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Oral Communications

OR01.1

The impact of hospitalisation on the anticholinergic burden in patients

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Background and Objective: Anticholinergic medication is associated with adverse clinical outcomes, including delirium and cognitive decline. This study aimed to determine the impact of hospitalisation on the anticholinergic burden in patients.

Setting and Method: This retrospective cohort study included all patients ≥ 18 years, discharged from the Elisabeth-TweeSteden hospital, The Netherlands, in May–June 2021, who used at least one anticholinergic medicine. Anticholinergic burden was measured using a modified version of the Anticholinergic Cognitive Burden (ACB) scale.

Main outcome measures: The primary outcome was the change in ACB score at discharge compared to admission. Secondary outcomes were the ACB score during admission, potential risk and benefit factors for a change in ACB score and the nature and frequency of anticholinergic medicines.

Results: 2,618 patients were included. Hospitalisation resulted in a significant increase in ACB score with a mean difference of 0.25 points (SD 1.12, $p < 0.001$). In 32.6% of patients the ACB score increased. At day four of admission, 49.9% of patients had a clinically relevant ACB score (i.e. ≥ 3). Risk factors for an increase in ACB score were a long stay (OR 2.01 [95% CI 1.64–2.47]) and various responsible medical specialties including. Benefit factors for a decrease in score were polypharmacy (OR 2.49 [95% CI 1.76–3.50]), a long stay (OR 1.76 [95% CI 1.34–2.30]) and various responsible medical specialties. Most medicines that added to patients' anticholinergic burden had a score 1.

Conclusion: Hospitalisation led to a significant increase in ACB score. Awareness among physicians and pharmacists should be increased to minimize the risk of adverse clinical outcomes.

Disclosure of Interest: None Declared.

OR01.2

Roles, barriers and behavioral determinants related to pain clinicians' involvement in optimizing opioid therapy for chronic pain: a qualitative study

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Background and Objective: Around 20% of CNMP patients in the UK receive long-term prescribed opioid therapy, raising concern about harmful effects. Poor understanding and management of opioid reduction lead to damaged patient-provider relationships and poor compliance with treatment.

To identify challenges faced by pain healthcare providers in the UK in the optimizing of prescribed opioids for patients with CNMP and seek their suggestions of interventions.

Setting and Method: Pain clinic in England.

Pain consultants and clinical pharmacists were interviewed by telephone using a topic guide based on the Theoretical Domains Framework. Data were analysed using the Framework method.

Main outcome measures: Pain clinicians' perceived roles, barriers and behavioural determinants in relation to opioid therapy optimization.

Results: A total of 11 participants took part. Participants described Knowledge, Professional Role and Identity, and Social Influence as key facilitators to treatment optimizations. The main barriers were arising from GPs' or other specialists' misconceptions and lack of knowledge about chronic pain and about opioids, patient psychosocial factors, time constraints, and inconsistency in policy and practice. Participants called for improved opioid education for both patients and other healthcare providers as well as support provision within a patient-centered approach.

Conclusion: The results suggest that patient-centred care and education for healthcare providers and patients about the prescribed opioids used for CNMP may lead to opioid optimization. Also, there

is a need for better collaboration among healthcare professionals in assessing, supporting patients as well as developing interventions that are based on the perspectives of CNMP patients, and all healthcare providers involved in opioid optimization.

References: Marsden, J., et al., *Medicines associated with dependence or withdrawal: a mixed-methods public health review and national database study in England*. *Lancet Psychiatry*, 2019. 6(11): p. 935–950.

Disclosure of Interest: None Declared.

OR01.3

Sedative burden of drug regimens and associations with negative outcomes in seniors- findings from the INOMED and the EUROAGEISM H2020 projects

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Background and Objective: Sedatives are often potentially inappropriately prescribed to seniors and substantially contribute to frequent worsening of geriatric health problems. The aim of this study conducted under the support of INOMED WG4 and EuroAgeism H2020 projects was to determine the association between sedative drug burden and negative outcomes in older patients.

Setting and Method: Data were collected by prospective comprehensive geriatric assessment (CGA, 2018–2022) in the Czech Republic (total N = 1602, 3 different regions, 3 settings of care: acute care N = 589, ambulatory care N = 451, community pharmacy care N = 450). Sedative activities of prescribed medications were identified by scoping literature review (PubMed, Medline and SPCs). Descriptive statistics was analyzed by R-software (version 4.0.3) and the association between cumulative sedative potential of drug regimens and the occurrence of negative outcomes was tested using Kendall's rank correlation ($p < 0.05$).

Main outcome measures: The association between number of sedatives/ cumulative sedative potential of drug regimens and the occurrence of negative outcomes (tested as cumulative outcome for decreased self-performance, impaired cognition, higher frailty, frequent falls, vertigo, dizziness, orthostasis, unstable walking, new symptoms/disorders and higher consumption of healthcare services).

Results: There were 56.5%/78.9%/64.6% of older women assessed in acute, ambulatory and community pharmacy care, the average age in analyzed samples was 79.1 ± 8.1 SD years, 82.8 ± 8.5 SD and 76.6 ± 7.2 SD years, respectively. Polypharmacy/hyperpolypharmacy (5 + /10 + meds) were prescribed to 45.7%/47.4% of seniors in acute care, 54.7%/22.6% in ambulatory and 24.9%/3.8% in community pharmacy care ($p < 0.001$). The most frequently prescribed combinations of sedatives were: alprazolam and citalopram (5.7%, sedative potential- 3, strong); citalopram and bromazepam (3.1%, sedative potential very strong- 4.5), bisulepín and diazepam (3.1%, risk of excessive sedation- 6). Significant correlation between higher number of prescribed sedatives/higher sedative potential of drug regimens and the occurrence of negative symptoms (Kendall's rank correlation tau = 0.9342443, $p < 0.001$) was confirmed.

Conclusion: Cumulative sedative potential of drug regimens is strongly associated with seniors negative outcomes. SW tools

developed by the INOMED project WG4 may help in detecting of problematic drug regimens and early resolutions of such risks by clinical pharmacists.

References: Dedications: INOMED project NO.CZ.02.1.01 / 0.0 / 0.0 / 18_069 / 0010046 (WG4) (2018–2022) co-financed by the European Union, EuroAgeism H2020 project MSCF No. 764632, Cooperatio research group “Aging, polypharmacy and changes in the therapeutic value of drugs in the aged” Faculty of Pharmacy, Charles University (Chair: Assoc. Prof. Daniela Fialová), SVV program 260 551, START/MED/093 CZ.02.2.69 / 0.0 / 0.0 / 19_073 / 0016935 and I-CARE4 OLD H2020 project ID: 965341.

Disclosure of Interest: D. Fialová Grant/Research support from INOMED (WG4) and EuroAgeism H2020 projects (ESR7 project)_leader of works, A. Magátová: None Declared, A. Slaná: None Declared, I. Kummer: None Declared, O. Antonenko Grant/Research support from INOMED (WG4) project, G. Vaculová Grant/Research support from INOMED (WG4) project, B. S. Areman: None Declared, J. Brkic Grant/Research support from EuroAgeism H2020 ESR7 project, J. Reissigová Grant/Research support from INOMED (WG4) project.

OR02.2

Evaluation of an e-agent for the detection of missing or potentially inappropriate proton pump inhibitors

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Background and Objective: To evaluate an electronic algorithm (e-agent) which identifies patients at risk for gastrointestinal bleeding without receiving proton pump inhibitors (PPI) or potentially inappropriate use of PPI.

Setting and Method: The e-agent was implemented in the electronic health records of a Swiss tertiary hospital in July 2021. This retrospective study compared a three-month period after implementation with the same period of the previous year. Exclusion criteria: age < 18, refusal of informed consent, intensive or intermediate care unit patients.

Main outcome measures: We analysed the categorisation of the generated alerts, acceptance rates of given recommendations, sensitivity/specificity of the e-agent as well as the relative reduction of missing or inappropriate PPI at discharge compared to prior period.

Results: The e-agent consisted of eleven alerts where a PPI was missing despite risk factors and one alert where the PPI was inappropriate in absence of any risk factors. The following risk factors were considered: Use of NSAIDs, antiplatelet or anticoagulant therapy, corticosteroid or SSRI use, older age, severe thrombocytopenia. 158 alerts for a missing PPI and 464 alerts for an inappropriate PPI were created for 5018 patients in the three-month period. After evaluation by a pharmacist, a recommendation to start a PPI was given 81 times and to stop a PPI 122 times. The acceptance rates were 72.8% and 34.4% respectively. A sensitivity of 92.0% and a specificity of 99.4% for the e-agent concerning missing PPI was found. For the inappropriate use of PPI the e-agent reached a sensitivity of 69.7% and a specificity of 97.1%. While both study populations differed not significantly, the e-agent reduced incidents of missing PPI by 63.4% (p -value < 0.001) and of inappropriate PPI by 16.2% (p -value 0.02) in comparison to the prior year without the use of the e-agent.

Conclusion: The e-agent identified patients at risk without gastro protection or the inappropriate use of PPI with high specificity and acceptable sensitivity. The given recommendations were accepted as well as the same interventions on interdisciplinary visits. Ultimately, the designed e-agent decreased incidents of missing and inappropriate PPI and therefore had a positive effect on the rational use of PPI.

Disclosure of Interest: None Declared.

OR02.3

CYP2C19 genotyping and adjustments in clopidogrel therapy in stroke patients

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Background and Objective: Clopidogrel is an antiplatelet medication that is routinely used for the prevention of stroke. Lower levels of the active metabolite of clopidogrel are observed in patients with impaired CYP2C19 enzyme activity resulting in a reduced response. Therefore, at the Elisabeth Tweesteden Ziekenhuis (ETZ), all patients who receive clopidogrel for stroke prevention are genotyped for CYP2C19. The aim of this study was to determine the prevalence of CYP2C19 phenotypes in the ETZ population and to investigate if this leads to adjustments in clopidogrel therapy in stroke patients.

Setting and Method: In this retrospective study, all patients who were genotyped for CYP2C19 between June 2020 and October 2020 and received clopidogrel for stroke prevention were selected. DNA samples were genotyped for CYP2C19 *2, *3, and *17 alleles.

Main outcome measures: Data about CYP2C19 genotype and phenotype, clopidogrel indication and adjustments in clopidogrel therapy were collected. Results are presented as proportions (in %).

Results: Between June 2020 and October 2020 a total of 382 stroke patients were genotyped for CYP2C19. The distribution of CYP2C19 phenotypes was: extensive metabolizers (EM) 65% (n = 247), intermediate metabolizers (IM) 27% (n = 103), poor metabolizers (PM) 5% (n = 19) and ultra-rapid metabolizers (UM) 3% (n = 13). CYP2C19 phenotype information led to changes in clopidogrel therapy in 94% of patients with impaired CYP2C19 metabolism (IM and PM). The following changes in therapy were made in the IM group: switching to acetylsalicylic acid and dipyridamole combination 71%, double dose clopidogrel (150 mg) 23%, acetylsalicylic acid monotherapy 5% and other therapy 1%. In the PM group 90% switched to acetylsalicylic acid and dipyridamole combination, 5% to acetylsalicylic acid monotherapy and 5% to other therapy.

Conclusion: In the ETZ 32% (IM 27% and 5% PM) of the genotyped patients on clopidogrel had an impaired CYP2C19 metabolism. This genotypic and phenotypic information led to changes in clopidogrel therapy in almost all patients. Switching to acetylsalicylic acid and dipyridamole combination therapy was the most common change in therapy.

Disclosure of Interest: None Declared.

POSTERS

PP01

A scoping review of the use of theory to investigate clinicians' adherence to clinical guidelines

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Background and Objective: **Background:** Clinical guidelines guide the practice of evidence-based medicine, aiming to optimize patient care and associated outcomes. Poor adherence of clinicians to guideline recommendations is a well-recognized obstacle. The application of behavioral theory in studies of adherence is unknown hence there is merit in conducting a scoping review.

Aims/Objectives: To describe if, and how, theory has been used to investigate clinicians' adherence to clinical guidelines.

Setting and Method: **Methods:** Full-text studies published in English in any healthcare setting which utilized behavioral change theories, models, or frameworks to investigate guideline adherence were included. The search was conducted from January 2010 to March 2021 in PubMed/Medline, Embase, Cumulative Index to Nursing and Allied Health Literature, and Scopus. Search terms were [theor* OR framework* OR model*] AND [Guideline*] AND [Health Personnel* OR clinician* OR healthcare provider*]. Reviews, commentaries, guidelines, and editorials were excluded. Data extraction was conducted by two independent researchers; synthesis employed a narrative approach.

Main outcome measures: A pre-formulated data extraction sheet that was developed by the authors.

Results: **Results:** A total of 8679 published studies were identified and, following removal of duplicates, 6364 were screened for title/abstract. Twelve studies met all inclusion criteria, from the United States (3), Palestine (3), Netherlands (2) and one each from the United Kingdom, Canada, Belgium, and Cyprus. The most used framework was the Cabana (n = 5), with others reporting the Theoretical Domains Framework, Theory of Planned Behavior, Health Belief Model, Competing Values Framework, I-Change model and the Diffusion of Innovations. These were largely used to identify facilitators and barriers, which were used to propose multifaceted interventions.

Conclusion: **Conclusion:** Theories of behavior and behavior change can aid the development of interventions which are more likely to be effect that those developed pragmatically. This review has identified a lack of theory informed studies exploring clinicians' adherence to guidelines which greatly limits the evidence base on effective interventions.

Disclosure of Interest: None Declared.

PP03

Theoretically based qualitative study on pharmacist prescribing for patients with chronic kidney disease

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Background and Objective: Chronic Kidney Disease has a high risk of morbidity and mortality. The available evidence worldwide demonstrates that nonmedical prescribing by pharmacist in various clinical specialties is safe and effective approach. There is lack of

evidence of information on the implementation and development of pharmacist prescribing for patients with chronic kidney disease (CKD). The aim of this research was to explore the development, implementation and evaluation of pharmacist prescribing for patients with Chronic Kidney Disease (CKD) in the UK.

Setting and Method: This study used a qualitative semi-structured interview. The development of the theory based semi-structured interview tool followed a rigorous iterative process using findings from literature, underpinned with CFIR and reviewed independently by an expert panel. A date / time for a telephone interview was arranged following receipt of signed consent. All interviews were transcribed verbatim. Interview data were analysed thematically. The Francis method of checking for data saturation was used. Ethical approval was granted by RGU School of Pharmacy.

Main outcome measures: Themes generated as mapped by the CFIR relevant constructs.

Facilitators and barriers to implementation of the prescribing services for patients with CKD.

Results: Data saturation was reached after 14 interviews. Demographic details included: 11 female, 7 had > 16 year experience in profession, all had secondary care as main practice setting and 8 had > 11 years as a prescriber. The interviewees were generally very positive about their prescribing practice and they articulated that they were prescribing in a variety of settings. CFIR helped identify themes related to facilitators and barriers to advancing prescribing practice. There was enthusiasm for the future development of prescribing practice including further establishment of clinics and taking responsibility for groups of patients.

Conclusion: This work provides information relating to the current status of the development of pharmacist prescribing practice in the UK. Further 'deep dive' case study work will help explore the practice of leading edge advanced and consultant level practitioners to learn even more about practice development.

Disclosure of Interest: None Declared.

PP04

Factors influencing prescribers use of non-formulary drugs: a qualitative study

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Background and Objective: Drug formularies aim to provide high-quality patient care to encourage the use of safe and cost-effective medications. One key limitation is lack of prescribers' adherence to the listed drugs leading to the increase in volume and cost of non-formulary drugs. There is increasing recognition of the benefits of applying behavioral theory to the development of targeted behavior change interventions. The first step in this process is to systematically identify the key determinants of the behavior under study.

The aim of this study was to describe in depth the key behavioral determinants relating to prescribers' **decision to prescribe non-formulary drugs**.

Setting and Method: Qualitative design was employed using semi-structured interviews with 13 physicians who were actively involved

in non-formulary prescribing from Hamad Medical Corporation (HMC). Interview guides were developed based on the theoretical domain framework (TDF) and **reviewed for credibility by experts and two pilot interviews were conducted**. Individual interviews were audio-recorded, transcribed verbatim and analyzed by three independent assessors using thematic analysis.

Main outcome measures: Key behavioral determinants in prescribers decision to prescribe non-formulary.

Results: The key themes identified by participants that emerged from the analyzed data were social influences **with the major themes being patients influence the decision to prescribe non-formulary and patient treatment plan influence prescribers**, environmental context and resources with the theme being formulary is not up-to-date, professional role and identity with the theme being physician's role as a sole prescriber to provide optimum patient care and beliefs of consequences with the theme being best treatment option for the patient.

Conclusion: The analysis identified a variety of determinants and behaviors against adhering to drug formulary within HMC. These findings will be used in the development and testing of targeted interventions aiming to increase prescribers' adherence to the drug formulary.

Disclosure of Interest: None Declared.

PP05

Effectiveness and safety of erenumab, galcanezumab and fremanezumab in migraine: real world data results

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Background and Objective: Calcitonin gene related peptide (CGRP) receptor inhibitors are new monoclonal antibodies (mAb) widely used in clinical practice since its approval in patients with chronic and high-frequency episodic migraine who have failed multiple preventive therapies but safety, tolerability, and effectiveness have not been well described in real-world populations. The objective is to assess the effectiveness and safety of the CGRP receptor inhibitors erenumab, fremanezumab and galcanezumab.

Setting and Method: This observational, retrospective, multicentre study was performed in two hospitals between March 2019 and April 2021. At baseline and after a 3, 6 and 12-month period with active treatment, monthly migraine days are recorded.

Main outcome measures: Demographic and clinical data recorded: Monthly migraine days (MMD) at baseline and after mAb (measured at least after 12 weeks), change to other mAb or dose increase (Yes/No), previous CGRP mAb, adverse effects (AEs).

Results: A total of 127 patients met the inclusion criteria: 76% of patients had CM and 87% were female. Erenumab (86): mean age was 47 years (range, 17–69), 94,2% of patients started with the lowest dose (70 mg) and 55,8% of them required dose increase. Clinicians, prescribed the lowest dose at initial of treatment with CGRP mAb to 94,2% of patients and 55,8% required a dose increase because of ineffectiveness or loss of response. A total of 11,6% and 3,5% of patients changed to a second and third mAb, respectively. Mean MMDs at baseline and after treatment were 11,8 [9–15] and 5,1 [2–7]. Most frequent AEs were: constipation (9,3%), cardiovascular effects (3,5%): chest pain, tachycardia.

Galcanezumab (25): mean age of 45 years (range, 22–67), 44% of patients had received other CGRP mAb previously. Mean MMDs at baseline: 12 [8–15] and after mAb: 5 [3–6,25]. 24% of patients changed to a second mAb (erenumab) but the mean of MMDs differs just slightly from 12 days with erenumab to 8 days during galcanezumab's treatment. Adverse reactions: end-of-dose effect (12%), constipation (4%), headache worsening (4%).

Fremanezumab (16): 50% of patients had received other CGRP mAb previously. 100% of patients started with the lowest dose (225 mg). Mean MMDs at baseline were 11,8 [10–14,25]. Clinical and safety results were not recorded to final date of the study.

Subjective improvement in intensity of migraines was reported by 80% of patients and 75% of patients complained about lack of follow-up by reference neurologist.

Conclusion: CGRP mAbs are similarly effective in the reduction of MMDs, but switching of mAbs in non-responders' patients might not have significant impact. It could be reasonable to establish the therapeutic alternative based on efficiency criteria and cost minimization strategy. Adverse reactions are well-described by patients at clinical visits and limit patient's life quality. Pharmacist are indispensable during follow-up of these patients to detect AEs and to help patients manage the complex of migraine and new therapies.

Disclosure of Interest: None Declared.

PP07

Drug interaction-associated failure of lamotrigine antiepileptic therapy (case report)

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Background and Objective: There is a lot of very well described clinical situations when antiepileptic drugs can affect the other drug regimens—such as carbamazepine, phenytoin, valproic acid etc.. On the other hand, there is not so many drug interactions affecting directly the antiepileptic therapy. This case report shows one example of them.

Design: Young woman (age 20 years, weight 50 kg, height 150 cm) with epilepsy has been taking lamotrigine 50 mg twice daily since her 17 years of age. She started to take also an oral combined hormonal contraception (0,075 mg of gestoden and 0,03 mg of ethinylestradiol) six months ago.

On 1st day at 8:50 p.m., she was admitted to the Department of Neurology, Hospital Rudolfa a Stefanie Benešov after two epileptic seizures. The first seizure occurred the same day around 6 p.m. (tonic spasm of the upper limb without twitching) and was treated by ambulance service at the place of her residence (applied i.v. bolus of diazepam 5 mg). The second seizure occurred at 7:40 p.m. when watching TV. Patient started suddenly screaming, twisting of the upper limbs, then even twitching. Based on this second seizure, patient has been admitted to hospital.

Results: On 2nd day at 6 a.m., the plasma lamotrigine concentration was examined with a result of 4.11 µmol/L, which is the concentration out of the optimal therapeutic range (11.7–58.5 µmol/L). Clinical pharmacist recommended to increase the lamotrigine dose up to 75 mg twice daily. On 3rd day, this patient was discharged from the hospital.

On 28th day at 7 a.m., another plasma lamotrigine concentration was examined with a result 9.7 µmol/L (placebo week of hormonal contraception). Neurologist increased the dose of lamotrigine to 100 mg twice daily without the clinical pharmacist consultation. Patient did not experienced another epileptic seizure, but had occasional auras.

On 42th day at 7 a.m., another plasma lamotrigine concentration was examined with a result 7.5 µmol/L (non placebo week of hormonal contraception). Clinical pharmacist recommended to replace combined hormonal contraception by pure gestagen contraception due to drug interaction between ethinylestradiol and lamotrigine.

Other plasma lamotrigine concentrations were examined on days 63th, 75th and 88th with a results 20.3, 23.4 and 21.6 µmol/L respectively. Patient did not experienced other epileptic seizures.

Conclusion: Optimal therapeutic plasma concentration of lamotrigine was achieved at the same dosage by discontinuing of combined hormonal contraception and replacing it with pure progestin contraception.

Disclosure of Interest: None Declared.

PP08

Dravet syndrome pharmacotherapy: a practical tool to support the epileptologist

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Background and Objective: Dravet syndrome (DS) is an epilepsy syndrome of infancy that belongs to the GEFS + (genetic epilepsy with febrile seizures 'plus') spectrum. The National Clinical Guideline Centre (NCGC) guidelines recommend, as first-line treatment, the administration of topiramate or valproate (VPR), and, as adjunctive treatment, the administration of clobazam (CLO) + stiripentol (STI). However, recently some new drugs as cannabidiol (CBD) or fenfluramine hydrochloride (FFL) have been approved as adjunctive treatment. Even if the new drugs provide similar convulsive seizure frequency reduction vs placebo, they are characterized by differences that can orientate clinicians towards the therapeutic choice based on the patient's medical history.

The aim of this work is to implement a decision-making algorithm that can support epileptologists in the therapeutic choice taking into consideration of posology and tolerability differences of the adjunctive treatment.

Design: The DS therapeutic scheme was obtained by consulting the NCGC guidelines. The drugs data were extrapolated from the Summaries of Product Characteristics (SmPC) and from research papers (PubMed).

STI, CBD and FFL were compared according to posology (number of administrations per day), safety profile (contraindications), and pharmaceutical form composition (excipients).

Results: The adjunctive treatment full posology of DS includes: STI 50 mg/kg/day granules in combination with VPR and CLO (2–3 administrations per day); CBD 10 mg/kg/day oral solution in combination with CLO (2 administrations per day); FFL 0.2 mg/kg/day oral solution (2 administrations per day). Therefore, the simplest therapeutic scheme of FFL provides better compliance.

However, STI cannot be used in patients with history of psychosis or phenylketonuria (the granules contain E951). CBD cannot be used in patients with increased ALT and AST levels and in Muslim patients (it contains anhydrous ethanol). FFL cannot be administered in case of aortic or mitral valvular heart disease, pulmonary arterial

hypertension and in patients receiving monoamine oxidase inhibitors (increased risk of serotonin syndrome).

Conclusion: Despite the similar effectiveness profiles, substantial differences exist in terms of contraindications, posology, and composition, which could make the difference in selecting the best therapeutic scheme. Since this algorithm is a useful tool for this purpose, we will report the results in the clinical practice.

Disclosure of Interest: None Declared.

PP09

Migraine prevention: monoclonal antibodies prescription in an Italian hospital

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Background and Objective: Migraine (MG) is a chronic paroxysmal neurological disease characterized by multiphase attacks of head pain. Recently, some new monoclonal antibodies (MA) as Erenumab 70 mg (ERN1), Erenumab 140 mg (ERN2) Fremanezumab (FRZ) and Galcanezumab (GCZ) have been approved by EMEA for prophylaxis of MG in patients with attacks at least 4 days a month. Even though these MA showed great efficacy, switching MG patients from a MA to another one is still controversial. The aim of this work is to assess the prescribing trend of an Italian Hospital.

Design: It was conducted a retrospective observational study from January 2020 to December 2021, by considering all MG patients who received therapy with different MA. For each patient, dispensed treatments and switches from a MA to another one were analyzed. Data were extracted from an administrative database and collected in an Excel datasheet.

Results: In 2020, 61 MG patients were treated: 31 (50.82%) started with ERN1, 6 (9.84%) with ERN2, 2 (3.28%) with FRZ and 22 with GCZ (36.06%). Out of 31 ERN1 patients, 17 (54.84%) switched to ERN2 throughout the year and 1 (3.22%) switched to FRZ. Despite 10 patients discontinued the treatment, in 2021 the number of patients increased to 143 (+ 134.43%): 92/143 (64.33%) patients were naïve: 28 patients (19.60%) started with ERN1, 43 with ERN2 (30.07%), 23 with FRZ (16.08%) and 49 with GCZ (34.25%). 34/143 (23.78%) patients continued the treatment from the previous year and 17 (11.89%) shifted to another MA. Throughout the year, 31 (21.68%) patients shifted the therapy: 20 (64.51%) patients switched from ERN1 to ERN2, 5 (16.13%) from ERN2 to FRZ, 2 (6.46%) from ERN2 to GCZ and vice versa (6.46%), 1 (3.22%) from ERN1 to FRZ, and 1 (3.22%) from FRZ to GCZ.

Conclusion: Despite the similar effectiveness profiles, a clear majority of ERN1 patients shifted the therapy to the higher ERN dosage or to another MA, probably due to a substantial ineffectiveness. At the same time, most of patients treated with ERN2, FRZ and GCZ effectively prevented the head pain attacks and continued the treatment.

Disclosure of Interest: None Declared.

PP10

Medical treatment costs of migraine prevention in an Italian hospital

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Background and Objective: Migraine (MG) is a highly prevalent and disabling neurological disorder associated with recurrent moderate or severe headaches. Preventive treatment (PT) decreases migraine frequency and improves patients' quality of life. Recently, some new high-cost Monoclonal Antibodies (MA) as Erenumab 70 mg (ERN1), Erenumab 140 mg (ERN2) Fremanezumab (FRZ) and Galcanezumab (GCZ) have been approved for MG prevention in adults. Given the high prevalence of MG, its PT involves a considerable economic burden for the public health system that should be analyzed and monitored. The aim of this work is to analyze the hospital MA treatment costs of MG patients over the period 2020–2021.

Design: A cost-analysis was conducted by a Hospital Pharmacy in the north of Italy over the period January 2020–December 2021, by extracting prescription data from the management software in an Excel datasheet used to summarize data thanks to descriptive statistic methods.

Results: In 2020, 496 pens of MA for a total of €18,451.36 were dispensed to 61 MG patients: 239 pens of ERN1 equal to €80.03 (0.43%) – they were ceded to the Hospital Pharmacy free of cost or at a nominal price of €1.10; 90 pens of ERN2 equal to €9,003.76 (48.80%); 158 pens of GCZ equal to €7,474.19 (40.51%) and 9 pens of FRZ equal to €1,893.38 (10.26%). Throughout 2021, despite 10 patients discontinued the treatment, 1,354 pens for a total of €266,748.45 (+ 1,345.68% vs 2020) were dispensed to 143 MG patients: 166 pens of ERN1 equal to € 32,217.94 (+ 40,157.33%); 545 pens of ERN2 equal to €105,775.78 (+ 1,074.79%); 243 pens of FRZ equal to €51,121.13 (+ 2,599.99%) and 400 pens of GCZ equal to €77,633.60 (+ 938.69%).

Conclusion: Between 2020 and 2021 MG patients number increased by 134.43% and MG PT costs raised by 1,345.68%. In response to increasing number of patients who need MG PT, over the next few years MA presumed maximum needs are expected to rise. Clinical Pharmacists will play a fundamental role in the costs reduction by monitoring the MG MA appropriateness of prescribing and evaluating the MG patient's eligibility through the computerized dispensing system of Italian Medicines Agency.

Disclosure of Interest: None Declared.

PP12

Delphi process to develop guidelines for rational use of antibiotics in surgery: an experience in a low income country

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Background and Objective: Most clinical guidelines are developed by high-income countries institutions with little consideration given to either the evidence base for interventions in low-and middle-income countries (LMICs), or the specific challenges LMICs' health systems may face in implementing recommendations. In our previous studies, we noticed a misuse and overuse of antibiotics, and a poor

match with the bacteria in concern. The aim of this study was to develop, based on the results of antimicrobial susceptibility of bacteria isolated in surgical site infections, and antibiotics available, a guideline for the rational use of antibiotics in surgical prophylaxis in order to reduce the rate of antimicrobial resistance in Benin.

Design: The modified Delphi method was used to establish consensus in fourteen experts including microbiologists, pharmacists, surgeons, gynecologists, hygienists, and infectiologists from Benin and Belgium involved in a research collaboration. The guideline included initially eleven statements about antibioprohylaxis. The members of the panel rated each statement, and provide comments via an online survey. Respondents received feedback on their responses.

Results: After the first Delphi round, the panel endorsed all statements (consensus > 90%). A report summing up the results has been forwarded to the panel, along with a new reformulated version of the questionnaire.

Conclusion: The validation of the contents based on experts' consensus has been an essential approach to improve the practices of surgical antimicrobial prophylaxis in hospitals in Benin, as valuable feedback has been provided by the multidisciplinary team. This consensus guideline will help to standardize the use of antibiotics in surgical wards, and can help to reduce the occurrence of antimicrobial resistance.

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PP16

A clinical decision support system for individualised paediatric drug dosing

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Background and Objective: The high incidence of medication errors in paediatrics is concerning. In the literature, those errors are mainly attributed to the prescription or administration of incorrect drug doses. Paediatric pharmacotherapy is especially challenging because of developmental changes and the immaturity of metabolising organs. Also, dosing in paediatrics is mostly done weight-based, which requires the calculation of patient-specific doses allowing room for errors. In the era of digitalisation, the use of clinical decision support (CDS) tools is considered among the gold standards in reducing dosing and prescribing errors.

Design: We report on the development and core functionalities of the CDS tool *PEDeDose*, a class IIa medical device software, certified according to the European Medical Device Regulation. The CDS tool consists of a drug dosing database with an integrated calculator, that can be accessed via a web application or by a clinical information system upon integration of the application programming interface.

Results: Healthcare professionals can search *PEDeDose* by active ingredient, product, indication, or ATC-code. Upon entering the child's parameters, an individualised dosage is calculated. Even dosages for preterm infants can be calculated by entering their gestational age. The *PEDeDose* database currently contains over 330

active ingredients and over 1800 products with market authorisation in Switzerland. The CDS tool was built to facilitate integration into existing clinical information systems using an application programming interface. Thus, workflow fragmentation can be prevented as there is no need to switch the user interface. Furthermore, the required patient information is carried over directly from the electronic patient record. This also allows manually prescribed dosages to be checked for their correctness.

Conclusion: We developed *PEDeDose*, a CDS tool with an integrated drug dosing calculator for individualised pharmacotherapy in children. The CDS reduces the workload of healthcare professionals prescribing or validating medication, with the ultimate goal of preventing dosing and prescribing errors in paediatrics and neonatology.

Disclosure of Interest: L. Higi Employee of PEDeus Ltd., Grant/Research support from PEDeus Ltd., K. Käser Employee of PEDeus Ltd., M. Wälti Employee of PEDeus Ltd., A. Stalder Employee of PEDeus Ltd., M. Grotzer Other: Part of the board of directors of PEDeus Ltd., P. Vonbach Employee of PEDeus Ltd.

PP17

Cross-sectional survey of the influences on prescribers requesting non-formulary drugs

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Background and Objective: Drug formularies list recommended drugs based on criteria of efficacy, effectiveness, safety, cost-effectiveness, availability, quality, and patient and clinician acceptability. While prescribers are encouraged to select from within the formulary, non-formulary prescribing is widespread, and largely under-researched. This study aimed to determine the influences on prescribers requesting non-formulary drugs.

Setting and Method: A cross-sectional survey of prescribers in Hamad Medical Corporation, Qatar. Data were collected from a sample of those requesting a non-formulary drug. An online questionnaire was developed based on items measuring influences derived from the Theoretical Domains Framework (TDF). Data were collected during the period of June to September 2021 and analyzed using descriptive analysis. Ethical approval was received from Hamad Medical Corporation and Qatar University.

Main outcome measures: Key behavioral determinants in prescribers decision to prescribe non-formulary.

Results: Sixty questionnaires were received. Key findings were that the majority of respondents (88%, n = 53) agreed that it is their professional duty to adhere to the hospital formulary drugs and (85%, n = 51) that adhering to the hospital drug formulary will have economic benefit. Just over half of respondents (52%, n = 31) agreed that patients put them under pressure to prescribe non-formulary drugs. Near half of respondents (45%, n = 27) reported that it is sometimes difficult for them to remember the drugs listed in the hospital formulary.

Conclusion: While there are a number of facilitators of formulary use, it appears that patient pressure and knowing which alternative formulary drugs influence the use of non-formulary drugs. These

findings could form the targets for interventions to promote formulary adherence.

Disclosure of Interest: None Declared.

PP18

Plasticizers exposure in nicu: is it an issue for the patients?

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Background and Objective: Phthalates and other plasticizers are extensively used in medical devices (MD) from which they can release and contaminate the patients. This exposure may be associated with reproductive and neurodevelopment disorders (1,2) (some phthalates are endocrine disruptors (ED)). Newborns in Neonatal Intensive Care Units (NICU) are at high risk due to a higher exposure to plasticizers (3–9), a reduced ability to detoxify these contaminants (10) and a higher sensitivity to ED (11).

Setting and Method: We conducted a multicentric biomonitoring study (ARMED NEO project) to assess and compare the urinary levels of DEHP (di-(2-ethylhexyl)phthalate), DEHTP (di-(2-ethylhexyl)terephthalate) and TEHTM (tri-(2-ethylhexyl)trimellitate) metabolites as biologic markers of this exposure during and after newborns' stay in NICU.

Main outcome measures: Daily urinary samples in NICU for a maximum of 14 days and a last sample in the neonatology unit 24 to 48 h before hospital discharge were collected for each patient. MD sources and exposure factors were also investigated by recording all PVC MD used, age, gender, body weight, type of incubator.

Results: 508 urinary samples from 97 patients (center 1/C1 and center 2/C2) were collected. Exposure of newborns to DEHP was 5 to 10 times higher than that of DEHTP and 50 times higher than that of TEHTM (median of the sum of metabolites: DEHP-C1:276.99; C2:389.68 µg/mmol; DEHTP- C1:51.53; C2:36.78 µg/mmol; TEHTM- C1:5.08;C2:1.48 µg/mmol). DEHP and TEHTM metabolites urinary concentrations were significantly lower at discharge than in NICU(18/35-fold decrease for DEHP;4/eightfold for TEHTM, respectively for C1/C2). DEHTP metabolites concentrations were similar.

MD used for respiratory assistance, infusion therapy, enteral nutrition and transfusion were the main sources of exposure. Smaller gestational age and body weight, and closed incubators significantly increased the exposure of newborns.

Conclusion: Additional efforts are necessary to promote a substitution of DEHP in MD by safer alternatives such as TEHTM and DEHTP, especially for respiratory assistance MD and MD having a contact with blood (i.e. transfusion, ECMO).

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PP22

Examining of the perceptions of pharmacists and pharmacy students of research in pharmacy

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Background and Objective: The continuous advancement in healthcare depends profoundly on the preparation and development of healthcare professionals who are committed to evidence-based practice. It is predicated on the assumption that there is a corpus of research relevant to individual patients' care. This study aimed to

examine the perceptions of pharmacy students and pharmacists in Qatar who graduate from the College of Pharmacy (CPH) at Qatar university (QU) of their research confidence and outcome as well as of the utility of undergraduate pharmacy research courses.

Setting and Method: A cross-sectional study was followed. This study involved the administration of a pre-tested questionnaire which was developed based on the theoretical domain framework. The total population of pharmacists who graduated from CPH–QU in 2011–2021 (n = 244), and all third and fourth professional year students (n = 40) who completed at least one research course at the time of conducting the study comprised the study population.

Main outcome measures: Perceptions of research experience, significance and interests, confidence in conducting research and research productivity, and motivations for future research plans.

Results: Two hundred and two pharmacists and pharmacy students completed the questionnaire (response rate = 71%). The participants demonstrated a high level of agreement (> 75%) with the significance of research courses, and with their interest and confidence in conducting research. Areas of non-confidence in research was noted in their ability to use data analysis software (72 [39.4%]), and to conduct data analyses appropriately (45 [24.6%]). The participants were able to publish at least one peer-reviewed article (99 [54.4%]) from their undergraduate research course, and considered it as an excellent source of recognition (169 [93.3%]). Moreover, they were highly motivated to participate in pharmacy-related research throughout their pharmacy career (166 [92.2%]) and to advance in their advance their knowledge and skills in conducting pharmacy-related research (165 [91.7%]).

Conclusion: Overall, the pharmacists and pharmacy students had positive perceptions of the undergraduate research courses provided in CPH. However, reinforcements are needed to improve pharmacists' confidence in different aspects of pharmacy related research.

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PP23

Examining the perceptions of pharmacists of job satisfaction, achievements, and preparedness

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Background and Objective: There is a scarcity of research that holistically explored pharmacists' employment experience and their professional performance. It has been shown that job satisfaction is linked to professionals' productivity and educational preparedness. This study aimed to explore the professional experiences of the pharmacists in Qatar who graduated from the College of Pharmacy (CPH) at Qatar University (QU) through an examination of their perceptions of job satisfaction, achievements in the workplace, and preparedness to practice.

Setting and Method: A convergent mixed-methods design was utilized at which the Herzberg Motivation-Hygiene theory was applied. This study involved the administration of a pre-tested questionnaire among all pharmacists who graduated from the CPH (n = 214) and conduction of seven focus groups of which the participants were selected from a heterogeneous purposive sample (n = 87).

Main outcome measures: Perceptions of job satisfaction, satisfaction with achievements in the workplace, and agreement with preparedness to practice.

Results: Hundred thirty-six pharmacists completed the questionnaire (response rate = 63.6%), and 40 pharmacists participated in the FGs. The pharmacists demonstrated a good level of job satisfaction (median score = 30 (IQR = 12), [out of 48]). Examples of job satisfaction and dissatisfaction sources were the recognition, and the limited opportunities for professional growth, respectively. They also demonstrated good satisfaction (median score = 20 (IQR = 21), [out of 56]) with their ability to attain several achievements (e.g., developing pharmacy-related services) which allowed for career success. Moreover, the pharmacists indicated a fair level of agreement about the adequacy of their preparedness to practice (e.g., being care providers) (mean = 37 (SD = 7.5), [out of 52]); however, certain aspects warranted further improvement (e.g., non-clinical knowledge).

Conclusion: Overall, the pharmacists had positive perceptions of their professional experiences. However, reinforcements are needed throughout the learning experience to support the pharmacists' interests in different pharmacy career prospects.

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PP24

Implementation and evaluation of a preceptor educational development program

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Background and Objective: “The Practice Educators’ Academy Program” is an innovative educational intervention developed following a preceptor-focused needs assessment. The primary aim of this study was to evaluate the program’s effect on self-efficacy and knowledge amongst multi-disciplinary clinical preceptors who precept students across the Health Cluster in Qatar University. The secondary aim was to assess the preceptors’ satisfaction with the program’s comprehensiveness, appropriateness, and relevance.

Design: The program’s effectiveness was assessed utilizing a pretest–posttest intervention study with a single group of preceptors. Preceptor self-efficacy was assessed using the Preceptor Self-Efficacy Questionnaire, a validated 21-item questionnaire. Preceptor knowledge was assessed through a 25-item multiple-choice question test. Satisfaction with program content and delivery was assessed through a 14-item questionnaire with open comments.

Results: Participation of 30 preceptors in the self-efficacy questionnaire resulted in a statistically significant increase in their posttest median score (pretest-to-posttest: 3.3-to-3.6, $p = 0.001$). Twenty-six preceptors completed the knowledge-based assessment, with a statistically significant increased posttest mean score (pretest-to-posttest: 10.2-to-15.7, $p < 0.001$). Participants indicated high levels of satisfaction with the program (average score = 4.42/5).

Conclusion: Our findings suggest the program is effective as demonstrated through a significant improvement in preceptors’ self-efficacy and knowledge. Recommendations for future iterations include placing greater focus on active learning strategies, and interdisciplinary integration.

Disclosure of Interest: None Declared.

PP25

Prevalence, nature and contributing factors to medication errors in outpatient and ambulatory settings: a systematic review and meta-analysis

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Background and Objective: Medication errors (ME) are common incidents across all healthcare settings with profound implications on patients, families, healthcare providers (HCP) and health systems. Whilst the prevalence and determinants of ME in various inpatients settings have been widely investigated in multiple systematic reviews and meta-analyses, there is no systematic synthesis of similar data in outpatients clinics and ambulatory settings. This study aimed to evaluate the prevalence, nature and contributory factors in relation to medication errors in outpatient clinics and ambulatory care settings.

Setting and Method: Medline, CINAHL, EMBASE and Google Scholar search engines were searched from database inception to

November 2021. Studies published in 2011 onwards and reporting any outcome of interest in adult patients were included. Study selection, data extraction and quality assessment (using quality assessment checklist for prevalence studies or CASP tool depending on the study design) were conducted by two independent investigators.

Main outcome measures: Outcomes investigated in this study includes: (1) prevalence of medication errors; (2) classification of medication errors according to the stage of the medication use process (prescribing, transcribing, administration, dispensing, and monitoring); (3) classification of medication errors according to incident type; (4) contributory factors contributing to medication error according to Reason’s accident causation model; (5) severity of reported medication errors; and (6) interventions implemented to reduce medication errors.

Results: A total of 24 studies were included in this systematic review. Prescribing errors were the most commonly reported type of error. A few studies reported on severity with most medication errors classified as moderate. The most common contributing factor was mistakes (active failure) due to wrong prescribed dose. Interventions to reduce the occurrence of medication errors were reported including pharmacist-led interventions. Most included studies were of moderate quality mainly due to sampling and recruitment bias.

Conclusion: Medication errors are common in outpatient settings often contributed by errors in dosing. Mitigation strategies including pharmacist interventions are needed. Further effective interventions using theory-based research are needed.

Disclosure of Interest: None Declared.

PP26

Severe CNS depression with duloxetine, ciprofloxacin and CYP2D6 deficiency—role and recognition of drug–drug–gene interactions

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Background and Objective: Drug–drug interactions (DDI) and pharmacogenetic variants may attenuate pharmacotherapy’s efficacy and increase the risks of adverse reactions. Yet the relevance of their interaction with each other, i.e., drug–drug–gene interactions, is often not considered.

Setting and Method: A 73-year-old patient was admitted to the intensive care unit (ICU) with septic shock. Antibiotic therapy was initiated with intravenous ciprofloxacin 2 × 400 mg per day. Richmond Agitation-Sedation Scale (RASS) score was routinely determined several times per day.

On day 17 at the ICU oral duloxetine administration was resumed with 60 mg per day while ciprofloxacin therapy was still ongoing. Duloxetine had previously been prescribed in equal dose without adverse effects, but had been stopped upon admission to the ICU before start of ciprofloxacin.

Main outcome measures: Subsequently, RASS scores markedly declined. Differential diagnostic workup did not reveal any alternative causes. Despite withdrawal of any sedation, the RASS score remained low. Clinical pharmacy services suspected an interaction between duloxetine and ciprofloxacin, and duloxetine was stopped. Thereafter RASS scores rapidly increased.

We hypothesized that pharmacogenetic variants may have been a relevant cofactor and performed pharmacogenetic testing, showing two nonfunctional CYP2D6 alleles (*4/*69) indicating no enzymatic activity, and CYP1A2 wild type [1].

Results: Ciprofloxacin is a strong inhibitor of the drug metabolizing enzyme CYP1A2, of which duloxetine is a substrate, and their concomitant use is formally contraindicated [2], yet deliberate CYP1A2 inhibition was reported as a well-tolerated [3]. The Genophar II Working Group reaches beyond bilateral interactions and developed quantitative prediction models for drug-drug-gene interactions [4, 5]. These are available at <https://www.ddi-predictor.org>, and we applied them to the presented case. Accordingly, 63% of duloxetine is metabolized via CYP1A2, 37% via CYP2D6 (closely similar to original data [6]), and the predicted interactions are as follows (duloxetine AUC ratios for drug exposure including 95% CIs): duloxetine + ciprofloxacin 2.3 (1.4–3.9), duloxetine + CYP2D6 lowest activity genotype phenotype 1.6 (1.1–2.3); however, duloxetine + ciprofloxacin and CYP2D6 lowest activity genotype 16.6 (8.0–34.4).

Conclusion: Drug-drug interaction alerts generated by clinical decision support systems (CDSS) or formal contraindications as well as pharmacogenetic information frequently have a low predictive value regarding clinical outcomes. Consequently, their clinical relevance is often limited and they are ignored in clinical practice [8]. However, unknown “third factors” may often be a required condition for the occurrence of an adverse drug reaction. We emphasize the need to develop CDSS algorithms beyond mere “two-factor interactions” [9].

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Disclosure of Interest: None Declared.

PP29

Complementary and alternative medicines use in self-management of diabetes: a study of patient and user conversations in online forums

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Background and Objective: An important part of diabetes self-management includes discussing and seeking informal advice from others. Complementary and Alternative Medicines (CAM) which includes herbal treatments, acupuncture, homeopathy and mind-body therapies are very commonly used by diabetic patients for self-management of diabetes. It has been reported that up to 2/3rd of patients who use CAM in diabetes do not disclose the use to their healthcare professionals and do not discuss it in clinical consultations [1,2]. This study aimed to explore the perspectives of patients in relation to their use of CAM in diabetes through the use of data from online patient forum discussions.

Setting and Method: Google search engine was used to identify relevant web-based online discussion forums focussing on CAM use in diabetes. A total of 22 online forums containing 77 threads with 1156 posts and replies were identified. A qualitative content analysis was adopted for analysis.

Main outcome measures: Perspectives of patients in relation to their use of CAM in diabetes.

Results: Seven major themes with their respective sub-themes emerged from the data analysis. Patients used online forums to seek information about the benefits, side effects and share positive and negative experiences of CAM use. Feeling stressed, frustrated or overwhelmed with the condition and prescribed medications was often linked to their decisions to use CAM. They described that healthcare professionals were often unaware or unable to help in regards to their queries around CAMs. They sought and shared literature to support or refute claims around perceived benefits and harms.

Conclusion: This study demonstrates that diabetic patients use online forums to seek and offer advice and share experiences in regards to reasons, experiences, perceived effectiveness and harm from CAM use. There is a scope for professional societies, patient charities and health systems to offer such online platform to patients for discussion which can allow exploration of key concerns and queries and provision of evidence-based information to patients.

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Disclosure of Interest: None Declared.

PP30

Assessment of medication discrepancies by pharmacist-led medication reconciliation at admission: a prospective study in traumatology

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Background and Objective: Medication errors leading to preventable adverse drug events occur mainly during transitions of care (admission/discharge from a healthcare facility, hospital interdepartmental transfers). Data on drug reconciliation in surgical wards are scarce. The purpose of this study was to assess the prevalence of medication discrepancies in patients admitted to an orthopedic and trauma department during the medication reconciliation process performed by a pharmacist at admission, and to identify potential risk factors.

Setting and Method: This was a prospective single-center observational study conducted over a 15-week in 2021. Eligible patients were adults hospitalized in two units of an orthopedic and trauma department of a tertiary university hospital in Switzerland, admitted for a duration of hospitalization of more than 48 h and in the presence of a chronic pathology and/or a medication at risk and/or for whom the opinion of the physician in charge of the patient was in favor of performing a medication reconciliation at admission. The Best Possible Medication History list was established for each patient and compared to the list of admission medication prescriptions to identify medication discrepancies. These discrepancies were classified as intentional or unintentional on the basis of the medical record and, if necessary, a discussion with the physician in charge of the patient. A multivariable analysis by logistic regression was performed to identify predictors of the “presence of an unintentional discrepancy”.

Main outcome measures: Quantify and describe the unintentional medication discrepancies at admission by type (drug discontinuation/addition, change in dosage/frequency/route of administration).

Results: 120 patients were included in the study with a median age of 71 years [IQR: 63.5–83.5]. 71.7% of patients were taking ≥ 5 medications before admission. The median pharmaceutical time required to perform the medication reconciliation activity was 36 min [IQR: 29–45]. 60.8% of admitted patients had at least one unintentional medication discrepancy on admission with a median of 2 per patient [IQR: 1–3]. Unintentional drug omission (67.3%) and dose modification (21.2%) were the most frequently encountered subtypes of unintentional medication discrepancies, and 88.5% of identified unintentional medication discrepancies were corrected. Polymedication (≥ 5 medications) was the only variable associated with “presence of an unintended discrepancy” at a level very close to the established statistical significance level of $p = 0.05$ [OR = 2.244, p -value = 0.065].

Conclusion: This study confirms the major interest of the medication reconciliation at admission in an orthopedic and traumatology

department in an elderly and polymedicated population, exposed to high-risk medications and to a risky process.

Disclosure of Interest: None Declared.

PP31

Pharmacological treatment of depression after ischemic stroke

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Background and Objective: Depression after ischemic stroke is one of the most frequent complications that has a negative impact on the functional outcome, neuro-rehabilitation and quality of life of a person living with stroke. It represents serious health, social and economic problem, requiring adequate pharmacological treatment with antidepressants. The aim of this study was to analyse the frequency of depression after ischemic stroke, associated risk factors and type of antidepressant medicaments used.

Setting and Method: A prospective study of 50 patients living with stroke was performed. Symptoms of depression were assessed using the Hamilton Depression Rating Scale (HAM-d) on the following time-points: 1 month, 3 months and 6 months after stroke. Demographic characteristics, stroke severity and type of antidepressant medicaments were analysed.

Main outcome measures: After 1 month, depressive symptoms were registered in 35 patients (70%) that required pharmacological treatment with antidepressant medication. Treatment with SSRI's was started with gradual increasing of the dose. After 3 and 6 months depressive symptoms were registered in 28 (56%) and in 20 (40%) patients, respectively. Mild and transient side effects from the gastrointestinal system were registered in 5 patients (14%). Depression after ischemic stroke was significantly associated with ischemic stroke severity and presence of > 3 stroke risk factors ($p < 0.05$).

Results: After 1 month, depressive symptoms were registered in 35 patients (70%) that required pharmacological treatment with antidepressant medication. Treatment with SSRI's was started with gradual increasing of the dose. After 3 and 6 months depressive symptoms were registered in 28 (56%) and in 20 (40%) patients, respectively. Mild and transient side effects from the gastrointestinal system were registered in 5 patients (14%). Depression after ischemic stroke was significantly associated with ischemic stroke severity and presence of > 3 stroke risk factors ($p < 0.05$).

Conclusion: The risk for depression is increased in people with severe ischemic stroke and comorbidities. Long-term pharmacological treatment with SSRI's reduces the symptoms of depression after ischemic stroke. The treatment is complex and requires multidisciplinary approach.

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Disclosure of Interest: None Declared.

PP32

Evaluation of attitudes of patients regarding vaccine hesitancy during COVID-19: community pharmacy setting

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Background and Objective: Vaccine hesitancy leads to decreases in vaccination rates and causes an increase in preventable epidemics and diseases. The aim of this study is to evaluate the attitudes of patients applying to a community pharmacy regarding vaccine hesitancy during COVID-19.

Setting and Method: This study was conducted in one community pharmacy for any reason between September and December 2021, Istanbul, Turkey. The “Scale of Vaccine Hesitancy” (1) (consisted of 12-items) was applied to the patients face to face. Sociodemographic characteristics of the patients were recorded. The results of the questionnaire were calculated according to the scale guideline. The higher score represents the higher vaccine hesitancy.

Main outcome measures: Scores obtained from the scale of vaccine hesitancy and correlation of the scores with patients’ parameters such as chronic diseases, Covid-19 disease and vaccination history.

Results: Of the 43 patients 90% were female. The mean age was 37.5. Thirty-five percent of the participants had COVID-19 and 69.8% had a family history of COVID-19. About 79.1% have had the COVID-19 vaccine and 76% of those were vaccinated with BioNTech and the rest with Sinovac. The mean of the vaccine hesitancy score was calculated as 27.4 (min 12-max 50). Vaccine hesitancy score was higher for patients who were not vaccinated than who were vaccinated (41.0 vs 24.2; $p < 0.001$). The vaccine hesitancy score was higher in patients with chronic disease (28.1), in chronic medication users (28.8), in those who had COVID-19 history (29.5), and those with a family history of COVID-19 (28.2). Cronbach alpha value of the scale is 0.846.

Conclusion: It was determined that unvaccinated patients had higher vaccine hesitancy scores. In addition, vaccine hesitancy score was higher in the patients with chronic disease and who had COVID-19. It is very important to have a high rate of vaccination, especially in a pandemic or life-threatening disease. Therefore, educating and relieving patients can be an important step in overcoming this problem. As pharmacists, the closest position to patients, we have a great responsibility in order to change the perspective on vaccination.

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Disclosure of Interest: None Declared.

PP33

Evaluation of patient and medication profile in the general surgery clinic

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Background and Objective: Perioperative clinical pharmacy optimizes medical treatment by providing rational drug use in patient-focused therapy during the surgical intervention process and makes pharmacoeconomic arrangements in patient care. In our study, it was aimed to evaluate the use of medication and patient profile in the general surgery service.

Setting and Method: This study is a prospective cross-sectional study, planned and conducted in the general surgery clinic of a hospital in Istanbul (Turkey) between January–February 2022. Patients hospitalized for any surgical procedure and postoperatively hospitalized were included in the study. Sociodemographic characteristics of the patients and pre-post operative drug treatments were recorded. SPSS 15.0 statistical program was used for the analysis.

Main outcome measures: Diagnosis and sociodemographic characteristics of the patients, medication review during surgery process.

Results: The mean age of the 52 patients included in the study was 56.0 ± 2.6 (min19-max86), and 61.5% were female. It was determined that the majority of the patients (82.7%) were not actively working in any job and 55.2% were illiterate. It was determined that 80.8% of the patients had at least one chronic disease and the average number of medications they regularly used was 1.2 ± 0.2 (min 1-max 7). Twenty-six percent of the patients had surgery for colorectal cancer treatment. It was determined that the number of medications used in the postoperative period was higher than that in the preoperative period (5.7 vs 4.4, $p < 0.0001$).

Conclusion: In our study, the majority of the patients who were planned for surgery had at least one chronic disease and regularly used medications. The addition of medications used in pre-postoperative periods may lead to polypharmacy. We believe that rational and safe drug use will be ensured through clinical pharmacy services.

Disclosure of Interest: None Declared.

PP34**Evaluation of awareness and knowledge of antibiotic use of patients applying to a community pharmacy**S. Tezcan¹, S. Bilgin¹, H. Sari¹, S. Apikoglu-Rabus^{1,*}¹Marmara University Pharmacy Faculty, Istanbul, Turkey

Background and Objective: Infectious diseases constitute a large share of the diseases in the world. The use of irrational antimicrobial treatments causes failure in the treatment and toxic side effects in the patient. The aim of our study is to evaluate the knowledge level and attitudes of the patients who applied to the community pharmacy with an antibiotic prescription regarding the use of antibiotics.

Setting and Method: This cross-sectional study was conducted in one community pharmacy in Istanbul (Turkey) between November 2021– February 2022. Each patient's profile was recorded and a self-structured questionnaire consisted 14 questions was administered to the patients who applied to the pharmacy with an antibiotic prescription. The questionnaire, which was prepared by the researchers on the basis of the relevant literature studies (1,2) and the answer options were determined as “true, false, I do not know”. The questionnaire results were scored according to the relevant articles. All data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) version 13.

Main outcome measures: To evaluate the knowledge level and attitudes of the patients regarding the use of antibiotics.

Results: Of the 39 patients 66.7% were female, and the mean age was 35.2 ± 1.6 . Sixty-one percent of the patients were not working in any job. The majority of the patients (79.5%) applied to the pharmacy with the diagnosis of upper respiratory tract disease. The mean awareness score of the patients regarding the use of antibiotics was determined as 7.8 ± 0.4 , and it was found to be higher in those who were actively employed than in those who did not (8.8 ± 0.5 vs. 7.1 ± 0.4 ; $p = 0.022$). It was determined that 77% of the patients had a moderate level of knowledge about antibiotics.

Conclusion: According to the results of the study, awareness, and knowledge regarding the use of antibiotics were insufficient. Community pharmacists as specialist health professionals have a vital role in the rational use of antibiotics via patient education and monitoring.

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Disclosure of Interest: None Declared.

PP35**Off-label use and subcutaneous drug administration in Swiss hospice settings**U. Wernli^{1,2,*}, F. Dürr², A. Kobleder³, S. Jean-Petit-Matile⁴, A. Panchaud², C. Meyer-Massetti^{1,2}¹Clinical Pharmacology and Toxicology, University Hospital Bern,²Institute of Primary Health Care (BIHAM), University of Bern, Bern,³Institute of Applied Nursing Science, OST Eastern SwitzerlandUniversity of Applied Sciences, St Gallen, ⁴Hospiz Zentralschweiz, Lucerne, Switzerland.

Background and Objective: Early detection and reduction of symptoms in patients with an incurable, life-threatening and/or chronic illness are essential in palliative care. Off-label use and subcutaneous drug administration are common to treat various symptoms that can range from nausea to numerous neurological manifestations. The relevance of these practices is underreported and evidence on safety and effectiveness of subcutaneous drugs in palliative care is lacking.

The objective of this project was (i) to identify off-label used and subcutaneously administered drugs in Swiss hospices and hospice-like institutions (SHIs) and (ii) to collect information from the literature on safety and effectiveness of the identified drugs.

Design: We conducted a survey in SHIs, consisting of three parts with different target audiences (A: directors, B: nursing management, C: head physicians). Based on the survey results, we performed a rapid literature review on subcutaneous medications used off-label in SHIs.

Results: The survey showed that in SHIs subcutaneous drug and off-label use are common. Morphine (100% of institutions surveyed), haloperidol (87.5%), and midazolam (75%) are most frequently administered. 20 drugs were reported to be used subcutaneously and off-label; among those, 14 do not hold a Swiss marketing authorization for subcutaneous administration (i.e., haloperidol, ketamine, levetiracetam, levomepromazine, midazolam, and olanzapine). The 14 identified drugs were included in the rapid literature review that included predominantly descriptive observational studies (mainly case series and case reports) and only a few interventional studies. Pharmacokinetic data was scarce, as studies in healthy subjects were excluded.

Conclusion: This project provides an initial overview of subcutaneous drug administration and off-label use in SHIs. It establishes a basis for further research in this area. There is a great need for action to simplify the handling of off-label drug use in palliative care and to close existing information gaps. Pharmacokinetic studies on the safety and effectiveness of subcutaneous drug administration in palliative care patients are desirable.

Disclosure of Interest: None Declared.

PP36**Interdisciplinary optimization of drug administration via enteral feeding tubes**M. Widmer-Menzi^{1,*}, D. Niedrig¹, M. Schoch², P. Christen², F. Landolt¹, M. Kaspar¹¹Pharmacy, ²Nutrition therapy, Klinik Hirslanden Zürich, Zürich, Switzerland.

Background and Objective: Administration of medication via enteral feeding tubes is common among patients under enteral nutrition and notably in patients with neurological disorders, however the process is error prone and both adverse reactions and technical problems are frequent.

This interdisciplinary project between clinical pharmacists and clinical dietitians aims to improve the medication process via enteral feeding tubes and serves to launch a clinical pharmacy service in a hospital with affiliated doctor system during the Covid pandemic.

Design: Throughout a two-year observation period in a Swiss tertiary care hospital with 335 beds, dietitians systematically report to clinical pharmacists all patients with enteral feeding tubes. Pharmacists

discuss and optimize the medication process with the nursing staff, involving the doctor in charge when necessary. E-medication was introduced throughout the 2nd year of the study period, further facilitating preparation of interventions and eventual follow-up.

Results: Of 159 patients under enteral nutrition (mean age 71 ± 12 y, 39% female, 61% male), 40 (25%) had a nasogastric tube, 58 (37%) a percutaneous endoscopic gastrostomy (PEG) tube and 60 (38%) an enteral tube with jejunal site. They were hospitalized for neurologic (46%), oncologic (42%) or infectious (11%) indications.

A total of 160 pharmaceutical interventions were made (mean 1 per patient, range 0–9). Issues addressed were grinding of tablets that should not be crushed (22%) or while more suitable formulations are available (36%), interactions between drug and enteral nutrition (4.4%), and personnel protection when crushing toxic drugs (2.5%). Sometimes, other medication problems were reviewed (16%), switching from intravenous to enteral administration was addressed (9.4%) or practical advice was given (10%).

Besides optimized medication of the individual patient, benefits include improved institutional practice for recurring problems, teaching nursing staff, raising awareness for the importance of correct drug administration via enteral feeding tubes and personnel protection issues.

After 22 months of counseling on demand, a weekly interdisciplinary round between doctors, nursing staff, dietician and pharmacist was set up on the neurology ward.

Conclusion: Systematic optimization of drug administration via enteral feeding tubes by pharmacists makes a difference to medication quality of patients under enteral nutrition and serves as an entry point for clinical pharmacy activities.

Disclosure of Interest: None Declared.

PP38

Mental health prescribers' perceptions on the use of pharmacogenetic testing in the treatment of depression in the MENA region

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Background and Objective: Management of depression is challenging and can be affected by multiple factors. Previous studies have demonstrated that genetic factors play a crucial role in antidepressant treatment response in terms of both safety and efficacy. A wide variety of commercial pharmacogenetic (PGX) tools are available worldwide to guide treatment selection for depression based on individual's genetic profiles, and their effectiveness has been supported in several studies. However, the use of genetic testing to inform psychiatric care has faced challenges for reasons including, scarce robust clinical utility studies, and limited or inadequate training and education for mental health clinicians. The aim of this study is to explore the knowledge, level of engagement, and perspectives on the use of PGX testing when making depression management decisions among practicing psychiatrists within the Middle East and North Africa (MENA) region. The project also aims to identify barriers and facilitators to the implementation of a personalized medicine approach in mental health settings.

Setting and Method: This is a qualitative study using semi-structured interviews of key informants selected through purposive sampling. Participants were contacted by e-mail, provided with a detailed research information sheet and consent forms, and invited to

participate. Consenting psychiatrists were interviewed through an online platform (Skype™ or Microsoft Teams™). An interview tool with a set of pre-formulated questions was used to guide the interviewers. Interviews were audio recorded, transcribed and thematically analyzed with the assistance of NVivo® software.

Main outcome measures: Perceptions of psychiatrists in the MENA region on their knowledge, preparedness, level of engagement, barriers and facilitators for the use of PGX testing when making depression management decisions.

Results: Ten interviews from seven countries have been conducted to date. However, we have not reached data saturation yet since data collection is still in progress. Analysis of the current interviews produced five major themes including: (1) lack of experience and education; (2) good perceptions and beliefs; (3) need of postgraduate training; (4) concerns around patients' autonomy and confidentiality; and (5) the need of financial support. These themes support the notion that there is lack of education, knowledge, and training regarding genetic testing in the management of depression and that there is high willingness of psychiatrists to adopt this initiative into their practice.

Conclusion: These preliminary findings suggest that psychiatrists practicing in the MENA region appear to be interested in implementing PGX testing when managing people with depression. However, it is also important to recognize that this cannot be achieved unless more supporting strategies are implemented within their current health system environment.

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Disclosure of Interest: None Declared.

PP39

An environmental scan to guide the development of an internet-based, treatment-focused educational module for informal caregivers of people with Alzheimer's disease and other dementias.

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Background and Objective: The majority of people who live at home with Alzheimer's disease and other forms of dementia (ADOD) receive care from at least one informal caregiver. Medication management is a challenging aspect of caregiving and may contribute to emotional distress and burden. Limited information is available to family caregivers to assist them with this role. To fit this gap, an environmental scan was conducted to achieve two objectives: 1) to map the scope of current electronic resources aimed at informal caregivers of people with ADOD, and 2) to assess the content of relevant available resources to guide the development of an online educational resource focused on medication management for family caregivers.

Setting and Method: The environmental scan of online resources to support caregivers of people with ADOD consisted in: 1) a literature review that employed a combination of keywords and MESH terms using three databases (PubMed, EMBASE, and Scopus), for which Rayyan®, an electronic-assisted systematic literature review tool, was used in the screening process; and 2) an internet search on Google®,

Yahoo®, and Bing® using search terms most likely to be used by caregivers. The resulting first 10 pages of each search engine were reviewed.

Main outcome measures: Articles and websites describing ADOD educational resources for informal caregivers. All relevant resources found were assessed as per their accessibility and content.

Results: Databases search revealed 308 articles. After removing the duplicates, 31 articles described relevant educational resources. The internet review of the first 10 pages of each search engine revealed that the majority of relevant resources are put forward by ADOD-advocacy groups and similar associations, mostly in Western countries, available in English language, and most provided limited medication management content for informal caregivers. Educational resources found through the literature review were largely not accessible or required payment to access content. In Qatar, memory clinics in government hospitals appear to provide mostly general information about ADOD.

Conclusion: Despite the dementia awareness movement in Qatar, limited information about ADOD aimed at informal caregivers is currently available. The findings of this environmental scan are currently being used to inform the development of a treatment-focused

educational module following established health literacy guidelines. Articulate-360® e-learning platform will be used to build the module and will allow online access. Formative and pilot testing will assess the module's ease-of use, accessibility, and trustworthiness of its content. Further studies will then be required to evaluate the effectiveness of this program.

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