria for the pilot project were perceived as too rigid.

Conclusion: This study highlights the need for a diversity of information channels using clear, comprehensible language. The perception of inequity associated with the inclusion criteria, particularly in relation to smoking, highlights the need to clearly communicate on this point. These findings can guide the design of information materials for the pilot project and future implementation and inform similar initiatives.

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Should all Adults with Low-Density Lipoprotein Cholesterol Levels of ≥4.9mmol/L be treated with Lipid-Lowering Agents? A 15-Year Follow-up of the CoLaus|PsyCoLaus Study

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Introduction: New international guidelines recommend lipid-lowering treatment (LLT) in adults with low-density lipoprotein cholesterol (LDL-C) levels ≥4.9mmol/L without assessment for additional cardiovascular (CV) risk factors. Data on long-term CV outcomes in this population is limited. Previous cohort studies assessing its CV risk analyzed treated and untreated individuals combined and did not use time-updated data on covariates. Therefore, recommendations in this heterogeneous population need to be reassessed by long-term and contemporaneous prospective studies, including assessment of risk in different subgroups.

Methods: We analyzed 5249 participants without CV disease or LLT at baseline from CoLaus|PsyCoLaus, a large prospective population-based cohort study including inhabitants of Lausanne, Switzerland, aged 35–75 years, with 15 years of follow-up. Atherosclerotic CV disease (ASCVD) was the primary outcome of this analysis. We used Cox proportional hazard models to compare (non)fatal ASCVD events in participants with LDL-C ≥4.9mmol/L vs. <4.9mmol/L in 1) all participants, 2) subgroup without hypertension, smoking or diabetes, and 3) subgroup without suspicion of familial hypercholesterolemia (FH) (LDL-C ≥4.9mmol/L and family history for premature ASCVD). Participants were censored at occurrence of first outcome, documentation of LLT, or loss to follow-up. Further, we analyzed the association between LLT use and ASCVD among those with LDL-C ≥4.9mmol/L. Models were adjusted for sex, education level, age, and with time updated data for hypertension, active smoking, diabetes, triglycerides, and body mass index.

Results: Mean age at baseline was 50.4 years (range 34.9; 75.4) and 55% were female. Participants with LDL-C ≥4.9mmol/L (N = 297) had an increased risk for ASCVD with a multivariate-adjusted hazard ratio (HR) of 1.60 (95%confidence interval [CI] 1.07–2.38). The association seems to be smaller in healthier adults without hypertension, active smoking or diabetes (HR 1.39; 95%CI 0.55–3.48), or suspicion of FH (HR 1.41; 95%CI 0.79–2.51). Among participants with LDL-C ≥4.9mmol/L, those treated with LLT during follow-up do not seem to have an increased risk for ASCVD (HR 1.25; 95%CI 0.59–2.64).

Conclusions: We confirmed that persons with LDL-C ≥4.9mmol/L have an increased risk for ASCVD, which may however be smaller in the absence of additional CV risk factors.

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Association between Professional Identity, Burnout and Mental Health in Medical Students: a cross-sectional exploratory study

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Introduction: Professional identity formation in medical students is a multifactorial phenomenon, in which clinical and non-clinical experiences and expectations merge with individual values, beliefs and obligations. While the formation of a professional identity (PI) has been correlated to career success, a mismatch between personal orientations and expectations of the profession can create anxiety, frustration, feelings of inadequacy and impostorship, which can lead the individual to leave the profession [1,2]. Incomplete or incorrect development of PI was associated with negative health consequences and to personal and work-related burnout [3,4]. Nonetheless, literature about the correlation between PI, mental-health, and burnout is scant. Taking the opportunity of a large-scale study conducted among medical students, we explored what correlation exist among these three factors.

Methods: Correlational cross-sectional study among all medical students of the entire 6 year undergraduate curriculum at the university of Lausanne. We invited all students to complete a questionnaire which combined a range of validated questionnaires to explore burnout (emotional exhaustion, cynicism, and academic efficacy), mental health issues (depression, suicidal ideation, anxiety and stress) and PI. One-way ANOVAs (with Tukey post-hoc tests) and Pearson correlations were used to describe our sample population and to test how medical students' PI relates to their mental health and burnout.

Results: Among the 2096 eligible students who received an invitation to participate, 1059 (50.5%) filled in the survey. We found that higher levels of PI were significantly related to less mental health issues with medium effect sizes for depressive symptoms, suicidal ideation, and anxiety. Higher PI was also inversely related to burnout: less cynicism with large effect size, less emotional exhaustion, and more academic efficacy both with medium effect size. Correlations and effect sizes magnitude stayed similar when controlling for students' gender and curriculum year. We do not find any differences in PI level between curriculum years. Nevertheless, students in later curriculum years reported a significantly higher "sense of membership" and more "negative attitudes" towards the medical profession.

Conclusions: Even if the cross-sectional design preclude any causal affirmation our study show that high levels of professional identity correlate with less mental-health and burnout issues.

P71

Cognitive/affective and behavioral empathy: are 4th and 6th medical students different?

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Introduction: Several authors have reported that medical students' empathy declines over time as they enter clinical work. However, such observations were mainly based on self-reports of cognitive/affective empathy. The aim of the study was to compare cognitive/affective and behavioural empathy between 4th and 6th year medical students.

Methods: 4th and 6th year medical students from the Faculty of Medicine of Geneva were invited to participate to a one-station formative OSCE (Objective Structured Clinical Examination) with a simulated patient (SP). The complaint was a subactue abdominal or chest pain for 4th year students and a subacute diziness or headache for 6th year students. All four cases shared similar patient socio-professional characteristics, worries and sources of stress. Participants were asked to fill in the Jefferson Scale of Empathy (JSE- Student version) designed to measure the cognitive/affective empathy. Students' verbal empathy was measured using the Verona Coding Definitions of Emotional Sequences (VR-CoDES-P). Four dimensions of nonverbal behaviour were assessed with 1–5 Likert scales. Differences of scores were investigated.

Results: Participants included 26 4th year and 30 6th year students. The 4th year medical students scored higher on the Jefferson scale than the 6th year students (103.12 (SD 16.01) vs 87.60 (SD 11.00), p <0.001). The 4th year students expressed more verbal empathy in response to patients' cues and concerns than the 6th year students (28% (SD 0.19) vs 18% (SD 0.15)), p = 0.028). However, there was no difference in nonverbal behavioural between the two groups of students (18.90 (SD 2.33) vs 18.80 (SD 2.79)), p = 0.59).

Conclusions: 4th year medical students score higher on cognitive/affective empathy and express more verbal empathy than 6th year medical students. Differences in empathy seem to be ascribed to changes in verbal empathy rather than in non-verbal behaviour.

P72

Common symptoms – rare diagnosis: Rituximab-induced serum sickness

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Learning objectives: Rituximab-induced serum sickness (RISS) might mimic various rheumatologic diseases. The clinical triad consists of arthralgia, fever and rash. Laboratory findings are unspecific and include systemic inflammation. RISS should be suspected in patients with typical symptoms related to the initiation of Rituximab treatment when other diseases are excluded. The disease is usually self-limiting. In severe cases, glucocorticoids might be used.

Case: A 61-year-old male was admitted due to polyarthritis with fever. Medical history was remarkable for a diagnosis of Waldenström's macroglobulinemia 11 months before actual presentation for which the patient underwent treatment with six cycles of Rituximab (RTX)/ Bendamustine. Joint symptoms emerged ten days following each cycle of immunochemotherapy, transiently regressing following the addition of glucocorticoids. After the completion of immunochemotherapy, continuous increase in pain related to polyarthritis occurred. Clinical findings and laboratory analyses showed elevated CRP but no evidence of autoimmune disease or infectious agents. The close temporal association between onset of symptoms and rituximab therapy, RISS was suspected. Antibody against RTX testing was negative, probably due to the long latency since the last RTX therapy. Intravenous and subsequent oral glucocorticoid therapy was initiated, resulting in prompt clinical improvement.

Discussion: RISS represents a classical type III hypersensitivity reaction with the deposition of immune complexes in tissue, resulting in inflammation through complement activation. The immune complexes appear to represent host antibodies towards

an immunogenic drug compound. The definite pathogenesis remains unclear. Of interest, patients with an autoimmune disease appear to develop RISS more frequently than patients with an underlying hematologic disorder. Symptoms include fever, joint pain, and rash. The triad is present in almost half of the patients, typically appearing 7–21 days post-exposure. Laboratory findings include systemic inflammation, with corresponding antibodies against RTX detected only in 50% of cases. The disease usually resolves within days and is self-limiting. Corticosteroids are treatment of choice.

P73

EPA-POCUS Program: Implementing the Competency-Based Learning (EPA) Model in Emergency Ultrasound Training for General Internal Medicine

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Introduction: The increasing relevance of clinical ultrasound (POCUS) in general internal medicine is underscored by the guidelines of the Swiss Society of Ultrasound in Medicine (SSUM)[1] and the Swiss Institute of Medical Education (ISFM). The EPA-POCUS program, specifically designed for Component 1 'Basics of Emergency Ultrasound' of POCUS, addresses these guidelines by providing comprehensive, structured, and competency-based training for residents in general internal medicine.

Methodology: The curriculum is based on the i-AIM (Indication, Acquisition, Interpretation, Management) educational model[2] and encompasses key stages: enrollment in an SSUM-certified course, completion of 12 DOPS with feedback, and documentation of exams in an e-portfolio. The focus is on progressively developing skills for autonomous POCUS performance[3]. Skills are assessed during weekly colloquia, with an emphasis on achieving proficiency in clinical ultrasound.

Results: Learners progress through levels of supervision, from initial skill acquisition to autonomous performance of ultrasound exams. This progression ensures the acquisition of the necessary skills for obtaining the AFC POCUS for Component 1.

Conclusions: The EPA-POCUS program is an innovative and well-structured response to the training needs in emergency ultrasound. It sets a new standard in postgraduate training by integrating POCUS skills into the clinical practice of physicians in general internal medicine, while meeting the rigorous requirements of the SSUM and ISFM.

EPA-POCUS Program Overview

Section	Content
Title	EPA-POCUS Program: Implementing the Competency-Based Learning (EPA) Model in Emergency Ultrasound Training for General Internal Medicine
Description (Specifications and Limitations)	- Context: Postgraduate training curriculum for assistants and heads of clinic in general internal medicine in a hospital setting - Duration: 12-month curriculum with gradual progression - Includes: Learning objectives for the acquisition of the AFC POCUS for component 1 'basics of emergency ultrasound' - Excludes: Advanced echographic procedures not included in the basic training.
Potential Risks in Case of Failure	- Risks to the patient if learners do not adhere to the training modalities and use POCUS at a level of autonomy not adapted to their actual competence - For learners, the risk is not reaching level 4 of training and not obtaining the AFC POCUS
Most Relevant Competence Areas (CanMEDS)	- Medical Expert: Mastery of POCUS ultrasound techniques, understanding of indications, image acquisition and interpretation, and application to patient care. - Communicator: Clear communication of ultrasound results to patients and other healthcare professionals. - Collaborator: Teamwork with other health professionals to integrate POCUS results into patient care. - Leader: Efficient use of POCUS ultrasound resources and participation in improving clinical practices. - Health Advocate: Applying POCUS to improve patient health outcomes by quickly identifying critical issues. - Scholar: Engagement in continuous learning and self-assessment in the use of POCUS. - Professional: Adherence to ethical and legal standards and maintaining competence in the use of POCUS.
Knowledge, Skills, Attitudes	- Knowledge: Basic principles and indications of POCUS ultrasound. - Skills: Techniques for image acquisition, interpretation, and integration of results into patient care. - Attitudes: Professional ethics and commitment to continuous learning.
Evaluation: Basis for Progress	- Participation in an SSUM-certified course - 12 Direct Observations with feedback (DOPS) - Documentation of exams in an e-portfolio - Evaluation with feedback of exams through discussions based on concrete cases that will be supervised including images and reports during monthly colloquia organized by the training manager - Required number: 100 ultrasounds to be performed under this evaluation modality. To obtain the AFC for component 1 of POCUS, the candidate must also document 100 exams performed autonomously. The number may be reduced to 50 if the candidate holds an AFC for another POCUS component.
Level of Training for Expected Autonomy	Level 4, i.e., performing exams autonomously without supervision.
Validity Period of Certification	- POCUS practice requires maintaining up-to-date competence. - Holders of an AFC in ultrasound are required to undergo regular continuing education. Over a period of 5 years, 35 credits of structured continuing education and 15 hours of self-learning are required by the SSUM.
Connections to Other EPAs	Can be linked to other EPAs related to patient care.

Dr. méd. Kouchiar Azarnoush

P74

Impact of an Early Clinical Experience Course on Competency Development: A Qualitative Analysis from the Perspective of First-Year Medical Students

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Introduction: Competency-based medical education (CBME) represents a revolution in medical education. Early clinical experiences have been shown to foster the professional development of medical students. However, little is known about their impact on the development of specific competencies as defined by the CanMEDS roles. We implemented an early clinical experience course integrated into the first two semesters of medical school. Students shadowed internal medicine hospitalists and their subspecialists in a tertiary hospital for a total of 48 hours, and spent an additional 12 hours in team-building social events. The aim of our study was to gain insights into the students' perspectives on the competencies (in line with CanMEDS) developed during the course.

Methods: We conducted a deductive conventional content analysis on 27 reflective writing reports from first-year medical students from three different years, who completed the course. Through an iterative consensus-building process, we identified codes corresponding to the CanMEDS roles.

Results: This course offered medical students a unique opportunity to cultivate competencies critical for their future roles as physicians, situated within a practical, real-world context. Aligned with the CanMEDS framework, the roles of medical expert, communicator, professional, scholar and collaborator were recognized. Of these, most codes aligned to roles of medical expert, communicator and professional. However, the roles encompassing leadership and health advocacy were practically not perceived (Fig. 1).

Conclusions: From the perspective of the medical students, early clinical experience promotes competencies aligned with the CanMEDS roles. When implementing the CBME approach in medical schools, early integration of guided experiential learning should be considered as a regular part of the curriculum, laying thus a foundation for the evolution of proficient physicians of the future. Curriculum developers should ensure a balanced emphasis on all CanMEDS roles experienced.

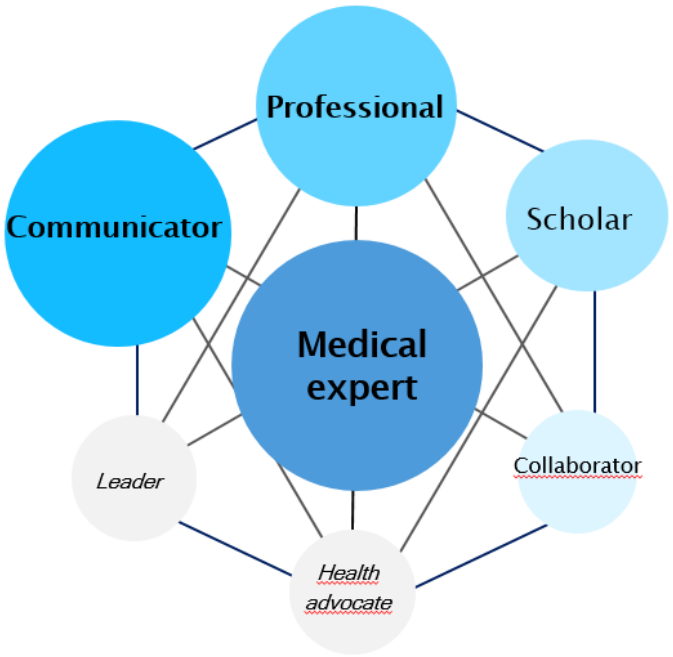

Figure 1: Perception of CanMEDS roles according to the frequency of aligned codes mentioned in the reflective reports.

P75

Short faculty development course on an essential part of competency-based education: Can you train supervisors for Mini-CEX, case-based discussions, and feedback in 2 hours?

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Introduction: Feedback and formative workplace-based assessments (WBAs) are key elements for competency-based medical education (CBME). Supervisors should be proficient in these assessment modalities, but time for additional faculty development (FD) courses is scarce and knowledge about feasibility and effectiveness limited. Hence, this project sought to evaluate the feasibility and impact of a two-hour FD course on CBME, WBAs (case-based discussion, Mini-CEX) and feedback.

Method(s): The FD course was developed by two experts (communication specialist and palliative care physician). Participants were palliative care physician with a supervisor/trainer role (expert – participants ratio 1:1-2). Learning goals for the three themes were defined, and the course structure with practical exercise (role play) was planned. Evaluation was descriptively with a questionnaire (retro-pre/single-post, Kirkpatrick's Levels 1 and 2 (self-confidence) survey; 5-point Likert Scale (strongly disagree - strongly agree)) and qualitative free text (general/strength/improvement). Description of the results: Median [IQR]; p-value(Mann-Withney-Test).

Result(s): Four sessions were conducted with seven participants, whereof six evaluated the course (85% RR). Participants agreed that the course was well organized, 5 [1] of an appropriate difficulty level 5 [1], with clear content 5 [0] and improving their knowledge 5 [1]. Course materials were well received (4.5[1]), the course was highly recommendable to others 5 [0]; and the duration of the course was perceived as appropriate (4[1]). Self-perception of confidence to describe key elements of a) WBAs in general (2.5 [1] vs. 4 [0]; p = 0.004), b) Mini-CEX (2.5 [2] vs. 4 [0];p = 0.04), and c) case-based discussions (4 [1]–5 [1];p = 0.123) increased. The self-reported confidence to describe 1) feedback strategies (2 [1] vs. 4 [0];p = 0.002), 2) main elements of helpful feedback (3 [1]–4[1];p = 0.026), and to deliver 3) balanced feedback (3 [2] vs. 4 [1];p = 0.026) increased. Qualitative feedback highlighted the small group size, a good balance between theoretical inputs and practical exercises, and the interprofessional trainer team. However, the suggested improvements were having more time for discussions and more varied role play scenarios.

Conclusion: A short, well-structured, one-time FD course with a high trainer–faculty ratio seems feasible, well accepted, and with a beneficial impact on supervisors' knowledge of WBAs and feedback skills.

P76

Starting from zero: introducing supervision by independent contractors in the setting of internal medicine at a cantonal hospital

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Introduction: In mid-2023, we initiated an effort to introduce Point of Care-Ultrasound (POCUS) supervision, aiming at enhancing ultrasound usage and skills among physicians in internal medicine in the inpatient setting. Two accredited external POCUS sonographers were contracted to supervise senior physicians once or twice a week for 2–3 hours on the wards. Therefore, we acquired one cart-based ultrasound system, as well as handheld ultrasound systems for each senior physician. Here, we report our experience with POCUS-supervision implementation from the perspective of the supervised senior physicians and their supervisors.

Methods: We conducted an inductive content analysis of a focus group discussion involving a chief physician, three senior physicians, and three attending physicians, as well as two semi-structured interviews with both supervisors in an iterative process. The topics discussed included initial reactions to the introduction of POCUS, the implementation of supervision, its usage, impact on patient care, professional development, and the challenges faced during the transition period.

Results: After initial skepticism, the introduction of POCUS transformed into positive acceptance. Despite its limited hours, the supervision enhanced participants' ultrasound skills and confidence in performing POCUS, fostering independence in medical decision-making. Participants noted an increase in the frequency of POCUS applications in clinical practice, leading to patient-centered care and strengthened physician-patient relationships. From the perspective of supervisors, the interplay between theoretical and practical supervision formed the cornerstone of success, while organizational and technological

challenges presented the key hurdles. Both groups acknowledged the implementation of POCUS as a crucial element in the mosaic of a holistic patient care in internal medicine.

Conclusions: The introduction of focused POCUS supervision by contractors was recognized as a valuable strategy in elevating ultrasound skills from a novice level. This approach demonstrates the feasibility of integrating POCUS into clinical practice with limited yet focused external support. Our study highlights the potential of POCUS to enrich clinical practice and encourages similar initiatives in other institutions.

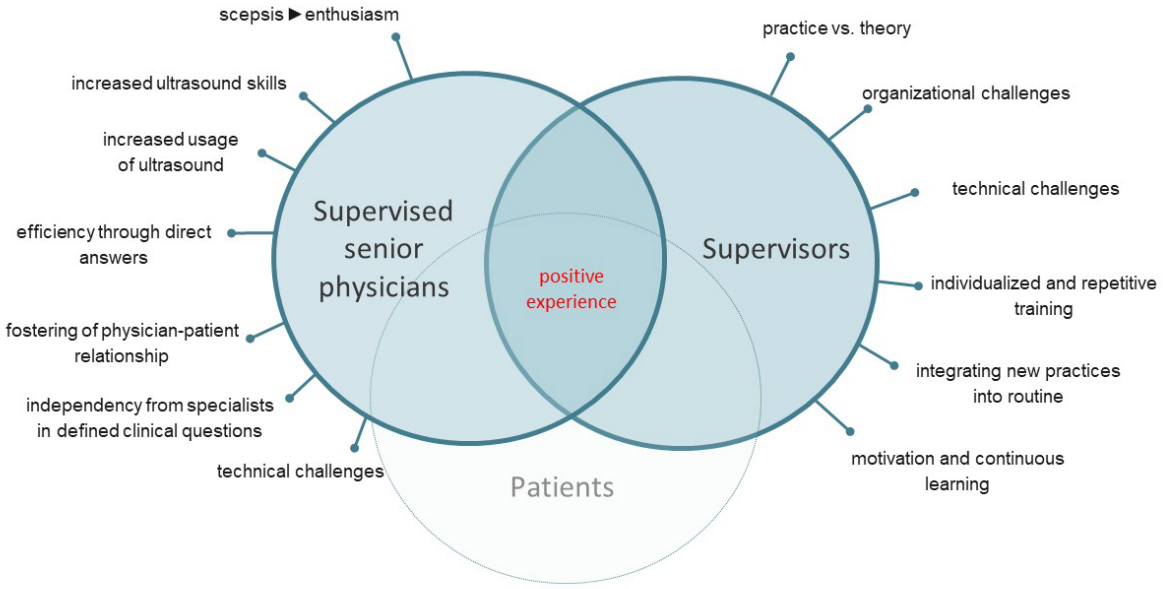

Fig. 1. POCUS-implementation in internal medicine from the perspective of supervised senior physicians and supervisors.

P77

Stigma conveyed by healthcare professionals ' words: the impact of an awareness program

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Introduction: People suffering from Substance Use Disorder (SUD) are at risk of prejudicial attitudes and discriminatory behaviour, linked to the stigmatizing language used, also by healthcare professionals, with commonly used terms (e.g., alcoholic). The aim of this study is to assess the impact of an awareness program to reduce stigmatizing words used by primary care doctors. Our hypothesis was that the intervention would reduce the use of stigmatizing terms and increase more respectful terminology.

Methods: This is a pre-post comparative interventional study of an awareness program on the use of respectful language, offered to 50 physicians in the Primary Care Division (SMPR) of the Geneva University Hospital. The intervention included a 2-hour interactive workshop followed by 3 emails with a video used in the workshop, a list of non-stigmatizing terms and exercises. The Department of Internal Medicine (SMIG), in the same hospital but without intervention, served as control group. The primary outcome was whether a word referring to a patient with SUD in patient files is stigmatizing or not. Data were collected 4 months before and 4 months after the intervention. Measure of the primary outcome was obtained by Natural Language Processing methods. Validation of the detection was determined by the analysis of 400 randomly selected documents. Sensitivity, specificity, and negative and positive predictive values of the detection of documents mentioning SUD, were calculated at 91.8% (sens.), 95.6% (spec.), 84.8% (PPV), 97.7% (NPV).

Results: The SMPR experienced a decrease of probability of a word being stigmatising in the patient files (from 0.687 at T1 to 0.624 at T2, OR = 0.75), whereas almost no change was observed in the SMIG (probability of 0.400 and 0.405 at T1 and T2 respectively, OR = 1.02).

Conclusion: Our study suggests that a short interactive awareness workshop can decrease the use of stigmatizing words in patient files of patients with SUD and increase the use of more respectful terms. Even if the optimal duration and timing of the intervention are to be determined, this study offers perspectives for interventions to reduce stigmatizing language used by healthcare professionals.

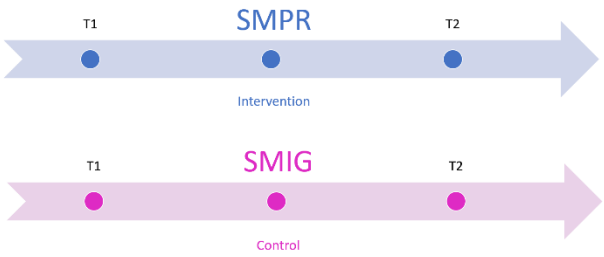

Figure 1. Study design

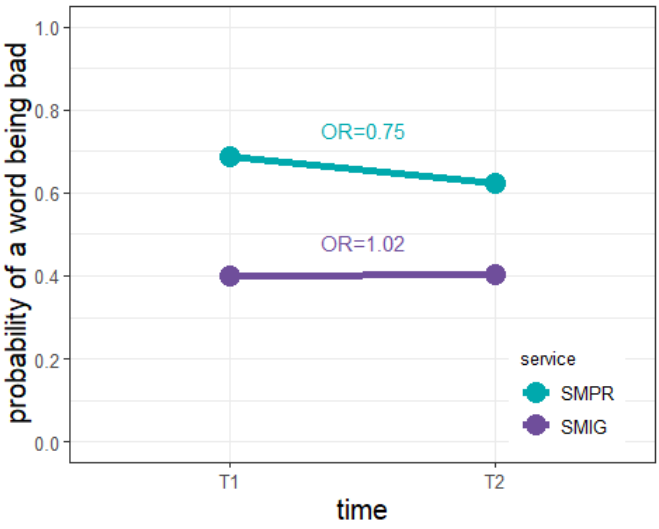

Figure 2: Estimated probability of a word being stigmatizing for each division at both timepoints. OR represents the effect of time in each division.

P78

Antimicrobial prescriptions among physicians participating in the Swiss Sentinella network from 2017 to 2022: a cross-sectional study

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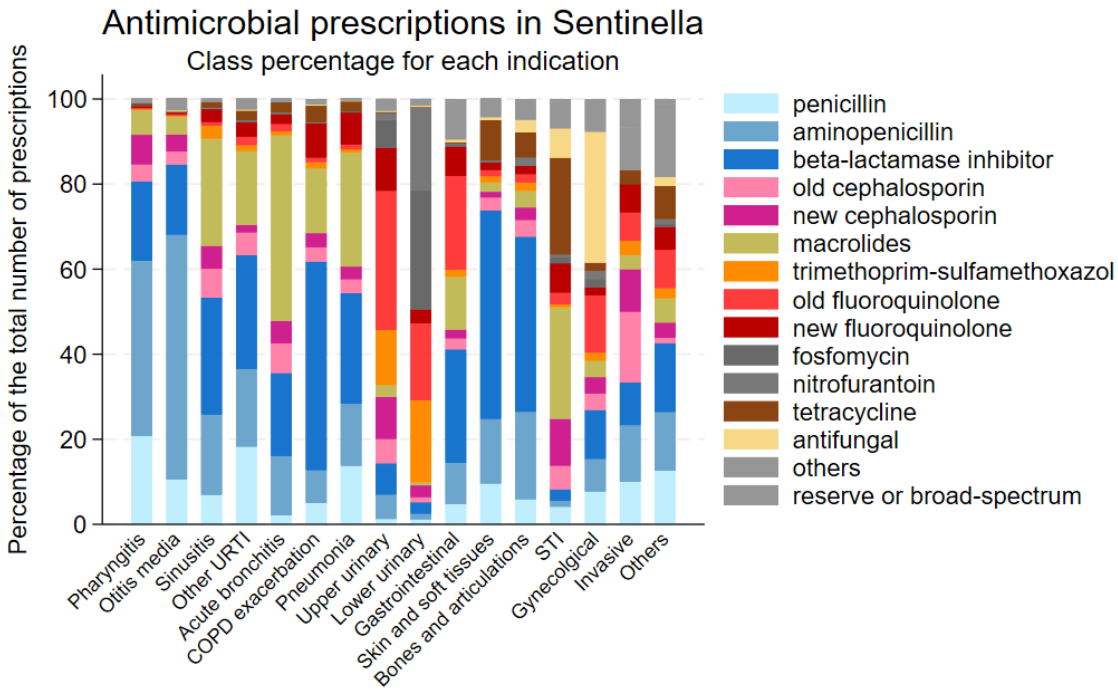
Introduction: Understanding antibiotic prescription patterns helps to define public health strategies to improve prescription appropriateness. We analyzed the antimicrobial prescriptions in family medicine, by using data collected through the Swiss national sentinel network (Sentinella).

Methods: We examined prescriptions of antibiotics reported in the Sentinella network between 2017 and 2022. We included all reported antibiotic prescriptions by primary care network members, where indication was specified according to predefined categories. We used as denominator the total number of consultations reported by the physicians, applying the age and sex-distribution based on detailed reporting of patient characteristics during 4 weeks per year.

Preliminary results: We analyzed 97'539 antibiotic prescriptions reported by 257 Sentinella members, 85.6% general internal medicine specialist (GIM) and 14.4% pediatricians, with a mean per year of 174 reporting members. The total amount of antibiotic prescription per year was between 22 and 32 per 1'000 consultations. The decrease in 2020 and 2021 was statistically significant. Most prescribed antibiotics were in the penicillin and derivatives class (48.6%). Regarding indications, penicillin derivatives accounted for more than 50% of prescriptions for respiratory tract infections (RTI), whereas fluoroquinolones accounted for 40% of upper urinary tract infections (UUTI) and 20% of lower urinary tract infection (LUTI) (figure 1). Children (<16 y.o.) had a prescription of 34 per 1000 consultations compared to 27 for adult (16–64 y.o.) and 24 for older people (>65 y.o.). Children were receiving more antibiotics for upper RTI and older people more for LUTI.

Women had 20% more antibiotics prescribed (IRR = 1.2, 95%CI = 1.19–1.22) especially for LUTI and otitis media. There were significant differences in the prescription rate between Sentinella regions, with an IRR between 0.98 and 0.67 (95%CI = 0.66–1.01) depending on the region when compared to the region 1 (most of the French-speaking part).

Conclusion: Antimicrobial prescriptions in the Sentinella network decreased between 2017 and 2022, especially marked in 2020 and 2021 during the Covid pandemic. The majority of prescriptions were penicillin derivatives. Proportionally, pediatric patients received more antimicrobial than adults, probably reflecting a higher consultation rate for acute infections. Women received more prescriptions for some indications. Prescription differences across regions should be analyzed further.



P79

Association between health care insurance type and rates of visceral surgical procedures in Switzerland A population-based weighted cohort study

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Importance: Indication for visceral surgical procedures should be based on clinical reasoning only and independent of financial incentives. Yet, there is a lack of studies investigating whether insurance type (basic vs. supplementary private) is associated with surgical procedure rates.

Objective: To assess whether incidence rates of visceral surgical procedures in people with supplementary private insurance are higher compared to those with basic insurance only.

Design: Population-based, weighted cohort study using fully-anonymized, administrative claims data from Switzerland assessing incidence rates (IR).

Setting: Adults undergoing visceral surgical, non-emergency, in-patient procedures from 2012 to 2020.

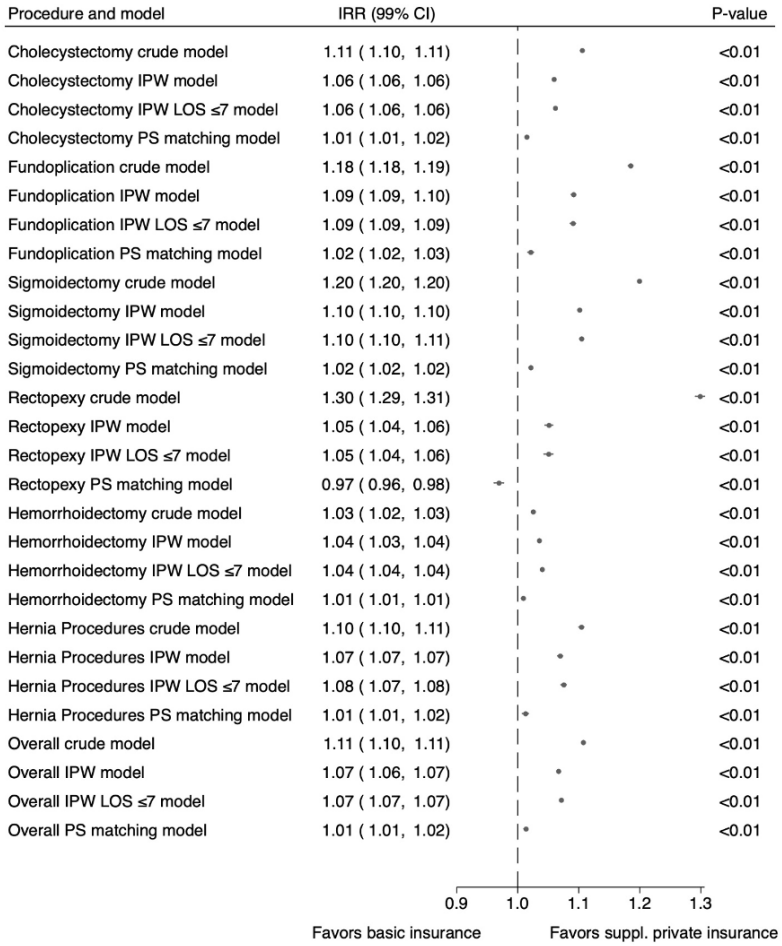
Participants: Visceral surgical in-patients with a primary or secondary discharge procedure code for one of the following procedures: cholecystectomy, fundoplication, sigmoidectomy, rectopexy, haemorrhoidectomy, inguinal, femoral, and umbilical hernia repair.

Exposure: Supplementary private health insurance.

Main Outcome and Measures: We assessed incidence rates (IR) for basic only and supplementary private insurance stratified over time and by different age groups, and we fitted negative binomial regression models adjusted by inverse probability weights.

Results: Of 1,954,119 surgical admissions (median age 63, 53.3% male, 15.3% non-Swiss nationality), 70.5% had basic insurance only. People with supplementary private insurance had a 7% higher probability (IRR, 1.07, 99% CI 1.06–1.07) to have a visceral surgical procedure done compared to people with basic insurance only—a result consistent across different types of procedures including cholecystectomy (IRR, 1.06, 99% CI 1.06–1.06), fundoplication (IRR, 1.09, 99% CI 1.09–1.10), sigmoidectomy (IRR, 1.10, 99% CI 1.10–1.10), rectopexy (IRR, 1.05, 99% CI 1.04–1.06), haemorrhoidectomy (IRR, 1.04, 99% CI 1.03–1.04), and hernia repair (IRR, 1.07, 99% CI 1.07–1.07). Sensitivity analyses, including side procedures, stratification by length of stay, and propensity score matching, suggested robustness of the results.

Conclusion and Relevance: In this cohort study, supplementary private insurance was independently associated with a higher probability of undergoing a visceral surgical procedure. The role of financial incentives in surgical procedures is still unclear.



Note: Inconsistencies with borderline confidence intervals are due to rounding. P-value <0.01 denotes a significant result at the 1% alpha level.
Legend: IRR, incidence rate ratio; CI, confidence interval; crude model, model between outcome and insurance class; IPW model, inverse probability weighted model; IPW LOS ≤ 7 model, IPW length of stay ≤ 7 days model; PS matching model, propensity score matching model.

P80

Blood pressure screening in Mata Sector, a rural area of Rwanda

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Introduction: In rural sub-Saharan Africa, knowledge of non-communicable diseases such as high blood pressure (BP) is rather limited. This report provides information about a BP screening in Mata Sector, a rural region in Southern Province of Rwanda.

Methods: Community-based, house-to-house screening was performed between February and July 2020 on more than 7,000 inhabitants. The screening was conducted by a local team composed by 20 community health care workers, five community health care supervisors, and one nurse with hypertension surveillance training. BP and heart rate were recorded after 5 minutes of resting using a validated automated oscillometric OMRON M6 IT-HEM-7322-E monitor with Intelli Wrap Cuff (HEM-FL31-E) technology. The mean of the second and third value was retained.

Results: BP was normal (<140/90 mm Hg) in 6,340 (88%) and elevated in 863 (12%) individuals with 95% of unawareness. Grade 1 (140–159/90–99 mm Hg) hypertensive BP readings were detected in 697 (81%), grade 2 (160-179/100-109 mm Hg) in 134 (16%), and grade 3 (≥180/≥110 mm Hg) in 32 (3.7%) participants. The prevalence of hypertensive readings was significantly age-dependent. Additionally, a slightly greater proportion of participants with high BP (14% versus 11%) had a body mass index (BMI) ≥25.0 kg/m^2. Also resting heart rate was higher in individuals with high BP (82 versus 77 beats/min).

Conclusion: Although individuals identified with occasionally elevated BP values need further confirmatory measurements to establish the diagnosis of hypertension, these data suggest that high BP represents an escalating concern within sub-Saharan Africa

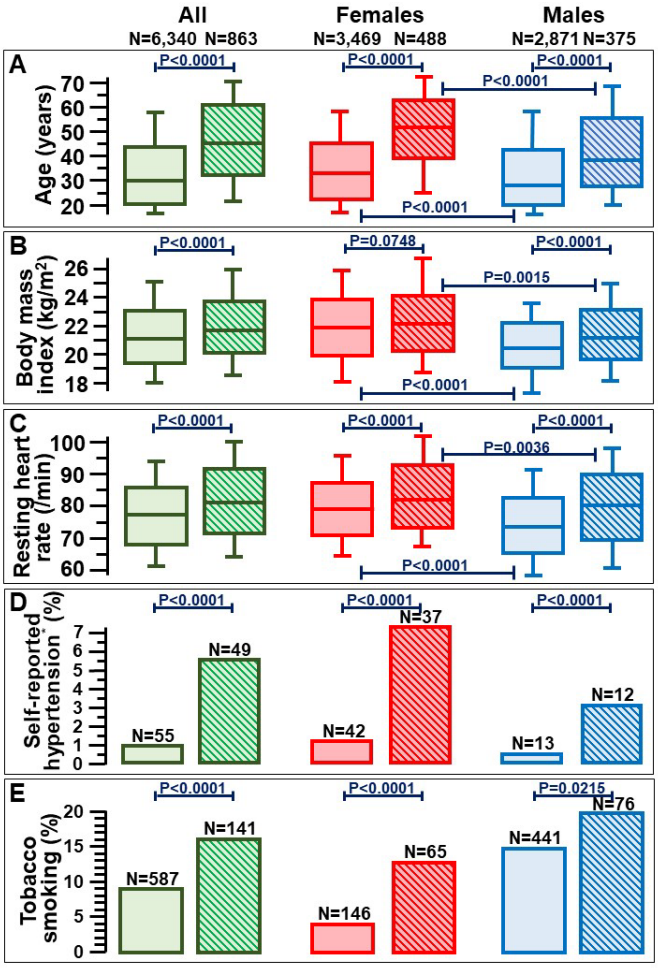

Table 1: Characteristics of 7,203 individuals undergoing the blood pressure screening in Mata Sector of Nyaruguru District (Rwanda). Participants with and without elevated blood pressure readings were not compared with respect to blood pressure, being statistically significant difference predictable. Data are presented as frequency (with percentage) or as median (with interquartile range).

		Blood Pressure		
	All	Normal	High	P-value
N (%)	7,203	6,340 (88)	863 (12)	
Females : Males, N (%)	3957 (55) : 3246 (45)	3469 (55) : 2871 (45)	488 (57) : 375 (43)	0.2358
Age, years	32 [21-46]	30 [20-44]	46 [32-61]	<0.0001
Self-reported hypertension*, N (%)	104 (1.4)	55 (0.9)	49 (5.7)	<0.0001
Tobacco smoking, N (%)	728 (10)	587 (9.3)	141 (16)	<0.0001
Weight, kg	56 [50-62]	56 [50-62]	58 [51-64]	<0.0001
Height, m	1.62 [1.56-1.68]	1.62 [1.56-1.68]	1.62 [1.56-1.68]	0.8924
Body mass index, kg/m²				
value	21.2 [19.5-23.1]	21.2 [19.5-23.1]	21.7 [20.0-23.7]	<0.0001
≥25.0, N (%)	815 (11)	688 (11)	129 (14)	0.0019
Blood pressure, mm Hg				
systolic	118 [110-127]	116 [108-124]	144 [137-153]	
diastolic	75 [68-81]	73 [68-79]	91 [84-95]	
Resting heart rate, beats/min	78 [69-87]	77 [69-86]	82 [72-92]	<0.0001

* untreated

P81

Contribution of the different medical specialties to the overall antimicrobial consumption in the Swiss outpatient setting: Who are the most relevant prescribers?

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Introduction: Antibiotic consumption is the main driver for increasing antimicrobial resistance rates. Antibiotics are predominantly prescribed in the outpatient setting, which consists of primary care, specialist care and hospital-affiliated outpatient care. At least 80% of antibiotic prescriptions are usually attributed to primary care. In Switzerland, current surveillance takes place at aggregated levels (inpatient vs. outpatient) and the contribution of the different prescribers to the overall consumption remains unknown Thus, the study aimed to determine the contribution of the different prescribers to the overall outpatient antimicrobial consumption (AMC).

Methods: The study is a retrospective observational analysis of claims data from 2015 to 2022 provided by the Helsana insurance company. AMC was analysed in terms of all antibiotic prescriptions (WHO ATC code: J01) in the Swiss outpatient setting with regard to the respective prescriber. AMC was weighted according to the total population of Switzerland based on census data. AMC is reported as Defined Daily Doses per 1,000 Inhabitants per Day (DID).

Results: A total of 3,663,590 antibiotic prescriptions from 49 prescriber groups were analysed. The overall AMC significantly decreased from 9.12 DID in 2015 to 7.99 DID in 2022. The largest prescriber groups were general internal medicine (40.1% of all prescribed DID in 2022), hospital-affiliated outpatient care (20.6%), group practices (17.3%), paediatrics (5.4%), and gynaecology (3.7%). In 2022, prescribers providing primary care services accounted for two thirds of all prescribed DID. The most commonly prescribed antibiotic classes were broad-spectrum penicillins, tetracyclines, and macrolides. Types and amount of antibiotics prescribed differ between the prescriber groups and over time.

Conclusion: Primary care contributed much less to the overall AMC in the Swiss outpatient setting than expected, while hospital-affiliated outpatient care was identified as a significant prescriber. This study demonstrates the feasibility of AMC surveillance at the prescriber level, and the associated valuable role of healthcare claims data. Surveillance at the prescriber level allows for identification of prescribing patterns within all prescriber groups, providing unprecedented visibility and enabling more targeted antibiotic stewardship.

P82

Hospitalizations with myocarditis before and during the COVID-19 pandemic – a nationwide cohort study

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Background: Over the past decade, there has been a gradual increase in myocarditis cases, a trend that aligns with the wider availability and use of cardiac magnetic resonance imaging (MRI). Although there has been speculation about an increase in myocarditis cases linked to either COVID-19 or its vaccination, recent study findings have not provided definitive conclusions.

Methods: In this nationwide retrospective cohort study, our primary outcome involved comparing the trends in myocarditis-related hospitalizations before (2012–2019) and during (2020-2021) the COVID-19 pandemic hospitalization rates were compared by using mixed-effects segmented regression analyses. Secondary outcomes included in-hospital mortality, intensive care unit admission, length of stay, and 30-day hospital readmission. Additionally, we conducted subgroup analyses focusing on gender and age.

Results: During the pre-pandemic period, there were 4,014 myocarditis-related hospitalizations, compared to 1,607 cases in the pandemic period. The incidence rate of myocarditis increased from 25 cases per 100,000 hospitalizations in 2012 to 72 per 100,000 in 2021. Compared to the pre-pandemic period (slope, 0.315 [95% Confidence Interval [CI]: 0.315–0.315; p <0.01]), the slope of the incidence rate per 100,000 hospitalizations per month during the pandemic increased markedly (slope, 0.941 [95% CI: 0.940 to 0.942; p <0.01]; difference in slope from prior slope: slope, 0.626 [95% CI: 0.625–0.627; p <0.01]). Subgroup analyses showed a most pronounced increase in the younger male population.

Conclusion: This nationwide cohort study suggests a more pronounced increase in the incidence of myocarditis-related hospitalizations during the COVID-19 pandemic. Further exploration is needed to determine whether this finding is directly linked to COVID-19 and its vaccinations, or whether it is driven by increased clinical awareness.

P83

Iron Dynamics in Menopausal Transition: Exploring its Influence on Diabetes Risk

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Introduction: Type 2 diabetes mellitus (T2DM) is a serious public health concern with a considerable impact on human life and health expenditures. Interestingly, Emerging evidence indicates that the risk and clinical features of cardiometabolic diseases, like T2DM, may vary among women based on their menopausal status (Figure1). In addition to hormonal changes, iron and its markers have been closely related to glucose metabolism and T2DM.

Goals: In this study, we aimed to investigate: 1) the association of menopausal status with T2DM risk, and 2) the association of menopause with iron biomarkers and of iron biomarkers with T2DM risk.

Method: Data from the prospective CoLaus|PsyCoLaus study, conducted in Lausanne, Switzerland. Of the initial 3544 women aged 35–75, 2002 (55.8% of the initial sample) were eligible for analysis after applying exclusion criteria. The associations between menopause and incidence of T2DM were assessed using time-varying Cox models, and linear mixed models assessed how changes in menopause status influenced iron biomarkers during this period. Subsequently, a time-varying Cox model investigated the association between iron biomarkers and incident T2DM.

Result: Menopause status was associated with an increased risk of T2DM: multivariable-adjusted hazard ratio (HR) 2.88 (95% CI: 1.91–3.81). Non-significant associations with risk of T2DM were observed for iron (HR: 1.06, 95% CI: 0.59–2.98), ferritin (HR: 1.09, 95% CI: 0.85–1.38), or TSAT (HR: 0.98, 95%

CI: 0.88-1.05), while transferrin demonstrated a significant positive association (HR: 1.33, 95% CI: 1.11–1.58). In a multivariable-adjusted linear mixed model investigating the longitudinal relationship between menopause status and iron biomarkers, a statistically significant association was found for all evaluated iron biomarkers (Table1).

Conclusion: We found a significant association between menopause status and risk of T2DM, and between transferrin and risk of T2DM. Changes in transferrin levels could partly explain the increased risk of T2DM observed after menopause.

Table 1 .Longitudinal association between menopause and iron biomarkers in the baseline, first and second follow-up of the CoLaus study, Lausanne, Switzerland.

	model 1 Beta (95% CI)	model 2 Beta ((95% CI)
Log Iron	0.033 (0.005; 0.061)	0.038 (0.007; 0.069)
Log Transferrin	0.044 (0.054 ; 0.035)	0.047 (0.050; 0.037)
Log Ferritin	0 .59 (0.54; 0.64)	0.58 (0.52; 0.63)
TSAT	0.94 (0.13; 1.75)	1.03 (0.20; 1.86)

P84

Leptospirosis and tularemia in a rural mountain valley in Switzerland and Italy - an underestimated burden?

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Background: The often non-specific nature of leptospirosis symptoms results in an underestimation of disease burden, even in countries with low prevalence rates, such as Switzerland and Italy. Despite a rising incidence of tularemia in Switzerland, limited knowledge exists regarding its seroprevalence. This study aimed to evaluate the seroprevalence of anti-*Leptospira spp.* and anti-*Francisella tularensis* antibodies in a population residing in a rural mountain valley spanning Switzerland and Italy.

Methods: A single-center cross-sectional exploratory serological study was conducted in the Val Müstair region, encompassing both Switzerland and Italy. Participants aged 18 and older were recruited at the local healthcare provider and during blood donation days between April and October 2022. Exclusion criteria included individuals with acute infections or inflammatory syndromes. Blood samples and basic demographic data were collected, and enzyme-linked immunosorbent assays (ELISA) were performed to determine the prevalence of anti-*Leptospira spp.* IgM and IgG, as well as anti-*Francisella tularensis* IgG.

Results: A total of 251 participants were enrolled, with a median age of 62 years, and 52% were female. The majority of participants were engaged in the service sector (60%), followed by industry and commerce (23%), and the agricultural sector (13%). The prevalence of *Leptospira spp.* IgM and IgG was 8.7% (95% CI 5.9–12.9) and 6.4% (95% CI 4.0–10.1), respectively. One participant was both, IgM and IgG positive. The prevalence of *Francisella tularensis* IgG was 6.8% (95% CI 4.3–10.6). Participants working in the agricultural setting had higher odds ratios for *Leptospira spp.* IgM and *Francisella tularensis* IgG prevalence (2.84 (95% CI 1.02–7.94) and 10.00 (95% CI 3.52–28.57), respectively). A key limitation of the study is the potential for limited external validity due to inevitable selection bias.

Conclusions: This investigation revealed a relevant seroprevalence of anti-*Leptospira spp.* and anti-*Francisella tularensis* antibodies within the studied population, in contrast to recent studies that estimated seroprevalence of 4.2% for leptospirosis in Germany. Future research will focus on longitudinal changes in antibody titers over time and explore additional risk factors associated with seropositivity.

P85

Malnutrition and sarcopenia are highly prevalent in Swiss rehabilitation settings

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Introduction: Malnutrition is a common health concern and is associated with negative outcomes such as higher complication rates, longer length of hospital stay, and increased morbidity and mortality. Malnutrition frequently co-occurs with sarcopenia, a generalized skeletal muscle disorder characterized by progressive loss of skeletal muscle mass, strength and function. Prevalence data of malnutrition and sarcopenia in rehabilitation settings are sparse. Therefore, the aim of the study was to investigate the prevalence of malnutrition and sarcopenia in various inpatient rehabilitation settings in Switzerland.

Methods: A cross-sectional, multicenter prevalence study was conducted in five rehabilitation centers in the German-speaking part of Switzerland. Adult inpatients in either geriatric, pulmonary, cardiovascular, internistic/ oncological, musculoskeletal or neurological rehabilitation were included. The prevalence of malnutrition was assessed according to the Global Leadership Initiative on Malnutrition (GLIM) criteria for all patients identified at risk using the Nutritional Risk Nutritional Risk Score (NRS

2002). Sarcopenia was assessed according to the European Working Group on Sarcopenia in Older People criteria (EWGSOP2). Prevalence data were reported as percentage (%) with 95% Wilson confidence interval (CI).

Results: The study population included 558 patients (48.2% female, 51.8% male, median age 73.0 years, interquartile range 62.0 - 80.0 years) thereof between 79 and 102 patients per rehabilitation discipline. The overall mean prevalence of malnutrition in the study participants was 35.5% (CI 31.5–39.6%), the prevalence of sarcopenia was 32.7% (CI 28.8–36.8%). Patients in geriatric rehabilitation had the highest prevalence of malnutrition (51.0%, CI 41.0–60.9%), followed by patients in pulmonary (45.0%, CI 35.1–55.2%) and internistic / oncological (43.0%, CI 32.1–54.6%), rehabilitation. Patients in pulmonary and geriatric rehabilitation had the highest prevalence of sarcopenia (48.0%, CI 38.0–58.2% and 40.2%, CI 30.8–50.4%, respectively).

Conclusion: Our study shows that malnutrition and sarcopenia are highly prevalent in rehabilitation settings. These findings emphasize the need for routine screening to identify patients that may benefit from tailored nutritional and physiotherapeutic interventions to prevent further decline of nutritional, muscular and functional status and related negative health outcomes.

P86

Sarcopenia prevalence, incidence, and association with 6 years incident fragility fractures in Swiss postmenopausal women

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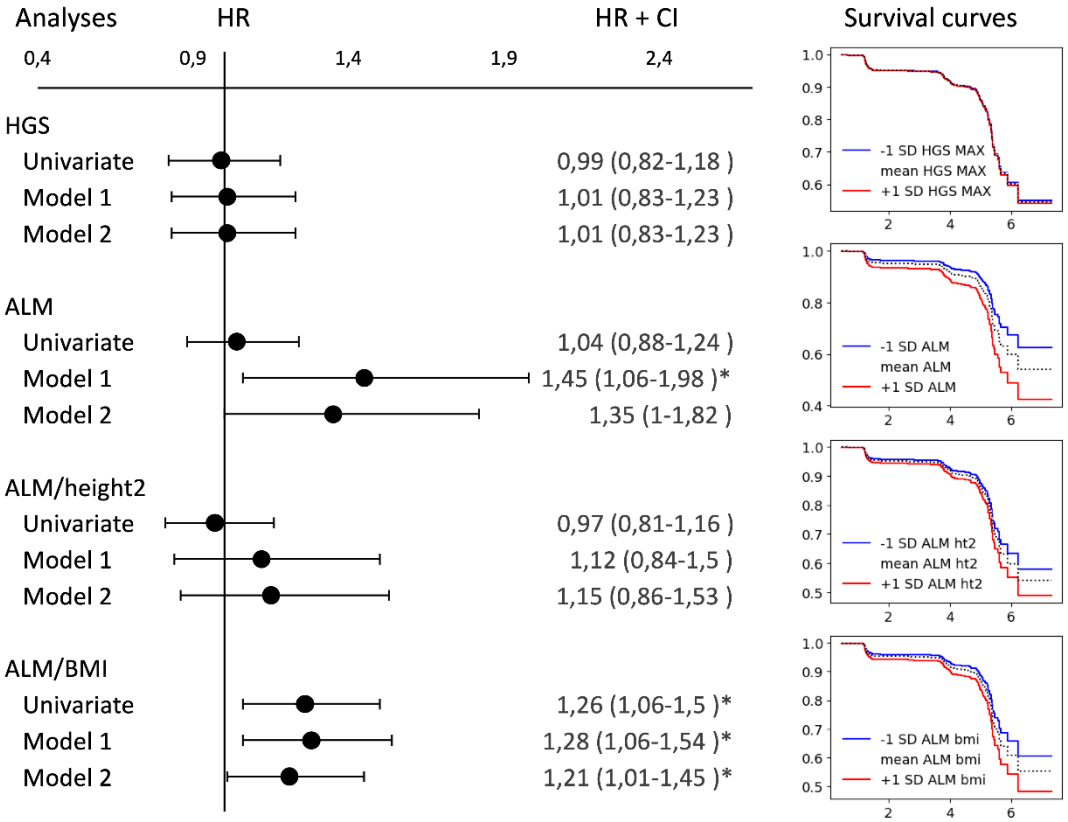
Introduction: Sarcopenia is a progressive and age-related generalized loss of skeletal muscle mass, strength and function, leading to falls and fracture. We aim to assess the prevalence and incidence of sarcopenia based on its various definitions and the association of its parameters with 6 years incident fragility fractures.

Methods: Postmenopausal women from the CoLaus/OsteoLaus cohort (Lausanne, Switzerland) underwent body composition (GE Lunar iDXA) and handgrip strength (HGS) assessment at baseline. Sarcopenia was defined based on HGS and appendicular lean mass (ALM)/height^2 (EWGSOP-ALMI-2019/2009); HGS and ALM (EWGSOP-ALM-2019, FNIH-ALM-2017); HGS and ALM/BMI (FNIH-BMI-2017/2014); ALM/height^2 (IWG); or HGS (EWGSOP-HGS-2019). Incident major osteoporotic fractures (MOF) that occurred between the baseline and the following 6 years were assessed. We performed cox proportional hazard regression adjusted for age, weight, recent falls (Model 1) and total hip bone mineral density (BMD)(Model 2) to study the association of incident MOF with ALM, ALMI, ALM/BMI and HGS.

Results: We included 1179 participants with DXA and HGS measures (mean±SD: age 69.13±8.64 years, BMI 26.07±4.21kg/height^2, HGS 24.16±5.68kg, ALM 16.89±2.56kg, ALMI 6.52±0.73kg). The prevalence of sarcopenia for each definition was: EWGSOP-ALMI-2019 17(1.4%), EWGSOP-ALMI-2009 34(2.9%), EWGSOP-ALM-2019 46(3.9%), FNIH-ALM-2017 67(5.7%), FNIH-BMI-2017 103(8.7%), FNIH-BMI-2014 15(1.3%), IWG 168(14.2%) and EWGSOP-HGS-2019 107(9.1%). 880 participants were followed up for 5.9±0.5 years and 99(11.3%) of them had an incident MOF. Incidence rate of sarcopenia for each definition was 0.3, 0.7, 0.9, 1.1, 1.9, 0.2, 0.8 and 1.8 per 100 person-years, respectively. The hazard ratios of having an incident MOF per 1-SD increase in HGS was 1.01(0.83–1.23), ALM 1.45(1.06–1.98), ALM/height^2 1.12(0.84–1.50) and ALM/BMI 1.28(1.06–1.54). Most results were not significant after additionally adjusting for BMD (see Figure 1).

Conclusions: Up to 5-fold variations were seen in both prevalence and incidence rates of sarcopenia as diagnosed by the various definitions. Counter-intuitively, higher muscle mass was associated with a higher risk of MOF. The lack of a robust sarcopenia definition remains at the center of debate. Sarcopenia association with fractures should be further studied.

Figure 1: Cox proportional hazard regression of sarcopenia parameters and the incident major osteoporotic fractures after 6 years.



Legend: hazard ratio (HR) and 95% confidence intervall (CI); survival curves including subroup analyses per +/- 1 standard deviation; * : p-value < 0.05,

P87

An expedition into the Swiss digital health data space – what we can learn from the patients

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Introduction. Switzerland has one of the best health systems worldwide. However, digitization in the health care system is far behind compared to other countries. The law related to the electronic patient record (EPR) entered into force in 2017. So far, only about 50'000 accounts were opened in Switzerland. I.e. less than 1% of the population uses one. Why the numbers aren't higher? We hypothesize that this occurred since the EPR initiative was planned without addressing the needs of those who should benefit from it. In other words, without including the patients, the physicians, and other care providers in the design process.

Method. To find out what would make an EPR useful for Swiss residents and Swiss physicians, we decided to organize an expedition into the Swiss Health Data Space. 500 dedicated individuals will be recruited to participate in the expedition. They are called: salutonauts. Salutonauts will collect their personal health data undergoing a state-of-the-art clinical examination by a physician, called mediconaut. Mediconauts will document their findings digitally in a structured and standardized manner. Salutonauts will also collect their health insurance information, vaccination, medication, laboratory and mobile health data. They will open an EPR and upload their datasets into their account. Salutonauts and mediconauts will report their experience and critical appraisal in a dedicated expedition logbook.

Results: As of January 31, 2024, 84 salutonauts have registered for participating into the expedition. 19 salutonauts underwent a state-of-the-art clinical examination. 2 mediconauts provide professional support so far. One in the Basel and one in the Zurich area. In May 2024, we will report the first relevant insights into what changes are necessary – why and how - to meet the needs of physicians and patients. We are keen to identify soon mechanisms for driving forward the digitization initiative that will be key to enable personalized medicine in Switzerland.

Conclusion: Governmental authorities as well as professional associations like the SGAIM must gather and discuss with each other in an obliging manner how they want to shape a digital health system that focuses on the individual – patient or care provider - to improve medical treatment. The benefit of a well-organized, comprehensive, trustworthy, and accessible personal patient data collection both for the patient, the physician and the society will be essential for success.

P88

Chatbots in medicine, follow-up on a use case in post-COVID condition

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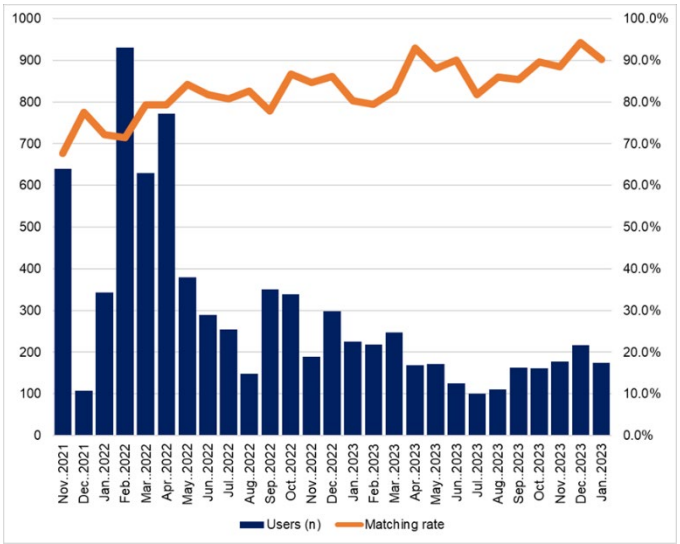
Introduction: Chatbots – programs and tools using human-like interactive conversations to provide information, have had a great uptake recently. This is in a major part due to the rapid advancement of artificial intelligence technology, and the use of these models in open access. Providing chatbots in open access has encouraged millions of users to test and employ these technologies in their daily lives. This study is a follow-up on the experience of using chatbots in medicine, the RAFAEL chatbot, at the Geneva University Hospitals.

Methods: After describing the development of the RAFAEL chatbot for post-COVID condition[1], we followed the activity, performance and accuracy of the chatbot. The activity was monitored anonymously through the chatbot platform. The project team also evaluated reactivity in responding to fallback answers when users opted for the contact form. This was essential to provide a human feedback loop in case the user reported that the chatbot did not answer the question or his/her needs correctly.

Results: Between Nov.2021 and Oct. 2023, the RAFAEL chatbot was used by 7'924 unique users, with 37'991 interactions (figure 1). The matching rate was 83.0% on average, with a tendency towards higher matching rates with time. There was also a tendency of less usage of the chatbot with time, with a decrease of SARS-CoV-2 infections. The contact form was used 244 times after a fallback, with a response given by a human moderator within 24 hours. The contact form was used mainly in relation to treatment (new treatment options, ongoing research) and diagnosis. Other uses of the contact form were to report new symptoms or ask about consultation addresses that were not mentioned on the RAFAEL platform.



Conclusion: Medical chatbots can be of great use in healthcare, as complementary tools for healthcare professionals, providing access to verified information 24/7. While a general chatbot is deemed successful with a matching rate >75%, medical chatbots should aim for higher matching rates, comparable to the accuracy of a healthcare professional. The RAFAEL experience showed the possibility of using chatbots to provide information and learn from feedback loops. This was possible via continuous monitoring of the chatbot (human in the loop). While the option of continuous monitoring can be costly, it might be necessary to guarantee best practices when providing medical information and is a way to obtain feedback or new information from users/patients.

P89

Advanced Practice Nurse (APN) Anaesthesia – their scope of practice in literature

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Introduction: Changes in healthcare and other areas, including AI, necessitate new skills, competences and roles for healthcare professionals. Advanced Practice Nurses (APN) Anaesthesia have at least a Master of Science in Nursing (MScN) degree, often with several years of work experience, and are well equipped to respond to current challenges in perioperative settings. APN Anaesthesia combine medical and extended nursing skills. They conduct comprehensive clinical assessments and provide high quality patient education. Internationally, APN Anaesthesia are well established. In Switzerland, perioperative care is mostly provided by specialist nurses in Anaesthesia. They rarely possess MScN; thereby failing to meet the formal requirements for APN. Specialist nurses in Anaesthesia have a very delimited scope of practice and only work under physician delegation. For a careful introduction of APN Anaesthesia, defining the scope of practice based on supply gaps is essential.

Method: We conducted a scoping review searching the PubMed, PsycINFO, CINAHL and Scopus databases. The search included papers from 2010-2023 dealing with prerequisites and scope of practice of APN Anaesthesia.

Results: The search found 1749 papers, of which 24 were included. Descriptions of APN in Anaesthesia from USA (n = 13), Asia (n = 4) and Europe (n = 7) were assessed. There is no uniform scope of practice for APN Anaesthesia. The Certified Registered Nurse Anaesthetist (CRNA) is an APN in the USA with a high degree of autonomy and is well described. CRNA have a similar scope of practice and role as physician anaesthetists, which may lead to conflict and competition. Some APN Anaesthesia focus on patients with specific medical conditions such as dementia or autism in the perioperative setting. APN Anaesthesia work in specialized settings such as paediatric day surgery or palliative care. Patient assessment, education and family involvement encompass the expanded role of an APN Anaesthesia compared to the specialist nurse in Anaesthesia.

Conclusion: These professionals are deployed preoperatively for Anaesthesia planning and patient and family education. APN Anaesthesia are specialised in the care of geriatric patients in recovery rooms, perioperative care of patients with dementia or children with autism disorders. APN Anaesthesia in palliative care as part of the palliative team specialized in pain therapy or palliative sedation are described.

P90

How to spot those who want to quit their job – a survey among Swiss General Internal Medicine physicians

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Introduction: The healthcare sector has a shortage in physicians. Strategies to better retain medical professionals in the workforce in General Internal Medicine must rely on an in-depth understanding of factors associated with wanting to quit their job. Here, we investigated sex-specific associations of workplace-related and personal factors associated with wanting to quit work among physicians.

Methods: In a cross-sectional questionnaire among physicians working in General Internal Medicine in Switzerland, we assessed demographics, workplace-related and personal factors in association with the desire to quit work. The outcome variable of wanting to quit work was dichotomized from a 6-point Likert scale. We performed sex-stratified analyses by multiple logistic regression adjusting for demographic variables.

Results: This study included 682 physicians, 278 (41%) men and 404 (59%) women aged 37±11 years (mean ± standard deviation). Among respondents, 38% worked in university hospitals, 39% in other hospitals and 19% in private practice. Overall, a desire to quit their job was prevalent in 33% of respondents of either sex. Lack of the following workplace-related factors was associated with the desire to quit work in both sexes: having a good network, mentoring or supervisor's support, satisfaction with autonomy at work, workplace inclusiveness and a good work-life balance. Furthermore, perceived gender-related discrimination at work was associated with wanting to quit work. Sex differences existed in the following workplace factors: Men active in medical education and women active in research were less likely to want to quit work. Among personal factors, a pathological Physician Well-being index was associated with wanting to quit work in both sexes. A sex difference among personal factors was that men (but not women) who reported to have no adequate childcare were more likely to desire quitting work compared to those who reported to have adequate childcare.

Conclusion: This study identified several potentially reversible factors associated with a tendency to consider quitting a physician job. Modifying these factors by interventions may increase the likelihood of a physician to continue working in their profession.

P91

Longitudinal monitoring of a well-being score for physicians in training at Geneva's university primary care medicine division, an exploratory study

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Introduction: Well-being at work is an essential element in any individual's life balance. It has most often been studied from the negative angle of suffering or burnout, in other words burnout screening. The prevalence of burnout is higher in the medical profession than in other sectors[1] and its presence can have significant repercussions, including on the quality of care[2]. This study explores the feasibility of longitudinally tracking a well-being score for physicians in training at the Geneva University Hospitals – Division of Primary Care Medicine.

Methods: Between September 2021 and November 2022, all physicians in training in this division were invited to complete online questionnaires: on arrival, at the end of each semester, and at the end of their training. The main tool was the "Stanford Professional Fulfillment Index" (PFI)[3] which measures two scores, one screening for professional fulfillment (SFU) and the other for burnout (SBO).

Results: We analyzed 137 questionnaires completed by 89 participants out of the 129 internal medicine physicians invited to participate (69% participation rate). We were able to determine the evolution of these scores according to the time of submission and according to the stage of training in the division (Table 1). A subgroup analysis of physicians who had 3 data points was also conducted, showing that the individual longitudinal follow-up of PFI scores is possible. Analyses showed certain associations, including those between a positive SFU score and considering medicine as a vocation, or when the physicians reported being well supported in their personal development during the last semester.

Conclusion: It is possible, and important, to collect and longitudinally monitor a well-being score within university hospital-based training programs in medicine. Certain elements emerge that can better explain the evolution of physicians' well-being. In the future, continuing the study, extending it to all the division's physicians (including senior physicians) or setting up a more interactive platform will enable us to confirm and further explore certain results and reinforce the culture of peer-to-peer care.

	Arrival	6 months	12 months	18 months and more	End of training
Number of participants	50	29	33	18	17
PFI					
SFU positive (%)	14 (28,0)	8 (27,6)	13 (39,4)	6 (33,3)	8 (47,1)
SBO positive (%)	12 (24,0)	9 (31,0)	10 (30,3)	5 (27,8)	3 (17,7)
Mean SFU (SD)	2,42 (0,92)	2,53 (0,65)	2,65 (0,65)	2,66 (0,72)	2,81 (0,61)
Mean SBO (SD)	0,93 (0,83)	1.11 (0,66)	1,12 (0,56)	1,02 (0,54)	0,88 (0,57)
Median SFU (IQR 25-75)	2,58 (1,83-3,00)	2,50 (2,17-3,00)	2,67 (2,17-3,00)	2,67 (2,17-3,00)	2,83 (2,17-3,00)
Median SBO (IQR 25-75)	0,55 (0,30-1,30)	0,90 (0,70-1,70)	1,10 (0,70-1,60)	0,90 (0,70-1,50)	0,80 (0,40-1,10)

Table 1: PFI on arrival, at 6 months, 1 year, 1.5 years or more and at the end of training. SFU positive i.e. ≥ 3, SBO positive i.e. ≥ 1.33, SD = Standard Deviation, IQR = interquartile range.

P92

Methods used to communicate with allophone patients in the emergency departments of French-speaking Swiss hospitals

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Introduction: This paper presents the results of an online survey answered by doctors in emergency departments (ED) of French-speaking Swiss hospitals. We aimed to get a broad view of the language barriers encountered and the methods used to overcome them. Later, we plan on creating guidelines to help doctors choose one communication method over the others.

Method: The survey consisted of up to 77 questions separated in 5 categories: language barriers, 3 symmetric sets on the 3 main communication methods (professional interpreters, ad hoc interpreters, machine translation) and demographics. Answers were collected from 01.11.2023 to 31.12.2023 by sending an e-mail to the Chiefs of the EDs of 10 French-speaking Swiss hospitals asking them to transfer the survey's link to the doctors working in their department.

Results: We received 39 answers from 7 hospitals. Here, we will focus on the answers about language barriers and doctors' perception of them (frequency, influence on allophone patient's treatment, and the solutions and guidelines in place). Language barriers are encountered every week by 71.05% (N = 38) of the respondents, and every month for the other 28.95% (N = 38). When facing communication difficulties, 89.47% (N = 38) of the doctors think it is their responsibility to find a solution, but only 36.84% (N = 38) have guidelines from their hierarchy on what to do. Therefore, doctors use different methods to communicate: 97.37% (N = 38) have already used machine translation (MT), 92.11% (N = 38) ad hoc interpreters, 76.32% (N = 38) a language in common that is not French, 47.37% (N = 38) professional interpreters, 44.74% (N = 38) gestures, 10.53% (N = 38) images or pictographs, and 7.89% (N = 38) a system with pre-translated sentences. When asked if they feel they were treating allophone patients in the same way they would French-speaking patients, 59.46% (N = 37) say they are not when using MT, compared to 23.08% (N = 39) with ad hoc interpreters and 18.52% (N = 27) with professional interpreters.

Conclusion: Doctors working in French-speaking Swiss EDs often face language barriers. They have multiple methods of overcoming them but rarely have guidelines on which one to use. Furthermore, the three main solutions in place don't allow them to feel they are treating allophone patients the same way they would treat French speakers. Therefore, to avoid language differences between doctors and patients becoming barriers to care, we believe communication guidelines should be implemented.

P93

Therapeutic drug monitoring of antibiotics in exhaled breath

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Introduction: Therapeutic drug monitoring (TDM) of antibiotics is used to optimize and guide antibiotic dosing. Exhaled breath is a promising new and non-invasive approach to perform TDM. The aim of this study was to assess if antibiotics and their metabolites can be reliably detected in exhaled breath of patients treated with antibiotics.

Methods: This is a prospective, single-center proof-of-concept study conducted at the University Hospital Basel and the University Children`s Hospital in Basel between 2022 and 2023. Adult, hospitalized patients who received intravenous antibiotic treatment and who were assessed as being capable to perform a breath analysis, were eligible. Plasma TDM samples were collected 0-60 minutes after the end of the antibiotic bolus infusion. 30 minutes after the blood sample collection, the breath analysis was performed using secondary electrospray ionization (SESI) combined with modern high resolution mass spectrometry (HRMS). SESI-HRMS is a real-time breath analysis technique characterized by a high sensitivity, broad metabolic coverage, including endogenous and exogenous metabolites.

Results: Overall, 10 patients were included into this study. The median age was 63 years (interquartile range 46–71) and 54.5% were female. Patients received meropenem (n = 3), piperacillin-tazobactam (n = 3), cefazolin (n = 2), flucloxacillin (n = 1) or ciprofloxacin (n = 1). In total, 12 breath analysis were performed. Patients were treated for respiratory infections (n = 3), intravascular infections (n = 3), abdominal infections (n = 2), urinary tract infection (n = 1) or skin and soft tissue infection (n = 1). In the breath analysis, specific exhaled molecules associated with the according antibiotic meropenem, cefazolin, flucloxacillin or ciprofloxacin were identified as being significantly increased or decreased compared to the other antibiotics (Figure 1). In piperacillin, no clear signal was observed.

Conclusions: We were able to detect antibiotic-related and antibiotic-regulated metabolites in exhaled breath in four out of five antibiotics investigated. TDM in exhaled breath may be a promising new approach and should be investigated in future studies.

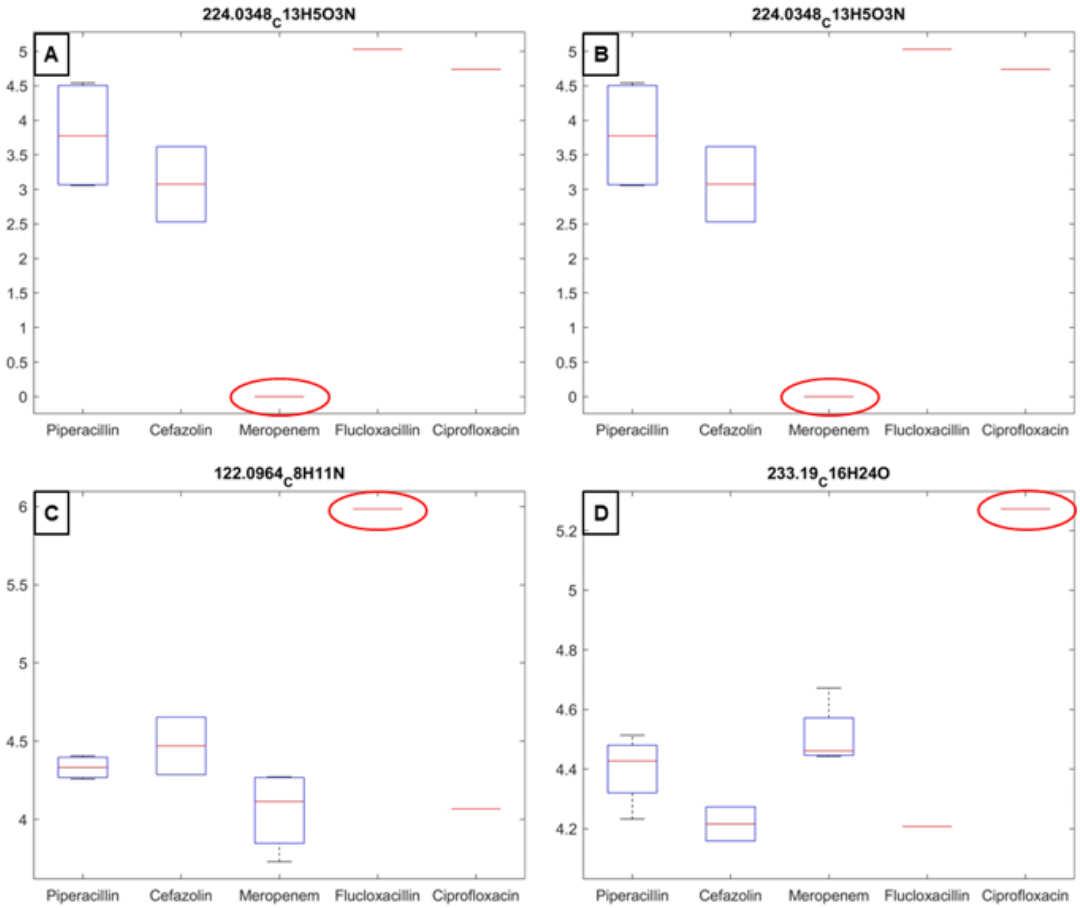

Figure 1. Signal intensity of four metabolites (metabolites are designated on the top of the boxes) detected in breath of patients receiving antibiotics. These are examples of specific exhaled molecules associated with one particular antibiotic. The features shown in A and B are significantly decreased in the patient receiving cefazolin or meropenem, respectively (red circles in A and B). This suggests that these are endogenous metabolites downregulated as a result of the medication mechanism of action. In contrast, the features shown in C and D are significantly increased in the patient receiving flucloxacillin and ciprofloxacin, respectively (red circles in C and D). These molecules are likely drug-metabolites . Y-axis: log scaled.

P94

Well-being of Swiss general internists – a nationwide survey

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Introduction: Physician well-being has an impact on productivity and quality of patient care. The well-being of Swiss general internists has not been comprehensively examined.

Methods: We conducted an electronic survey among the members of the Swiss Society of General Internal Medicine in 11/2022. We collected personal/work-related characteristics, practice-related factors (job satisfaction, intention to leave practice), and the 7 items of the Physician Well-Being Index (PWBI), a validated instrument to measure physician distress. We explored the relationship between personal/work-related characteristics and low well-being (PWBI ≥4 points) using multivariable logistic regression. We assessed associations between low well-being and practice-related factors using Spearman's rank correlation coefficient (r_s).

Results: Of 1625 participating internists (response rate of 21%), the median age was 53 years and 44% were women. Overall, 33% of participants reported a low well-being. The likelihood of a low well-being was lower in older participants, while female sex, working mainly in an outpatient setting, higher weekly working hours, ≤2.5 rewarding hours per working day, and dissatisfaction with income were significantly associated with a low well-being (Table). We observed significant correlations between a low well-being and overall job satisfaction (r_s = –0.55, p <0.001) or the intention to leave practice (r_s = 0.36, p <0.001).

Conclusion: A third of Swiss general internists are distressed, and several personal/work-related factors are associated with a low well-being. A low well-being is correlated with a lower job satisfaction or the intention to leave practice.

Table. Association between personal/work-related characteristics and low well-being

Personal characteristics	Adjusted* OR (95%CI)	P-value
Age, per year	0.97 (0.96–0.98)	<0.001
Female sex	1.33 (1.03–1.72)	0.032
Married/in a relationship	0.83 (0.56–1.23)	0.349
Having children	1.03 (0.77–1.37)	0.852
Partner working as health care professional	0.98 (0.77–1.24)	0.843
Swiss German-speaking work region	0.95 (0.70-1.29)	0.746
Work-related characteristics		
Still in residency training	1.02 (0.65–1.60)	0.938
Working mainly in the outpatient setting	1.76 (1.24–2.51)	0.002
≤2.5 rewarding work hours per day	2.18 (1.63–2.90)	<0.001
Working hours per week, per hour	1.02 (1.01–1.03)	<0.001
Administrative workload, per 10% increase	1.05 (0.97–1.13)	0.214
Dissatisfaction with income	2.42 (1.78-3.30)	<0.001

*Adjustments were made for all other variables.

P95

Acceptability, appropriateness, and feasibility of antimicrobial stewardship interventions among Swiss Primary Care Physicians: a national, cross-sectional survey

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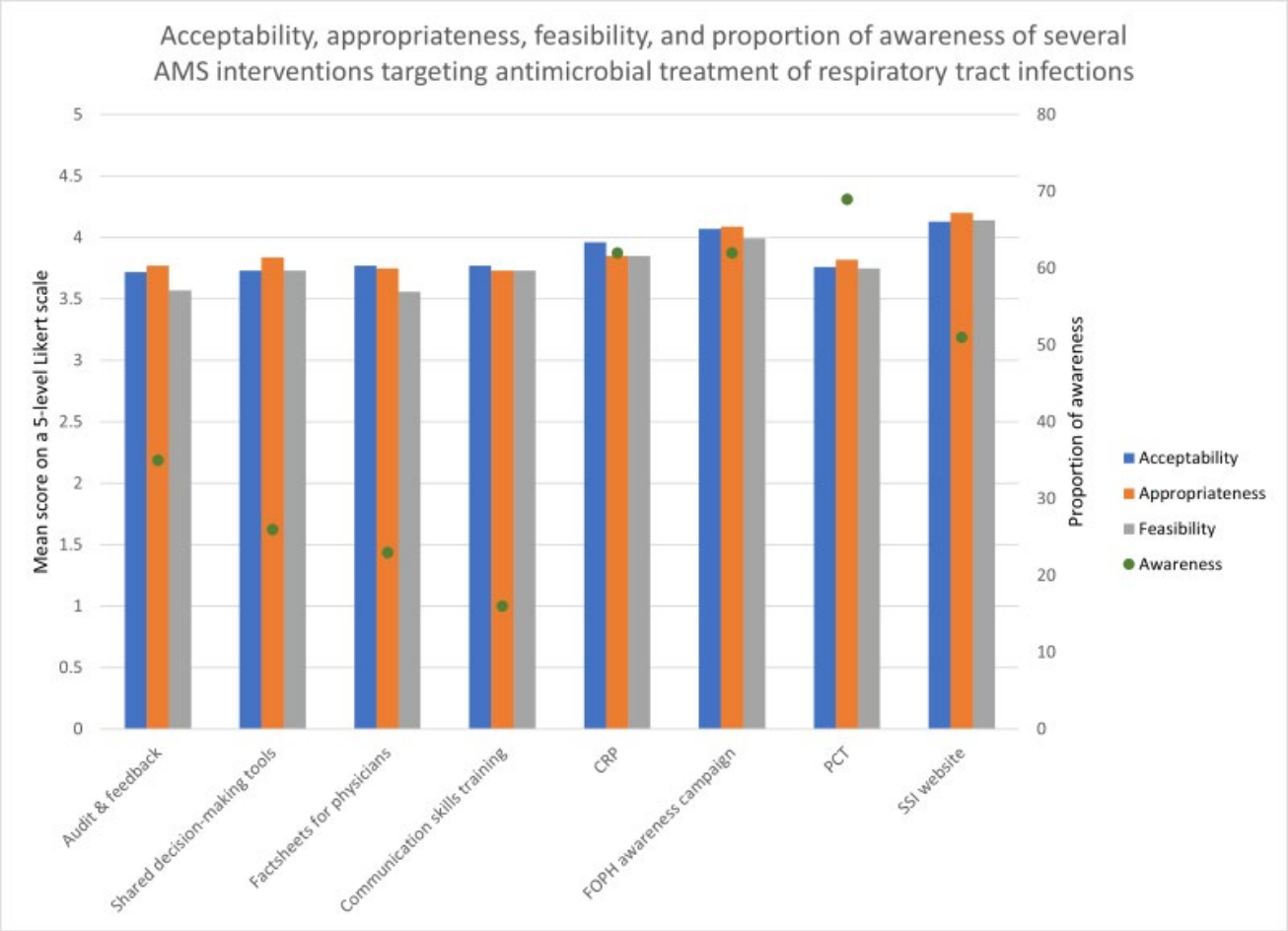
Introduction: Appropriate antibiotic use is essential to curb antimicrobial resistance worldwide. With most antibiotic prescriptions occurring in primary care, antimicrobial stewardship (AMS) interventions must be known, welcomed, and used by Primary Care Physicians (PCPs). The main objective of this study was to evaluate the use, awareness, acceptability, appropriateness, and feasibility of several AMS interventions available for Swiss PCPs.

Methods: A cross-sectional survey targeted PCPs throughout Switzerland, distributed through professional mailing lists, newsletters, and medical education events from December 11th, 2023, to January 30rd, 2024. The survey assessed the use of and awareness about 16 sources of information about appropriate antibiotic use, considered as AMS interventions. Second, the survey assessed specifically the perceived acceptability, appropriateness, and feasibility of 7 AMS interventions targeting the use of antimicrobials in the management of respiratory tract infections (RTIs), using five-level Likert scales.

Preliminary results: Among the 310 PCPs who responded to the survey, analysis focused on the 164 individuals who completed the entire questionnaire (90 men, 73 women, one unspecified). Out of the 16 sources of information about appropriate antibiotic prescription, PCPs stated using primarily regional hospital guidelines or nursing home guidelines, Swiss society for infectious diseases (SSI) guidelines website, and education during congresses. Out of the 7 AMS interventions targeting RTIs, PCPs were most aware of biomarkers to guide antibiotic prescription in RTIs, such as point-of-care procalcitonin (POC-PCT, 69%) and C-reactive protein (POC-CRP, 62%), and the

Federal Office of Public Health's (FOPH) awareness campaign (62%). The SSI guidelines website was familiar to 51% of PCPs. Awareness was low regarding antibiotic prescription audit and feedback (35%), shared decision-making tools (26%), fact-sheets for physicians (23%), and communication skills training (16%). The SSI guidelines website emerged as the most acceptable, appropriate, and feasible AMS intervention among Swiss PCPs, scoring 4.13, 4.20, and 4.14 out of 5, respectively. In comparison, the mean score for all interventions was 3.87, 3.88, and 3.79, respectively.

Conclusion: Despite the high perceived appropriateness, feasibility, and acceptability of certain AMS interventions, their real-life impact may be hindered by low awareness.



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An Indicator of Treatment Quality in Ambulatory Care in Switzerland: Potential drug Interactions in Older People With Polypharmacy - Report From a GP Practice

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Introduction: The Swiss Society of General Internal Medicine (SGAIM) has chosen the topic "Recognising drug interactions and preventing side effects" [1] as a quality indicator in ambulatory care. The aim of this survey was to determine the frequency and type of drug interaction reports during a standardised medication review of patients in a GP practice.

Methodology: Retrospectively, all patients aged 65 and over who were prescribed ≥5 long-term medications in the electronic medical record were identified using the electronic patient agenda for the year 2022. These medications were checked for drug interaction reports using the Compendium© software. Age, gender, number of prescribed medications, type of residence, number of drug interaction reports, categorisation of severity (mild, moderate, severe) and the drug groups involved were recorded.

Results: The 226 individuals were 77 years old on average and took an average of 7 different medications. In 188 (83.2%) individuals with drug interaction signals, the severity of the drug interaction was classified as mild in 164 (87.3%), moderate in 21 (11.1.%) and severe in 3 (1.6%). Diuretics, antidiabetics and ACE inhibitors/sartans were most frequently involved. In case of severe drug interaction reports, antidepressant agents and the molecule amiodarone were most frequently involved. In the multivariate analysis, no statistically significant associations were identified between the number of drug interaction reports and age, gender or type of residence.

Conclusion: In over 65-year-olds with polypharmacy (≥5 medications) in a GP setting, a software-supported systematic drug interaction check identified drug interactions of the prescribed medication in nine out of ten individuals. The vast majority of drug interaction reports were minor and not clinically relevant. Only a very small proportion of drug interactions were categorised as severe and required prompt medical intervention. The number of drug interactions as an indicator of quality of care is limited, as patient-specific information other than their medication regimens is not taken into account. Furthermore, physicians' assessment in the clinical context and the judgement of benefit and risk are indispensable for a meaningful handling of drug interactions.

P97

Are general practitioners satisfied with the integration of nurses in their practices? A mixed methods systematic review

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Introduction: Despite a global shortage of general practitioners (GPs) in developed countries and the mention in the quintuple aim of health systems, GP well-being and satisfaction are often neglected in primary care (PC) research. However, the organizational and financial transformation of PC models currently being implemented in many Western countries will necessarily have consequences (positive and/or negative) in terms of GP well-being at work. Our objective was to assess if the integration of nurses in PC increased GP job satisfaction.

Methods: We carried out a systematic review and searched for all observational and intervention studies in developed countries about new integration (and role) of one or several nurses into general medicine practices in Medline, Embase, PsychINFO, Cochrane Central, ProQuest, reference lists. GP job satisfaction was the main outcome. We included quantitative, qualitative, mixed methods studies or conceptual theoretical work. We assessed the studies' methodological quality with the Mixed Methods Appraisal Tool (MMAT), and the quality of the review with ROBIS.

Results: We identified 29 primary studies from a total of 2514 studies. While 7 studies assessed GP satisfaction with GP workload, and 3 studies assessed GP satisfaction together with retention +- burnout, GP satisfaction was the single outcome in 19 studies, with positive results in 10 (53%) studies, and mixed results in 8 (42%) studies. Among the 29 studies, 17 (59%) yielded positive or slightly positive outcome results, 11 (38%) mixed results, and 1 (3%) unfavorable results. 59% of the studies met the criteria for being high quality, and 34% for medium quality. Main weaknesses were a lack of citations in qualitative studies and a lack of precise outcome results in quantitative studies. The risk of bias in the review was considered low. There remain concerns about heterogeneity in patient populations, training and activity of nurses across countries, different time frames, legal and financial contexts.

Conclusions: The integration of nurses within PC practices appears to be associated with positive results on GP satisfaction. We submit that medico-legal implications of task delegation should be clarified. Sustainable funding should be secured for the long term, with a view to create an environment that is friendly with PC providers, promoting their satisfaction at work.

Table. Outcomes, main characteristics, design, results and quality assessment of the studies

Outcome	First author, year ; country	Design according to MMAT 2018	Results (+ positive, - negative, +- mixed)	Overall MMAT quality (high/medium/low)
Satisfaction	Anskär, 2022; Sweden	Qualitative	+-	H
	Atkin, 1996; UK	Qualitative	+	M
	Biernacki, 2015; USA	Quantitative non-randomized pre-post	+	M
	Ciliska, 1992; Canada	Quantitative descriptive	+	H
	Commonwealth Fund (Abrams), 2015;USA	Mixed methods	+-	H
	Elston, 2001; UK	Qualitative (grounded theory approach)	+-	H
	Finlayson, 2012; New Zealand	Mixed methods (cross-sectional survey and interviews)	+	M
	Ford, 1998; USA	Qualitative: semi-structured interviews	+-	M
	Funk, 2015; USA	Qualitative (like a field study)	+	L
	Gibson, 2022; UK	Quantitative descriptive Cross-sectional	-	H
	Kraus, 2016; USA	Qualitative Semi-structured interviews	+	H
	Marsteller 2010 & 2013; USA	Quantitative RCT 3-year matched-pair cluster-RCT with 14 pods	+	M
	Meehan, 2013; Australia	Qualitative Focus group discussions	+-	H
	Mitton, 2007; Canada	Mixed methods Pre post	+	L
	Riisgaard, 2017; Denmark	Quantitative descriptive Cross-sectional	+	H
	Robinson, 1993; UK	Quantitative descriptive Cross sectional	+	H
	Schadewaldt, 2016; Australia	Mixed methods	+-	H
	Sinsky, 2013 ;USA	Qualitative: Visits to high-performing PC practices Observations	+-	H
	Spitzer, 1973; Canada	Quantitative RCTs	+-	M
Satisfaction and workload	Bergeson, 1997; USA	Mixed methods	+	H
	D'Amour, 2008; Canada	Qualitative (visits)	+	M
	Fisher, 2017; UK	Qualitative	+-	H
	Marsden, 2004; UK	Qualitative	+-	H
	Mazzaglia, 2009; Italy	Quantitative descriptive	+-	H

	Singh, 2022; USA	Quantitative non-randomized pre-post	+	M
	Wodinski, 2015; Canada	Quantitative descriptive: repeated cross-sectional	+	H
Satisfaction and retention	Roots, 2014; Canada	Mixed methods	+	M
Job satisfaction, burn-out and retention	Norful, 2022; USA	Quantitative descriptive	+	H
	Norful, 2023; USA	Mixed methods	+	M

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Chickenpox in a vaccinated patient: an emerging problem in Switzerland?

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Learning objectives: Chickenpox is often a benign disease, occurring in childhood, presenting in the form of a characteristic rash, accompanied by fever and other unspecific viral symptoms. Thanks to the evolution of knowledge of the risks linked to non-vaccination (number of serious forms too high; high incidence of shingles in adulthood), it has been recently decided to include chickenpox vaccination in the Swiss vaccination schedule.

Since vaccine effectiveness is around 90% for chickenpox, it is expected that some people who were vaccinated in childhood will still develop chickenpox in adulthood. We describe here the case of such a patient.

Clinical case: A 16-year-old patient presented to the emergency room of the University Hospitals of Geneva due to a skin rash (picture 1). The clinical picture was very suggestive of chickenpox, despite a vaccination card mentioning complete vaccination against Varicella Zoster Virus at the age of 1 and 6 years. A PCR of a lesion swab was positive, confirming the diagnosis of chickenpox. Furthermore, serologies revealed an IgM level of 6 U/mL (N: > 15 U/mL) and IgG of 189 U/mL (N: > 50 U/mL). The patient received treatment with valaciclovir 1g tid for 7 days. She reported a complete disappearance of the lesions and the pruritus in the week following the start of the anti-viral treatment.

Discussion: This case demonstrates that it is possible to develop symptomatic chickenpox after a properly administered two-dose vaccination. The positive IgG serology shows that the patient probably began to activate her memory B-cells-mediated immune response upon exposure given that the incubation time can be up to 21 days. As for IgM, they increased subsequently, hence their low level on serology. The presence of IgG antibodies, as well as the low number of lesions are not in favour of an immune deficiency. At a time when a majority of children in Switzerland are vaccinated against chickenpox, and when a drastic reduction in symptomatic cases in children and adults is expected, it will be important for doctors to continue to be able to effectively recognize this disease, in order to treat it effectively, especially in the case of risk factors for a serious form. It is also important to determine the best diagnostic and therapeutic strategy for these patients, including in immunocompromised hosts. Finally, the question arises, after an infection despite well-conducted vaccination, of the anti-shingles vaccination strategy.

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Clinical evidence of venoactive drugs in diabetic microvascular complications: a scoping review

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Aim: Diabetic microvascular complications (DmVCs) and chronic venous disorders (CVD) often co-exist, while sharing common risk factors and pathophysiological features. However, they are often assessed and managed as separate conditions. The study objective was to map the available clinical evidence of venoactive drugs (VADs) recommended for treating CVD in the management of diabetic retinopathy (DR), diabetic nephropathy (DN) and diabetic peripheral neuropathy (DPN).

Methods: We performed a scoping review with the objective of identifying and mapping relevant evidence, providing insights into the broad characteristics of a body of evidence. PubMed and Cochrane Library databases were searched, studies in any language were included with no restriction on publication date.

Results: In total, 393 records were identified. Most included studies (N = 42) assessed clinical outcomes in DR (n = 33), followed by DN (n = 7) and DPN (n = 2) [see Figure]. The median (range) publication date of the included studies was 2001 (1970–2022). Most studies were randomised trials (57%), followed by case series (17%), and case-control studies/systematic reviews (both 10%). Calcium dobesilate (CaD), was the most assessed VAD in DR (85%), DN (86%), and DPN (50%). There were significant improvements from CaD therapy in DR and DN based on systematic-review data.

Conclusion: Our findings suggest that VADs, in particular calcium dobesilate, may represent a promising therapeutic approach for the treatment of patients with DmVC and while there is potential scope for further systematic evidence synthesis in diabetic retinopathy and diabetic nephropathy.

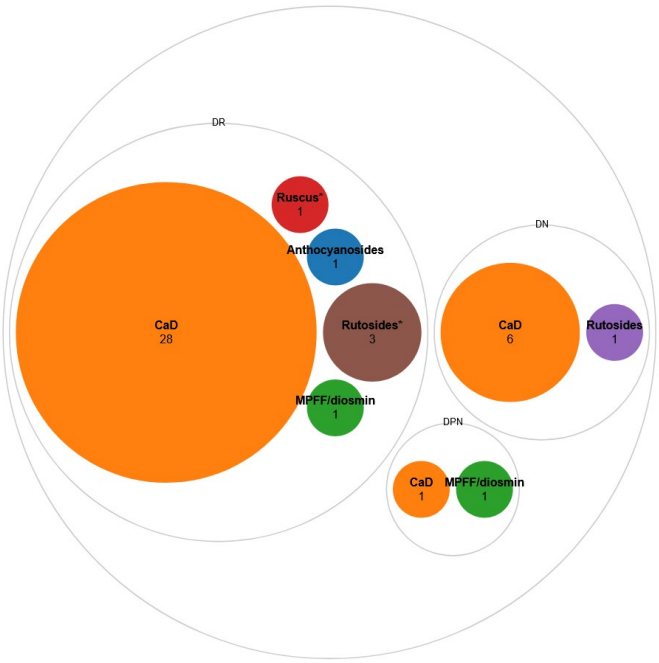

Figure: Circle packing diagram displaying the number of studies assessing VADs in different forms of DmVC.

*Includes a single study which assessed both ruscus and a rutoside. DN, diabetic nephropathy; DPN, diabetic peripheral neuropathy; DR, diabetic retinopathy; CaD, Calcium dobesilate; MPFF, micronized purified flavonoid fraction.

P100

Clinical reasoning in "conventional" and integrative medicine

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Introduction: Integrative medicine (IM) defines an integrated approach to healthcare, combining conventional/mainstream medicine (MM), taught in medical schools, with complementary methods. Clinical reasoning is the process of thinking and decision-making that enables clinicians to take the most appropriate action in a specific context. (Higgs J, Jones M. 2008). Different cognitive models have been proposed to explain clinical reasoning. While clinical reasoning in conventional medicine is well established, very little has been carried out in the field of integrative medicine. This study aims to explore the similarities and differences between clinical reasoning in conventional and integrative medicine.

Methods: We invited eight physicians working in Geneva and with expertise in both "conventional" medicine and integrative medicine (hypnosis, N = 1; homeopathy, N = 1, shiatsu, N = 1; anthroposophic medicine, N = 2; herbal medicine, N = 1; mindfulness, N = 1; acupuncture, N = 1) to participate in semi-structured individual interviews. Half of the physicians had a hospital-based practice, and the other half were primary care physicians. The interviews were transcribed *ad verbatim*. Data analysis will be performed using both a deductive and an inductive thematic approach. The clinical reasoning model described by Charlin et al. (Charlin B., et al. 2012) will be used as a framework.

Results: We are currently analyzing the data. After conducting a preliminary analysis, it appears that the integrative practice emphasizes a more comprehensive approach that considers the patient's personality, beliefs, and expectations withing clinical reasoning. Additionally, it recognizes the role of a physician's intuition in making decisions.

Conclusion: Clinical reasoning is an integral part of medical practice. Understanding the differences between clinical reasoning in integrative and conventional medicine can be useful for mutual enrichment of both approaches by drawing on the strengths of each.

P101

Combining default choice and an encounter decision aid to improve tobacco cessation in primary care patients: a pragmatic, cluster-randomized trial

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Background: General practitioners (GPs) less often prescribe treatments for smoking cessation than for other major risk factors. Guidelines recommend providers first assess patients' "readiness" to quit, an "opt-in" strategy. An "opt-out" strategy offering treatment as the default choice increased quit attempts in hospital and with pregnant women but has not been evaluated in primary care. We assessed the effect of training GPs to offer smoking cessation treatments as the default choice using an encounter decision aid (DA).

Methods: We conducted a pragmatic, cluster-randomized controlled trial, randomizing GPs in private practice in Switzerland and France to intervention or control trainings. The intervention course taught a default choice approach using an encounter DA (paper or electronic, www.howtoquit.ch). Control GPs received a 1-hour refresher training. GPs recruited daily smokers seen for routine care. The primary outcome was 7-day, point prevalence smoking abstinence at 6 months. Secondary outcomes were quit attempts and use of smoking cessation aids, and the patient-reported CollaboRATE scale (scale 1–10) assessing shared decision making. The trial was terminated before reaching the planned sample size of 1,058 patients.

Results: 42 GPs completed the training, of whom 34 (81%) recruited patients (82% Swiss, 68% women). The GPs recruited 287 current smokers, of whom 51% were women, mean age 48, 77% smoking <1 pack/day, 62% with the intention to try quitting in the next 3 months. 221 responded at 6 months follow-up (77%). Primary and secondary outcomes are presented in the Table. The intervention did not affect self-reported smoking abstinence rate at 6 months (abstinence 12% in the intervention and 14% in the control groups, OR 0.78 (95%CI 0.30–1.99). It did however increase the number of quit attempts at 3-weeks (OR 2.09, 95%CI 1.04–4.20) and the use of smoking cessation aids at the 3-week and 3-month follow-ups (OR 2.57, 95%CI 1.21–5.45 and OR 2.00, 95%CI 1.11–3.60 respectively). The CollaboRATE score was 8.05 (SD 2.25) with the intervention and 7.28 (SD 2.35) with the control GPs (p = 0.02).

Conclusion: At this smaller sample size, training GPs to use a decision aid did not appear to improve smoking abstinence. We did see short-term increases in quit attempts and smoking cessation aids, and improved self-reported shared decision making. Future interventions should focus on more intensive interventions with GPs and patients.

Outcome	Time point	Intervention (%)	Control (%)	Odds-Ratio, adjusted for clustering (95% CI)
7-day, point-prevalence smoking abstinence	3-week follow-up	4/89 (4.5%)	11/156 (7%)	0.62 (0.18–2.17)
	3-month follow-up	12/79 (15%)	16/134 (12%)	1.31 (0.57–3.02)
	6-month follow-up	10/85 (12%)	19/136 (14%)	0.78 (0.30–1.99)
Quit attempt since last contact	3-week follow-up	32/85 (38%)	33/144 (23%)	2.09 (1.04–4.20)
	3-month follow-up	25/66 (38%)	34/118 (29%)	1.58 (0.76–3.26)
	6-month follow-up	32/70 (46%)	40/115 (35%)	1.58 (0.86–2.90)
Use of a smoking cessation aid since last contact	3-week follow-up	36/89 (40%)	36/156 (23%)	2.57 (1.21–5.45)
	3-month follow-up	33/78 (42%)	36/134 (27%)	2.00 (1.11–3.60)
	6-month follow-up	34/81 (42%)	40/135 (30%)	1.73 (0.94–3.18)

P102

Does the treatment effect of levothyroxine depend on baseline fT4 values in older adults with subclinical hypothyroidism?

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Introduction: The indication for treatment of subclinical hypothyroidism (SHypo) with levothyroxine (LT4) is controversial. Large randomized controlled trials (RCTs) have explored the possible association between thyrotropin (TSH) concentration and LT4 treatment effect on multiple parameters reflecting older patients' quality of life and found no benefit of treatment. However, TSH is an indirect measure of thyroid function and may be elevated in older adults by homeostatic drives that do not reflect hypothyroidism. This heterogeneity may be distinguishable by direct observation of thyroid hormones.

Objective: To determine if the treatment effect of LT4 depends on baseline free serum T4 (fT4) levels in older patients with SHypo.

Methods: We pooled participants from two RCTs (IEMO 80+ and TRUST). Older participants with persistent SHypo were randomly assigned to LT4 treatment or placebo. We compared the effects of LT4 and placebo within tertiles of baseline fT4. The primary outcomes were 1-year change in hypothyroid symptoms and tiredness scores on the Thyroid-Related Quality-of-Life Patient-Reported Outcome (ThyPRO) (range, 0 to 100; higher scores indicate more symptoms, minimal clinically important change is ± 9 points).

Results: Among the 720 participants (mean age 75.7, 52.4% females) included in the primary analysis, fT4 levels ranged from 9.0 to <12.96 pmol/L in the lower tertile, 12.96 to <15.1 pmol/L in the middle tertile, and 15.1 to 26.0 pmol/L in the upper tertile. LT4 versus placebo led to an adjusted mean change between groups in ThyPRO Hypo of 1.4 (95% CI: -2.3, 5.1, *p* for treatment interaction 0.7) for low fT4, 0.1 (95% CI: -4.0, 4.1) for medium fT4 and –0.8 (95% CI: -4.9, 3.3, *p* for treatment interaction 0.8) for high fT4. Adjusted mean changes in ThyPRO Tiredness were 0.7 (95% CI: -3.8, 5.3, *p* for treatment interaction 0.5) for low fT4, 3.1 (95%CI: 1.6, 7.9) for medium fT4 and -2.1 (95%CI: -6.6, 2.4, *p* for treatment interaction 0.12) for high fT4.

Conclusion: We found no evidence of clinical benefit of LT4 treatment related to fT4 levels in older adults with SHypo.

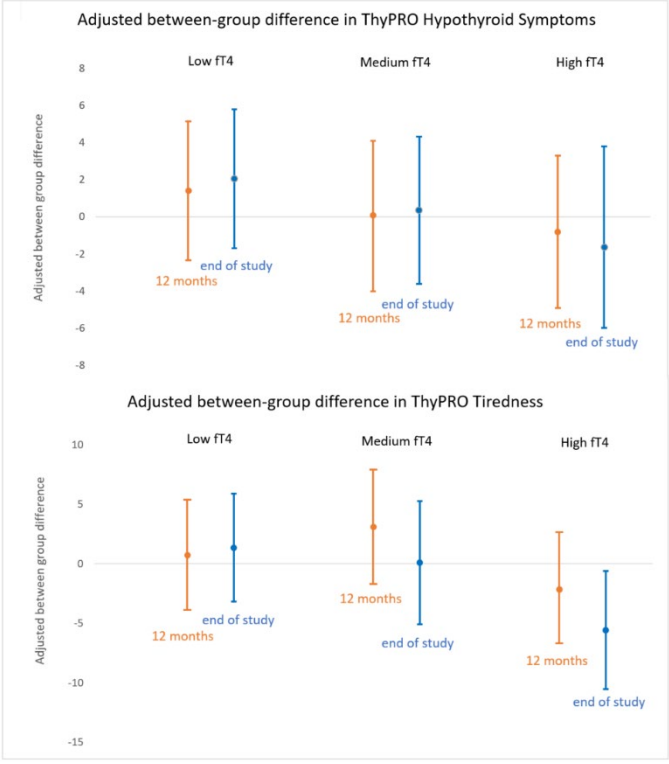

Figure 1: Adjusted between-group differences in ThyPRO Hypothyroid Symptoms score (a) and in ThyPRO Tiredness Score (b) for each tertile. The orange panel represents the results at 12 months and the blue panel the results at end of study. A negative difference favors LT4 treatment; a positive difference favors no treatment.
⊢: 95% Confidence interval, •: Mean change in score

P103

Estimating the incidence of Long-Covid related consultations in family medicine in Switzerland: A study within the Sentinella Network

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Introduction: The initial prevalence estimates of long-COVID exhibited significant heterogeneity. In Switzerland, early findings estimated prevalence of Long-COVID symptoms in 39–53% of adult patients who tested positive for SARS-CoV-2. However, anecdotal data and small studies in primary care suggested a significantly lower burden of care, with long-COVID accounting for less than 1% of family medicine consultations. The purpose of this study was to measure the incidence of long-COVID-related consultations in Swiss family medicine practices, to address this gap.

Method: This repeated cross-sectional study was conducted using the data collected by family doctors (general internists and paediatricians) within the Swiss Sentinella network part of the epidemiological surveillance system managed by the Federal Office of Public Health (FOPH). Data was collected from August 2021 to April 2023 using monthly reports of physicians' activity over the past 4 weeks. Physician characteristics were measured and analysed for associations with monthly median incidence rates of long-COVID-related consultations.

Results: 183 family physicians provided data for at least one month during the study (156 general internists and 27 paediatricians). 85% of physicians were general internists, 32% were women, and 74% worked in an urban area. The median incidence of monthly Long-COVID related consultations was 3/1000 consultations for general internists and 0/1000 consultations for paediatricians. The multivariable ordinal multinomial logistic regression confirmed that this difference in incidence between general internists and paediatricians was statistically significant. Also, physicians in central Switzerland were more likely to have a higher median incidence of long-COVID-related consultations in comparison to counterparts in other regions. No statistical differences were observed in other variables: rate of activity, gender, or in other regions.

Conclusion: Our study suggests that family physicians in Switzerland are not confronted with a high number of patients with long COVID compared to published studies. This difference may stem from the sampling strategies of initial studies, leading to an overestimation of long-COVID prevalence by including more severe cases and potential challenges in distinguishing between post-intensive care syndrome and Long-COVID.

P104

Incidence of Myocardial Injury Following the Second Booster of COVID-19 mRNA-1273 Vaccine in Healthcare Professionals (MACIS II)

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Introduction. The frequency and severity of myocardial injury following the second booster dose of the COVID-19 vaccine are not well-established. This active surveillance study aims to fill this gap by evaluating the incidence, characteristics, and outcomes of myocardial injury in healthcare professionals following the second booster vaccination with the COVID-19 mRNA-1273 vaccine.

Methods. Myocardial injury was defined as an acute dynamic increase in high-sensitivity cardiac troponin T (hs-cTnT) concentration above the sex-specific upper limit of normal, observed on follow-up (day 3 or day 4) post-vaccination, without evidence of an alternative cause. Major adverse cardiac events, such as acute heart failure, cardiac death, life-threatening arrhythmia, and acute myocardial infarction, were evaluated during the 30-day follow-up period.

Results. In a cohort of 498 participants (median age 38.7 years, 64.3% women), myocardial injury associated with COVID-19 mRNA-1273 Second Booster Vaccination was confirmed in 12 participants (2.4% [95% CI 1.2–4.2%]), all of whom were women. For the overall cohort, hs-cTnT levels remained stable, showing a consistent pattern from baseline (5.0 ng/L [4.0–7.0]) to day 3 (5.0 ng/L 3.0–7.0]) and day 4 (5.0 ng/L [4.0–7.0]). However, in the group of participants with adjudicated myocardial injury, a notable increase in hs-cTnT levels was observed. Levels rose from 5.5 ng/L [5.0–6.2] at baseline to 9.0 ng/L [5.8–10.0] on day 3, then to 9.5 ng/L [6.5–11.0] on day 4, followed by a decrease to 7.0 ng/L [6.0-9.5] on day 5. Women with myocardial injury were older (57.0 [47.0-59.0] y.o.), in comparison to those without injury (38.0 [30.0-49.0] y.o.), p <0.001 and had a higher frequency of fever and/or chills (103 (21.2%) and 6 (50%), p = 0.042)). The CRP concentration significantly increased in both groups. In the group without myocardial injury, CRP levels rose from 1.0 [0.5–2.0] to 7.0 [3.6–13.7] mg/L. In the group with myocardial injury, the increase was from 0.5 [0.42–1.65] to 6.65 [2.2–10.6] mg/L. On day 4 after vaccination, the CRP concentrations in the groups without and with myocardial injury were 4.2 [2.2–8.3] mg/L and 4.6 [1.3–10.5] mg/L, respectively.

Conclusion. The mRNA-1273 vaccine-associated myocardial injury was mild, transient, and observed only in women. Women with vaccine-associated myocardial injury tended to be older compared to those without it. No connection was found between myocardial injury and CRP concentration.

P105

Knee traumatisms: less x-rays for more efficiency and durability

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Introduction: Healthcare systems are significant contributors to greenhouse gas emissions at a national level, with hospitals playing a substantial role. Emergency services, due to the influx of patients and numerous diagnostic tests conducted, contribute to these emissions. The aim of this study is to conduct an environmental life cycle analysis of a commonly treated emergency condition and optimize the treatment protocol to reduce its carbon footprint while ensuring the standard of care.

Material and methods: In an ambulatory emergency setting, a high-frequency pathology such as the knee trauma is considered an ideal candidate since it requires diagnostic tests and is guided by international recommendations, and the related Ottawa Knee Rule (OKR),. From an environmental assessment perspective, the primary method applied is life cycle assessment (LCA), which considers not only the direct impact of diagnostic, but also consumables, facilities, and potential waste. The standard procedure ambulatory including a diagnosis by means of radiology serves as baseline. Interventions are then implemented in incremental steps to raise awareness of the use of the OKR to optimize healthcare processes and change behaviours. The impact of these individual interventions compared to the baseline is measured at different timepoints. A final LCA is conducted to estimate emission reductions.

Interim results: Limb traumas are by far the most common reason for consultation in our outpatient emergency unit (about 15%), with knee traumas being frequent and requiring diagnostic tests (standard X-rays, MRI). A retrospective analysis conducted over two months and including 120 cases of knee trauma, whose 107 had a standard X-ray, showed that by applying the Ottawa Knee Rule, 25% of standard X-rays could have been avoided. An initial awareness campaign implementing this rule, in the form of repeated presentations and posters, has been implemented. The effect on X-ray prescriptions is currently being measured, and a second intervention (implementation of a computerized warning during prescription) will be deployed early 2024. Concurrently, the data needed for LCA is being collected.

Expected value for health services: Demonstrate that optimizing a healthcare process can include sustainability as a criterion for decision-making.

P106

Long COVID narratives, a pilot study of an intervention based on a biographical approach and narrative medicine

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Introduction: Long COVID, the chronic symptoms that continue or develop after a SARS-CoV-2 infection, has emerged as an unexpected consequence of the pandemic, and raises many questions regarding its mechanism and treatment. Our study, aimed to explore the lived reality of individuals suffering from Long COVID through the perspective of biographical and narrative medicine. We seeked to foster a collective understanding of this illness and assess the acceptability and impact of a narrative and biographical intervention.

Methods: We developed an innovative intervention combining elements of a biographical approach, narrative medicine, creative process and a narrative synthesis through an artistic creation supported by professional artists (1). The intervention consisted of three four-hour group sessions, followed by participation in the artistic work. Semi-structured individual interviews were conducted two months post-intervention, transcribed ad verbatim and analyzed using an inductive method. Socio-demographical data were collected through a survey before the intervention.

Results: Recruitment occurred at the Long COVID University Hospitals of Geneva consultation between November 2021 and March 2022. The intervention, involving 30 participants, was conducted between February and May 2022, with 20 participants completing the entire intervention. 17/20 interviews were conducted in June and July 2023. Participants had a mean age of 51.8 years (SD 13.5), were highly literate (70% with higher education) and predominantly female (66.7%) and Swiss (60%). Analysis revealed participants' insights into optimizing the intervention. They described its impact, highlighting themes such as changes in self-image, recovering an active role through the intervention, expressing one's experience of illness in words, making sense of their health condition, mobilizing personal and external resources, and becoming the author of one's life. A metal sculpture generating audio recordings of the musicalized narratives materialized the narrative synthesis of these experiences, symbolizing the gradual recovery from Long COVID (2).

Conclusion: An intervention combining a biographical approach and narrative medicine demonstrated excellent acceptability in healthcare, offering new opportunities for learning and personal growth in the face of chronic illness. Further research should assess these approaches with other chronic diseases to support their implementation in healthcare.

P107

Male thermal contraception users and their motivation: first results of a mixed method study in Switzerland

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Introduction: Male thermal contraception (MTC) was developed in France during the 80s, with a few studies showing promising results in terms of efficacy, safety and reversibility.[1,2] Although several devices have been developed, none have been approved thus far.This method is being increasingly used but little is known about MTC users and their motivation, especially in Switzerland,.

Methods: Our study has three main objectives: 1: to describe the profile of people using MTC ; 2: to explore their experience during their first year of use; 3: to describe the effect of the method on semen parameters and reported pregnancy. The study was conducted at the sexual health and family planning unit (SHFPU) of the University Hospitals of Geneva (UHG). The study was advertised for using flyers and online platforms at the UHG. The men interested in participating first underwent a medical assessment. All men filled an online questionnaire related to their personal information and their general and sexual health status.

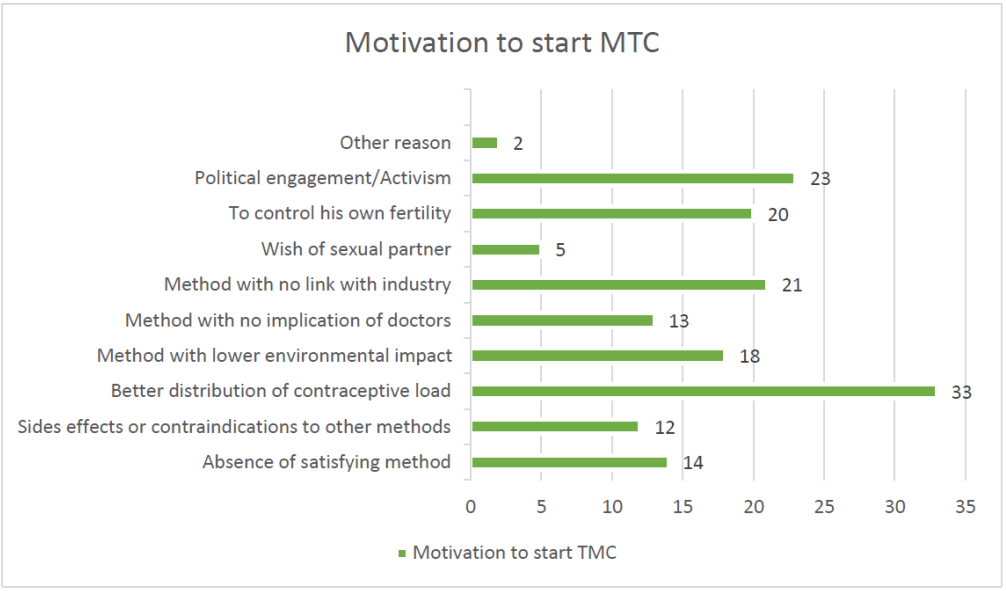
Results: A total of 37 men accepted to participate in the study of whom 34 were included in the study. The median age was 28 with 67.7% having a university degree and 70.6% being in a steady relationship. A large proportion (47.1%) were unsure about wanting to conceive children in the future, 26.6% were not considering it and only 8.8% already had children. Before starting MTC, most participants were using external condoms (79.4%), alone or in combination with withdrawal (20.6%) (table 1). 50% of partners were not using any contraception. Although most participants reported that they trust their current method (70.6% agree or strongly agree), few seemed satisfied (29.4% agree or strongly agree). All participants started MTC with the silicon contraception ring. Men reported that their motivations to participate in the study are, but not exclusively, to share the contraceptive load with their partner (97.1%), because of political engagement or activism (67.7%), and to control their own fertility (58.8%) (Figure 1).

Conclusions: Participants were younger and showed higher educational level compared to previous studies. They demonstrated higher recourse to male contraception than the general Swiss population, which might suggest previous preoccupation about contraception load and equity. Finally, though satisfaction with current contraception was low, the main reason to start MTC seemed to be political or societal rather than linked to previous experience.

Table 1 Current contraception

Which contraceptive methods do you currently use personally, n (%)	
External condom	27 (79.4)
Withdrawal method	10 (29.4)
No contraception	7 (20.6)
How many do you use, n (%)	
None	7 (20.6)
1 method	17 (50.0)
2 methods	10 (29.4)
Which contraceptive methods do your sexual partner currently use, n (%)	
Internal condom	2 (5.9)
Hormonal contraceptives (short acting)	5 (14.7)
Hormonal contraceptives (long acting)	1 (2.9)
Intra-uterine disposal (Cu)	4 (11.8)
Symptothermia	1 (2.9)
Calendar	4 (11.8)
None	17 (50.0)
I do not know	2 (5.9)
Other	1 (2.9)
How many do your sexual partner use, n (%)	17 (50.0)
None	17 (50.0)
1 method	
Satisfaction regarding current contraception, n (%)	
Do not agree at all	4 (11.8)
Do not agree	9 (26.5)
Neutral	11 (32.4)
Agree	9 (26.5)
Strongly agree	1 (2.9)
Confidence regarding current contraception, n (%)	
Do not agree at all	1 (2.9)
Do not agree	4 (11.8)
Neutral	5 (14.7)
Agree	17 (50.0)
Strongly agree	7 (20.6)

Figure 1 Motivation to start MTC



P108

New interprofessional organizational model integrating nursing activities in general practices in the canton of Vaud: a realist evaluation

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Introduction: To reinforce integrated care and thus enhancing patients 'experience in family medicine, a new interprofessional (IP) organizational model integrating nurses was implemented and assessed through a realist evaluation in eight general practices in the canton of Vaud, Switzerland. The aim of the present study is to explain under what conditions, for which patients, how and why introducing nurses into general practice and developing interprofessional team-based care sustaining patient's experience of care.

Methods: The realist evaluation comprising four steps took place from July 19 to October 2023. It began with the development of an initial theory based on a previously performed literature review. The second step consisted of building sub context-mechanism-outcomes configuration based on quantitative and qualitative results issued from a process and effectiveness evaluation. During the third step, middle-range theories of the second step were refined with focus group discussion with general practices' staffs and interviews with a policy maker and the project manager implicated in project implementations. The last step was to compare results with our initial theory.

Results: Our findings highlighted that the patient's experience of care was improved through two main mechanisms: the development of nursing activities and the interprofessional teamwork. Major contextual elements affecting these mechanisms and results were aspects concerning the financing of healthcare professionals' activities, the organization and management of the GPs' practice, which requires a shared, participative vision and a competency-based leadership. The absence of adequate tools to ensure continuity of care was unfavorable for IP teamwork. To overcome this barrier, teams used oral communication. At individual level, previous professional experience and training in primary care were favorable for development of nursing activities. Previous IP experience supported IP collaboration within general practice teams.

Conclusion: Our results showed that several contextual conditions need to be met, both at general practice and health professional levels, to enhance patient's experience of care through the development of nursing activities and successful functioning of IP team. Additionally, IP team need to have a have a clear specific financial support to conduct new activities in PC practices.

P109

Single-pill, triple antihypertensive therapy in rural sub-Saharan Africa: preliminary experience

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Introduction: Arterial hypertension is worldwide the leading preventable and modifiable cardiovascular risk factor. Beside life-style changes, recent international guidelines recommend single-pill, low-dose combinations as initial treatment strategy. We investigated whether this approach is feasible in a rural and remote sub-Saharan Africa setting.

Methods: Diagnosis of hypertension was established over three sets of blood pressure measurements, performed according to the European Society of Hypertension recommendations by trained personnel, using a validated, automated, oscillometric device OMRON M7 IT-HEM-7322-E. In 98 individuals with arterial hypertension (71 female and 27 male subjects), once-daily, single-pill combination of olmesartan, amlodipine, and hydrochlorothiazide was prescribed at an appropriate

dose. Patients were instructed on its administration and potential side effects and encouraged towards lifestyle modifications. Treatment regimen was adjusted, if needed, at each outpatient clinic scheduled after 4, 8, 12, and 16 weeks.

Results: 79 patients (aged 61 [53–70] years; median and interquartile range) strictly adhered to the treatment schedule, while 19 individuals (70 [65–80] years) dropped-out. Blood pressure was <140/90 mmHg after 4 weeks in 44 (56%), after 8 weeks in 62 (78%), after 12 weeks in 69 (87%), and after 16 weeks in 74 (94%) participants. Excellent tolerance was reported.

Conclusion: These results provide real-life evidence that hypertension management with once-daily, single-pill combination of olmesartan, amlodipine, and hydrochlorothiazide as initial treatment is feasible and effective also in a rural sub-Saharan setting. Single-pill combinations should be made available also in rural and remote areas in low- and middle-income countries as reliable first-line treatment strategy.

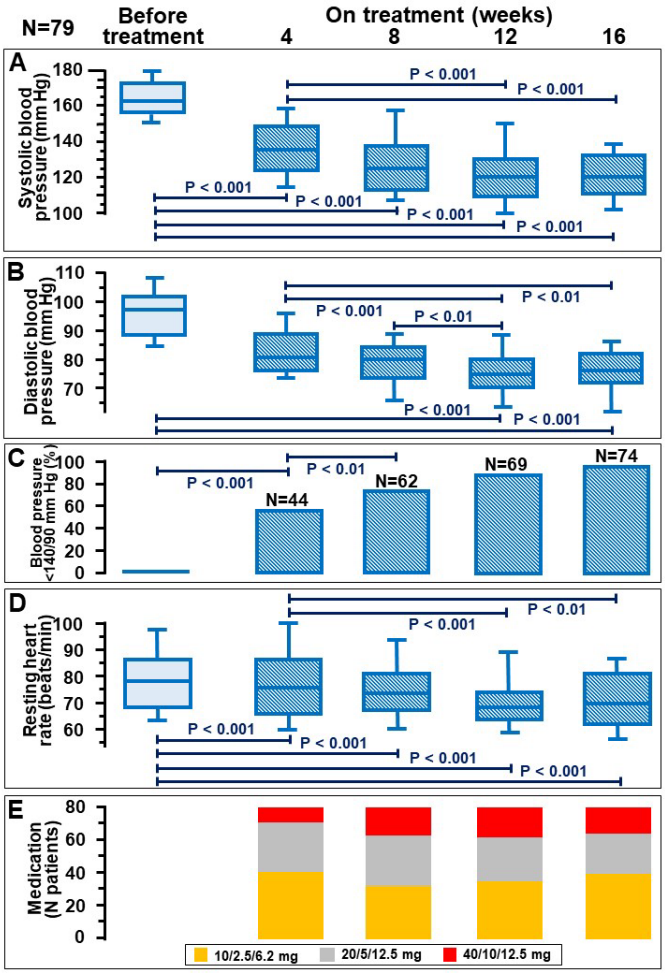

Table 1: Characteristics of 98 included hypertensive individuals. Data are presented as frequency (with percentage) or as median (with interquartile range).

	All	Dropouts	Completers	P-value
N (%)	98	19 (19)	79 (81)	
Females : Males, N (%)	71 (72) : 27 (28)	13 (13) : 6 (6.1)	58 (59) : 21 (21)	0.7757
Age, years	65 [55-71]	70 [65-80]	61 [53-70]	0.0005
Profession, N (%)				
Business	5 (5.1)	0	5 (6.3)	0.5265
Farming	38 (39)	8 (42)	30 (38)	
None	55 (56)	11 (58)	44 (56)	
Self-reported diabetes mellitus, N (%)	3 (3.1)	0	3 (4.0)	>0.9999
Tobacco smoking, N (%)	19 (19)	10 (53)	9 (11)	0.0002
Alcohol consumption, N (%)	94 (96)	19 (100)	75 (95)	>0.9999
Adding extra salt to food, N (%)	3 (3.1)	1 (5.3)	2 (2.5)	0.4801
Weight, kg	53 [46-60]	51 [47-59]	53 [46-60]	0.9626
Height, m	1.58 [1.55-1.66]	1.61 [1.57-1.70]	1.57 [1.54-1.64]	0.0550
Waist-to-height ratio	0.50 [0.47-0.54]	0.49 [0.47-0.52]	0.50 [0.47-0.54]	0.5871
Blood pressure, mmHg				
Systolic	162 [154-172]	154 [150-166]	164 [156-173]	0.0152
Diastolic	95 [88-101]	93 [90-96]	96 [88-102]	0.4022
Resting heart rate, beats/min	78 [68-87]	76 [58-87]	78 [69-87]	0.2208

P110

Treatment of uncomplicated urinary tract infections (uUTI) in outpatients in a health center using integrative medicine methods: a retrospective analysis with future perspectives

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Introduction: In Switzerland, uncomplicated urinary tract infections (uUTIs) are often treated with antibiotics in primary care (4). In the age of increasing antibiotic resistance, the current therapy recommendations for urinary tract infections by the Swiss Society for Infectiology are in favor of antibiotic-sparing therapy for uUTIs. (1). Age > 52 years is considered as a risk for non-spontaneous remission (5). General practitioners with an integrative medical approach prescribe fewer antibiotics for acute, uncomplicated infections. This has already been shown, at least for acute respiratory tract infections and ear infections, but not for urinary tract infections (2,3). This study makes a first step to fill this gap by analyzing the prescribing practice of an integrative medicine clinic in the outpatient treatment of uUTIs.

Methods: Retrospective data analysis was conducted based on the prescription database of the hospital information system. Only prescriptions to females > 18 years of age treated as outpatients at the Klinik Arlesheim between January 2020 and April 2022 with a discharge diagnosis of "uncomplicated urinary tract infection" or "uncomplicated cystitis" were considered. The age of the patients and the discharge medication were recorded for these cases.

Results: From January 2020 to April 2022, 71 patients met the criteria and received treatment for a uUTI. 60% of the patients were older than 52 years. Antibiotics were prescribed in 65% of all cases. In patients younger than 52 years, antibiotics were prescribed in 61% of cases. Fig.1 shows the most frequently prescribed discharge medication, while Fig 2 illustrates the types of antibiotics that were prescribed.

Conclusion: Compared to a recent cross sectional study in Switzerland, which found an antibiotic prescription rate of 93% in uUTIs, the rate of 65% at Klinik Arlesheim appears to be lower. The extent to which an integrative medical treatment approach for uUTIs could help reduce prescription of antibiotics should be systematically investigated. In the next step, we would also like to prospectively explore the effectiveness of non-antibiotic integrative medical uUTI therapy, as well as potential risk-factors for non-spontaneous remissions of uUTIs.

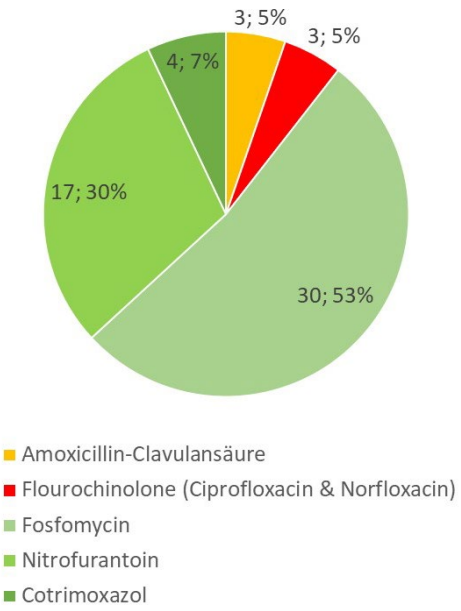

Fig. 2: Types of precribed antibiotics

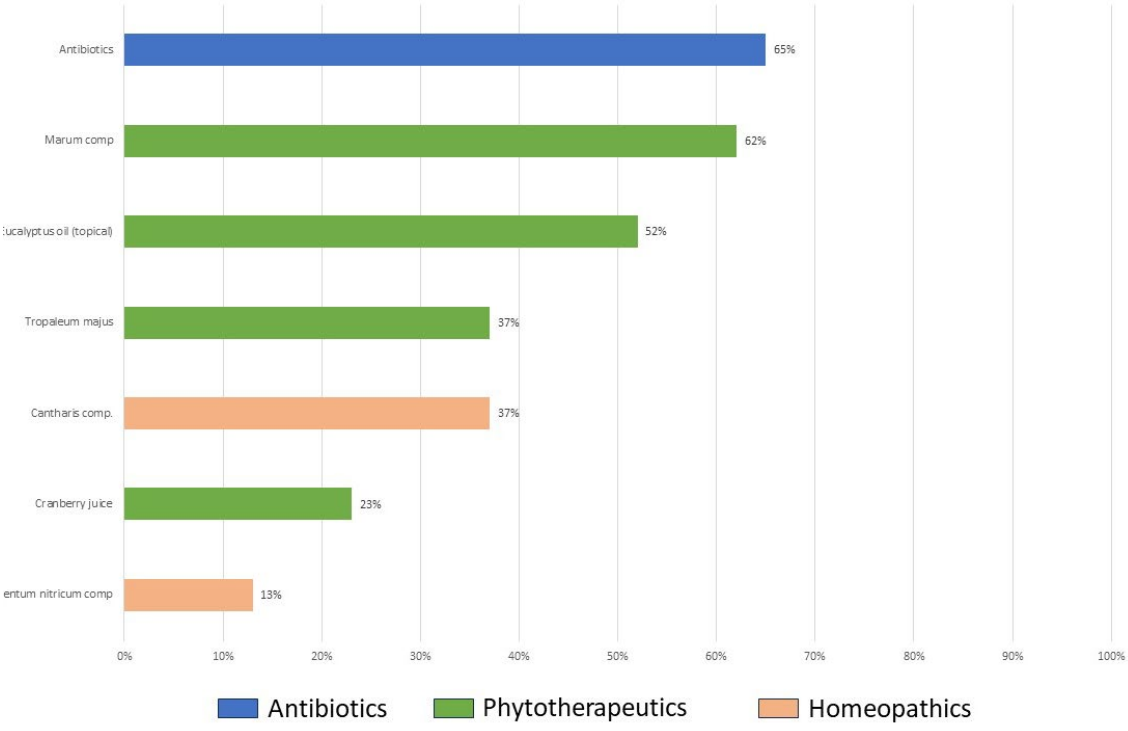

Fig. 1: Discharge medication

P111

What are primary care provider barriers, facilitators and needs to deprescribe benzodiazepines and other sedatives in older adults?

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Background: Benzodiazepines and sedative hypnotic drugs (BSHs) are frequently prescribed for sleep problems, but cause substantial adverse effects, particularly in older adults. Improving knowledge on barriers, facilitators and needs of primary care providers (PCPs) to BSH deprescribing can help with its implementation.

Methods: Mixed methods study (February-May 2023) including a survey, semi-structured interviews and focus groups with PCPs of the French- and German-speaking parts of Switzerland. We assessed barriers, facilitators and needs of PCPs to BSH deprescribing. Quantitative data were analyzed descriptively, qualitative data deductively and inductively using the Theoretical Domain Framework (TDF). Quantitative and qualitative data were integrated using meta-interferences.

Results: The survey was completed by 126 PCPs (53% female) and 16 PCPs participated to a focus group or individual interviews. Main barriers included patient and PCP lack of knowledge on BSH effects and side effects, lack of PCP education on the treatment of sleep problems and BSH deprescribing, patient lack of motivation, PCP lack of time, limited access to cognitive behavioral therapy for insomnia (CBT-I) and absence of public dialogue on BSHs. Facilitators included educating patients on side effects as motivation to discontinue BSHs and start of deprescribing during a hospitalization.

Two-thirds of PCPs preferred online (rather than in-person) training. Main PCP needs were practical recommendations for pharmacological and non-pharmacological treatment of sleep problems (88%) and deprescribing schemes (68%). Almost two thirds of PCPs considered CBT-I training and its implementation into primary care as useful. Patient brochures were wished by 69% of PCPs. As content, PCPs wished explanations about risks and benefits (89%), sleep hygiene (80%) and sleep physiology, alternative treatments (79%), discontinuation process (75%) and tapering schemes (73%).

Conclusion: The identification of barriers and facilitators to BSH deprescribing and particularly of PCP needs to support BSH deprescribing can help develop appropriate patient materials to reduce the use of BSHs and their adverse effects. PCP education on sleep problems and BSH deprescribing should be reinforced and CBT-I could be included in primary care.

P112

Which patient should be considered for an alcohol controlled drinking counseling ?

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Introduction: Problematic alcohol use concerns 19% of the adult population, 15% with binge drinking and 4% dependence (1), with associated physical, psychological and social harm. Only about 15% of those in need seek care, often only when physical harms or dependence occur. Part of them don't feel ready to abstain, and believe practitioners will ask them to do so. Even if alcohol abstinence has long been the predominant treatment objective, it is now admitted that controlled drinking is at least as efficient, especially for people with low or no criteria of dependence(2). Personalized counseling or structured programs as Mes Choix Alcool (MCA)(3) can be proposed. In the Geneva canton a campaign to promote MCA was done and evaluated. The objective of this study was to identify the profile of persons with problematic alcohol use interested in a controlled drinking program.

Methods: Data have been collected online between January 2020 and September 2021 during the promotion campaign for MCA in Geneva canton. People freely accessed to the internet site through classical advertisement, search engines or social media. Socio-demographic data and type of problematic alcohol use were collected and alcohol use pattern through AUDIT scores (4).

Results: 7'562 (21.6%) users filled the online questionnaires, out of 34'989 visits on the net site, during 21 months. 56.9% were men, mean age was 39.5 years (SD 15.1), with no gender variation (figure 1).

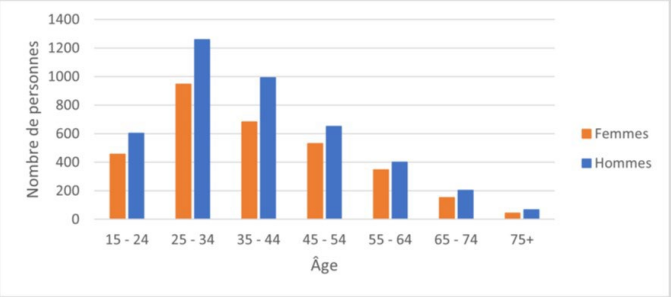
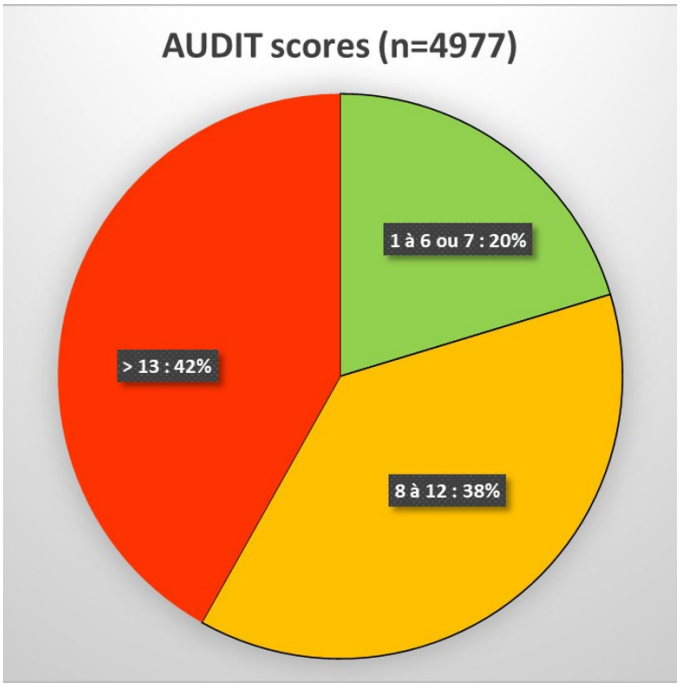


Figure 1 Sociodemographic profile of responders (n = 7562)

The majority (76.4%) came from social media. The AUDIT scores were predominantly filled by men (58%) and suggested 20.3% of low risk, 37.8% of excessive and 41.9% of probable dependent drinkers (figure 2).



Excessive drinkers were more often female (42 vs 35%). The occupational profile showed 50,1% of workers, 17.6% of stu-

dents, 15.7% of pensioners and 9.7% of unemployed (6.8% others). The unemployed, workers and pensioners tend to drink too many days (60.5%, 52.8% and 51.5% respectively) while the students tend to drink too much on limited occasions (46.0%).

Conclusions: Via social media controlled drinking program retained interest of excessive and dependent drinkers, especially the 25–45 years group. We recommend practitioners to discuss controlled drinking especially with this group. The intervention should be adapted to the drinking pattern, often on chronic excessive use for workers, pensioners and unemployed, and on binge drinking for younger students.

P113

"Austrian Syndrome": a case report

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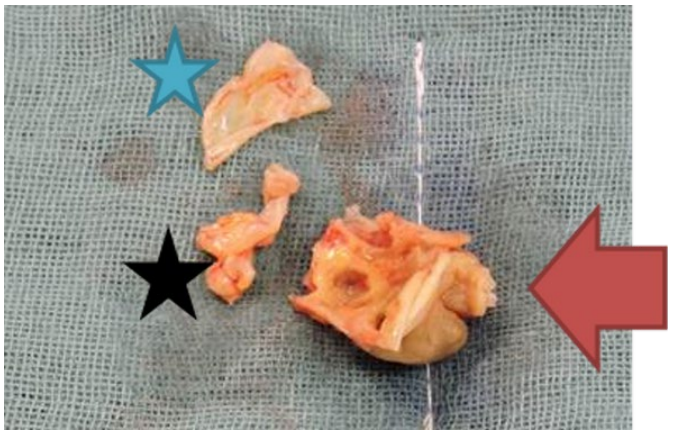
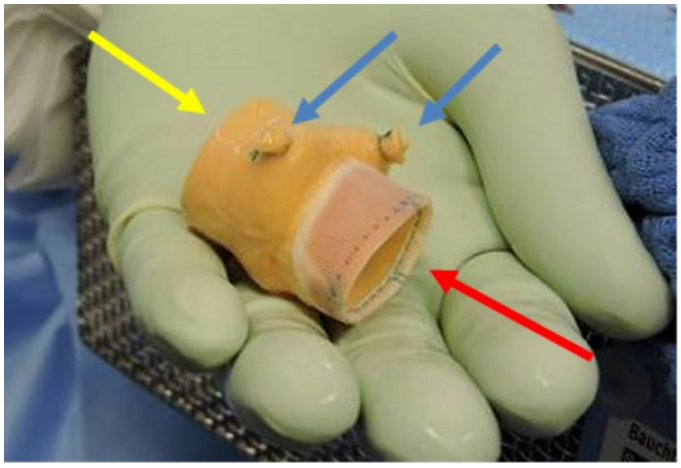
Learning objectives: Case history and clinical examination are still the keys to diagnosis. If a syndrome is found, it is important to stay aware of the dynamic clinical picture. In addition, the connections between subsequent events should be considered.

Case: A 53 year old male patient from Afghanistan was assigned by his family doctor with fever >40°C, cough, aching limbs, somnolent and weakened. The physical examination was unremarkable except for a status febrilis with reduced vigilance. Laboratory chemistry revealed leukocytosis with significantly elevated CRP and procalcitonin. Radiologically, there were no abnormalities. The lumbar puncture PCR of Streptococcus pneumonia was positive and later on also in the blood cultures the same pathogen was found. In summary of the findings, we assumed a secondary pneumococcal meningitis with a possible primary pulmonary infection. During therapy (ceftriaxone, dexamethasone), the clinical condition improved so the patient was discharged in a rehabilitation clinic. Two days later, the patient was reassigned due to dyspnea, orthopnea, leg edema and a weight gain of 8 kg within 2 days. An echocardiogram revealed a large, mobile vegetation on the aortic valve with severe insufficiency, highly suspicious of endocarditis. The Patient was transferred to the cardiac surgery clinic Stadtspital Triemli. The Implantation of a biological aortic valve took place there. After Rehabilitation the Patient has a good outcome with no restrictions. Summarized the findings revealed an Austrian Syndrome involving Streptococcus pneumoniae infection with the triad pneumonia, meningitis and endocarditis. In Honor of Dr. Austrian the originally named "Osler Triad" was renamed.

Discussion: The Austrian Syndrome is very rare. Dr. Robert Austrian, described 8 patients between 1946 and 1954.[1] The incidence decreased significantly since the introduction of betalactam therapies and pneumococcal vaccinations in the 1940s. Nonetheless a streptococcal endocarditis has a high mortality rate nearing 30% even after proper antibiotics and surgical intervention. Therefore, an early recognition with a careful clinical examination is crucial for early intervention and mortality reduction.[2]



Vegetation with complete destruction of the left coronary pocket (red arrow). Implanted bio-prosthesis with coronary ostia (blue arrows), suture for aortic root anastomosis (red arrow) and distal prothesioaortic anastomosis (yellow arrow).



P114

A case of cerebral aspergillosis associated with ibrutinib therapy in a patient with CLL

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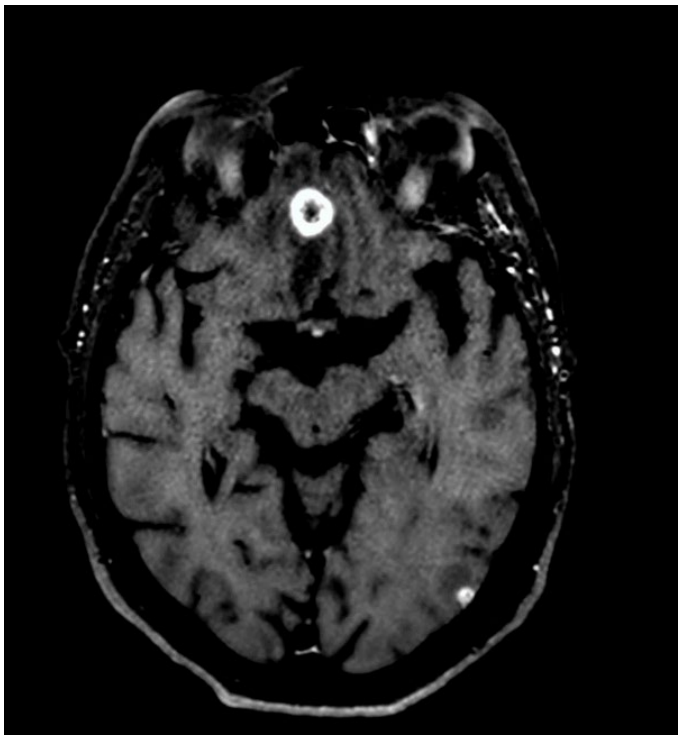
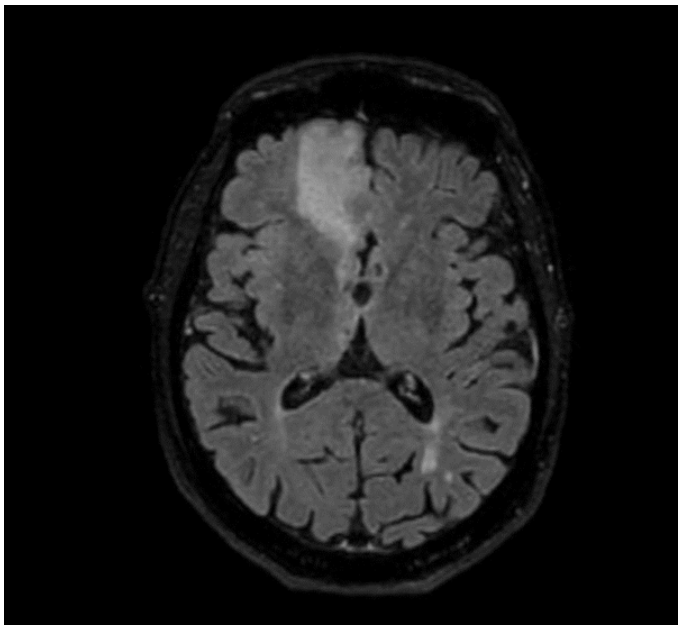
Learning objective: Cerebral aspergillosis is a rare and life-threatening opportunistic disease. Traditional risk factors include prolonged neutropenia and corticosteroid use. Our goal is to raise awareness of this entity in patients treated with ibrutinib.

Case: A 68-year-old man with a history of chronic lymphatic leukemia (CLL) treated with ibrutinib was referred to the emergency department due to new-onset personality and cognitive changes as well as gait changes. Clinical examination revealed attention deficits, cognitive impairment, slurred speech and left limb ataxia. Laboratory results were significant for a leukocytosis with a normal CRP value. The computed tomography (CT) brain scan showed a right frontal lesion with mass effect. A MRT scan showed 2 contrast enhancing lesions measuring 15mm and 5mm with extensive adjacent edema (images 1 and 2). Assuming an infectious cause, empirical therapy with ceftriaxone, metronidazole and voriconazole was started in addition to dexamethasone. After interdisciplinary discussions, a craniotomy with resection of the mass was successfully performed. The histopathological findings revealed granulomatous inflammation and necrosis with demonstration of branching, septate fungal hyphae, the culture showed growth of Aspergillus fumigatus. Accordingly, the therapeutic regime was deescalated to a long term monotherapy with voriconazol supplemented with therapeutic drug monitoring and titrated accordingly (targeted range 3.5–5.5 mg/L). Ibrutinib was ceased due to CYP- mediated drug-drugs interaction with voriconazole and increased bleeding risk. Subsequently, the patient's symptoms improved, however a mild cognitive impairment persisted. An MRI scan after 5 months showed no evidence of a relapse.

Discussion: Focal neurological deficits in immunocompromised patients have a broad differential diagnosis including CNS fungal infections. MRI may give important hints but it is oft not conclusive. Diagnosing cerebral aspergillosis is challenging and necessitates a high index of suspicion. First-line treatment is voriconazol because of its excellent CNS penetration. According to reports the risk of invasive aspergillosis is estimated in the range of 3–4% in patients with ibrutinib therapy.



T1-weighted image: homogenic, ring-enhancing mass in the right frontal lobe and smaller lesion occipital links



MRT Flair-Sequence; mass lesion frontal right with impressive tissue edema

P115

A case of drug induced non-cirrhotic portal hypertension

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Learning objective: Differential diagnosis of non-cirrhotic portal hypertension during adulthood: focus on pharmacovigilance.

Case report: Herein, we report a case of a 26-year-old female presenting with hematemesis and anemia. Initial blood test showed elevated levels of alanine aminotransferase (ALAT), aspartate aminotransferase (ASAT), and bilirubin, INR was normal. Gastroscopy showed bleeding esophageal varices. During diagnostic work-up, a non-cirrhotic portal hypertension (NCPH) was revealed. Transjugularly obtained histology, showed a nodular regenerative hyperplasia (NRH). Four years prior, the patient underwent neoadjuvant treatment for a ductal breast carcinoma, with epirubicin, cyclophosphamid, paclitaxel, trastuzumab-pertuzumab, and gosereline for ovarian protection. Subsequent breast conserving surgery showed incomplete pathologic response necessitating postneoadjuvant treatment with trastuzumab-emtansine (T-DM1). For local control, the patient also received standard radiotherapy to the breast. Following nine treatment cycles with T-DM1, the patient developed thrombocytopenia, hyperbilirubinemia, mildly elevated transaminases, and splenomegaly, why treatment was halted. A fibroscan was negative for cirrhosis, transaminases returned to baseline, but thrombocytopenia persisted. Due to the timely association we suspect T-DM1, to be responsible for the NRH. Other causes of NCPH were ruled out.

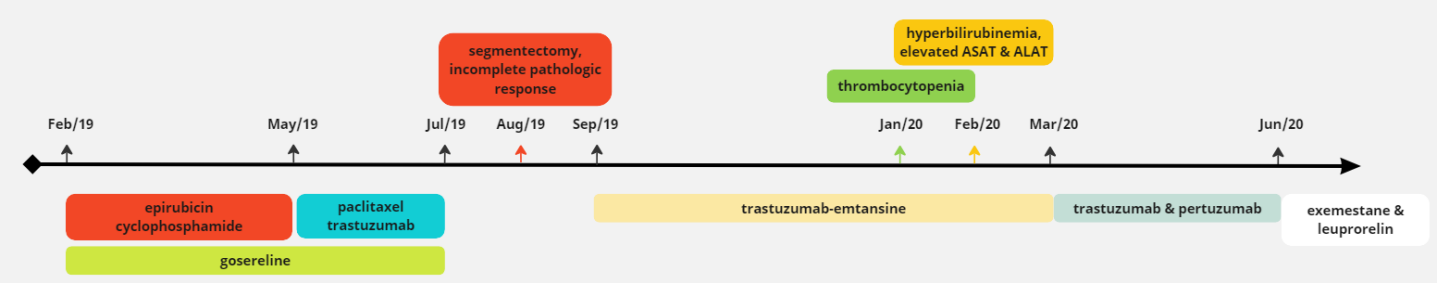

Figure 1: Timeline of chemotherapy.

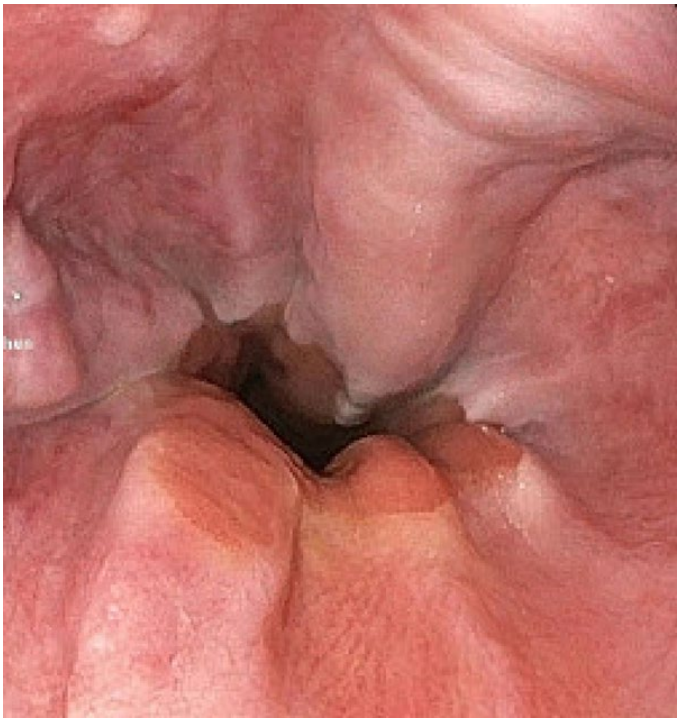

Figure 2: Esophageal varices.

Discussion: NCPH is a rare condition, divided into pre-, intra- and posthepatic causes. Intrahepatic conditions are subdivided into pre-, intra- and postsinuisoidal etiologies. Depending on the cause, therapeutic regimens differ markedly. Nodular regenerative hyperplasia is a rare liver condition characterized by: "a non-cirrhotic micronodular transformation of the liver parenchyma." Hitherto, only a handful of case reports on nodular regenerative hyperplasia due to T-DM1 had been published. Some evidence suggests that emtansine may be the culprit of this antibody-drug conjugate. With this case report, we aim to highlight this rare but certainly underreported and far-reaching side effect of this anti-cancer regimen. Observing one, or a combination of the following signs during, or subsequent to treatment with T-DM1, should raise concerns for this possible side effect: thrombocytopenia, elevated transaminases, hyperbilirubinemia, splenomegaly, or new evidence of esophageal varices.

P116

A case of measles in an asylum centre and its epidemiological consequences

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Learning objective: To recognize a case of measles in a patient with an unknown medical history and to describe actions necessary to prevent an outbreak of measles in a community of asylum seekers.

Case: A 35-year-old woman living in an asylum centre was brought to the emergency department (ED) due to a suspected allergic reaction to an unknown substance with a generalized rash and swollen lips. The paramedics had already administered epinephrine, methylprednisolon and cetirizine with no significant effect. On arrival to the ED, the patient appeared acutely ill. She was tachycard and febrile. Obtaining medical history was difficult as the patient only spoke Arabic. She had arrived to Switzerland from Syria as an asylum seeker 10 days ago. In the days following her arrival, she experienced flu-like symptoms with coryza and cough. Later, she developed fever up to 40°C followed by an eruption of a maculopapular rash. In the ED, a maculopapular rash covering the face and spreading to the trunk and to the proximal upper extremities was noted. There was a bilateral conjunctivitis and small white spots on the buccal mucosa at the level of molars. As the medical history and clinical examination were suggestive of measles, measles serology as well as RNA PCR test from a nasopharyngeal swab were done. The patient was admitted to the medical ward and isolated. The immunoglobuline M (IgM) as well as PCR test were positive for measles, IgG was negative. We interpreted this as a case of measles in an unvaccinated adult. The patient received supportive treatment, she recovered and was discharged after 8 days. To prevent further spread of the disease, we contacted the asylum centre and the chief medical officer of the canton immediately after admitting the patient. Due to a shared dining hall and bathrooms, all 330 inhabitants of the asylum centre were listed as potential contacts. The majority of them had an unknown vaccination status. A total of 210 contacts received vaccination. Two infants received prophylactic IgG. There were 5 cases of measles including our patient. Three patients were hospitalized. There were no fatalities.

Image 1: Koplik spots

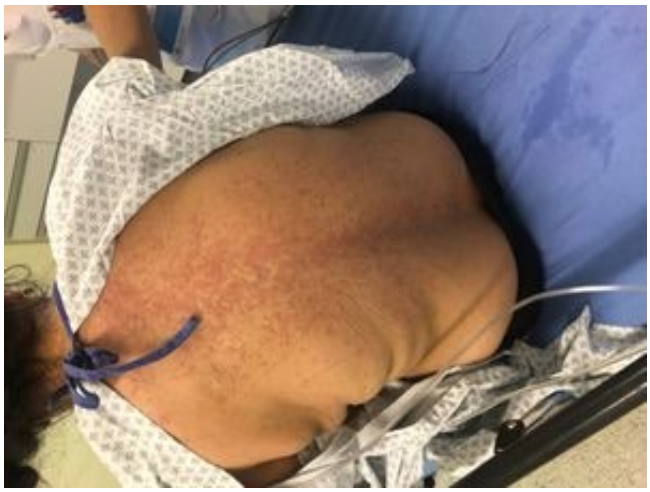

Image 2: Rash

Conclusion: Measles is a highly contagious viral disease. An outbreak of measles in an asylum centre is a potential serious public health problem as a large proportion of the affected population has not been vaccinated. A rapid, coordinated action is necessary to prevent further spread of the disease.

P117

A Rare Case of Pasteurella multocida Bacteremia and Encephalitis in an Adult following a Dog Bite

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[1]*Universitätsspital Basel, Innere Medizin, Basel, Schweiz*

Learning objectives: Awareness of severe and systemic complications, such as encephalitis, following domestic animal bites and infection with Pasteurella multocida.

Case report: A 72-year-old woman presented to the emergency department with fever, headache, and mild confusion. She reported a bite by her small dog on her left cheek four days prior, which rapidly progressed into a local soft tissue inflammation. Apart of regular alcohol consumption of a bottle of wine a day, she was not known to have a compromised immune system or pre-existing medical conditions. Laboratory workup showed elevated C-reactive protein and mildly elevated Gamma-Glutamyl-Transferase. Intravenous Co-Amoxicillin was started after obtaining blood cultures as well as the administration of sedatives for alcohol withdrawal prevention. However, the patient's condition quickly deteriorated into a soporose mental state, even after discontinuation of sedatives. Blood cultures yielded Pasteurella multocida growth, confirming systemic dissemination. Cerebrospinal fluid (CSF) analysis demonstrated characteristic findings consistent with bacterial infection. CSF PCR analysis confirmed Pasteurella multocida growth. Brain CT studies did not show localized pathology or edema. EEG studies showed a diffuse encephalopathic pattern. A switch to Ceftriaxon resulted in rapid improvement of mental state.

Discussion: Pasteurella multocida is a gram-negative bacterium known for its association with various animal bites, particularly those from cats and dogs. While commonly recognized for causing localized skin and soft tissue infections, it can also lead to more severe and systemic complications. Rarely, the bacterium gains access to the central nervous system either through direct extension from an infected bite site or via hematogenous spread. This case underscores the importance of considering Pasteurella multocida as a potential etiology in adults presenting with clinical signs of encephalitis following animal bites. Clinicians should maintain a high index of suspicion, particularly but not only in immunocompromised individuals, and prompt early CSF diagnosis. In patients with chronic alcohol consumption, the administration of sedatives for withdrawal prevention can mask encephalitis symptoms and should not delay diagnosis and appropriate antibiotic intervention.

P118

A small bite for a dog - a rare but potentially deadly infection with Capnocytophaga Canimorsus

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[1]*Spital Dornach, Department of Internal Medicine, Dornach, Schweiz*

Learning objectives: Capnocytophaga Canimorsus infection, virulence, consequences, complications, treatment, importance, prevention

Case: A 44-year-old male presented to the emergency room with progressive flu-like symptoms, including fever. He was in a reduced general condition, with stabile vital signs. Clinical examination showed eyelid oedema and annular erythematous urticaria with central pallor on his arms, legs and abdomen. Lab work revealed an elevated CRP. Blood cultures were taken and an extensive virological serology was negative. On a detailed history, the patient mentioned that he had been scratched by a dog's tooth. An empirical therapy with Co-Amoxicillin was initiated, treating a suspected infected dog bite. 10 days after sampling, the result of the blood culture were positive for Capnocytophaga Canimorsus (C. Canimorsus). The infection was treated with Co-Amoxicillin for 10 days, under which the symptoms and inflammation parameter were regressive.

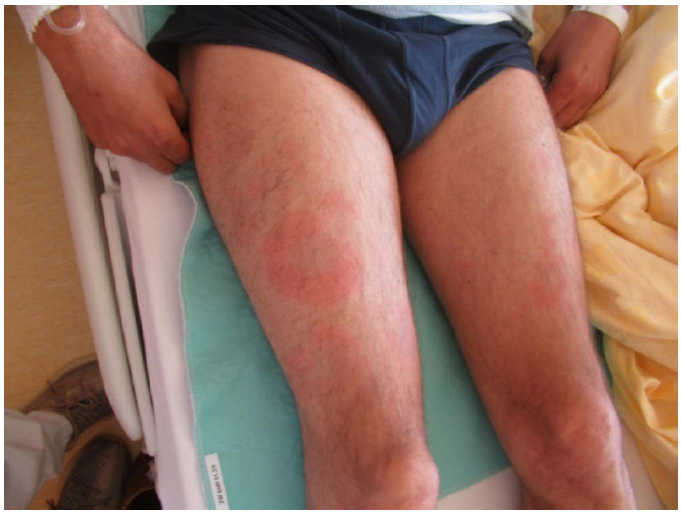

Fig.1 Annular Erythema on the leg

Discussion: C. Canimorsus is a gram-negative bacterium commonly found in the saliva of dogs and cats, which rarely causes infection and is associated with immunosuppression. It can lead to sepsis with severe complications like endocarditis and ultimately to death, mostly due to multi organ failure. Incidence in the common population is low and there is no monitoring of medical registers in Switzerland. A study investigating the prevalence of C. Canimorsus in dogs in Switzerland showed its isolation in 61 out of 105 dogs (1). *C. Canimorsus* can inhibit the ability of macrophages to kill bacteria, can also inhibit phagocytosis and interferes with the complement-mediated immune response (2). As shown in this immunocompetent patient, serious complications can also occur in otherwise healthy individuals. The mortality of an infection is about 30%, even in immunocompetent patients. One of the difficulties of identifying a C. Canimorsus infection is the slow growth of the pathogen, like in this case, the blood cultures were positive after 10 days. This case illustrates that physicians should include a C. Canimorsus infection in their differential diagnosis in patients with fever and exanthema who had a history of a dog bite. C. Canimorus infection and possible complications are most likely underestimated due to poor knowledge in the medical community.

P119

Acute Cholecystitis Mimicking ST-Segment Elevation Myocardial Infarction (STEMI)

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Case: A 57-year-old male patient presented to the emergency department. He reported chest pain radiating into both arms and the back starting three hours before. He took no regular medication and had no known allergies. An electrocardiogram (ECG) showed ST segment elevations ≥1 mm in leads II, III, aVF, V4, V5. The patient was transferred for diagnostic coronary angiography and probably percutaneous coronary intervention. However, significant coronary artery disease was excluded.

Further diagnostic workup followed. Computed tomography showed normal thoracoabdominal aorta and no pulmonary embolism. Cholecystolithiasis without signs of cholecystitis or bile

duct dilatation was noted in ultrasound. Laboratory analyses showed normal values (see table 1). The patient's pain decreased with analgesic drugs. A follow-up consultation on the next day was not conclusive. Three days after initial presentation, the patient presented with aggravation of pain, now localized in the right upper quadrant of the abdomen. Murphy sign was positive. Sonography showed a thickened gallbladder wall and no bile duct dilatation. Laboratory analysis showed signs of inflammation (see table 1). The patient was admitted to the hospital for laparoscopic cholecystectomy. Acute ulcerophlegmonous cholecystitis was confirmed by histology. Postoperative course was uncomplicated, and the ECG changes resolved completely.

Discussion: Chest pain and ECG with ST-segment elevations are diagnostic for acute coronary occlusion. Our case at presentation was highly suggestive of myocardial infarction. In calculous acute cholecystitis, obstruction of the cystic duct by gallstones initially leads to distention of the gallbladder, only later leading to inflammation and tissue necrosis [1]. We assume, that the initial distention of the gallbladder led to a reflex coronary vasoconstriction and the observed ECG changes, a mechanism that has been observed in animal models [2].

Learning objective: We describe a rare case of cholecystitis mimicking ST-segment elevation myocardial infarction. The presence of ECG changes was observed at a timepoint, where no laboratory or imaging changes were present. We assume, that the ECG changes were caused by initial distention of the gallbladder. We recommend follow-up visits for similar patients to avoid missing relevant diagnoses.

Table 1. Laboratory Data

Variable	Unit	Reference	Presentation	3 days later
Hemoglobin	g/l	127-163	137	128
Hematocrit	%	0.37-0.46	0.39	0.39
White-cell count	Giga/L	2.6-7.8	6.7	14
Platelet Count	Giga/L	130-330	210	201
Neutrophils	Giga/L	0.9-4.5	4	10.94
C-Reactive Protein	mg/L	<5	<5	103
Sodium	mmol/L	136-145	139	138
Potassium	mmol/L	3.4-4.5	3.9	4.2
Urea	mmol/L	2.76-8.1	6.8	7.3
Creatinine	µmol/L	59-104	89	87
Glucose	mmol/L	4.11-6.05	5.7	5.1
Calcium	mmol/L	2.15-2.50	2.21	2.18
Albumin	g/l	35-52	39	40
Lipase	U/L	13-60	39	28
Alanine Aminotransferase	U/l	10-50	22	40
Aspartate Aminotransferase	U/l	10-50	24	42
Alkaline Phosphatase	U/l	40-129	88	98
Gamma GT	U/l	8-61	20	24
Total Bilirubin	µmol/L	<21	4	8
Troponin T (hs)	ng/l	<14	6 (6)	24

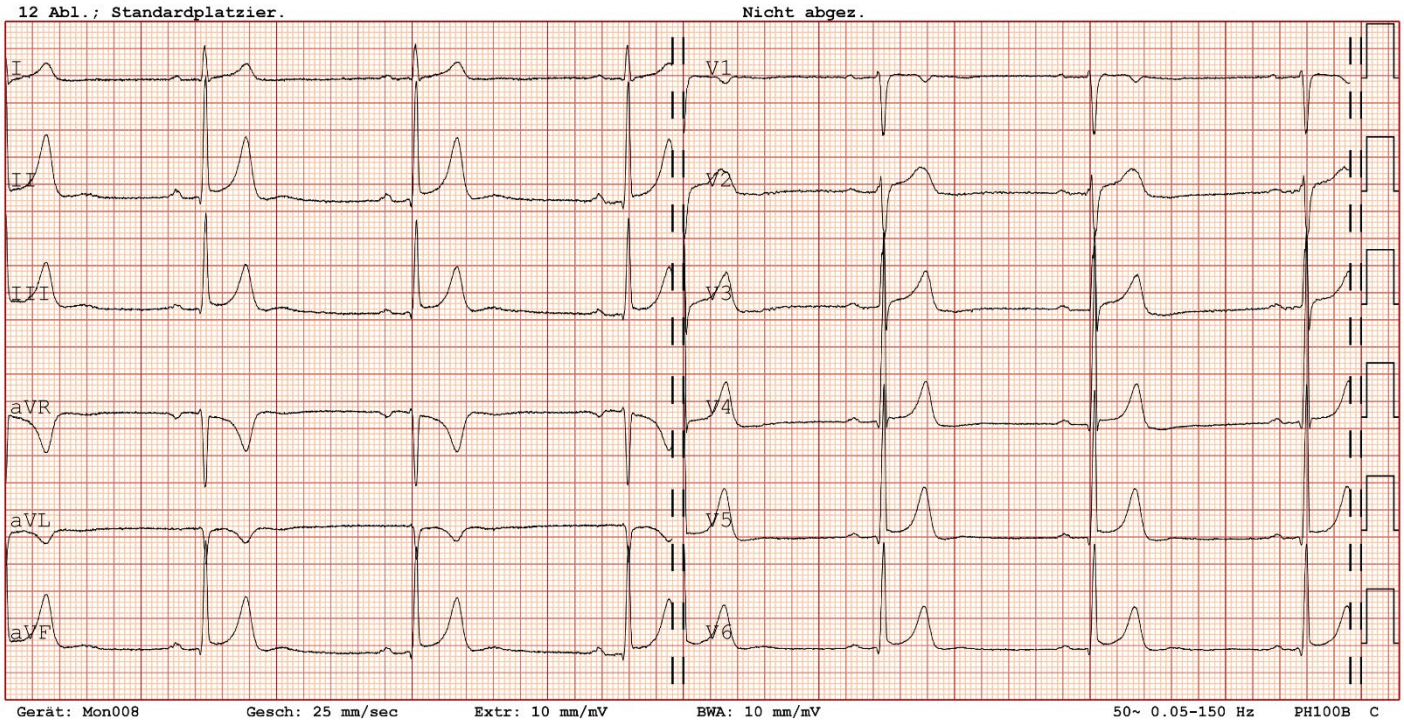

Figure 1: Electrocardiogram at time of presentation

P120

Adrenal Crisis Masquerading as Gastroenteritis in an 82-Year-Old Male: A Case Report of Meningioma in a Critical Location

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Learning objectives: To underline the importance of switching from pattern-recognition to slow thinking in unexpected course of disease

To point out the challenges of diagnosing adrenal crisis, due to its non-specific presentation

Case: An 82-year-old male was referred by his general practitioner due to abdominal pain and diarrhea, with primary suspect of a diverticulitis. Physical examination and abdominal CT showed no evidence of diverticulitis; laboratory tests revealed a slightly elevated CRP with a normal WBC count. The patient was admitted with a presumptive diagnosis of gastroenteritis. Despite supportive therapy with intravenous fluid administration, the patient's condition deteriorated within 48 hours into a soporific state accompanied by hypotension and fever. A brain MRI revealed a significant progress of a previously known meningioma widely affecting the hypothalamo-pituitary region (Fig.

1). This finding prompted suspicion of an adrenal crisis, and a high-dose intravenous hydrocortisone therapy was started. Laboratory findings confirmed severe hypocortisolism and revealed further pituitary hormone deficiencies (hypopituitarism) (Tab.1). The patient's conditions rapidly improved following treatment with hydrocortisone.

Discussion: Adrenal crisis is a life-threatening condition whose non-specific presentation (hypotension, impaired consciousness and gastrointestinal complaints like abdominal pain, diarrhea, vomiting) may make its diagnosis challenging. It occurs mostly in the context of a chronic adrenal insufficiency, being precipitated by stressful situations where lacking increase in cortisol secretion prevents an adequate stress response. We present a case of adrenal crisis due to hypopituitarism with an uncommon cause: a large meningioma in the sellar region. The adrenal crisis has probably been triggered by a non-specified, likely viral infection, as suggested by the transient inflammatory state. As healthcare professionals, we often rely on initial diagnoses based on pattern recognition and established treatment pathways in everyday clinical practice. This case demonstrates the life-saving importance of maintaining a critical approach and switching from the fast to the slow thinking when a patient's clinical progress deviates from expectations.

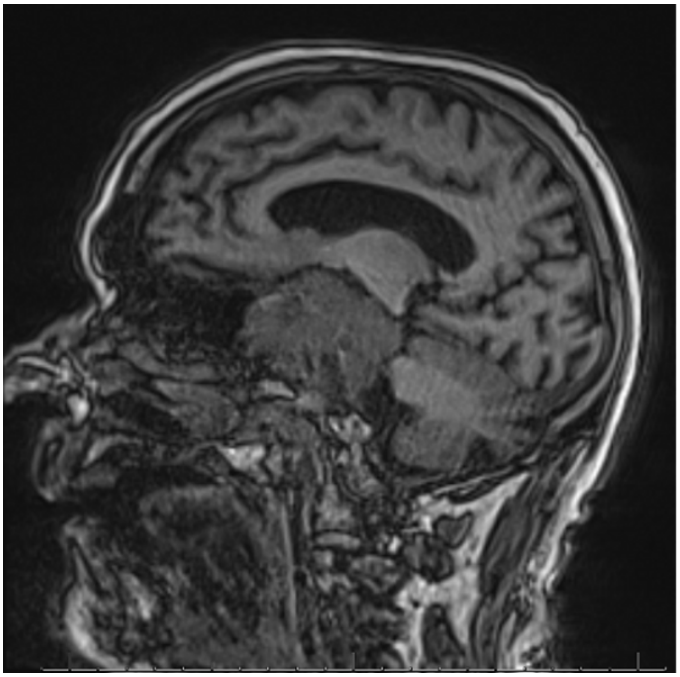

Fig. 1: Meningioma in the hypothalamo-pituitary area on MRI (41 x 52 x 46 mm)

Table 1: Selected laboratory parameters		
Lab finding (reference range)	**Day 0**	**Day 2**
WBC count (3,6–10,5 G/l)	5.4	9.9
CRP (<5 mg/l)	25	74
TSH (0,27–4,20 mU/l)	2.11	2.04
fT4 (12–22 pmol/l)		4.3
Basal Cortisol (8 AM: 172–497 nmol/l; 4 PM: 74–286 nmol/l)		107

P121

An unusual case of “painful” jaundice

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Learning objective: The differential diagnosis of newly elevated liver enzymes can be challenging. Therefore, a thorough assessment of the medical history, medication, lifestyle, family history and clinical presentation is essential. Moreover, a working hypothesis should be questioned, especially if the course of the disease is not as expected. In this case, further examinations are necessary.

Case: A 68-year-old male patient presented himself with jaundice, abdominal pain, nausea and dark urine. Initial laboratory findings indicated elevated liver enzymes as well as urobilinogenuria, with only slightly elevated inflammation markers (Table 1). MRI scans revealed no choledocholithiasis. In an endoscopic ultrasound (EUS) sludge and polyps could be detected in the gallbladder, leading to the suspicion that a stone had passed the common bile duct. However, liver enzymes remained high and the jaundice persisted, which suggested another cause of the problem. Further analyses were performed and revealed an elevated level of antinuclear antibodies (ANA, 1:2560) with negative results for the remaining hepatopathy screening. This prompted consideration to either an autoimmune hepatitis (AIH) or a relapse of the hepatic sarcoidosis, the patient suffered 40 years ago. A liver biopsy showed histological features of an acute lobular hepatitis compatible with drug-induced liver injury (DILI) rather than AIH or sarcoidosis. The main drugs associated with a similar pattern of liver injury in other patients were Ezetimibe and Pantoprazole. The potentially harmful medication was stopped and treatment with weight adapted Prednisone (1 mg per kg) was initiated, which was tapered the following weeks. The patient responded well to the therapy, resulting in normalized liver parameters after around six weeks of treatment.

Discussion: Usually DILI causes no abdominal pain, which is typical for a symptomatic cholecystolithiasis or choledocholithiasis. Imaging is crucial for the exclusion of a choledocholithiasis. Differentiation between AIH and DILI is sometimes difficult due to a similar histology. According to the literature, increased levels of ANA can also be found in DILI as well as in sarcoidosis. In the described case histology was clearly indicative for DILI versus AIH, whereas sarcoidosis was ruled out. In case of an inconclusive histology the Revised International Autoimmune Hepatitis Group Scoring System might be helpful.

Table 1: Labaratory results

CRP	31.1 mg/l
AST	1765 U/l
ALT	1073 U/l
γ-GT	633 U/l
Alkaline phosphatase	264 U/l
Bilirubine total	171.3 μmol/l

CRP: C-reactive protein; AST: aspartate amino transferase; ALT: alanine amino transferase; γ-GT: gamma glutamyl transferase

P122

Anchoring bias leading to delayed diagnosis – Facial swelling in a young eighteen-year-old woman due to a mediastinal B-cell lymphoma

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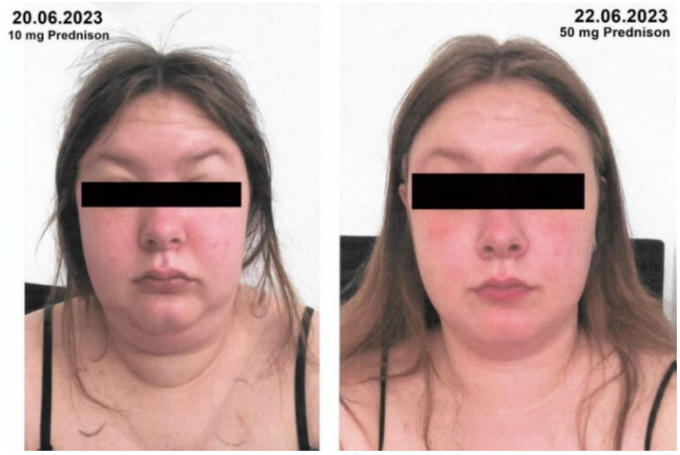
Learning objective: Facial swelling in young adults is strongly associated with allergic angioedema. However, if the symptoms don't resolve within a short period of time under antihistaminic drugs or corticosteroids, the working diagnosis must be revised. An important and potentially life-threatening differential diagnosis as a superior vena cava syndrome must be recognised.

Case: A 18-year-old woman presents with a history of recurrent facial swelling that shows improvement under oral therapy with corticosteroids. Previous treatments with antihistamines (e.g. Cetirizin) achieved no effect. In addition to facial swelling, the woman experienced a reddish skin change over the upper chest. When the dosage of steroids was lowered, the facial swelling worsened. Different specialists were involved in the diagnosis: a general practitioner and a dermatologist confirmed the diagnosis of allergic angioedema. Screening for collagenoses were conducted by a rheumatologist and an endocrinologist diagnosed iatrogenic Cushing's syndrome.



Facial swelling according to prescribed oral steroid dose

After enduring two month of distress, the patient was admitted to the hospital with severe fatigue and left-sided chest pain. Clinical examination revealed asymmetrical swelling of the neck, diffuse redness of the upper chest area, and sinus tachycardia. Laboratory analyses indicated elevated inflammatory markers and leucocytosis. An ultrasound of the neck identified thrombosis in the jugular vein. Subsequent CT scan of the thorax revealed a large mediastinal mass causing acute superior vena cava syndrome, with nearly complete obstruction of the superior vena cava. Following a biopsy (through an anterior mediastinotomy), the diagnosis of primary mediastinal large B-celllymphoma was confirmed. The patient underwent six cycles of DA-R-EPOCH (dose adjusted rituximab, etoposide, prednisolone, vincristine, cyclophosphamide, doxorubicin).

Discussion: Facial swelling from superior vena cava syndrome is rare, but can occur on from tumor manifestations of the mediastinum. While allergic reactions are the most prevalent cause of facial swelling, vena cava syndrome is an important differential diagnoses in atypical cases. General medicine plays an important key role in overcoming anchoring bias and to broaden the view in the differential diagnostic work-up.

Written Informed consent for publication was obtained from the patient.

P123

Anticoagulation-induced pituitary apoplexy leading to acute hypopituitarism: a case report

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Learning objectives: To identify pituitary apoplexy as a critical differential diagnosis in patients presenting with acute-onset headaches and to recognize the urgency of administering glucocorticoids to prevent life-threatening adrenal crisis.

Case: A 63-year-old male patient presented with acute, refractory right occipital headaches. The symptoms emerged a week after initiation of therapeutic dose Rivaroxaban for thrombosis of the vena saphena magna. The patient's other personal medical history was unremarkable. Physical and neurological assessments revealed normal findings. Cranial computed tomography (CT) imaging ruled out intracranial hemorrhage. However, magnetic resonance imaging (MRI) revealed a hemorrhagic apoplexy of the pituitary gland within a previously unknown pituitary macroadenoma (17x19 mm, Figure 1). The serum cortisol level was low, necessitating immediate administration of hydrocortisone. As headaches improved and no neurological or ophthalmological defects developed, we refrained from acute surgical decompression. Endocrinological laboratory findings revealed further hormonal deficiencies developing within a few days (Table 1) in this nonfunctioning pituitary adenoma (NFPA).

Discussion: Pituitary apoplexy is defined as sudden hemorrhage into the pituitary gland, usually into a pre-existing pituitary adenoma. Trauma, recent onset of anticoagulation (as in our case) and other precipitating factors are known, although most events seem to occur spontaneously. It is a potentially life-threatening condition, presenting with symptoms resulting from acute mass effect within the sellar region, like severe headache, visual loss or diplopia and hypopituitarism. MRI is preferred for assessment of the lesion and its anatomical relationships with adjacent structures, like the optic chiasm and cranial nerves. As happened in our patient pituitary apoplexy may be missed in CT scans. Acute surgical decompression is performed in cases with severe or progressive neurological symptoms. Moderate symptoms and hypopituitarism may improve spontaneously as the hemorrhage is absorbed. Whereas pituitary apoplexy may cause deficiencies of all pituitary hormones, adrenal insufficiency needs to be most urgently recognized and adequately treated to avoid potentially life-threatening adrenal crisis.

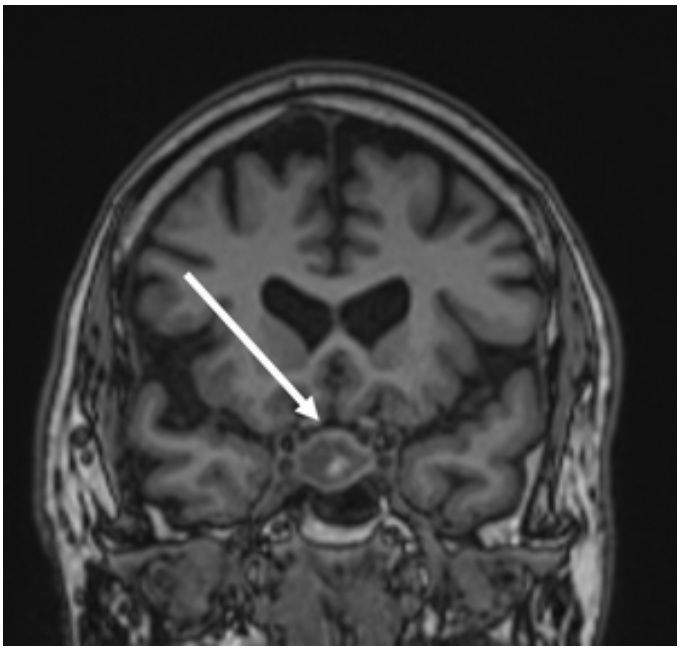

Fig. 1: Cranial MRI of the patient showing the hemorrhage in the pituitary macroadenoma

Tab. 1: Endocrinological laboratory findings from admission to discharge

	Day 0 (Admission)	Day 8 (Discharge)
TSH (0.27–4.2 mU/l)	2.12	0.45
fT4 (12.0-22.0 pmol/l)	13.8	**9.7**
fT3 (3.1–6.8 pmol/l)		**2.0**
Prolactin (86–324 mIU/l)	**11.2**	
Basal Cortisol (8 AM: 172–497 nmol/l; 4 PM: 74–286 nmol/l)	**36.0**	
ACTH (<13.4 pmol/L)	1.8	
IGF1 (6.89–27.30 nom/l)	26.32	
Testosterone (6.68-25.7 nmol/l)	20.1	**1.17**
FSH (1.5–12.4 IU/l)	6.63	2.75
LH (1.7–8.6 IU/l)	5.62	**0.968**

P124

Aplastic anemia in parvovirus B19 infection: Diagnosis of a rare cause of anemia thanks to consistent adherence to a clarification algorithm

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Learning objectives: Evaluation for anemia is one of the most common problems in everyday clinical practice. In many cases the cause is not readily apparent, and several conditions may be contributing. In order not to miss a rare cause, it is recommended to follow a diagnostic algorithm in which the reticulocyte count plays an important role.

Case: An 81-year-old man presented with new onset of weakness, weight loss and anemia. The clinical examination revealed no abnormalities. Laboratory analyses revealed a normocytic normochromic anemia with a hemoglobin (Hb) value of 78g/l (One week before: 105g/l) with reduced reticulocyte count. Renal anemia was very unlikely with preserved renal function and there was no clinical evidence of an infectious event. The inflammation values and hemolysis parameters were unremarkable. Computed tomography of the thorax and abdomen showed no malignant mass. Endoscopically, no significant findings could be found. The medication history was unremarkable. With the serological detection and positive PCR analysis of parvovirus B19, a high degree of suspicion of acquired pure red cell aplasia (PRCA) was finally established and a bone marrow biopsy was dispensed with.

Discussion: The clinical presentations associated with parvovirus B19 infection vary considerably, ranging from benign to life threatening. The clinical presentation is influenced by the infected individual's age and hematologic and immunologic status. In childhood, it is mainly the occurrence of erythema infectiosum. In adults, infection can lead to PRCA and even transient aplastic crisis in those with chronic hemolytic disorders[i]. In most cases, the bone marrow recovers spontaneously. In cases of severe anemia, erythrocyte transfusions may be administered until the immune response and recovery of erythropoiesis are complete. IVIG can be discussed for the treatment of chronic infections with chronic anemia in immunosuppressed patient[ii].

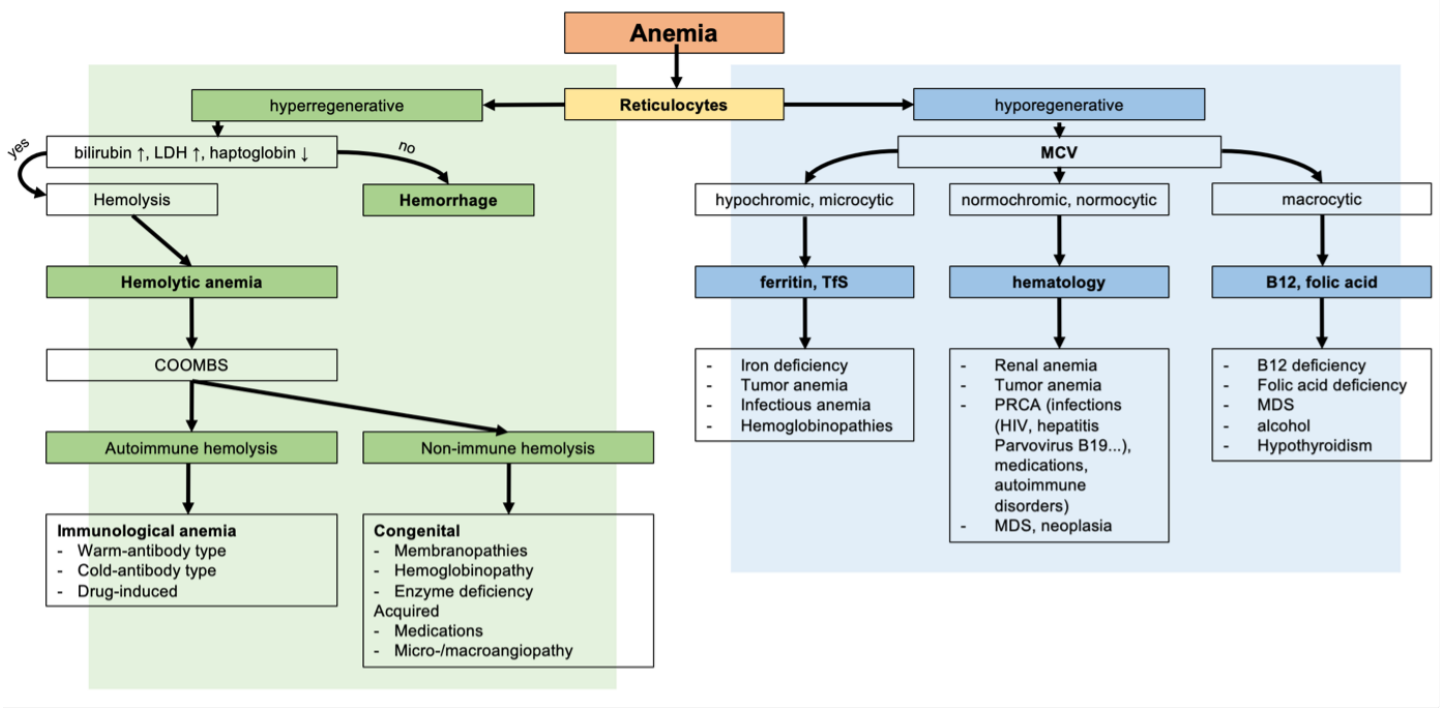

Fig.1: Diagnostic algorithm (modified from SURFmed 2018[iii]) MCV = medium cellular volume, MDS = myelodysplastic syndrome, PRCA = pure red cell aplasia

P125

Arterial hypertension combined with hypokalaemia: consider primary aldosteronism

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Learning objectives: Hypokalaemia is frequently observed in hospitalized patients and often attributed to diuretic treatment. But especially in patients with arterial hypertension, primary aldosteronism should be suspected. This is important because the prevalence of primary aldosteronism is underestimated.

Case: A 72-year-old patient presented to the emergency department with palpitations and feeling clammy. He was alert, afebrile, tachycardic (163 bpm) and normotensive. Physical examination revealed tachyarrhythmia, warm periphery, and no oedemas. His medical history included gastroesophageal reflux disease, subclinical hypothyroidism, atrial fibrillation and suspected hypertensive heart disease with left ventricular hypertrophy. Current medication was pantoprazole, metoprolol, and rivaroxaban. The electrocardiography displayed atrial fibrillation with a heart rate of 163/min. Laboratory findings showed hypokalaemia, elevated creatinine and elevated NT-proBNP (Table 1). The patient was diagnosed with acute congestive heart failure due to tachycardic atrial fibrillation in the context of hypertensive heart disease. The mild hypokalaemia had been observed for several years and potassium was replaced during hospitalisation. After successful pharmacological conversion with amiodarone, an antihypertensive therapy with ramipril was initiated. Nonetheless, hypertension as well as hypokalaemia persisted, which prompted additional diagnostic tests. The laboratory tests revealed a suppressed renin of <1.2 ng/L (reference range 1.7–23.9 ng/L) and an elevated aldosterone/renin ratio of 452 (reference range <53). Insufficient aldosterone suppression in the intravenous sodium suppression test confirmed the diagnosis of primary aldosteronism. An abdominal computed tomography scan revealed an 1.5 cm adenoma of the left adrenal gland (Figure 1). The patient refused surgical therapy. Pharmacological treatment with spironolactone was established. Subsequently, blood pressure and potassium values returned into the normal ranges.

Discussion: Unexplained hypokalaemia combined with arterial hypertension may indicate primary aldosteronism. Screening should include calculation of the aldosterone/renin ratio, followed by a confirmation test such as the sodium suppression test. Spironolactone is the first line pharmacological treatment. Surgical treatment may provide a curative treatment option.

Haemoglobin	186 g/L (140-180)
NT-proBNP	10`035 ng/L (<125)
Creatinine	153 µmol/L (49-97)
Thyroid stimulating hormone	0.21 mIU/L (0.33-4.49)
T4 free	20.4 pmol/L (11.6-22)
Potassium	3.1 mmol/L (3.6-4.8)
Natrium	141 mmol/L (135-145)

Table 1. Laboratory values (reference range)

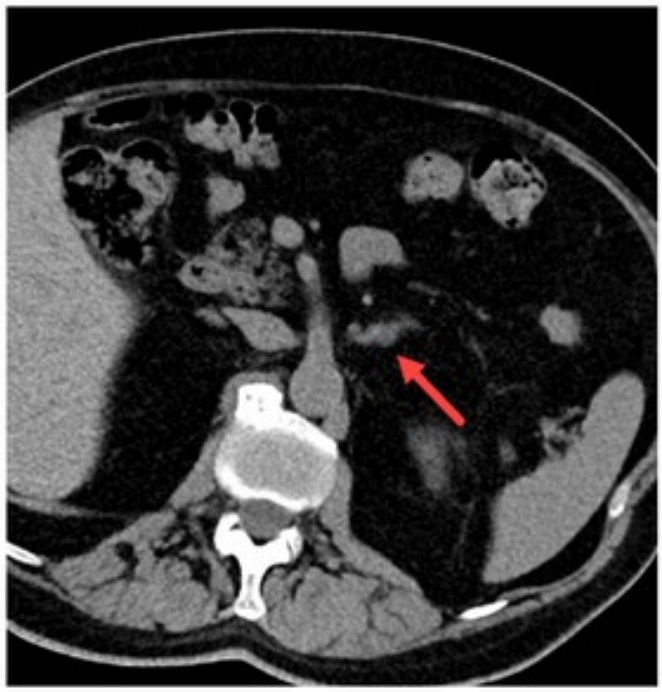

Figure 1. Abdominal computed tomography, red arrow indicates a 1.5 cm adenoma of the left adrenal gland.

P126

Back pain: an atypical presentation of Giant cell arteritis

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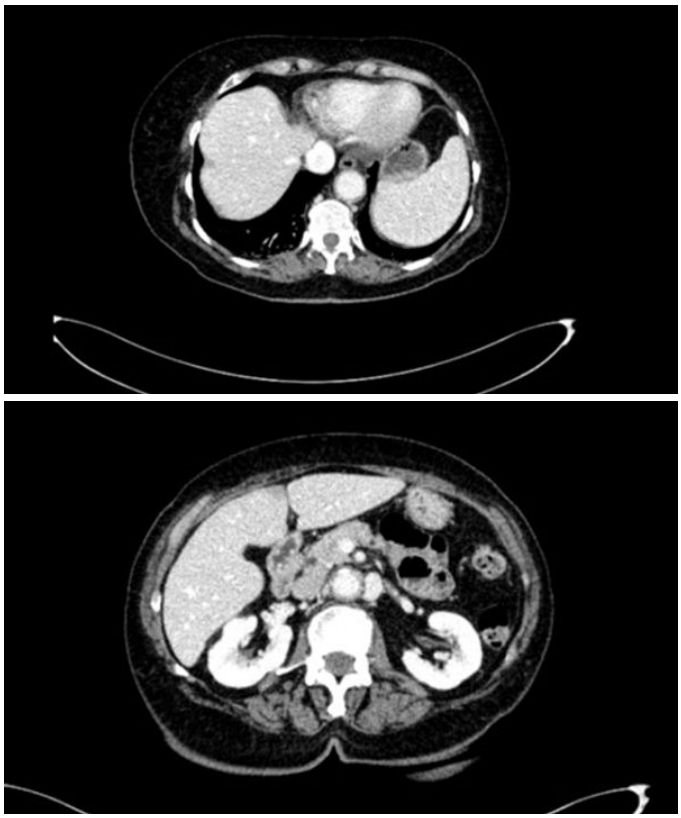
Learning objective: Back pain is a common symptom; however a large differential diagnosis should be considered.

Case: A 68-year-old Bolivian woman presented to the emergency department with 4 days of abdominal and back pain. The pain was located in the right hypochondrium and spread to the right flank and right mid-back to the tip of the scapula. The pain was described as a constant and burning, independent of position or food intake. She had no history of trauma, renal colic or strenuous physical activity. Review of systems was negative except for a 10 kg weight loss in 1 year. Her past medical history was significant for anemia and previous cholecystectomy. On physical examination, her vital signs are within normal. Her cardiovascular and respiratory examinations were normal. Abdominal examination revealed tenderness on palpation of the right hypochondrium without rebound or guarding and normal bowel sounds. Musculoskeletal examination revealed pain on palpation over the right paravertebral T8-12 with evidence of muscle contraction.Laboratory evaluation revealed microcytic anemia, C-reactive protein 63 mg/dl. An abdominal CT showed a diffuse, circumferential, hypodense thickening of the examined aorta extending to the common iliac arteries bilaterally, consistent with signs of aortitis.



Prednisone 1 mg/kg was started. Renal function was normal, immunologic tests, infectious workup and protein electrophoresis were negative. PET-CT confirmed large vessel vasculitis compatible with Horton's disease. Her pain resolved with steroid treatment.

Discussion: Giant cell arteritis (GCA) is the most common vasculitis affecting people over 50 years of age. GCA is 2.5 times more common in women than in men, with a lifetime risk of 1% in women and 0.5% in men. [1] Patients typically present with new-onset headaches, visual changes and disturbances, jaw claudication, arthralgias, and tender or swollen temporal or occipital arteries. Few case reports document back pain as a manifestation. Extracranial large vessel GCA symptoms may include fever, weight loss, intermittent arm/limb claudication, and back or chest pain (due to aortitis or aortic dissection). GCA is a disease with heterogeneous signs and symptoms that mimic many common diseases. Although temporal artery biopsy is the gold standard and temporal artery ultrasound is widely used, newer imaging modalities (FDG-PET/TAC, MRI, CT) can be valuable, especially in patients with extracranial large vessel manifestations.[2]

P127

Bilateral ankle pain as an isolated clinical presentation of pulmonary sarcoidosis in a young male with Löfgren's syndrome

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Learning objectives: Identify atypical sarcoidosis presentations. Consider sarcoidosis in unclear clinical cases.

Case: A 33-year-old patient presented with a three-week history of bilateral ankle pain and mild edema without prior trauma. Further symptoms were plantar discomfort, intermittent thumb, wrist and knee pain, fatigue and chronic night sweats, but no skin lesions, fever or cough. Radiographs showed a minor heel spur, and sonography showed fluid around the posterior tibialis tendon. Laboratory tests found mildly elevated CRP (17 mg/l). Rheumatoid factor and anti-CCP antibodies were negative. Chest X-ray and CT scan (Fig. 1) showed extensive bihilar lymphadenopathy. Elevated serum neopterin (2.92 ng/ml, norm <2.5) and soluble IL-2 receptor (3426 pg/ml, norm <1500) were noted. Bronchoalveolar lavage showed lymphocytosis with an elevated CD4/CD8 ratio (4.2). Transbronchial lung biopsy found non-caseating granulomas, without evidence of tuberculosis or other infectious agents (Fig. 2), thus confirming sarcoidosis. Bodyplethysmography showed minimal restrictive disorder. No ocular, cardiac or hepatosplenic involvement was evident. Four-week administration of 600 mg ibuprofen 2–3x daily relieved symptoms significantly.

Discussion: Sarcoidosis, a multi-systemic disorder marked by non-caseating granulomas, typically manifests in adults aged 30-50 years (1). Pathogenesis is not fully understood. Clinical presentation is highly variable: while lungs are mostly affected (90%), it can also involve skin, eyes, liver and lymph nodes, and potentially any organ, making diagnosis challenging (2). Löfgren's syndrome, a sarcoidosis subtype, typically features bilateral hilar lymphadenopathy, erythema nodosum and bilateral ankle arthritis. Erythema nodosum is more common in women, and arthropathy in men (3). The patient`s symmetrical ankle pain was the principal symptom and led to suspicion of sarcoidosis. Cough was completely lacking, while fatigue and night sweats suggested a systemic disease. In all cases of sarcoidosis, a comprehensive diagnostic evaluation is crucial. This includes medical history, physical examination, exclusion of eye involvement, ECG, chest X-ray, pneumological evaluation, and extensive laboratory tests (4). In conclusion, sarcoidosis should be considered as differential diagnosis in patients with acute oligoarthralgia, especially when bilateral ankle involved.

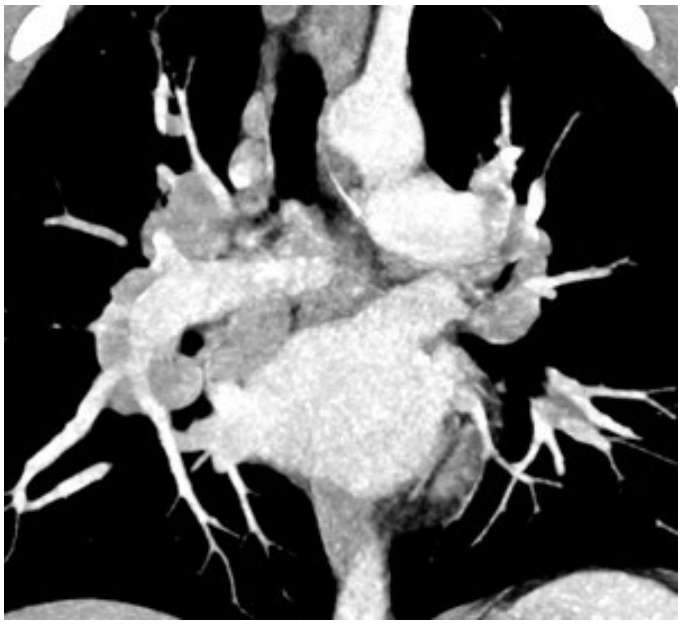

Fig. 1: Hilar lymphadenopathy on CT-scan

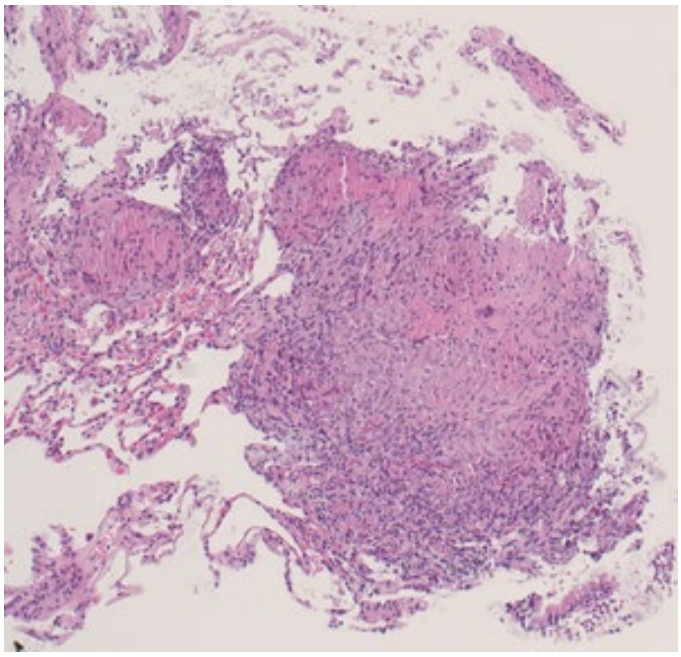

Fig. 2: Epithelioid cell granulomas

P128

Bondage gone blue: poppers-induced methemoglobinemia

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Learning objectives: Nitrite-containing drugs, commonly known as "poppers", are often used in MSM sexual practices due to their vasodilatative effects. The use of poppers can lead to methemoglobinemia and impaired oxygen delivery. Intravenous methylene blue is recommended for the treatment of methemoglobinemia. Methylene blue might results in transient green discoloration of the urine.

Case: A 63-year-old male was admitted to our emergency department after losing consciousness during a bondage session. Due to persistent loss of consciousness, absence of protective reflexes and peripheral oxygen saturation of 80% despite 15 liters of supplemental oxygen, the patient was intubated on-site. 90 minutes prior to admission to the hospital the patient had inhaled an unknown amount of "poppers." Personal history was remarkable for coronary artery disease with ACBP 4 years ago, chronic hepatitis B, chronic renal insufficiency, and promyelocytic leukemia. Vital parameters showed a heart rate of 98/min, hypotension of 91/62 mmHg, peripheral oxygen saturation of 88% under 100% FiO2, and a temperature of 35.2°. Clinical examination revealed jugular vein distention, cool extremities, prolonged capillary refill time, and bluish discoloration of the lips and ear. Arterial blood gas analysis displayed methemoglobinemia of 32.8%. Poisoning with alkyl nitrites or isobutyl nitrite - the active ingredients of poppers – was suspected. Treatment with intravenous methylene blue (1–2 mg/kg body weight) was initiated, promptly decreasing methemoglobin levels to 4%. Methylene blue is excreted by the kidneys and the combination of methylene blue and urochromes results in transient green urine (Fig. 1). The condition is harmless and further investigations should be avoided. The patient was rapidly weaned from mechanical ventilation and was discharged in good condition the next day. No neurological sequelae were identified, but the patient remained amnestic for the entire episode.

Discussion: This case illustrates the serious health risks associated with recreational drug use, in this case the inhalation of "poppers." Swift identification of methemoglobinemia and prompt administration of methylene blue were key to rapid recovery. Healthcare providers should be vigilant about potential toxicities of recreational drugs, especially in unconventional scenarios, to ensure timely and targeted intervention.

Figure 1: Green discoloration of the urine following administration of methylene blue.

P129

Breakbone fever without a "broken bone"

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Learning objectives: 1. The diagnostic approach for fever in returning travelers should be determined by the clinical presentation, epidemiological exposure and the incubation period of the illness. – 2. In cases with a complex exposure history, a tabular overview may be helpful

Case: A previously healthy 28 years old female patient with unremarkable past medical history presented in the emergency department of a cantonal hospital in Switzerland with fever after a two weeks trip to South East Asia. During her trip she drank tap water, got stung by mosquitoes, was in contact with monkey and pigeon excrements and ate street food (including uncooked meat). The sexual history was unremarkable. Her leading symptoms apart from fever were weakness, vomiting and non-bloody watery diarrhea, followed by a rash. No joint or bone pain was reported anytime during the illness. Table 1 gives a chronological overview of the travel history, exposure risks and symptom onset. Apart from fever (38.2°C) and a petechial rash with predominant involvement of the extremities, the patient's physical examination was unremarkable. After blood pressure measurement, a Rumpel-Leede sign appeared on her right arm (Figure 1). Laboratory work-up revealed leuko- and thrombocytopenia, elevated liver enzymes (up to 4 x ULN), an elevated CRP and a negative β-hCG. Dengue virus serology was positive, while screening for other infectious diseases returned negative results. We made a diagnosis of dengue fever and the patient recovered completely with symptomatic treatment.

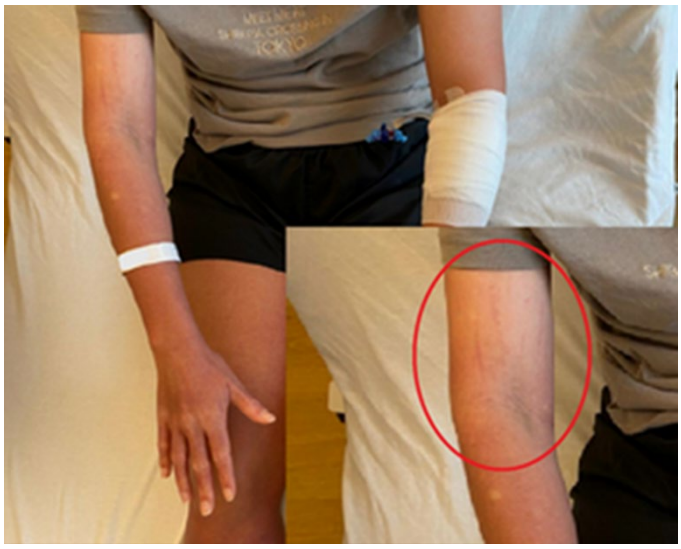

Figure 1. Petechial rash with a predominant involvement of the extremities. The right upper arm shows a Rumpel-Leede sign after blood pressure measurements.

Discussion: Dengue virus belongs to the flavivirade family and transmits to humans through the aedes mosquito. The course of illness in infected people may range from asymptomatic to dengue hemorrhagic fever or dengue shock syndrome. Severe cases are rare in Switzerland[1]. Despite the absence of the classical "breakbone" symptom and various potentially misleading exposure risks, a comprehensive table helped us to make a correct diagnosis in this patient.

Table 1. Chronological overview of the patient's travel history with detailed information about potential exposures and symptom development.

Chronology	Day 1 (arrival)	Day 4–6	Day 7–10	Day 11–12	Day 13 (return)
Place	Singapore	Malaysia, Kuala Lumpur	Thailand, Chiang Mai & Chiang Rai	Singapore	Switzerland
Potential animal exposure		- Mosquito bites - Contact with monkey / pigeon excrements	- Mosquito bites - Superficial scratch by a feral cat - Contact with elefants		
Potential feco-oral transmission	Tap water	Uncooked meat product/streetfood	Streetfood		
Symptoms			Fever, weakness, vertigo, vomiting, watery stools		Petechial rash with centripetal spreading, Rumple-Leede-sign

P130

Cardiogenic shock secondary to massive pulmonary tumorembolism in a newly diagnosed cholangiocarcinoma

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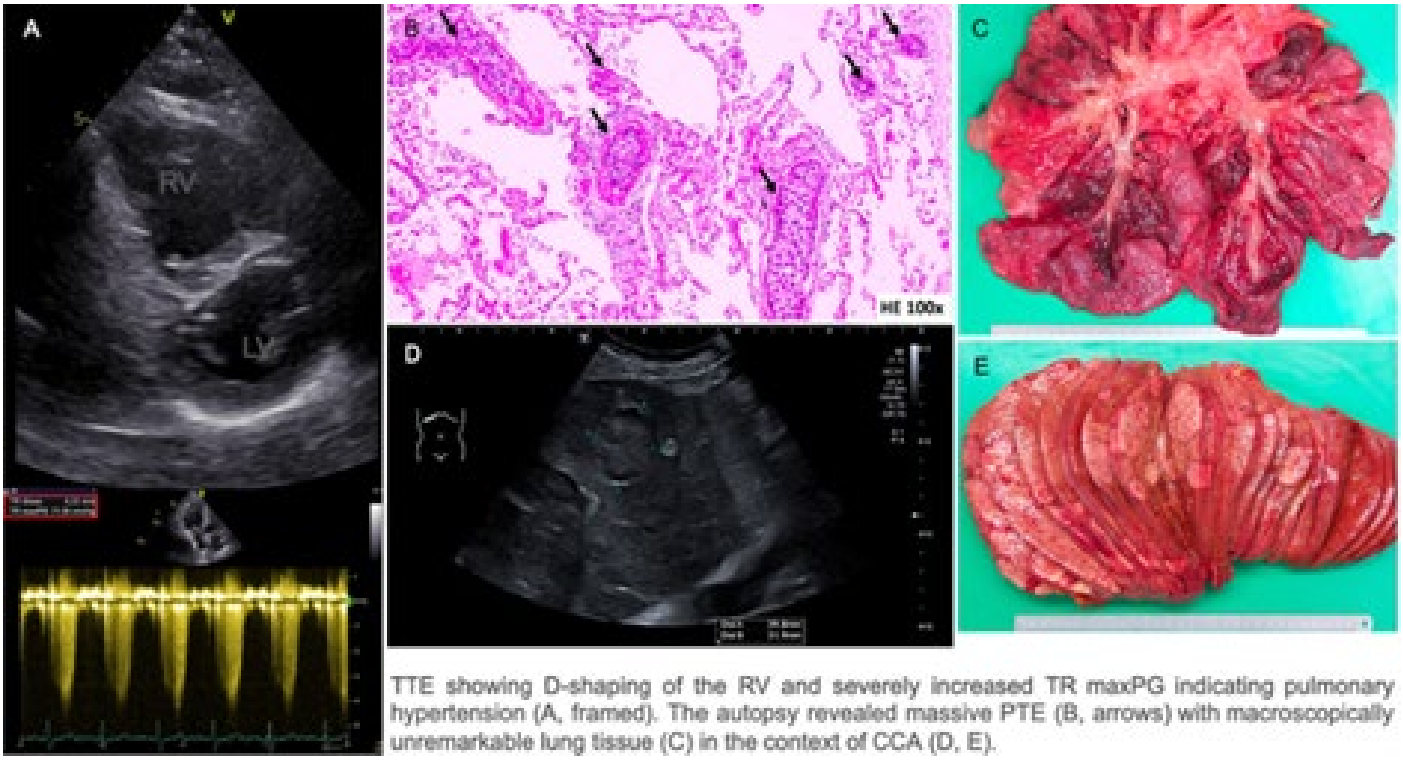
Learning objectives: Pulmonary tumor embolism (PTE) and pulmonary tumor thrombotic microangiopathy (PTTM) are rare but often fatal complications of mainly adenocarcinomas. Diagnosis is challenging due to the non-specific presentation and often rapid deterioration once clinically significant. Early consideration is therefore essential to intensify further diagnostic steps (e.g. aspiration cytology via pulmonary artery catheter, lung biopsy) and to initiate an appropriate chemotherapy. Respiratory and right heart failure in absence of common etiologies and in the setting of malignancy should raise suspicion of PTE/PTTM (microvascular obstruction). The prognosis is very poor (1).

Case: A 74-year-old previously healthy patient was referred to the emergency department with progressive dyspnea and elevated D-dimers. Pulmonary embolism (PE) was ruled out by CT scan and the patient admitted to the ward for oxygen-therapy. While the initial echocardiography (TTE) was normal, spiroergometry indicated signs of pulmonary vascular limitation. As an incidental sonographic finding, liver lesions were biopsied. The recovered patient was discharged only to be readmitted 4 days later due to recurrent dyspnea. Subsequent TTE now showed severe right ventricular (RV) strain, CT scan was negative for PE once again. The immunophenotype in the biopsy indicated a primary cholangiocarcinoma (CCA) or a metastasis of an urothelial carcinoma. Due to right heart failure, the patient was transferred to the intensive care unit. Despite maximal cardiac support, he could not be stabilized and developed progressive multiorgan failure. Extracorporeal life support was considered but ultimately denied because of the malignoma. PTTM was suspected but the patient's condition did not allow for chemotherapy. He deceased only a few hours after treatment withdrawal. The autopsy confirmed an intrahepatic CCA with massive PTE.

Discussion: In our patient, with rapid progression (17 days) from symptom onset to death, PTE/PTTM could have been suspected retrospectively after spiroergometry. As the biopsy results confirming the malignancy came in only after significant deterioration, it was too late to initiate chemotherapy. There are case reports that Imatinib and Bevacizumab might improve survival in patients with PTTM by inhibiting intimal proliferation (2, 3). Unfortunately the antemortem differentiation between PTE and PTTM is very difficult.



TTE showing D-shaping of the RV and severely increased TR maxPG indicating pulmonary hypertension (A, framed). The autopsy revealed massive PTE (B, arrows) with macroscopically unremarkable lung tissue (C) in the context of CCA (D, E).

P131

Case report: De Quervain thyroiditis - a rare cause of fever of unknown origin

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Learning objectives: Awareness of subacute granulamotous thyroiditis (SAT) in a patient with fever of unknown origin after SARS-CoV-2 with elevated inflammatory markers, impaired thyroid function and sore throat.

Case: A 51-year old female presented with fever, dry cough and inner restlessness for 3 weeks. On admission, she appeared in reduced general condition with normal vital signs. Clinical examination showed increased nervousness with no signs of oral redness or cervical lymphadenopathy. Laboratory analysis revealed an elevated C-reactive protein (CRP), leukocytosis and an erythrocyte sedimentation rate of 82 mm/h. Viral/bacterial PCR and blood cultures were negative. X-ray and CT scan showed no infection. Prior to admission, she was treated with amoxicillin/sulbactam for 7 days, followed by clarithromycin and 50 mg prednisone for 5 days for fever of unknown origin. A detailed medical history discovered a sore throat, weight loss, nervousness and increased sweating. The thyroid was tender on examination and the thyroid function indicated overt hyperthyroidism (thyroid-stimulating hormone (TSH) 0.02 µU/mL, free thyroxine (fT4) 26 pmol/L, free triiodothyronine (fT3) 6.6 pmol/L with thyroid antibodies within the normal range. Thyroid ultrasound showed a heterogeneous, hypoperfused parenchyma (Fig.1A). Based on these findings, SAT was diagnosed. Thyroiditis caused by bacteria, radiation, trauma and pregnancy were ruled out. Due to upper respiratory symptoms prior to diagnosis and positive serology for SARS-CoV-2 IgG, SARS-CoV-2 infection was the most probable trigger. Prednisone therapy was initiated and symptoms decreased, while CRP and TSH normalized. After 9 months of therapy, the patient was symptom-free with normal thyroid function and normal thyroid ultrasound (Fig.1B).

Discussion: SAT is an inflammation of the thyroid gland, causing painful thyroid tenderness, sore throat and fever. Damaging follicular cells, hyperthyroidism is seen in 50% of the affected individuals. Within 6 to 12 months euthyroidism is regained in most cases. During the SARS-CoV-2 pandemic many cases of SAT have been reported due to the increased affinity of the virus to the thyroid[1-2]. This case provides educational value due to the association of SAT with SARS-CoV-2 and the often delayed diagnosis due to nonspecific symptoms.

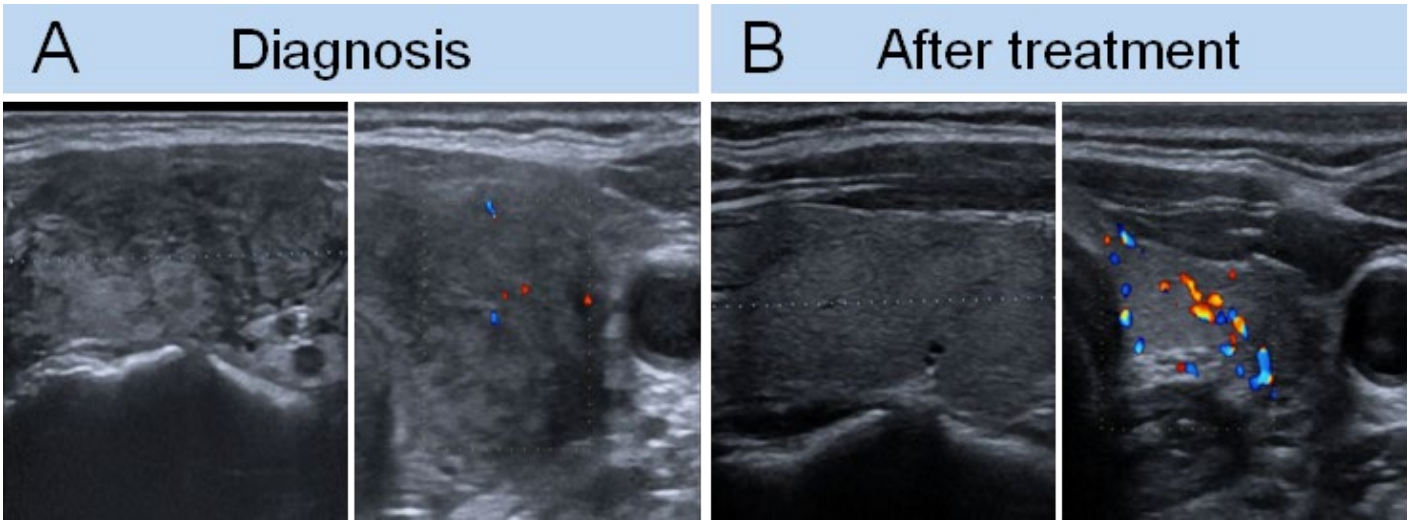

Fig.1 Thyroid ultrasound. (A) At the diagnosis, normal sized, heterogeneous hypoperfused thyroid; (B) 9 months after treatment, normal thyroid.

P132

Case Report: Fournier's gangrene in two elderly women with diabetes mellitus and obesity

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Learning objective: Caution is advised when patients with obesity and diabetes mellitus present with genital, perineal, or perianal infections independent of gender. Immediate diagnosis and treatment is vital for prognosis in patients with Fournier's gangrene. Here we present photo-imaging that may help recognize Fournier's gangrene in women earlier in the future.

Case: We present two cases of female patients with Fournier's gangrene that presented to the emergency department with deterioration of the general condition and unclear focus of infection in 2019 and 2024, respectively. In both cases, the clinical history included obesity and diabetes mellitus but there were no other known risk factors for Fournier's gangrene. Physical examination revealed a wound in the perigenital respectively perigluteal region. White blood cell count and CRP were elevated, and both patients presented with acute prerenal kidney failure. CT scan showed subcutaneous and intrafascial gas inclusions indicating Fournier's gangrene and both patients underwent immediate surgical debridement and antibiotic therapy with Piperacillin, Tazobactame, and Clindamycin was initiated.

The first patient, a 65-year-old female underwent eight surgical interventions including the performance of a sigmoidostomy, and was discharged from hospital after 44 days. The second patient, an 81-year-old female underwent two further wound revisions after the initial debridement. Still, therapy was ended after six days, following the patient's advance directives and her wish not to prolong her life in critical situations.

Discussion: Fournier's gangrene is a potentially life-threatening condition that requires immediate recognition. Since literature shows higher incidences in men with a sex ratio of 10:1, diagnosis in women can be challenging. Nonetheless, women with this disease seem to present more acute and critical patient courses with higher rates of required mechanical ventilation

and renal replacement as well as a higher fatality rate compared to men. Although diabetes and obesity are well-known risk factors for the development of Fournier's gangrene, those conditions are highly common, especially in elderly people, and therefore may not draw suspicion to Fournier's gangrene in people with genital, perineal, or perianal infection.

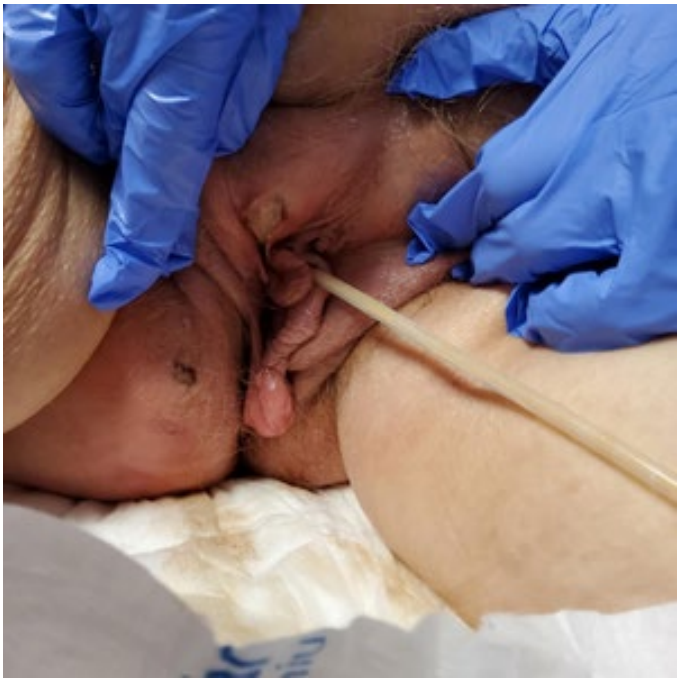

Figure 1. Labial and perineal lesions

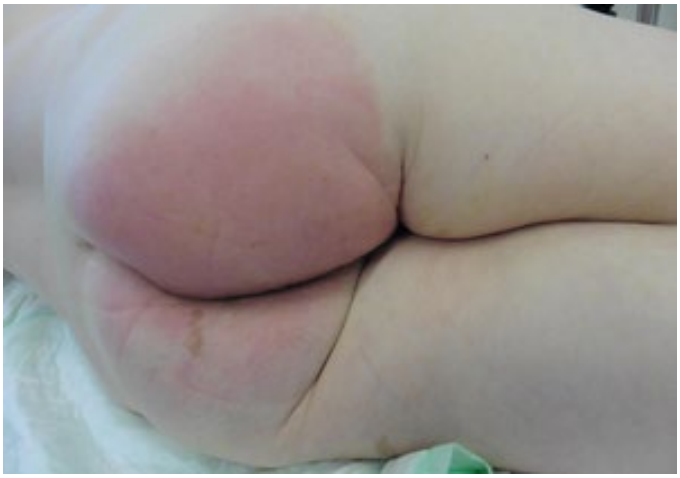

Figure 2. Gluteal swelling and erythema

P133

Case report: Urosepsis, causing septic vasculitis

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Learning objectives: It is well known that sepsis can cause skin lesions, one of them is the septic vasculitis, which is associated with a high mortality rate. We present a case of septic vasculitis with a favorable outcome under therapy with antibiotics and prednisolone.

Case: A 63-year-old male patient presented with dyspnea, fatigue, purpuric lesions on the hands and feet (Figure 1) and a maculopapular rash on the trunk. The skin lesions were present for 4 days. He had an indwelled urinary catheter because of prostate obstructive syndrome, which was changed 10 days ago. Blood tests showed raised inflammatory markers and thrombocytopenia but without signs of disseminated intravascular coagulopathy. The patient was transferred to the ICU with the diagnosis of fulminant urosepsis and septic shock. Ultrasonography and CT scan showed residual hematoma in the bladder which reversed after bladder irrigation. Endocarditic vegetations were ruled out. Blood cultures were negative, urine cultures were positive of staphylococcus aureus. The antibodies for ANCA-positive vasculitis were negative. The toxic-shock syndrome antibodies in urine test were negative. The acral lesions evolved to confluent purpura with ulcerated nodules. Histopathology of non-ulcerated petechial lesion of the left hand (Figure 2) revealed severe vascular damage characterized by endothelial swelling, occlusive fibrin thrombi marked extravasation of erythrocytes and subtle leucocytoclasia. Direct immunofluorescence microscopy ruled out immunocomplex-mediated vasculitis. Cefepime and clindamycin were initially administered by suspicion of toxic shock syndrome and then switched to co-trimoxazole and tapered oral and topical steroids. The patients' clinical condition, including skin lesions, improved rapidly and he was discharged from the hospital in good general condition.

Discussion: Septic vasculitis is a non-leukocytoclastic acute vasculitis that is seen in association with various septicemic states. Its skin manifestations are purpuric lesions with a predilection for acral sites and they usually appear in the early stage of sepsis. Accurate clinical examination, and medical history taking, early skin biopsy and rapid antibiotic therapy is essential for the prognosis of this life-threatening disease.

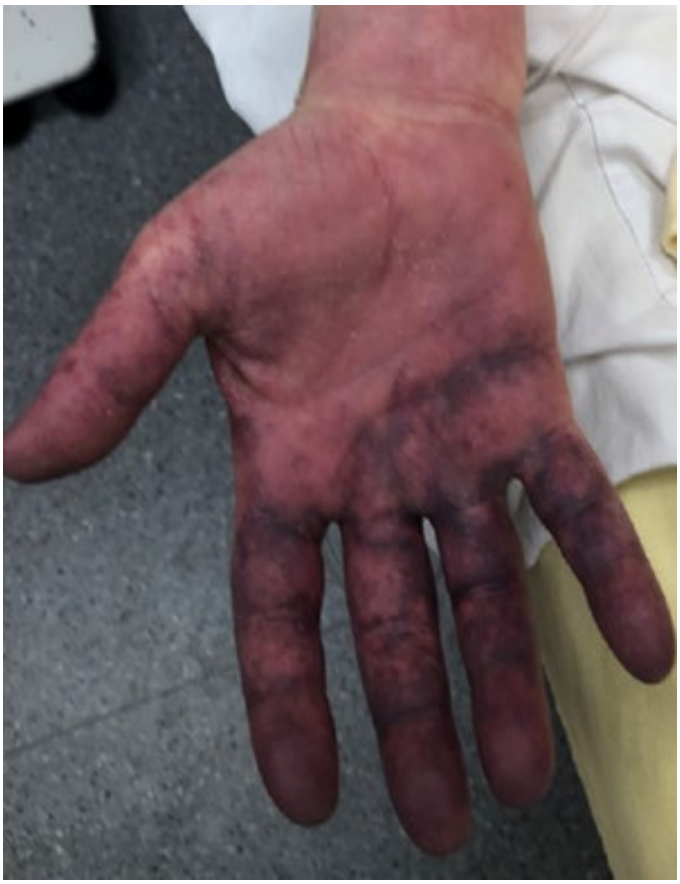

Figure 1. Purpura lesions on the first hospitalisation day

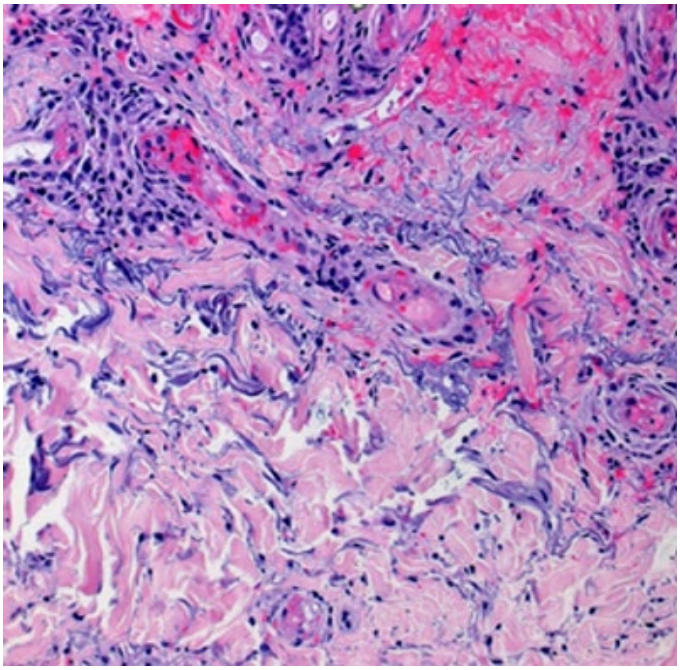

Figure 2. Histopathology of the non-purpural lesions of the left hand

P134

Challenging diagnosis and treatment: A case report of a patient with chronic Q-fever

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Learning objective: Chronic Q-Fever (CQF) can manifest as vascular infection, frequently occurring in a preexisting aortic aneurysm. The challenges of managing CQF include considering this rare diagnosis, performing serological testing and administering prolonged antibiotic treatment, which may have severe side effects.

Case: A 68-year-old man underwent a percutaneous endovascular aneurysm repair (pEVAR) for a chronic abdominal artery aneurysm in June 2022. Postoperative CT revealed a paraortal collection of 40 x 55 x 90 mm infiltrating the lumbar vertebral body 3 and the psoas suspicious for abscess. A biopsy of this collection showed lymphatic inflammation with negative culture. Four months later, the patient presented with acute sciatic and lower back pain and a CRP of 67 mg/L. MRI revealed an enlargement of the psoas collection, with suspicion of osteomyelitis of the lumbar vertebral bodies 3 and 4. The slow progression suggested a chronic infection, which was confirmed by a positive serology for coxiella burnetti (Titer of antiphase I IgG: 2560). Abscess drainage and stabilization from L2 to L5 were performed. The targeted PCR for coxiella burnetti of the debrided material was positive. Treatment with doxycycline and hydroxychloroquine was started. After three months, the patient developed nausea, vomiting, tachycardia and hypotension. Echocardiography showed a dilation of the left heart and severe biventricular failure with an ejection fraction of 15%. The patient developed cardiogenic shock with renal and liver insufficiency, requiring catecholamine. Drug-induced cardiomyopathy due to hydroxychloroquine was suspected and the therapy for the CQF was switched to doxycycline and ciprofloxacin. Heart failure was managed with valsartan, metoprolol and spironolactone. After one month, the patient was discharged. Follow-up revealed normalized, cardiac function (EF: 61%) and controlled chronic coxiella burnetti infection, with residual paraortal and paravertebral fluid collection. After 10 months of doxycycline and ciprofloxacin, the antiphase I IgG titer decreased to 320.

Discussion: Arterial aneurisms pose a risk factor for vascular CQF. In this context; the presence of culture-negative abscess should prompt consideration of coxiella burnetti infection. The first line hydroxychloroquine therapy may precipitate severe heart failure; therefore, ciprofloxacin presents a viable alternative treatment option.

P135

Cutaneous Listeriosis

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Learning objectives: Listeria monocytogenes is transmitted through unpasteurized or improperly heated dairy, meat and seafood. It causes gastroenteritis or flu-like symptoms in the immunocompetent host. Skin infections are very rare and usually result from direct inoculation. Severe invasive infections such as Meningitis, encephalitis or bacteremia occur mainly in neonates, older, immunocompromised or pregnant patients. The antibiotics of choice are Aminopenicillins

Case: An 89-year old female nursing home resident with a history of atrial fibrillation, CAD and CKD was admitted to our Emergency department because of painfully swollen erythematous legs and disorientation. 6 weeks prior, she had undergone left femoral nail placement due to a traumatic fracture. Her postoperative course had been uneventful. On admission, the patient was disoriented, tachycardic (100/min) but normotensive and afebrile (37.1°C). Lab work showed extensive inflammation (20.57G/L, CRP 196mg/L), worsening of her kidney function (AKIN I-II) and an elevated lactate of 2.5mmol/L consistent with sepsis. CT scan of the abdomen and thighs demonstrated small subcutaneous fluid collections around the left hip but no overt abscess. Xray showed no evidence of implant loosening or dislocation. We obtained blood cultures and an ultrasound-guided aspirate from the trochanteric region and started the patient on empiric treatment with Co-Amoxicillin. Within 24 hours 2/4 blood cultures came back positive for Listeria monocytogenes and antibiotic therapy was narrowed to Amoxicillin 2g iv. q6 which was later switched to an oral regimen of Amoxicillin. Follow up blood cultures and peritrochanteric hip aspirate remained negative.

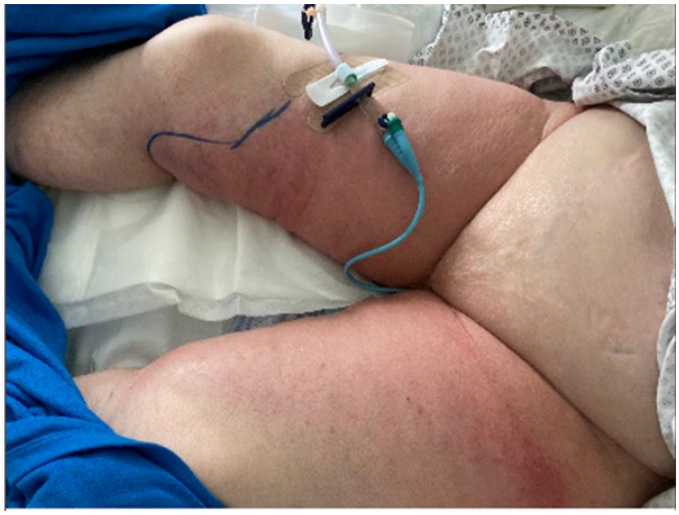

Image 1: Cutaneous manifestation of Sepsis with Listeria monocytogenes

Discussion: Listeria monocytogenes is a short, facultatively anaerob gram positive rod which is usually transmitted through unpasteurized or improperly heated dairy, meat and seafood. Listeria causes gastroenteritis or flu-like symptoms in the immunocompetent host. Severe invasive infections such as meningitis, encephalitis or bacteremia occur mainly in neonates, immunocompromised, older or pregnant patients. Skin infections are very rare and mostly due to direct inoculation when in contact with animal products (veterinarians). Our patient demonstrated no signs of primary cutaneous lesions and had no recorded exposure, which is why we postulate hematogenous spread, although we cannot prove it.

P136

Do we need standardized management after Termination-of-Resuscitation Attempts? Autoresuscitation in a 67-year-old woman: a case report

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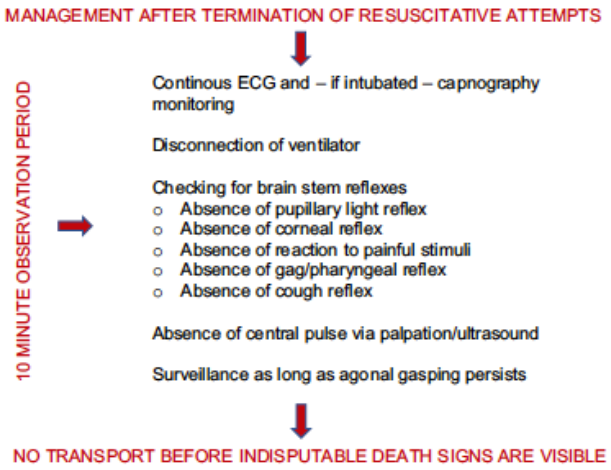

Background: Autoresuscitation is the phenomenon of spontaneous return of circulation after cessation of CPR, also known as the Lazarus phenomenon. Most of the evidence is based on case reports and a few systematic reviews. The occurrence of autoresuscitation may lead to self-reproach in affected emergency personnel and may rise questions about the correct procedure after terminating resuscitative efforts. In contrast to existing cardiac arrest guidelines there is no standardized approach to terminating resuscitative attempts.

Case: We report a case of out of hospital autoresuscitation in a 67-year-old female after 60 minutes of advanced cardiac life support. After prolonged shock refractory shockable rhythm, we recorded pulseless electrical activity and fixed pupils, consequently resuscitation was terminated. About 50 minutes later the patient surprisingly showed signs of life. Due to the suggestive history, a coronary angiography was performed, showing severe coronary heart disease which necessitated surgical intervention. After ACBP surgery, intensive care followed by treatment on the cardiological ward she was finally discharged to neurological rehabilitation.

Discussion: As already proposed by existing literature, there should be at least a 10-minute interval of close monitoring after abandoning CPR. Transport of a deceased patient should only take place after secure signs of death can be detected.

Further investigation is needed to determine which patients are most likely to benefit from an extended observation period. Our case reports highlights the difficulties in death declaration and the importance of close monitoring after abandoning CPR.

P137

EBV Reactivation in Metamizole-Induced Agranulocytosis

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Learning objective: Agranulocytosis is a rare, but severe complication that can occur following an analgesia with metamizole. Given the wide range of alternative pain medications available, cautious prescription of metamizole is recommended. If metamizole is still used, regular blood count monitoring is crucial.

Case: A 64-year-old woman was admitted to the emergency room with elevated CRP and agranulocytosis, which was initially diagnosed during her rehabilitation following the insertion of a total hip replacement. She has been given metamizole as an analgesic after surgery. Upon admission, the patient's leukocyte count was 1.0 G/l and the absolute neutrophils were 0.00 G/l. Subsequently, granulocyte colony-stimulating factor (G-CSF) was administered. Despite initial antibiotic prophylaxis with cefepime, the patient developed fever in the following days, accompanied by severe headaches, a sore throat and dysphagia. An otorhinolaryngological examination and a CT scan revealed no pharyngeal erythema or tonsillar swelling, but prominent neck lymphadenopathy. The patient had reported similar symptoms in the 1980s, when Epstein-Barr virus (EBV) infection was suggested as a possible diagnosis. The patient's clinical findings and the history of a primary EBV infection in the youth, raised suspicions of a reactivated EBV infection. Subsequent EBV PCR confirmed positivity with a low viral load (7920 GEq/ml). After 10 days, the leukocyte count normalized with the use of G-CSF. Follow-up EBV PCR test conducted one week later returned normal results.

Discussion: Agranulocytosis poses a significant risk of infection. When searching for potential pathogens causing infections in these patients, reactivation of CMV and EBV should be considered, although it must be taken into consideration that low-level and asymptomatic EBV DNAemia is common in acute pathologies. The incidence rates of metamizole-induced agranulocytosis vary between studies, with one study suggesting ranging from 0.46 to 1.63 cases per million person-days of use in Switzerland between 2006 and 2012. Although metamizole purchases in Switzerland increased by 44% from 2014 to 2019, it is important to exercise caution due to its rare but severe adverse effects. Regular blood count monitoring is crucial, and immediate discontinuation of metamizole as well as follow-up care of the patient is mandatory if adverse effects are observed.

P138

Exploring an Unusual Case of Immunotherapy-Induced Diabetic Ketoacidosis

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Learning objectives: Identify Immune-Related Adverse Events (irAEs) in Oncology: recognition of adverse events in cancer patients undergoing immune checkpoint inhibitors.

Emphasize vigilant monitoring in immunotherapy: Understanding the critical role of regular glucose monitoring in patients with immune checkpoint inhibitor therapy.

Case: A 52-year-old woman presented to the emergency department with nausea, vomiting and malaise persisting for one day. Four months before, she received a diagnosis of Stage III triple-negative invasive ductal breast carcinoma with nodal metastases. The neoadjuvant therapy contained carboplatin, docetaxel, and pembrolizumab (Anti-PD1) Upon arrival at the emergency department she displayed signs of distress, clinical dehydration, tachycardia, hypertension and an elevated respiratory rate (24 breaths per minute). Laboratory findings revealed leukocytosis, mild hyponatremia, elevated lipase, and severe metabolic acidosis (pH 6.89, elevated anion gap of 22 mmol/l). Her blood glucose level was notably high at 32.4 mmol/L, urinalysis detected both glucose and ketones. The diagnosis of diabetic ketoacidosis (DKA) on hospital admission due to pembrolizumab was made. Further tests for anti-islet cell antibodies and anti-glutamic acid decarboxylase antibodies yielded negative results. Hemoglobin A1C on admission was 6.8%. Following a 9-day treatment course involving rehydration, insulin therapy with dose titration, and electrolyte management, the patient showed improvement. She was subsequently discharged with a prescribed regimen of basal and bolus insulin therapy.

Discussion: Pembrolizumab-induced diabetes, a rare occurrence (0.4%), may manifest as DKA. The mechanism involves PD-1 inhibition activating autoreactive T-cells, leading to the destruction of pancreatic islet cells. Autoantibodies are absent in half the cases, challenging typical diabetes patterns. Regular glucose monitoring during immunotherapy is crucial. Despite lacking established guidelines, monitoring for even mild alterations in fasting glucose levels is essential, considering the risk of both sudden-onset type 1 diabetes and insidious worsening of preexisting diabetes. The absence of autoantibodies, contrary to typical diabetes type 1 development, highlights the uniqueness of immunotherapy-induced diabetes. Research is imperative to establish monitoring protocols and prevent severe complications associated with this rare critical adverse event in immunotherapy.

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Extensive deep vein thrombosis as a manifestation of a May-Thurner syndrome

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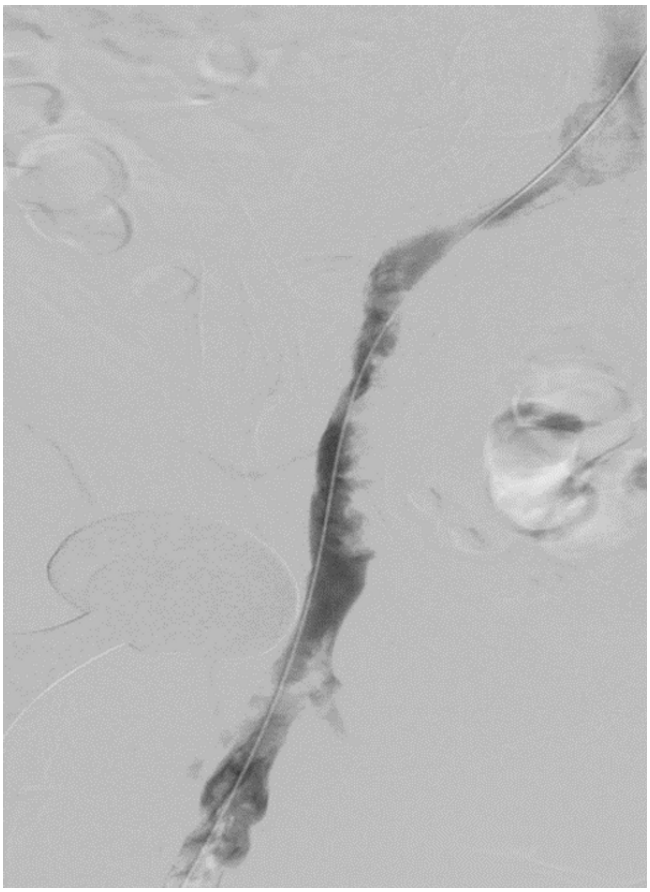
Learning objective: May-Thurner syndrome (MTS) is a rarely diagnosed condition belonging to the venous compression syndromes in which patients develop iliofemoral deep venous thrombosis (DVT) due to a clinically significant stenosis in which the right common iliac artery overlies and compresses the left common iliac vein against the lumbar spine. Our goal is to raise awareness of this entity so that the appropriate therapy can be initiated.

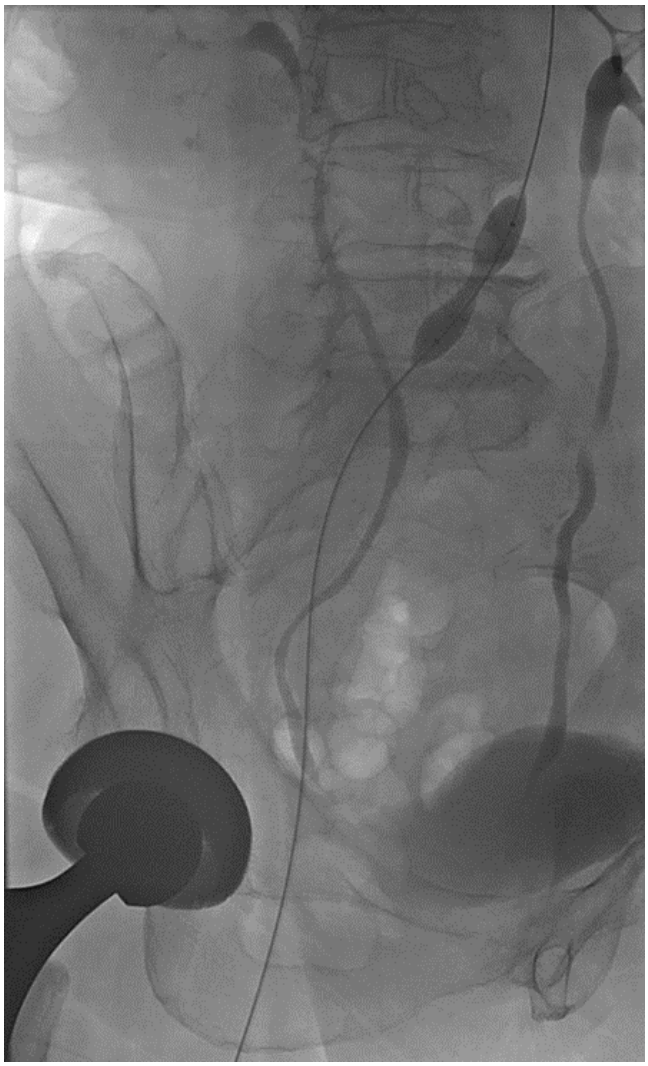
Case: A 70-year-old female patient presented at the emergency with diffusely swollen, erythematous and painful left leg. Leg pulses, reflexes, strength, and sensation were normal. Anticoagulation was started after duplex ultrasound based confirmation of an ilio-femoral DVT was made. A computed tomography (CT) scan showed a MTS anatomical variation of the left common iliac vein (CIV). Because of the impressive clinical features of the thrombosis a venography was performed and revealed extensive thrombus of the left external iliac, femoral and iliacofemoral branches. Percutaneous endovascular thrombolysis and thrombectomy was performed using tissue plasminogen activator- tPA (Actilyse®), followed by percutaneous transluminal angioplasty with venous stenting (Figures 1 and 2). Immediate follow-up duplex ultrasound showed a good result with

patent iliofemoral veins with minimal residual thrombus and fast flow.

Discussion: Diagnosing MTS is challenging and necessitates a high index of suspicion. The underlying anatomical anomaly is not easily visualized by duplex ultrasound. Diagnostics with other modalities that provide a contrast venography should therefore be performed. The scientific consensus is that a conservative approach with long-term anticoagulation alone is not adequate to prevent long-term sequelae, predominantly post thrombotic syndrom. First-line treatment consists of a catheter directed thrombolysis followed by an endovascular intervention (mechanical thrombectomy, self-expanding stent placement, or a combination of both). After completion of thrombolytics and thrombectomy, an intravascular stent should be deployed in the area of iliac vein compression and repeat vascular imaging for the purpose of success control should be obtained. Anticoagulation can be stopped after 6 months after excluding other provoking factors. Stent patency after several years remains very high (85–95% after 3 years).



Venography after thrombolysis shows the stenosis of the left CIV



Balloon angioplasty of the underlying stenosis

P140

Fatal Hemophagocytic Lymphohistiocytosis triggered by Epstein-Barr Virus in a patient with immunosuppression

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Learning points: Secondary HLH due to primary EBV infection is a potentially fatal complication of EBV in inflammatory bowel disease patients under thiopurines. EBV screening must be considered before therapy with Azathioprine and risk–benefit ratio be disclosed to patients and caregivers before starting thiopurines in EBV-naïve patients.

Case and discussion: A 43-year-old male patient was referred for evaluation of a 2-week history of fever up to 40°C, ear pain, bilateral lymphadenopathy, jaundice, and dull pain in the left mastoid region, despite antibiotic treatment. The MRI showed only a fluid accumulation in the left mastoid without signs of local complications. The patient had a history of ulcerative colitis, which was controlled with Azathioprine and Mesalazine. Initially, we found cholestasis and hepatocellular injury (C-reactive protein 15.8 mg/l, total bilirubin 77 µmol/l, ASAT 258 U/l, ALAT 157 U/l, gamma-GT 394 U/l and AP 421 U/l without other

abnormalities). Considering drug induced liver injury the antibiotic therapy was changed and Azathioprine was stopped. The MRCP showed no evidence of a primary sclerosing cholangitis, primary biliary cholangitis, or hepatosplenomegaly. The patient deteriorated with persistent high fever, deepening jaundice, maculopapular rash and hemodynamically instability, acute liver failure and new-onset pan-cytopenia (hemoglobin 76 g/l, white blood cell count 2.4 giga/l, thrombocytes 63 giga/l). A systemic hyperinflammatory syndrome like a hemophagocytic lymphohystiocytosis (HLH) was considered and further evaluated: ferritin 12'935 µg/l, triglycerides 4.70 mmol/l, sCD25 48925 pg/ml, fibrinogen 1.2 g/l). A bone marrow examination revealed hypercellularity with hemophagocytosis and no signs of a neoplasia. Serology for Epstein-Barr virus (EBV) was consistent with primary infection with high EBV viremia (EBV viral load 528'000 GEQ/ml). Other serological and immunological evaluations were negative. The diagnostic H-score for reactive EBV triggered HLH showed a very high likelihood for HLH (249 points). According to the HLH protocol prompt therapy with high-dose intravenous glucocorticoids, Etoposide, Rituximab was initiated, and the patient was immediately referred to an ICU with a transplantation unit, where he died from multiorgan failure and overwhelming fungal infection in the following weeks.

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Grade 4 checkpoint inhibitor-triggered Pneumonitis

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Learning objectives: 1. Recognize the clinical presentation and diagnostic challenges associated with grade 4 pneumonitis induced by checkpoint inhibitors. 2. Discuss the management strategies for severe pneumonitis and highlight the importance of multidisciplinary collaboration.

Case: A 76-year-old female with a history of metastatic non-small cell lung cancer (NSCLC) stage IV presented with progressive, worsening dyspnea and non-productive cough after the eighth cycle of pembrolizumab, a programmed cell death protein 1 (PD-1) inhibitor. On examination, she displayed tachypnea, oxygen saturation below 70% on room air, and bilateral crackles on lung auscultation. Laboratory investigations revealed an elevated C-reactive protein (CRP) with normal procalcitonin. Bronchoscopy with bronchoalveolar lavage (BAL) was not possible due to high oxygen demand. Computed tomography (CT) imaging demonstrated diffuse ground-glass opacities and consolidations consistent with pneumonitis. Pembrolizumab was discontinued. High-dose corticosteroid therapy (methylprednisolone) was administered, resulting in clinical improvement.

Discussion: Immune checkpoint inhibitors (ICIs) such as PD-1 inhibitors enhance the immune response against cancer cells but may lead to immune-related adverse events (irAEs). Pneumonitis can manifest with varying degrees of severity. It is classified by grades 1 to 5 based on the Common Terminology Criteria for Adverse Events (CTCAE). Grade 4 indicates life-threatening symptoms. Prompt recognition and management are crucial to prevent progression and improve outcomes. Differentiating checkpoint inhibitor-induced pneumonitis from other respiratory conditions can be challenging. Clinical suspicion, radiological findings, and exclusion of infectious causes are essential for an accurate diagnosis. Immediate cessation of ICIs, high-dose corticosteroids and supportive care are the mainstay of treatment. Regular monitoring for improvement or deterioration is necessary, and alternative immunosuppressive agents may be considered in refractory cases. Pulmonary function tests and imaging help assess treatment response. Multidisciplinary collaboration is essential for optimal patient care. Continued research, clinical experience, and pharmacovigilance reporting of irAEs will further refine strategies for early detection and effective intervention.

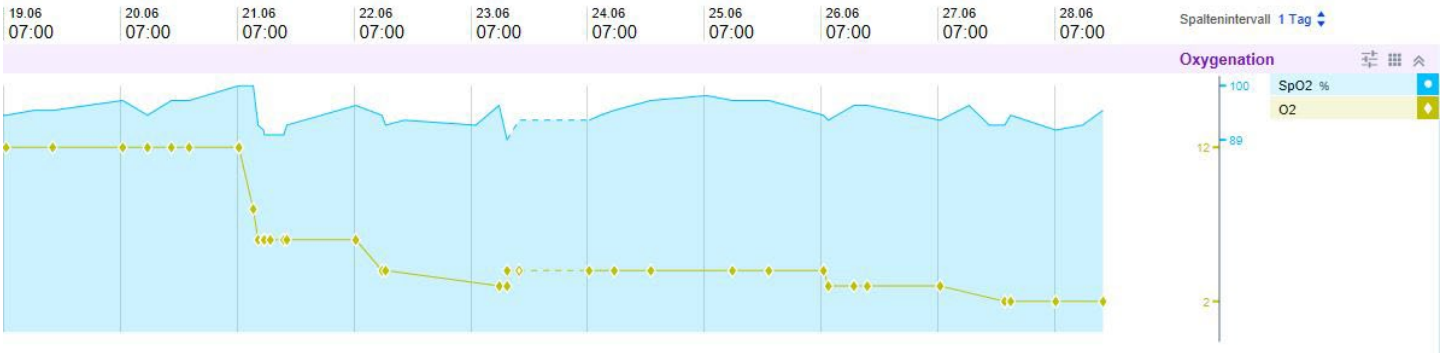

Fig.1: Oxygen levels during hospitalisation

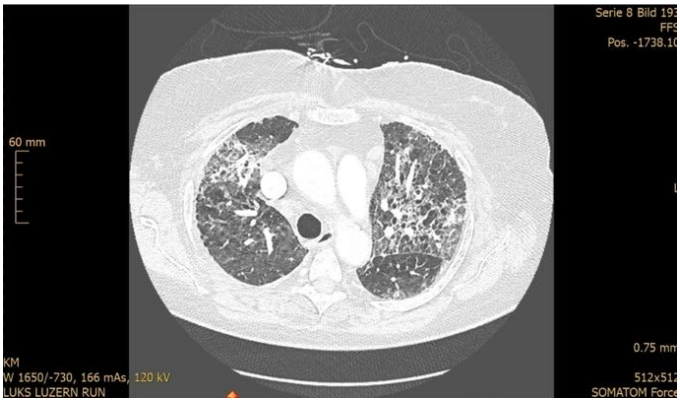

Fig.2: CT thorax on admission with diffuse ground-glass opacities

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Hematoma of an abdominal wall and a vertebral fracture in a patient with pertussis

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Learning objective: To recognize pertussis in a patient presenting with paroxysmal cough and to be aware of potential complications of the violent coughing fits.

Case: A 55-year-old male patient presented to the emergency department (ED) because of paroxysmal cough lasting for a month. The frequence of the coughing fits had been increasing over this period. The fits consisted of numerous sharp, separated coughs and ended with an inspiratory whoop. He denied vomiting during these episodes. We observed a syncope during one of the fits in our ED. His medical history was significant for multiple spine surgeries and chronic back pain as well as arterial hypertension and allergic rhinitis. He was a life-long non-smoker, there were no B symptoms and in the last year, he had only been travelling in Australia and in Europe. He had never been diagnosed with a tuberculosis and his vaccination status was up-to-date. In the previous month, the patient had already spent 10 days as an in-patient in another Swiss hospital. He had initially presented there with similar symptoms. Pulmonary embolism and pneumonia had been ruled out. During the initial hospital stay, however, he had complained of intense back pain and pain in the abdomen. In a computed tomography (CT), a fracture of the vertebral body L2 as well as a hematoma of the abdominal wall had been noticed. The pain had not been controlled with oral opioides and he had been admitted to an intensive care unit and received ketamine infusion and fentanyl. No further bleeding had been observed and the hemoglobin level had remained stable after the initial drop of 1,9 g/dcl. The back pain had improved slowly and he had been discharged after 10 days. The cause of his cough, however, had not been found. The symptomatic therapy with paracodein did not improve his symptoms. The character of the coughing fits and the medical history were suggestive of pertussis, a PCR test for Bordetella pertussis from a nasopharyngeal swab turned up positive. He received azithromycin for 5 days, his symptoms improved gradually and we could discharge him after 11 days.

Conclusion: Pertussis is a highly contagious bacterial disease that should be considered in patients with paroxysmal cough. Characteristic symptoms include violent coughing fits with a staccato character and an inspiratory whoop. Even though the mortality among adults is low, the violent coughing fits can lead to numerous complications as it could be observed in our patient.

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How to differentiate erythema multiforme major from Stevens-Johnson syndrome?

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Learning objectives: Erythema multiforme major (EMM) is a rare skin disease, typically characterized by target-like papules, often symmetrically distributed on the extensor sides of the extremities and accompanied by erosions or bullae of the oral, genital and ocular mucosae. The trigger is often infectious or drug-related and the accurate diagnosis can be challenging.

Case: We report the case of a healthy 41-year-old male patient who presented with a generalized exanthema with marked oral and genital mucosal involvement. One week before presentation, he had fever and cough, which had been treated with azithromycin for three days, as well as ibuprofen and paracetamol. Skin examination at the time of presentation showed multiple, partly confluent coccoid lesions with a vesiculobullous center on the trunk (figure 1), on the extensor sides of the arms and inguinogenitally. In addition, there were erosive lesions on the oral mucosa including the tongue (figure 2) as well as erosive balanitis and bilateral mild conjunctivitis. Nikolsky's sign 1 and 2 were negative. Laboratory results revealed discretely elevated inflammatory parameters. The microbiological swabs showed no evidence of infectious vesicle formation or a superinfection. A PCR nasopharyngeal swab test was positive for Mycoplasma pneumoniae. Histologically, subepidermal clefting with a neutrophil-rich inflammatory reaction was found; direct immunofluorescence was negative. We started a moisturizing skin care and fusidic acid as well as volume administration and nutritional advice, resulting in a rapid improvement. The final pathology results led to the patient`s diagnosis of EMM.

Discussion: This case presents a patient with an EMM, possibly triggered by a mycoplasma infection or drug-induced by azithromycin, ibuprofen or paracetamol or a combination. Clinical differential diagnoses include Stevens-Johnson syndrome (SJS)/toxic epidermal necrolysis (TEN) as well as autoimmune bullous dermatosis. The differentiation can be difficult, but a rapid progressive course is an ominous sign, indicating SJS/TEN. A skin Biopsy with direct immunofluorescence studies is always necessary as well as determination of Anti-BP180/230 to find the correct diagnosis. In this case, the histologically proven inflammatory infiltrate as well as the clinical course with rapid improvement argued against SJS, the negative direct immunofluorescence and the clinical course against autoimmune bullous dermatosis.

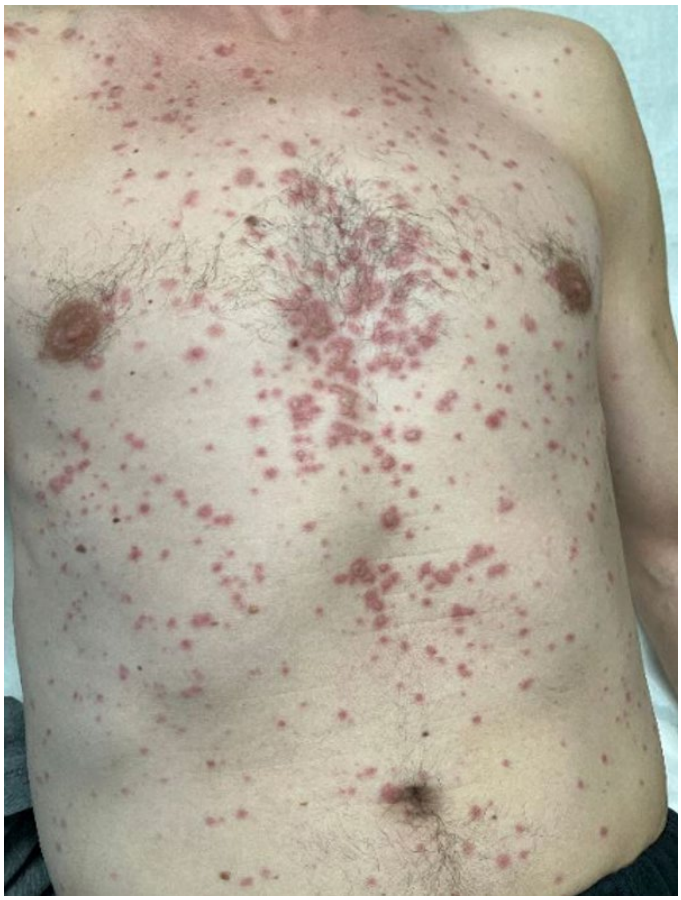

Figure 1

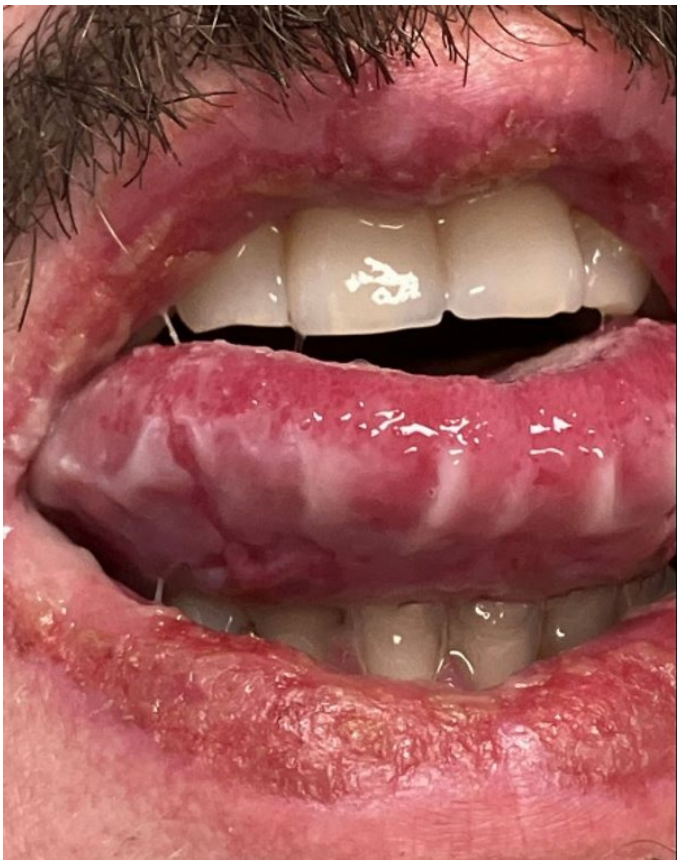

Figure 2

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Hypercalcemia due to severe Amiodarone-induced Thyrotoxicosis - a case report

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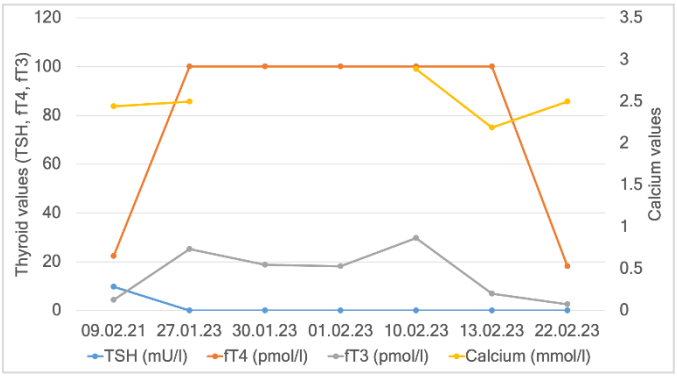
Learning objective: To recognize hyperthyroidism as a differential diagnosis of hypercalcemia. To acknowledge the possibility of hyperthyroidism even in oligosymptomatic patients.

Case: A 60-year-old patient with coronary artery disease and ventricular tachycardia, under amiodarone and beta-blocker therapy, presented with nausea and vomiting. Otherwise asymptomatic, laboratory tests revealed severe thyrotoxicosis (TSH <0.01mU/l, fT4 >100pmol/l, fT3 25.2pmol/l), with negative TSH receptor antibodies. Ultrasound examination showed an enlarged but nodule-free thyroid with hypoperfusion, suggesting type 2 amiodarone-induced thyrotoxicosis, likely intensified by the administration of an iodine-based contrast agent before laboratory results were available. Therapy with carbimazole (60mg/day), natrium perchlorate (900mg/day) and prednisone (40mg/day) was started immediately without improvement of thyroid values and the still oligosymptomatic patient declined total thyroidectomy. One week after discharge he was hospitalized again due to ongoing, worsened nausea and vomiting. Despite unchanged thyroid hormone levels, he exhibited newly elevated serum calcium (2.89mmol/l) and phosphate (1.89mmol/l) levels, coinciding with a low-normal PTH (1.82pmol/l) and vitamin D deficiency (18nmol/l). This time, the patient agreed to undergo surgery. Total thyroidectomy was performed without complications with resolution of hypercalcemia within days.

Discussion: Hypercalcemia due to amiodarone-induced thyrotoxicosis is rare. This case showed low-normal serum PTH and hyperphosphatemia, despite vitamin D deficiency. The quick resolution of hypercalcemia post-thyroidectomy indicates its link to severe hyperthyroidism, possibly due to increased bone turnover from elevated thyroid hormones. The primary therapeutic goal in hyperthyroidism-associated hypercalcemia is to control the hyperthyroid status. Therein, total thyroidectomy leads to rapid normalization of thyroid and calcium values. This case illustrates the importance to consider thyrotoxicosis in the differential diagnosis of hypercalcemia. Another interesting feature of this case are the almost lacking clinical symptoms of hyperthyroidism, despite the remarkably elevated fT4 und fT3 levels.

Analysis	Value on 10.02.23	Reference range
TSH (mU/l)	< 0.01	0.27 - 4.20
fT4 (pmol/l)	> 100	12.0 - 22.0
fT3 (pmol/l)	29.7	3.1 - 6.8
Calcium (mmol/l)	2.89	2.10 - 2.60
Phosphate (mmol/l)	1.65	0.81 - 1.55
Parathyroid hormone (pmol/l)	1.82	1.60 - 6.90
25-OH vitamin D (nmol/l)	18	75 - 220
Alkaline phosphatase (U/l)	107	40 - 130
Creatinine (umol/l)	88	59 - 104
Albumin (g/l)	42	35 - 50

Table 1: Laboratory values one week after initial presentation and two days before total thyroidectomy (in blue = values below reference range, in red = values above reference range, in black = values in normal range)



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IgA nephropathy and Graves' disease: a rare association

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Learning objectives: Very few cases of associations between IgA nephropathy and Graves' disease have been reported in the literature. The likely mechanisms for this association are unclear and we cannot say whether it is a chance association or whether the two conditions have a genuine shared pathophysiology.

Case: A 54-year-old female patient from the Philippines, working as a cleaning lady, consulted the outpatient emergency room for fatigue, edema of the lower limbs, worsening for 10 days, slight exertional dyspnea and intermittent palpitations. She also reported a weight loss of around 20 kg in 6 months.

The examination found an afebrile patient, tachycard at 102 bpm, with a BP of 170/84 mmHg, anxious and slightly sweating. She presented with a 2/6 maximal systolic murmur at the Erb focus and a pitting edema of the legs. The abdomen was diffusely tender. The remainder of the examination was normal. Table 1 illustrates the main results of the biological examinations carried out. The ultrasound of the thyroid showed discreet signs of thyroiditis. The diagnosis of Graves' disease was made and treatment with Carbimazole was initiated. The kidney biopsy revealed mesangioproliferative glomerulonephritis, allowing the diagnosis of IgA nephropathy to be retained.

Discussion: IgA nephropathy, also known as Berger disease, is the most common primary glomerulonephritis and can be responsible of an end-stage renal disease. Cases of familial and secondary IgA nephropathy have been reported. IgA nephropathy as a secondary disease has been associated with inflammatory bowel disease, cirrhosis, malignancies and autoimmune disease. But very few associations with Graves' disease have been reported. Whether this association is due to the presence of circulating immune complexes can only be speculated.

Examination	Result		Examination	Result
Hemoglobin (120-160)	118 g/l		**LDH** (87-210)	**309 U/l**
MCV (82-98)	80.4 fl		**ASAT** (11-42)	**61 U/l**
Leukocytes (4-11)	9.8 G/l		**ALAT** (9-42)	**69 U/l**
Platelets (150-350)	344 G/l		**PAL** (25-102)	**133 U/l**
25 Hydroxy Vitamin D (> 75)	**21 nmol/l**		**GGT** (9-35)	**159 U/l**
CRP (0-10)	1.80 mg/l		**Lipase** (13-60)	123 U/l
Na/K	140/4.6 mmol/l		**Total cholesterol**	**8.30 mmol/l**
Creatinine (44-80)	**123 µmol/l**		**TG**	**3.47 mmol/l**
Clearance (> 60)	**43**		**HDL cholesterol**	1.13 mmol/l
Corrected serum Ca	2.61		**LDL cholesterol**	**5.59 mmol/l**
Serum proteins (61-79)	**50 g/l**		**Ferritin** (7-171)	**1484 µg/l**
Albumine (35-48)	**19 g/l**		**TSH** (0.27-4.2)	**< 0.005 mUI/l**
α 1 globulines (2-4)	**5.3 %**		**T4** (12-22)	**60.2 pmol/l**
α 2 globulines (4-13)	**21.2 %**		**T3** (1.3-3.1)	**3.7 nmol/l**
β globulines (9-14)	**21.2 %**		**Albuminuria** (0-10)	**12600 mg/l**
γ globulines (8-18)	9.7 %		**TRAB** (Nl <1)	**6 U/l**

Table 1: Results of the main biological examinations carried out

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Lichenoid nail alterations – a clinical clue for a systemic underlying disease

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Learning objectives: Although nail changes are often non-specific, they may be an essential clue for the presence of systemic disease.

Case report: A 91-year-old man was referred with a two-year history of progressive dyspnea with bilateral, predominantly left-sided, pleural effusion. A primary hypothesis of heart failure with preserved ejection fraction (HFpEF) was made based on a echocardiographic concentric hypertrophy of the left ventricle with preserved ejection fraction. We also saw a granular appearance of the myocardium (Figure 1). During physical examination, we observed significant onychodystrophy affecting all fingers and toes, characterized by thin and brittle nail plates with longitudinal ridges and distal fissures, which the patient had noticed over the past two years (Figure 2). The echocardiographic findings, peripheral low voltage on ECG and similar nail abnormalities documented in patients with AL amyloidosis raised suspicion for primary amyloidosis. Further examination revealed Bence-Jones proteinuria with free lambda light chains (approximately 250mg/24h), high serum free lambda light chains (1350 mg/l) and a reduced kappa/lambda serum quotient (0.062). The patient opted against further investigations. A HFpEF treatment with dapagliflozin as well as diuretics was started and he was discharged home.

Discussion: We report a case of nail changes resembling lichen planus most likely due to systemic amyloidosis. Physical examination may provide important clues for an underlying systemic disease. Lichenoid nail changes have been described in various systemic disorders such as AL amyloidosis, psoriasis, graft-versus-host disease, sarcoidosis, and rheumatic diseases. Although nail changes in AL amyloidosis are rare, they sometimes occur before systemic symptoms, thus representing an early clue to the diagnosis. Confirmation of systemic amyloidosis relies on histological demonstration of amyloid deposits in affected organs. Since nail dystrophy, monoclonal gammopathy of undetermined significance, and TTR amyloidosis—as isolated findings—are relatively frequent in this age group, we cannot exclude a co-occurence in the absence of a biopsy. Nevertheless, this case illustrates the relevance of including systemic diseases in the differential diagnosis of nail changes.

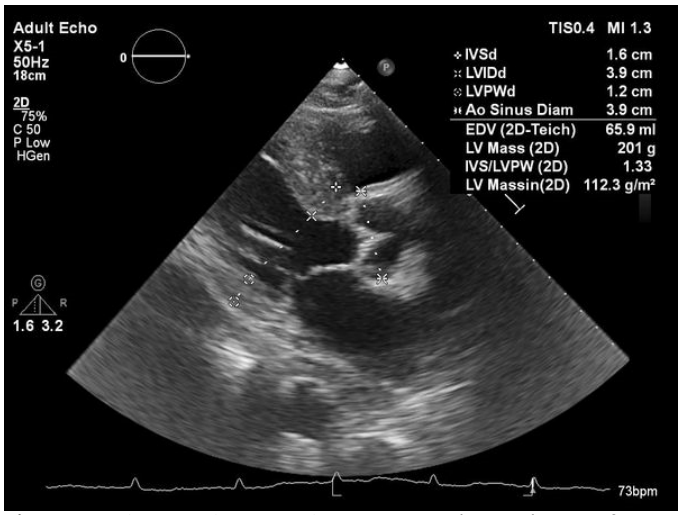

Figure 1: Thickened interventricular septum (16 mm) and left ventricular posterior wall (12 mm), granular appearance of the myocardium.

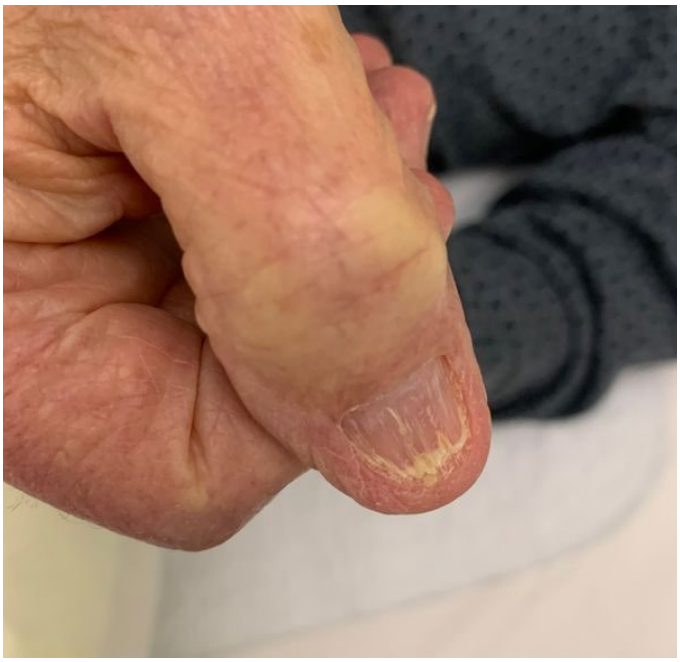

Figure 2: Lichenoid nail changes

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Malakoplakia mimicking bone invasive malignancy in an immunocompetent patient

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Learning objective: To know about Malakoplakia, a rare inflammatory pseudotumor, mostly occurring following an infection in immunocompromised patients.

Case: A 65-year-old woman was referred to our hospital with elevated leukocyte count, high CRP and increased creatinine. She reported lower back pain and lower extremity neuropathy over the past 5 months. Urosepsis with E. coli was diagnosed. The patient denied recurrent urinary tract infections and there was no evidence of immunodeficiency except moderately reduced B-lymphocyte counts. The CT scan revealed an indistinct soft tissue mass causing obstruction in both ureters, resulting in hydronephrosis. Additionally, there was lytic destruction of the sacrum with extension of the mass into the surrounding musculature, along with direct neural infiltration of the sacral plexus and right sciatic nerve. MRI unveiled further infiltration involving the lumbar spine and epidural space. A core needle biopsy showed fusiform histiocytes with Michaelis-Gutmann bodies containing calcifications, the pathognomonic finding in malakoplakia. This was confirmed by demonstration of E. coli using metagenomics. The monocytes activation marker neopterin was dramatically elevated, suggesting extensive monocyte activation. Due to the extensive affection, complete surgical debulking was unfeasible. The patient underwent lumbar decompression to address progressive weakness in the left leg. Antibiotic therapy with ciprofloxacine was initiated. After 6 weeks of treatment, follow-up imaging revealed a reduction of the soft tissue mass, particularly in the muscular regions. Neopterin level decreased significantly. Antibiotic treatment will be continued for 6 to 12 months according to response in further imaging.

Discussion: Malakoplakia may occur in various tissues, most frequently in the urinary tract. The bone is rarely affected. The prevailing concept of pathogenesis postulates deficient killing and lysosomal degradation of bacteria in monocytic cells, leading to an aberrant inflammatory response and pseudotumor formation. The most commonly eliciting pathogen is E. coli, usually on the background of immunosuppressive treatment, HIV infection or primary immunodeficiency. The treatment for malakoplakia entails surgical debridement in combination with penetrative antibiotics. To our knowledge, we describe the first case of malakoplakia involving bone with extensive infiltration of soft and neural tissue in an immunocompetent patient.

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Management of Tuberculosis in a pregnant woman allergic to first-line therapy

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Learning objectives: 1. How to treat active tuberculosis in pregnant women in case of an allergic reaction to standard treatment with isoniazid (INH), rifampin (RMP), pyrazinamide (PZA) and ethambutol (ETB). 2. To know how to identify the allergenic agent and to modify the antituberculotic treatment. 3. To become aware that allergic reactions may not only be caused by antituberculotic components of a combination pill but rather by pharmacologic additives.

Case: A 35-year-old pregnant woman (6th week of gestation) was diagnosed with active cervical lymph node tuberculosis and experiencing an allergic reaction with generalized urticaria and erythematous rash after the first dose of Rimstar® (INH, RMP, PZA, ETB). Data on second-line drugs in pregnancy are missing. Some second-line drugs are contraindicated (teratogenicity/toxicity). The combination pill was stopped. We restarted with RMP only. INH, ETB, and eventually PZA were sequentially added every three to four days to identify the allergenic drug. However, this treatment was tolerated although there were 10 pills a day (3 INH, 1 RMP, 3 PZA and 3 EMB). According to resistance test results treatment was simplified to INH/RMP after two months, for additional four months. Since some of the additives in Rimstar® are also contained in Rifinah® and pill count did not differ (4 pills a day) we did not switch to the combination pill. During treatment cervical lymphnodes resolved and therapy was stopped after a total of 6 months. The course of the pregnancy was uneventful and the prenatal development of the child was normal.

Discussion: About 3.5 million women felt ill with tuberculosis in 2022 (WHO) many of them in childbearing age. Allergic reactions to antituberculotic treatment in pregnancy may be frequent. However, there are few data on alternative treatment regimens. Therefore, it is important to identify the compound which causes the allergic reaction and to be aware that not only the antituberculotic compounds but rather pharmacologic additives in a combination pill may trigger the allergy. It may be important to realize that the additives in Rimstar® and Rifinah® are mainly the same. Sequential initiation of the treatment with single compounds may be helpful to identify the allergenic substance and even lead to the finding that there is no allergy against antituberculotics. “Old-fashioned” treatment with single-drug tablets may be the solution although this strategy may double the pill-count per day.

P149

Meningoencephalitis associated with Mycoplasma pneumoniae respiratory infection

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Objectives: To raise awareness regarding complications of *Mycoplasma pneumoniae* infections. To expand the differential diagnosis of meningoencephalitis when routine microbiological examinations yield negative results.

Case: A 43-year-old previously healthy male presented to our hospital with a ten-day history of fever, productive cough, chest pain, and dyspnea. Despite outpatient treatment with amoxicillin–clavulanate for several days, his symptoms worsened. Upon admission, temperature was 39.7°C, blood pressure and pulse rate were normal, oxygen saturation was 93% and respiratory rate was elevated (24/min). Bibasal auscultatory rales were noted. C-reactive protein and leukocyte levels were slightly elevated at 35 mg/l and 13.5 G/l, respectively. Chest CT scan revealed dense, partly confluent infiltrates in both lower lobes and bilateral hilar lymphadenopathy. A nasopharyngeal swab specimen was PCR-positive for *M. pneumoniae*. Antimicrobial therapy was switched to Clarithromycin. Two days later, he became somnolent and confused (GCS 14) without focal neurological deficits. A CT of the brain was normal. Lumbar puncture showed pleocytosis (leukocytes 293 G/l, 92.6% mononuclear), elevated protein (1114 mg/l), elevated lactate (3.0mmol/l) and a normal CSF/plasma glucose ratio. CSF multiplex-PCR and PCR specific for *M. pneumoniae* were negative. However, the *M. pneumoniae* IgM CSF vs. serum antibody index was interpreted as positive. Clarithromycin was discontinued and intravenous levofloxacin was started. Two days later, mental status returned to normal. The remainder of the patient's hospital and rehabilitation stay were uneventful. Three weeks post-admission, he experienced residual concentration deficits but reported an overall improvement of his condition.

Discussion: Meningoencephalitis is a rare yet potentially severe extra-pulmonary manifestation of infection with *M. pneumoniae*. It carries a significant risk of persistent neurological deficits and even death[1]. The optimal antibiotic therapy for *M. pneumoniae* meningoencephalitis has been reviewed but remains unclear[2], with clarithromycin, doxycycline and levofloxacin having shown success in published case reports. We selected levofloxacin as the potentially most appropriate antimicrobial agent in our patient due to his complicated course with CNS involvement, good CNS penetration and because of recent reports of clarithromycin-resistant *M. pneumoniae* in Switzerland and elsewhere[3].

P150

Non-cardiogenic pulmonary edema – a rare complication of gadolinium-based contrast medium

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Learning objectives: Gadolinium induced non-cardiogenic pulmonary edema is a rare complication. It should be considered in the differential diagnosis in cases of acute hypoxemia following the administration of gadolinium-based contrast medium.

Case: A 29-year old female presented to the emergency department with acute onset of shortness of breath few hours after outpatient magnetic resonance cholangiopancreatography (MRCP). Personal history was remarkable for severe obesity. The patient was tachycardic (135 beats per minute), normotensive (systolic blood pressure 123 mmHg), hypoxic (oxygen saturation 86% while breathing ambient air) and subfebrile (temperature 37.7 °C). Auscultation revealed ubiquitous wheezing and bibasal crackles. Laboratory studies showed neutrophilia (12.9 G/L), lymphopenia (0.4 G/L), mildly elevated levels of C-reactive protein (10 mg/L), increased D dimer value (1.61 µg/mL) and normal levels of natriuretic peptide (NT-proBNP 132 pg/mL). Pulmonary embolism was excluded by computed tomography of the chest, which showed interstitial pulmonary edema and bilateral pleural effusions. Supplementary oxygen (2 L/min) and intravenous furosemide (40mg) were administered. The following day, the patient was completely asymptomatic with normalized vital signs. A chest radiograph demonstrated complete resolution of pleural effusions and pulmonary edema. The patient was discharged home. Due to the close temporal correlation between gadolinium administration and symptom onset in absence of signs of pulmonary congestion on the cross-sectional images in the MRCP obtained shortly before symptom onset, a diagnosis of non-cardiogenic pulmonary edema following the use of gadolinium-based contrast medium was made.

Discussion: We report here a case of non-cardiogenic pulmonary edema after gadolinium-based contrast medium administration. To date, only 10 other cases have been described: The majority of patients is female (9/11), aged 10-59 and developed symptoms within few minutes to three hours after gadolinium exposure. All cases showed rapid resolution with appropriate therapy consisting of furosemide and non-invasive or invasive ventilation.

Fig. 1. Contrast-enhanced computed tomography of the chest demonstrating pulmonary edema.

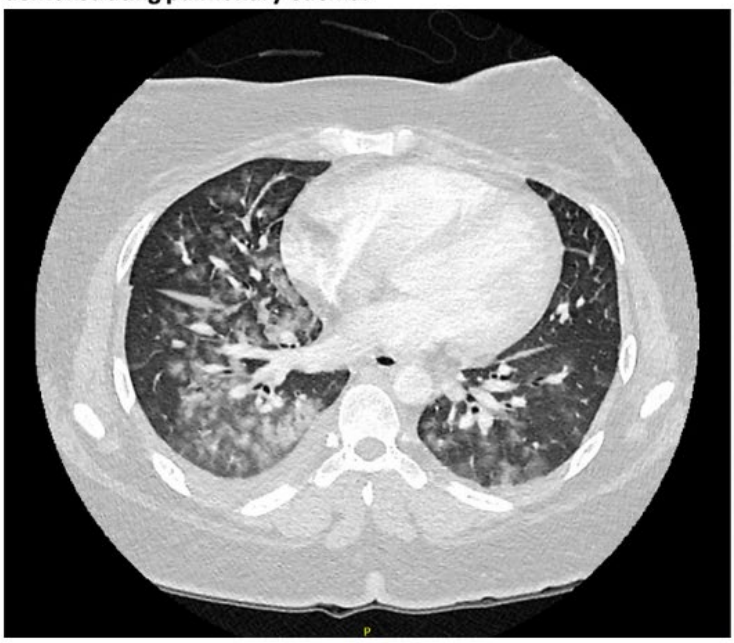
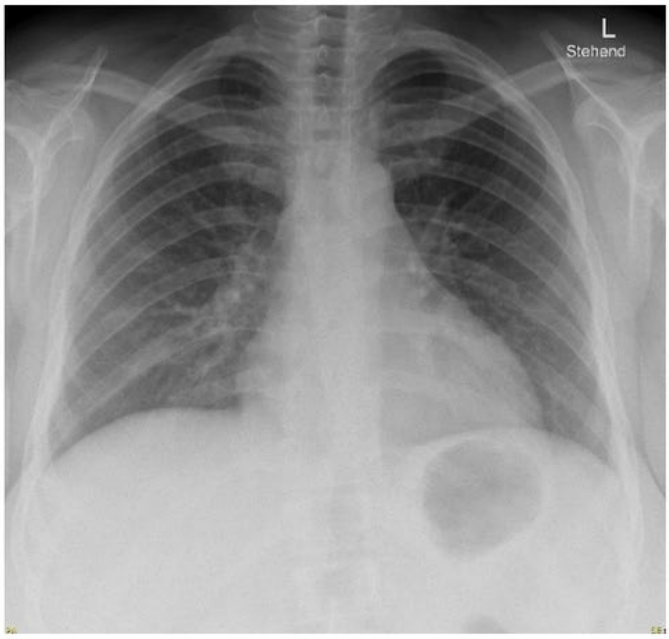


Fig. 2. Chest X-ray demonstrating resolution of pleural effusion and pulmonary edema.



P151

Pancytopenia secondary to iron deficiency

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Learning objectives: Although rarely reported in the literature, pancytopenia can be encountered in a context of profound iron deficiency. This should not, however, prevent the investigation of other potential causes of pancytopenia.

Case: A 28-year-old patient of Slovenian origin, with a history of pulmonary tuberculosis and external hemorrhoids operated on a year earlier (with a normal colonoscopy), presented to our primary care medicine consultation for significant asthenia for 5 months, dyspnea, tachycardia and palpitations at the slightest effort. She also reported significant rectal bleeding, independent of bowel movements, several times a week. Gynecologically, she described irregular menstruation, of normal duration and abundance. There were no other functional complaints or use of medications or toxins. The examination found an afebrile patient with a heart rate of 84 bpm, a blood pressure of 115/78 mmHg, a respiratory rate of 17 cpm and a saturation at 99% on room air. The patient presented with conjunctival and skin pallor. There was no hepatomegaly or splenomegaly. Rectal examination was non-painful and found no blood. The remainder of the examination was unremarkable. Table 1 illustrates the main results of the biological examinations carried out. We retained the diagnosis of pancytopenia secondary to a profound iron deficiency caused by hemorrhoidal bleeding. The patient was referred to the proctology consultation. We did not consider an indication for a blood transfusion, given the good tolerance of the anemia and the young age of the patient. She received 2 IV infusions of 1000 mg of Ferinject© 5 days apart. The clinical and biological evolution was favorable with a correction of the anemia 3 months later.

Discussion: Iron deficiency anemia is frequently associated with mild to moderate thrombocytosis. The mechanism of this thrombocytosis would be stimulation of platelet production by erythropoietin which is elevated in patients with iron deficiency anemia. However, a severe iron deficiency can lead to a normalization or even a reduction in the platelet count. Thus, even if it remains uncommon, thrombocytopenia in the context of iron deficiency anemia has been reported in several publications. Moderate leukopenia has also been reported in iron deficiency anemia. The mechanism of these cytopenias is not clear but could be related to the alteration of the activity of iron-dependent enzymes which are involved in thrombopoiesis and leukopoiesis.

Examination	Result		Examination	Result
Hemoglobin (120 - 160)	**39 g/l**		**LDH** (87 - 210)	192 U/l
MCV (82 - 98)	**60,1 fl**		**ASAT** (11 - 42)	20 U/l
MCHC	**262 g/l**		**ALAT** (9 - 42)	12 U/l
Reticulocytes (20 - 120)	**17.36 G/l**		**Vitamin B12** (125 – 574)	219 pmol/l
Leukocytes (4 - 11)	**2.5 G/l**		**Folate** (8.0 - 60.0)	14.2 nmol/l
Platelets (150 - 350)	**74 G/l**		**PTT** (26.0 - 37.0)	23,9
Na/K	141/3.7 mmol/l		**Fibrinogen** (1.5 - 3.5)	5,5 g/l
Creatinine (44 - 80)	48 µmol/l		**HIV serology**	Negative
CRP (0 - 10)	0.3 mg/l		**Hepatitis C serology**	Negative
Ferritin (7 - 171)	**< 5 µg/l**		**Hepatitis B serology**	Immune
TSH (0.27 - 4.2)	1.31 mUI/l		**ANA**	Negative
Haptoglobin (412 – 1693)	570 mg/l		**ANCA**	Negative
Bilirubin (7 – 25)	6 µmol/l		-	-

Table1: Results of the main biological examinations carried out

P152

Paraplegia and peripheral facial nerve palsy in a patient with bacterial meningitis

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Learning objective(s): Awareness of possible paraplegia and peripheral facial nerve palsy in a patient with meningococcal meningitis.

Case: A 22-year-old male was admitted unresponsive (GCS 6) after a 4-days history with malaise, fever, neck pain and headache. Diagnosis of meningococceal meningitis was made with a suggestive liquor analysis (cell count 4590/µl, Glucose <0.1mmol/l, Lactate >13.3mmol/l, total protein 12096mg/l and evidence of gram-negative diplococci). Ceftriaxon was immediately initiated. During the course, the patient showed flaccid paraplegia sub Th10 with areflexia and negative Babinski sign and bilateral facial nerve palsy. Magnetic resonance (MR) tomography of the head and full-spine revealed hyperintense signals of the liquor, likely attributable to meningitis, and contrast-dye enhancement along the both facial nerves, but no evidence of any structural lesion in the spinal cord. Nerve conduction studies showed no sign of a demyelinating neuropathy. Concurrent HSV or VZV infection was ruled by another liquor analysis. Methylprednisolone was initiated. Paraplegia and facial nerve palsy started slowly to recover. After 3 weeks on the ICU the patient was discharged to neuro-rehabilitation.

Discussion: Cranial nerve palsy is a rare complication of bacterial meningitis with a reported incidence of 9–12%. Only a handful of case reports describe paraplegia as a complication of bacterial meningitis, possibly related to myelitis, vasculitis, venous congestion, or ischemia. The anterior 2/3 of the spinal cord between Th5 and L2 are particularly susceptible to ischemia due to the watershed area of the Adamkiewicz artery. In our case spinal ischemia seems less likely because of the normal full-spine MR. Possibly, paraplegia was caused by metabolic nerve cell injury as consequence of the unusual high liquor lactate and protein. However, it must be acknowledged that this value is likely a combination of ischemia and bacterial metabolism, making differentiation challenging. Likewise, pathogenesis of cranial nerve palsy in patients with bacterial meningitis is not fully understood. Possibly, it is related to immune-complex deposition-related nerve damage, although serum C1q and C3d both were within normal ranges. To the best of our knowledge, this is the first case report of a patient with meningococcal meningitis concurrently experiencing paraplegia and (bilateral) peripheral facial nerve palsy.

P153

Pheochromocytoma Mimicking Migraine: A Case of Deceptive Symptoms

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Learning objectives: Enhance understanding of the approach to diagnose and manage pheochromocytoma, emphasizing interdisciplinary collaboration, genetic testing, and postoperative follow-up; Acknowledge pheochromocytomas as a rare cause of hypertension, challenging to diagnose

Case: A 28-year-old woman without comorbidities was referred to our emergency room due to elevated blood pressure. She reported experiencing headaches along with nausea and sensitivity to light and increased sweating for the past 4 years. A diagnosis of migraine was entertained and Triptans were prescribed. At the emergency department the patient presented with hypertension and tachycardia. The Formularbeginnclinical examination and laboratory analysis was unremarkable. To exclude secondary hypertension in the form of fibromuscular dysplasia of the renal arteries, an abdominal ultrasound was performed. Surprisingly the examination revealed an oval structure, well demarcated from the liver and the upper pole of the right kidney. These findings eventually led to the working diagnosis of a pheochomocytoma, confirmed by an MRI (Fig. 1). The secondary MIBG scintigraphy showed an MIBG-positive pheochromocytoma of the right adrenal gland without signs of metastases, additional pheochromocytomas, or paragangliomas. Blood levels for free normetanephrine and free methoxytyramine were consistently elevated. This ultimately confirmed the suspected diagnosis. An antihypertensive therapy using Phenoxybenzamine was initiated, followed by a laparoscopic right adrenalectomy. The histological examination revealed a pheochromocytoma with signs of increased malignant potential: the presence of an SDH mutation. Genetic counseling will be pursued. In a subsequent follow-up the meanwhile asymptomatic patient demonstrated within-normal-range free plasma metanephrine levels and maintained normotensive blood pressure readings.

Discussion: Catecholamine-secreting tumors, affecting 0.1–1% of hypertensive patients, often manifest as pheochromocytomas. Still only 4% of incidentally found adrenal masses are pheochromocytomas, with symptoms being paroxysmal in 50% of patients. Diagnosis requires proof of catecholamine excess and tumor documentation. Genetic testing post-diagnosis is crucial, with 35–40% having germline mutations. Surgery is curative for over 90% of cases, necessitating preoperative alpha-blockade.

Monitoring post-surgery is crucial to prevent complications like hypotension and hypoglycemia.

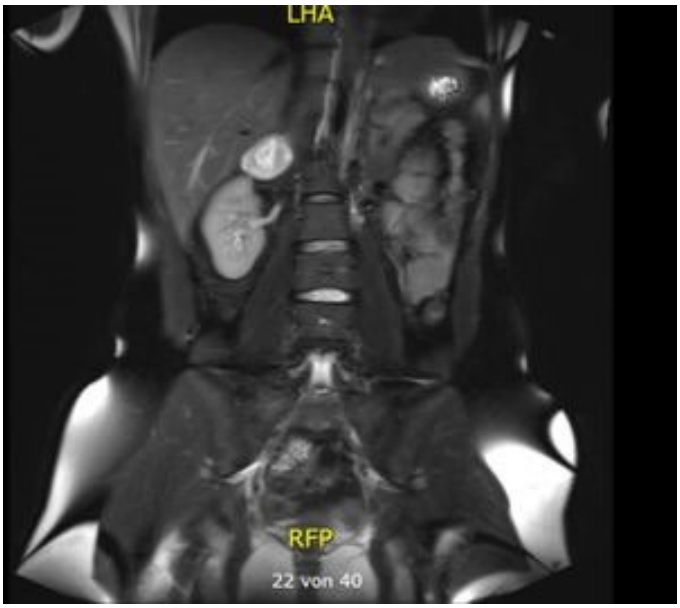

Fig. 1

P154

Sweeter times ahead: a bittersweet surprise after repeated Covid-19 infections

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Learning objectives: Newly found evidence suggests that new onset diabetes mellitus can be a serious long-term consequence of an acute Covid-19 infection.

Case: A 31-year-old male patient presented to the emergency department with a history of appetite-loss, significantly increased thirst and polyuria of several weeks duration, and unintentional weight loss of more than 8 kg since the onset of the symptoms. Laboratory analysis revealed a fasting glucose of 36 mmol/l and compensated metabolic acidosis. Thus, the diagnosis of diabetes mellitus could be made. The patient's medical history revealed two severe Covid-19 infections about 6 months apart, just a few months before the onset of symptoms. Pancreatic autoimmune antibodies taken at the time of diagnosis were negative. Insulin therapy was initiated and was well tolerated by the patient. In the following months, we were able to discontinue insulin therapy following diet and lifestyle change.

Discussion: The newly discovered diabetes mellitus in our patient with negative pancreatic autoantibodies made an autoimmune genesis unlikely. Recent studies show a bidirectional interaction between Covid-19 and diabetes mellitus [1,2]. On one hand, the role of diabetes mellitus as one of the major risk factors and predictors for a severe course of acute Covid-19 infection is well established [3,4]. However, recent studies have shown that acute Covid-19 infections can also induce diabetes mellitus in previously healthy patients [1,5,6,7]. It is currently thought that an acute Covid-19 infection leads to insulin resistance and hyperglycemia as a result of the associated cytokine storm and dysregulated counterbalancing hormonal responses [2]. Further it has been shown that the virus preferentially invades organ tissues with high ACE2 expression, such as pancreatic ß-cells, as this receptor is the major binding receptor for the SARSCoV-2 spike glycoprotein [8]. This can lead to the internalization of the virus and thus to potentially extensive tissue injury [9, 10]. In addition, there is evidence to suggest, that severe infections requiring hospitalization are associated with higher rates of newly diagnosed diabetes [1]. In conclusion, patients should be monitored for metabolic dysregulation and impaired glucose homeostasis following acute Covid-19 infection.

P155

The Dark Side of Rarity: The first documentation of severe septic arthritis and muscular abscess with Mycobacterium basiliense

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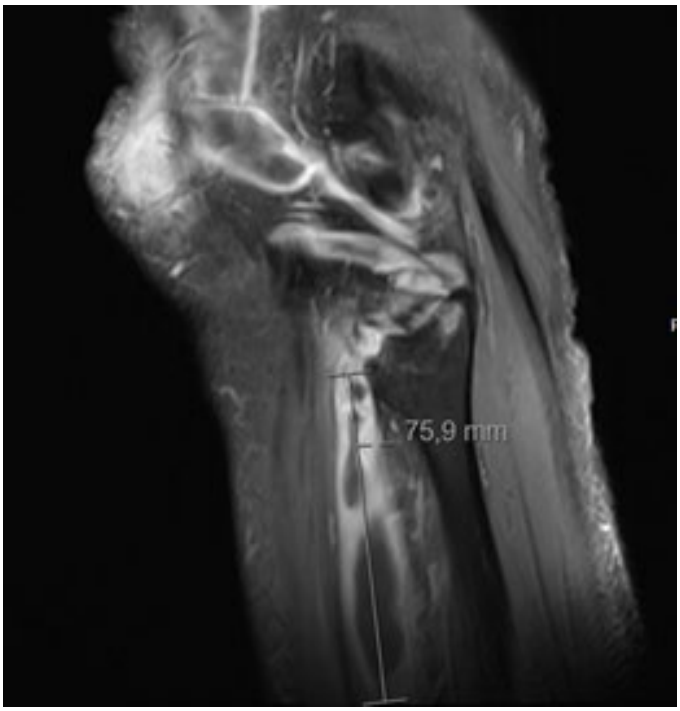
Learning objectives: In cases of arthritis or abscesses where conventional diagnostics fail to identify a pathogen, investigation for atypical pathogens is indicated. This is particularly important for immunosuppressed patients. *Mycobacterium basiliense* (*M. basiliense*) is a slow growing non-tuberculous Mycobacterium (NTM), first cultured in 2013 from bronchoalveolar lavage (BAL) as a previously unknown Mycobacterium species. The following case is the first documented occurrence of septic arthritis and soft tissue infection with *M. basiliense* and to our knowledge the first case of an infection with *M. basiliense* requiring treatment.

Case: A 52-year-old immunosuppressed patient, 4 months post-lung transplant for grade IV sarcoidosis, presented with persistent left knee pain and swelling. Three joint punctures were performed over the course of one month with no bacterial growth in the conventional culture. A subsequent joint puncture revealed inflammatory effusion without bacterial growth or evidence of crystals. Polymerase chain reaction (PCR) was negative for *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Borrelia burgdorferi*, *Tropheryma whipplei* as well as broad-range bacterial PCR. Magnetic resonance imaging of the knee showed synovialitis with joint effusion and abscess of the extensor digitorum longus muscle. Surgical abscess drainage and open synovectomy were performed. Conventional diagnostic tests were negative, but direct stain revealed acid-fast bacteria, subsequent culture confirmed *M. basiliense*. Antibiotic therapy with clarithromycin, rifampicin and ethambutol were administered, according to susceptibility testing and analogous to other NTM-infections.

Discussion: Culture-negative arthritis, especially in immunosuppressed patients, needs to be investigated further for atypical pathogens. In the case described, several previous joint punctures were culture negative. The diagnosis of NTM infection required specific staining and culture media. *M. basiliense* was first recognized 2018 as a new Mycobacterium species, related to *M. marinum* and *M. ulcerans*. The first described cases showed no severe infection despite some patients being immunocompromised and therefore the clinical significance of the bacterium remains unclear. This case highlights NTMs mainly causing infections in immunocompromised patients, evading conventional diagnostics.



MRI left knee: abscess-typical collection M. extensor digitorum longus

Minimale Hemmkonzentration (Endbefund)

S = sensibel, R = resistent, K = keine Interpretation
Interpretation nach CLSI

Kulturergebnisse

[1] *Mycobacterium basiliense*

1. Mycobacterium basiliense	Erg. MHK (mg/l)	Grenzwerte (mg/l) S <=	>= R
Clarithromycin	**0.5**	8	32
Rifampicin	**1**	1	2
Rifabutin	**<0.25**	2	4
Amikacin i.v.	**1-2**	16	64
Streptomycin	**4**		
Moxifloxacin	**0.25-0.5**	1	4
Linezolid	**1-2**	8	32
Doxycyclin	**2**	1	8
Trimethoprim/Sulfamethoxazol	**0.25/4.75**		

Dies ist die Folgenummer zum Auftrag 3281501/tbe2023500219.

Wir führen die Empfindlichkeitsprüfung für langsam wachsende Mykobakterien mit Mikrodilutionstestung gemäss CLSI durch. Es handelt sich um spezies-unabhängige Grenzwerte. Bei fehlenden Grenzwertangaben sind keine CLSI-Daten verfügbar.

Trimethoprim/Sulfomethoxazol: Die Grenzwerte lauten ≤2/38 empfindlich; ≥4/76 resistent.

Antimicrobial Susceptibility Testing

P156

Third-degree atrioventricular block and non-caseating granuloma

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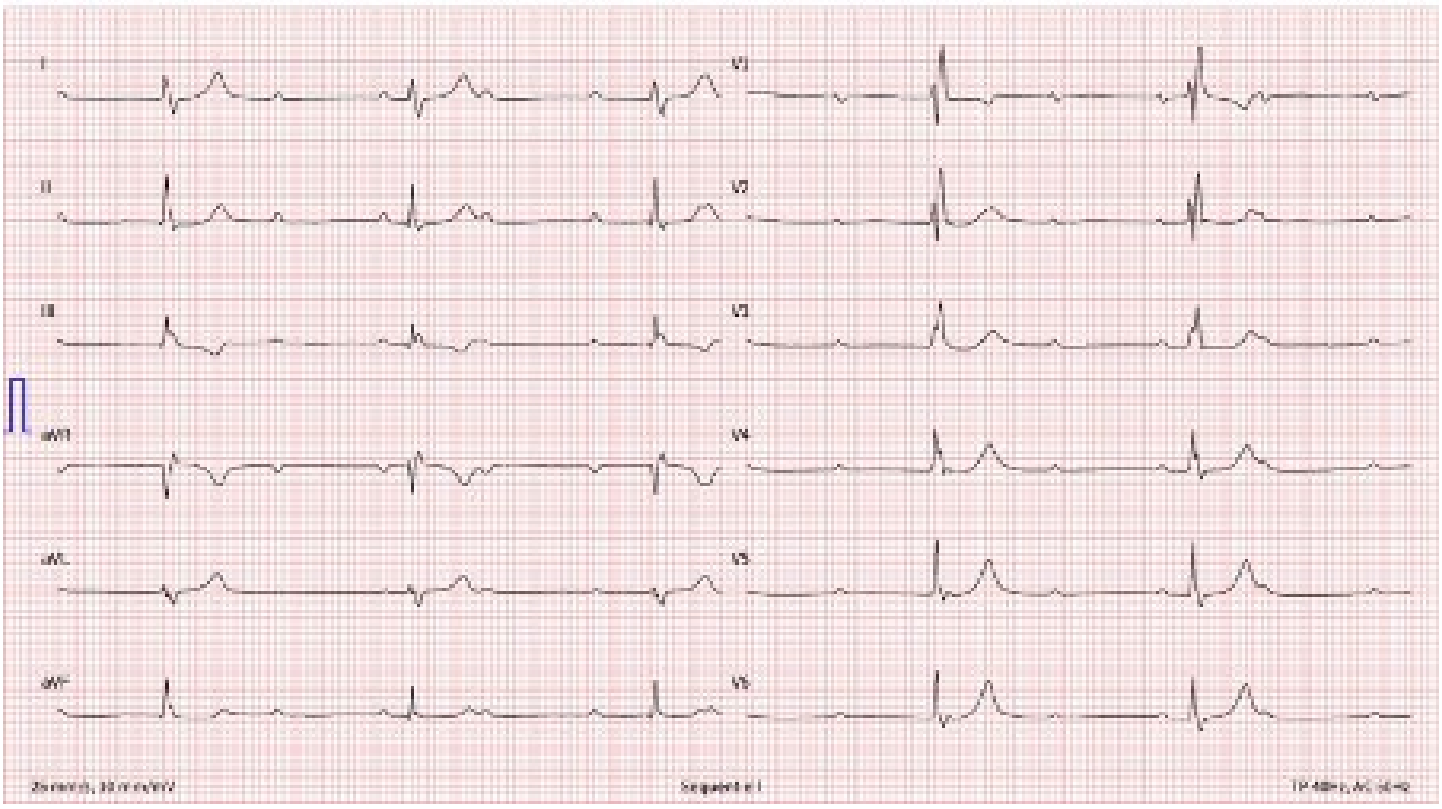
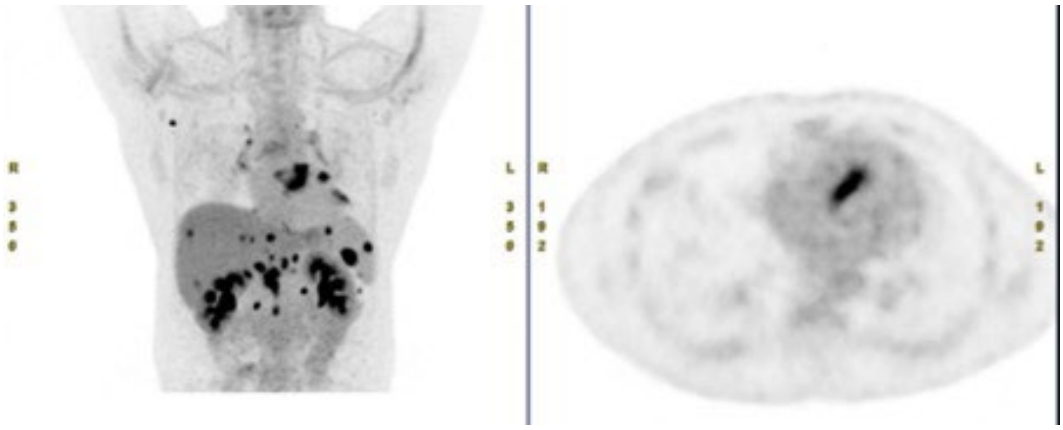
Learning objectives: Third-degree AV-dissociation in healthy patients <60 years warrants further investigation. Sarcoidosis is an inflammatory multi-organ disease challenging clinicians due to its highly heterogenous presentation. Cardiac involvement in Sarcoidosis is an adverse prognostic finding associated with increased morbidity and mortality.

Case: A 33-year-old man presented to the emergency department with exercise intolerance, dyspnea, dizziness and fatigue. Clinical examination and standard laboratory analyses including lymphocytes and calcium levels were normal. Electrocardiography revealed a third-degree atrioventricular block. A transthoracic echocardiography showed no signs of structural heart disease. Because of the unusual age at presentation, cardiac MRI was performed, revealing late gadolinium enhancement of the basal septum and the anterolateral wall. FDG PET/CT showed increased metabolic activity in the myocardium, lung, liver, spleen, left renal cortex and several lymph nodes. These findings suggested sarcoidosis with cardiac involvement. While histological analysis of myocardial tissue was negative, transbronchial biopsies confirmed the presence of non-caseating granuloma. The patient was started on glucocorticoid treatment and received an ICD to prevent sudden cardiac death.

Discussion: Sarcoidosis is an inflammatory multi-organ disease challenging physicians due to its highly heterogenous presentation. The three cornerstones of diagnosis are compatible clinical characteristics, histological proof of non-caseating granuloma and the absence of other causes of granulomatous disease. Despite its generally benign nature, sarcoidosis can lead to fatal organ fibrosis and failure (1). Cardiac involvement is an adverse prognostic finding associated with increased morbidity and mortality, often dictating the need for treatment (2). Most commonly, conduction abnormalities and impaired left ventricular systolic ejection fraction are seen. Typical arrhythmias include second or third degree atrioventricular block and ventricular tachycardia or fibrillation (3). Choice, duration and follow-up of medical treatment of cardiac sarcoidosis is unclear. Recommendations are mainly based on expert opinions. Glucocorticoids remain first-line therapy, followed by methotrexate and TNFalpha-inhibitors (2). If device therapy is indicated, guidelines recommend to use an ICD instead of a pacemaker due to the high rate of sudden cardiac death in this population (4).





P157

Unspectacular but easily overlooked manifestation of Schistosomiasis

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Learning objective: While number of cases imported to Europe are small, Schistosomiasis among people originating from endemic countries is high. Symptoms depend on the stage, the type of schistosome and the resulting organ infestation.

Case: A 33-year-old kindergarten teacher, who immigrated to Switzerland from Kenia 4 years earlier, was referred for musculoskeletal complaints that had been present for 2 years. The patient complained of pain in her neck, shoulders, wrist joints and left ankle, with the pain being most severe at night. A prior rheumatological evaluation did not reveal any pathological findings. The complaints were interpreted in the context of an unequal load distribution when carrying her one-year-old son. Vitamin D-deficiency (14 nmol/L, Norm >50) was substituted without any improvement of symptoms. At presentation, the patient reported that she had hardly had any pain-free periods in the past 2 years and had to take NSAIDs for pain relief several times a week. Personal history, systemic history and physical examination were normal except for subfebrile temperature (T 37.6 °C). Laboratory evaluation incl. complete blood count, liver enzymes, creatinine, CRP and urinalysis was normal. As the patient regularly visits her family on Lake Victoria in Kenia, we carried out a serology for schistosomiasis. *Schistosoma*-specific ELISA against adult worm antigen and against soluble egg antigen were positive. Subsequent evaluation for schistosoma ova in urine was negative, urinalysis for detection of circulating cathodic antigen (CCA) was positive, PCR for S. mansoni in serum was positive. Treatment with praziquantel (60mg/kg) was carried out and repeated 30 days later. As a consequence, the musculoskeletal complaints improved rapidly.

Discussion: Schistosomiasis is a zoonosis with several species of freshwater snails as intermediate hosts. The three major schistosome species that cause infection in humans are *S. mansoni* (Africa and South America), *S. japonicum* (East Asia), and *S. haematobium* (Africa and the Middle East). Myalgias and arthralgias are typical clinical manifestations of acute infection, accompanied by fever, urticaria, angioedema and abdominal pain. Symptoms of chronic infection often begin insidiously and depend on the organ tropism of the infecting species. Arthralgia and myalgia are rare manifestations in the chronic phase. Because of the high prevalence, some authors argue for screening migrants from endemic regions.

P158

Varicella-Zoster-Virus Infection associated Progressive Encephalomyelitis with Rigidity and Myoclonus (PERM)

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Learning points: Etiology of progressive encephalomyelitis with rigidity and myoclonus (PERM) so far is diverse with associated neoplasms as well as infections, with anti-glycine receptor antibodies (AGRA) being an underlying connecting factor suggesting possible similarities of GlyR epitopes with VZV epitopes. Even without imaging or EEG findings of encephalitis, PERM should be considered early on, when myoclonus and stiffness and a rapidly changing movement disorder is present so treatment is not delayed.

This case and other infection associated PERM cases show improvement after immunoglobulin treatment (IVIG), high dose steroids and Rituximab. Symptomatic treatment is mandatory.

A 80-year old female patient presented with extensive extratruncal VZV manifestation in the left-sided dermatome L3 and S2 to S4 for which she was treated with parenteral acyclovir, gabapentin and topic zink oxide paste. Previously, she has not received a VZV vaccination, nor were any other chronic illnesses known. On the fifth day of treatment, she developed tonic spasms of the left leg, which morphed into myoclonus, paresis of the left leg with progressive rigidity and tactile hypoesthesia as well as hyperactive patellar and achilles tendon reflex of the left leg. On the twelfth day myoclonus became stimuli-sensitive, intensified in frequency, and extended to the upper body during periodic fever surges accompanied by other features of brainstem and autonomic dysfunction such as hypertensive derailment, plethora and dysphagia resulting in rattle breathing. High dose levetiracetam and low dose benzodiazepines did not improve the symptoms. Up-titration of clonazepam showed a slight reduction of rigidity. Complete cranial and neuronal axis MRI scans and EEG were normal. CSF showed slight increase of cell count and PCR was positive for VZV but otherwise unremarkable. Upon suspicion of PERM, 5-day IVIG and high dose steroid therapy was initiated and resulted in a decrease of myoclonus and after several weeks stiffness and paresis of the left leg were reduced and ambulation was possible for up to 15 minutes. Serum analysis was positive for PERM associated AGRA. PERM, a variant stiff person syndrome with myoclonus added to the rigidity and painful spasms, is a rare neurological disease in which the pathophysiology is not fully understood. So far only three other cases have been reported in association to infectious diseases, all have in common a positive serum and CSF testing for AGRA.

P159

Wound licked by a dog: A case of sepsis due to *Capnocytophaga canimorsus*

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Learning objectives: Clinical presentation and diagnostic challenges of an uncommon case of sepsis due to *Capnocytophaga canimorsus* and the importance of a thorough history.

Case: A 63-year-old female with no significant medical history presented with fever and petechiae. Examination revealed a wound on the right lower leg (fig. 1), sustained by cutting her skin on a piece of wood during a walk in the forest with her dog. A palpable lymph node was noted in the right groin. Laboratory results showed severe thrombocytopenia, CRP elevation and mild hyponatremia without other cytopenias or significant findings on blood smear (fig. 2). Due to the excellent general condition, the treating team elected to withhold antibiotics and only administer intravenous fluids. The patient was discharged on day 3 after fever had subsided and platelets increased. After discharge, blood culture results revealed a *Capnocytophaga canimorsus* bacteremia. The source was traced back to the dog licking the wound, explaining the palpable inguinal lymph node and thrombocytopenia indicative of sepsis. The patient was treated with ceftriaxone once daily in the medical outpatient clinic followed by amoxicillin/clavulanic acid oral therapy for 7 additional days.

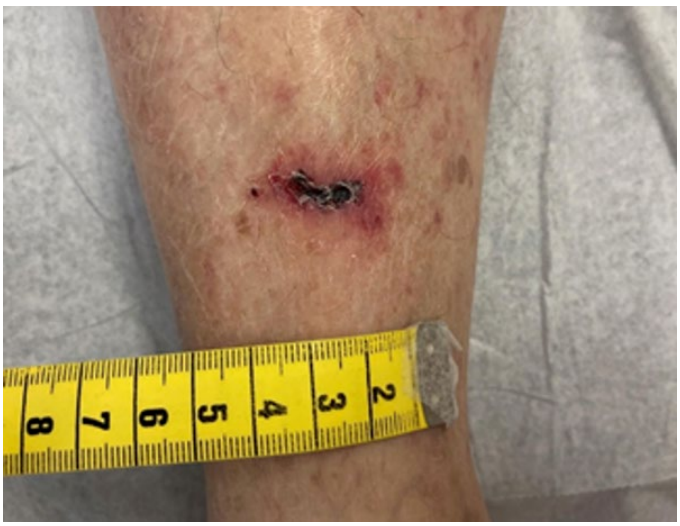

Figure 1

Days since initial admission			Day 11	Day 7	Day 4*	Day 3	Day 2	Day 1
Hemoglobine	123-158	g/l	115	119	115	115	119	128
MCV	80-100	fl	95	96	95	93	93	93
MCH	28-32	pg	32	31	32	32	33	32
Thrombocytes	150-400	G/l	559	467	165	53	21	17
Leukocytes	3.0-9.6	G/l	7.67	10.71	14.45	7.83	8.22	8.12
Neutrophils	1.4-8.0	G/l	5.17	7.61	11.36	5.26	6.49	6.33
Lymphocytes	1.17-3.45	G/l	1.64	1.41	1.81	1.35	0.81	0.98
Creatinine	50-98	µmol/l	112	69	65		74	98
Potassium	3.5-5.1	mmol/l	4.6	5.4	4.3		3.3	3.5
Sodium	136-145	mmol/l	136	138	136		135	132
CRP	<5	mg/l	6	29	76	70	99	158

* Start of antibiotic therapy

Figure 2

Discussion: *Capnocytophaga canimorsus*, a Gram-negative rod-shaped bacterium commonly found in the oral cavity of dogs, is usually transmitted by a dog bite. This pathogen is known for its rare but potentially severe manifestations in humans, particularly those with underlying immunosuppression or asplenia. Clinical presentations range from self-limiting soft tissue infection to sepsis, pneumonia, and meningitis. The bacterium is susceptible to β-lactams excluding aztreonam, and has not demonstrated betalactamase activity. Notably, it resists trimethoprim, fosfomycin, and aminoglycosides. This case underscores the importance of considering zoonotic infections in the context of pet exposures even though the patient was immunocompetent and there was no reported dog bite in the past. It exemplifies an unconventional mode of transmission, specifically through the act of a dog licking a wound or causing skin scratches. It highlights the necessity of a thorough history and prompt recognition of subtle clinical manifestations of infection such as small skin lesions, painless lymphadenopathy and isolated laboratory findings of potential sepsis such as thrombocytopenia, given their potential for rapid progression.

P160

2:1 lock-in phenomenon: wide complex tachycardia caused by functional pacemaker malfunction

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Learning objective: 2:1 lock-in phenomenon is a functional pacemaker malfunction due to mode switching (MS) failure during atrial flutter (AFL) and causes wide complex tachycardia (WCT) in patients with a dual chamber pacemaker (PM).

Case: An 80-year-old multimorbid female patient with sudden onset of dizziness and rapid pulse was referred to our emergency department. Due to symptomatic sick sinus syndrome, a dual chamber PM (St Jude Medical Assurity) was implanted 17 months before. Paroxysmal AFL was known in this patient and cavotricuspid isthmus ablation was performed 7 months before. The current electrocardiogram (ECG) showed regular WCT with heart rate of 124 b.p.m. (Image 1). Using real-time intracardiac electrogram via the PM programmer, recurrent AFL was seen on the atrial channel with intermittent signal undersensing (Image 2A, arrows). After confirmation of normal pacemaker lead function intermittent atrial undersensing was declared as functional due to its occurrence with every second AFL event during programmed post ventricular atrial blanking (PVAB) period. Therefore, tracking of every other atrial event led to ventricular pacing at half of AFL rate. After reducing maximum tracking rate (MTR) below half of AFL rate (from 130 to 110 b.p.m.) WCT suddenly ceased as most AFL events were now detected (Image 2B), leading to correct switch to a non-tracking PM mode.

Discussion: To prevent inappropriate tracking of atrial arrhythmia, a dual chamber PM switches to a non-tracking mode if atrial arrhythmia occurs and if detected properly. To avoid sensing of ventricular events on the atrial PM lead, a PVAB period is programmed, in which no atrial events are sensed. The 2:1 lock-in phenomenon is characterized by intermittent functional atrial undersensing, as every other AFL event falls in the PVAB, so a PM cannot detect AFL. If MTR is above half AFL rate, tracking of every other AFL event leads to tachycardic ventricular stimulation, as switching to a non-tracking pacing mode cannot occur. In case of 2:1 lock-in phenomenon reprogramming of timing intervals as MTR, PVAB, and AV delays or dedicated device algorithms are used to solve the problem. Individual solutions are important since reprogramming of timing intervals affects basic pacing settings. In elderly and sedentary patients reducing MTR is reasonable as need of tracking fast sinus node activity is unlikely.

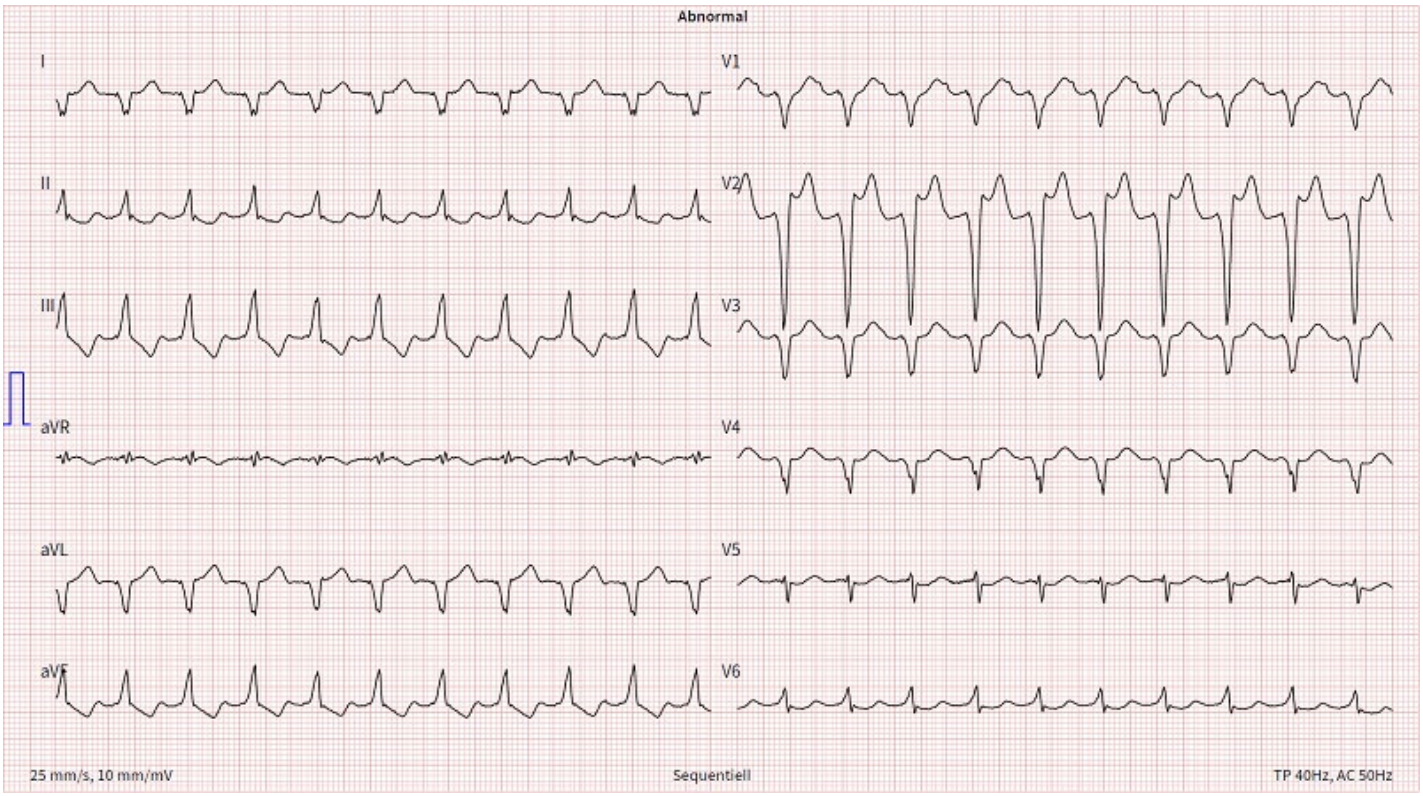

Image 1

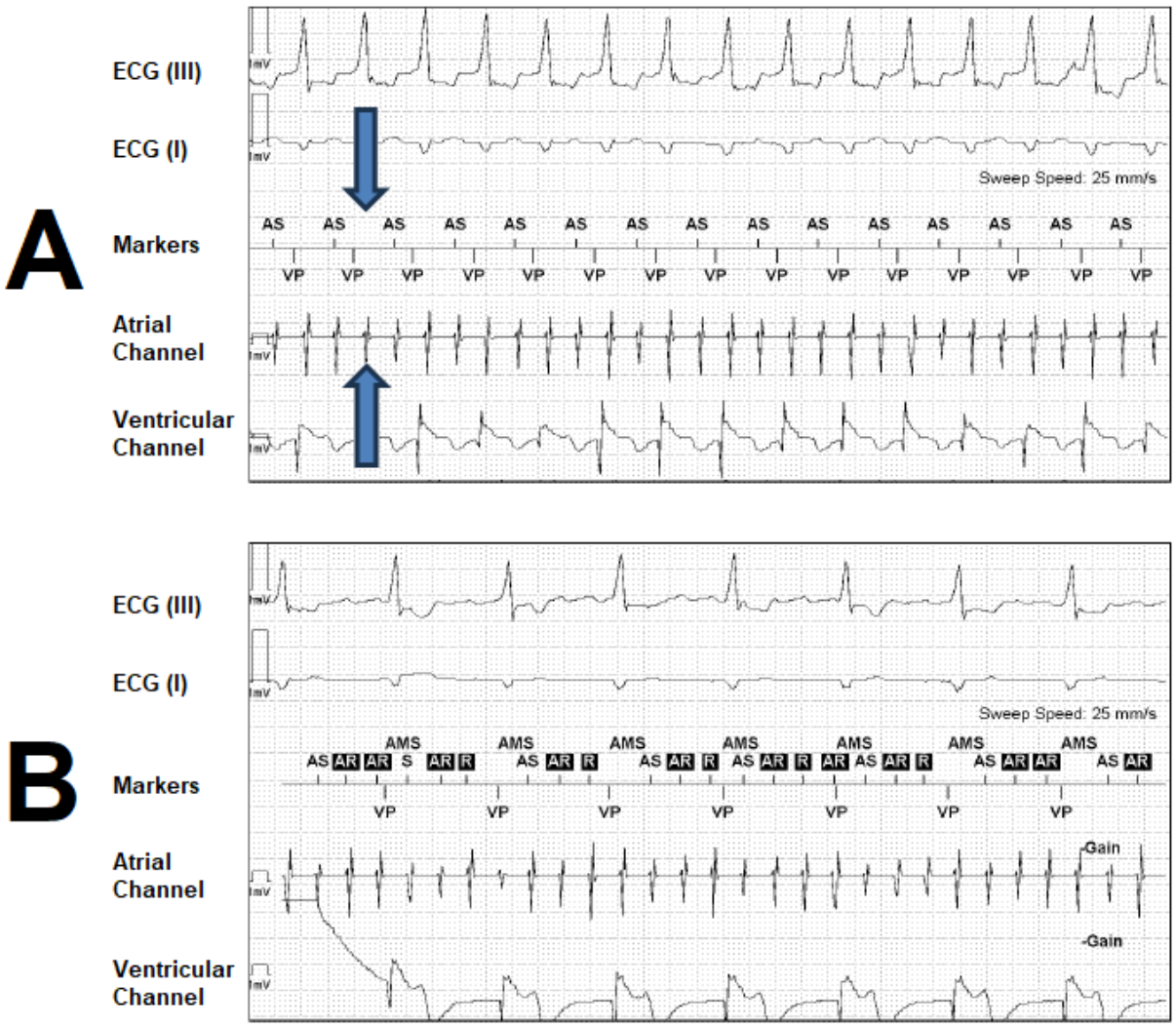

Image 2A and 2B

POSTERS – SWISS SOCIETY OF CLINICAL PHARMACOLOGY AND TOXICOLOGY (SSCPT)

P161

Acute dose-dependent effects of continuous DMT infusions

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Introduction: N,N-dimethyltryptamine (DMT) is unique among classical serotonergic psychedelics because of its short-lasting effects when administered intravenously. In recent years, several studies have tested the administration of either an intravenous bolus dose alone or combined with a continuous infusion. However, the very quick and overwhelming rise of psychedelic effects produced by a bolus dose can cause bad drug effects and anxiety. We hypothesized that a continuous infusion alone will be sufficient to induce rapidly rising and stable drug effects of DMT.

Methods: We conducted a double-blind, randomized, placebo-controlled crossover trial with 24 healthy participants. DMT was administered as a continuous infusion over 120 minutes in four different dose rates. In an additional, non-randomized study session, the participants could modify the DMT dose according to their preference and well-being. Outcomes included subjective effect measures, adverse effects, pharmacokinetics and neuroendocrine markers.

Results: DMT infusions induced dose-dependent psychedelic effects that reached a plateau after 20–30 minutes. At the high and very high dose rate (1.8 and 2.4 mg/min), psychedelic effects emerged very quickly within 2.5–5 minutes after the start of the infusion. Overall, the DMT infusions were very well tolerated. The highest dose rate (2.4 mg/min) produced substantial bad drug effects and anxiety in a minority of participants. In the self-guided titration session, participants opted for intermediate to very high doses from 1.2–2.4 mg/min.

Conclusion: Continuous DMT infusions dose-dependently induced rapidly rising and stable drug effects that were well tolerated. Especially at high infusion rates of DMT, an initial bolus dose may not be necessary.

P162

Acute subjective effects and pharmacokinetics of different doses of mescaline

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Introduction: Psychedelics received renewed interest in psychiatric research in the last decade [1]. Despite mescaline's long history in human use, modern data about dose-dependent acute subjective effects are lacking. This study explored the role of the serotonin 2A (5-HT_{2A}) receptor in mescaline-induced altered states of consciousness using escalating doses of mescaline and the 5-HT_{2A} receptor blocker ketanserin co-administered with a high dose of mescaline.

Methods: We used a double-blind, placebo-controlled, crossover design with six treatment conditions: Mescaline (100, 200, 400 and 800 mg) and placebo or mescaline 800 mg plus 40 mg Ketanserin. The order was randomized and counterbalanced with wash-out periods of at least 14 days between the test days. Each study session lasted 31 h. Sixteen healthy subjects (8 female) were included. We assessed acute psychological effects with a visual analogue scale (VAS), autonomic effects (blood pressure and heart rate) and plasma concentration up to 30 h.

Results: Mescaline-induced acute subjective effects changed dose-dependently and were attenuated by ketanserin. Time to maximal effect ("any drug effect") was approximately 3.2 h. The effect duration dose-dependently increased from 6.4 to 14 h for 100-800 mg mescaline. Doses between 200-800 mg mescaline similarly elevated blood pressure compared with placebo. Heart rate increased dose-dependently. Pharmacokinetics were consistent for doses of 100-400 mg mescaline. Time to reach maximum observed plasma concentration was approximately 2 h and plasma half-life was approximately 3.7 h. Co-administration of mescaline 800 mg and ketanserin 40 mg effectively attenuated the subjective and autonomic response to mescaline 800 mg and was comparable with the response to 100-200 mg mescaline alone.

Conclusions: The present study characterized different doses of mescaline**.** Acute subjective effects changed dose-dependently. There was no ceiling effect observed. Blood pressure increased similarly for doses higher than 100 mg mescaline. Pharmacokinetics were dose proportional. Co-administration of 800 mg mescaline and 40 mg ketanserin reduced the acute response, confirming that alterations of consciousness and autonomic effects induced by mescaline are primarily mediated via 5-HT_{2A} receptor activation.

P163

Bioequivalence and absolute Bioavailability of oral LSD Base and Tartrate

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Introduction: Lysergic acid diethylamide (LSD) is currently being investigated as a novel treatment option in various psychiatric and neurological illnesses. Different LSD formulations (base or tartrate) are being used. It is unclear whether those LSD formulations are equivalent. Additionally, the absolute oral bioavailability of LSD is not known.

Method(s): We used a randomized, double-blind, placebo-controlled, 5-period cross-over design in 20 healthy participants investigating three different oral formulations of LSD at equivalent LSD base doses to probe bioequivalence. We also included an intravenous (IV) formulation to determine absolute oral bioavailability (BA). Conditions included (1) a drinking solution of LSD base in 96% ethanol previously used in patients, (2) a watery drinking solution containing LSD tartrate currently used in patients, (3) a novel solid oral formulation in the form of an oral rapid dissolving tablet (RDT) containing LSD base, (4) an IV formulation of LSD tartrate and (5) corresponding placebos. All formulations contained LSD at an equivalent target base dose of 80 µg. We assessed plasma concentrations, acute subjective, using visual analog scales VAS & the 5-Dimensional of Altered States of Consciousness Rating Scale 5D-ASC), autonomic and adverse effects up to 24 h. Maximal concentrations (C_{max}) and areas under the concentration-time curves (AUCs) were determined using non-compartemental analysis in Phoenix WinNonlin.

Result(s): All oral formulations were bioequivalent (AUC & C_{max}). The absolute oral BA was very similar and 80-81% of the IV formulation. No significant differences in acute subjective or autonomic effects were observed between the oral formulations. The IV formulation induced comparable VAS ratings of any drug effects and good drug effects compared with the oral formulations, but greater ratings in bad drug effects, nausea and anxiety. The IV formulation also induced greater "anxious ego dissolution" on the 5D-ASC. All oral formulations produced similar moderate increases in diastolic and systolic blood pressure, heart rate and body temperature compared with placebo. The IV formulation induced a stronger increase in heart rate compared with the oral formulations.

Conclusion: LSD base and tartrate are bioequivalent when dosed orally at the same base doses. The oral BA of LSD is 80% of an IV administration. Oral dosing with LSD in research with base and tartrate can be considered equivalent.

P164

Cefazolin population pharmacokinetics in patients with complicated Staphylococcus aureus infection

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Introduction: Cefazolin is a first-generation cephalosporin commonly used in the treatment of complicated *Staphylococcus aureus* infections. The altered metabolism of severely ill patients, e.g. impaired renal function and hypoalbuminaemia, can result in sub- or supratherapeutic drug exposure[1-3]. Population pharmacokinetic (PopPK) models may overcome these limitations as they are able to incorporate patient-individual variables and thus improve target attainment.

Method: In this single-center, prospective observational study at the University Hospital Basel (Switzerland), hospitalized, adult patients with complicated *S. aureus* infections were treated with intermittent bolus infusions of cefazolin. Total and unbound cefazolin concentrations were measured on days 1, 3, 7 and 14 after study inclusion. The data were used to develop a PopPK model using non-linear mixed-effects modeling in Monolix (2023R1, Lixoft SAS, a Simulations Plus company). The laboratory and clinical parameters (serum creatinine, serum albumin, hemofiltration, and intensive care admissions) were determined with each visit/ concentration measurement. We evaluated the impact of kidney function as estimated by the Cockcroft-Gault equation (eGFR-CG). To account for blood concentrations measured in different interdose intervals, we considered inter-occasional variability.

Result: We included 51 patients in the analysis. We developed a joint PK model to explain unbound and total concentrations simultaneously. Our covariate modeling was guided by physiological plausibility, and visual and numerical diagnostics. A one-compartment model with linear elimination and allometric effects (eGFR-GC on clearance, weight on volume of distribution), and impact of albumin on non-saturable protein binding constant best described the data. The model parameter estimates, covariate relationships and relationships of total and unbound concentration are presented in Tbl 1; the goodness-of-fits plots are shown in Fig 1.

Conclusion: We successfully described the PopPK in hospitalized patients receiving cefazolin as intermittent bolus infusions for complicated *S. aureus* infections, and identified eGFR-GC, weight and albumin as informative covariates. Furthermore, we were able to estimate the relationship between total, bound and unbound concentrations.

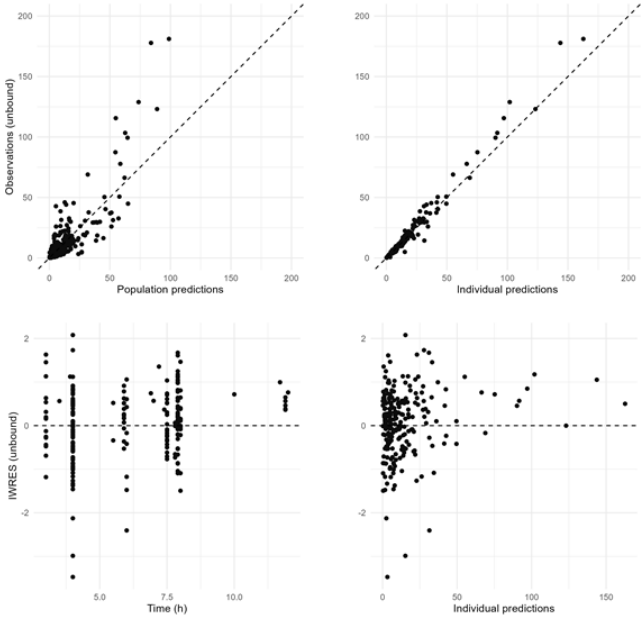

Fig 1: Goodness-of-fit plots of unbound cefazolin concentration

	Final joint model Estimate [%RSE]	Bootstrap analysis (n=1'000) Median [95% CI]
Fixed effects		
CL_{pop}, l h^{-1}	15.6 [3.8]	16.2 [13.4-19.1]
V_{pop}, l	67.2 [7.3]	71.2 [55.7-90.1]
$Bmax_{pop}$	55.2 [10.7]	54.1 [33.5-80.1]
kd_{pop}	12.7 [10.1]	12.9 [7.1-21.2]
NS_{pop}	0.5 [18.6]	0.6 [0.4-1.0]
GFR_{CL}	1.2 [5.0]	1.2 [0.9-1.4]
$Weight_V$ (fixed)	1.0	n/a
$Albumin_{NS}$	2.4 [12.0]	2.8 [1.8-3.9]
Inter-individual variability (IIV)		
V_{IIV}	0.4 [15.6]	0.4 [0.2-0.6]
$Bmax_{IIV}$	0.2 [21.0]	0.2 [0.1-0.3]
Inter-occasional variability (IOV)		
CL_{IOV}	0.4 [7.12]	0.4 [0.3-0.5]
NS_{IOV}	0.2 [31.0]	0.2 [0.1-0.3]
Residual proportional error		
Total	0.2 [8.33]	0.2 [0.1-0.2]
Unbound	0.2 [7.79]	0.2 [0.2-0.3]
Covariate Relationships		
CL	$CL_{pop} * \left(\frac{\text{GFR}}{80.1634}\right)^{GFR_{CL}}$	
V	$V_{pop} * \left(\frac{Weight}{70}\right)^{Weight_V}$	
NS	$\text{NS}_{\text{pop}} * \left(\frac{\text{Albumin}}{24.0844}\right)^{\text{Albumin}_{\text{NS}}}$	
	$C_{bound} = \frac{B_{max} \times C_{unbound}}{kd + C_{unbound}} + NS \times C_{unbound}$ $C_{total} = C_{unbound} + C_{bound}$	

CL: clearance; V: volume of distribution; Bmax: maximum binding capacity; NS: non-saturable constant; kb: dissociation constant; GFR_{CL}: exponent for the allometrically scaled estimated glomerular filtration rate on clearance; $Weight_{V;}$ exponent for the allometrically scaled weight on volume of distribution; $Albumin_{NS:}$ exponent for the allometrically scaled albumin on kb; CI: confidence interval; RSE: relative standard error [%RSE = 100 * (standard error/parameter estimate)]

Tbl 1: PopPK parameter estimates

P165

Effects of extracorporeal membrane oxygenation circuits on drug sequestration: a review of ex vivo observations

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Introduction: Extracorporeal membrane oxygenation (ECMO) is a temporary life-support modality used in critically ill patients which can affect the disposition of drugs, notably by sequestering them in the circuit. Lipophilic (LogP >0) and highly protein-bound substances seem more likely to be sequestered, but knowledge in this area remains limited. This review aims to summarize the existing ex vivo observations on the effects of ECMO contemporary circuits on drug sequestration, and to explore correlations between drug physicochemical characteristics and sequestration.

Method: A comprehensive search was conducted (PubMed, Embase) to identify ex vivo studies providing a determination of drug concentrations from ECMO contemporary circuits. Studies whose design did not allow for proper assessment of drug loss by degradation (e.g. no control) were excluded. Drug characteristics and experimental conditions were recorded. Drug sequestration in the circuit was calculated by subtracting drug loss in control conditions from drug loss in the circuit.

To identify predictors of drug sequestration in ECMO circuits, a stepwise multiple linear metaregression was applied by testing drug physicochemical properties and ECMO device features.

Results: Forty studies were identified, 21 of which were included and analyzed.

Our final regression model retained LogP, a measure of lipophilicity, and to a lesser extent molecular charge at physiological pH as both significant predictors of drug sequestration, whereas protein binding had negligible effect.

Conclusion: Antibiotics were not sequestered to a significant extent, in line with clinical observations. Lipophilic drugs such as dexmedetomidine, propofol, midazolam, fentanyl, morphine, amiodarone and voriconazole were significantly sequestered and probably require dosage adjustment for ECMO.

Table 1: drug characteristics and sequestration in ex vivo ECMO circuits

Drug	LogP	Mol.charge Physiol pH	Protein binding (%)	Drug sequestration[a] (%)
Anti-infectives				
amikacin	-5.91	4	10	6
gentamicin	-2.15	5	15	1
amoxicillin	-0.39	0	17	-9
cefazolin	-0.15	-1	80	2.1
cefepime	-2.58	0	20	-6, 18.4
ceftazidime	-1.39	-1	13.9	-7
ceftolozane	-3.43	0	18.5	2.9
meropenem	-0.37	0	2	median 21 (min 10.9 - max 48)
piperacillin	-0.24	-1	18.5	-10
ciprofloxacin	1.1	0	30	23
vancomycin	-3.1	1	50	median 35.5 (min 9 - max 50)
caspofungin	0	2	97	median 10.5 (min 1.9 – max 43)
fluconazole	0.88	0	11.5	2, 11
voriconazole	2.4	0	58	median 80.3 (min 7.8 – 82.2)
Sedatives, analgesics				
dexmedetomidine	2.88	0	94	61
propofol	3.36	0	97	86, 89
midazolam	3.61	0	97	median 43 (min 35 – max 87)
fentanyl	3.78	1	82.5	median 80 (min 24.1 – 90)
morphine	1.44	1	35	median 49 (-6 – 67.9)
Cardiac agents				
amiodarone	6.49	1	96	59.1, 99.3

[a] if ≥4 experiments data available, the median [minimum – maximum] percentage of drug sequestration is provided

P166

Gut microbiota and metabolic changes induced by psychotropic drugs

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Introduction: Mechanisms of psychotropic drug-induced weight gain are still only partially understood and recent evidence shows that gut microbiota alterations may be involved in the process. Characterization of the human microbiota has indeed revealed the importance of microbial composition in the etiology of many disorders - including obesity and cardiovascular diseases. Rodent and human studies conducted to date tend to confirm the relationship between metabolic changes and microbiota alterations after antipsychotic treatment. We present here results from a pilot study investigating early changes in gut microbiota and their association with metabolic impairments, as observed after exposure to psychotropic drugs.

Methods: The fecal microbiota of 51 patients (median age = 34 years, range = 18–72 years) was analyzed before and shortly after a modification of antipsychotic treatment (introduction, switch or interruption of treatment) in parallel with a characterization of their metabolic parameters (body weight, blood pressure, plasma glucose and lipid levels).

Results: Apart from a correlation between the increase in diastolic blood pressure and in bacterial diversity (E = 0.4, p = 0.006) from T0 to T1, changes in metabolic traits were not associated with changes in microbiota overall diversity. Interestingly, metabolic syndrome status, as well as plasma cholesterol levels significantly explained some microbiota variability (p = 0.04, p = 0.04, p = 0.02, p = 0.03 for metabolic syndrome status, total-, HDL- and LDL-cholesterol, respectively). Some bacteria, such as *Veillonella* showed consistent associations with metabolic worsening, while others, such as *Roseburia* showed associations with metabolic improvements.

Conclusions: Following an antipsychotic treatment change, significant alterations in gut microbiota were observed, some of which correlated with metabolic traits. These findings are of great importance since current tools to avoid or attenuate metabolic adverse effects are very limited. A better understanding of the microbiota alterations that play a role in shaping metabolic outcomes may help to decipher new clinically relevant preventive approaches.

P167

Implementation of CYP2D6 Pharmacogenetics and Therapeutic Drug Monitoring for Personalized Tamoxifen Breast Cancer Therapy

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Introduction: Tamoxifen is an adjuvant endocrine treatment for the prevention of breast cancer recurrence. Tamoxifen is a prodrug requiring hepatic bioactivation via CYP2D6 to its main active metabolite endoxifen. A strong correlation between highly polymorphic CYP2D6 pharmacogenetics (PGx) expressed as a standardized activity score (AS) with endoxifen plasma concentrations is well established. Oncology guidelines currently do not recommend routine PGx or therapeutic drug monitoring (TDM) of tamoxifen therapy due to controversial data on their prediction of therapeutic outcomes. However, a CPIC guideline provides PGx-based recommendations for tamoxifen therapy, and in a recent study PGx-based model-informed precision dosing of tamoxifen reduced the proportion of patients with subtherapeutic endoxifen levels from 22.1 to 4.8%. Therefore, we aimed to implement PGx-based tamoxifen therapy with validation by TDM and evaluate its impact on patient management in routine clinical care.

Methods: We established a specialized PGx consultation in collaboration with breast centers. Patients with breast cancer and current or planned tamoxifen therapy were genotyped for CYP2D6, and TDM of tamoxifen and its metabolites was performed after reaching pharmacokinetic steady-state. We provided comprehensive evidence-based personalized recommendations for adjuvant endocrine treatment and evaluated their impact on further therapy and patient attitudes towards therapy.

Results: From Jan to Jun 2023, we consulted 20 patients (median age 51 years, range 43–79). Additional patients will be included in an updated analysis. Tamoxifen dose ranged from 5 to 20 mg per day. Distribution of PGx-based CYP2D6 activity scores were: AS = 0 20%, AS = 0.25 5%, AS = 1 30%, AS = 1.25 10%, AS = 2 35%. AS correlated with endoxifen plasma levels (r^2 = 0.51). An AS <0.5 was a perfect predictor for normalized endoxifen plasma levels below the therapeutic range (<5.0 µg/l/20mg/d), and therapy could be adjusted accordingly. Specialized PGx consultations were positively received by gynecological oncologists and patients (analysis of semiquantitative questionnaire pending).

Conclusion: CYP2D6 PGx followed by TDM in patients with an intermediate AS is a valuable contribution to personalized adjuvant endocrine therapy in breast cancer patients. It can reliably identify patients with subtherapeutic tamoxifen levels, has an impact on clinical patient management, and likely improves patient compliance.

P168

Improving CYP2C19 phenotyping using stereoselective Omeprazole and 5-hydroxyomeprazole metabolic ratios

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Introduction: Omeprazole (OME) is widely used as CYP2C19 phenotyping probe. It is marketed as a racemic (S)/(R) mixture or as (S)-enantiomer. OME undergoes stereoselective metabolism. (R)-OME hydroxylation to (R)-5-hydroxyomeprazole is mediated by both CYP2C19 and CYP3A4 while (S)-OME is exclusively hydroxylated via CYP2C19. The aim of this study was to assess the metabolic ratio of both enantiomers of OME and evaluate the impact of CYP3A pathway in the accuracy of CYP2C19 phenotyping and determine the specific cut-offs for the metabolic ratio of each enantiomer.

Methods: We used samples from two studies A and B involving healthy volunteers (10 and 15, respectively) who received OME after inhibition of CYP2C19 activity using voriconazole (400 mg) and fluvoxamine (2x50 mg) concomitantly in the study A and separately in the study B. Dried blood spots (DBS) were taken at different times (0, 0.5, 1, 2,3, 4, 6, and 8 hours) after OME untake. OME and OH-OME enantiomers were analyzed using a validated stereoselective LC-MS/MS method [1].

Results: In study A, Cmax and AUC of (S)-OH-OME were on average 7-fold lower than that of (R)-OH-OME enantiomer while AUC and Cmax were significantly lower ($p < 0.05$) for (R)-OME than for (S)-OME. Regarding the metabolic rations, statistically significant differences were observed for the S and R between the control session and the inhibited one at 2, 3, 4 and 6h. In study B, the same results were observed regarding Cmax and AUC differences between OME and 5-OH-OME enantiomers. Regarding the metabolic ratios, statistically significant differences were observed between session 1 and 3 at 2 and 3h for the S and at 2, 3, 6h for the R. Based on these results, we developed specific threshold values using the results from study A, to distinguish individuals with normal CYP2C19 activity from those with decreased activity for each enantiomer. For the (S)-enantiomer, the established thresholds were 0.18 ± 0.29 for expected NM, 0.04 ± 0.06 for expected PM, and 0.46 ± 0.38 for expected RM. Regarding the (R)-enantiomer, corresponding threshold values were also established: 1.47 ± 1.17 for expected NM phenotype, 0.09 ± 0.06 for PM expected phenotype and 2.71 ± 1.72 for expected RM phenotype.

Conclusions: This study suggests the potential use of both (R)- and (S)-OME isomers for assessing CYP2C19 activity, emphasizing the need for further research and larger population studies to establish precise cut-offs for different phenotype groups.

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Optimization of vancomycin dosing strategy for the treatment of peritonitis in a child on automated peritoneal dialysis using therapeutic drug monitoring: a case report

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Learning objectives: 1) Vancomycin is administered intraperitoneally (IP) when treating peritoneal dialysis associated peritonitis[1,2]. 2) There is a paucity of clinical and pharmacokinetic data on IP vancomycin dosing in adults on automated peritoneal dialysis (APD) and, even less data in children. 3) Close therapeutic drug monitoring (TDM) is warranted to optimize vancomycin dosing in such patients.

Case: We present the case of an 11-year-old patient on automated nocturnal intermittent peritoneal dialysis with *Staphylococcus hominis* peritonitis. During the hospitalization, vancomycin was given IP as a continuous treatment according to international recommendations[1,2]. After hospital discharge, his nocturnal peritoneal dialysis (PD) was resumed. The IP vancomycin was initially administered empirically only during the nocturnal dialysis exchanges which led to repetitive sub-therapeutic vancomycin plasma concentrations and the persistence of *Staphylococcus hominis* in dialysate cultures. Based on studies in adults, the dosing strategy was modified to give vancomycin at a dose of 15 mg/kg in the dialysate with a 6-hour dwell time prior to nocturnal dialysis thereby allowing optimal peak concentrations. The dosing interval was individualized using TDM to ensure residual vancomycin concentrations >10 mg/L thereby leading to clinical and microbiological recovery (see Figure).

Discussion: After IP administration, vancomycin is absorbed through the peritoneal membrane depending on the concentration gradient thereby forming a reservoir in the capillary blood compartment from where the antibiotic diffuses back into the peritoneal cavity during the antibiotic-free exchanges[3]. The concentrations achieved in the dialysate and the plasma depend on multiple factors including the peritoneal membrane permeability, the type of PD, the dwell duration, the residual kidney function and the vancomycin dosing schedule[4]. This case underscores the limited pharmacokinetic data in children on APD. Thus, well-designed pharmacokinetic studies are warranted to characterize the correlation between plasma and dialysate vancomycin concentrations in APD. Meanwhile, we strongly recommend performing close TDM to optimize the dosing schedule to ensure adequate antibiotic coverage when caring for these pediatric patients.

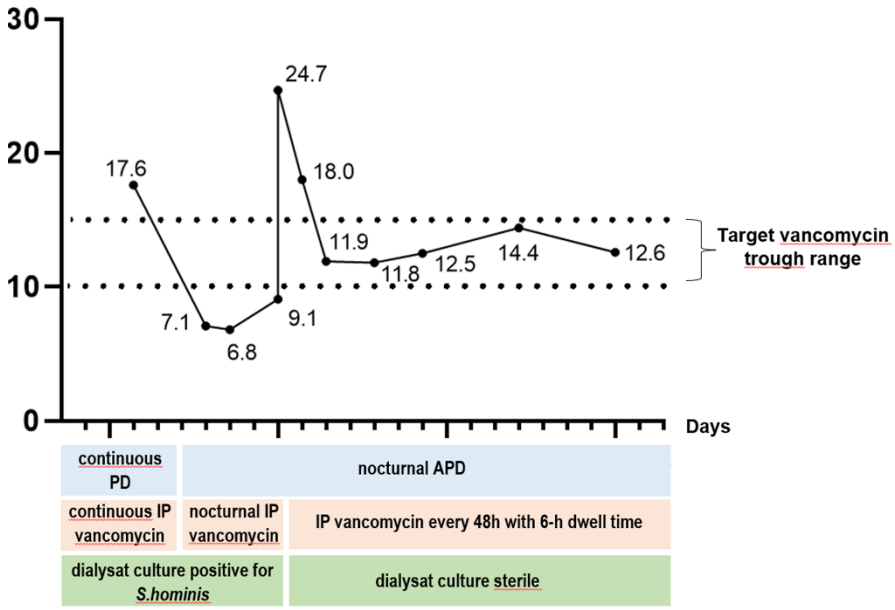

Figure: Timeline of vancomycin dosing strategies and PD modalities

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Personalized Antiplatelet Therapy based on Point-of-Care CYP2C19 Pharmacogenetics plus Multidimensional Treatment Decisions in a Cohort of 167 Patients

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Introduction: Clopidogrel is a $P2Y_{12}$ antagonist antiplatelet drug for the secondary prevention of atherothrombotic ischemic events. Clopidogrel is a prodrug requiring bioactivation via CYP2C19. The benefits of CYP2C19 pharmacogenetics (PGx)-guided clopidogrel therapy in achieving the best balance between ischemic and bleedings events are supported by a recent meta-analysis of 15 randomized trials. Personalized antiplatelet therapy involves either escalation or de-escalation strategies vs. standard treatment based on CYP2C19 PGx and additional patient-specific factors. In clinical practice PGx-guided antiplatelet therapy remains a complex challenge requiring solutions for PGx testing and individualized treatment decisions that enable implementation with minimal threshold and delay.

Methods: We established a specialized service offering PGx-guided antiplatelet therapy at a department of internal medicine collaborating with interventional vascular specialists at a tertiary care hospital. Patients with an indication for clopidogrel or alternative treatments were genotyped for CYP2C19 with the Genomadix Cube™ point-of-care (POC) device (using buccal swab kits, analysis time 60 min.) and the laboratory-based Agena MassARRAY® system. We developed multidimensional algorithms for individualized antiplatelet treatment recommendations based on CYP2C19 PGx, vascular diagnoses and interventions, and risk factors for ischemic and bleeding events.

Results: 167 patients underwent PGx testing with both systems, among those 157 for possible escalation, and 10 for de-escalation. 54 (32.3%) were CYP2C19 loss of function (LoF) carriers. Results for CYP2C19 *2 and *3 variants matched 100% between the two technologies, and the MassARRAY® identified two additional LoF carriers with *8 variants. Recommendations to change antiplatelet therapy in LoF carriers always required the consideration of additional patient-specific factors and were efficiently supported by our multidimensional algorithms, resulting in an implementation rate of 81%.

Conclusion: In acute indications with high ischemic risk CYP2C19 POC-PGx combined with multidimensional decision algorithms is a feasible solution for fast escalation from clopidogrel to alternative therapies before hospital discharge and should be exempted from overly strict regulatory limitations for genetic testing. In non-acute indications laboratory-based PGx remains a cost-efficient alternative with optional extended PGx panel analyses.

P171

Pharmacokinetic variability of tacrolimus in renal transplant patients: role of digestive microbiota, metabolome, CYP3As, P-gp and other intrinsic factors

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Introduction: Tacrolimus is a calcineurin inhibitor administered to prevent graft rejection in renal transplantation[1]. The high inter-individual pharmacokinetic variability of tacrolimus can lead to adverse effects or graft rejection. 40% of this variability is explained by genetic polymorphisms in hepatic cytochrome P450 (CYP) 3A5[2]. Other factors such as serum albumin, hematocrit level, age, sex, weight and P-gp expression level are also a source of variability in tacrolimus response[3–5]. In addition, tacrolimus exposure is increased during diarrhea, resulting in increased bioavailability, the mechanisms of which have yet to be elucidated. This observation suggests that the microbiota could

also be an important factor in its therapeutic variability [6]. Finally, endogenous urinary and plasma metabolites could contribute to the prediction of adequate tacrolimus doses[7]. *Methods* An observational study was carried out in 30 renal transplant patients on tacrolimus. Eligible patients were contacted by their physicians and two sessions were held 3 months apart. At each visit, stool, urine and blood samples were collected for microbiological (stool), metabolomic (blood and urine) and genetic (blood) analyses. In addition, the Geneva phenotyping cocktail was administered to patients to measure CYP3A and P-gp phenotype by capillary blood sampling at 2h, 3h and 6h after cocktail ingestion.

Results: We found a significant association (Pearson correlation coefficient of –0.36, p-value of 0.045 at the 95% confidence level) between patients' residual tacrolimus concentrations and their OH-midazolam/midazolam metabolic ratios (as a measure of CYP3A activity) (figure 1).

Conclusions: 36% of tacrolimus variability can be explained by the CYP3A phenotype. Endogenous metabolites revealed by non-targeted metabolomics will be explored and complete the analysis of this variability, complementing microbiological and genotypic results. Endogenous metabolites likely to correlate with tacrolimus pharmacokinetics are cortisol, acetyl-arginine, phosphoethanolamine and 1-methylguanosine[7]. The abundance of *Faecalibacterium prausnitzii*, a bacterium present in the gastrointestinal tract, will in particular be assessed, among other species of Clostridiales order[6].

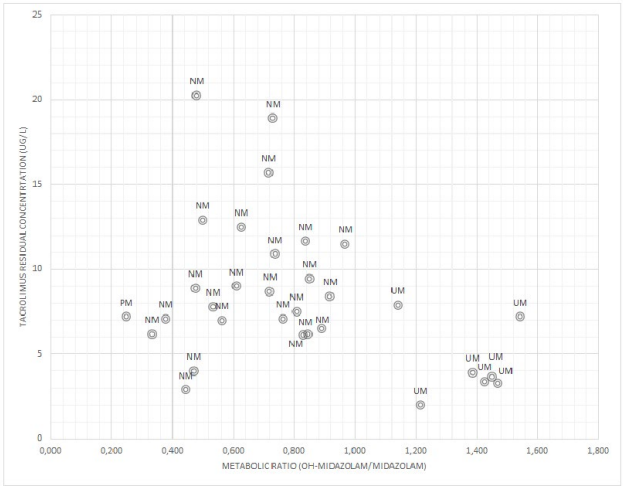

Figure 1: Tacrolimus concentration vs CYP3A phenotype. A correlation of –0.36 was revealed, with a p-value of 0.045 at 95% confidence level. NM: normal metabolizers; PM: poor metabolizers; UM: rapid/ultrarapid metabolizers.

P172

Pharmacometric In silico studies to evaluate risk of potentially neurotoxic cefepime exposure in infants under high-dose treatment

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Introduction: Optimal dosing of cefepime in infants 1–2 months (m) remains unclear. We aimed to quantify and compare the risk of elevated, potentially neurotoxic exposure under high-dose cefepime (50 mg/kg every 8h) between infants 1–2m and 2–12m of age.

Methods: Pharmacometric *in silico* study simulations were performed using two main published population PK models combined with demographic data, including serum creatinine, from a previously reported study population (stratified into infants 1–2m and 2–12m). Potentially neurotoxic exposure was defined as total trough concentrations (C_{trough}) at steady-state >20 (>35) mg/L, as derived from adults. Corresponding probability of target attainment (PTA) was calculated as free drug concentration during 50% of time during the dosing interval above the minimal inhibitory concentration (MIC) breakpoint of 8 mg/L (*Pseudomonas* spp.).

Results: The age-related risk of potentially neurotoxic total C_{trough} >20 (>35) mg/L varied between models: model 1 predicted decreasing risk with age from 54% (22%) in infants 1–2m to 30% (9%) in infants 2–12m. Model 2 predicted comparable risk of 36–40% (12–13%) in both age groups. Similar high PTA of ≥99% was predicted for both age groups from both models.

Conclusions Results indicate that the risk of potential neurotoxic concentrations in infants >1m treated with cefepime 50mg/kg every 8h is high, if defined by adult safety thresholds. Yet, only few pediatric cases on cefepime-associated neurotoxicity have been reported, referring to patients with kidney impairment. A reduced cefepime dose (30mg/kg every 8h) in non-critically ill infants 1–2m could be a safe option without compromising efficacy (predicted PTA >94%).

P173

Population pharmacokinetics of flucloxacillin as intermittent bolus infusion in patients with Staphylococcus aureus bloodstream infection

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Introduction: Target attainment of flucloxacillin in patients with *Staphylococcus aureus* bloodstream infections (BSI) is challenging due to the high inter-individual variability in pharmacokinetics (PK), particularly in critically ill patients. A PK model can be used to optimize and individualize antibiotic dosing. The objective of this study was to develop a flucloxacillin population PK model, and to assess target attainment in patients with BSI.

Method: Total and unbound flucloxacillin concentrations from in-patients were taken from a prospective observational cohort study conducted at the University Hospital in Basel. The patient population comprised adult, critically and non-critically ill patients with confirmed BSI who received flucloxacillin as an intermittent bolus infusion. Flucloxacillin concentrations were measured using HPLC-MS. We developed and validated a population PK model for total and unbound serum flucloxacillin. Monte Carlo dosing simulations were performed to assess target attainment (100% $fT_{>MIC}$).

Result: Overall, 178 unbound and total flucloxacillin concentrations of 49 patients (47% critically ill) were included in the study. Most patients (69%) were treated with flucloxacillin 12g/d. The unbound fraction was higher at 11.5% (16.7% for critically ill patients) compared to literature (5%)[1-2]. Profiles were best described using a one-compartment model with linear elimination; the final estimated parameters are shown in Table 1. Incorporation of covariates (estimated glomerular filtration

rate (eGFR) and albumin) improved model performance. Dosing simulations revealed better target attainment of 100% $fT_{>MIC}$ for continuous compared to intermittent bolus infusion (Figure 2).

Conclusion: Serum albumin and eGFR were identified as informative covariates. Preference should be given to measuring unbound flucloxacillin concentrations, as the actual unbound fractions may significantly exceed those calculated using an assumed fraction of 5%. To enhance target attainment, it is recommended to prioritize the continuous infusion of flucloxacillin.

	Joint model Estimate [%RSE]	Bootstrap analysis (n=1'000) Median [95% CI]
Fixed effects		
CL_{pop}, l h^{-1}	66.09 [11.58]	65.66 [50.74-83.75]
V_{pop}, l	217.39 [12.31]	222.68 [168.84-286.22]
kd_{pop}	5.98 [8.15]	6.00 [5.01-7.16]
GFR_{CL}	1.09 [13.73]	1.14 [0.88-1.39]
$Weight_V$	n/a	-
$Albumin_{kb}$	1.63 [15.34]	1.60 [1.11-2.16]
Inter-individual variability (IIV)		
CL_{IIV}	0.74 [12.77]	0.71[0.51-0.91]
V_{IIV}	0.55 [22.44]	0.57 [0.25-0.83]
kb_{IIV}	0.49 [13.17]	0.48 [0.34-0.61]
Inter-occasional variability (IOV)		
CL_{IOV}	0.31 [13.41]	0.29 [0.17-0.42]
V_{IOV}	0.45 [21.32]	0.40 [0.20-0.71]
kb_{IOV}	0.064 [141.63]	0.10 [0.05-0.22]
Residual proportional error		
Constant (a)		
Unbound	0.06 [25.97]	0.06 [0.0002-0.08]
Total	0.85 [29.35]	0.83 [0.01-1.13]
Proportional (b)		
Unbound	0.26 [11.09]	0.25 [0.18-0.33]
Total	0.12 [21.32]	0.12 [0.04-0.20]
Covariate Relationships		
CL	$CL_{pop} * \left(\frac{GFR}{70}\right)^{GFR_{CL}}$	
V	$V_{pop} * \left(\frac{Weight}{70}\right)^{Weight_V}$	
kb	$kb_{pop} * \left(\frac{Albumin}{20}\right)^{Albumin_{kb}}$	
	$C_{bound} = kb \times C_{unbound}$ $C_{total} = C_{unbound} + C_{bound}$	

CI: confidence interval; RSE: relative standard error [%RSE = 100 * (standard error/parameter estimate)]; CL_{pop}: clearance; V_{pop}: volume of distribution; kb_{pop}: dissociation constant; GFR_{CL}: exponent for the allometrically scaled estimated glomerular filtration rate on clearance covariate; $Weight_V$: exponent for the allometrically scaled weight on volume of distribution covariate; $Albumin_{kb}$: exponent for the allometrically scaled albumin on kb covariate.

Table 1: Population parameter estimates of the final joint model

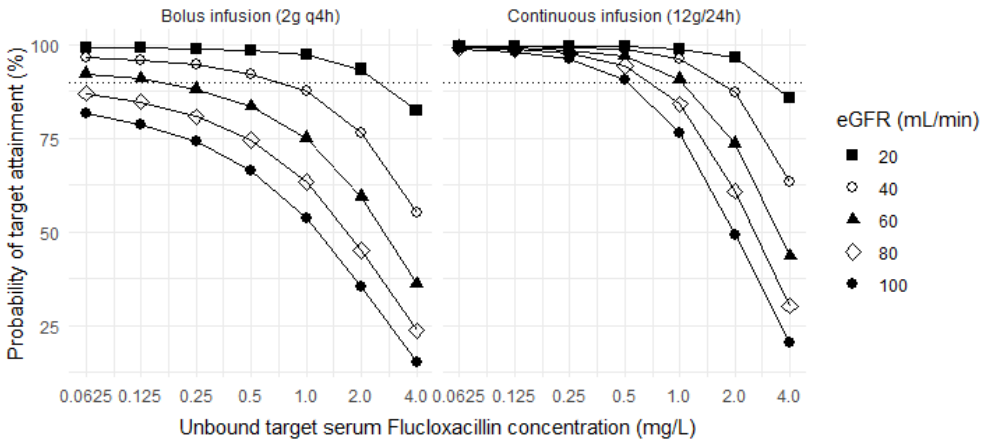

Figure 1: Probability of target attainment for flucloxacillin for different eGFRs and target unbound serum concentrations based on Monte Carlo dosing simulations.

P174

Reproductive safety of glucagon-like peptide 1 receptor agonists (GLP1-RA) after maternal exposure in early pregnancy: a comparative ENTIS cohort study

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Introduction: Glucagon-like peptide 1 receptor agonists (GLP1-RA) are indicated for the treatment of type 2 diabetes and more recently for weight loss. The aim of this study was to assess the risks associated with GLP1-RA exposure during early pregnancy.

Methods: This multicentre, observational prospective cohort study compared pregnancy outcomes in women exposed to a GLP1-RA in early pregnancy either for diabetes or obesity treatment with those in two reference groups: (i) of diabetic women exposed to at least one non-GLP1-RA antidiabetic drug during the first trimester and (ii) a reference group of overweight/obese women without diabetes, between 2009 and 2022. Data were collected from the databases of six Teratology Information Services. This study included 168 pregnancies of women exposed to a GLP1-RA during the first trimester, alongside a reference group of 156 pregnancies of women with diabetes and 163 pregnancies of overweight/obese women.

Results: Exposure to a GLP1-RA in the first trimester was not associated with a risk of major birth defects when compared to diabetes (2.6% versus 2.3%; adjusted odds ratio (OR) [95% confidence interval], 0.78 [0.13–4.83]) or to overweight/obese women (2.6% versus 3.9%; adjusted OR 0.63 [0.13–3.07]). For the GLP1-RA group, cumulative incidence for live births, pregnancy losses, and pregnancy terminations was 58%, 22%, and 18%, respectively. In the diabetes reference group, corresponding estimates were 64%, 26%, and 6%, while in the overweight/obese reference group, they were 63%, 28%, and 8%. Cox proportional cause-specific hazards models indicated no increased risk of pregnancy losses in the GLP1-RA versus the diabetes and the overweight/obese reference groups, in both crude and adjusted analyses.

Conclusions: This study offers reassurance in cases of inadvertent exposure to GLP1-RA during the first trimester of pregnancy. Due to the limited sample size, larger studies are required to validate these findings.

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Acute effects of individual R- and S-MDMA enantiomer administration compared with racemic (±)-MDMA in a randomized double-blind cross-over trial in healthy participants

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Introduction: Racemic ±3,4-methylenedioxymethamphetamine (MDMA) is a psychoactive substance acutely inducing feelings of heightened mood, empathy, trust, and closeness to others [1]. These acute subjective effects of MDMA may be helpful to assist psychotherapy and MDMA was shown to improve post-traumatic stress disorder in two phase 3 trials. MDMA is a racemic substance containing equal amounts of the enantiomers S(+)- and R(-)-MDMA. Preclinical research indicates that S-MDMA mainly releases dopamine, norepinephrine, serotonin, and oxytocin while R-MDMA may act more directly on serotonin 5-HT_{2A} receptors and release prolactin. Animal studies indicate that the two enantiomers act synergistically to produce the subjective effects of MDMA and that S-MDMA is mainly responsible for psychostimulation, while R-MDMA may have fewer adverse effects and have greater prosocial effects

[2]. However, acute effects of S- and R-MDMA have never been validly examined or compared with (±)-MDMA in a human study.

Methods: We used a double-blind, randomized, placebo-controlled, crossover design with 24 healthy participants and R-MDMA (125 mg), R-MDMA (250 mg), S-MDMA (125 mg), racemic (±)-MDMA (125 mg), and placebo administration in counterbalanced order. Outcome measures included subjective, autonomic, and adverse effects, pharmacokinetics, and levels of circulating oxytocin, prolactin, and cortisol.

Results: Subjective, autonomic and endocrine effects of the enantiomers and racemate were distinct and will be reported in detail.

Conclusion: The findings indicate differential effects of MDMA and its enantiomers with potentially diverse medical applications.

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Acute lead poisoning due to Ayurvedic medication

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Learning objective(s): To consider the possibility of lead poisoning in patients with unexplained combined gastrointestinal and central nervous symptoms, especially if a potential lead source can be identified. Obtaining blood lead levels is the test of choice.

Case: An otherwise healthy 30-year old male patient presented to the emergency department with severe musculoskeletal and colic-like abdominal pain for two weeks. Several weeks before presentation, he returned from India, where he attended a yoga school. He did not take any prescription drugs, but several Ayurvedic preparations, that he acquired in India. Upon presentation, the patient was afebrile and showed difficulty concentrating. Laboratory findings were significant for elevated liver enzymes and a normochromic, microcytic anemia with a hemoglobin level of 97 g/l [range: 134–170 g/l]; isolated erythrocytes showed basophilic stippling on peripheral blood smear. A broad investigation of infectious, hematological and neurological diseases did not provide an explanation for the symptoms. Further testing revealed highly elevated blood lead levels (1490 µg/l). The patient received analgetics and a chelation therapy with Succicaptal® (Succimer). His symptoms improved and his blood lead level at discharge was 561 µg/l. Laboratory analysis of the Ayurvedic preparations revealed high amounts of lead (up to 6.8%). The samples exceeded the permitted amount of lead in dietary supplements in Switzerland by a factor of around 10 000.

Discussion: In adults, lead is most readily absorbed through the lungs and – to a lesser extent – the gastrointestinal tract. The number of published case reports on lead poisoning due to intake of unregulated preparations, like Ayurvedic medication, is increasing. In acute lead poisoning, onset of symptoms can occur within days to weeks of sustained high lead exposure. Clinical manifestations can be nonspecific. Symptoms include abdominal pain ("lead colic"), constipation, arthralgia, myalgia, fatigue, neurocognitive deficits, encephalopathy and anemia. The presence and severity of symptoms generally correlate with blood lead levels. Target blood lead levels vary depending on age, gender and (occupational) exposure. For non-pregnant adults a general target value of <100 µg/l should be considered. The most important and causal therapy is removing the lead source. Additionally, chelation therapy can be performed. For adults, chelation therapy is generally recommended only for blood lead levels > 500 µg/l and the presence of significant symptoms or for blood lead levels > 800 µg/l. The most commonly used chelating agents for adults are Succicaptal® (Succimer) p.o. and $CaNa_2$-EDTA i.v.

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Estimating potential therapeutic effects of classic serotonergic psychedelics by profiling different serotonin receptor subtypes

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Introduction: Depression and anxiety disorders, affecting around 10% of the population, lead to substantial health, social, and ecological consequences. Recent studies have shown that psychedelics may be promising in the treatment of various neuropsychiatric and neurologic disorders. Interactions of psychedelics with the serotonin 2A receptor (5-HT_{2A}R) predict their psychedelic properties and clinical potency. Assessing potency at the 5-HT receptor subtypes 2B, 2C, and 1A allows estimating potential therapeutic effects, interferences, or side effects.

Methods: We investigated the activation potency of various serotonergic psychedelics at the 5-HT receptor subtypes 5-HT_{2A}R, 5-HT_{2B}R, 5-HT_{2C}R, and 5-HT_{1A}R. We used stably transduced cells to assess the activation potency at the different 5-HT receptors by phospholipase C (PLC) activation quantifying the accumulation of inositol monophosphate 1.

Results: Across all 5-HT receptor subtypes, LSD emerged as the most potent, while MDA and mescaline were the least potent of all tested serotonergic psychedelics. Notably, all psychedelics demonstrated greater selectivity for the 5-HT_{2A}R over the 5-HT_{2B}R, indicating a low risk for cardiac valvopathy. Most psychedelics displayed high 5-HT_{2C}R selectivity, suggesting a low abuse liability. Additionally, psilocin exhibited the strongest 5-HT_{1A}R selectivity, indicative of anxiolytic properties.

Conclusion: The tested classic psychedelics displayed a favorable 5-HT receptor profile including an overall low 5-HT_{2B}R selectivity alongside high 5-HT_{2C}R and 5-HT_{1A}R selectivity for certain tested psychedelics. Hence, a comprehensive investigation of serotonergic psychedelics, considering potency across various 5-HT receptor subtypes, is essential for estimating therapeutic potential and assessing the risk for certain side effects.

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Hidradenitis Suppurativa-induced by a Desogestrel-only Pill: a Case Report with a Review of the Literature and of Pharmacovigilance Registries

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Learning objectives: Hidradenitis suppurativa (HS) is a chronic, recurrent and debilitating disease of the apocrine and sebaceous glands present in the axillary, inframammary, inguinal and pelvic regions (1). HS is a multifactorial disease and hormonal disturbances are suspected to contribute to this disease (2). It is suggested that oral contraceptive pills might help control HS flares due to their anti-androgen properties (1,2). However, here it is reported a very rare case of HS-induced by a desogestrel-only pill. In fact, to the knowledge of the author, only one case of HS-induced by a progestogen-only pill is reported in PubMed (2). And according to VigiAccess, a World Health Organization pharmacovigilance system with worldwide data, at the date of this publication, only two cases (0.03%) of HS out of 7,694 side effects-induced by desogestrel were reported (3).

Case: A 41-year-old Swiss Caucasian woman known for being an asymptomatic carrier of the metachromatic leukodystrophy gene, as well as for chronic gastroesophageal reflux, chronic constipation, lactose intolerance, chronic migraines treated since 2009 with the desogestrel-only pill Cerazette®, daily, without any break and for recurrent flares of HS of the inguinal and axillary areas since 2010 treated with regular use of antibiotics and multiple local incisions particularly of the left axillary area, started a follow-up at the clinic in December 2021. The patient was advised at the time to stop the pill Cerazette® as HS developped one year after she started this medication. The patient though only agreed to stop the pill Cerazette® in August 2022. Since then and for more than one year, the patient has remained free of HS flares.

Discussion: Androgens are supposed to activate the sebum production and contribute to the inflammatory reaction in the pilosebaceous unit which are the physiopathological hallmarks of HS (4). Although desogestrel is reported to have minimal or no androgenic properties (2), it was nonetheless contributing to the HS of this patient.

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Lamotrigine-induced Severe Drug Reaction with Eosinophilia Systemic Symptoms (DRESS) in a child

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Learning objectives: Present a rare condition in children, to facilitate rapid diagnostic suspicion, recognition, and treatment. Differential diagnosis of DRESS in children. Role of the clinical pharmacologist in the diagnosis and reporting og DRESS

Case: A 9-year-old female semi-African-Caucasian child suffering from Jeavons syndrome, treated with valproate 30 mg/kg/d for three years and lamotrigine 0.15 mg/kg/d for two weeks, suddenly developed a high fever followed by a rash. On admission to hospital, the patient was confused, hypotensive, mildly hypoxemic, with mild hepatomegaly and a generalized confluent erythematous maculopapular rash with preserved but oedematous eyelids and lips. No lymphadenopathy was described. Laboratory tests showed anemia, leukocytosis with non-segmented neutrophilia and eosinophilia, thrombocytopenia, associated to hepatocellular and renal failure, and very high inflammatory markers. Chest X-ray shows pulmonary oedema and pleural effusion. Blood cultures, throat swab for streptococcus A, hepatitis A/B/C virus, chlamydia and mycoplasma were all negative. Serologies for Human Herpes Virus (HHV) 6 and 7 were negative and positive respectively. Human leucocyte antigen (HLA) genotyping was performed for suspect alleles. No skin biopsies were performed. As the European Registry of Severe Cutaneous Adverse Reaction (RegiSCAR) criteria were met at 6 points lamotrigine-induced DRESS was highly suspected and the child was treated with plasmapheresis, IVIG and corticosteroids with a good clinical course. Swissmedic was informed by the clinician pharmacologist.

Discussion: DRESS is a rare drug-induced hypersensitivity reaction that usually begins 2–6 weeks after introduction of the offending drug. In children it often involves an aromatic anticonvulsant or an antibiotic. The combination of lamotrigine and valproate amplifies the risk. African ethnicity is another risk factor. The pathophysiology of DRESS syndrome remains unclear. It has been classified as a type IVb delayed hypersensitivity reaction in which type 2 T-helper cells play a significant role. Reactivation of HHV6 and 7 is characteristic. The incidence of DRESS in children is very low, but systemic organ involvement is frequent. Differential diagnoses are vast, and the syndrome mimics infectious, neoplastic and immunological conditions. Early recognition of the syndrome and withdrawal of the culprit drug may be the key to avoiding mortality or significant organ damage.

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Medication Errors associated with low-dose methotrexate: An analysis of reports following the Direct Healthcare Professional Communication in 2016

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Introduction: The study investigates medication errors associated with low-dose methotrexate following the issuance of a Direct Healthcare Professional Communication (DHPC) in July 2016. Despite warnings in the product information and multiple professional publications before this date, serious medication errors continued to occur with low-dose methotrexate, especially accidental overdose. Therefore, enhanced risk minimization measures were introduced and published in a DHPC in July 2016. Amongst others, the measures included the issuing of patient cards and boxed warnings on the outer packages. Acknowledging the importance of monitoring the impact of risk minimization measures, our study aims to identify and analyse medication errors reported to Swissmedic following the implementation of these measures.

Method: We evaluated reports regarding low-dose methotrexate submitted between 01.08.2016 and 31.12.2023 and focused on medication errors using the standardized MedDRA query (SMQ) medication errors.

Results: Between 1st August 2016 and 31st December 2023 Swissmedic received a total of 807 reports with low-dose methotrexate, of which 218 included an adverse reaction from the SMQ medication errors. These 218 reports were further evaluated. The affected patients were female in 52.8% (N = 115) and male in 34% (N = 74) of the reports (sex unknown in 29 cases (13.3%)). The age ranged from 3–90 years of age (median 71 years). In 121 (55.6%) of the reports the adverse reactions were categorized as serious including 17 (7.8%) fatal cases. The most commonly reported adverse reaction was accidental exposure to product (N = 57), followed by pancytopenia (N = 52), drug interaction (N = 29) and product use in unapproved indication (N = 29). On average Swissmedic received 29 reports per year with the highest number of reports being send between August 2016 and December 2016 (8 reports per month). The lowest number of reports was recorded in 2021 (N = 18 per year). Most cases were reported by health care professionals (N = 198, 90.8%).

Conclusion: Despite the introduction of additional risk minimization measures and the issuance of a DHPC a concerning number of medication errors was reported to Swissmedic since 2016. About one third of reports received by Swissmedic with low-dose methotrexate as suspected or interacting product, are related to medication errors. Further investigations are necessary to identify instances of medication errors and potential gaps in safety protocols.

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New Mescaline Derivatives: Profiling of Scalines' Potency and Affinity on Different Serotonin Receptor Subtypes

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Serotonin (5-HT) receptors play diverse roles in human physiology, whereby the 5-HT_{2A}R is pivotal for the induction of psychedelic effects. Additionally, to determine the safety profile of potential therapeutics, the receptors 5-HT_{2B}, 5-HT_{2C}, and 5-HT_{1A} play crucial roles regarding cardio-valvopathy, addiction, and seizures, respectively. Literature is sparse on new mescaline derivatives (scalines), which represent potential new and efficient therapeutics for the treatment of psychiatric conditions such as treatment-resistant depression and anxiety. We examined the activation potency and binding affinity of 40 scalines at the above-mentioned 5-HT receptors. Therefore, we employed a high-throughput screening using cells stably transduced with the desired human 5-HT receptors. We measured inositol monophosphate formation and the replacement of radiolabeled LSD as markers for 5-HT receptor activation and binding affinity, respectively. Among the 40 mescaline derivatives examined, only 3 compounds exhibited activation potencies at the assessed 5-HT receptors in the desired lower nanomolar range. Based on the compound displaying the most promising overall receptor activation and affinity profile, a modification on the 4-position of the aromatic ring, incorporating fluoride, seems to be favorable. The final three scalines showed a higher potency in comparison to mescaline on the tested receptors. Moreover, they exhibited a good safety profile in the form of low potency and affinity at the 5-HT_{2B} receptor, pointing to a minimal risk for cardio-valvopathy. Additionally, a lower dose of scalines would be needed to achieve a therapeutic effect, making them safer with fewer side effects.

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Performance of an algorithm-assisted drug safety screening of internal medicine inpatients

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Introduction: Preventable patient harm is often related to medication use. As the complexities of drug therapy increase, manual reviews prove increasingly time consuming. Automatized tools can screen large number of patients but have limitations in assessing clinical relevance. Combining these approaches might optimize resource utilization and increase patient safety.

Methods: Single-center one year retrospective analysis of the performance of an algorithm-assisted weekly drug safety screening (DSS) in internal medicine inpatients' electronic health records (EHR). The automatized part (R and Python scripts) produces alerts on therapeutic drug monitoring, drug-induced liver injury, dose adjustments according to renal function (renal), drug-induced hemorrhage, drug-drug interactions (DDI), risk for additive QTc prolongation (QTc), potentially inappropriate medication in elderly patients, and neutropenia related to metamizole. Alerts are reviewed by a clinical pharmacologist, relevant findings are passed on to the treating physicians as a note to the EHR. We assessed implementation in a random sample (n = 30).

Results: 2656 of 4358 automatic screenings (61%) were manually reviewed in 2022, corresponding to 5547 alerts, mainly DDI (31%), renal (25%) and bleeds (21%). There were clinically relevant findings in 618 screenings (24% of manually screened, 14% overall), mainly reflecting DDI (30%), renal (25%) and QTc (13%). Common drivers of false negative alerts were lag time issues (e.g., discontinuation of the DDI perpetrator, recovery of renal function) and alternative diagnoses (e.g., non-pharmacologic causes of liver injury or of anemia). Recommendations were implemented in 43% of findings (fully: 23%, partially: 20%). In 33%, formally contraindicated medications were continued by prescribers despite alerts (as off-label use). The automatization allowed for an increase in coverage from approximately 20% to 90% of medical inpatients, at a constant cost of 0.2 full time equivalent (FTE, resident). For similar coverage by fully manual review, a 1.0 FTE resident position would be required.

Conclusion: Algorithm-assisted DSS reduced the workload of residents while contributing to patient safety by increasing coverage. Most common clinically relevant alerts concerned interactions and dose adjustments depending on renal function. Barriers to uptake included clinical inertia, screening frequency, and lack of therapeutic alternatives.

AUTHOR INDEX

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