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CONFERENCE ABSTRACTS

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Oral communications and Posters

ORAL COMMUNICATION I

OC-1.1

A study of the impact of shared decision making on potentially inappropriate prescribing

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Background and Objective: Potentially Inappropriate Prescribing (PIP) as identified by STOPP/START criteria is associated with increased healthcare utilistation[1]. The objective of this study was to investigate the extent of reduction in PIP achieved by Shared Decision Making (SDM) employed by pharmacists delivering, comprehensive, person-centred medication reviews as part of the EU INTERREG-VA funded iSIMPATHY project. The relationship between reductions in PIP and improvements in the iSIMPATHY Patient Reported Outcome Measures (PROMs) was also explored.
Method: This study was conducted across 3 General Practice (GP) practice sites. Lists of eligible patients aged $\geq$ 65 years and on $\geq$ 10 regular medications were generated from practice software. Patients were contacted by phone and offered iSIMPATHY reviews and consented to data collection. The first 100 iSIMPATHY reviews actioned by the GPs and for which post review PROM data was collected were included. Data was independently reviewed and analysed by the Medication Safety, Quality Improvement Division at Health Service Executive, Ireland.
Main outcome measures: Patient Reported Outcome Measures (PROMs) were collected pre and post review as per iSIMPATHY protocol. The STOPP/START criteria were retrospectively applied to patients' medication regimens pre and post iSIMPATHY review.
Results: At least one STOPP/START criteria was identified in 93% of study participants and an average of 4 per patient, were found. 76% of these were resolved within the study timeframe. 88% of patients reported an improvement in at least one PROM domain. 76% reported an improvement in their Understanding, 54% in their experience of Adverse Drug Reactions (ADRs), 21% in their Activities of Daily Living (ADLs) and 8% in Adherence. 68% of STOPP/START criteria were resolved for the 53% patients reporting improvements in 0–1 PROM domains, whereas 85% were resolved for the 47% reporting improvements in 2–4 domains.
Conclusion: Delivery of the iSIMPATHY medication review service in the Irish GP practice setting significantly improves both medicines appropriateness and Patient Reported Outcome Measures (PROMs). iSIMPATHY reviews reduce PIP to a greater extent than interventions that fail to involve the patient in decision making.[2,3] There is a positive relationship between the extent in reduction in PIP achieved SDM and reported improvements in PROMs.

Disclosure of Interest: None Declared.

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OC-1.2

Why do double checks fail? Analysis of medication calculation errors where double checks failed to prevent administration of the wrong dose to hospitalized patients

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Background and Objective: Double checks are used as a quality measure for safe administration of medicines, and usually involve nurses double checking accuracy in medication preparation, compounding or calculation that is conducted by a nurse colleague. The value of double checks as a medication error prevention strategy is widely questioned (1,2). Yet, double checking remains a frequently applied safety check during medication administration in hospitals

worldwide. Therefore, we aimed to analyze causes to double check failures related to medication calculation errors.
Method: From the 3,372 medication errors reported in 2016 and 2017 to the Norwegian Incident Reporting System from hospitals across Norway, we scrutinized medication calculation errors that had occurred during medication preparation, dispensing and administration—and required double checks.
Main outcome measures: We included all incidents which by legislation required double checks e.g., high-alert medications and handling injections and infusions. Only real events that reached the patients were included. Incidents that did not provide information about the double-checking procedure were excluded.
Results: In total, 68 incidents met the inclusion criteria. In 59% incidents (40/68) double checks were omitted or deviated from procedures. In 41% incidents (28/68), the double-checking did not prevent the error despite being adhered to. Our analyses revealed that causes to double-checks failures are due to unclear double-checking procedure, unawareness of which specific steps that should be checked, and difficulties in finding an available second nurse to perform double-checks.
Conclusion: Double checks are not effective to detect and prevent medication calculation errors. In addition to clarifying the double-checking procedure, we propose process-oriented measures to lower the number of double checks with for example moving hi-risk procedures such as intravenous compounding and drug dose calculation from hospital wards to hospital pharmacy. Such measures could free up nurses' time- and resource spent on today's practice of poorly effective double checks.

Disclosure of Interest: None Declared.

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OC-1.4

The impact of polypharmacy medication reviews in hospital patients

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Background and Objective: The iSIMPATHY (implementing Stimulating Innovation in the Management of Polypharmacy and Adherence Through the Years) team are delivering medication reviews in Northern Ireland, Ireland and Scotland. In Northern Ireland reviews are carried out in secondary care. One of the main drivers for change is the WHO 3rd global patient safety challenge, medication without harm which aims to reduce severe avoidable medication-related harm by 50%, globally in the next 5 years with one of the three key action areas being polypharmacy[1]. Medication errors in Northern Ireland are estimated to cause 20 patient deaths, lead to around 800 non-elective hospital admissions and cost the health service £1.9 million annually[2].
Method: Structured, patient centred medication reviews[3] are conducted with patients in a secondary care setting in Northern Ireland to reduce inappropriate polypharmacy, promote adherence and health literacy and provide patient education. Data was collected and analysed to review the outcomes of the medication reviews.
Main outcome measures: Reduction in inappropriate prescribing, number of Eadon graded pharmaceutical interventions, patient satisfaction.
Results: Data has been analysed for the first 1035 patient reviews (43% male, 57% female). Average patient age is 75 with 7 long term conditions. Eadon interventions[4] were graded at 93.8% grade 4 and above with an average of 8.4 interventions per patient. The number of medicines pre-review was 12.6 and after 12.3. The patient-centered medicines appropriateness index[5] reduced by 89% following the review. Medication reviews were positively received by patients.
Patient a: 'No one has ever sat down with me and taken time to go through all my medicines with me'.

Patient b: 'This is an excellent service provided by the pharmacy. Everything explained about your medication in language that I as an older person could understand. All my tablets sorted out, some reduced and some discontinued. Able to help me understand the pitfalls of too many tablets in a unique and professional way'.
Conclusion: The medication reviews demonstrated a reduction in inappropriate polypharmacy with an average number of 8.4 interventions per patient and a reduction in MAI score of 89%. Patients have expressed satisfaction with the service.

Disclosure of Interest: None Declared.

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OC-1.5

Evaluation of a clinical decision support system for the determination of inappropriate drug use in elderly at community pharmacy setting

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Background and Objective: In Turkey there is currently no clinical decision support system (CDSS) particularly designed for determination of inappropriate drug use/prescription (IDUP) in geriatric patients to be used in community pharmacies. Therefore, we developed a clinical decision support system with a unique design to be utilized in the field, to fill the gap in this area.
Method: The study was carried out in 20 community pharmacies from March 1, 2021 to September 1, 2021 on patients $\geq$ 65 years who visited the study pharmacies for any reason. A CDSS was developed to identify and deliver solutions for IDUP; in elderly patients by using relevant guidelines and literature such as the Beers criteria (1), STOPP criteria (2) and TIME criteria (3). The CDSS was composed of 78 criteria.

Main outcome measures: Percentege of prescriptions with at least one IDUP. The rates of most freuquently identified IDUPs. Pharmacists acceptence rates of the offers regarding IDUPs.
Results: During the six-month period 1250 prescriptions from 20 pharmacies were evaluated. Each prescription was for an individual patient (60.2% female; mean ± SD age = 74.9 ± 7.8 years). Only the most recent prescription of the patients were considered; 59.0% (n = 738/1250) of the patients were identified to have been prescribed at least one inappropriate drug; the total number of IDUPs was 1359. The most frequently identified IDUPs were related with Proton Pump Inhibitors (PPIs) 16.0% (n = 217/1359), beta-blockers 11.9% (n = 162/1359) and non-steroidal anti-inflammatory drugs (NSAIDs) 5.3% (n = 72/1359). When faced with a pop-up offering to counsel with the prescriber about the IDUP, in 24.4% (n = 180/738) of occasions, pharmacists accepted this offer.
Conclusion: It is anticipated that the widespread use of this product would prevent medication-related adverse events and related hospitalizations, morbidities and mortalities; thus, would improve patients' health and quality of life, as well as lead to better clinical, humanistic and economic outcomes.

Disclosure of Interest: B. Torun Grant/Research support from 100/2000 CoHE PhD Scholarships, S. Apikoglu: None Declared.

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OC-1.6

Prescribing patterns of potentially inappropriate medication use in older patients in Europe: the results from the EUROAGEISM H2020 project

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Background and Objective: According to published studies, potentially inappropriate medication (PIM) use may have serious negative consequences on the quality of life, health and socio-economic situation of older patients. As the use of PIMs is estimated to be still highly prevalent, we aimed to compare, in preliminary analyses, the magnitude and risk factors of PIM prescribing in several European countries that have been involved in the Horizon 2020 EuroAgeism ESR7 project.
Method: The international cross-sectional European study was conducted in Bulgaria, Croatia, Czech Republic, Estonia, Serbia, Spain and Turkey. We assessed older patients (aged 65 years and older) visiting community pharmacies using a standardized EuroAgeism H2020 research protocol based on comprehensive geriatric assessment. We used a combined set of published European explicit criteria to compare the prevalence of PIM use—Norwegian General Practice (*NORGEP*) criteria, Laroche's list, EU(7)-PIM list and PRISCUS - list. The factors associated with PIM use were analyzed using stepwise logistic regression (using R-software version 4.1.1).
Main outcome measures: The main outcome measure was PIM prevalence based on combined European explicit criteria and risk factors of PIM prescribing in community-dwelling older adults from Europe.
Results: We assessed 2865 older patients, and most of them were women, 61.2%. The prevalence of PIM use determined by the combined set of criteria was 60.2% (ranging from 38.4% in the Czech Republic to 74.4% in Croatia). Risk factors for PIM use were ($p < 0.05$): higher age (75 + years) (OR = 1.3; 95% CI (1.1–1.6)), polypharmacy (5 + medications) 6.3 (5.2–7.5), depression 2.4 (1.6–3.5) and country of residence (reference—Czech Republic): Bulgaria 2.1 (1.6–2.7), Croatia 2.8 (2.0–3.9), Estonia 1.4 (1.1–1.9), Serbia 3.5 (2.5–4.7), Spain 2.5 (1.8–3.7), and Turkey 1.7 (1.3–2.3).
Conclusion: PIM use in community-dwelling older patients in Europe was highly prevalent (60%), especially in higher age categories (75 +), patients with depression or using multiple medications. Our results call for establishing appropriate measures to change such prescribing practices and for developing and implementing relevant European policies.

Disclosure of Interest: None Declared.

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OC-1.7

What makes a multidisciplinary medication review and deprescribing intervention for older people work well in primary care? A realist review and synthesis

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Background and Objective: A third of older people, aged 65 and over take five or more regular medications (polypharmacy) potentially increasing the risk of side-effects, hospital admission and death,

with higher risk among people living with frailty. Conducting regular structured medication reviews in primary care is key to identify and reduce or stop inappropriate medications (deprescribing). Recent recommendations for effective deprescribing include shared-decision making and a multidisciplinary approach for medication review.
Our aim was to identify the mechanisms and context that could lead to a successful multidisciplinary medication review/deprescribing process, the role of different healthcare professionals in the process and any training needs.
Method: A realist review and synthesis was conducted to understand when, why, and how interventions for medication review and deprescribing in primary care involving multidisciplinary teams work (or do not work) for people aged 65 and over.
Main outcome measures: The Realist review was conducted following the RAMESES (Realist And Meta-narrative Evidence Syntheses: Evolving Standards) guidelines. An initial scoping review of the literature informed the generation of 10 initial programme theories, which were further developed in consultation with stakeholders, including health care professionals working in primary care and two patient representatives. Our search strategy, based on a Context, Mechanisms, Outcome (CMO) question framework was completed on Medline, EMBASE, CINAHL, Pubmed, Web of Science, PsycINFO and Cochrane Library, supplemented with citation tracking and grey literature searches (via google and google scholar).
Results: A total of 2186 abstracts were screened for eligibility, with 179 full text articles currently being assessed for eligibility. The quality of included articles will be appraised based on assessments of relevance and rigour. Relevant data will be extracted and synthesised iteratively, and causal links between contexts, mechanism and outcomes will be identified to test and inform a realist programme theory of an intervention to optimise medication among older people in primary care. Findings will be presented highlighting the key mechanisms that lead to a successful multidisciplinary medication review/deprescribing in primary care for older people.
Conclusion: Realist reviews are appropriate to explore complex medication review and deprescribing interventions so that effective mechanisms can be unpacked and applied in different contexts.

Disclosure of Interest: None Declared.

OC-1.8

Theoretical exploration of healthcare providers' perceptions regarding the effectiveness of real time telemedicine implementation in United Arab Emirates

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Background and Objective: Several types of telemedicine have been identified in the literature of which real-time telemedicine has played a considerable role in continuity of care during the COVID-19 pandemic[1,2]. This study aims to explore healthcare providers' perception regarding the effectiveness of real time telemedicine as a clinical management option in terms of effectiveness, feasibility and acceptability as well as analyse potential facilitators and barriers.
Method: Semi-structured interviews were conducted with potential participants (physicians, pharmacists and nurses) from outpatient clinics in United Arab Emirates (UAE). Interview guide was developed based on literature review and the conceptual model of implementation research[3]. Participants were recruited via purposeful and snowball sampling. Interviews were video recorded, transcribed verbatim and analysed thematically. Coding was conducted by two independent researchers to enhance credibility and reliability of findings using the conceptual model as a coding tree.
Main outcome measures: Outcomes include perspective and views of participants regarding real-time telemedicine services implementation within UAE outpatient clinics.
Results: Data saturation was achieved at ten participants (five physicians, three pharmacists and two nurses). Real-time telemedicine services implementation in UAE started as a result of COVID-19 pandemic to allow continuity of access to healthcare where majority of hospitals opted for phone calls rather than video calls. Participants were satisfied with the integration of the service in the hospital system. Training, procedure and required infrastructure were in place to allow ease of implementation. Yet, some participants expressed concerns regarding safety of the service especially in acute cases and where patient communication is not effective. Others suggested limiting its use to follow up of chronic stable medical conditions.
Conclusion: Real-time telemedicine was found to be an effective clinical management option especially at the peak of COVID-19 pandemic. The service can allow better access to healthcare services, less waiting time for patients. Yet, several limitations can affect applicability of the service to all patient categories including concerns about patient safety and correct diagnosis. Future adoption of the service is recommended to include video calls to allow better communication and patient—healthcare provider interaction.

Disclosure of Interest: None Declared.

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ORAL COMMUNICATION II

OC-2.1

Implementation of pharmacogenetic testing in hospital wards—a study on older patients

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Background and Objective: Pharmacogenetic variability has emerged as a key factor underlying differences in drug response; however, a major challenge is to integrate pharmacogenetic testing as part of clinical practice and medication reviews. We therefore investigated whether it is feasible to implement pharmacogenetic testing following procedures for medication reviews of older, hospitalised patients.
Method: A descriptive study in a Norwegian hospital geriatric ward. Patients with $\geq$ 2 chronic conditions and $\geq$ 5 drugs in regular use, of which $\geq$ 1 relevant to pharmacogenetic testing, were considered for

inclusion. After inclusion, a blood sample was sent from the hospital to the laboratory for pharmacogenetic analysis. If the patient was still hospitalised at the time information from the pharmacogenetic analysis was accessible, the test results were included in a medication review. Recommendations from the pharmacists on detected gene/drug interaction were communicated to the hospital physician.
Main outcome measures: The proportion of patients were the test results from pharmacogenetic analysis could be applied in a medication review during hospitalisation. Number of identified gene/drug interactions in the population and acceptance rate on the recommendations to the physician.
Results: The median length of hospital stay was 6.5 days (2.1–18.2), while the median time from admission to hospital to available test results was 6.2 days (3.0–13.9).The pharmacogenetic test results were ready for use in the medication review during hospitalisation for 6 of the 14 patients (42.9%). We identified a total of 21 gene/drug interactions, in 13 of the 14 patients (92.9%). Based on the pharmacogenetic test results, the pharmacist recommended changes in the patient's medication regimen for five of the gene/drug interactions identified. The hospital physicians accepted all recommendations.
Conclusion: Implementation of pharmacogenetic testing for medication review of hospitalised patients is feasible. However, there is a potential to increase the use of the test results if the logistical procedures are improved. The high proportion of patients with gene/drug interactions indicates the need for pharmacogenetic testing in elderly, multimorbid patients. The competence of pharmacists may be useful for the identification and assessment of gene/drug interaction in clinical practice.

Disclosure of Interest: None Declared.

OC-2.3

Risk analysis of drug related problems at cardiac surgery

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Background and Objective: Drug-related problems (DRPs) are common among patients at cardiac-surgery units; identifiying DRPs and risk assessment strategies are required to optimize utilization of resources and improve quality of care. This study aimed to identify DRPs, analyze risks related with care process in cardiac-surgery and evaluate the impact of clinical pharmacist in risk management.
Method: Prospective, quasi-experimental study was conducted at department of cardiac-surgery in university hospital in Turkey (November 2019-May 2021). The risk analysis was performed by 'Fine Kinney' method. At the first stage, DRPs as harmful event were identified by the PCNE classification system v.9 and the risk analysis included the causes of DRPs was performed to determine type of risks (negligible/non-negligible). An expert panel (consisted of 5 experts) has scored the frequency, severity and probability of causes of DRPs. At the second stage, preventive/mitigating activities were undertaken by implementation of medication reconciliation by a clinical pharmacist. Patients with a planned elective cardiac-surgery, aged 18 years were included and monitored during hospital stay. -Data were analyzed by IBM Statistical Package for Social Science (SPSS) v.23. The study was approved by the University Clinical Trials Ethics Committee.
Main outcome measures: To identify DRPs and to minimise the risk by reducing frequencies of the causes of DRPs.
Results: For each stage, 100 patients were included. A total of 275 DRPs were identified and 487 causes were determined, where 328 (67.4%) were categorized as 'non-negligible' risk at the first stage. Medication reconciliation, medication transfer forms, medication review and educational materials were considered as preventive barriers; interventions for DRPs were determined as mitigative barriers by the expert panel. At the second stage, total of 215 DRPs were identified and 304 causes were determined, where 46 (15.2%) were categorized as 'non-negligible' risk. A significant decrease was found in the frequency of 'non-negligible' risks at the second stage ($p < 0.001$).
Conclusion: Cardiac surgery requires comprehensive review of patient's medications during entire hospital stay by a healthcare team. Therefore, it is important to identify DRPs and accomplish risk assessment during drug therapy to reveal preventive or mitigating factors in current healthcare setting.

Disclosure of Interest: None Declared.

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OC-2.4

Pharmacist-led pharmacogenetic testing and counseling—database analysis of a case series

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Background and Objective: Pharmacogenetics (PGx) is an important aspect of clinical pharmacy with the potential to increase efficacy and safety of pharmacotherapy. However, information from PGx testing is still not well integrated into clinical practice. To facilitate the use of PGx information for medication optimization, we developed a pharmacist-led service where PGx information from a panel test covering approximately 100 pharmacological relevant variations in 30 different genes were integrated into medication reviews. The aim of the study was to describe the patient population that may benefit the most from receiving the service.
Method: In an observational study (ClinicalTrials.gov NCT04154553, 2019–2021 in Switzerland) we recruited patients experiencing Adverse Drug Reactions (ADRs) and/or Therapy Failure (TF) with substances known to be affected by pharmacogenetics. Patients for PGx testing were recruited in outpatient and inpatient settings for the pharmacist-led service. Study pharmacists collected anonymized data from the individual patient history, the referring physician's documents and the results of the PGx testing, harmonized the unstructured data in interprofessional consensus discussions and transferred the data to a structured database.
Main outcome measures: We descriptively analyzed gender, age, diagnoses according to ICD-10 code, current medication, results of genotyping, suspected substances, confirmed relevant substances and associated key genes.
Results: The population of the observational study consists of 142 patients, mainly female (66%) with a median age of 52 years. A majority of the included patients had a main diagnosis of a mental or

behavioral disorder (ICD-10 = F, 61%). The number of prescribed medicines reached a median of 6 per person, resulting in a majority of patients with polypharmacy (≥ 5 prescribed medicines, 62%). Patients were included into the study to apply the PGx service based on a total of 549 suspected substances of which 318 substances (60%) showed an association with one of the variations covered by the PGx panel test. The two substances, for which the suspicion of ADR and TF due to genetic variability were most frequently confirmed by the genetic make-up of the tested patient were Venlafaxine (22 of 25 cases, 88%) and Escitalopram (18 of 27 cases, 67%).

Conclusion: The analysis of the available data from this observational study provided valuable insights for the optimization of further activities in the context of PGx in clinical pharmacy. By design, the included cases represent a convenience sample of patients with suspected drug-gene interactions. Our results indicate that patients with polypharmacy and patients treated with drugs for mental and behavioral disorder are suitable target groups for PGx testing. Further analysis such as the investigation of subgroups or the analysis of the frequency of genetic variants will generate more knowledge to optimize implementation of PGx testing in clinical practice.

Disclosure of Interest: None Declared.

OC-2.6

Assessing the potential impact of pharmaceutical interventions in the interprofessional medication management programme ARMIN

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Background and Objective: The interprofessional physician-pharmacist medication management programme *ARMIN* aimed to optimize drug therapy in patients with polymedication, among others. This service consisted of an initial medication review followed by a continuous medication management. Numerous studies on drug-related problems (DRPs) identified by pharmacists in different settings have been conducted so far, but information on the impact of the pharmaceutical interventions (PIs) are scarce. We, therefore, aimed to classify PIs and to evaluate their potential impact.

Method: We aimed to recruit a convenience sample of n = 60 patients. During the initial medication review and the following 6 months, pharmacists documented DRPs and the resulting PIs. Two independent raters classified DRPs and PIs using the PharmDISC tool [1]. Interrater reliability was determined with SPSS®. The potential clinical and economical impact of the PIs were assessed with the $CLEO_{de}$ tool [2].

Main outcome measures: Classification of DRPs and PIs with PharmDISC as well as assessment of the clinical and economical impact of the PIs with $CLEO_{de}$.

Results: Overall, 79 patients were included (54% female; median number of medications at baseline: 9; range: 5–26) and 470 DRPs were detected in 73 patients (92.4%). During the medication review, 89.4% DRPs (n = 420) were identified and 10.6% DRPs (n = 50) during the continuous management. Altogether, the DRPs resulted in 538 PIs. Cohen's kappa of PharmDISC raters was 0.79 for the causes and 0.52 for the results of PIs, indicating a substantial and moderate agreement, respectively. The most common causes for the PIs classified with PharmDISC were drug interactions (n = 123; 22.9%), insufficient patient knowledge (n = 113; 21.0%), and inappropriate timing/frequency of drug administration (n = 86; 16.0%). Of all PIs, 388 (72.1%) were successful, meaning accepted and implemented by the involved persons. Altogether, 6.3% (n = 34) were not implemented (either not accepted (n = 17), accepted but not implemented (n = 14), or currently not prioritized (n = 3). Nine PIs (1.7%) were implemented without solving the DRP and for 107 PIs (19.9%), the result was not available. All PIs that were classified as successfully implemented by at least one of the raters were subsequently classified with $CLEO_{de}$. Of these 409 PIs, 97.6% (n = 399) were classified as clinically relevant; high relevance: n = 3 (0.7%), medium relevance: n = 51 (12.5%), low relevance: 345 (84.4%). Five percent (n = 23) of all PIs resulted in a reduction of drug and monitoring costs whereas 12.2% (n = 50) resulted in higher costs.

Conclusion: Interrater reliability showed sufficient agreement in classifying PIs with PharmDISC. Only few PIs were not accepted or implemented. This might be due to the agreed responsibilities and processes between pharmacists and physicians in *ARMIN*. Almost all PIs were classified as clinically relevant. It is assumed that PIs in this interprofessional setting have an impact and can potentially improve pharmacotherapy and patient safety.

Disclosure of Interest: None Declared.

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OC-2.7

Pharmacist-guided deprescribing for frail older adults in nursing homes using STOPPFRAIL: preliminary findings

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Background and Objective: Frail older people residing in nursing homes are often prescribed inappropriate and unnecessary medications. Whilst the STOPPFrail criteria can aid deprescribing in such residents with limited life expectancy, there is insufficient research showing pharmacists' application of this tool (1,2). Therefore, the objective of this study was to conduct a pharmacist-led intervention using STOPPFrail to guide deprescribing for frail older nursing home residents.

Method: Nursing home residents in Cork, Ireland were eligible if they were aged ≥ 65 years, with advanced frailty, and a poor one-year survival prognosis (1). After recruitment by their general practitioner (GP), a pharmacist screened participants' medications using the STOPPFrail tool to identify potentially inappropriate medications (PIMs). A PIM list for each participant was provided to the GP via email and discussed via videoconference, whereby recommendations could be implemented if the GP felt they were clinically appropriate. Patients were reviewed at a 6-month follow-up.

Main outcome measures: Number of medications, 28-day medication cost, quality of life (QoL) using EQ-5D-5L (3), modified Medication Appropriateness Index (MAI) (4), Drug Burden Index (DBI) (5), Anticholinergic Cognitive Burden (ACB) (6), falls, emergency department visits, drug-related hospitalisations, non-elective hospital admissions, and mortality.

Results: Nine residents from one nursing home were recruited (56% female; mean age: 86 ± 4.2 years; median number of comorbidities: 14). From 68 STOPPFrail recommendations to deprescribe 54 PIMs, 38% were accepted (n = 26); however, only 25% were implemented (n = 17), resulting in 12/54 PIMs (22%) being deprescribed—with 11/12 (92%) persisting at 6 months. Recommendations most commonly concerned medications without an indication, vitamin D, proton pump inhibitors, antihypertensives, and lipid-lowering medications. Relating to baseline, post intervention, and at 6 months:

(i) the mean number of prescribed medications was 10.6 ± 5.0, 9.4 ± 4.2, and 11.3 ± 4.5; (ii) 28-day cost of patients' medications was €1,172.27, €1,072.40, and €1,132.60; (iii) the mean MAI was 3.8, 3.7, and 3.6; (iv) the mean DBI was 0.687, 0.642, and 0.787; (v) the mean ACB was 1.33, 0.89, and 0.67 respectively. The mean EQ-5D-5L QoL score was 0.405 at baseline and 0.408 at follow-up. At 6 months, 8/9 residents were alive, with no emergency department visits, or any non-elective or drug-related hospitalisations. There was one less fall compared to the 6 months pre intervention.

Conclusion: This pharmacist-led STOPPFrail-guided medication review successfully reduced anticholinergic burden, improved medication appropriateness, maintained patient QoL, and decreased medication costs post intervention. Despite the high persistence of implemented recommendations at 6 months, medication costs and DBI increased due to additional prescriptions to treat symptoms near end of life. Given the preliminary low implementation rate, the interprofessional discussion of recommendations will happen in person going forward.

Disclosure of Interest: E. Hurley Grant/Research support from Irish Research Council Postgraduate Scholarship, T. Foley: None Declared, S. Byrne: None Declared, K. Dalton: None Declared, E. Walsh: None Declared.

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OC-2.8

Implementation study of medication reviews in Swiss nursing homes

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Background and Objective: The aging population is a challenge for healthcare systems, as many people suffer from multiple diseases requiring polymedications. Polypharmacy, the use of five or more medications, can cause Drug Related Problems (DRPs) including the use of potentially inappropriate medications (PIMs), i.e. drugs with a possible negative benefit-risk balance. Many services, such as clinical decision support systems or medication reviews, have been initiated to address DRPs or PIMs, but their implementation in practice remains challenging and not frequently reported. In 2021, we led an implementation and impact study in ten pilot Swiss nursing homes (NH), with the aim of performing medication reviews (MRs) in ten percent of their residents. The main objectives of the study were (1) to evaluate the implementation of medication reviews in terms of reach, adoption, fidelity, acceptability, feasibility and maintenance, and to describe implementation processes and strategies; (2) to assess the impact of medication reviews on the proportion of resolved DRPs at follow-up (four months).

Method: This observational study was a type 2 hybrid implementation design and used a mixed-method approach. Relevant implementation outcomes have been defined through the FISpH and RE-AIM frameworks. Data were collected through questionnaires, focus groups and administrative records. DRPs at baseline and follow up were collected based on treatment modifications plans and coded according to the PCNE classification for Drug-Related Problems V9.1

Main outcome measures: Acceptability: proportion of healthcare providers who would recommend other NHs to enter a similar process; **Feasibility:** availability of resources (time, equipment,..); **Maintenance:** proportion of physicians, pharmacists and nurses who find it useful to repeat a session in the future **Impact outcome:** proportion of DRPs considered resolved by the healthcare providers at the end of follow-up.

Results: The ten pilot NHs involved 19 physicians, 18 nurses and 12 pharmacists. Eight NHs have completed the ten percent objective, with a total of 58 medication reviews completed between March and September 2021. Data from 45 medication reviews were transmitted to the research team. The mean number of DRPs detected by pharmacist per resident was 5.2 SD 2.1, of which 42% related to safety issues, 29% were related to effectiveness issues and 29% related to other issues. As a result of the interprofessional team discussion, 147 treatment modifications issued from the 229 propositions to resolve DRPs made by pharmacists were decided, 128 implemented and 122 maintained at follow-up (4 months). The main reasons for non-implementation were patients' refusal or death, and reintroduction of medication due to recurrence of symptoms.

Conclusion: A preliminary analysis of the questionnaires and focus groups shows that medication reviews are feasible, acceptable and recommendable by healthcare providers. This supported the decision of the regional health department to extend the service to more nursing homes in 2022.

Disclosure of Interest: None Declared.

ORAL COMMUNICATION III

OC-3.1

Long-term postoperative opioid use in orthopaedic patients

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Background and Objective: Short-term use of opioids is highly effective for treating acute postoperative pain; however, it can unintentionally progress to long-term use. Growing awareness of the adverse effects and tolerance to analgesic effects associated with long-term opioid use has resulted in a more restrictive prescribing policy. Yet, the number of patients with persistent opioid use after

orthopaedic surgery is currently unknown. This study aims to assess the incidence of long-term opioid use after orthopaedic surgery.
Method: This qualitative prospective study was conducted among patients (> 18 years) who underwent any type of orthopaedic surgery in June or July 2021 in the Sint Maartenskliniek Nijmegen in the Netherlands. Six months after surgery patients were invited to complete an online survey on current analgesic use, including opioids. If opioid use was reported, the patients were asked whether they wanted to taper or stop and whether professional help was desirable. Of all participants, the preoperative opioid use was retrospectively extracted from the patient file.
Main outcome measures: The primary outcome of this study was opioid use 6 months after orthopaedic surgery.
Results: In total 607 patients (mean [SD] 61.2 [13.6] years, 63.4% female) completed the survey. Seventy-six patients (12.5%) used opioids of which 67 (88.2%) wanted to taper or stop and 32 patients preferred professional guidance. The median daily dose morphine equivalents was 30 mg (IQR = 69). One hundred and four patients (17.1%) used opioids before surgery.
Conclusion: Almost 13% of the patients continued opioid use six months after orthopaedic surgery; the majority wanted to stop and requested professional help with this. Healthcare professionals should pay attention to long-term postoperative opioid use and discuss tapering options with the patient.

Disclosure of Interest: None Declared.

OC-3.3

Medicines discarded due to improper storage—scope and cost at hospitals

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Background and Objective: Improper storage of Medicine (ISOM) is a challenge for the Hospital Pharmacy and the Hospitals and may be associated with patient safety risks and unnecessary costs. The Medicines Information Center (MIC) in the Capital Region of Denmark is often involved in ISOM in terms of examining whether stability of the medicine is affected and whether it can still be used. The aim of the study was to investigate how often the MIC is involved in ISOM, what causes were related to ISOM, whether the stability of the medicine was affected, how often medicines were discarded as well as costs.
Method: The MIC answers questions from all healthcare professionals in the in the Capital Region of Denmark and all queries are registered in a database. Queries regarding ISOM during 2020 was retrospectively drawn from the database and manually analyzed with regards to: amount, therapeutic area, impact on stability and usage and reason for ISOM. Further data analysis was performed in Excel.
Main outcome measures: The number of queries received in the MIC, the number of medicines and packages involved, the major reasons for ISOM and stability and usage of medicines following ISOM.
Results: In 2020 the MIC received 141 queries regarding ISOM, including 486 medicines and at least 2630 packages. For almost half of the medicine involved (46%) the stability was not affected and could be used until expiration. The shelf life was reduced for 20%, because of affected stability. The remaining 34% was discarded due to affected stability. The major reasons for ISOM was related to transportation (28%) and to refrigeration (39%). The therapeutic areas most often involved were within ATC-group N (19%), L and A (both 13%). The quantity of packages was estimated to 1 for 32% and the costs estimated for 20% because of lacking data, consequently both values are underestimated.
Conclusion: The MIC received 141 queries regarding ISOM of 486 medicines. The amount and costs are underestimated because of the retrospective study design. Almost half of the medicine (46%) could still be used, while 34% was discarded. The present results emphasize that MIC plays an important role in managing ISOM and reducing costs.

Disclosure of Interest: None Declared.

OC-3.4

Barriers and enablers to deprescribing in long-term care facilities: a qualitative investigation into the opinions of healthcare professionals in Ireland

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Background and Objective: As the prevalence of polypharmacy increases with age, older adults are often at greater risk of being prescribed potentially inappropriate medications (PIMs), a particular concern for long-term care facility (LTCF) residents (1). Deprescribing has been shown to reduce PIMs for this population, however, it is not universally implemented (2). This study aims to identify the barriers and enablers to deprescribing in Irish LTCFs as perceived by healthcare professionals' (HCPs) working in the setting. A secondary aim is to compare barriers and enablers experienced by HCPs in public and private LTCF settings.
Method: Purposive sampling was utilized to identify LTCFs. Semi-structured interviews were conducted with HCPs working with selected LTCFs (general practitioners, pharmacists and nurses), accompanied by a convenience sample of post-graduate HCPs from University College Cork working in LTCFs. First, data were analysed inductively to develop themes, and themes were mapped to the framework of deprescribing barriers and enablers, constructed using the Theoretical Domains Framework (3,4).
Main outcome measures: Barriers and enablers to deprescribing in Irish LTCFs.
Results: Thirteen LTCFs participated, and 26 HCPs were interviewed. Reported barriers included insufficient resources, particularly time, lack of co-ordination between healthcare settings and negative social pressures within LTCFs. Enablers included education, interprofessional support, and patient participation. To encourage deprescribing, potential enablers include pharmacist role expansion and tailored deprescribing guidelines. Additional barriers exist in private LTCFs including insufficient deprescribing awareness, commitment, and the need for incentives.
Conclusion: Interventions to support deprescribing should involve the multi-disciplinary team and utilise published guidelines within a defined process. Opportunities already exist to facilitate deprescribing such as quarterly medication reviews or when a resident's clinical condition changes. Expanding pharmacists' role to include deprescribing could help to overcome identified barriers such as insufficient time of other HCPs. Shared decision making, involving residents, could support successful deprescribing and help prioritise deprescribing decisions. Any intervention must account for the nuanced barriers and enablers which exist in both public and private settings.

Disclosure of Interest: None Declared.

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OC-3.5

Population pharmacokinetics of ceftolozane/tazobaktam in intensive care unit patients

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Background and Objective: Antimicrobial therapy requires a precise dosage of antibiotics to achieve the therapeutic goal with a minimum level of toxic effects and low risk of developing microbial resistance. Due to the altered pharmacokinetics of drugs in critically ill patients, the dosing regimen in this group of patients may differ from the dosing regimen established in clinical trials on healthy volunteers.
The study aimed to develop a population pharmacokinetic model of ceftolozane with tazobactam in critically ill patients. The covariance analysis was used to find covariates associated with pharmacokinetic parameters, and to identify covariate relationships potentially useful for dose adjustment.
Method: The model was built based on data from 13 patients: 5 women and 8 men, aged 42 to 84 years. Patients received 3.0 g of ceftolozane in combination with tazobactam (2:1) as a 3-h or 1-h intravenous infusion. The inclusion criteria for the study were as follows: acute respiratory distress syndrome, acute pancreatitis, stomach cancer, etc. The concentrations of ceftolozane and tazobactam were simultaneously determined using high-performance liquid chromatography.
Main outcome measures: Population modeling was performed using NONMEM software (version 7.4, Icon Development Solutions, Ellicott City, Maryland, USA) compiler Fortran (version 4.6.0) and Wings for NONMEM (version 741, http://wfn.sourceforge.net).
Results: Pharmacokinetics of ceftolozane with tazobactam was best described by a one-compartment model. Typical values of pharmacokinetic parameters were determined along with their inter-individual variability. The typical volume of distribution equaled 20.2L for ceftolozane and 55.4L for tazobactam. The typical clearance equaled 6.37 L/h and 15.5L/h for ceftolozane and tazobactam. No covariates were found to be useful in explaining inter-individual variability of pharmacokinetic parameters.
Conclusion: Single model was proposed to describe ceftolozane and tazobactam pharmacokinetics in intensive care critically ill patients. The developed model describes data well and can be used to simulate drug concentrations in patients.

Disclosure of Interest: None Declared.

OC-3.6

Evaluation of a semi-automated clinical decision support system

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Background and Objective: Clinical decision support systems (CDSS) embedded in hospital electronic health records can reduce medications errors. We designed and implemented a semi-automated CDSS into the electronic health records of a tertiary care hospital. It generates alerts that, depending on specificity and urgency, are either sent directly to the physician or initially assessed by a clinical pharmacist. The aim of this study was to evaluate its performance in terms of alert burden and acceptance rate as well as physicians' satisfaction with the individual context-based algorithms.
Method: The CDSS has been implemented into the electronic health records since 2020. As of end 2021, it contained 19 context-based algorithm allowing for 193 individual medication alerts. All alerts generated in 2021 were included in a quantitative evaluation. We retrospectively performed a follow up of all resulting notifications to determine the acceptance rate. A web-based survey amongst physicians was conducted to assess their attitude towards our CDSS.
Main outcome measures: Acceptance rate and alert burden of medication alerts, satisfaction of physicians.
Results: In 2021, a total of 10,556 alerts were generated, of which 619 produced a direct notification to the physician and 2231 notifications were sent after evaluation through a clinical pharmacist. The acceptance rates were 89.8% and 68.4%, respectively, which resulted in an overall acceptance rate of 72.4%. The involvement of clinical pharmacists reduced alert burden for physicians by 73.0% to 2850 alerts per year, which signifies an average of 7.8 alerts per day for the whole hospital. Overall, the majority of physicians were either satisfied (66.1%, n = 72) or very satisfied (28.4%, n = 31) with the CDSS. Algorithms addressing potential medication errors of anticoagulants received the highest rating in usefulness.
Conclusion: The implementation of context-based algorithms with specific alerts resulted in a high acceptance rate. The involvement of clinical pharmacists is a promising approach to limit the alert burden of physicians. The CDSS is well endorsed by the physicians of our hospital.

Disclosure of Interest: None Declared.

OC-3.8

Views, experiences and contributory factors related to medication errors associated with direct oral anticoagulants: a qualitative study

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Background and Objective: Direct oral anticoagulants (DOACs) are preferable for thromboembolic events treatment. The literature described substantial errors related to DOACs. However, limited data are available on the "why" and "how" of such errors occur during clinical practice.This study aimed to explore views, experiences, contributory factors related to DOACs medication errors from the perspectives of physicians and nurses.

Method: We conducted a qualitative study through in-depth semi-structured interviews with health care provider (HCPs) working in hospitals located in Riyadh, Dammam and Jazan regions in Saudi Arabia. Topic guide was created using the literature and the Reason's Accident Causation Model theory. The topic guide focused on the participants' knowledge, experience, perceived safety culture and regarding DOACs' prescribing, utilization and monitoring. Interviews were transcribed verbatim and thematically analyzed using MAXQDA Analytics Pro 2020 (VERBI Software).
Main outcome measures: Themes and factors contributing to DOACs errors identified from the views and experiencesof health care providers.
Results: A total of 34 interviews achieved data saturation with physicians (n = 20) and nurses (n = 14). The analysis identified five themes. Firstly, factors related to HCPs such as knowledge, confidence and access to guidelines. Secondly, factors related to patients such as comorbidity, polypharmacy, medication review, and communication barriers. Thirdly, factors related to organization such as presence of clinical guidelines or pathways, institutional policies and e-portals for safety culture and incidents reporting. Fourth, factors related to the DOACs pharmacology such as dosing issues as well as lack of antidotes. Finally, strategies for error prevention and mitigation were discussed such as the need for professional training and pharmacist-led medication review and reconciliations services.
Conclusion: HCPs perceived professional and organizational multifactorial causes of errors associated with DOACs utilization. Numerous strategies produced in our study are derived from every day and "real life" environment. These insights might help building interventions that might minimize DOACs errors.

Disclosure of Interest: None Declared.

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ORAL COMMUNICATION IV

OC-4.1

Effectiveness pharmaceutical care interventions for the management of tuberculosis: a systematic review

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Background and Objective: Tuberculosis (TB) is a global public health threat. The complexity of the anti-TB regimen often results in a low adherence rate and poor treatment outcomes. Pharmacists can play an important role in improving patient outcomes by promoting medication adherence, optimizing medicines use, providing patient education, and managing any drug-related problems. This systematic review aims to evaluate the effectiveness of pharmacist-led intervention in the management of TB.
Method: Three electronic databases (PubMed, Embase, Cochrane), websites of ClinicalTrial.gov, and The Lancet Infectious Diseases, and the references of retrieved articles were searched for studies published in the English language involving patients with pulmonary TB**.** Interventions delivered by pharmacists alone or as part of multidisciplinary teams were included. Data were extracted using a structured, pilot-tested form by one author and checked by another. The risk of bias was assessed using the Cochrane Risk of Bias 2 (1) tool and NIH quality assessment tool (2) for randomized controlled trials and cohort studies respectively. Data were synthesized narratively. (PROSPERO Protocol Registeration CRD42022325771).
Main outcome measures: The primary outcome measure was the completion rate of anti-TB treatment. Secondary outcomes included: cure, treatment success, treatment failure, death, default and transfer out.
Results: Twelve studies met the inclusion criteria with a total of 2,710 participants. Only two randomized controlled trials were included. Most of the included studies were of low quality. Education and counseling were the most common interventions delivered by the pharmacists. One of two included RCTs reported a higher completion rate among patients receiving pharmaceutical care intervention compared to the control. Similarly, the patients in the intervention group had higher medication adherence compared to the control.
Conclusion: The current evidence suggests that pharmaceutical care interventions can improve treatment outcomes among patients with pulmonary tuberculosis. The variability and inconsistency of existing evidence necessitate designing well-designed clinical trials to draw a firm conclusion about the effectiveness of pharmaceutical care interventions in TB management.

Disclosure of Interest: None Declared.

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OC-4.3

Observational study of switch to low molecular weight heparins in hospitalised patients using direct oral anticoagulants before admission

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Background and Objective: Direct oral anticoagulants (DOACs) are now the preferred option for most patients with thrombotic disorders. A substantial proportion of hospitalised patients are on DOAC treatment upon admission. To avoid unnecessary bleeding complications during and after surgical or invasive interventions, it can be necessary to interrupt DOAC therapy. In general the duration of interruption can be kept short, due to DOACs' rapid onset and offset of action. In addition, there is no need for bridging with low molecular weight heparins (LMWHs), unless patients have a very high thromboembolic risk and a prolonged inability to take medication orally. Nevertheless, we note that in our hospital, DOAC therapy is commonly switched to LMWHs. This may lead to lower patient

satisfaction, increased risk for bleeding and thromboembolic complications, and higher overall healthcare expenditures. We aimed to describe the anticoagulation management in hospitalised patients who used DOACs before admission, and were switched to LMWHs during hospital stay.
Method: Retrospective observational study of hospitalised patients who used a DOAC before hospital admission and received $\geq$ 1 dose of LMWHs during hospital stay. From the electronic patient file, we extracted prescription data, renal function, the ability to take medicines orally and the characteristics of surgical or invasive interventions performed.
Main outcome measures: Anticoagulation management.
Results: In total, 103 patients were included. Oral intake was not possible for three patients and DOAC therapy was contraindicated in 15 patients due to acute renal impairment. Almost two-thirds of the patients (N = 62; 60.2%) underwent a surgical or invasive intervention. In these patients, LMWHs were administered during on average 66.6 $\pm$ 23.1% of the length of hospital stay, in full-therapeutic (51%), half-therapeutic (33%) or prophylactic (15%) dose respectively. In 45.2% of these patients the DOAC was re-initiated during hospital stay, most frequently (70.9%) $<$ 1 day before discharge. In the 41 patients without surgical or invasive intervention, LMWHs were administered during on average 47.6 $\pm$ 29.4% of the length of hospital stay, in full-therapeutic (51%), half-therapeutic (33%) or prophylactic (15%) dose respectively. In 63.4% of them the DOAC was re-initiated during hospital stay, most frequently (66.7%) $<$ 1 day before discharge.
Conclusion: In patients in which DOAC therapy was switched to LMWHs during hospital stay, we found a wide variety in anticoagulation management. LMWHs were administered during a long period and in different dosing regimens. More research and in-depth analyses are needed to map the prevalence and the different reasons of switching in order to develop suitable improvement strategies.

Disclosure of Interest: None Declared.

OC-4.4

The impact of COVID-19 on antimicrobial stewardship implementation in United Arab Emirates hospitals—an exploration informed by the Consolidated Framework for Implementation Research.

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Background and Objective: The disruption of antimicrobial stewardship programmes (ASP) caused by Coronavirus disease 2019 (COVID-19) has been recognised[1]. This study used a theoretical, qualitative approach to understand the impact of COVID-19 on ASP implementation in hospitals.
Method: Semi-structured online interviews, informed by the Consolidated Framework for Implementation Research[2] (CFIR) were conducted with ASP team members and other practitioners involved in antimicrobial prescribing in United Arab Emirates (UAE) hospitals. Participants were recruited via purposive and snowball sampling with interviews video recorded, transcribed and independently analysed by two researchers based on identification of CFIR constructs within emerging themes.
Main outcome measures: The study aimed to gain further understanding of ASP implementation in hospitals during the pandemic while also aiming to identify facilitators and barriers to ASP implementation.
Results: Thirty-one interviews were conducted across 11 hospitals. The following themes were identified; (1) increased complexity of ASP implementation and changes in prescribing culture influenced by COVID-19, (2) adaptations, networking and cosmopolitanism to enhance integration of COVID-19 management in ASP services and (3) adaptations and networking to support continuity of ASP implementation process. A disruption to pre-pandemic ASP activities was reported with complexity of COVID-19 overwhelming the healthcare system. ASP team members and services showed an ability to adapt and repurpose roles to respond to the pandemic. Interventions included developing national guidelines for treatment of COVID-19 patients and contributing to guideline management and monitoring. A gradual restoration of ASP activities was perceived. Technological adaptations and enhancements in networking were reported as positive impacts of the pandemic.
Conclusion: Despite the initial disruption of ASP implementation due to the pandemic, successful adaptation and evolvement of ASP services reflects the high value and adaptability of ASP implementation in UAE hospitals.

Disclosure of Interest: None Declared.

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OC-4.6

Comparative results on potentially inappropriate medication use in Czech older people in acute, ambulatory care and community pharmacy practices: results from the INOMED and the EUROAGEISM ESR7 project.

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Background and Objective: Potentially inappropriate medication (PIM) use in older patients has been shown to be highly prevalent, but the prevalences widely differ between different settings of care. However, the situation with the prescribing of these medications improves with the implementation of clinical pharmacy services in various settings of care. Thus, the aim of our study was to compare the prevalence of PIM use in different settings of care in the Czech Republic. This abstract presents only preliminary findings.
Method: We conducted a national study in 3 settings of care—acute care, ambulatory care, and pharmacy practices. In each setting of care, 3 bigger facilities from 3 different regions were selected (minimum of 150 patients per facility). All older patients aged 65 + were assessed in the period 2018–2020 using the EuroAgeism H2020 ESR7 study

protocol based on comprehensive geriatric assessment (CGA). This protocol includes more than 350 patient characteristics—socio-demographic, clinical assessments, medical history, selected laboratory values and information on medication use. As a source of data, medical records, interviews with patients and/or their caregivers and interviews with healthcare professionals were used, along with clinical assessments. We used descriptive statistics for determining the prevalence of PIM use according to a combination of 3 explicit criteria developed for the European region and applicable to various settings of care (Laroche's list, EU(7)-PIM list and PRISCUS list). Stepwise logistic regression was applied to determine the factors related to the PIM prescribing. R-software version 4.1.1 was used for data analyses.

Main outcome measures: The main outcome measure was the prevalence of PIM use.

Results: Our sample consisted of 1602 patients (589 from acute care, 563 from ambulatory care and 450 from community pharmacy practices). The majority of participants were females (56.5%). The prevalence of PIM use was 68.7% in the total sample, in acute care 86.8%, in ambulatory care 74.1%, and in community pharmacy practices 38.4%. The odds of being prescribed PIM were higher in patients aged 75 years and older (OR = 1.6; 95%CI (1.2–2.1)), using polypharmacy (5 + medications) 8.3 (6.2–11.2), and having depression 1.7 (1.1–2.6), but lower for pharmacy practice setting 0.4 (0.3–0.5) and ambulatory care setting 0.6 (0.4–0.8).

Conclusion: PIM prescribing in the Czech Republic was very high (around 70%), particularly in acute care and ambulatory care and predominant in high-risk older patients. Thus, interventions to reduce the very frequent prescribing of PIMs to older people are still needed, particularly in these care settings. Implementing PIM assessment and management tools might considerably reduce the burden of exposure of older people to the simultaneous risk of polypharmacy and PIM use.

Disclosure of Interest: None Declared.

References: *The research group was supported by projects: Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, EuroAgeism Horizon 2020 MSCF-ITN-764632, Cooperatio research program KSKFI.- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and I-CARE4OLD H2020 - 965341 projects.*

OC-4.7

Cardiovascular drug-disease interactions in Czech seniors in ambulatory and acute care: results of the EUROAGEISM H2020 project

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Background and Objective: Prescribing multiple medications in older patients can result in drug-disease interactions (DDIs) due to age-related pharmacological changes, polymorbidity, and polypharmacy. This study aimed to investigate the prevalence and risk factors of cardiovascular (CVS) DDIs in older adults in the Czech sample of the EuroAgeism H2020 project in acute and ambulatory care.

Method: This retrospectively planned study was analyzed on prospectively collected data of 1152 older patients (65 +) residing in ambulatory care (N = 563) and acute care (N = 589) settings in the Czech Republic from June 2019 to January 2020 (3 regionally different facilities were used for data collection). Data were gathered using a structured and standardized questionnaire of CGA (comprehensive geriatric assessment) developed for the purposes of the EuroAgeism Horizon 2020 project and analyzed using START/STOPP criteria version 2.

Main outcome measures: Prevalence and risk factors of CVS drug-disease interactions (CVS DDIs).

Results: The study included 1052 participants suffering from at least 1 CVS disease, representing 91% of the overall study population. The majority of study participants were female (66%), while most of the patients (40.9%) were ≥ 85 years. Polypharmacy (5 + medications) was prescribed to 51%, whilst 38% of patients were prescribed hyperpolypharmacy (10 + medications). Using START criteria, the prevalence of 1 + CVS DDI was identified in 67.5%; using STOPP criteria, in 58.4% of patients. 39.3% of patients were prescribed 1 + CVS DDI according to both START and STOPP criteria. The risk factor for 1 + CVS START DDI was higher age (≥ 85 years) (OR = 1.6; 95%CI 1.1–2.4, $p = 0.026$) and for 1 + CVS STOPP DDI higher age (≥ 85 years) (OR = 2.2; 95% CI 1.5–3.4, $p < 0.001$) and hyperpolypharmacy (OR = 2.9; 95% CI 2.1–4.0, $p < 0.001$).

Conclusion: This study confirmed a high prevalence of CVS DDIs in seniors in an acute and ambulatory care setting in the Czech Republic (> 50% using STOPP and > 60% using START criteria vers.2). It is essential to detect and identify CVS DDIs to prevent ADEs in older patients. Therefore, medication reviews performed by clinical pharmacists using at least STOPP/START criteria are widely recommended.

The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Cooperatio research program KSKF-I- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341 project.

Disclosure of Interest: None Declared.

OC-4.8

Identifying drug-related problems in the pediatric intensive care unit and evaluating clinical pharmacist interventions

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Background and Objective: Pediatric Intensive Care Unit (PICU) patients are at high risk for drug-related problems (DRPs). Although many studies have been reported by clinical pharmacists about identification of DRPs in adult intensive care units, there are not many studies conducted on DRPs in PICUs in Turkey. The aim of this study is to the identify the DRPs encountered at the PICU of a university hospital.

Method: A prospective observational study was conducted during a six-month period at a university hospital's PICU. During this time period the first consequtive 100 patients admitted to the PICU and stayed for at least 24 h and receieved at least 1 drug were included in the study. Presence of any potential and/or manifest DRPs in their treatment protocol was prospectively evaluated according to the Classification Scheme of the Pharmaceutical Care Network Europe (PCNE) v.9.1.

Main outcome measures: The percentage of potential and/or manifest drug-related problems and the acceptance rate of intervention proposals were the main outcome measures of our study.
Results: The median (interquartile range [IQR]) age, duration of hospital stay, total number of drugs used and total number of DRPs of the 100 patients were calculated as 35 (10.25–100.5) months, 3 (2–6) days, 7 (4–12) and 2 (1–5), respectively. A total of 468 DRPs were identified. The three most common problems were 'effect of drug treatment not optimal (44%)', 'adverse drug event (possibly) occurring (39.3%)' and 'untreated symptoms or indication (14.7%)'. The three most common causes of DRPs were 'drug selection (41%)', 'drug form (20.5%)' and 'dose selection (16.5%)'. The most common drug-related problems about drug selection were under the heading of 'inappropriate combination of drugs, or drugs and herbal medications, or drugs and dietary supplements (29.1%)'. A total of 447 intervention proposals were made for 468 DRPs; 64% of them were at the drug level and 36% were at the other part. Therapeutic drug monitoring accounted for 24.3% of 'other interventions'. Of all clinical pharmacist's intervention proposals 91.5% were accepted and 79.1% of the DRPs were completely resolved.
Conclusion: Clinical pharmacists play an important role in the determination and resolution of DRPs in patients admitted to the PICUs.

Disclosure of Interest: None Declared.

ORAL COMMUNICATION V

OC-5.2

Which factors influence preferences of patients with rheumatic diseases for telehealth channels: a qualitative study

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Background and Objective: Telehealth has the potential to improve patients' health outcomes and facilitate patient empowerment by increasing access to care and medical information. As patients with rheumatic diseases are known to experience drug-related problems at various moments along their treatment, this population can benefit from more continuous information about their medication and healthcare provider support to assist patients with their medication management. To most effectively employ telehealth for this purpose, it is important that offered technologies match with patients' needs and preferences. Therefore, this study aims to identify factors influencing the preferences of patients with rheumatic diseases for telehealth applications.
Method: A qualitative descriptive study was performed in the Netherlands between May and June 2021. Using a semi-structured interview guide, patients with a rheumatic disease were interviewed face-to-face. First, patients were presented four telehealth applications (frequently asked questions page, digital human, and chatting and video calling with healthcare providers). Second, patients were asked to use each application to answer one medication-related question predefined by the research team. During the process of finding an answer to this question, patients were asked to think aloud and were questioned on which factors influenced their experience and preference for each application. Third, patients were given additional hypothetical questions after which they were asked to explain their preferred application for answering the question, to elicit additional factors influencing preference. Interviews were audio recorded, transcribed verbatim and analysed thematically.
Main outcome measures: Factors influencing preferences of patients with rheumatic diseases for telehealth channels.
Results: Fifteen patients (aged 19–73 years, 53% female) participated. Overall, patients were positive regarding telehealth channels for support with their medication management. Three themes and 11 factors influencing patients' preferences for telehealth applications were identified. First, preference was influenced by *factors related to the experienced problem* such as the specificity, urgency, intimacy, and visual component of the problem. Second, preference was influenced by *factors related to individual patients* such as individual support needs, level of individual experience, and population subgroups. Third, preference was influenced by *factors related to the specific channel* such as ease of use, content, added value, and availability of information.
Conclusion: Preferences of patients with rheumatic diseases for telehealth applications are influenced by problem-related, patient-related and channel-related factors. To effectively support patients with rheumatic diseases, telehealth applications should match with these patients' preferences and underlying factors. Furthermore, it is important to offer a variety of telehealth applications as preferences differ among individual patients and circumstances.

Disclosure of Interest: None Declared.

OC-5.4

Drug-related problems in geriatric patients with acromegaly in Bulgaria

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Background and Objective: Acromegaly is a rare disease characterized by many complications and comorbidities due to a growth hormone hypersecretion. Diagnosed geriatric patients are at higher risk of drug-related problems, for example drug interactions and adverse drug reactions. Considering the specific course of the disease and the complexity of therapeutic regimens, it is crucial to analyze the potential role of the clinical pharmacist in supporting this vulnerable group. This study aimed to identify drug related problems (DRPs) in geriatric acromegaly patients and to evaluate the influencing factors.
Method: An observational retrospective study was conducted among geriatric patients with acromegaly admitted to the University hospital "Acad. Ivan Penchev," Sofia, Bulgaria in 2021. Experienced pharmacists reviewed the lists of medicines prescribed to each patient using STOPP/START, v02 criteria for evaluation of potentially inappropriate medications. MedCalc statistical software version 16.4.1 for biomedical research was applied.
Main outcome measures: The primary outcome was the type and number of drug-related problems among geriatric patients with acromegaly.
Results: The total number of elderly patients above 65 years with acromegaly admitted to the hospital was 42. The mean age of the participants was 72.5 years (SD = 4.05) with an average disease duration of 20.6 years (SD = 10.32). About 48% of the patients had at least one drug-related problem. Sixteen potentially inappropriate prescriptions (PIP) and eight potential prescribing omissions (PPO) were identified. On the basis of summary of product characteristics (SmPC) analysis, an inappropriate drug-drug combination (empagliflozin + diuretics and empagliflozin + ACE-inhibitor) that could lead to high risk of hypovolemia and inappropriate drug-disease (diuretic in case of goat) combination was detected. However, despite

the warnings in the SmPC, such drug-drug combinations are recommended for acromegaly patients diagnosed with specific combinations of nosological units (diabetes, diabetic nephropathy, heart failure etc.). Polypharmacy (odds ratio (OR) = 2.08, 95% CI = 0.5539–7.7877, $p = 0.2784$) and multimorbidity (OR = 2.86, 95% CI: 0.1101–74.3167, $p = 0.5271$) were not found as determinants for drug-related problems.

Conclusion: Drug-related problems were detected in less than half of the observed patients. Lack of effectively implemented clinical pharmacy services for identification and prevention of DRPs among patients with acromegaly could be defined as a significant issue in the country. Further studies analyzing the determinants on DRPs among geriatric acromegaly patients and the influence of clinical pharmacists' interventions are required.

Disclosure of Interest: None Declared.

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OC-5.7

A survey to investigate community pharmacists' awareness, identification, and management of prescribing cascades

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Background and Objective: Inappropriate prescribing cascades contribute to unnecessary medication use, healthcare costs, and patient harm. Community pharmacists are well positioned to identify such cascades, and therefore are key stakeholders in their deprescribing. The objective of this study was to assess community pharmacists' awareness, identification, and management of prescribing cascades to help develop behavioural strategies to minimise inappropriate prescribing cascades.

Method: A cross-sectional online survey was constructed using the Theoretical Domains Framework (TDF). Ethics approval was obtained, and the survey was emailed to all registered community pharmacists in Ireland ($n = 3775$) in November 2021. Data from closed-ended questions were analysed in Microsoft® Excel and IBM® SPSS software. Free-text boxes were provided to capture reasons for non-resolution of identified prescribing cascades and suggestions to aid prescribing cascade identification and management; these comments underwent content analysis, facilitated by NVivo® software.

Main outcome measures: Community pharmacists' views and experiences regarding awareness, identification, and management of prescribing cascades.

Results: Of the 220 respondents, 51% were aware of the term '*prescribing cascade*' before the survey, whilst 69% had identified a potentially inappropriate prescribing cascade in practice. Over one third were either slightly confident (26.4%) or not confident at all (10%) in their ability to identify potentially inappropriate prescribing cascades in patients' prescriptions prior to this survey. Over half agreed that the survey informed them about prescribing cascades that they were not aware of (58%) and were concerned that patients were receiving prescribing cascades they had not identified (55%). Most pharmacists wanted further information/training to help identify (88.3%) and manage (86.1%) prescribing cascades, and agreed it would be useful to have electronic alerts that notify pharmacy staff of potential prescribing cascades (84%). The factors most highly rated as a '*strong barrier*' to identifying or managing prescribing cascades were having access to a patient's medical history (57.6%), busy working conditions of community pharmacy (51.9%), and prescriber reluctance to make medication changes to stop a prescribing cascade once identified (49%). There were four common predominant TDF domains influencing non-resolution of identified prescribing cascades and in the suggestions to aid prescribing cascade identification and management: '*Environmental Context and Resources*', '*Social/Professional Role and Identity*', '*Social Influences*', and '*Memory, Attention and Decision Processes*'.

Conclusion: There is a clear need to enhance community pharmacists' awareness about prescribing cascades and to provide additional resources to help them identify and manage prescribing cascades. These findings will aid the development of theory-informed behaviour change interventions to facilitate the review of prescribing cascades and the deprescribing of those which are inappropriate.

Disclosure of Interest: None Declared.

OC-5.8

Clinical pharmacists' effects on women's awareness and knowledge of breast cancer

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Background and Objective: Breast cancer (BC) is the most frequent (23%) type of cancer in women and more than 502,000 women die from it (1). Because of BC develops in a visible organ, it can be diagnosed and treated at an early stage (2). It is critical that all women have a basic understanding of BC in order to receive early diagnosis and treatment. On the other hand, it has been shown that late detection is primarily attributable to a lack of public awareness and hurdles to health care access (1, 3). As the most regularly visited health care professionals, pharmacists can act a substantial role in early discernment of breast cancer's symptoms among women. The aim of this study was to evaluate the effect of education provided by clinical pharmacist on women's awareness, knowledge and attitudes about BC and to assess women's willingness to have education.

Method: It was a pilot study conducted in a community pharmacy between 1 - 10 August 2021 with the participation of women 18 – 65 years old. Breast cancer awareness scale (BCAS) and additional questions were applied via face to face. After primary data is collected the clinical pharmacist provided a brief education via brochure consisting information about BC. One month after education BCAS was repeated to evaluate the success of education.

Main outcome measures: Sociodemographic characteristics, family history and attitudes of participants. Assessment of BCAS and education.

Results: 41 women with a mean age of 46.12±3.36 were participated. Only 2 (4.9%) of the participants were diagnosed with BC and 8 (19.5%) of the participants' family member were diagnosed with BC. 16 (39%) of the participants had mammogram. 18 (43.9%) of the women had clinical breast examination whereas 11 (26.8%) of the participants didn't even do a self breast examination. Only 4 (9.8%) women got education about BC and 1 (2.4%) woman consulted her pharmacist. On the other hand 33 (80.5%) of the participants declared that they would like to get an education from their pharmacist and 29 (70.7%) of them stated that they would join to an education session if their pharmacist provide. 41 (100%) of the participants admitted that they would go to physician if their pharmacists notice a risky situation and direct them to a doctor. Before patient education the participants' mean scores from the signs and symptom subscale was 14.62 ± 1.82 and from attitude about preventing BC subscale was 25.83 ± 3.31. After education the mean scores were determined as 15.36 ± 0.75 and 26.78 ± 3.25, respectively.
Conclusion: After patient education, statistically significant score increase was determined. This indicates that education given by the clinical pharmacist is effective in developing communities' awareness, knowledge and attitudes. In addition participants were willingness to have education from the pharmacist too. Pharmacists can combine their advantages of being easily accessible with womens' willingness and thereby contribute to the development of BC awareness and early diagnosis in the community.
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Disclosure of Interest: None Declared.

POSTER DISCUSSION FORM I

PDF-1.01

Deprescribing in outpatient hospice and palliative care

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Background and Objective: Deprescribing has demonstrated great benefits to medication safety and cost effectiveness in various clinical settings. Deprescribing is particularly relevant in hospice and palliative care where therapeutic goals change drastically with the decision in favor of symptom management and quality of life. Complex medication regimens may increase the occurrence of drug-related problems, encompassing medication errors and adverse drug reactions. Drug-related problems can arise from patients' vulnerability, their comorbidities, numerous physiological changes that influence drug metabolism, and the high prevalence of polypharmacy (7.8 drugs daily on average). However, the need for discontinuation of medication can vary greatly over time and needs regular consideration. Guidance on deprescribing in hospice and palliative care is limited and urgently needed.To emphasize the relevance in hospice and palliative care, it is essential to identify potentially inappropriate medications and to better understand the potential of deprescribing from a clinical perspective. Therefore, we aimed at identifying indicators for potentially inappropriate medications in outpatient hospice and palliative care and at investigating the potential of deprescribing.
Design: We performed descriptive medication analyses in home-based palliative care settings involving mobile palliative care teams (MPCT). In parallel, we conducted a systematic review on indicators for potentially inappropriate medications and deprescribing in outpatient hospice and palliative care. Findings from the medication analyses will be linked to the systematic review to investigate the potential of deprescribing in patients cared for by MPCT.
Results: The project has started in January 2022 and is still ongoing. Therefore, results and final data analysis based on the medication analyses and the systematic review are pending and will be available in time for the conference.
Conclusion: Linking insights into drug regimens of MPCT patients with indicators of potentially inappropriate medications and deprescribing from the literature will help to better understand the clinical relevance of deprescribing in outpatient hospice and palliative care. The findings could help to develop new pharmaceutical services as well as guidance towards a safe and effective medication regimen in highly vulnerable patients in outpatient hospice and palliative care settings.

Disclosure of Interest: None Declared.

PDF-1.02

Applying quality improvement methodology to the discharge process for older adults in a mental health setting: an interprofessional, person-centred approach

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Background and Objective: Good planning and communication is required to improve the co-ordination of care for older people at discharge. With the Global Patient Safety Challenge: Medication Without Harm, WHO has asked countries to prioritise medication safety in transitions of care. (WHO 2019) Discharge from hospital is associated with medication errors and 25–80% of patients have at least one medication discrepancy or communication failure at discharge. (Lehnbom et al.2014). In April 2020, legislation changes permitted the electronic transfer of prescriptions in Ireland thus creating opportunities for better communication. Quality improvement methology can deliver sustained improvements in the quality, experience, productivity and outcomes of care. (The Health Foundation, 2013).
Design: Quality improvement methodology was applied to the process for the transfer of discharge prescriptions using the Define, Measure, Analyse, Improve and Control (DMAIC) framework. We took an interprofessional approach to the DMAIC process and enlisted a multidisciplinary team.
Results: DMAIC revealed significant variation in the current process. 100% of prescriptions were handwritten at the point of discharge and only 82% had been scanned to the patient's electronic record. 22% of discharge prescriptions contained a prescribing error. Defects per million opportunities (DPMO) was 226,600 and Sigma 2.25. The mean turnaround time was 11 h. A new standardised process was developed to allow electronic prescribing and electronic transfer of prescriptions at discharge. Interdisciplinary working between the medical and pharmacy staff improved medicines reconciliation at discharge ensuring 100% of all discharge prescriptions were screened

by a pharmacist, electronically typed and handwriting/legibility errors were reduced to zero. The mean turnaround time was reduced to 2 h. Secretarial time in the process was reduced to zero.Interdisciplinary working between the occupational therapy and pharmacy team resulted in the joint provision of a discharge planning group. *'Medication and My Recovery'* is now a formal part of the discharge planning group. Psychoeducation and provision of information with the aid of a 'My Medicines List' is facilitated by the team pharmacist in collaboration with the team occupational therapist.

Conclusion: Quality improvement methodology was used to develop a new process for electronic transfer of discharge prescriptions in a mental health setting. Interprofessional collaboration between medical and pharmacy staff reduced turnaround time and medication errors at discharge and increased medicines reconciliation to 100% for all discharge prescriptions. Interdisciplinary working between the occupational therapy and pharmacy team resulted in the joint provision of a discharge planning group and improved patient involvement in the discharge process.

Disclosure of Interest: None Declared.

PDF-1.03

Oral solid drug form related medication errors in Czech healthcare facilities

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Background and Objective: The medication administration process is prone to medication errors (ME) in healthcare facilities. The aim of the study was to analyse the drug administration of oral solid drug forms in patients hospitalized in four hospitals in the Czech Republic with emphasis on MEs in relation to the handling of the drug forms (splitting or crushing), food intake and type of beverage.

Method: The study is part of an ongoing observation-intervention project focused on safety of drug administration process. It was conducted at three hospital departments in each of four Czech hospitals (internal medicine, surgery, and long-term care department). A multidisciplinary team (nurse and pharmacist) directly observed the whole process of medication administration by nurse. The first observation phase was performed from June to August 2021. The following data were collected: all drugs used including dosage; data on nurse who administered drugs; handling with the oral solid form (splitting, crushing); type of beverage; time lag from food intake. All data was collected using standardized form, anonymized, and transferred to a web database. Data of proper drug handling were then compared with available factographic drug databases and a summary of product characteristics.

Main outcome measures: We analyzed the frequency of drug splitting or crushing of oral solid form, food timing, and the type of beverage used for drug swallowing.

Results: During the observation, 5514 doses of oral solid drugs were administered. Out of them, 61.6% were administered with food, 14.3% without food (more than 30 min before meal or more than 2 h after meal), and 13.2% within 30 min before food. Food timing was incorrect for 20.0% doses. Types of beverages were tea (62.0%), plain water (22.6%), mineral water (5.7%), milk coffee (5.7%), syrup (2.2%), other beverages (1.8%). In total, 645 drugs were splitted, of which 20.6% incorrectly, and 71 drugs were crushed, of which 66.2% incorrectly.

Conclusion: Drug administration in relation to the food intake and handling of solid drug forms were not always in accordance with current recommendations or information in the literature. Hospital management and healthcare professionals should be vigilant of these MEs. Building a safer healthcare system should be a priority. These types of ME could be reduced easily by implementing a pharmacist (clinical, hospital, or on-site) in the multidisciplinary team. Pharmacist could be beneficial in medication reconciliation in patients with risk of observed MEs.

Disclosure of Interest: None Declared.

PDF-1.04

A 4 years' experience of medication reconciliation in cardiology department

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Background and Objective: In 2017 the World Health Organization (WHO) set up a global initiative to reduce serious preventable effects of medication errors by 50% in all countries over the next 5 years. Medication reconciliation is a key to ensure patient safety and to prevent and detect prescription discrepancies at transition stages and every step of medication management process. A feasibility study named CACTUS was realized in cardiology department in our teaching hospital and led to the implementation of medication reconciliation in this department in November 2017. To assess medication reconciliation's benefit on medication prescriptions, we performed quantitative and qualitative retrospective analysis of medication reconciliation process in cardiology department from November 2017 to June 2021.

Design: Covariates were collected in an excel table and divided as sociodemographic characteristics (sex, age), hospitalization data (hospitalization unit or intensive care unit) and reconciliation data (number of prescribed medications, medication discrepancy type: intentional (IMD) or unintentional (UMD), number of pharmaceutical interventions and UMD corrected number). Statistical analyses were performed with R-software to compare adjusted UMD corrected rate (Chi-Square test of independence) and to study this rate's evolution (Chi-Square test of trend). Values of probability ($p < 0.001$) were considered significant.

Results: During the studied period, 6,820 patients were hospitalized in the cardiology department. A total of 1,361 medications reconciliations were initiated, corresponding to 1164 patients. Only 5.1% of medication reconciliation (n = 70) were unsuccessful: discharge before the Best Possible Medication History achievement, any known medication at admission, less than three sources available. A total of 10,283 prescribed medications were analyzed in the reconciliation process: 46.7% (4,803/10,283) shown discrepancies and among them 4,448 (92.6%) were flagged as IMD, whereas 355 (7.4%) as UMD. At least one UMD was observed for 191 patients (16.4%). After pharmaceutical intervention, 58.9% (209/355) of UMDs were corrected. Corrected UMD rate was significantly different by years ($p < 0.001$) and significantly increased from 2017 to 2021 ($p < 0.001$) (November to December 2017: 40.5%; 2018: 44.3%; 2019: 68.4%; 2020: 87%; January to May 2021: 76%).

Conclusion: Medication reconciliation allowed to identify an important number of discrepancies and to correct almost 60% of the unintentional ones after pharmaceutical interventions. Collaboration between pharmacist and physicians is crucial to prevent medications errors in cardiovascular disease and to improve patient care pathway.

Disclosure of Interest: None Declared.

PDF-1.05

Effect of different glomerular filtration rate estimates on drug prescription in a real-world cohort of aged patients

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Background and Objective: Drug dosing in patients with renal impairment is often based on the estimates of their kidney function. The aim of this research was to compare the influence of using three different equations to estimate renal function on dose adjustment requirements in a real-life cohort of elderly patients.
Method: Electronic medical records (EMR) of the Lousã health care center (HCC) in Portugal were exported. Data from patients older than 65 years and that visited the HCC in the last 2 years were considered for analysis. Using recorded data of sex, body weight, stature, and the last serum creatinine, glomerular filtration rates (GFR) were estimated using the Cockcroft-Gault (CG), the Modification of Diet in Renal Disease (MDRD), and the Chronic Kidney Disease Epidemiology Collaboration (CKI-EPI) equations. GFR values were compared with information included in the summaries of product characteristics (SmPCs), available at the Portuguese regulatory agency, for dose adjustment in renally impaired patients. Information available in the SmPCs was classified as no action, precaution (PR), dose adjusted (DA) required, and contraindicated (CI). Ethical approval was granted by the ARS Center Ethics Committee (CE-19/2022).
Main outcome measures: Number of drugs needing precaution, dose adjustment or avoidance.
Results: Of the 3,061 patients registered in the HCC EMRs, 1,886 were included, presenting a mean age of 76.5 years (SD = 7.9) with 57.1% of females. These patients had 11,461 medicines prescribed, resulting in 6.4 (SD = 4.5) medicines per patient. Using CG, 588 (5.1%) were required PR, 1490 (13.0%) DA, and 112 (1.0%) were CI. Using MDRD, 379 (3.3%) were required PR, 1051 (9.2%) DA, and 80 (0.7%) were CI. Using CKD-EPI, 379 (3.3%) were required PR, 1075 (9.4%) DA, and 87 (0.8%) were CI. In 976 medicines (8.5%) results of CG and MDRD were discrepant, in 923 (8.1%) between CG and CKI-EPI201, and in 125 (1.1%) between MDRD and CKI-EPI.
Conclusion: Using CG resulted in more restrictive alerts for dosing requirements compared with MDRD or CKD-EPI equations. The consequences on dose adjustment requirements, and not the raw values obtained, should guide clinical pharmacists' decisions when selecting a renal function estimating equation.

Disclosure of Interest: None Declared.

PDF-1.06

Medication adherence barriers in Turkish patients with chronic diseases

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Background and Objective: To determine medication adherence barriers using Turkish version of Identification of Medication Adherence Barriers Questionnaire (IMAB-Q-TR), originally developed utilizing Theoretical Domains Framework.
Method: An observational study was conducted between November 2020 and March 2022 in community pharmacies (n = 8) in Istanbul, Turkey. Convenience sampling method was used. Adult patients with chronic disease, who self-administer at least one medication for one month were included. After translation and cultural adaption, content validity of IMAB-Q-TR was assessed by expert panel (n = 3) with pilot testing (n = 20).
Main outcome measures: The prevalence of medication adherence barriers, test–retest reliability (intraclass correlation coefficient), internal consistency (Cronbach's alpha), criterion validation (by calculating Spearman rank correlation coefficient between the scores of IMAB-Q-TR and validated Turkish version of Medication Adherence Report Scale [MARS-TR]).
Results: Three hundred patients responded (69% females), with a mean age of 59.0 ± 12.7 years. Median number of medications used per patient was 3.0 [1.0–4.0]. Most common medication adherence barriers were related to beliefs about consequences (concern related to side effect of medications [39.4%]), emotions (defining taking medication as a burden to themselves [23.0%]), and memory, attention, and decision-making processes (easily distracted from taking medication [21.7%]). For test–retest reliability of the scale (n = 30), intraclass correlation coefficient was 0.99 ($p < 0.001$) and the Cronbach's alpha of IMAB-Q-TR was 0.701. There was negative correlation between total score of IMAB-Q-TR and MARS-TR (r = − 0.521; $p < 0.001$).
Conclusion: The Turkish version of IMAB-Q could be used to identify medication adherence barriers in patients with chronic diseases and accordingly individualize pharmacist's behavioral change interventions to promote medication adherence.

Disclosure of Interest: None Declared.

PDF-1.07

Treatment adherence and related factors in Parkinson's disease patients without dementia

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Background and Objective: Patients with Parkinson's Disease (PD) have many risk factors for treatment nonadherence, such as cognitive impairment, depression, polypharmacy, and medication regimen complexity. Adherence in PD should be carefully monitored to accurately assess the patient's clinical and treatment response.
Method: This is a cross-sectional observational study. Sixty patients who were diagnosed with PD according to the UK PD Association's Brain Bank criteria and had at least primary school education participated in our study. Patients with a diagnosis of dementia or who received deep brain stimulation, apomorphine infusion, and levodopa/carbidopa intestinal gel therapy were excluded from the study.
Main outcome measures: Adherence was evaluated with the 4-item Morisky medication adherence scale. The course of the patients was gauged with the MDS-Unified Parkinson's Disease Rating Scale (MDS-UPDRS). MDS-UPDRS subscores are as follows; Part 1: non-motor experiences of daily life Part 2: motor experiences of daily life

Part 3: motor examination Part 4: motor complications. In the evaluation of patients, Schwab and England Activities of Daily Living Rating Scale (SE-ADL) was used for activities of daily living, MoCA for cognitive status, Beck Depression and anxiety scales for mood. The number of drugs used by the patients and LDED were calculated.
Results: The mean age of the patients was 62.40 (± 10.25) and 70% of them were male (n:42). There was no significant difference between the adherence of the patients according to the Hoehn and Yahr stages. There was a significant correlation between adherence and depression (p 0.005, r − 0.372), anxiety (0.009 r − 0.357), UPDRS-1 (p 0.006 r − 0.373), UPDRS-2 (p 0.027 r − 0.304), SE-ADL (p 0.001, r 0.438) scores. When these variables were included in the regression analysis with the enter method, SE-ADL score were found to be significant for predicting adherence (p 0.041, OR 0.328).
Conclusion: Motor and non-motor problems of daily life are associated with non-adherence in PD patients without dementia. Treatment of non-motor symptoms such as depression and anxiety may contribute to adherence. Higher independence of patients in daily life increases adherence.

Disclosure of Interest: None Declared.

PDF-1.08

Assessment of preoperative potentially inappropriate prescribing patterns based on Beer's criteria in older surgical patients

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Background and Objective: Polypharmacy has been identified as the leading risk factor for potentially inappropriate prescribing. Several criteria-based strategies to identify inappropriate prescribing have been published, including the recently updated Beers criteria. The list identifies potentially inappropriate prescribing, which has been linked to an increased risk of developing adverse drug reactions, hospitalization, and falls. Individuals of advanced age with complex comorbidities and increased frailty are increasingly being offered surgical care. These patients are likely to be prescribed potentially inappropriate medications. The study aimed to determine the prevalence of preoperative prescribing of potentially inappropriate medications according to Beers criteria in a cohort of elderly surgical population.
Method: Retrospective, population-based cohort study included all patients ≥ 65 years undergoing first surgery at The National University Hospital of Iceland between 2006–2018. Potentially inappropriate prescribing in the year prior to surgery was assessed using 2019 Beers criteria. Participants were categorized pre-and postoperatively based on the number of medications filled in the year, both pre-and post-surgery; categories were non-polypharmacy (< 5), polypharmacy (5–10) and hyper-polypharmacy (> 10).
Main outcome measures: Potentially inappropriate prescribing assessed using 2019 Beers criteria.
Results: Amongst 17,198 patients (54% male; mean age 75 ± 7.5 years) the prevalence of any inappropriate prescribing according to Beers criteria preoperatively was 77.8% (95% CI 77.2–78.5). Most commonly prescribed medications were non-benzodiazepine hypnotic drugs, known as "Z-drugs" 36.2%, proton-pump inhibitors (PPI) 34.0%, non-cyclooxygenaseselective (NSAIDs) 27.7% and benzodiazepines 22.7%. Patients with preoperative polypharmacy (80.2% vs. 36.6% $p < 0.001$) and hyper-polypharmacy (95.8% vs 36.6% $p < 0.001$) had a much higher rate of any potentially inappropriate prescribing compared with those with non-polypharmacy.
Conclusion: According to Beer's criteria, preoperative potentially inappropriate prescribing is common among older surgical patients and associated with of polypharmacy and hyper-polypharmacy. An increased focus on optimizing medication usage in older surgical patients throughout the perioperative period could reduce the risk of potentially harmful outcomes.

Disclosure of Interest: None Declared.

PDF-1.09

Drug-related hospital visits in older patients: a post-hoc analysis of risk factors, preventability and causes in a randomized controlled trial

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Background and Objective: Drug-related hospital visits in older patients are a major healthcare concern. There is a need to better understand the risk factors for, and the underlying causes and preventability of drug-related visits. The aim of this study was to identify older patients' risk factors for drug-related admissions (DRAs) and to assess the preventability and causes of older patients' DRAs and drug-related emergency department (ED) visits.
Method: Post-hoc analysis of a randomized clinical trial in eight wards at four hospitals in Sweden. All 2637 trial participants, hospitalised patients aged 65 years or older, were included. To identify risk factors, a cox proportional hazards model was made with sociodemographic and clinical baseline characteristics. To assess preventability and causes, 400 trial participants were randomly selected. Patients' hospital revisits (admissions and ED visits) within 12 months were assessed to identify preventable drug-related revisits. Diseases and type of causes related to these revisits were then analysed with descriptive statistics.
Main outcome measures: The primary outcome for risk factor identification was DRA within 12 months post-discharge. The main outcomes for the assessment of preventability and causes were the percentage of preventable drug-related revisits, related diseases, and type of causes.
Results: Of all 2637 patients, median age (interquartile range) 81 (74–87) years, 582 (22%) experienced a DRA within 12 months. Fifteen risk factors (hazard ratio > 1, $p < 0.05$) related to age, previous hospital visits, number of medications, and cardiovascular, liver, lung and peptic ulcer disease were identified. The 400 randomly selected patients experienced a total of 522 hospital revisits of which 85 (16%) were preventable drug-related revisits. The two most prevalent diseases related to preventable revisits were heart failure (n = 24, 28%) and COPD (n = 13, 15%). The two most prevalent type of causes were inadequate treatment (n = 23, 27.1%) and insufficient or no follow-up/monitoring (n = 22, 25.9%).
Conclusion: Risk factors for DRAs in older hospitalised patients were related to age, previous hospital visits, medications, and cardiovascular, liver, lung and peptic ulcer disease. Drug-related hospital

revisits may be prevented through better treatment and follow-up in older patients with cardiovascular disease and COPD.

Disclosure of Interest: None Declared.

PDF-1.10

High rate of potential inappropriate medication in elderly patients presenting in ed after a fall, a national study in Hungary

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Background and Objective: Falls are major public health challenge in older adults. Elderly people tend to have a lower quality of life and reduced life expectancy after sustaining injuries due to a fall. Use of certain PIM (Potentially Inappropriate Medication) medication has been recognised as a risk factor for fall. The aim of this study was to describe the associations between falls risk and used prescribed medication.
Method: Retrospective study was performed on national outpatient data, covering a period of one year (2019). Descriptive statistics were carried out on elderly (> 65 year) patients' data, who presented to Emergency Patient Care Unit (ED) after sustaining minor injuries as a result of fall. W00-W19 ICD codes were documented for fall cases. Drugs were recorded according to their WHO/ATC codes. Aggregated data were obtained from the National Healthcare Service Centre. Drugs were categorised as PIM according to the EU(7)PIM list.
Main outcome measures: Demographic data and the most common used PIM drugs were determined in the studied population.
Results: We analysed total of 74,094 elderly outpatients' data who presented to ED after a fall. Female dominance was observed (female vs male: 68.34% vs 31.66%) in our study. Prescribed PIM medication was used in 67.47% of the patients. The most frequent five active substances were alprazolam (N05BA12) 21,09%, pantoprazole (A02BC02) 18.23%, famotidine (A02BA03) 8.72%, trimetazidine (C01EB15) 8.47% and piracetam (N06BX03) 7.43%. The mean number of the prescribed PIM were found 2.15 (± 1.53). More than three PIM listed medicine were used in 15.43% of the elderly patients.
Conclusion: High rate of alprazolam use was detected in elderly patients presented in ED due to a fall. Medication review and appropriate prescribing can play an important roll in fall prevention among elderly patients.
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Disclosure of Interest: None Declared.

PDF-1.12

Introducing a pharmacist-led transmural care program to reduce drug-related problems in orthogeriatric patients: a prospective interventional study

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Background and Objective: When geriatric patients are admitted for an orthopedic problem, their risk for complications is increased due to underlying chronic illness, chronic drug therapy and additive treatment changes requiring pharmacist counseling. The clinical pharmacist can counsel the patient and focus on transmural communication concerning polypharmacy to improve continuity of care after discharge by primary care providers. We assessed whether a pharmacist-led intervention aimed at optimizing transmural communication of drug-related problems (DRPs) to general practitioners (GPs), could lead to an additional DRP reduction in orthogeriatric patients.
Method: An interventional study (pre-post design) was performed (October to December 2021 and January to March 2022). Orthopedic patients (≥ 65 years) were included. The pre-group received usual care, the post-group received the pharmacist-led transmural care program.
Main outcome measures: The reduction of DRPs one month after discharge was calculated in both periods and, in addition, the GP acceptane rate was determined for the proposed interventions. Readmissions one month after discharge and the clinical impact of the pharmaceutical interventions (PIs) were evaluated, using the Clinical, Economic and Oganisational (CLEO) tool. Finally, it was determined whether the intervention, and other patient- or drug-related characteristics, influenced the DRP reduction rate.
Results: Overall, 127 patients were included (control n = 61, intervention n = 66). The reduction of DRPs in the intervention period was statistically significantly higher than in the control period ($p < 0.001$). In total, 141 interventions were suggested during the intervention period of which 58 (41%) were accepted at discharge and 42 (30%) were accepted one month after discharge when the GP was contacted, resulting in an overall acceptance rate of 71%. In both periods, four patients were readmitted one month after discharge. 70% of the PIs had a clinical impact (≥ 2C level according to CLEO-tool), indicating that they had the potential to avoid patient harm. The intervention (+ 1.750, (1.222–2.278), $p < 0.001$) and number of DRPs at discharge (+ 0.530 (0.406–0.654), $p < 0.001$) appeared to increase the DRP reduction rate significantly.
Conclusion: The pharmacist-led transmural care program significantly reduced DRPs by optimizing transmural communication with GPs regarding the proposed interventions at discharge.

Disclosure of Interest: None Declared.

POSTER DISCUSSION FORM II

PDF-2.02

Identification of risk factors for medication-related hospital readmissions and implementation of electronic indicators

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Background and Objective: Hospital Readmissions due to medication-related problems and adverse drug reactions occur regularly and are an emotional burden for patients and caregivers as well as an economic challenge for health care systems. Some hospitals have implemented clinical pharmacy services at or after discharge that may have the potential to reduce medication-related readmissions. However, in many European countries, pharmacists' resources are insufficient to provide such discharge services to all inpatients, requiring prioritisation of patients most likely to benefit.
Our objective is to identify risk factors for medication-related readmissions as a basis for the implementation of electronic indicators to identify patients at risk for medication-related readmission.

Design: We are currently conducting a scoping literature review in Medline, Embase, and CINAHL databases. We are searching for and intend to summarise studies that examined factors for medication-related readmissions. The identified risk factors will be systematically evaluated with experts for completeness, usefulness, and feasibility to be ultimately integrated into the clinical information system to "flag" patients at the highest risk.
Results: This study is still ongoing, but preliminary results are already available. Results indicate that the most important risk factors are advanced age, number of comorbidities, and drug adjustments made during the previous hospital stay. Drug classes frequently leading to medication-related readmissions include antithrombotic agents, diuretics, and antineoplastic medications. In addition to adverse drug reactions, under-prescribing (e.g., indication, but no medication), under-treatment (medication, but dosage too low), and adherence issues most often contribute to medication-related readmissions. It is envisaged that these factors, drug classes, and characteristics are incorporated into an algorithm. This algorithm will then flag the patients to be prioritised for meaningful clinical pharmacy discharge services.
Conclusion: Identifying patients with the highest risk for medication-related readmissions is a possible approach when resources are scarce. Electronic implementation is intended for workflow optimisation.

Disclosure of Interest: None Declared.

PDF-2.04

Clinical interventions proposed by a pharmacist in the intensive care unit

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Background and Objective: Patients admitted to the Intensive Care Unit (ICU) are at increased risk of adverse drug events due to underlying comorbidities, organ dysfunction and pharmacokinetic alterations in addition to being prescribed almost twice as many medications as patients in general hospital wards[1]. The role of the pharmacist in this setting has developed considerably and includes working as a part of the multi-disciplinary team providing several clinical services[2]. Locally, clinical pharmacy services were limited in ICU. Thus, the aim of this study was to assess the interventions of a pharmacist in ICU by quantifying and categorising drug-related problems (DRPs) identified by, and determining the frequency and type of clinical interventions suggested by a pharmacist introduced in ICU.
Design: The study was carried out over eight weeks in ICU of an acute general hospital in Malta, during which the pharmacist reviewed medication charts of patients admitted to ICU over the study period and identified DRPs. DRPs and suggested pharmaceutical interventions (PIs) were discussed with ICU clinicians or nurses depending on type of PI, and the outcome was recorded. All data was recorded in a previously validated, adapted, and piloted data collection tool[3]. Data was classified into type of DRP and PI, therapeutic class, and outcome relating to acceptance and implementation of PIs.
Results: During the study period, medication charts of 124 ICU patients were reviewed. The pharmacist identified 161 DRPs in 54 patients and suggested a PI for each DRP. The most frequently identified DRP categories were 'administration related' (29%), 'supratherapeutic dosage' (20%) and 'drug monitoring' (18%). The most common categories of suggested PIs were 'dose adjustment' (34%) and 'administration optimisation' (29%). Antimicrobials (46%) and medications acting on the central nervous system (17%) were the therapeutic classes most frequently involved in DRPs. The ICU clinical team accepted and implemented 95% of PIs suggested by the pharmacist.
Conclusion: This research demonstrated the value of introduction of a pharmacist within ICU. The high rate of accepted PIs concerning a wide range of DRPs demonstrate that advanced collaboration between a pharmacist and the ICU team is possible. The proposed clinical interventions by the pharmacist reflect the contribution of the pharmacist to the reduction of DRPs in critically ill patients, thus, optimising treatment for these patients.

Disclosure of Interest: None Declared.

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PDF-2.05

Rational use of statins in the sample of czech seniors assessed during the EUROAGEISM H2020 project

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Background and Objective: Atherosclerosis is the leading underlying cause of cardiovascular diseases in older patients. The study aimed to describe various aspects of rational/irrational use of statins in older patients (65 +), particularly appropriate choice of drugs, and combinations, dosing schedule, adequate selection of dose in relation to the degree of assessed CVS risk, and prescription of statins in the presence of some risk factors/risk complications of the statin therapy.
Method: Data were collected prospectively using structured, standardized and validated EUROAGEISM H2020 protocol (that enables comprehensive geriatric assessment (CGA)) between 2018 and 2021 year in 1602 older adults 65 + in three settings of care—acute care (N = 589), ambulatory care (N = 563) and community pharmacy practices (N = 450). Patterns of prescribing of statins were compared with recommendations for rational statin therapy stated in the European Society of Cardiology and European Atherosclerosis Society (ESC/EAS) guidelines and in the START version 2 explicit criteria.
Main outcome measures: Description of various aspects of rational/irrational use of statin therapy in older patients.
Results: Participants were, on average, 77.8 ± 7.6 years old; the majority of them (66.0%) were females. In the group at moderate cardiovascular risk (21.2%), only 8.0% of patients were prescribed statins. Of 21.9% of patients at high cardiovascular risk, 46.2% were prescribed statins, and only 41.7% of older patients pertaining to very high cardiovascular risk (52.1%) used statins. Inappropriate timing of statins was observed in 2.4% of patients and the dose of statins did not increase with increasing CVS risk. Statins were rarely used in patients > 75 years, suffering from malnutrition, diagnoses related to muscle damage, renal failure stage 3–5, liver disease, hypothyroidism, simultaneous dehydration, and urinary tract infection.

Conclusion: Primary statin prevention was insufficient in older patients and patients have not been prescribed sufficient doses of statins for secondary prevention. In older patients, the rational use of statin therapy always requires better consideration of drug choice, dosing and selection of combined drug regimen, and regular monitoring of efficacy and safety of the treatment. In our sample, statins were rarely prescribed to older high-risk patients with risky diagnoses, symptoms and syndromes.

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Disclosure of Interest: None Declared.

PDF-2.06

Determination of potential drug-drug interactions in kidney transplant patients

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Background and Objective: Kidney transplant patients usually receive versatile drug treatments against multiple comorbidities besides immunosuppressive drugs and close monitoring of drug interactions by clinical pharmacists is crucial in the clinical follow-up. The aim of this study is to determine potential drug-drug interactions in kidney transplantation patients.
Method: An observational study was conducted between February 2022 and April 2022 at the Transplant Clinic of tertiary care hospital in Istanbul, Turkey. Potential drug-drug interactions were determined by a clinical pharmacist using the Lexicomp ® Drug Interactions database.
Main outcome measures: The number of potential drug-drug interactions in Category X (contraindicated), D (major) and C (moderate) according to Lexicomp classification. Minor interactions in category B were not included in this study.
Results: A total of 61 kidney transplant patients (55.7% female) with a mean age of 43.13 $\pm$ 13.43 were included in the study. The average number of drugs used by patients was 9.27. While no drug interactions were observed in 12 of the 61 patients, a total of 350 drug interactions were detected in the prescriptions of 49 patients. Of these interactions, 36 were in category D, and 313 were in category C. The most common interaction in category D was between Prednisolone and Calcium carbonate-Vitamin D. In category C, the most common interaction was between Tacrolimus and prednisolone. Category X was found in only one patient (Esomeprazole and Clopidogrel).
Conclusion: This study shows that the presence of clinical pharmacists in the transplant team is important for determining drug interactions and preventing problems that may arise in the future.

Disclosure of Interest: None Declared.

PDF-2.07

Investigation of drug-related problems in hospitalized patients with respiratory diseases: a randomized controlled trial

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Background and Objective: According to the data from the World Health Organization (WHO), chest diseases such as chronic obstructive pulmonary (COPD) diseases, lower respiratory tract infections, and cancers of the lung are among the 10 diseases that cause the highest mortality. Drug-Related Problems (DRP), re-hospitalization, and antimicrobial resistance are critical problems in chest disease wards. Systematic and innovative interventions are needed, with the active involvement of the clinical pharmacist (CP) focused on reducing the risk of potential problems. The aim of this study is to investigate the effects of pharmaceutical care services in the pulmonology service.
Method: A randomized controlled trial at a university hospital in Istanbul was held between June 2020 and December 2021. The participant randomized into two groups: control and intervention. In the control group, CP identified and classified the DRPs according to PCNE (Pharmaceutical Care Network Europe) v9.0. The CP identified DRPs via PCNEv9.0 and provided solutions to DRPs for the intervention group.
Main outcome measures: The efficacy of pharmaceutical care services was evaluated by the number and classification of DRPs, and re-admission within 30 days was compared between the two groups.
Results: Out of one hundred and eight patients 86 of them were randomly assigned to the control group and 82 to the intervention group. The average number of medicines administered per patient in the control and intervention groups were 14.45 $\pm$ 7.59, and 15.5 $\pm$ 6.18, respectively. In the control and intervention groups, the number of patients with DRP was 62 and 46, respectively. Total number of DRPs was 160 for control and 76 for intervention. A statistically significant difference was found in favor of the intervention group in terms of number of patients with DRPs, total number of DRPs, and re-admission within 30 days ($p < 0.05$).
Conclusion: In this study, pharmaceutical care services provided by clinical pharmacists lead to positive outcomes. We believe that clinical pharmacy services are crucial for better health care, and cognitive pharmacy services should be expanded in all settings where patients and pharmacists are present.

Disclosure of Interest: None Declared.

PDF-2.08

Unseen and unheard: polypharmacy, older adults and sensory impairment

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Background and Objective: Multimorbidity, polypharmacy and sensory impairment (visual and/or hearing loss) increase with age. Older people with sensory impairment (OPwSI) experience substantial medicines-related challenges at all stages of the patient journey (ordering, obtaining, storage, administration) (1) and are at higher risk of iatrogenic disease. This study explored the patient journey of a cohort of OPwSI to gain an understanding of their individual challenges with, and solutions for, their medicines management.
Method: An ethnographically-informed study was undertaken, comprising participant-generated audio- and video-recordings and diary notes, researcher-generated field notes, and semi-structured interviews. Eligible participants were community-dwelling adults

(aged ≥ 65 years) using ≥ 4 medicines, living with sensory impairment in Scotland. Participants were recruited via social media, professional networks and third-sector organisations, using accessible formats. Data was analysed inductively using the constant comparative method (2).

Main outcome measures: *Not applicable. This study does not report results about an intervention.*

Results: Fourteen individuals participated (visual impairment (n = 5), hearing impairment (n = 4), dual sensory impairment (n = 5)) with a mean age of 75 (range 65–89 years). Nine were female, five were male. Five individuals lived alone, while the remainder lived with family. Participants used an average of 11 (range 5 to 22) medicines and a wide range of formulations. They had developed complex, individualised strategies for their medicines, customised to their home environment and personal daily regimens. Strategies involved bespoke storage systems and solutions, fixed routines of medicine administration and low- and high-tech assistive technologies (e.g. pill cutters and smartphone apps). These strategies became more elaborate and rigid for individuals who used higher numbers or medicines. Despite familiarity with their medicines and personalised strategies, daily medicine use involved dealing with many uncertainties and ambiguities and created opportunities for error and harm. Frequent medicine supply changes (e.g. different manufacturers or packaging) caused problems with medicine identification and dosage units, leading to disrupted medicine self-management routines and increased risks of error when decanting and transferring medicines.

Conclusion: OPwSI experience additional risks when receiving polypharmacy and are more reliant on accessible services and products, due to the additional efforts required in medicines management. This diverse population with complex needs continues to grow. More accessible services and a more person-centred approach is needed to support their independence and reduce the risk of harm.

Disclosure of Interest: None Declared.

PDF-2.11

The association between sedative drug regimens and occurrence of negative outcomes in older adults—findings of the INOMED and EUROAGEISM H2020 projects

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Background and Objective: Benzodiazepines (BZD) are one of the most commonly prescribed potentially inappropriate drugs (PIMs) in seniors in Europe and contribute to negative outcomes associated with their more pronounced sedative activity and other risks in older adults (drug-related falls, exacerbation of chronic diseases, cognitive deficit, drug dependence etc.). The aim of the study was to determine the association between sedative drug regimens and negative outcomes in Czech seniors assessed in 3 health care settings (acute care, ambulances and in community pharmacies).

Method: Data were collected by prospective comprehensive geriatric assessment (CGA, including medication assessment) using the EuroAgeism H2020 project protocol (2018–2022) in the Czech Republic (in total N = 1602 seniors were assessed, in at least 3 different regionally different facilitiesin 3 settings of care: acute care N = 589, ambulatory care N = 451, community pharmacy practices N = 450). Sedative activities of prescribed medications were identified by scoping literature review using PubMed, Medline and SPCs. We analyzed prevalence of use of sedative drugs and sedative aktivity of drug regimens by descriptive statistics using R-software (version 4.0.3). The association between number of sedatives/cummulative sedative potential of drug regimens and the occurrence of negative outcomes were tested using Kendall's rank correlation ($p < 0.05$).

Main outcome measures: The association between number of sedatives/cummulative sedative potential of the drug regimens and the occurrence of negative outcomes in seniors.

Results: There were 16.7% of patients in ambulatory care and 18% of patients in acute care using BZDs. The most frequently prescribed sedatives in combinations were alprazolam and citalopram, citalopram and bromazepam, and bisulepin and diazepam. We demonstrated a significant correlation between increasing number of sedative drugs/sedative activity of drug regimen and the frequency of negative outcomes (Kendall's rank correlation tau = 0.9342443, $p < 0.001$). Negative outcomes were tested cummulatively as a sum of various symptomes and problems, such as vertigo, orthostathic hypotension, more frequent falls and higher consumption of healthcare services inambulatory and acute care settings. Increasing of drug regimens sedative activity was associated with the occurence of a new illness and exacerbation of pre-existing chronic diseases. Higher occurence of negative symptoms and health complications was significantly associated with higher age ($p < 0.001$), outpatient setting ($p < 0.001$) and sedative drug use ($p = 0.007$).

Disclosure of Interest: None Declared.

Conclusion: Geriatric patients using sedatives (compared to non-users) suffered more often from negative symptoms or other health complications, particularly in outpatient care. Cummulative sedative potential of drug regimen was strongly associated with seniors' negative outcomes and should be more carefully monitored and early resolved by clinical pharmacists.

References: Dedications: INOMED project NO.CZ.02.1.01/0.0/0.0/18_069/0010046 (WG4) (2018–2022), EuroAgeism H2020 MSCF No. 764632 project, Cooperatio research group KSKF-I,, Faculty of Pharmacy, Charles University, SVV program 260 551, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935 and ICARE4 OLD H2020 project No 965341.

PDF-2.12

Early learning from implementation of the hospital to community pharmacy discharge medicines service from mental health trusts in east England

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Background and Objective: A new hosiptial to community pharmacy referral service, the discharge medicines service (DMS), was nationally commissioned in England in 2019. This was initially implemented from acute hospitals or Trusts. Mental health Trusts now want to implement this service. This study aims to capture early learning about implementing the DMS from mental health Trusts in East England that could facilitate nationwide roll-out.

Method: Activity data from the first nine months of service delivery (July 2021-April 2022) from Trusts in the East of England was descriptively analysed to explore the purpose of hospital patient referrals to community pharmacy. Hospital and community pharmacy staff were recruited through local pharmaceutical networks to participate in a semi-structured interview and/or focus group to investigate their experience with the service. Individual and group

interviews were audio-recorded with consent and thematically analysed. Themes that were generated were mapped to and interpreted using the constructs of the Consolidated Framework for Implementation Research [1].
Main outcome measures: To investigate the service use and perceptions and experiences of hospital and community pharmacy staff about implementation of the DMS from mental health Trusts.
Results: Only one Trust had implemented the service and had generated twenty-two referrals over the study period. These mainly pertained to ongoing medication supplies, particularly in relation to monitored dosage systems. The interviews highlighted key themes relating to the INNER SETTING construct of the CFIR, specifically: networks and communications, implementation climate and readiness for implementation.
Conclusion: This small study provides some early lessons about implementing the hospital to community pharmacy discharge medicines service from mental health Trusts. This insight will be informative for other local health system leaders as they implement this service and offers some considerations as the service matures but are also applicable to the implementation of other integrated clinical services.

Disclosure of Interest: None Declared.

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POSTER DISCUSSION FORM III

PDF-3.01

Implementation of individualized fluoropyrimidines treatment recommendations based on DPYD genotype

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Background and Objective: The Spanish Medicines Agency recommends genotyping 4 DPYD variants in patients with dihydropyrimidines. We implemented a procedure that allows doctors to make requests to the Hospital Pharmacy Service for DPYD genotyping in patients who will be treated with dihydropyrimidines. The objective of this study is to describe the activity and achievements related to the implementation of fluoropyrimidine treatments in a tertiary hospital.
Design: We performed a retrospective analysis of all applications received, covering the 1-year post-implementation period (2021–2022). We analyzed the 4 variants (DPYD*2A (rs3918290); DPYD*13 (rs55886062); DPYD c.2846A>T (rs67376798); and DPYD c.1236G>A/HapB3 (rs56038477) that have therapeutic recommendations in the Dutch Pharmacogenetics Working Group (DPWG). After request, the nurse takes a saliva sample and sent it to a laboratory. The analysis consist in real-time polymerase chain reaction using TaqMan®.
Results: 284 DPYD genotyping requests were received from the Oncology Service. 95.7% (272/284) had a *1/*1 genotype corresponding to normal metabolizer or gene activity score 2. 4.3% (12/284) had DPYD variants with clinical relevance: 66% (8/12) had *1/*rs56038477 genotype (gene activity score of 1.5). 17% (2/12) had *rs67376798/*rs56038477 genotype corresponding to gene activity score of 1.5. 17% (2/12) presented *1/*13 genotype, with gene activity score 1. Our results are similar to the expected in Caucasians: 3.5% (10/284) are gene activity score 1.5 and 0.7% (2/284) are gene activity score 1. 12 patients (4.3%) benefited from the recommendations of the DPWG guidelines.Gene activity score 1.5: start with 75% of the usual dose. Gene activity score 1: start with 50% of the usual dose.
Conclusion: Nearly 5% of the target population benefited from individualized fluoropyrimidine counseling. The involvement of the Hospital Pharmacy Service provides added value beyond simple DPYD genotyping in the laboratory and can be easily implemented in clinical practice through multidisciplinary collaboration.

Disclosure of Interest: None Declared.

PDF-3.02

Therapeutic management of advanced Hodgkin lymphoma in patients with pulmonary comorbidities

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Background and Objective: Hodgkin lymphoma (HL) accounts for 30% of all lymphomas. The current standard of care in the first-line treatment of advanced HL remains chemotherapy regimens containing bleomycin, a drug often associated with lung toxicity. Brentuximab vedotin (BV), an anti-CD30 antibody–drug conjugate, combined with AVD (Adriamycin, Vinblastin and Dacarbazin) has been approved as a treatment for patients with untreated CD30+ stage IV HL. No data (outside of clinical trials) were found on this use of BV-AVD in routine clinical practice. In this report, we describe 4 cases of HL treated with BV-AVD as first-line therapy.
Design: Cases reported by the hematology department. Data were collected from CHIMIO® software and medical records from 6/29/2021 to 3/21/2022.
Results: Four patients (3 men, 1 woman, mean age 59 years (52–67), performance status 1–2) with advanced HL (2 stage III, 2 stage IV, all CD30+) were treated with BV-AVD as first-line treatment. Two patients had lung disease (1 HIV with a history of pneumocystis, tuberculosis and 1 emphysema) and 2 patients had active smoking, a major risk factor for lung disease. Three complete responses and one partial response were achieved, with no relapse to date. Treatment was well tolerated, with no pulmonary complications, no BV-induced neurotoxicity greater than grade 1, and no neutropenia (G-CSF prophylaxis). Although the drug is not reimbursed in this therapeutic indication in our country, our data suggest that BV-AVD is an attractive firs-line treatment option in clinical practice for patients with advanced HL and risk factors for pulmonary complications, even in patients older than 60 years.
Conclusion: Based on these results and in the context of the COVID pandemic, we redefined our therapeutic strategy for the front-line treatment of advanced HL with the BV-AVD indication in patients with pulmonary frailty.

Disclosure of Interest: None Declared.

PDF-3.03

Medication administration safety of the elderly patients in Czech healthcare facilities

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Background and Objective: Medication administration errors (MAE) are one of the most common medication errors worldwide. It is a significant and recent healthcare issue associated with enormous cost, morbidity, and mortality (1). The aim of this work was to analyse the types, prevalence, and clinical significance of MAE in the old patients hospitalized in the longterm care department.
Method: The study is part of an ongoing observation-intervention project focused on the safety of drug administration process. Data was collected from June to August 2021 during direct observation by a trained team of pharmacists and nurses who followed a nurse who was administering drugs to inpatients in the longterm care department of four hospitals in the Czech Republic. The following data was collected: patient data (e.g., age; gender; all drugs used including dosage), data on nurse administering drugs, data on the actual administration of drugs (e.g., method of patient identification; nurse hygiene at drug administration, checking the originality of the drug, whether the right drug was administered to the right patient and at the right time, strength, routine dose, routine making a generic substitution; drink intake and the time lag from food). All data was collected using standardized form, anonymized, and transferred to a web database. Obtained data was verified in available factographic drug databases and a summary of product characteristics. The clinical significance of MAE was analysed by senior clinical pharmacist.
Main outcome measures: The primary outcomes were the types and prevalence of MAE in the elderly during drug administration process in the longterm care department; the secondary outcome was the clinical significance of MAE.
Results: Sixteen nurses with a mean age of 34.2 ± 12.8 years administered medication to eighty-four old inpatients with a mean age of 78.6 ± 11.3 years. The mean number of doses per patient per day was 12.09 ± 6.37. In total, 3011 doses were administered or omitted. MAE included (out of 3011 doses): 5 administrations of wrong drug (0.2%), 57 administrations of wrong dose (1.9%), 56 administrations of drug in the wrong time (1.9%), 3 administrations of drug to the wrong patient (0.1%), 29 omissions of administration (1.0%), 8 administrations of extra dose (0.3%), 12 administrations of expired of deteriorated drug (0.4%), 64 cases of improper way of use (2.1%). At least one MAE was observed in 7.2% doses. One third of all MAE (77 administrations) were evaluated as clinically significant, 12 (5.1%) as serious.
Conclusion: The prevalence of MAE in selected Czech hospitals was similar to other European countries despite the differences in hospital organization and healthcare systems (1,2,3). Relevant interventions should be introduced to hospital staff to reduced prevalence and clinical significance of MAE. In future, it is necessary to initiate cooperation with a clinical pharmacist at given departments.

Disclosure of Interest: None Declared.

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PDF-3.04

Development of a Theory Planned Behavior based scale to assess Turkish clinical pharmacists' intention to provide pharmaceutical care

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Background and Objective: Postgraduate education programs in clinical pharmacy have become widespread in Turkey. This study aims to develop a theory planned behavior-based scale that evaluates the intention to provide pharmaceutical care to individuals who are graduates or students of postgraduate clinical pharmacy programs (including MSc [w/wo thesis], and PhD on clinical pharmacy, and clinical pharmacist residency program) in Turkey.
Method: This prospective observational study was conducted between June 2021 and May 2022. A 52-item scale based on the Theory of Planned Behavior (TBP) to determine the intention of clinical pharmacists regarding providing pharmaceutical care was developed after reviewing similar studies, expert panel discussion, translation, and cultural adaption, and lastly pilot study. Online survey link was sent all the graduates or students of postgraduate clinical pharmacy programs in Turkey.
Main outcome measures: Principal component analysis, Cronbach alpha values for reliability of the scale, test–retest reliability of the scale (intraclass correlation coefficient).
Results: One hundred fifty-six participants (20.5% male) completed the online survey. The median value of age (IQR) of participants was 34 (28–40) years. The rate of MSc students and graduates was 74.3% (59.6% for MSc without thesis, and 14.7% for MSc with thesis). The number of PhD students and graduates was 25 (16.0%). Fifteen participants were graduates or students of clinical pharmacy residency program. Ninety-nine of participants (63.5%) had graduated from postgraduate clinical pharmacy programs. Intraclass correlation coefficient was 0.82 ($p < 0.001$). Kaiser–Meyer–Olkin Measure of Sampling Adequacy yielded a value of 0.860, and Bartlett's Test of Sphericity was significant ($p < 0.001$). Factor analysis determined six subscales which explained 64.9% of the total variance. Cronbach's alpha for TBP based scale was 0.943. The Cronbach's alpha for attitude (9 items), subjective norm (6 items), perceived behavioral control (5 items), self-efficacy (6 items), intention, (11 items) and past behavior (15 items) were 0.939, 0.809, 0.751, 0.864, 0.934, and 0.955, respectively.
Conclusion: In conclusion, it was determined that this scale could be effectively used in evaluating the intention of clinical pharmacists to provide pharmaceutical care services. In future studies, this scale will be used to assess impact of postgraduate clinical pharmacy programs on intention of the participants to provide pharmaceutical care.

Disclosure of Interest: None Declared.

PDF-3.05

Development of a pocket card to guide medication counselling at hospital discharge

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Background and Objective: Medication-related problems, potentially jeopardising medication safety and therapeutic success, often occur during care transitions. One possibility to reduce them is medication counselling of patients before discharge.
Our aim was to develop a pocket card supporting healthcare professionals in medication counselling of patients discharged home.
Design: This quality improvement project was conducted in the general internal medicine department of a 900-bed Swiss university hospital. To analyse the current practice and the most critical issues at discharge, we performed semi-structured interviews with healthcare professionals and telephone interviews with patients discharged home. Additionally, we searched the literature to identify important medication counselling topics. All results served as the basis for the card development. Experts from clinical pharmacy, pharmacology, and general internal medicine reviewed the card for its content.
Results: We found that systematic discharge medication counselling was lacking. Hence, the card was developed to systematically guide it. The first part of the card describes the preparation of the medication counselling: clarifying the need for participation of relatives or an interpreter, preparing written documentation, and conducting medication reconciliation. Secondly, users are asked to state the counselling purpose. The main section guides the explanation of medication changes, indications, dosages including as needed medications, and time until action onset. The need to point out interaction risks is noted. For special medications or patients at risk for medication related problems it is described that patients should be counselled on the following: forgotten medication procedure, specific, important adverse drug reactions and their management, special use instruction (e.g. devices) and storage, and self-monitoring. Lastly, patients are advised to organise home medications and arrange a family doctor appointment. Adherence importance and possible aids, such as medication dispensers, are emphasised and contact details are provided. The user should ask for clarifications and check patient understanding by asking them to describe in their own words what they know (teach-back-method). The back of the card includes explanations, e.g. what medications might be important when it comes to missed doses.

Conclusion: We successfully developed a pocket card to systematically guide medication counselling during hospital discharge. We strive to implement the pocket card to improve the discharge process and follow-up the impact on satisfaction of healthcare professionals and patients.

Disclosure of Interest: None Declared.

PDF-3.06

Patients' experiences with medication-related activities in the emergency department

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Background and Objective: Clinical pharmacists working in the emergency department (ED) as part of the interdisciplinary team has shown to improve medication safety in several countries. However, research in this field in Norway is limited. We have carried out an intervention study where clinical pharmacists are working as a part of the ED interdisciplinary team in three hospitals in North Norway. The aim of this study was to explore the patients' views on and experiences with medication-related activities in the ED before and during the intervention.
Method: We conducted semi-structured interviews with 12 patients admitted to one ED prior to the intervention and 12 patients during the intervention. We included patients that used at least one medication prior to ED presentation and performed the interviews during the hospital stay. The interviews were audio-recorded and transcribed. The data analysis was an iterative process inspired by thematic analysis.
Main outcome measures: Themes illustrating patient views and opinions.
Results: Through the preliminary analysis the following four themes emerged; (I) Trust and mistrust in healthcare professionals and the health care system, (II) Different views on taking responsibility for one's own medications, (III) Varying levels of need for control over medication administration and treatment, (IV) Different degrees of information need. The results show that patients predominantly trust the health care system, but want to be taken seriously when describing symptoms, stating opinions and sharing concerns. They want a system "that works". There was little knowledge among the patients about what a clinical pharmacist is and what they do. Consequently, patients don't have any particular thoughts or ideas about how the pharmacist can contribute to the ED team, neither before nor during the intervention. Importantly, patients don't have any objections to involve pharmacists in the ED.
Conclusion: When it comes to medication-related activities in the ED, the patients want a well-functioning system. They need to feel safe and taken care of, regardless of which health care professional that does the job. Based on the four themes presented, the health care professionals need to customize medication-related activities in the ED to the patient's individual needs.

Disclosure of Interest: None Declared.

PDF-3.07

Frailty status and medication use in community-dwelling older patients with polypharmacy: a community pharmacy study

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Background and Objective: Frailty is a concept that refers to the deterioration of several organ systems and is characterized by the inability to provide an adequate response to stressors. While mainly used in the field of geriatrics, the concept is extending to other disciplines. Frail older people are more at risk for adverse drug reactions and also more often use potentially inappropriate medication, suggesting that they could benefit the most from medication reviews. With this community pharmacy study we aimed to determine prevalence of frailty in a cohort of community-dwelling older people with polypharmacy, and to describe their medication use. These data can form the basis for optimized patient selection for medication review by community pharmacists.
Method: An observational study was carried out from November 2019 until August 2020 in 196 community pharmacies in Belgium. Participants ($\geq$ 70 year, $\geq$ 5 chronic drugs, community-dwelling) were consecutively included in the study.
Main outcome measures: Frailty was assessed using the Fried phenotype, operationalized by SHARE-FI75+. Each patient completed a self-administered questionnaire collecting sociodemographics, current medication use, difficulties with basic activities of daily living and unplanned hospital admission. Cognitive status was assessed by Mini-cog Test®.

Results: A total of 875 patients were included in the study. Mean age was 79.3 ± 5.9 years and 488 (55.8%) were female. Participants used a median of 8 [IQR 6–10] medicines. Most frequently used drugs were: antithrombotic agents (used by 71.1% of the sample), lipid modifying agents (67.4%) and β-blocking agents (53.8%). Almost 15% of patients were identified as frail, 52.1% as pre-frail and 32.8% as robust. Frailty criteria most commonly present in the cohort were weakness (67.8%) and fatigue (49.7%). 32.1% of the patients were assessed as potentially positive for cognitive impairment. More than 40% of the patients had ≥ 1 limitation in basic activities of daily living, with difficulties taking a bath/shower as the most common limitation (29.7%). One in 5 patients reported an unplanned hospital admission in the 6 months prior inclusion.
Conclusion: The prevalence of (pre-)frailty among community-dwelling older patients with polypharmacy is high. Based on the current findings we will try to develop a quick and reliable method to identify these patients in the community pharmacy, in order to perform stratified medication reviews.

Disclosure of Interest: None Declared.

PDF-3.08

Three year analysis of intoxications in the elderly population

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Background and Objective: Poisoning is a major public health concern worldwide and intoxicated patients are often managed in the Emergency Care Departments (ED). Elderly patients might be more vulnerable to the negative consequences of intoxications.
Method: A local retrospective observational study was conducted in a tertiary care medical center' emergency department. During the 3 year of analysis we included all elderly patients (aged 65 years or more) who were presented to the ED with an ICD code referring to acute intoxication (excluding those with only alcohol intoxication). Data was retrieved from the electronic patient documentations.
Main outcome measures: To determine the frequency and types of intoxications (as number and as %) among the elderly.
Results: During the study period, overall 264 cases were recorded. The majority of elderly patient with acute intoxications were women (63.2%). The median of the Glasgow Coma Scale score on presentation was 15 (IQR:1). In almost every second case, the intoxication was due to a suicide attempt. Unintended intoxications were also prevalent, we recorded 111 cases (42%). With the exception of five cases and four cases, at least one drug was involved in suicide attempts or unintended intoxications, respectively. The most frequent active agent in suicide attempts were alprazolam and clonazepam, while in the case of unintended intoxications 94 out of the 111 cases (85%) were with Vitamin K antagonists (most frequently acenocoumarol). The average length of stay in the ED was 13.5 ± 9.3 h. Two third of all patients were transferred to other clinical units, including 19 patients to the intensive care unit.
Conclusion: Elderly patients were presented at the ED with various types of intoxications that puts substantial burden on health care. Measures are needed to avoid preventable intoxications.
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Disclosure of Interest: None Declared.

PDF-3.09

Prospective observational study of clinical pharmacist activities at the geriatric day clinic

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Background and Objective: Drug-related problems (DRPs) are more prevalent in older patients and have been associated with poor health outcomes. Clinical pharmacist (CP) activities have been proposed to optimise medication use in this vulnerable population. This concerns medication reconciliation at admission, medication review during hospital stay and medication counselling at discharge. In this study, we aimed to evaluate the CP activities, performed at the Geriatric Day Clinic of Ghent University Hospital, Belgium.
Method: A prospective observational study was performed during 14 non-consecutive days. All the activities, performed by the CP, were recorded. CPs' recommendations were classified according to the underlying DRP, drug class and acceptance and implementation rate. One week after hospital discharge, patients for whom medication counselling was performed, were phoned to evaluate their satisfaction with the CP services.
Main outcome measures: CPs' recommendations and DRPs. Acceptance and implementation rate. Patient satisfaction.
Results: A total of 63 patients were included with a mean age of 84.5 ± 5.1 years. The majority of patients were female (69.8%) and came from home (77.8%). On average, they took 9.5 ± 3.5 medications. The CP identified on average two potential DRPs per patient, which most frequently concerned overuse (23.8%), inappropriate dosing (18.9%), misuse (13.9%) and underuse (11.5%). Drugs for the nervous system (32.8%), gastrointestinal tract (21.9%) and cardiovascular system (14.1%) were most frequently involved and the acceptance and implementation rates were 75.7% and 53.0% respectively. In total, a medication counselling session was performed in 28 (44.4%) patients. The main reason why patients could not be counselled was that they did not manage their medications themselves (e.g. residence in a nursing home) and/or their caregiver was not present at the Day Clinic. Overall, those who were counselled reported high satisfaction with the delivered CP services. However, some patients still reported uncertainties and/or discrepancies concerning their medication lists.
Conclusion: A pharmacist-led medication review for geriatric patients at the Geriatric Day Clinic led to a mean of two recommendations per patient which were fairly well accepted, but less frequently implemented immediately. Patients reported high satisfaction with the delivered CP activities. In the future, we aim to improve the communication of recommendations and medication lists with general practitioners and community pharmacists, especially for those patients who cannot benefit from counselling.

Disclosure of Interest: None Declared.

PDF-3.10

Cognition and anticholinergic burden in Type 2 diabetes mellitus

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Background and Objective: Cognitive impairment is one of the most important complications of type 2 diabetes mellitus (T2DM). Anticholinergic burden can cause cognitive decline. The aim of this study is to investigate the relationship between cognitive impairment and anticholinergic burden in patients with T2DM.
Method: Seventy-three patients diagnosed with T2DM according to ADA criteria and using oral antidiabetic drugs for treatment participated in our study. Patients with a history of serious psychiatric (e.g.,major depressive disorder) or neurological disease (e.g., cerebrovascular disease, brain tumor, head trauma) were excluded.
Main outcome measures: The cognition of the patients was evaluated with the Montreal Cognitive Assessment (MoCA). The cut-off score of the MoCA for cognitive impairment is 21 according to the validation of the Turkish Version. The drugs used by the patients were analyzed and the anticholinergic burden was calculated according to the anticholinergic cognitive burden (ACB) scale.
Results: The mean age of the patients in our study was 50.60 (± 8.19). While ACB was not observed in the drugs of 67 patients, 5 patients used drugs with ACB Score of 1. The cognition of 45 (61.6%) patients with T2DM was impaired and 28 (38.3%) patients were normal. There is no significant difference in age of cognition groups. Attention ($p < 0.001$), language ($p < 0.001$) and orientation ($p < 0.001$) scores were significantly worse in T2DM with impaired cognition. No significant difference was found between the ACB burden of DM patients with normal cognition and impaired cognition.
Conclusion: In our study, no relationship was found between cognitive impairment in T2DM and ACB. Future studies involving larger sample and higher ACB may provide more detailed information.

Disclosure of Interest: None Declared.

PDF-3.11

Evaluation of a pharmaceutical transitional care program for orthopaedic patients: a before-after prospective study

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Background and Objective: At care transitions, patients are at increased risk for drug-related problems (DRP) and hospital readmission. Orthopaedic patients are particularly at risk due to polypharmacy, polymorbidity and the initiation of medications that increase the risk for hospital admission and DRP (i.e. antibiotics, analgesics and antithrombotics). Besides a medication review and reconciliation at discharge by a pharmacist, there is a need for more education for more patient-centered care and shared care decision making between specialist, community pharmacist en general practitioners. Increasing the patient's knowledge on their treatment is an important strategy to stimulate patient empowerment.
Method: A before-after prospective study was carried out at a Belgian general hospital (1046 beds). Patients discharged from an orthopaedic ward with at least one antibiotic, analgesic or antithrombotic agent were included. The pharmaceutical transitional care program consisted of counselling and post-discharge follow-up calls in combination with improved communication between primary and secondary care. Shared care protocols for primary healthcare providers and patients were implemented to improve communication. A patient survey was conducted at 10–14 days and at 26–30 days post-discharge.
Main outcome measures: A multifaceted pharmaceutical transitional care program was implemented to measure its effect on continuity of care. This was measured by medication adherence, medication knowledge, appropriate use of analgesics and satisfaction of patients, general practitioners and community pharmacists.
Results: A total of 49 patients were included in the final analysis. A slight increase in patients' knowledge of indications and side effects was reported. Improving medication knowledge can potentially lead to better medication adherence. On the day of discharge, it was observed that some patients were overwhelmed by the amount of information they received. A total of 20 out of 23 patients thought telephone follow-up was useful to identify and resolve DRP and clarify concerns after discharge. A total of six community pharmacists and one general practitioner found most of the components of the discharge report relevant. It was noted that the information in the discharge report should be structured and concise, in order to be able to easily find information.
Conclusion: No conclusions could be drawn about the impact of the care program on the continuity of care of orthopaedic patients. Nevertheless, this study was able to identify opportunities for future research and formulate recommendations towards implementation in practice. Future studies should also identify the most vulnerable patients at highest risk of DRP, allowing for a more cost-effective intervention. The perspective of primary caregivers on continuity of care learned that a structured and concise discharge report can be a relevant and effective communication tool, but also that a single robust central digital for information exchange is necessary.

Disclosure of Interest: None Declared.

PDF-3.12

Evaluation of the rationality of prescribing of selected potentially inappropriate medications in ambulatory care—results from the INOMED project

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Background and Objective: With respect to frequent polypharmacotherapy and irrational prescribing in older adults, it is important to constantly monitor potential drug-related problems and early resolve their risks. PIMs are classified as drugs/drug procedures that often contribute to drug-related problem in older patients and more attention should be given to their appropriate use in clinical practice. This study focused on determining 10 most frequently prescribed PIMs in the geriatric ambulance and on clinical situations that increased their risks in treated older patients.
Method: Data collection was performed using prospective, comprehensive geriatric assessment of patients at the Geriatric outpatient clinic of the University Hospital in Hradec Králové in the period from February 4, 2020 to April 16, 2021. 100 patients aged 75–98 years were assessed including all main laboratory and clinical tests to identify drug-related problems associated with PIM use. The study was approved by the Ethical Committee of the Faculty of Pharmacy, Charles University in Hradec Králové, Czech Republic and data were recorded anonymously after undersigning the informed consent by patients. PIMs were identified using explicit criteria of PIMs (mainly Beers and EU-7 PIM criteria). For top 10 most frequently used PIMs we identified—(1) symptoms could have been associated with side effects of PIMs, (2) conditions that were identified as contraindications of PIM use (absolute/relative) and (3) potentially risky drug interactions of PIMs.
Main outcome measures: Prevalence of PIMs, identification of risky clinical situations during prescription of PIMs (contraindications,

drug-drug interactions, associated negative symptoms/syndromes as potential adverse drug events).
Results: Of 100 geriatric older patients (65 +) visiting the geriatric ambulance, 67% were females and an average age of study subjects was 83.8 years (± 4.53 SD, median age 84 years). 83% of patients were taking at least one PIM. The 10 most often prescribed PIMs were: acetylsalicylic acid (35%), pantoprazole (25%), omeprazole (17%), dabigatran (15%), amiodarone (11%), apixaban (10%), digoxin (9%), spironolactone (8%), rivaroxaban (6%) and solifenacin (5%). In 75% of patients PIMs were administered in potentially risky clinical situation (at least 1 situation). The highest number of drug-drug interactions were documented particularly with ASA (19% of patients had at least 1 relevant drug interaction), and relative contraindications were most frequently determined for PPIs (10%). The highest number of absolute contraindications were reported with amiodarone (6%), of which (5%) were associated with thyroid gland disorders, and with the use of solifenacin (4%).
Conclusion: Our study confirmed frequent use of PIMs in ambulatory care in older patients and their indications in potentially high-risk clinical situations (in 2/3 of patients). Monitoring of PIM use in older adults and appropriate check and resolution of relevant clinical problems should be performed more routinely by clinical pharmacists also in ambulatory care.

Disclosure of Interest: None Declared.

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POSTER DISCUSSION FORM IV

PDF-4.01

The efficacy and safety of favipiravir in the treatment of non-severe COVID-19: a systematic review and meta-analysis of randomized controlled trials

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Background and Objective: Favipiravir is one of the promising repurposed drugs for treating COVID-19 infection. However, its efficacy and safety as a drug of choice for patients with mild-to-moderate COVID-19 severity have not been comprehensively assessed. Therefore, we are conducting a systematic review and meta-analysis of published randomized control trials to investigate its efficacy and safety for mild-to-moderate COVID-19 illness.
Method: PubMed, Embase, Cochrane Library, and Web of Science were used to retrieve randomized controlled trial studies investigating the effect and safety of favipiravir in the treatment of non-severe COVID-19 compared to placebo/standard of care/another antiviral agent. The study is reported following the PRISMA guideline. The protocol of this study was registered in PROSPERO (CRD42022324432). A random-effects meta-analysis was performed, and the results are presented in the form of a Hazard Ratio (HR) with a 95% Confidence Interval (CI). For the primary analysis, we used studies reporting an HR as an effect estimate. A subgroup analysis was performed for outpatient and inpatient care.
Main outcome measures: The efficacy of favipiravir was assessed based on two primary outcomes: the rates of viral clearance and clinical improvement. The safety of favipiravir is judged by the side effects observed during the treatment.
Results: There were 14 eligible studies identified. Overall, there were no significant differences on the rates of viral clearance (HR = 1.20 [95% CI 0.93–1.53, p 0.161]) and clinical improvement (HR = 1.25 [95% CI 0.97–1.61, p 0.08]). However, after subgroup analysis, favipiravir group had 54% and 44% significant increase in the rates of viral clearance (HR = 1.54 [95% CI 1.21–1.96, $p < 0.01$]) and clinical improvement (HR = 1.44 [95% CI 1.15–1.81, $p < 0.01$]) than control group in inpatient care setting, respectively. The comparable results were not observed in the outpatient care setting for both outcomes. In terms of safety, favipiravir significantly increased the risk of hyperuricemia (RR: 5.84 [95% CI 2.57–13.28, $p < 0.01$]) compared to the control group.
Conclusion: Favipiravir has moderate effects in improving the condition of non-severe COVID-19 patients treated in the hospital but has no effects on patients treated in ambulatory care. The risk of gout should be clinically monitored and overcome.

Disclosure of Interest: None Declared.

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PDF-4.02

An evaluation of polypharmacy workshops for undergraduate pharmacy students

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Background and Objective: Inappropriate polypharmacy can lead to many problems for patients, especially the elderly. The number of patients over the age of 65 has quadrupled over the last two decades. Those taking ten or more medicines are 300% more likely to be admitted to hospital with an adverse event, 50% of these are preventable[1]. The World Health Organisation aims to reduce the incidence of medication related harm by 50% globally in the next five years in their third global challenge[2]. The iSIMPATHY (implementing Stimulating Innovation in the Management of Polypharmacy and Adherence Through the Years) team are delivering medication reviews in Northern Ireland, Ireland and Scotland.
Method: A polypharmacy workshop was designed and delivered by the iSIMPATHY team to all final year pharmacy students in Northern Ireland, aiming to help students identify and action inappropriate polypharmacy. A full day workshop, including a clinical psychologist, was provided at Ulster University, Coleraine (UU), analysed using pre- and post-workshop questionnaires which had received ethics approval. A three hour workshop was provided at Queen's University, Belfast (QUB), analysed using a Teaching Evaluation Questionnaire.
Main outcome measures: Student satisfaction, confidence and knowledge following the workshop.
Results: The workshops were well accepted with high levels of student satisfaction. Questionnaires were completed by 37% UU and 25% QUB students. UU Students reported increased knowledge attainment in the identification of inappropriate polypharmacy pre-

workshop 20%, post workshop 100%, actioning inappropriate polypharmacy 33% to 99%, identifying therapeutic outcomes 27% to 92%, identifying side-effects and adverse drug reactions 33% to 100%, supporting patient self-management 13% to 92% and motivational interviewing techniques 33% to 100%. Ninety-two percent of UU students felt more confident to identify inappropriate polypharmacy and had increased confidence in other important skills, all students enjoyed the psychology session. QUB students highlighted high levels of student satisfaction. QUBa: 'Really good at highlighting the grey areas of polypharmacy. It was useful when some practical tips were highlighted e.g. relating to the types of resources that would be useful for a pharmacist to have at hand to help with patient counselling/signposting.' UUa: 'Found the workshop to be v effective and useful in highlighting the importance of poly pharmacy.' UUb: 'This was a fabulous workshop and I really enjoyed the two parts. The health psychology component is highly relevant for us as pharmacy students and I think is a valuable skill. I hope this is a component that will be explored further for pharmacy education.'
Conclusion: The polypharmacy workshops were well accepted and students increased their knowledge and confident in identfying and actioning inappropriate polypharmacy.

Disclosure of Interest: None Declared.

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PDF-4.03

Medicines optimisation in special schools

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Background and Objective: The Special Education Needs and Disability (SEND) reforms introduced by the Children and Families Act 2014 focus on two key themes: greater co-operation between education, health and social care and a greater focus on the outcomes. Currently there is no standardised approach, hence great variations in service delivery exists nationally. Reducing health inequalities and improving health and wellbeing are major priorities for pharmacy. Pharmacists professionals' skills of listening, explaining, advising and questioning are all relevant in supporting the medicines optimisation needs for children in this sector.
The primary aims are to promote:

1. Increased patient safety in schools through the development of a bespoke medicines optimisation service supporting:
   1.1 Improvements to upskill unregistered teaching workforce in medicines administration
   1.2 Reduction in Errors
2. Standardisation, consistency and equity of health provision across special schools in Kent
3. Workforce development and transformation opportunities for pharmacy technicians in a relatively untapped sector.

Design: A quality improvement methodology and approach was undertaken using the following tools:

- Driver Diagram to produce a phased strategy for implementation of the new service during the academic year.
- PDSA cycle to complete pre and post evaluation of medicines management practices as part of quality assurance monitoring.
- Logic Models to supporting clarity in thinking which enabled the development of appropriate evaluation strategies throughout.

The key medicines optimisation areas of focus included:
- Staff Education and Training
- Medicines Policy, Standard Operating Procedures and Documentation Development
- Clinical Interventions.

Results: Medicines management Quality Assurance monitoring involved a baseline pre-audit of the sites at the outset, then followed up with a post project commencement audit to assess compliance with the recommended guidance. The pre and post audit results demonstrated a significant level of improvement following appropriate specialist pharmacy service support in areas including medicines management training, expert pharmaceutical advice, medicines related clinical interventions, guidance and support in policy and SOP development to improve standards across the schools. Over 6 months, 232 clinical interventions were made. Key areas where significant interventions were made included emergency medication reviews for asthma, epilepsy and other specialist medical areas.
Conclusion: Medicines optimisation is about helping people to get the best outcomes from their medicines. It describes systems and processes used by staff, working in health and social care, which ensure that people receive the best possible care with medicines. The outcomes achieved highlight the importance and value of a specialist pharmacy team supporting special schools. Next steps include continuing to build on foundations laid and also support other special schools/pharmacy teams nationally through collaboration and sharing innovative practice. Closer integrated working with pupils plus parents/carers involvement in co-production are also planned for the future.

Disclosure of Interest: None Declared.

PDF-4.04

Heart rhytm disorder screening: a bicentric cross-sectional study

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Background and Objective: Pharmacists are in close contact with patients on daily basis and can thus be involved in the detection of several diseases including atrial fibrillation (AF), of which the prevalence is still increasing. The aim of this study was to raise awareness of heart rate (HR) monitoring to detect arrhythmias (especially AF) and demonstrate the possibility of pharmacist involvement in measuring HR.
Method: People aged $\geq$ 55 years without a history of chronic anticoagulant therapy were addressed between July 26 and August 6, 2021, at the Czech regional hospital pharmacy, and on September 8, 2021, as part of the public awareness-raising campaign. Patients at high risk of AF or with untreated BP above 140/90 mm Hg or over 160/90 mm Hg in those 80 years of age and older were referred to a physician for further examination.
Main outcome measures: Participants were asked by pharmacist about the presence of selected symptoms, associated diseases, pharmacotherapy related to arrhythmias, awareness of HR and methods of its measurement. The main monitored parameter was HR (measured by palpation and the Veroval ECG instrument). In the pharmacy, BP was also measured (by the Veroval ECG instrument).
Results: In the pharmacy, a total of 89 people (mean age 64.3 $\pm$ 8.7 years, 62.9% women) participated. Most of them (73.0%)

knew that they could measure their HR on their own and almost a half (49.4%) knew the way how to do it. The most frequently reported symptoms were fatigue (46.1%) and palpitations (32.6%); 33.7% of participants were asymptomatic. The mean CHA_2DS_2-VASc score was 2.0 ± 1.4; the most common diagnoses were arterial hypertension (43.8%) and diabetes mellitus (14.6%). The average HR was 72.6 bpm measured by palpation and 74.2 bpm measured by the Veroval ECG. Four participants had HR < 55 bpm, 2 > 100 bpm, and 5 had irregular HR. The highest measured BP was 187/97 mm Hg, the lowest 100/58 mm Hg. A total of 14 patients (15.7%) were referred to a physician. During the public awareness-raising campaign, 28 people were involved (mean age 69.6 ± 9.1 years). They also reported fatigue (64.3%) and palpitations (60.7%) most frequently; 14.3% reported no symptoms. The mean CHA_2DS_2-VASc score was 2.6 ± 1.6 and the most common diagnosis was arterial hypertension (53.6%). The average HR was 79.5 ± 16.5 bpm measured by palpation and 83.2 ± 16.0 bpm measured by the Veroval ECG. Six people (21.4%) were sent to a physician.

Conclusion: This study showed that involvement of pharmacists in awareness and detection of AF in the primary healthcare system can contribute to early management of such patients and minimize the disease complications. Screening appears to be effective not only in the pharmacy setting, but also in public preventive campaigns where pharmacists could be involved.

Disclosure of Interest: None Declared.

PDF-4.05

Pharmacy students' views and experiences regarding an online video-recorded objective structured clinical examination

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Background and Objective: Objective structured clinical examinations (OSCEs) are considered gold standard in the assessment of pharmacy students' clinical skills. The COVID-19 pandemic, however, necessitated for minimising in-person interactions and therefore more innovative approaches to OSCE delivery. The objective of this study was to provide pharmacy students the opportunity to participate in an online video-recorded OSCE with pharmacist feedback, and thereafter assess their views and experiences regarding this initiative and reviewing the recording.

Design: Ethics approval was obtained prior to study commencement. All 3rd year pharmacy students in University College Cork, Ireland (n = 68) were invited to participate in a formative video-recorded OSCE station online via Microsoft® Teams in April 2021, comprising one minute of reading time and five minutes of interaction time, followed by an individualised feedback session with a pharmacist facilitator. Participants were sent two surveys: one on the day of the OSCE and the other after receiving the video recording 7 days later. Closed-ended questions were analysed using Microsoft® Excel and free text comments underwent content analysis.

Results: Twenty-three students participated (34% of total), with 20 respondents to the first survey and 15 respondents to the second. Nearly all students enjoyed this OSCE experience (94%). Half of the students agreed that conducting the OSCE online (rather than in person) had no significant impact on their performance, whilst 75% agreed that knowing they were being recorded had no significant impact either. While most students (80%) agreed that this OSCE has prepared them for telepharmacy interactions in future, 25% found it difficult to get a personal connection with the simulated patient in this virtual environment. All students were satisfied with the quality of pharmacist facilitator feedback; however, 79% agreed that reviewing the recording had a significantly greater impact on them compared to receiving the facilitator feedback alone, and allowed them to become more aware of their body language during patient interactions. Whilst some students found it uncomfortable to watch the recording, 93% agreed (i) that reviewing their performance on video made them more self-aware of what clinical skills need development, and (ii) that they would review the video to help prepare for OSCEs in future.

Conclusion: To our knowledge, this is the first study to evaluate pharmacy students' views and experiences with a formative online video-recorded OSCE with individualised feedback. This research has shown that conducting a formative OSCE online is acceptable, enjoyable, and beneficial for pharmacy students, and should be considered where in-person interactions are not possible. Furthermore, this has emphasised the added value of providing a video recording after the OSCE to heighten pharmacy students' awareness of their non-verbal communication and enhance their clinical skills. Future studies with larger sample sizes should explore how student characteristics impact on their views with such video-recorded OSCEs.

Disclosure of Interest: None Declared.

PDF-4.08

Added value of the community pharmacist for patients with Parkinson's disease

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Background and Objective: The patient with Parkinson's disease is a chronic and often polymedicated patient. Guidance and follow-up of these patients is therefore essential. Since October 2017, Belgian community pharmacists are remunerated to provide advanced pharmaceutical care to chronic patients. The main objective was to assess if Parkinson's patients had a complete and up-to-date medication schedule and whether this provided a benefit. The role of the community pharmacist in this regard as well as his role as a drug expert was investigated. Moreover, it was investigated whether this led to a better relation between patient and pharmacist.

Method: Prospective study conducted in community pharmacies affiliated with the West Flemish Pharmacists' Association (Westvlaamse Apothekersvereniging) by means of surveys among patients with Parkinson's disease and community pharmacists.

Main outcome measures: Number of complete and up-to-date medication schedules; number of drug-drug interactions; medication adherence rate and assessment of the patient-pharmacist relation.

Results: Almost all patients (97.6%; n = 41 out of 42) had a medication schedule. This schedule was complete and up-to-date in 3 out of 4 patients (n = 30 out of 41), but not always compiled by the community pharmacist. Drug-drug interactions were detected in about 60% of patients (n = 25 out of 41). Surveyed patients demonstrated a high adherence rate of 87.2%. Whether this was due to the follow-up by the community pharmacist was not proven. Nevertheless, the advanced pharmaceutical care provided by the community pharmacist led to a better relation between patient and pharmacist.

Conclusion: The medication schedule is an essential tool for the Parkinson's patient and also provided a clear overview of the medication for other caregivers and/or care services. This study showed some positive points, e.g., almost all patients had a medication schedule, patients were highly therapy adherent and experienced an added value in the interaction with the community pharmacist. Some

drawbacks were also observed, e.g., the medication schedule of the pharmacy was not up to date for the majority of patients and data from the pharmaceutical patient file were not sufficiently detailed. Additional efforts by community pharmacists are needed to update the medication schedules more regularly and more medical data need to be shared between physicians and pharmacists to enhance the quality of the information in the pharmaceutical patient files.

Disclosure of Interest: None Declared.

PDF-4.09

Potentially inappropriate medications in older patients admitted to University Hospital Hradec Kralove

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Background and Objective: Potentially inappropriate medications (PIMs) for older people lead to either potential or manifest drug-related problems in older patients. Potential drug-related problems might possibly lead to real problems for the patient while manifest drug-related problems already impact the patient. A drug-related hospital admission represents a significant consequence of manifest drug-related problems. Our objective was to identify the most common PIMs in the medication history of older patients admitted to University Hospital Hradec Králové and the most common PIMs that contributed to drug-related hospital admissions to University Hospital Hradec Králové in the Czech Republic.
Method: The data were obtained from our previous study (Očovská et al., 2022) that examined the drug-relatedness of hospital admissions to University Hospital Hradec Králové. The study included unplanned hospital admissions via the department of emergency medicine that occurred during August–November 2018. The methodology of drug-related hospital admissions identification was adapted from the OPERAM drug-related hospital admissions adjudication guide. This analysis included only patients aged ≥ 65. PIMs were identified using the following explicit criteria: 2019 AGS Beers Criteria for PIM Use in Older Adults, EU(7)-PIM list.
Main outcome measures: The most common PIMs identified in the medication history of older patients admitted to University Hospital Hradec Králové and the most common PIMs that contributed to drug-related hospital admissions.
Results: Out of 1252 hospital admission from our previous study, 812 (65%) concerned older patients (≥ 65 years old). The most common PIMs identified in the medication history of older patients were proton pump inhibitors. The most common PIMs that contributed to drug-related hospital admissions in older patients were NSAIDs, tramadol, and amiodarone.
Conclusion: Although Proton Pump inhibitors were found to be the most common PIMs listed in the medication history, they were not the most common PIMs associated with manifest drug-related problems. Since NSAIDs and tramadol were the most common PIMs associated with drug-related hospital admissions, there is a need to develop safer alternatives for the treatment of chronic pain in older patients.
This study is supported by Charles University (project SVV 260 551, project GA UK 14120).

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Očovská Z, Maříková M, Kočí J, Vlček J. Drug-related Hospital Admissions via the Department of Emergency Medicine: A Cross-sectional Study from the Czech Republic. Front Pharmacol. 2022; 13: 899,151. https://doi.org/10.3389/fphar.2022.899151

PDF-4.10

Interventions that enhance health literacy and medication adherence in patients who are on prescribed medication

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Background and Objective: Health information related to patients' conditions can support them to induce motivation, beliefs, and compelling health behaviours required to enhance long-term adherence. A crucial step in implementing health literacy interventions is identifying the most effective ones in the published literature. Therefore, the aim of this systematic review was to identify and report on published evidence on effective interventions conducted by healthcare professionals which statistically significantly enhanced adult patients' health literacy/knowledge, as well as resultant medication adherence in patients with chronic diseases.
Method: A systematic review protocol, published in PROSPERO CRD42017067501, was compiled. Inclusion criteria: (1) patients ≥ 18 years having ≥ one non-communicable disease who were on ≥ one prescribed medication, in any healthcare setting, (2) interventions that provided statistically significant improvement in health literacy/knowledge and adherence. Primary research studies, reviews, systematic reviews, and meta-analyses published in English from January 2000 till August 2017 were included. The search was conducted in MEDLINE, CINAHL, International Pharmaceutical Abstracts, Cochrane Library, and Web of Science. Study selection followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) four-phase flow. A data extraction tool was constructed and the Critical Appraisal Skills Programme Cohort Study checklist was used for quality assessment. All papers were reviewed independently by two researchers, and a narrative synthesis was compiled.
Main outcome measures: Effective interventions that statistically significantly enhance knowledge/health literacy and adherence concomitantly.
Results: A total of 24 papers fulfilled the inclusion criteria. The most adopted effective interventions were classified under 'written', 'verbal', 'visual', and 'other'. The most prominent content was education about medication (n = 22/24), and on the disease (n = 16/24). The most recurrent intervention combination was written and verbal (n = 10/24). Interventions focused on improved knowledge (n = 22/24) and did not sufficiently incorporate health literacy (n = 2/24). A diversity of health professionals' involvement in the interventions was very limited (n = 3/24). Overall, the studies lacked sufficient rigour, with results presenting confidence intervals only in 6/24 studies.
Conclusion: Mixed strategies including tailored counselling and/or written education and visual aids, further increase knowledge and adherence rates. Long term adherence can be achieved by reinforced counselling. Future studies aimed at enhancing knowledge and adherence should include behavioural, tailor-made interventions that are culturally sensitive, and educational, incorporating the health literacy concept and created by a diversity of healthcare professionals, which are subsequently delivered by the active participation of patients and their relatives.

Disclosure of Interest: None Declared.

PDF-4.11

Association between number of medications prescribed and healthcare utilisation in seniors: findings from the euroageism H2020 ESR7 project

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Background and Objective: Older patients are at a greater risk of being hospitalised or having emergency department visits. This study aimed to determine the association between a number of prescribed medications and healthcare utilisation (hospitalisation or emergency department visits (ED)).
Method: The cross-sectional study was part of the EuroAgeism H2020 ESR 7 project and was conducted in community pharmacies in the City of Zagreb, Slavonia and Istria (June 2019-January 2020). Data were collected using a structured, standardised questionnaire developed for the EUROAGEISM H2020 ESR 7 international project. Subjects were included if they were $\geq$ 65 years old and signed informed consent. Descriptive and inferential statistical methods were applied to analyse data by the SPSS statistical program vers. 20.
Main outcome measures: Association between the number of prescribed medications and healthcare utilisation (hospitalisation and ED visits).
Results: 391 patients were recruited in the study, and 388 satisfied inclusion criteria were included in the analysis. Patients were on average 74.3 $\pm$ 6.7 years old; 56.1% pertained to the age group 65–74 years; the majority (63.7%) were females. Patients have been prescribed on average 6.2 $\pm$ 3.3 medications (1–19); more than half (52.8%) received polypharmacy (5–9 drugs), while 14.2% received hyperpolypharmacy (10 + drugs). 25.1% reported ED visits, and 13.9% were hospitalised in the previous 12 months. Patients hospitalised within one year were prescribed more medications than patients who were not hospitalised (7.5 $\pm$ 4.0 vs 6.0 $\pm$ 3.1, $p = 0.013$). Among study participants, patients visiting the ED within one year were prescribed more medications than patients who did not visit the ED (7.4 $\pm$ 3.6 vs 5.7 $\pm$ 3.0, $p < 0.001$).
Conclusion: This study observed an association between the number of prescribed medications and number of hospitalisations and ED visits. It is essential to review the necessity of each prescribed medicine in older patients and optimise their pharmacotherapy to achieve better outcomes and improve their quality of life.
The study was supported by projects: EuroAgeism Horizon 2020 MSCF-ITN-764632, Inomed NO.CZ.02.1.01/0.0/0.0/18_069/0010046, Cooperatio research program KSKF-I- Faculty of Pharmacy, Charles University, START/MED/093 CZ.02.2.69/0.0/0.0/19_073/0016935, SVV260 551 and ICARE4OLD H2020 -965341 project.

Disclosure of Interest: None Declared.

PDF-4.12

Factors influencing personalisation of medication quantities for sustainability: a qualitative study among healthcare professionals

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Background and Objective: Preventing medication waste by personalising medication quantities to individual patients could advance sustainable medication use, but requires participation of healthcare professionals. This study aims to identify factors influencing the behaviour of healthcare professionals in secondary care regarding personalising medication quantities for sustainability.
Method: One-to-one semi-structured interviews were conducted via conference calls with medical specialists, clinical and outpatient pharmacists employed in Dutch hospitals. An interview guide based on the Theory of Planned Behaviour (TPB) was developed. Questions related to participant's view on medication waste, current prescribing/dispensing behaviour and intention to personalising prescribing/dispensing quantities. Data was thematically analysed, following a deductive approach based on an elaborated version of the TPB model.
Main outcome measures: Factors influencing the behaviour of healthcare professionals in secondary care regarding personalising medication quantities for sustainability.
Results: Fourteen out of 40 (35%) approached healthcare professionals participated, including: seven medical specialists, four outpatient pharmacists and three clinical pharmacists. Six themes related to factors influencing personalising medication quantities by healthcare professionals were identified:
Intention to personalise medication quantities varied largely among participants and was affected by: (a) *attitude*, including perceived concerns about medication waste and beliefs about consequences; (b) *subjective norms*, concerning shared responsibility for personalising quantities and prioritization by policy-makers; and (c) *perceived behavioural control*, concerning complexity of actions and availability of resources. On the other hand, factors directly influencing healthcare professionals' behaviour included: (a) *self-control*, influenced by insight into medication waste and effect of waste-preventive actions; (b) *barriers*, concerning feasibility of the process and current regulations; and (c) *facilitators*, concerning growing momentum for sustainability and digital support options.
Conclusion: Personalising medication quantities for sustainability by healthcare professionals in secondary care is influenced by factors influencing intention to behaviour and factors influencing behaviour directly.

Disclosure of Interest: None Declared.

POSTER DISCUSSION FORM V

PDF-5.01

Partner—patient-centred deprescribing of potentially inadequate medication in elderly patients with polypharmacy—protocol of a cluster-randomised trial

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Background and Objective: Although polypharmacy is not inappropriate per se, it increases the risk of adverse drug reactions (ADRs), especially in older patients. The aim of the PARTNER cluster-randomised trial is to evaluate the effectiveness, cost-effectiveness and implementation of a patient-centred structured care pathway of general practitioner (GP)-pharmacist collaboration in German primary care, focused on deprescribing of psychotropic and anticholinergic drugs.
Method: The study design is a multicentre, two-arm cluster-randomised trial accompanied by a health economic and process evaluation. Clusters consist of one GP practice and one or more collaborating community pharmacies, which are randomly assigned to either the PARTNER intervention group or a control group. At least 45 GP practices will enroll a total of 352 patients ($\geq$ 65 years with polypharmacy and use of $\geq$ 1 psychotropic/anticholinergic drugs) across three study sites, starting in October 2022. In the PARTNER intervention arm, intervention components comprise (A) educational material for GPs and pharmacists on psychotropic/anticholinergic deprescribing, (B) a moderated interprofessional workshop, (C) patient empowerment via a pre-planned patient-pharmacist consultation facilitated by empowerment leaflets, and (D) shared decision making as part of a pre-planned patient-GP consultation. The only intervention component in the PARTNER control arm is a pre-planned patient-pharmacist consultation to update medication plans and conduct a medication safety check with no particular focus on psychotropic/anticholinergic drugs.
Main outcome measures: The primary endpoint of the study is a patient level reduction in psychotropic/anticholinergic exposure, reflected by a reduction of 0.15 points or more on the Drug Burden Index. Secondary endpoints examine the effect of the intervention on prevalent vs incident use of target drugs, on clinical symptoms and on patient-reported outcomes.
Results: This cluster-randomised trial will establish whether the PARTNER intervention can reduce the use of psychotropic/anticholinergic drugs in older people, its benefit-risk ratio as well as barriers and facilitators to its implementation.
Conclusion: Infrastructural and political developments offer new opportunities for intensified collaboration between GPs and pharmacies in German primary care. The PARTNER project provides insights into whether broad implementation of the PARTNER intervention is effective, efficient, and appropriate, but also how collaboration between GPs and pharmacies can succeed in order to increase patient safety.

Disclosure of Interest: None Declared.

PDF-5.02

Isavuconazole: does the unique in label regimen fit for a cachectic elderly?

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Background and Objective: Prescription of drugs in elderly and cachectic patients is usually based on in label data that do not include this population in clinical trials. Prescribing in this population may more often need a dosing adjustment and a close follow up of side effects. This is a case of an older and cachectic patient treated with isavuconazole developing rapidly sides effects, suggesting an overexposure.
Design: A 69 y.o. women, 36 kg and 1.60 m (BMI of 13 kg/m^2) has been diagnosed for a chronic pulmonary aspergillosis. Initially, she refused the treatment for this fortuitous discovery. Then, the infection turned into a subacute form of pulmonary aspergillosis requiring the introduction of an antifungal. Voriconazole was introduced based on the weight but stopped four days after due to visual hallucinations, known as a dose dependent side effect. The specialist suggested a second line treatment with isavocunozale 200 mg TID on day 1 and 2, then 200 mg QD, the unique official label. Based on the previous experience with voriconazole, the prescription of the usual dosage of isavuconazole was questioned. No official data support an adapted regimen but a study including some older patients and patients with BMI under 18.5 kg/m^2 showed that isavuconazole AUC and Cmax was 35% greater comparing to all patient [1].
Results: It was decided to reduce the dose to 200 mg BID on day 1 and 2, then 200 mg QD. The treatment was stopped on day 7 due to nausea, vomiting and asthenia. A therapeutic drug monitoring (TDM) was done on day 7 and isavuconazole level reached 4.9 mg/l. Although isavuconazole TDM is not strongly recommended due to a lack of data correlating pharmacokinetics with pharmacodynamics, the measured value was above the usual range of 2–3 mg/l [2]. Moreover, a cut-off toxicity appears to be set at 4.6 mg/l [3].
Conclusion: Few data are available for older with extreme weight especially for drug recently introduced on the market. Dilemma appears when an infection has to be treated rapidly using the best dosage to be effective against the infection and at the same time to preserve the frailty of elderly.

Disclosure of Interest: None Declared.

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PDF-5.03

Diabetes management and deprescribing in hospice and palliative care

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Background and Objective: In hospice and palliative care (HPC), symptom control is essential to optimize quality of life. Polypharmacy is highly prevalent and associated with a decline in quality of life. Discontinuation of antidiabetic medication and blood glucose level monitoring remains underreported, and recommendations are generally based on clinical experiences rather than evidence-based. To provide guidance, insights in current practices are needed. We aimed

at providing an overview of diabetes management and deprescribing in HPC.
Design: We conducted a systematic review (PubMed, Embase) on diabetes management and deprescribing in HPC patients with a life expectancy of one year or less. Based on this information, we performed a survey study on appropriate diabetes management and deprescribing recommendations from health care professionals working in various HPC settings.
Results: N = 50 articles were included, with recommendations on therapy management in type I (n = 17, 34%) and type II (n = 28, 62%) diabetic patients. 50% of the articles addressing maximum blood glucose level (n = 14/28) recommend a value of 15 mmol/l. 56% of the articles addressing minimal blood glucose level (n = 15/27) recommend values between $\geq$ 5 mmol/l and $<$ 7 mmol/l. Interventions are recommended at levels of $\geq$ 20 mmol/l in 67% (n = 6/9) of the articles. Monitoring of urine glucose and HbA1c were found to be of little clinical relevance (n = 3/50, 6%, respectively n = 12/50, 24%), with 67% (n = 8/12) of the articles rating HbA1c monitoring clinically irrelevant, or even recommending against it. 62.5% (n = 10/16) of the articles addressing therapy management in type I diabetic patients recommend reduction of insulin doses, and 37.5% (n = 6/16) recommend discontinuation of insulin therapy. For type II diabetic patients, recommendations for therapy adaptions encompassed discontinuation of oral antidiabetics (61%, n = 20/33) and considering discontinuation of insulin therapy (39%, n = 13/33).
Conclusion: Diabetes management and discontinuation of therapies are of great clinical relevance, as diabetes is a frequent comorbidity of HPC patients. Although trends towards desirable targeted blood glucose levels were identified, no consensus on an optimal moment for discontinuation of oral antidiabetic therapy, dose reduction of insulin, and discontinuation of blood glucose monitoring could be identified in the literature.

Disclosure of Interest: None Declared.

PDF-5.04

How much time do emergency department physicians spend on drug-related tasks?

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Background and Objective: Medication errors are said to affect up to 60% of emergency department (ED) patients, and medication discrepancies may be a contributing factor. Prior to an intervention study where we investigated the effect of clinical pharmacists in three ED's, we aimed to quantify how ED physicians spent their time. We focused mainly on drug-related tasks, and whether there were differences between medical and surgical physicians.
Method: We conducted an observation study in three ED's in North Norway before the ED pharmacists started working. For data collection we used Work Observation Method By Activity Timing (WOMBAT), which is suited for continuous observation. The study period was November 2020-October 2021. We predefined work tasks into four dimensions: WHAT, WHERE, HOW, and with WHOM. Observations were performed in a 1:1 relationship between observer and participant, and according to an observation schedule with two-hour sessions covering the working hours of future ED pharmacists; Monday to Friday between 8 am and 8 pm.
Main outcome measures: Time and proportion (%) of time spent on the observed work tasks.
Results: Of the 365 h physicians in the ED's were observed, only 8.9% of their time was spent on drug-related tasks. Physicians spent most time on oral communication (37.7%), where the majority of this communication was related to work or patients, and only 4.5% was drug-related oral communication. Physicians spent 19.7% of their time in front of a computer documenting patient-relevant information, of which only 3.4% was drug-related. They spent 2.2% of their time retrieving information from patients or other sources concerning which medication patients were using prior to admission (medication reconciliation). In total, medical and surgical physicians spent 10.2% and 7.5% of their time on drug-related tasks, respectively. Most of the drug-related time was spent on documenting drug-related information (4.0% for medical and 2.8% for surgical physicians).
Conclusion: Physicians working in ED's in North Norway spent 8.9% of their time on drug-related tasks in general, and 2.2% of their time was spent on medication reconciliation specifically. Physicians with medical specialties spent slightly more time than physicians with surgical specialties on drug-related tasks.

Disclosure of Interest: None Declared.

PDF-5.05

Extend pharmacist-led medication review: targeting level 2 and developing level 1 analysis

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Background and Objective: In our hospital, pharmacist-led medication review (**MR**) is performed at admission, in 9 units care (**UC**), with a level 2 of analysis (*defined by the French Society of Clinical Pharmacy: therapeutics review including prescription review, patient characteristics and biologic data*) with estimate realisation-time of 15 min. Level 1 MR includes only prescription review and basic patient characteristics (*estimate time: 5 min*). To develop MR activity with constant pharmaceutic workforce, a hypothesis was to target patients benefiting from a level 2 analysis and to perform a level 1 analysis for all others. The aim of the study was to analyse the drug related problems (**DRPs**) expressed with level 2 analysis, to determine if they could have been identified with level 1 analysis and to define patient criteria to target level 2 analysis.
Method: Retrospective study has been led on all the 2020's DRPs by determining the analysis level required to formulate them thanks to a pharmacist's consensus. Univariate and multivariate logistic regression have been performed to define patient characteristics associated with a level 2 DRP.
Main outcome measures: OR between analysis level and patients characteristics (*age, gender, weight, renal clearance*).
Results: Finally, 2,478 DRPs have been expressed by 24 pharmacists and residents on 1,721 patients. Among them, 1,343 (*54.2%*) could have been formulated under a level 1 analysis, being 829 (48.2%) patients (*with only level 1 DRPs*). Univariate analysis shown significant association between level analysis and age, gender, and renal clearance. With multivariate analysis, age over 75 years old, masculine gender and renal clearance under 60 mL/min were associated with higher probability to have a DRP requiring a level 2 analysis ($OR_{\geq 75y.o} = 1.75$; $OR_{female} = 0.73$; $OR_{30–59\ mL/min} = 1.73$; $OR_{<30\ mL/min} = 2.69$).
Conclusion: Targeting criteria seem relevant, apart from gender criteria: it seems ethically complicate to target only men for level 2 analysis. Renal failure and advanced age represent a frail population where extensive analysis would be pertinent. This original targeting method, based on practice analysis, will allow us to continue level 2

analysis for targeted patients while developing level 1 analysis for all others. Thus, the MR activity (level 1 and 2) could be extended to other UC.

Disclosure of Interest: None Declared.

PDF-5.06

Feasibility of personalising dispensing quantities to prevent waste of oral anticancer drugs

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Background and Objective: Personalising oral anticancer drug (OAD) quantities dispensed to patients could prevent medication waste, avoiding its economic loss and contributing to sustainability. The aim of this study is to evaluate feasibility of a personalising dispensing program for OADs.
Method: Personalised dispensing was implemented as standard care for adult patients starting OAD treatment at Radboudumc. Fifty patients were followed for six months in a feasibility study conform Bowen's framework between December 2020 and December 2021. (A) *Demand* was determined by frequency and economic value of OAD waste. (B) *Implementation* was measured by reach (percentage eligible patients included) and protocol fidelity (percentage dispensings that followed protocol). (C) *Acceptability* was assessed with a survey among patients and pharmacy technicians requesting satisfaction rate on a scale of 0–10 and agreement with Theoretical Framework Acceptability domains on a 5-point Likert scale. (D) *Practicality* was based on costs for additional activities. (E) *Effect* was determined by waste reduction and net cost-savings versus previous practice (one-month supply rounded to full packages) corrected for costs for additional activities. Descriptive statistics were used.
Main outcome measures: Feasibility of a personalised dispensing program for OADs, assessed by demand, implementation, acceptability, practicality and effect.
Results: Participants' median age was 67 (IQR 58–71) years and 76% was male. Reach and protocol fidelity were respectively 89% and 91%. Satisfaction was high: patients scored on average 9 out of 10 (SD $\pm$ 1), and pharmacy technicians 7 out of 10 (SD $\pm$ 2). All acceptability domains were agreed on (median ranking $\geq$ 4). Total program costs were €4,036 related to patient counselling, additional dispensings and home delivery services. OAD waste was reduced by 37%, corresponding to net cost-savings of €16,574, equalling €753 per discontinued patient, when compared to previous practice.
Conclusion: Personalised dispensing appears feasible for preventing waste of OADs in terms of demand, implementation, acceptability, practicality and effect. Further large scale tests for the waste-preventive effect of personalised dispensing are recommended.

Disclosure of Interest: None Declared.

PDF-5.07

Voriconazole therapeutic drug monitoring—interindividual variability and pharmacokinetic modeling

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Background and Objective: Interpretation of TDM is one of the main activities of clinical pharmacists. One of the classes of drugs recommended for TDM is anti-infectives; recently, among them second-generation triazoles. TDM of voriconazole should be performed for most patients due to interindividual variability in pharmacokinetics. Precise pharmacokinetic models are highly useful in clinical settings for such a routine TDM. Our study aims to assess the interindividual variability in pharmacokinetics of voriconazole and to evaluate the reliability of the available pharmacokinetic model.
Method: A retrospective observational cohort study in 19 adult patients treated with voriconazole. Data collected: measured plasma levels, descriptive patient data, and information on concomitant medications. A comparison between voriconazole levels predicted by the pharmacokinetic model (MWPharm Online, Mediware a.s., version 1.7.1.14) and the measured levels was performed. In addition, a case study of a patient with cystic fibrosis and TDM as an optimization treatment strategy is presented.
Main outcome measures: Evaluation of measured voriconazole levels in the context of the target therapeutic range and evaluation of pharmacokinetic model prediction precision.
Results: From all the voriconazole levels measured at a steady-state (n = 43) only 60% are within the target therapeutic range for voriconazole treatment (1–5.5 mg/l), 33% are subtherapeutic and 7% are supratherapeutic. When a minimal target through concentration is considered 2 mg/l, as newly recommended, nearly one-half of measurements are subtherapeutic. The mean difference between predicted and measured voriconazole levels is 2.3 mg/l (SD = 2.01); minimal and maximal differences 0.05 and 7.02 mg/l respectively. Approximately half of the predictions are lower than measured levels. Genetic polymorphism, drug interactions (specifically PPIs were often co-administrated), and elimination organs functions may have an impact on the observed variability. Moreover, the effect of population characteristics, the model vs. the study population, is considered an important factor. The case study demonstrates the clinical benefit of voriconazole TDM in individualized treatment.
Conclusion: Preliminary data indicate the need for precise and subpopulation-specific pharmacokinetic models for higher clinical utility of voriconazole TDM. These data support the importance of routine TDM of voriconazole.

Disclosure of Interest: None Declared.

PDF-5.08

Identifying how nurses spend their time in three Norwegian emergency departments: a time-and-motion study

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Background and Objective: Emergency department (ED) pharmacists is a well-established practice in many countries, but not in Norway (1, 2). In this study, we aimed to investigate how ED nurses spent their time when pharmacists are not present in the ED, with particular focus on drug-related work tasks. This is a substudy of a large project investigating the impact of the ED pharmacist on patient outcomes (3).
Method: A direct observation time-and-motion study was performed in three EDs in North Norway during the period November 2020–October 2021. The nurses' daily work activities were pre-classified with observation categories for WHAT, WHERE, with WHOM and HOW, and data were collected with the validated Work Observation Method by Activity Timing (WOMBAT) software (4). Observations were performed applying a predefined schedule with 2-h time slots covering Mondays to Fridays from 08:00–20:00, the normal working hours for future pharmacists. Observations were performed by one observer in hospital A and C, and another observer in hospital B. Both observers were trained within the WOMBAT methodology (5).
Main outcome measures: Amount of time (hours, minutes, seconds) and proportion of time (%) spent on a working task.
Results: Nurses were observed for 53.0, 43.94 and 41.59 h in hospitals A, B and C, respectively. The majority of nurses' active time (19.7%) was spent on oral communication or examining/treating patients (19.4%). Most of their time (29.4%), nurses spent in standby, waiting for patients to arrive to the ED.
Only 3.5% of the nurses' time was spent on drug-related (DR) tasks, i.e. DR oral communication (1.6%), medication management (1.4%), DR logistics (0.3%) and DR written documentation (0.2%).

Some differences in time distribution between the EDs were detected.
Conclusion: This study showed that nurses spent most time in standby, oral communication and patient examination/treatment. Nurses spent only 3.5% of their time on drug-related tasks, the most frequent of those being DR oral communication and medication management. The results indicated that there is a potential for a cooperation between nurses and ED pharmacists, for example in a form of internal education sessions.

Disclosure of Interest: None Declared.

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PDF-5.09

Exploring the experience of young people about pharmacy services in primary care: a cross-sectional study

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Background and Objective: According to recent literature, the prevalence and incidence of long-term illnesses such as asthma and diabetes in young people have substantially risen over the past 13 years[1]. Recent figures indicate that, in England, 4.10% of all prescriptions were prescribed for young people. More than 45 million prescriptions were dispensed for young people in 2017 by pharmacists[2]. The aim of this study was to investigate young people's perspectives of the pharmaceutical services that are provided from primary care pharmacists relating to medication.
Method: A cross-sectional survey using both the online and paper-based tools was conducted from March to November 2019. The population for this survey was young people from age 18 to 24 years registered as students at The University of Birmingham. The survey consisted of twenty-four questions and they were a mix of closed-ended questions such as multiple choice and Likert scale and open-ended questions. This research gained ethical approval from the University of Birmingham Ethics Committee.
Main outcome measures: The main focus was on the current pharmacy services provided to young people with longterm illnesses and the perceptions and experiences of young people with long-term illnesses on the provision of pharmacy services. The presence and history of long-term illnesses among participants was also explored.
Results: A total of 210 survey responses were returned. The number of people that initially received the survey is unknown. As a result of this, the response rates could not be performed due to the nature of the distribution. Most of the participants were female (62.38%). The most frequent age was 18 years (35.24%). Among participants, 15.70% were diagnosed with long-term illnesses and the majority of them (33.33%) were diagnosed with respiratory disease all of which was reported as asthma. Pharmacists were not utilised as a source of information for young people whereas the majority (60.60%) obtained information from their doctors. Most of the participants (96.97%) had not taken part in an MUR or NMS and 78.79% of them had never been told about any services or support groups by their pharmacist.
Conclusion: There is a lack of provision of pharmaceutical services and support by primary care pharmacists to young people with long-term illnesses. The results could potentially be very useful in informing the policymakers to assist in the further growth of the pharmacy services. Further research will enhance understanding of the perceptions of young people about the pharmaceutical services that are offered by primary care pharmacists with respect to medications.

Disclosure of Interest: None Declared.

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PDF-5.10

Evaluation of attitudes towards psychotropic medications in adolescents with a developed new scale

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Background and Objective: Medication adherence in adolescents with chronic mental illness is major concern because the effectiveness of psychotropic medications is crucial. The aim of this study was to evaluate attitudes towards psychotropic medications that have a possible effect on medication adherence and the possible factors that may influence these attitudes.
Method: In this single-center and prospective cohort study, the patients who were followed up with a chronic mental illness in the child and adolescent outpatient clinic of a university hospital and had been using medications for at least 2 months were interviewed between December 2021 and April 2022. The patients were asked 7 questions about the medication necessities and 11 questions about the medication concerns from the newly developed scale, determined by a literature review. The final version of the scale was developed with exploratory factor analysis. The questions about necessities and concerns about the attitudes towards the medications were completed using a 5-point Likert scale, with a high total score indicating a negative attitude toward the medications. Ethical approval and patient/parent consent forms were obtained for the study.
Main outcome measures: The age and types of psychotropic medications prescribed were evaluated, and effects of these factors on their attitudes toward the medications were evaluated.
Results: The mean age of the 288 patients (66.7% female) were 15.25 ($\pm$ 1.59) years. The age and concern scores had a positive and significant correlation with the total score. As patients' age increases, they became more concerned and had a negative attitude towards psychotropic medications ($p < 0.01$). In addition, when the attitude scores were evaluated between monotherapy and combination treatment, it has been reported that patients who were prescribed only stimulants (20.1%) had fewer concerns about their medications ($p < 0.01$) and therefore, their attitudes toward the medications were significantly more positive ($p < 0.01$) compared to patients who used a combination of antidepressants and antipsychotics (21.1%).
Conclusion: To the best of our knowledge, this is the first study that demonstrated the effect of age and the types of psychotropic medications on the attitude towards the medications with a new scale developed by the clinical pharmacists. This would help clinicians to consider the factors that may affect attitudes towards medications, which have a possible impact on medication adherence and how to approach the patient.

Disclosure of Interest: None Declared.

POSTERS

PP001

Medication-related hospitalisations in older patients with renal insufficiency: patient journey and preventability

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Background and Objective: The number of home-dwelling older patients with renal insufficiency who are also using medication that might impact kidney function is increasing. So called "DAMN drugs" have safety concerns when used during periods of dehydration, e.g. when the patient becomes unwell with diarrhea, vomiting or fever. During these "sick days" patients are at risk of hypovolemia, potentially leading to acute renal failure and hospitalisation. In order to adequately educate patients about sick day management, it is key to understand the patient journey prior to hospitalisation and to assess whether these hospitalisations can be prevented. Objective: To gain insight into the journey of patients with renal insufficiency prior to hospitalisation, and to assess preventability.
Method: Retrospective cohort study. A database consisting of medication-related hospitalisations between 2013–2015 in The Netherlands was used. Patients who were admitted with renal failure were selected. For these patients, the GP's electronic medical records were available to map the patient's journey. The following data were extracted: patient characteristics, the use of DAMN drugs, trend in renal function, number and reason of GP consultations prior to hospitalisation, presence of sick days and the clinical picture prior to hospitalisation. Also, a case-by-case assessment of preventability was independently carried out by two researchers. Preventability was defined by whether a hospital admission could have been prevented if DAMN drugs were adequately adjusted. Disagreement about preventability was resolved in consensus meetings with an expert GP. Descriptive statistics were performed using IBM SPSS Statistics for Windows Version 27.0.
Main outcome measures: Patient journeys and preventability of medication-related hospitalisations in patients with renal failure.
Results: In total, 81 medication-related hospitalisations were identified. The mean age of patients was 80 years and 53% was female. The median number of chronic medications and comorbidities was 8 (IQR 5) and 4 (IQR 2), respectively. A total of 82% had hypertension, 35% had heart failure, 49% had diabetes mellitus and 54% had chronic kidney disease. One-third (32%) had fluctuating rather than stable renal function prior to admission. Half (52%) had consulted the GP within the last 14 days to hospitalisation, of which 17% specifically about a "sick day" symptom, often reporting limited intake of fluids and/or food (46%). The majority of patients (78%) became gradually unwell in the weeks or days prior to hospitalisation, rather than presenting with an acute clinical picture. All patients, except one, used at least one DAMN drug. Approximately one-third (38%) of hospitalisations was potentially preventable if the DAMN drug was timely adjusted.
Conclusion: Patients with renal insufficiency at risk of acute hospitalisation during sick days can potentially be targeted in primary care as they often visit their GP prior to hospitalisation, present with a gradually decreasing clinical picture and use DAMN drugs that can be timely adjusted. This is a substudy of the SIDRIK project.

Disclosure of Interest: None Declared.

PP002

Disease and pharmacotherapy knowledge on Alzheimer's Disease among community pharmacists: a cross-sectional study from Turkey

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Background and Objective: Because of the increased prevalence of Alzheimer's disease (AD), there is a significant need for qualified healthcare professionals, including community pharmacists able to

provide maximum quality of care for those patients. There are scarce studies assessed the knowledge and attitudes toward AD among community pharmacists across different countries. The aim of this study was to assess and predict the AD knowledge among Turkish community pharmacists and to correlate the parameters that affect community pharmacists' knowledge of AD in Istanbul, Turkey.
Method: This was descriptive, cross-sectional study conducted among a convenient sample size of community pharmacists in Istanbul, Turkey. Knowledge and pharmacotherapy management of AD were assessed via Google forms using a 43-item questionnaire consisting of 5-item demographic characteristics, 30-item knowledge about AD using a Turkish translated version of AD knowledge scale (ADKS), and 8-item drug knowledge questionnaire question-naire about AD pharmacotherapy (KADT).
Main outcome measures: AD Knowledge using AD knowledge scale (ADKS), and drug knowledge about AD pharmacotherapy (KADT) questionnaire.
Results: A total of 108 community pharmacists with an average age of 40.7 ± 12.9 years were included in this study. Majority of the respondents were females (66.7%), had Bachelor pharmacy degree (76%), had more than 10 years of work experience (57%), and had no previous AD training (86.1%). The participants reported a moderate level of knowledge towards AD, especially medically-oriented domains with no significant difference regarding the mean rate of ADKS domains (18.8 ± 2.8; $P = 0.98$). Nevertheless, they reported a good level of KADT knowledge about AD treatment ($P = 0.01$) about drug interactions (54.6%), and knowledge about proper information (79.6%). There was a statistically significant KADT difference correlated regarding male gender ($P < 0.001$), those having Master degree (P = 0.05), more than 5 years of work experience ($P = 0.04$) and those pharmacists taking AD training courses ($P = 0.05$).
Conclusion: There is still a lack of knowledge regarding AD among Turkish community pharmacists reported by moderate ADKS score, especially medically-oriented domains, which creates a barrier to early provide care and preventing AD. Interventions should aim to raise awareness and strengthen pharmacists' knowledge of AD to be particularly effective in improving the patients' health.

Disclosure of Interest: None Declared.

PP003

Evaluation and prediction of depression and anxiety among patients with chronic disease conditions during the pandemic COVID-19 era

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Background and Objective: Chronic disease is a major public health problem associated with poorer outcomes. Patients with chronic diseases were often accompanied by negative psychological barriers. Mental disorders are the most common negative psychological barriers observed during the COVID pandemic. Among the mental disorders, depression and anxiety disorders are the most common observed, particularly in patients with chronic disease; which could affect the patients' quality of life during the pandemic era. The aime of this study was to assess and predict the prevalence of depression and anxiety among patients with chronic disease conditions during the pandemic era of COVID-19 in Amman city, Jordan.
Method: This was a descriptive, cross-sectional study conducted among a convenient sample size of patients diagnosed with chronic disease conditions attending the community pharmacies in Amman city, Jordan, using a structured validated questionnaire consisting of 8-item questionnaire about the demographic characteristics, 14-item questionnaire to assess the prevalence of depression and anxiety among patients with chronic disease conditions during the pandemic era of COVID-19 using Hospital Anxiety and Depression Scale (HADS).
Main outcome measures: Mean scores of Hospital Anxiety and Depression Scale (HADS).
Results: A total of 150 patients with an average age of 53.3 ± 14.2 years were included in this study. Majority of the respondents were males (53.3%), had university education level (65.3%), non-cigarette smokers (51.3%). Endocrine and cardiovascular diseases represented the major chronic disease conditions (22.7%, 13.3%, respectively). Mean disease duration was 4.1 ± 3.6 years, while the average number of medicines intake was 2.7 ± 1.3 per patient. Patients reported a mean of 8.7 regarding total HADS-depression score, and 8.25 regarding total HADS-anxiety score which are indicating a borderline abnormal cases. Anxiety and depression were more common among retired patients and those who had poor social support ($P = 0.001$, $P = 0.003$), respectively.
Conclusion: This study revealed that patients with chronic disease conditions suffered from a concomitant mood disorder detected as anxiety and depression which are highly prevalent during the pandemic COVID-19. These results should alert clinicians to identify and treat these mental disorders as part of multidisciplinary care while encountering any pandemic situations, particularly among patients with chronic disease conditions.

Disclosure of Interest: None Declared.

PP004

Misuse of inhaler devices in COPD patients

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Background and Objective: The management of Chronic Obstructive Pulmonary Disease (COPD) depends on the severity of the disease. Inhalation therapy is the mainstay of treatment in patients with COPD. Unfortunately, both inhaler misuse and nonadherence to medication regimens pose a significant barrier to optimal COPD management. Patients need training on inhaler use and regular assessment of inhalation technique. The aim of the study was to evaluate the correctness of inhaler use and to gain insight into the training in use of inhaler devices gained by participating patients.
Method: Direct, questionnaire-based interview, assessment of inhalation technique and assessment of peak inspiratory flow rate with the use of InCheck DIAL G16 device. Study participants (COPD patients treated with inhalers) were recruited from the Pulmonary Clinic at the Central Clinical Hospital of the Medical University of Warsaw.
Main outcome measures: The COPD Assessment Test and FEV1 for the GOLD assessement of COPD, Test of Adherence to Inhalers, peak inspiratory flow rate and the inhalation technique assessment.
Results: Thirty four patients participated in the study (50% women, mean age ± SD: 71.1 ± 12.5 years). Ten patients (29.4%) were classified to group A and 20 (58.8%) to group B according to GOLD strategy for COPD categorization.The majority of patients showed a good level of adherence, but most of them were characterized by an unconscious non-adherence, and nearly half by an occasional non-adherence. The vast majority of patients misuse the inhaler. Patients

mainly forgot to shake the pMDI or exhale fully before starting inhalation. The correct inhalation technique is crucial so that the planned dose of the drug can get the desired place to reduce the occurrence of exacerbations and disease progression. Most patients showed incorrect inspiratory flow relative to the inhaler used. The pMDI were more likely to be misused than DPI.

Conclusion: Inhalers should be presribed taking into account peak inspiratory flow rate. COPD patients need coaching on inhaler use. The patient should be familiar with the therapy regimen and the correct inhalation technique.

Disclosure of Interest: None Declared.

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PP005

Behavioral determinants influencing pharmacist's decisions to join and maintain membership in professional associations

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Background and Objective: Professional associations support the educational and professional development of pharmacy professionals. Kerala Pharmacists Forum Qatar (KPFQ) is a non-profitable professional association of Indian Pharmacists in Qatar. The current study aims to explore key behavioral determinants influencing pharmacist's decisions to join and maintain membership in professional associations such as KPFQ.

Method: A cross-sectional online survey of pharmacy professionals (KPFQ members) was conducted in April 2022. Survey items included questions related to sociodemographic characteristics, and behavioral 'determinants' influencing KPFQ membership (Likert statements, TDF items). The sample size was calculated using the Raosoft online calculator. Data were analyzed using descriptive and Principal component analysis (PCA) of TDF items.

Main outcome measures: The main research outcomes are to identify the behavioral determinants influencing pharmacists to join or continue membership in KPFQ and to determine the key facilitators and barriers to continue their membership status in professional associations.

Results: The response rate was 59.3% (160/270), however after excluding the incomplete questionnaires only115/270 (42.5%) responses were included for the final analysis. Majority of the respondents were males (95/115, 82%) between 30–39 years of age, with bachelor degree or above (67.1%). Approximately 76% of the current members were satisfied with the membership benefits and will recommend KPFQ to other pharmacy professionals (81.2%). The mean (SD) overall percentage score of behavioral determinants influencing maintaining KPFQ membership were 49.2 ± 16.6 and (on a scale from -100 to 100). The KPFQ membership satisfaction scale has good internal consistency with Cronbach's Alpha coefficient reported 0.89. PCA analysis revealed 2 internally reliable components of professional impact and membership benefits (e.g., continuous education). The key facilitators to joining or maintaining KPFQ membership are receiving up to date information, professional networking and active involvement, however the main barriers identified are lack of time, rude behavior of executive members(senior leaders).

Conclusion: Most of the respondents were satisfied with their membership with KPFQ, however very few expressed dissatisfactions due to rude behavior of executive members of KPFQ and lack of time to attend the monthly meetings. Further studies assessing the views, attitudes and behavior of non-members towards joining KPFQ membership is highly warranted. Study findings will assist to develop interventions targeting improved membership satisfaction.

Disclosure of Interest: None Declared.

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PP006

Nature and severity of drug-related problems among diabetic patients attending community pharmacist-led medication therapy management clinic

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Background and Objective: Elderly people with chronic diseases often require polypharmacy, and subsequently are at a higher risk of drug-related problems (DRP) (1). Accordingly, the pharmacist-led medication review programme can have a positive impact on patient health by identifying and resolving DRPs (2,3,4,5,6,7). The aim of this paper is to assess the nature and severity of DRPs among diabetic patients attending community pharmacy-based medication therapy management (MTM) programme in Saudi Arabia. This paper is part of a larger mixed-methods study that is aimed to assess the effectiveness of the MTM programme (8).

Method: Patients with uncontrolled diabetes referred to a community-pharmacy based MTM programme were assessed by a clinical pharmacist for potential DRPs at baseline and 3-month follow-up. A validated classification system, which categorized DRPs into seven distinct categories, was used to identify and report DRPs (9). A structured, pilot-tested data collection form was used for data collection. Descriptive statistical analysis were undertaken using SPSS (version 22).
Main outcome measures: The main outcomes were related to characteristics of the DRPs including the number, type and drugs involved in DRPs.
Results: A total of 72 diabetic patients from MTM intervention arm were included in the study. The majority of patients were male 72% (n = 52) and the mean age was 49.7 years (range 18–77 years, SD 12.4). The total number of DRPs were reduced from 168 at baseline to 70 at 3-month follow-up. The mean number of DRPs per patient decreased from 2.4 (SD = 1.1) in the first visit to 0.95 (SD = 1.1) at 3-month of follow-up. Moreover, 43% of patients had no DRPs at 3-month follow-up visit. The most common DRPs included: additional drug therapy needed (n = 46, 27.4%); noncompliance (n = 45, 26.8%) and drug dose too low (n = 38, 22.61%). Metformin (n = 37, 51.4%) and gliclazide (n = 20, 27.8%) were the most common drugs involved in DRPs.
Conclusion: Community pharmacist-led MTM programme can optimise use of antidiabetic medications among patients with uncontrolled diabetes by identifying and resolving DRPs.

Disclosure of Interest: None Declared.

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PP007

Evaluation of analgesic use behaviors of individuals for pain management: an observational study

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Background and Objective: The use of analgesic drugs the most common practice in pain management especially non-steroidal anti-inflammatory drugs (NSAIDs). Self-medication behaviors vary according to educational level and sociodemographic features. Individuals should be aware of the benefits and potential dangers associated with self-medication use. In this study, we aim to investigate the individual's analgesic use behaviors for pain management.
Method: This descriptive, observational study was carried out between February 2020 and July 2020 in Turkey. This study has been approved by the local Clinical Research Ethics Committee with decision number of 01/08. An online questionnaire was created with Google Forms to evaluate the analgesic use behavior of individuals. The invitation to the survey were disseminated through direct messages and social network platforms.
Main outcome measures: Evaluation of individuals' analgesic use behavior, knowledge, attitudes, and perceptions towards analgesics for pain management.
Results: In this study, 376 individuals (72% are women) were included with an average age of 32.5 ± 13.8. Majority of the participants (89.6%) indicated that they used analgesics without a prescription. More than half of the participants (52.3%) consult a healthcare professional about analgesics, however only 3.2% consulted to pharmacist. Individuals who consult physicians were more willing to read more drug information sheets than those who consult pharmacists 66.5% and 30.8%. The most common reason for analgesic use without a prescription was the experience with the analgesic. Most common reason for analgesic use was headache which is followed by a stomachache. Majority of the of the participants (72.3%) prefer non-pharmacological methods for pain management. More than half of the participant (55.1%) stated that they recommended a drug to someone else. Our result showed that with increasing education level, tendency to use analgesic without consulting health professionals has been increased.
Conclusion: Our results revealed that the level of knowledge and attitudes about analgesics usage is not at the desired level. Clinical pharmacist should increase the knowledge level of the society with patient education to prevent irrational drug use and drug related problems.

Disclosure of Interest: None Declared.

PP008

Intentional medication adherence problems in Turkish older patients

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Background and Objective: This study aimed to determine intentional medication adherence problems in Turkish older patients using baseline data collected from previously published study (1).
Method: This study was conducted from November 2019 to July 2020 in 51 community pharmacies located in Turkey. Older adults (≥ 65 years) with chronic disease were included if they were responsible for self-management of their medication used chronically.
Main outcome measures: Morisky-Green-Levine Medication Adherence Scale to assess medication adherence, Beliefs about Medicines Questionnaire and Necessity-Concerns Framework to identify attitude groups (accepting (high necessity, low concerns); ambivalent (high necessity, high concerns); indifferent (low necessity, low concerns); and skeptical (low necessity, high concerns), Turkish version of Mini-Cog® test.
Results: Among 202 older patients (53.5% of male), the mean age was 72.54 (6.25). Of them, 52.0% were non-adherent to their medications. Among them, 23.8% had problems remembering to take medication, and 30.7% had a higher likelihood of dementia (according to Mini-Cog® test score < 4). According to the Necessity and Concern Framework, 51.8% of patients were accepting, 32.0% were ambivalent, 4.6% were skeptical, and 11.6% were indifferent. Accepting patients (62.8%) were more adherent to their medications. Ambivalent patients (44.7%) were less adherent to their medications.
Conclusion: Almost half of the older patients had intentional medication adherence problems. Motivational interviewing-based community pharmacist services could be used to promote medication adherence in older patients to prevent and solve intentional medication adherence problems.

Disclosure of Interest: None Declared.

References: Erasmus + KA2- Strategic Partnership Program entitled "Improving Health Literacy in Older and Training Modules for Effective Disease Management" of the 'Supporting Healthy Living and Self-Management of the Older with Non-Communicable Diseases Who Live in Turkey or in Europe as Transnational Migrant" Project (2017–1-TR01-KA204-045938).
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PP009

Development of virtual education module to promote Turkish community pharmacist-led pharmaceutical care services in older patients

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Background and Objective: This study was aimed to develop virtual education program which would be overcome community pharmacists' barriers regarding the pharmaceutical care service in older patients (1). The pharmaceutical care service in older patients entitled "The Healthy Aging with Pharmacists", was planning to implement in Turkey which was aimed to promote older patients' healthy living and medication adherence (2).
Method: A descriptive electronic survey of community pharmacists was conducted from July to August 2019. A total of 87 community pharmacists were invited to this study according to their previous experience in non-communicable disease management at community pharmacies.
Main outcome measures: The knowledge test included questions based on case scenarios were generated to evaluate their knowledge on Subjective Objective Assessment Action Plan (SOAP) and Situation Background Assessment Recommendation (SBAR) techniques. Their opinions regarding topics that could be involved in the virtual education module were also questioned.
Results: Among 87 participant pharmacists, 72.4% were women. Of them, 38.0% were below 36 years old, 40.2% were between 36–45 years old, and 21.8% were above 45 years old. Of them, 8.0% stated more than 60% of their patients were older adults. Pharmacists' knowledge test scores varied between 5 and 18 while the mean value was 12.9 ± 2.6 and the median value was 13. The community pharmacist declared their willingness to improve their knowledge and skills on most seen adverse effects in older patients (80.8%), prescribing cascade (79.5%), potentially inappropriate medication use in older patients (70.5%), geriatric syndrome (69.7%), and medication adherence problems (66.2%) and functional medication administration problems (59.0%) in older patients.
Conclusion: Almost four hours of virtual education program was created consisting of videos and online materials (algorithms, brochures) and guidelines. This education module included lectures and case studies focused on pharmaceutical care in older patients and communication skills training based on motivational interviewing. Guidelines on potentially inappropriate prescribing were included as online resources. Virtual demonstrations of patient education materials and most used websites and illustrative pharmacist-patient counselling models were also involved in this virtual education module.

Disclosure of Interest: None Declared.

References:
Erasmus+ KA2- Strategic Partnership Program entitled "Improving Health Literacy in Older and Training Modules for Effective Disease Management" of the 'Supporting Healthy Living and Self-Management of the Older with Non-Communicable Diseases Who Live in Turkey or in Europe as Transnational Migrant" Project (2017-1-TR01-KA204-045938).
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PP010

Therapeutic impact of an intervention associating pharmacist counseling and the use of a mobile health application for Type 2 diabetes patients

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Background and Objective: Prevalence of type 2 diabetes is high in Belgium (estimated at over 8%, 1 patient out of 3 being unaware of their diagnosis). This study aims at exploring the benefits of the use of mobile technologies combined with health coaching by the community pharmacist to help diabetes patients with their daily life and disease management. The intervention aimed to reinforce the

patient's willingness to actively participate in the management of their disease and to adopt favorable health behaviors, in order to increase their level of therapeutic adherence.
Method: Interventional study combining educational intervention and coaching by the community pharmacist with the use of a mobile health application provided by Comunicare. Quantitative pre-experimental study over a period of six months with three data collection periods (before, during and after the intervention).
Main outcome measures: Primary outcomes (HbA1c and MARS-5 score) correlate to the level of therapeutic adherence, and secondary outcomes (HDL cholesterol, LDL cholesterol, systolic and diastolic blood pressure, BMI and waist circumference), were judged to be good indicators for further follow-up of the diabetic patient.
Results: The baseline sample consisted of 66 patients, 50 of whom completed the study. Statistical analyses did not show an improvement in the level of medication adherence. However, significant results were observed for systolic blood pressure and waist circumference (both improving). All the other outcomes, including HbA1c, changed positively or stabilized between the beginning and end of the study.
Conclusion: This study showed that counseling by the community pharmacist, combined with the use of a mobile health application, can achieve the therapeutic intent of physician-initiated therapy and have a positive impact on the management of the type 2 diabetic patients as well as on outcomes considered as cardiovascular risk factors.

Disclosure of Interest: None Declared.

PP011

The ISIMPATHY approach to polypharmacy and adherence—exploring pharmacist and GP experience in Republic of Ireland

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Background and Objective: iSIMPATHY is an EU INTERREG VA funded project, delivering quality clinical care in primary care (Republic of Ireland (ROI) and Scotland) and in secondary care (Northern Ireland). The approach is interdisciplinary, collaborative and centred around pharmacist-led, holistic medicines reviews. iSIMPATHY recognises patients as key partners in their own health and iSIMPATHY medicines reviews focus on what matters most to the patient when it comes their health and wellbeing. iSIMPATHY addresses the challenges posed by polypharmacy and adherence, identified by the World Health Organization as one of the priority areas to focus on to reduce severe, avoidable medication related harm. The iSIMPATHY Project is pioneering in its approach in ROI and represents the first time pharmacist-led, comprehensive, person-centred medicines reviews are being delivered outside of research in general practice.
Design: As a clinical change project, engagement with key stakeholders is essential to iSIMPATHY success. In July 2021, a survey was conducted to obtain **structured** feedback about GPs and Pharmacists' experiences of the iSIMPATHY project in participating GP practices in Ireland. The survey also identified issues to be addressed and informed the evaluation of the project. Survey topics included barriers and facilitators to success of the project, overall impression and visions for the future for pharmacist roles in primary care in ROI were also explored.
Results: 10 GPs (33%) and 4 project pharmacists (100%) responded to the survey. Pharmacists and GPs agreed that:

- iSIMPATHY is having a positive effect on patient safety (avoidance of adverse drug reactions), patient quality of life, satisfaction, knowledge and understanding, adherence and quality of patient care.
- iSIMPATHY is having a positive effect on GP job satisfaction, knowledge and understanding.
- Pharmacist knowledge and skills, capacity to carry out and follow up on reviews (time available) and pharmacist communication with the patient are facilitating project success.
- Project funding and support, including training of the pharmacists, was felt by most to be a facilitator of project success.
- All are not only in favour of the continuation of pharmacy presence in their practice beyond the life of this project but they would encourage integration of more clinical pharmacy roles within the primary care setting in the future.

Conclusion: GPs and pharmacists find the iSIMPATHY approach overwhelmingly positive. Pharmacists' knowledge, communication skills and the capacity they bring to the practce and patient care are perceived to be significant facilitators by almost all respondents. GPs' capacity (time available) to engage with the project is a challenge. The project is perceived to benefit patients and GPs and there is unanimity in support for the clinical pharmacist role in project practices and more broadly in ROI.

Disclosure of Interest: None Declared.

PP012

Pharmacist-physician collaboration to manage hypertension in community pharmacy

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Background and Objective: Community pharmacists contribute to hypertension management by conducting point-of-care blood pressure measurement, monitoring therapy adherence and providing patient education. The aims were to assess: (1) antihypertensive pharmacotherapy, blood pressure control and therapy adherence in patients with uncomplicated hypertension and other comorbidities, and (2) collaboration between community pharmacists and general practitioners in hypertension management.
Method: Five community pharmacies were selected and 20 patients from each pharmacy (N = 100) treated for uncomplicated hypertension or hypertension with coronary artery disease, heart failure, diabetes mellitus, asthma and/or stroke were recruited by convenience sampling. A data collection form and tool to compare antihypertensive therapy to the 2018 European Society of Cardiology guidelines for arterial hypertension[1], and a self-monitoring blood pressure record sheet were developed and validated. blood pressure was measured with a validated automated device at recruitment (t1) and after 14 days (t2). The Maastricht Utrecht Adherence in Hypertension (MUAH-16)[2] questionnaire was used to assess adherence at t1. Pharmacotherapy and blood pressure values identified as not in accordance with guidelines were discussed with the general practitioner.
Main outcome measures: Appropriateness of antihypertensive therapy; Blood pressure control; therapy adherence; community pharmacist-general practitioner collaboration.
Results: Of the 100 patients (45% male, mean age 69 years), 69% had uncomplicated hypertension and 35% self-monitor blood pressure. Mean adherence score (out of 112) was 99 (range 67–110). Compliance to guidelines for both antihypertensive pharmacotherapy and blood pressure level control was observed in 77% of patients. Pharmacotherapy was not according to guidelines in 2 diabetic patients receiving bendroflumethiazide and atenolol respectively.

Discussion with the general practitioner led to discontinuation of these inappropriate drugs and addition of spironolactone in 1 patient and dose increase of amlodipine in the other. Blood pressure level was not according to guidelines in 21 patients, and following discussion with the general practitioner, 12 had dose increased, 8 had a drug added and dose was decreased in 1 patient. A significant decrease in systolic and diastolic blood pressure (-10 and 7 mmHg respectively) between t1 and t2 in patients who had blood pressure level not in accordance with guidelines was observed ($p < 0.001$).

Conclusion: Antihypertensive therapy prescribing was according to guideline recommendations in the majority of patients. The study highlights the contribution of community pharmacist-general practitioner collaboration to improve hypertension management and the need for more self-monitoring of blood pressure.

Disclosure of Interest: None Declared.

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PP013

Prevalence of drug interactions in seniors in the Czech republic: comparisons of results from three settings of care (ambulatory, acute care and community pharmacy practices)

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Background and Objective: Age-related physiological and pathological changes leads to polymorbidity, polypharmacy and higher risk of drug-drug interactions (DDIs) in older adults. We aimed to determine the prevalence and DDIs in the Czech sample during the EuroAgeism H2020 project in acute, ambulatory care and in community pharmacies.We also aimed to describe mechanisms of most common DDIs, their clinical relevance and available evidence.

Method: Data was collected (N = 1602) (2018–2021) in acute care (N = 589), ambulatory care (N = 563) and in community pharmacies (N = 450). Patients have been assessed using GCA (Comprehensive Geriatric Assessment) protocols. Data were analyzed using MedScape „Drug Checker" software and summarized using descriprive statistical analyses as prevalence of DDIs with identification of top 10 DDIs in each category. Other 2 DDIs databases (UptoDate and Micromedex) were used to compare the information of risks and available evidence about most common DDIs. R-software version 4.0.3. and c2-test (or Fischer exact test) for comparions of prevalences in various categories.

Main outcome measures: Polypharmacy, Hyper polypharmacy and Prevalence of Drug Drug Interactions.

Results: The average age was 78 years (± 7.6 SD yrs), with higher values in ambulatory care (82.8 ± 8.5 SD) and lower values in community pharmacies (71.7 ± 6.3 SD) ($p < 0.001$). Polymorbidity (6 + chronic disorders) and hyperpolypharmacy (10 + medications) in total sample in 48.4% /26.4% of seniors, in acute care in 62.9%/47.4% of seniors, in ambulatory care 60.7%/22.6% and community pharmacies in 24.9%/3.8% seniors, respectively ($p < 0.001$). Average number of DDIs identified was: 6.6 (± 6.2 SD) in acute care, 4.3 (± 4.9 SD) in ambulatory care and 1.8 (± 3.6 SD) in community pharmacies ($p < 0.001$). Prevalence of 1 + DDIs was determined 90.5% in acute care, 78.7% in ambulatory care and 43.8% in community pharmacies, with the prevalence of serious DDIs 43.6%, 32.7% and 15.1%, respectively. Prevalence of any 1 + DDIs was 73.2% and 1 + serious DDIs 31.8%. Frequent DDIs were increasing the risk of hyperkalemia, bleeding or increasing the drugs' toxicity.

Conclusion: DDIs were highly prevalent (> 70%), and serious DDIs were very common (> 30%) in acute and ambulatory care. None of identified DDIs was contraindicated for use, but majority required close monitoring of therapy. Information on clinical relevance and seriousness of drug interactions widely differed among databases. Work of clinical pharmacists helps to determine individual clinical relevance of DDIs and individual solutions of DDIs in various clinical situation and various setting of care is highly beneficial. Support: *Researchers supported by the EuroAgeism H2020 MCSF-ITN-764632, INOMED NO.CZ.02.1.01/0.0/0.0/18.069/0010046, Cooperatio KSKF-I FaF UK, ICARE4OLD H2020 project -965341, START/MED/093EN.02.2.69/0.0/0.0/19_073/0016935 and SVV program 260 551 FaF UK.*

Disclosure of Interest: None Declared.

PP014

Rationality of prescribing of proton pump inhibitors in the Czech sample of seniors assessed during the EUROAGEISM H2020 and INOMED projects

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Background and Objective: Proton pump inhibitors (PPIs) are one of the most frequently prescribed classes of drugs in older adults, administered especially for the treatment of gastrointestinal tract disorders or as a prevention of potential drug-related and other gastropathies. This study focused on the evaluation of prevalence of use of PPIs and selected basic aspects of the rationality of their prescribing in Czech geriatric patients in acute, ambulatory care and community pharmacy practices participating in the EuroAgeism H2020 project. **Main Outcome Measures:** Prevalence of PPI use, dosing, lenght of therapy and potentially associated complications of PPI therapy.

Design: Data collection was conducted between 2018–2020 in ESR7 program of the EUROAGEISM H2020 project (Nov 2017–Apr 2022). 1452 patients aged 65 years and older were assessed using validated EuroAgeism research protocol in geriatric ambulances (N = 563, including Brno, Hradec Kralove, Opava and Prague), in acute care geriatric clinics (N = 589, including Brno, Hradec Kralove, Opava and Prague) and community pharmacy practices (N = 300, Holesov and Hradec Kralove). Study was approved by Ethical Committee of the Faculty of Pharmacy, Charles University, Czech Republic,followed GDPR rules and all patients undersigned informed consents. Except patients' interviews, data were collected from medical records and with healthcare staff interviews in acute and ambulatory care.

Descriptive statistics (R-software, vers. 4.3.2) was applied in analyses.

Results: 1452 participants (66.5% women) participated in the study (average age of 79.1 ± 8.8 years SD). Prevalence of PPI use was 41.0% (most commonly prescribed was omeprazole (22.7%) and then pantoprazol (16.2%)). PPIs were mainly indicated for the treatment of gastroesophageal reflux disease (5.9%), active gastroduodenal ulcer (5.6%) or as gastroprotective agents (in more than 80% of cases). 14.7% of patients received strongly gastrotoxic drug without the concurrent use of the PPI. Long-term therapy (more than one year) was documented in 64.5% of PPIs users. Hypochromic anemia (28.6%), osteoporosis (25.0%) and malnutrition (21.3%) were determined as most common potential complications of PPI therapy in studied sample.

Conclusion: We documented frequent and long-term administration of the PPIs among older adults, used predominantly for gastroprotection. Common complications/risks of PPIs documented in our study (in 20–25% of seniors) were mainly hypochromic anemia, osteoporosis and malnutrition. These risks should be better monitored and early resolved through interventions of clinical pharmacists in older patients using PPIs.

Disclosure of Interest: None Declared.

PP015

A tailored pharmacist-led intervention to improve medication adherence in older patients: a pilot study in Greek community pharmacy

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Background and Objective: "Drugs don't work in patients who don't take them''[4]. Over the last decades, medication non-adherence constitutes a worldwide public health issue[3] and is prevalent particularly in elderly people, due to multimorbidity and polypharmacy. Research has demonstrated that visual aids in combination with patient-centered medication lists and oral instruction promote patient understandability and medication adherence at maximum. Although, their application in a community pharmacy setting is limited[1,2]. The objective of this study is to determine whether the pharmacist-led development and implementation of pill cards in older patients' could improve medication understandability and adherence.

Method: This study was carried out from December 2020 to May 2021 at a Greek community pharmacy based in Patras. A total of 90 patients were enrolled. A standardized protocol for patient recruitment was followed that included telephone and/or in-person visit appointments, interviews and questionnaires (baseline and follow-up).The inclusion criteria were patients aged 65 years and over, receiving at least five prescribed medications, whose first language is Greek and who also were willing to participate and gave the consent form. A mixed method approach was used, including quantitative and qualitative approaches. Data were collected through questionnaires and interviews. All data analyses were performed using MS Excel. Descriptive statistical analysis was performed. The frequencies and percentages were calculated for categorical variables, and means and standard deviation for continuous variables. The independent t-tests was performed for two independent samples for continuous variables distributed to compare control and intervention group. A $P < 0.05$ was considered statistically significant.

Main outcome measures: The primary outcome was medication adherence assessment using the 9-item Hill-Bone medication adherence scale questionnaire. The questionnaires were completed at baseline and at a two-month interval in both control and intervention groups. The secondary outcomes included medication understandability which was evaluated by a rating scale for medication understandability scale and its correlation with educational level.

Results: A total of 90 patients were recruited, of which 40 and 43 subjects completed the study in control and intervention groups, respectively. The use of pill card significantly improved medication understandability ($p < 0.001$) and medication adherence in the following reasons: 'omitting doses due to forgetfulness' ($p < 0.001$), 'decision-making of not taking medicines' ($p = 0.031$), refilling medications ($p = 0.018$), and 'missing to take medication because of carelessness' ($p < 0.001$), compared to the standard practice group.

Conclusion: The results suggest that pill card implementation by a community pharmacist consists an effective tool to provide appropriate medication information to patients. The pill care increases both medication understandability and adherence, in comparison to standard verbal instructions on medication use especially for patients with lower level of education.

Disclosure of Interest: None Declared.

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PP016

Optimising medication with focus on deprescribing in older people with multidose drug dispensing system: a pilot study

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Background and Objective: The number of older patients with polypharmacy will keep increasing the next decades. Polypharmacy has been linked to increased risk of adverse drug reactions. Although deprescribing guidelines are available, older people often continue the use of chronic medication without regular reconsideration of its appropriateness. Objective: to test the feasibility an intervention consisting of a clinical medication review focused on deprescribing in older people using a multidose drug dispensing (MDD) systems.

Method: Pharmacists received a training and toolbox about performing clinical medication reviews focused on deprescribing and taking into account patient' preferences and health problems. The pharmacists conducted this intervention in older people (≥ 75 years) with hyperpolypharmacy using a MDD-system. They registered drug related problems and interventions. Patients, pharmacists and general practitioners were interviewed about their experience and content analysis was performed.

Main outcome measures:

- healthcare professional satisfaction/feasibility of the service, based on semi-structured interviews;
- patient satisfaction with the intervention (PREMs questionnaire and semi-structured interviews);
- implementation rate of recommendations, the number and types of identified DRPs.

Results: Five pharmacists included 24 patients (mean 84 years old, 59% female) Per patient 4,5 drug-related problems were registered by the pharmacist. In 20 patients (91%), at least one deprescribing recommendation was made. The implementation rate of deprescribing recommendations was 75%. The provided training and toolbox were evaluated positively by the pharmacists. Pharmacists mentioned a limited number of eligible patients to recruit. Both pharmacists and GPs experienced barriers to deprescribe in patients who are also treated in secondary care. Patients were satisfied with the provided information on deprescribing and valued the pharmacists' listening skills.
Conclusion: This pilot study suggests that the pharmacist-led clinical medication review focused on deprescribing is feasible and have a potential impact to reduce overtreatment in older people with hyperpolypharmacy and MDD-systems. Both health care professionals and patients were positive about the intervention. To optimise the effect of the intervention, improvements can be made to the training and data collection procedures.

Disclosure of Interest: None Declared.

PP017

Interdependence of 'necessity' and 'concerns' beliefs for medication-related burden amongst community -dwelling adults with chronic conditions

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Background and Objective: Medication-taking places a significant burden on the individual, especially in those requiring long-term medication, which in turn can influence adherence. Considering the important impact medication-related beliefs may play in medication use, exploration of the beliefs in relation to medication-related burden is essential. Therefore, the overall aim of this study was to investigate specific beliefs about medication, medication-related burden, and the interdependence between specific beliefs and burden of medication-taking in community-dwelling adults.
Method: A cross-sectional study of Maltese community residents aged $\geq$ 18 years, suffering from chronic illness and taking at least one medication for their condition was carried out. Participants were recruited during events organised by any local council or community groups in Malta and Gozo. A questionnaire was employed to determine demographics, beliefs about medicines using the Beliefs about Medicines Questionnaire (BMQ) Specific,[1] and the medicine-related burden using the Living with Medicines Questionnaire (LMQ) v3.[2] Polynomial regression was used to determine whether the 'necessity-concerns differential' (constrained model calculated by subtracting the 'concerns beliefs' from the 'necessity beliefs) is the best-fitting model when analysing the relationship of the Total LMQ 'burden' score and the two subscales of the BMQ-specific scale: 'necessity' and 'concerns'. *P*-values $\leq$ 0.05 were taken to be significant.
Main outcome measures: Beliefs about medication; Medication-related burden; Interdependence of 'necessity' and 'concerns' beliefs for medication-related burden.
Results: A total of 96% (368/384) of those invited participated in the study, with 38% (n = 140/368) being $\geq$ 65 years and the majority (n = 223/299) were taking three or more medications per day. The mean $\pm$ standard deviation (SD) BMQ-Necessity (n = 361) was 18.2 $\pm$ 4.1 while the mean $\pm$ SD BMQ-Concern (n = 346) was 19.0 $\pm$ 4.8. The total mean burden score based on the LMQ was 103.1 $\pm$ 19.4, with the majority of valid responses (227/270) indicating a moderate or high medication burden. Confirmatory polynomial regression to assess the relationships of necessity and concern beliefs with the LMQ total rejected the constrained model. Subsequent exploratory polynomial regression found the quadratic terms indicated the best-fitting model for predicting burden using LMQ scores. Only the coefficient for 'concern' beliefs was found to be significant (p = 0.021).
Conclusion: This study identified a moderate to high medication-related burden, possibly driven by the significant effect of 'concern' beliefs on burden. Such inference is pivotal in patient counselling, indicating that medication concern beliefs should not be disregarded even when patients' necessity beliefs are high. This study supports further the importance of considering the multidimensional characteristics of the Necessity-Concerns Framework rather than considering the differential score as one variable outcome of two factors: 'necessity' and 'concerns' beliefs.

Disclosure of Interest: None Declared.

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PP018

Elderly's experience of generic drug substitution: an interview study

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Background and Objective: In Sweden, generic substitution is mandatory and has been effective in terms of lower prices. However, generic substitution may add more complexity to patients' use of medicines and may cause worries and concerns. The aim of this study was to explore how elderly persons describe the impact of switches between generics on their overall use of medicines, their perceptions about the generic substitution, and what information they had received.
Method: Twelve participants, between 66–86 years old, participated in individual semi-structured interviews in their own homes. Data were recorded, transcribed, and analyzed with content analysis.
Main outcome measures: Not applicable.
Results: During the interviews, few could describe any impact of the generic substitution on their use of medicines. None thought they had taken the wrong drug as a consequence of the substitution. Participants' perceptions of generics included both positive and negative beliefs. Some emphasized that it was cost-saving and that it did not cause them any trouble. About half of the participants usually

accepted that their medicine was switched to a generic in the pharmacy, while others rather payed extra to avoid switches. The reasons for not accepting substitution differed, some thought it was worth an extra cost to recognize the medicine, others thought their physician had prescribed a superior brand and felt safe with that. Other participants, both among those accepting substitution and those who usually didn't, described generic substitution as annoying, confusing and troublesome. Participants had mainly received information at the pharmacy.

Conclusion: Elderly persons have different experiences and hold different views about generic substitution. These findings illustrate the need for individualized support and information to those having problems with managing their medications because of frequent generic substitutions.

Disclosure of Interest: None Declared.

PP019

Development of a patient self-screening tool for identifying risks of pharmacotherapy and pilot study in the Czech republic

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Background and Objective: In order to early assess and resolve the risks of pharmacotherapy in seniors, different pharmacotherapy risk assessment tools have been developed for use by health care professionals. As the active involvement of seniors in the process of pharmacotherapy risk assessment and management increases, it is crucial to create also patient self-assessment tools in this area. The aim of this study was to develop and test in a pilot study a new patient self-administered pharmacotherapy risk assessment screening tool for use by older adults. Study was conducted in Finnish-Czech collaboration.

Method: A literature search for available patient self-administered risk assessment tools was performed following a systematic literature review of Puumalainen et al., 2019. It was conducted in databases: Evidence Based Medicine, Medline Ovid, Scopus, Web of Science, PubMed and Google Scholar for studies published between 8th of April 2016 to 10th of December 2018. Inclusion criteria were: tools focused on patients aged 65 years and older, outpatient care setting, patient-administered tools focusing on medication in general, English language and content of the tool included in the article. Items for newly developed tool were selected and adjusted using qualitative interviews with pharmacists assessing the applicability of selected and newly adjusted items. The completed tool was validated by Delphi expert panel consensus in Finland in 2019. Final version was tested in a pilot study on sample of 172 non-hospitalized older adults aged 65 and older living in the community in the Czech Republic.

Main outcome measures: Number of patients in which pharmacotherapy related problems were detected using the developed tool during pilot testing in the Czech Republic.

Results: Literature search confirmed that there is lack of similar screening tools focused specifically on geriatric patients (6 tools found). Final version of our tool was a 15-item questionnaire, in Czech version complemented with questions related to sociodemographic characteristics and table of medicines used. The Finnish version was reduced to 8 questions during the validation. Out of 172 participants in the pilot testing, 118 patients (68.6%) were women, mean age 74.2 years (SD ± 6.3). Lists of medicines were provided by 153 patients (89.0%) and 69 of them (45.1%) were using polypharmacy (5 and more medicines).

Conclusion: Active involvement of seniors in pharmacotherapy risk assessment and management is crucial for identifying medicines-related risks. Due to the lack of previously developed patient self-administered pharmacotherapy risk-screening tools for seniors, our questionnaire is one of the rare instruments in this area. It can serve to identify patients who are in need of a comprehensive medication review from a clinical pharmacist or in need of simpler support from community pharmacists to resolve problems with adherence, application of different drug forms etc.

Disclosure of Interest: None Declared.

PP020

The willingness of community pharmacists to immunise: a national cross-sectional study

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Background and Objective: Austrian pharmacists are not authorised to administer immunisations, and evidence about their willingness to immunise is lacking. The aim of this study was to investigate Austrian community pharmacists' willingness to administer immunisations in the future.

Method: This study was designed as a quantitative cross-sectional online survey based on the theoretical domains framework (TDF). The validated and piloted questionnaire was distributed to 3086 employed pharmacists across Austria, following ethical approval by Robert Gordon University. Statistical analysis was performed using SPSS (vs 21.0) and included descriptive statistics, cross-tabulations, relevant parametric/non-parametric tests and regression analyses.

Main outcome measures: Pharmacists' willingness to immunise and potential education and training needs.

Results: In total, 380 responses of employed community pharmacists were included in the analysis (response rate: 12.3%). Willingness to administer immunisations after appropriate training and legislative regulation was stated by 82.6% (n = 314) of participants. It was demonstrated that pharmacists willing to immunise were significantly younger than their counterpart (38 [IQR 31–49] years vs. 45 [IQR 37.5–54] years; OR 1.06; 1.03–1.09, 95% CI; $p < 0.001$). In relation to patient groups that pharmacists would administer vaccines to, all pharmacists were willing to immunise adults from 18 to 65 years (n = 314, 100.0%), whereas only 15.6% (n = 49) of participants would administer vaccines to children under 14 years of age. The majority of participants preferred to receive additional training with a 2-yearly renewal interval (n = 136, 35.8%). Almost all participants regarded 'first aid' (n = 347, 91.3%), 'assessment of indications and contraindications' (n = 345, 90.8%) as well as 'practical administration' (n = 342, 90.0%) as highly relevant topics for the immunisation training programme.

Conclusion: Austrian community pharmacists show a strong willingness to administer immunisations in the future while highlighting important training needs.

Disclosure of Interest: None Declared.

References: Full work published in: Lindner, N., Riesenhuber, M., Müller-Uri, T. et al. The role of community pharmacists in

immunisation: a national cross-sectional study. *Int J Clin Pharm* **44,** 409–417 (2022). https://doi.org/10.1007/s11096-021-01357-5

PP023

Are Bulgarian community pharmacists prepared to provide pharmaceutical care for pregnant and breastfeeding women?

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Background and Objective: Medicine use during pregnancy and breastfeeding is common and increasing in many countries [1]. Community pharmacists, as the most accessible health care professionals, could play an important role in providing pharmaceutical care services and improving health outcomes in high-risk populations like pregnant and breastfeeding women [2, 3]. The aim of this study was to assess the Bulgarian community pharmacists' attitudes, beliefs, and barriers regarding the provision of pharmaceutical care for pregnant and breastfeeding women.
Method: A cross-sectional, questionnaire-based study was undertaken among community pharmacists practicing in the second largest region in Bulgaria—Plovdiv. An invitation for participation was sent by email to all community pharmacists who were active members of the Regional Pharmaceutical Chamber—Plovdiv of the Bulgarian Pharmaceutical Union (n = 723, October 2019). The study tool was a pre-tested self-administered questionnaire consisting of two sections: (1) demographic data and (2) pharmacists' attitudes, beliefs, and perceived barriers regarding the provision of pharmaceutical care for pregnant and breastfeeding women. The second section included statements rated on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' The questionnaire was pre-tested for face and content validity by three experts and then was piloted in a group of 25 pharmacists.
Main outcome measures: Community pharmacists' perspectives regarding pharmaceutical care provision for pregnant and breastfeeding women.
Results: Responses were returned from 244 community pharmacists (response rate 34%). The mean age of pharmacists was 30.8 years (range: 25–59 years). The majority of the respondents (63%) had professional experience between 1 and 5 years. The predominant part of the pharmacists (90%) agreed or strongly agreed with the statement that the provision of pharmaceutical care will improve the health and awareness of pregnant and breastfeeding women. At least 70% of the respondents believed that the provision of pharmaceutical care would be beneficial for pregnant and breastfeeding women. Half of the pharmacists reported that do not have enough experience and knowledge to provide effective pharmaceutical care but are willing to attend additional training courses. Most reported barriers were lack of time (82.8%) and lack of training (84.2%). Other observed barriers were lack of effective communication (58.4%) and the limited patient information (e.g., lack of access to patients' medical records, 68.9%).
Conclusion: Overall, the respondents have positive attitudes towards the provision of pharmaceutical care. However, several barriers were reported that may hinder the implementation of pharmaceutical care in practice. Appropriate training like continuous education programs could help pharmacists to be more confident in providing pharmaceutical care services for pregnant and breastfeeding women. Further research including a larger number of pharmacists from different regions is needed to confirm the aforementioned findings.

Disclosure of Interest: None Declared.

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PP026

Pharmacists' opinions and attitudes towards direct oral anticoagulants with focus on dispensation activities and level of patients' education

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Background and Objective: Pharmacists may play an essential role in the management of anticoagulant therapy. The aim of the study was to analyze the attitudes and opinions of pharmacists towards direct oral anticoagulants (DOACs), focusing on aspects of dispensation, perception of the benefits and risks of DOACs and opinions towards the level of patient education and medication adherence.
Method: Between March and May 2021, an online anonymous questionnaire survey was conducted addressing pharmacists from the 3 Czech districts. The questionnaire was a set of 32 open or closed questions or statements assessed by the Likert scale. The questions focused on the frequency of DOACs' dispensation, pharmacists' self-confidence during DOACs dispensation, patient education regarding DOACs, and perceptions of the differences between DOACs and warfarin. Statistical significance was set as $p < 0.05$.
Main outcome measures: Opinions, experience, and attitudes of pharmacists towards clinical use of DOACs.
Results: The total of 162 pharmacists answered the questionnaire (mean age 37.5 years; 91% women). The response rate was 14%. Only answers of 139 respondents who dispensed medicines in the previous year were further evaluated. Almost a third of respondents dispensed DOACs more frequently, more often in hospital pharmacies or pharmacies in healthcare centers ($p < 0.001$). Total of 17% worked also as a clinical pharmacist. While dispensing DOACs, they focused mainly on the correct dosage, administration of the dosage form. Although only 22% of respondents did not feel self-confident about DOACs' dispensation, 98% of all respondents would appreciate further self-education. Respondents thought that pharmacist should have similar responsibility for patients' education as well as physician. Pharmacists in hospital pharmacies and pharmacies in healthcare centers ($p < 0.05$), co-working as clinical pharmacists ($p < 0.05$) and dispensing DOAC more frequently ($p < 0.001$), were more self-confident with DOACs' dispensation. Respondents, who were more self-confident had an opinion, that DOACs were safer and equally effective compared to warfarin ($p < 0.05$) and more frequently informed patients about proper administration of DOAC, adverse effects of DOACs and drug interactions ($p < 0.001$).
Conclusion: Pharmacists are aware of their position of DOACs' treatment management. Their self-confidence was related to the frequency of DOACs' dispensation, pharmacy type and contemporary work as clinical pharmacist. Self-confidence regarding DOACs could also influence opinions or dispensing activities toward DOACs.

Disclosure of Interest: None Declared.

PP027

Polypharmacy and use of potentially inappropriate medications in older population: findings from the Republic of Serbia (EUROAGEISM H2020 ESR 7 project)

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Background and Objective: Multimorbidity and polypharmacy have been growing health problems and a challenge for healthcare systems globally. In addition, use of potentially inappropriate medications (PIMs) could lead to negative health care outcomes and may impact patient's quality of life. The aim of this study was to examine polypharmacy and to identify PIMs among older patients in Republic of Serbia.
Method: The research is a part of the EuroAgeism H2020 ESR7 project. Following the EuroAgeism ESR7 international study protocols for comprehensive geriatric assessment of older adults, patients were recruited in community pharmacies located in three different regions from May to December 2019. Medication information collected from each patient were: number of prescribed medications, medication name, dose, dosing schedule and duration of medication use. Other collected information included various socio-demographic, clinical and functional characteristics according to the standardized EuroAgeism ESR7 study protocol. AGS Beers Criteria 2019 was applied for identification of potentially inappropriate medications. Ethical approval was obtained from the Charles University Faculty of Pharmacy Ethical Committee and signed informed consents gathered from all participating community pharmacies and all participating study subjects.
Main outcome measures: Polypharmacy and potentially inappropriate medications (PIMs).
Results: In total, 460 patients over 65 years accepted to participate in this research, dominantly females (58.5%), in average age of 73.1 ± 6.96 years. The average number of prescribed medications was 5.06 ± 2.6. Polypharmacy was observed in 51.3% of patients, and excessive polypharmacy in 6.1%. The most common prescribed medication groups were pain medications (20.2%), gastrointestinal medications (13.7%) and medications for central nervous system (12.0%). According to Beers Criteria, we identified 218 patients (47.4%) using PIMs in their therapy.
Conclusion: This study has confirmed that the polypharmacy is common among older patients. PIMs were discovered in higher percentage of patients. In line with these results, there is a need for improving of prescribing habits and better optimization of therapy to enhance patient's safety.
Research funding: EuroAgeism Horizon 2020 MSCF-ITN-764632 project

Disclosure of Interest: None Declared.

PP030

Evaluation of the knowledge and attitudes toward proton pump inhibitors use of the patients at community pharmacy setting

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Background and Objective: Proton pump inhibitors (PPIs) are commonly used for gastrointestinal diseases and are the most demanded over-the-counter medications in the pharmacy. PPIs do not have serious side effects in short-term use. However, in long-term use, it may cause significant side effects such as kidney diseases, liver diseases, absorption disorders (eg. vitamin B12), dementia, diarrhea caused by Clostridium difficile, and an increase in the risk of pneumonia. The aim of our study is to evaluate the knowledge and attitudes of patients toward PPIs use.
Method: This cross-sectional study was conducted in two community pharmacies in Istanbul (Turkey) between September 2021 and April 2022. Each patient's profile was recorded. A self-structured questionnaire consisted of 18 questions and the Rational Drug Use Self-Awareness Scale (RDUSS) (1) were administrated to the patients using PPIs.
Main outcome measures: Scores obtained from the Rational Drug Use Self-Awareness Scale and the correlation of the scores with patients' sociodemographic characteristics.
Results: A total of 60 patients were included in the study. 63% were female. The mean age of participants was 51.8 ± 2.1 years. Only 43% of the patients who demanded a PPI were applied with a prescription and 53% of the patients had at least one comorbid disease. The majority of the patients (83%) stated that the medication should be taken on an empty stomach and 55% of the patients stated that the long-term side effects were kidney diseases. Over half of the patients (55%) stated that they consulted their doctor before using PPI. RDUSS scores were found to be as 63.5 ± 0.9 (range 46–75) and the Cronbach alpha value was 0.673.
Conclusion: According to the results of the study, while the the level of awareness regarding the use of PPIs was high, the level of knowledge about the long-term side effects was foundlow. Community pharmacists, as specialist health professionals, have a crucial role in the rational use of PPIs via patient education and monitoring.

Disclosure of Interest: None Declared.

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PP031

Evaluation of skin cancer and sun knowledge and sun protection status of the patients

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Background and Objective: Skin cancer and sun protection are significant public health concerns in the world. The aim of this study; evaluation of skin cancer and sun knowledge and sun protection status of the patients.
Method: This cross-sectional study was conducted in a community pharmacy in Istanbul (Turkey) between September 2021 and May 2022. The patients who applied to the community pharmacy for any reason were included in the study. Sociodemographic characteristics of the patients were collected. A self structured questionnaire (9 items) and "Skin Cancer and Sun Knowledge (SCSK) Scale (25 items)" (1) were applied.
Main outcome measures: Scores obtained from the Skin Cancer and Sun Knowledge (SCSK) Scale and correlation of the scores with sociodemograhics of the patients.
Results: A total of 268 patients participated in the study. A majority of the patients (74%) were female and the mean age was 37.5 ± 0.8 (median 34.5). A majority of the patients (90%) had a high education level. The mean score of the scale was found as 14.5 ± 0.2 (7–23). Females had higher scores than males (15 vs 13, $p < 0.05$). A higher level of knowledge was found in patients with higher education levels

(15 vs 12, $p < 0.05$). However, it was determined that the knowledge level scores decreased statistically significantly with age (Spearman's rho -0.159, $p < 0.05$). Cronbach alpha value of the SCSK scale was found as 0.603.
Conclusion: According to the results of the study, the knowledge of patients was very low. Patients with young age, female status and higher education had hihger score than others. We think that community pharmacists as specialist health professionals have a vital role in the prevention from sun protection and skin cancer via counselling.

Disclosure of Interest: None Declared.

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PP033

The Combiconsultation for patients with diabetes, COPD and cardiovascular diseases: evaluation of interventions and personal treatment goals

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Background and Objective: The CombiConsultation is a consultation with the community pharmacist for patients with diabetes, COPD and/or CVRM, before the annual- or quarterly consultation with the practice nurse or general practitioner. The consultation is focused on the personal treatment goals of the patient, which are evaluated a few weeks after the consultation.
Method: Pharmacists recorded Bthe number and type of drug related problems, interventions and personal treatment goals in a web-based registration system. Descriptive analysis was performed.
Main outcome measures: Primary outcome measures are the mean number of identified and resolved DRP's and identified and achieved treatment goals per patient.
Results: Pharmacists of 21 pharmacies included 834 patients (49% men, mean age 70 years old). Pharmacists identified 941 drug related problems, mostly (potential) side effects (32%), undertreatment (20%) and overtreatment (15%). Pharmacists proposed 746 recommendations to the practice nurse/general practitioner, 62% of the recommendations were implemented. 421 treatment goals were set, of which 53% was (partly) achieved.
Conclusion: In a CombiConsultation, on average more than 1 DRP was found per patient and more than 1 recommendation was proposed. A treatment goal was set for half of the patients. The implementation rate of the proposed interventions was high: 62%.

Disclosure of Interest: None Declared.

PP037

Are depression related drug interactions preventable in people with chronic diseases?

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Background and Objective: It is a known fact that physical illnesses increase the risk of developing severe depressive illness (1). When mild, depression can be treated without medication, but when moderate or severe, people may need antidepressants (2). The advent of chronic diseases may lead to the use of many medications over time, increasing the risk of polypharmacy and drug-drug interactions (3). As part of the healthcare team, pharmacists can increase awareness about antidepressant related drug interactions and act a prominent role in helping identify individuals at risk and thereby prevent antidepressant related drug interactions without occuring. The purpose of this research was to determine the prevalence of depression and drug-drug interactions that may occur due to chronic diseases and multiple drug use in patients coming to various policlinics of a private hospital.
Method: A prospective observational study was carried out between 17–31 August 2021. Patient Health Questionnaire-9 (PHQ-9) and additional questions were applied via face to face.
Main outcome measures: Sociodemographic characteristics, chronic diseases and regularly used medicines of the participants. Assessment of PHQ-9.
Results: A total of 72 people were participated in this study with a mean age of 38.65 $\pm$ 3.94 years constituting 39 (54.2%) femaless. 35 (48.6%) of the participants applied to the internal medicine polyclinic. 22 (30.6%) of the participants have at least one chronic disease and 14 (19.4%) of the participants have used antidepressant at least once in a lifetime. 9 (69.2%) of the 13 participants who has been diagnosed with depression at least once in a lifetime have chronic diseases. The mean PHQ-9 score of the participants was 11.99 $\pm$ 4.62. Even though 47 (65.3%) of the patients have moderate to severe depression only 6 (8.3%) of them were regularly using antidepressant. Among the 42 drugs used by the participants, 8 (19%) drug-drug interactions belonging to category C were detected, and 6 (75%) of them were the interaction of antidepressants with other drugs. Escitalopram 4 (67%) was the most commonly used antidepressant by the participants.
Conclusion: The results of this study has shown that only 6 (12.8%) of the 47 patients who have moderate to severe depressive symptoms were having treatment with antidepressants. Although this ratio is very low drug interactions of the antidepressants account for a large percentage of drug interactions (75%). Considering participants having moderate to severe depressive symptoms need to use antidepressant drugs, inrease in the drug-drug interactions is strongly possible. Pharmacists, the healthcare professionals who spend the longest time with patients can identify individuals at risk before depressive symptoms progress mild to severe and refer them to the physician at an early stage. Thereby there will be a chance for patients to be treated without medication and by this way antidepressant related drug interactions can be prevented without occuring.

Disclosure of Interest: None Declared.

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PP038

Assessment of vaccination pattern and intention to receive a boost dose of COVID vaccine among patients with chronic disease conditions

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Background and Objective: The COVID-19 pandemic is a serious public health threat that is overwhelming many aspects of the people's life including physical, social, emotional and behavioural wellbeing. Comorbidities are associated with worse health outcomes, more complex clinical management, increased health care cost and death secondary to COVID-19 infection. Vaccine hesitancy is a complex phenomenon and context specific, varying across time, place, and vaccines. Recognizing such perceptions could assist decision makers in setting policies dealing with any worrisome regarding a boost COVID-19 dose. The aim of this study was to assess the pattern of vaccination and intention to receive a boost dose (s) of COVID-19 vaccine among patients with chronic disease conditions in Istanbul, Turkey.
Method: This was a descriptive, cross-sectional study conducted among a convenient sample size via direct interviews with patients having chronic disease conditions attending the community pharmacies in Istanbul, Turkey, using a structured validated questionnaire consisting of 21-item to assess the pattern of vaccination and intention to receive a boost dose (s) of COVID-19 vaccine.
Main outcome measures: Frequency of vaccination patterns and intention to receive a boost dose (s) of COVID-19 vaccine.
Results: A total of 162 patients with an average age of 56 ± 15.0 years were included in this study. Majority of the respondents were females (54.3%), had university and secondary education level (35.2%, 29%, respectively), non-cigarette smokers (73.5%). 90.1% had more than one disease condition. Hypertension and Type 2 Diabetes Mellitus represented the major chronic disease conditions (44.4%, 26.5%, respectively) with a median duration of 12.2 ± 8.7 and 10.7 ± 7.4 years, respectively. 62.3% of the respondents had no history of COVID infection, 96.3% were fully vaccinated, and of whom 90.1% received full doses of Pfizer vaccination. 50.6% were not worried about the vaccine side effects and 67.3% (n = 109) did not report any side effects after vaccination. Out of those suffers, 75.5% (40/53) reported mild side effects after vaccination which lasted for 24 h, while the remaining 24.5% reported moderate side effects which required medical intervention. 94.4% of the participants reported provision of information to control symptoms of side effects after vaccination, of whom 87.7% were followed by their healthcare providers. 50.6% worried from being re-infected. 81.5% and 12.3% were provided full information about the importance of a boost vaccine dose based on physician and community pharmacist advice, respectively. 92% and 71.6% reported a strong intention to receive a boost vaccine dose from the same previous brand, respectively.
Conclusion: This study highlights the importance and benefits of COVID-19 vaccination demonstrated by a high rate of intention to receive a boost vaccine dose despite the incidence of side effects and dispositional worry which motivates vaccination behaviours during pandemic events when benefits of vaccination are high particularly among patients with chronic disease conditions.

Disclosure of Interest: None Declared.

PP039

Predicting acceptance and intention for receiving boost dose of covid vaccine among pregnant women using Health Belief model

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Background and Objective: The COVID-19 pandemic has stretched public health. Pregnant women with COVID-19 infection are at increased risk for poorer health outcomes, preterm birth, and pregnancy loss. Despite limited safety data, COVID-19 vaccines are safe for use in pregnancy, as they do not contain a live attenuated virus. However, vaccine hesitancy is a complex phenomenon and context specific, varying across time, place, and vaccines. Predicting vaccine confidence, acceptance and reluctance are important measures to assist decision makers in setting policies dealing with any worrisome regarding a boost COVID-19 dose. The aim of this study was to assess the acceptance and intention to receive a boost dose (s) of COVID-19 vaccine using health belief model (HBM) among pregnant women in Istanbul, Turkey.
Method: This was a descriptive, cross-sectional study conducted among a convenient sample size of pregnant women attending the obstetrics and gynaecology hospital clinic of Acıbadem Mehmet Ali Aydınlar University, Faculty of Medicine in Istanbul, Turkey, using a validated structured questionnaire consisting of 8-item demographic characteristics, and 14-item questionnaire assessing acceptance and intention to receive a boost dose (s) of COVID-19 vaccine using HBM scale (intent, knowledge, worry degree, perceived necessity and vaccination history).
Main outcome measures: Frequency for acceptance and intention to receive a boost dose (s) of COVID-19 vaccine using health belief model (HBM) scale.
Results: A total of 38 pregnant women patients with an average age of 31.9 ± 5.1 years and gestational age 31.7 ± 5.6 weeks were included. Majority of the respondents had university and secondary education level (60.5%), had no comorbid disease condition (79%). 57.9% of the respondents had no history of COVID-19 infection, 86.8% were fully vaccinated, of whom 60.5% received full doses of Pfizer vaccination (vaccination history). Nealy half of the respondents (55.3%) were not worried about the vaccine side effects (worry degree) and 68.4% (n = 26) did not report any side effects after vaccination. 66.6% (8/12) reported mild side effects after vaccination which lasted for 24 h. 47.3% of the participants reported that they provided with information to control symptoms of side effects after vaccination (knowledge). Nealy half of the respondents (52.7%) worried from being re-infected. 28.9% were provided full information about the importance of a boost vaccine dose (perceived necessity).

57.9% and 7.69% reported a strong intention to receive a boost vaccine dose and from the same previous brand, respectively (intent).
Conclusion: This study revealed a high rate of acceptance and intention to receive a boost vaccine dose despite the dispositional worry. Therefore, clinicians can outline the potential benefits of vaccination weighed against the potential risks which motivates vaccination behaviours among pregnant women during pandemic.

Disclosure of Interest: None Declared.

PP040

Patterns of knowledge and safety use of energy drinks use during COVID pandemic era among athletes and sport adolescents in Kyrenia-northern Cyprus

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Background and Objective: Energy drinks (ED) are classified as functional beverages and are consumed during sporting activities to improve attention, energy supply and act as performance enhancers. Several studies revealed that the COVID-19 pandemic might have negatively impacted the dietary habits of athletes and sport adolescents. The aim of this study was to assess the knowledge, practices, and safety use, of ED during the COVID-pandemic era among youths and sporty adolescents in Kyrenia-Northern Cyprus.
Method: This was a descriptive, cross-sectional study conducted among a convenient sample size via direct interviews with youths, athletes and sport adolescents reaching gymnasiums and sporting centres in Kyrenia province, Northern Cyprus, using a validated structured questionnaire consisting of using 21-item questionnaire to knowledge, practices, and safety use, of ED during the COVID pandemic era.
Main outcome measures: Frequency of responses regarding assessment of knowledge, practices, and safety use, of ED during the COVID pandemic era.
Results: A total of 158 participants with an average age of 32.8 ± 10.5 years were included in this study. Majority of the respondents were males (58.9%), 41.1% were in the age range between 18–30 years, and had a university education (44.5%). 41.7% of the respondents reported irregular sleep pattern, 38.6% reported drinking one can of ED per day, and 60.1% reported having adverse effects following ED intake. Insomnia and palpitations (24%), diuresis (18.7%), headache (17.7%), and stress (15.6%) were the most common ED-related adverse effects. An equal proportion (48.7%) reported the useful intake of ED as a supplement and intake might potentiate the effect of other supplements during COVID-19 pandemic, while 49.4% reported that ED intake could prevent the severity of COVID-19 symptoms. There was a statistically significant low level of knowledge about the ingredients of ED ($P < 0.0001$), effects of ED intake ($P = 0.01$), and how to overcome ED side effects ($P = 0.002$).
Conclusion: This study highlights that there is a lack of knowledge and safety use of ED among youths and athletes observed by a high incidence of side effects and improper intake demonstrating associations between ED consumption and negative health effects, particularly during the pandemic era. This should be considered a significant public health problem that warrants attention and the need for close surveillance and assessment of this issue by researchers and policy makers.

Disclosure of Interest: None Declared.

PP041

Intention and hesitancy to receive a booster COVID-19 dose among Turkish community pharmacists: a cross-sectional observational study

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Background and Objective: COVID-19 is a novel emerging, rapidly propagating illness that is overwhelming most of resources of efficient healthcare systems. It is essential for health officials worldwide to estimate the willingness to take a boost dose (s) of the available COVID-19 vaccines. Vaccine hesitancy is a complex phenomenon and context specific, varying across time, place, and vaccines. Studies are also continuing to evaluate healthcare providers' intention to receive a boost COVID-19 vaccine during COVID-19 pandemic. The aim of this study was to assess the intention and hesitancy to receive a boost dose (s) of COVID-19 vaccine among Turkish community pharmacists in Istanbul, Turkey.
Method: This was a descriptive, cross-sectional study conducted among a convenient sample size of community pharmacists working in Istanbul, Turkey. Intention and hesitancy to receive a boost dose (s) of COVID -19 vaccine were assessed via Google forms using a 24-item questionnaire consisting of 5-item demographic characteristics, and 12-item questionnaires assessing the intention and hesitancy to receive a boost dose (s) of COVID vaccine based on the vaccine hesitancy questionnaire answered on a 5-point Likert scale.
Main outcome measures: Assessment of the intention and hesitancy to receive a boost dose (s) of COVID vaccine based on the vaccine hesitancy questionnaire answered on a 5-point Likert scale.
Results: A total of 145 community pharmacists with an average age of 44.2 ± 14.3 years were included in this study. Majority of the respondents were females (66.2%), had Bachelor pharmacy degree (70%), and had more than 10 years of work experience (46%). 97.2% were fully vaccinated and 90.3% received full doses of Pfizer vaccination. 54.5% received information about the importance of boost vaccine dose, of whom 37.2% received this information based on physician advice, respectively. Regarding the hesitancy to receive a boost dose (s) of COVID vaccine, 71.7% and 79.3% agreed to receive a boost vaccine dose, and from the same vaccine brand, respectively. 97.2% agreed to follow the instructions of healthcare providers to recieve a boost dose vaccine, while 83.4% agreed about the effectiveness of a boost vaccine dose. 56.5% disagree about concerns from serious adverse effects of a boost COVID-19 vaccine.
Conclusion: This study highlights that there is high level of knowledge about the importance of vaccination demonstrated as a high rate of intention and low level of hesitancy to recieve a boost dose of COVID-19 vaccine among Turkish community pharmacists. Our findings reveal that vaccination intention could be used for to inform policy-makers to take this under consideration to achieve better vaccination results.

Disclosure of Interest: None Declared.

PP042

Exploring the pharmacy students' perspectives on off-campus online learning experiences amid COVID-19 crises: a multicentre cross-sectional survey

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Background and Objective: The pandemic of COVID-19 has placed many challenges for students' learning experiences via online. The utilization of electronic online software dictates many responsibilities for teachers, students and information technologies at the university levels.
Method: The current study was self-administered validated survey with four domains has elaborated on preparedness, attitudes, experiences and barriers to the off-campus online learning of pharmacy students. The study was approved by the university ethics committee and was validated with Cronbach alfa 0.82. The participnts were pharmacy students at four levels of years of education.
Main outcome measures: Responses to these 4 domains of the survey are the main outcome.
Results: We have receive 233 responses from a population of over 400 pharmacy students (58.2% response rate). The majority of the students (48.9%) were in the age group (19–21) and were females (89.5%) and in third year (30.7%). 36.4% has mentioned that the source of knowledge about coronavirus is from the official government websites. 30.3% has agreed that they had to give up their lectures due to in-house weak internet connection. 27.3% has agrred that distance learning has affected their grades. The overall responses to the 12 questions of the attitude domain was very variable, with more than 60.0% expressed positive attitude for off-campus learning. While responses to experiences and preparedness domains was highly positive (71.2%, 76.0%) respectively. 42.9% has strongly agreed that distance learning (off-campus) has negatively affected their health (backpain, headaches and red eyes). The main barriers to off-campus learning were home internet access and learning material were too challenging, ($P = 0.04$).
Conclusion: The Covid-19 pandemic has impacted the pharmcy student's learning academically and emotionally. Despite the improvement in the current learning process by faculty efforts and high support from university, further research warranted exploring the experiences of off-campus learning.

Disclosure of Interest: None Declared.

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PP043

The design of evidence- and theory-informed intervention on prescribed opioid optimisation for chronic non-malignant pain

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Background and Objective: CNMP is a widespread public health problem, especially among the elderly. The use of prescribed opioids for CNMP has been discouraged after concerns arose about the North American opioid crisis. Many CNMP patients are facing opioid tapering or cessation, as the risks of long-term use of prescribed opioids outweigh the benefits. Objective—To describe the use of a theoretical psychological model of behaviour change to construct an intervention to enhance opioid optimisation in CNMP patients.
Method: This study applies the United Kingdom Medical Research Council (MRC) framework, the Behaviour Change Wheel (BCW), and the Behaviour Change Techniques Taxonomy to inform the synthesis of data from three complementary qualitative studies with community pharmacists, CNMP patients and pain consultants, and systematic literature reviews to design a theory-based intervention to improve pain medication use.
Main outcome measures: A high-quality prescriber-patient relationship is key in prescribed opioid optimisations.
Results: Major barriers to prescribed opioid optimisation are lack of adequate information given by the healthcare providers to the patients about their conditions and the use of opioids, lack of a clear plan for patients' treatment and the use of opioids, dismissing patients' concerns and stigmatising patients. The intervention is divided into five components targeting selected healthcare providers' behaviours: (1) Improving healthcare providers' communication skills (2) Showing empathy, (3) Avoiding stigmatization and stereotyping, and understanding the patients' stigma (4) Shared decision making and patient-centred care (5) Patient education during their clinic visits. Appropriate behaviours change techniques serving the intervention functions of education and training, modelling and persuasion are proposed. These could be delivered face to face or online through workshop, webinars, or recorded material.
Conclusion: The proposed intervention can potentially improve patient-provider understanding, contributing to greater patient trust in providers, more appropriate individualised opioid prescribing and reduction plans, and better patient compliance with treatment.

Disclosure of Interest: None Declared.

PP045

Factors influencing clinical decision-making in pharmacy: a qualitative study among Dutch pharmacists

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Background and Objective: Clinical decision-making (CDM) is considered a core competence of pharmacists, but there is limited understanding of factors influencing this process. Improved understanding of these factors could support teaching and assessment of CDM in pharmacy practice and education. Therefore, this qualitative study aimed to identify factors influencing clinical decision-making among Dutch pharmacists in primary and secondary care.
Method: In-depth interviews using a semi-structured interview guide were conducted with 16 pharmacists working in primary and secondary care settings between August and December 2021. Thematic analysis using an inductive approach was performed to identify, analyse and report influencing factors.
Main outcome measures: Factors influencing CDM categorized into four emerged domains; personal and patient characteristics, organizational and environmental factors.
Results: Pharmacists reported multiple personal characteristics influencing CDM, especially theoretical and experiential knowledge, academic skills, curiosity and risk aversion. Contextualizing, dealing with uncertainties and "making the decision" is found difficult. Other

influences included time constraints, limited patient contact and insufficient clinical data availability. Pharmacists described that constructive intra- en interprofessional collaboration, reflection and following up on decisions contributes to CDM.
Conclusion: Incorporating factors influencing pharmacists' CDM into teaching and assessment strategies could improve this competence, e.g. by implementing experience-based learning and interprofessional learning activities, and teaching clinical judgement in uncertainty. Additionally, facilitating pharmacists' CDM in practice, like providing access to sufficient clinical data, could improve this process and therefore, patient outcomes.

Disclosure of Interest: None Declared.

PP046

Do pharmacists provide adequate patient counselling for oral contraceptive users?

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Background and Objective: Accurate and efficient methods are needed to prevent unwanted pregnancies and their negative consequences (1, 2). Getting accurate and complete advice on the use of oral contraceptives is one of the basic needs of women of childbearing age. However, many factors play a role in the failure of birth control methods, including the lack of knowledge about their use and side effects (1). To provide useful information to users, healthcare providers must have accurate and complete information about birth control methods and be able to adequately communicate with users. As pharmacists are the frequently preferred healthcare proffessionals by the users for getting oral contraseptives (OCs) and related counselling services, their adequate knowledge and tendency about providing patient education has a great of importance (2). The aim of this study was to evaluate the knowledge of community pharmacists' about oral contraceptives and assessing their willingness to provide patient education and counselling.
Method: This was a pilot study conducted among community pharmacists all around İstanbul, Turkey, between 15 to 30 September 2021. All data collected face to face.
Main outcome measures: Knowledge of pharmacists about proper usage, side effects and drug interactions of OCs. Knowledge of pharmacists about appropriate instructions that should be given to patients while providing OCs and trends of pharmacists' about patient education and counselling.
Results: 35 pharmacists with a mean age of 31.68 $\pm$ 4.12 years were participated in the study constituting 24 (68.6%) females. 15 (42.9%) of the participants had master or doctorate degree. 24 (68.6%) of the pharmacists had at least 5 years of professional experience. 25 (71.4%) of the pharmacists described the proper usage of oral contraceptives whereas 10 (28.6%) of the pharmacist couldn't provide any information. 24 (68.6%) of the pharmacists declared that they know the drugs that interact with oral contraceptives, however only 12 (34.3%) of the pharmacists expressed the correct medicines that interact with oral contraceptives. 34 (97.1%) of the pharmacists declared that they know the side effects of oral contraceptives. The most commonly expressed side effects by the pharmacists were nausea-vomiting 14 (17.3%), headache 12 (14.9%) and irregular menstrual periods 5 (6.2%). 27 (77.1%) of the pharmacists declared that they provide patient education about OCs. The most commonly mentioned topics regarding patient education were proper OC usage 21 (56.8%), missed dose 7 (18.9%) and drug interactions 4 (10.8%).
Conclusion: The results of this study has shown that approximately 1 of 4 pharmacists don't know the proper usage of OCs. 2 of 3 pharmacists don't know about the drug-drug interactions. A pharmacist who does not have pharmacotherapeutic knowledge of OCs will either miss an opportunity to educate women who get their OCs from pharmacies or will provide potential users incorrect information which might cause unwanted pregnancies. Therefore it is critical to increase knowledge of pharmacists about OCs by organizing in-professional training.

Disclosure of Interest: None Declared.

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PP047

Off-label biotherapy prescriptions in the treatment of systematic diseases: compliance and role of the pharmacist

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Background and Objective: Off-label prescriptions of biotherapies have increased for several years in the treatment of systemic diseases. The aim of this study was to assess compliance of off-label prescriptions, expenditure and role of the pharmacist in 2021.
Design: Data related to patients and prescriptions were extracted from a follow-up table covering off-label biotherapy prescriptions, which pharmacists completed in 2021. Expenditure on biotherapies was extracted from Phedra and Copilote softwares. Hospital pharmacists assessed the compliance using the criteria established since January 2020 in our hospital: the clinical picture, the benefit/risk balance evaluation, the lack of alternative, the delay for the clinical re-evaluation, the information to the patient of the off-label prescription and the bibliographical references.
Results: In 2021, 5 biotherapies were administered for off-label systemic disease indications in 92 patients: infliximab (n = 36), tocilizumab (n = 36), aldesleukin (n = 16), adalimumab (n = 2) and golimumab (n = 2). The main prescribing department was internal medicine (n = 76; 83%). The 5 main indications were sarcoidosis (n = 17), Behçet disease (n = 16), Horton disease (n = 9), Still disease (n = 8), and Gougerot-Sjogren syndrome (n = 8). Sarcoidosis and Behçet disease were mainly treated by infliximab (respectively 16 out of 17, and 15 out of 16 patients). Horton and Still diseases were mainly treated by tocilizumab (respectively 9 out of 9 patients, and 7 out of 8 patients). Gougerot-Sjogren syndrome was exclusively treated by aldesleukin (8 out of 8 patients). Expenditure on biotherapies in off-label systemic disease indications represented 296,642€. The internal medicine department caused the biggest part of it (242,171€—82%). Tocilizumab and infliximab represented respectively 52% and 32% of total off-label biotherapy expenditure. In the internal medicine department, the hospital pharmacist took part in the multidisciplinary consultation meetings dedicated to biotherapies, to ensure the proper supervision of off-label prescriptions. In other departments, an off-label prescription justification form had to be completed afterwards and sent to the hospital pharmacist to review. In case of missing criteria, the pharmacist asked the physician to complete the form. The compliance was studied for 62 patients who initiated a biotherapy after January 2020. In 2021, 55 prescriptions (89%) were compliant; among the 7 non-compliant prescriptions, the

least respected criterion was the bibliographical reference (n = 6; 86%).
Conclusion: Our study showed relative satisfactory results on biotherapies compliance, but the significant costs generated require a supervision of off-label biotherapy prescriptions with a particular care to bibliographical reference. The hospital pharmacist must intervene to remind prescribers of criteria testifying compliance. The presence of a pharmacist during multidisciplinary meetings in every departments using off-label biotherapies would be a possible way to enhance off-label biotherapy expenditure management, and improve relationship between pharmacists and physicians.

Disclosure of Interest: None Declared.

PP048

A systematic review on deprescribing guidelines developed by deprescribing research networks and professional organizations

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Background and Objective: Deprescribing is one of the most promising strategies to manage problems resulting from polypharmacy and medication burden. Several deprescribing research interest groups and professional healthcare organizations developed guidelines to inform clinical practice on deprescribing. However, no study has comprehensively synthesize and summarize the characteristics, quality, and utility of those guidelines. This review aimed to systematically review and critically appraise published deprescribing guidelines by international deprescribing networks and/or healthcare organizations.
Method: Given that all target deprescribing guidelines were available through URLs in public domain, Google and Google Scholar were primarily used as search engines for this review. PubMed and Embase databases were used as supplementary resources to identify published guidelines development studies. Guidelines were included if their focus was deprescribing and published in English language. The quality of the identified guidelines was evaluated using the Appraisal of Guidelines for Research and Evaluation (AGREE II) tool.
Main outcome measures: 1. Categories and characteristics of existing deprescribing guidelines through global deprescribing networks and/or health organizations. 2. Quality assessment using AGREE II tool with the scores of the six domains for each identified guideline presented as mean ± SD and 95% confidence intervals, and median (IQR).
Results: Sixty-five deprescribing guidelines by international deprescribing networks or similar professional organizations were identified and included in the review. These were categorized as generic (n = 10), drug-class specific (n = 51), or both (n = 4). The median (IQR) overall quality score of the guidelines was [83.33% (33.33%)]. The guidelines were similar in many of their recommendations. The highest AGREE II median scores were of the domains measuring the scope and purpose [100% (27.78%)], applicability [70.83% (33.33%)], and clarity of recommendations [94.44% (16.67%)]. Lower median scores were obtained from the domains measuring rigor of development [27.08% (31.25%)], stakeholder involvement [55.56% (50%)], and editorial board [0.0% (66.67%)].
Conclusion: Development of deprescribing clinical practice guidelines should follow best practices. Professional healthcare organizations and deprescribing interest groups can benefit from collaborations between them in producing effective deprescribing initiatives.

Disclosure of Interest: None Declared.

PP049

Evaluation of the relevance of vitamin D prescription in patients with a deficiency, before and after intervention by the pharmacist and areas for improvement

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Background and Objective: Vitamin D deficiency (VITD) is a frequent problem in our region and in the elderly population. A presentation of the new GRIO 2019 recommendations was made to prescribers. However, we have identified several cases of non-compliance (NC) during the medication review (MR). Evaluation of the relevance of the hospital prescription of VITD in patients with an identified deficiency before and after entering a Pharmaceutical Intervention (PI), and definition of an improvement action plan (IAP).
Method: Prospective study including adult patients deficient in VITD, identified by a dosage, over the period from 03/31 to 04/10/22.The patient data: sex, age, VITD dosage, accommodation service, COLECALCIFEROL prescription, were extracted from the Computerized Patient File (CPF) and collated in a spreadsheet.
Main outcome measures: The recommendations were used to analyze the Compliance (C) or the NC of the prescription. A NC is defined by an absence or a bad supplementation protocol. During NC, an IP was entered and its acceptance or not was traced in the file. In case of non-acceptance of the PI, an exchange with the prescriber took place to find the causes: difficulty in consulting the PI, motivation for carrying out the dosage, knowledge of the recommendations for supplementation. These elements will be used to build the IAP.
Results: Thirty deficient patients were included over the period. A NC was identified for 28 of them (93%). After entering a PI, 25 remain NC, including 22 with no VITD prescription, 2 with frequency error, and 1 for a too short duration. For these cases, the exchange with the prescriber shows: a lack of identification of the deficiency in the CPF and a lack of knowledge of the supplementation recommendations which can be attributed to the ergonomics of the analysis laboratory software. The VITD dosage request is almost always clinically justified by the prescriber but often too close to the release date. Consultation of PIs is not complete, especially when the supplementation proposal cannot be made directly on the COLECALCIFEROL line (no prescription).The identified IAP is: awareness of prescribers to new recommendations, request for development of the analysis laboratory software to improve the identification of the deficiency, creates a decision-making tool on the search for a deficiency (relevance, deadline, etc.).
Conclusion: This study shows us that the management of VITD deficiency must be improved in our establishment in order to optimize the management of patients. The implementation of the IAP should make it possible to achieve this objective. On the other hand, work on the acceptance of IPs will have to be carried out for all the problems related to the therapies.

Disclosure of Interest: None Declared.

PP050

Optimization of medication review: characterize and understand pharmaceutical interventions without a motion for a resolution

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Background and Objective: Medication review of prescriptions is a primary mission of pharmacists and gives rise to PIs. According to good practice, a PI is characterized by the detection of a Therapeutic-Related Problem (TRP) and a resolution proposal (RP). In our Electronic Patient File (EPF), our PIs are rated according to the criteria of the ACT'IP sheet, and we added a category to identify when the pharmacist does not offer a resolution. The purpose is to carry out an assessment of PIs without a motion for a resolution (PIwr) and a categorization of these in order to identify the most frequent situations.
Method: Extraction from the EPF of PIs written between 11/01/21 and 01/14/22. If necessary, the rating has been reassessed (TRP and RP).
Main outcome measures: An analysis of the IPwr according to the TRP and the ATC class is made. Identification of the most frequent situations in order to analyze them.
Results: 4597 PIs were written over the period with 853 PIwr or 18.5%. 649 (76%) concern antibiotics (ATB) and 116 (13.5%) antithrombotics. Cross-analysis of TRP and ATC class identified the following most common situations: For ATBs, 95.6% of IPwr are related to a too long treatment time. For antithrombotics: "Non-compliance with consensus": 9.5%, concerns TRP related to the expression of the dosage of LMWH (Low Molecular Weight Heparin), "Drug interaction": 6% are mainly related to LMWH-DOA (Direct Oral Anticoagulants) co-prescription, "Overdose": 4.3% mainly concern DOA.
Conclusion: These results show that more than 80% of our PIs have a prescription proposal. On the other hand, we have not analyzed the relevance of these proposals. The PIwr mainly concern 4 domains. For ATBs, the difficulty of proposing duration of treatment is related to the difficulty of identifying the indication in the EPF. Work with the ATB sub-committee will be done to formalize the indication of the ATB and thus be able to propose the duration recommended by the commission. Regarding antithrombotics, training for pharmacists will be organized and standardized PIs will be offered. To strengthen the structuring of PIs and their acceptance, we work with the EPF developer so that our PIs can be transformed into a prescription proposal to be validated by the prescriber.
Disclosure of Interest: None Declared.

PP051

CLEO—clinical, economical and organizational effects of a ward pharmacist for orthopedics and traumatology

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Background and Objective: The medication process in hospitals is a complex, high-risk process throughout which different health professions are involved. A recently published meta-analysis concluded that still one in 30 patients is exposed to preventable medication errors, with more than a quarter classified as serious or as life-threatening. The determination of the cost–benefit, of a ward pharmacist has been attempted in several studies although almost all studies solely focus on the clinical impact and patient safety. This study aimed to identify the clinical, economic and organizational effects of a ward pharmacist for an Orthopaedics and Traumatology unit.
Method: A retrospective two-phase mixed methods study between April–August 2022 at the University hospital Innsbruck. During the 1st phase all pharmacists' interventions made during 2021 were retrospectively analysed using the classification system by Allenet et al. (2006) including the acceptance rate of suggested interventions. In a second phase an expert panel composed of 4 orthopaedic surgeons, 1 specialist for iternal medicine and 1 clincial pharmacist will classify the ward-pharmacists interventions on their clinical, economic and organizational impact using the recently published multidimensional CLEO tool. Descriptive and non-parametric statistical analysis ($p < 0.05$) [SPSS© vs.26] was used to analyse the data.
Main outcome measures: Prevalence, severity and type of avoidable medication errors within the University Clinic for Orthopedics and Traumatology. As well as the clinical, economic and organizational implications of a clinical-pharmaceutical ward-based service.
Results: All 449 medication reviews conducted in the year 2021 were analysed. Type and prevalence of drug-related problem; interventions and acceptance as well as median ratings of severity of error, clinical, economic and organizational value of the service will be reported. Exact results are pending.
Conclusion: Conclusion is outstanding as not yet finalized.

Disclosure of Interest: None Declared.

PP052

The student's knowledge, attitude and perception towards the use of pharmacy automation services during the global pandemic of coronavirus (COVID-19)

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Background and Objective: In last 20 years, there is a tremendous global growth in use of automated pharmacy services. The automated pharmacy services APS has shown many advantages such as reduced efforts, minimizes work stress, refrain pharmacist from pharmaceutical distribution tasks, and improved overall management of workload. The purpose was to delve-deeper for critical questions that arrives with every implementation of new technologies and to share our students' knowledge, attitudes and perception towards using automated technologies in various pharmacy practices and services.
Method: The study was an anonymous self-administered validated survey with four domains that elaborated on the pharmacy students' knowledge, attitude, perception, and barriers towards the utilization of automated pharmacy service (APS) in pharmacy practice and pharmacy education. The survey was tested by piloting with similar pharmacy students. The developed web-based survey designed by using Google form was sent to students at the College of Pharmacy via an active link (four domains representing: knowledge, attitude, perception, and barriers).
Main outcome measures: responses to the survey domains.
Results: Responses to the knowledge domain, indicate that majority of the students (30.8%) used the automated pharmacy system during Covid-19 pandemic, and (58.5%) indicate that the APS is important to pharmacy practice. Responses to the attitude domain, indicated that (48.7%) of the students support the expansion of the automated pharmacy system across the Gulf region, and (53.7%) prefer the APS to deal with drug developing and production.Responses to the perception domain, indicates that (43.6%) of the students believe that the automated pharmacy system provide the pharmacists with the opportunity to self-improvement. In addition to (41.5%) believe that APS result in improvement in the patient care. (26.8%) indicate that APS affect patient and pharmacist trust. (25.6%) believe that time is most real barriers to utilization and implementation of APS.
Conclusion: The students' responses to the survey domains have showed positive attitude towards the implementation of APS in the pharmacy practice and pharmacy education.

Disclosure of Interest: None Declared.

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PP053

Integration of a clinical pharmacist into cardiac surgery unit

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Background and Objective: Cardiac-surgery is complex and major process that requires transitions between wards and cardiac intensive care unit (CICU). Although a majority of drug-related problems (DRPs) occurs at hospital admission; different stages such as discharge, transitions between wards and at CICU should not be neglected. Therefore, this study was aimed to evaluate involvement of a clinical pharmacist in cardiac surgery unit.
Method: A prospective before-after study was conducted at the department of cardiac-surgery in a university hospital in Turkey. The study included observational period (November 2019–November 2020) and interventional period (January 2021-May 2021). Patients with a planned elective cardiac-surgery, aged 18 years were included and monitored during hospital stay. DRPs were identified and categorised by the PCNE classification system v.9 at both periods. Data were analyzed by using IBM^{O} Statistical Package for Social Science (SPSS) version 23.0. The study was approved by the University Clinical Trials Ethics Committee.
Main outcome measures: To identify the numbers of DRPs at transitions of care.
Results: A total of 275 DRPs and 487 causes were identified for 100 patients at observational period. Among DRPs, 69 (25%) were at preoperative ward, 56 (20%) were at CICU, 135 (49.1%) were at postoperative ward and 16 (5.8%) were at discharge. About one forth of DRPs (25.5%) were spontaneously resolved at observational period. In comparison, 215 DRPs and 305 causes were identified for 100 patients at interventional period. Among DRPs, 57 (26.5%) were at preoperative ward, 48 (22.3%) were at CICU, 84 (39.1%) were at postoperative ward and 26 (12.1%) were at discharge. A majority of DRPs (72.5%) were solved by a clinical pharmacist (with 386 interventions, of those 88.6% were accepted) at interventional period. The most common problems was related with prolonged antibiotic use (14.8%), followed by dose intervals of metoprolol (11.1%) and drug interactions (7.9%). Differences were significant between observational and interventional periods for the numbers of DRPs [275 vs 215 ($p = 0.01$)] and causes of DRPs [487 vs 304 ($p < 0.001$)].
Conclusion: Patients hospitalised for cardiac-surgery are at risk of developing DRPs at each stage of care process during hospital stay. An integration of clinical pharmacist into the unit can alert healthcare system, identify and solve DRPs for patients at cardiac surgery.

Disclosure of Interest: None Declared.

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PP054

Impact of clinical pharmacist intervention on taxane-related lymphedema among breast cancer patients

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Background and Objective: Lymphedema is a high risk, serious chronic problem for many survivors of breast cancer within two years after mastectomy and developed in the affected arm, hand and breast area by the accumulation of protein-rich fluid in the intercellular space. Risk factors are related to the cancer type (breast cancer), chemotherapy type and dose (taxane-based chemotherapy) and patient and clinical factors (nutritional status, being overweight or obese, and poor shoulder mobility). The aim of this study was to assess the effective provision of clinical pharmacy services and pharmacist-led counselling on reducing the incidence of taxane-related lymphedema among breast cancer patients after mastectomy at the outpatient oncology setting.
Method: A single-centre, prospective, controlled study was carried out on 150 breast cancer patients receiving taxane-based chemotherapy (paclitaxel and docetaxel) at the outpatient oncology setting in Istanbul, Turkey from January 2020 to February 2022. Patients were assessed for taxane-related lymphedema complications and receiving clinical pharmacist-based pharmaceutical care through an extensive patient counselling and education program in multidisciplinary collaboration, pharmacotherapy optimisation and regular recommendations for self-care activities were followed at regular schedule of chemotherapeutic protocols administration for three-month follow-up.
Main outcome measures: Assessment the incidence of taxane-related lymphedema complications using self-care activities scale and clinical pharmacist-based counselling and education program regarding nutritional information, body weight reduction, and physical activity programmes.
Results: The mean age was 54.51 ± 9.0 with the range of 36–75 years, and the mean body mass index was 28.31 ± 4.10 kg/m^2. 132 (88%) patients did not developed lymphedema in patients who received adjusted doses of taxane-based chemotherapy, exercised regularly, received lymphedema training before treatment, carried out preventive self-care activities, such as diet and life style modification applied to reduce the body mass index in obese and overweight patients. The mean score of the self-care scale was 72.67 ± 8.53 with a significant and positive findings (β: 0.209, $p = 0.042$). The mean scores of the sub-dimensions of the scale were; protection (21.37 ± 3.45), activity and disease process management (28.15 ± 6.46), pressure management (7.09 ± 1.85), and sustainability (16.29 ± 2.95).

Conclusion: Lymphedema is recognized as troubling and progressive consequence of taxane-based chemotherapy among breast cancer patients and should be informed and educated about the risk of lymphedema to detect the early symptoms by additional intervention. Such kind of intervention could be conducted by the clinical pharmacist approach who plays a significant counselling and education role to enhance patients' self-care activities for prevention and reducing the incidence risk of lymphedema.

Disclosure of Interest: None Declared.

PP056

Switch from an institutional to a commercial pharmaceutical validation software: which impact on pharmaceutical validation efficiency ?

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Background and Objective: Computerized physician order entry and validation by hospital pharmacists are means to reduce medication errors in hospitals. Pharmaceutical validation can be guided by decision support generating alerts for the pharmacist to highlight risks (drug-drug interactions, duplication, dose adjustments required). When the decision support is efficient, the time required to validate prescriptions is the lowest possible and each alert leads to an intervention by the pharmacist that is subsequently accepted by the physician in charge.
Objectives were to compare pharmaceutical validation between two software, i.e. an institutional software called Valpharma® and a commercial software called EPIC using (1) positive (alerts leading to accepted interventions) and negative predictive values, (2) mean validation time, (3) number and type of alerts.
Method: Prospective observational study in which prescriptions from seven care units were validated by one pharmacist during 17 days per software. Positive and negative predictive values, total number of alerts over the period, and type of alerts were compared by Chi^2 test, and mean validation time per prescription was compared by Mann–Whitney U test.
Main outcome measures: Positive and negative predictive values, mean validation time, number and type of alerts.
Results: One thousand two hundred and sixty-eight prescriptions were validated with Valpharma® generating 81 alerts, while 1448 prescriptions validated, with 160 alerts, with EPIC.
Positive predictive values were 17.3% (N = 81) for Valpharma® and 20.6% (N = 160) for EPIC ($p = 0.5363$). Negative predictive values were 98.3% (N = 1188) and 99.9% (N = 1377) ($p < 0.0001$), respectively.

Mean validation time per prescription was 8.89 ± 9.58 min for Valpharma®, and 7.88 ± 7.94 for EPIC ($p = 0.633$).

Drug-drug interaction ($p = 0.0007$) and duplicate medication ($p < 0.0001$) alerts increased with EPIC, while dosing alerts decreased ($p = 0.0073$).
Conclusion: In the analyzed context, the decision support of EPIC software detected more alerts (i.e. drug-drug interactions and duplication), with more pharmaceutical interventions accepted by the physician, compared to Valpharma®. No change in validation time was observed.
Finally, hospital pharmacists keep an essential place in pharmaceutical validation, despite a powerful software.

Disclosure of Interest: None Declared.

PP057

Identification and evaluation of drug-related problems in the cardiology ward: an interventional study

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Background and Objective: Cardiovascular diseases (CVD) are a common cause of morbidity and mortality encountered in the clinic. The use of high-risk drugs such as antithrombotic drugs is more common in patients with CVD. In addition, comorbidity, the presence of several co-occurring conditions may require a combination of multiple drugs and increase risk of drug-related problems (DRPs). The aim of the study is to identify drug-related problems and to evaluate clinical pharmacy services.
Method: This study was prospectively conducted in a cardiology ward of a university hospital in Istanbul. Hospitalized patients on antithrombotic therapy were included in this study. This study was approved by the local ethics committee with approval number of 19/5. DRPs were identified and categorized according to the European Pharmaceutical Care Network (PCNE v9.1).
Main outcome measures: Clinical pharmacist services were evaluated with number of identified DRPs, intervention and acceptance rate.
Results: Out of 108 patients, 47 (43.5%) were female, with an average age of $68{,}60 \pm 12.0$. The mean number of drugs used per patient was 11.92 ± 5.21. The most common comorbidities were hypertension, diabetes mellitus and heart failure 80 (70.1%), 50 (46.3%) and 46 (42.6%) patients respectively. A total of 79 DRPs were detected in 38 (35.2%) patients. The most common DRPs identified were the effect of drug treatment not being optimal (P1.2) followed by possible adverse drug events (P2.1) in 28 (25.92%) and 29 (26.85%) patients respectively. The majority of DRPs associated with dose selection (C3) and drug selection (C1), which represented 49.4% and 41.8% of DRPs, respectively. Most recommended interventions were both at drug and prescriber levels (I3 + I1). The accepted number of clinical pharmacist interventions were 69 (87.3%).
Conclusion: This study demonstrated that the clinical pharmacist has an important role in providing rational drug use in patients with CVD. Identifying and solving DRPs by the clinical pharmacist will provide positive results for both patients and healthcare professionals.

Disclosure of Interest: None Declared.

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PP058

Fall risk scores in health care facilities of geriatric care in the Czech republic

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Background and Objective: Falls are common undesirable events for geriatric patients in health care facilities. Different fall risk scores (FRSs) in health care facilities are scored by health care experts.

Usually, nurses complete the score, but also clinical pharmacists can be involved in fall risk management. Clinical pharmacists identify fall-risk-increasing drugs (FRIDs), which may contribute to falls, and also recognize and solve various drug-related problems (DRPs), which negatively influence the patient health status. The objective is to identify generally used fall risk items in health care facilities of geriatric care, and to demonstrate an important role of the clinical pharmacist in the fall risk management.

Method: The study consisted of a questionnaire survey among health care facilities of geriatric care in the Czech Republic, which took place over three months (September—November 2021). The questionnaire included a total of 27 questions. All health care facilities of geriatric care in the Czech Republic were addressed (n = 140), contacts were found via Czech Gerontological and Geriatric Society website. A total of 75 completed questionnaires were statistically processed. Descriptive statistics and Chi-Square Independence Test were used.

Main outcome measures: Individual items used in FRSs in the health care facilities of geriatric care: presence of a clinical pharmacist in the department, kind of FRS, number of questions in FRS, person evaluating FRS, timing of FRS's evaluation, preventive measures for falls, FRIDs included in FRS, involvement of a clinical pharmacist in the assessment of the risk of falls, other assessed risk parameters.

Results: More than a third of respondents (33.3%) did not require the presence of a clinical pharmacist. 40% of respondents confirm that the clinical pharmacist provides individual consultations or regularly visits the geriatric department. Less than half of the respondents (48%) use their own FRS, and more than a third of respondents (38.7%) use validated FRSs: Conley Fall Scale (18.7%), Mobility Screening Test (10.7%), Morse Fall Scale (6; 8%) and Tinetti Assessment Tool (1.3%). In the majority of health care facilities (96%), FRS is evaluated by a nurse. The timing of FRS's evaluation is in the majority (93%) immediately upon patient's admission to a health care facility. The most commonly used preventive measures for falls include an adjustment of the risk environment in the patient's surroundings (39.9%) and patient education (26.1%). For two-thirds of healthcare facilities (66.7%), FRIDs are included in the FRS. The most frequently FRIDs included in FRS consisted of psycholeptics (40.5%) and antihypertensives (13.9%). The vast majority (90.7%) did not involve the clinical pharmacist in the fall risk assessment.

Conclusion: Unfortunately, the clinical pharmacist is rarely involved in the fall risk evaluation, and a third of geriatric departments do not consider high-risk drugs as contributors to falls. It shows a potential gap in clinical practice and the importance of clinical pharmacist in the fall risk management of geriatric patients.

Disclosure of Interest: None Declared.

PP059

Evaluation of the pharmaceutical services—a web-based survey at Uppsala university hospital and the hospital of Enköping

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Background and Objective: Clinical pharmacy services are implemented at 25 wards at the two hospitals. To improve and further develop the services an evaluation, using a web-based survey, was performed.

Design: The survey questions were developed in workshops with clinical pharmacists working at the hospital and created in the tool *SurveyMonkey*. The survey was distributed to physicians and nurses at wards with pharmaceutical services.

Results: A total of 90 participants responded to the survey, 59 nurses and 31 physicians. The first part of the survey consisted of questions regarding pharmacists' accessibility and role in the health care team. The participants (91%) agreed that the pharmacists are easy to get hold of when they are at the ward, but many emphasize that they are absent on evenings and weekends. They also considered the pharmacists to be members of the care team (86%). The second part consisted of questions about the effects of the services. Most agree that pharmacists contribute to a better working environment (72%), increased quality (81%), improved patient safety (86%) and to an increased level of knowledge about medicines (70%). The last part addressed quality of the pharmaceutical services and areas for improvement. The participants responded that the pharmaceutical services are of high quality (99%) and suggestions for improvement were services during evenings and weekends and increased staff continuity.

Conclusion: Most of the participants responded that the pharmacists are easily accessible and that they are an obvious part of the care team. The pharmaceutical services offered are perceived to increase patient safety, quality and improve working conditions for other healthcare staff. The services are perceived to be of high quality and many participants want pharmacists' support and help outside office hours.

Disclosure of Interest: None Declared.

PP060

Medication review and beliefs, needs and priorities patients' interviews by clinical pharmacists: experience in a geriatric rehabilitation interprofessional team

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Background and Objective: Clinical pharmacy in the geriatric department was initiated since one year with participation in medical rounds and pharmaceutical interventions (PI) to optimize drug therapy. Before starting this project, clinical pharmacists had no direct interaction with patients nor with enlarged interprofessional teams including therapists, dieticians, social workers, etc. Objective: Integration of clinical pharmacists in the interprofessional team providing relevant elements following medication reviews and understanding interviews with patients.

Design: 5-weeks prospective descriptive study. Inclusion criteria: age $\geq$ 75, comorbidities $>$ 3, polymedication $\geq$ 5, without major cognitive impairment or language barrier. The 2 clinical pharmacists (0.8 full-time-equivalent) conducted understanding interviews with patients using *Optimization of Medication in AGEd* (OMAGE) cards, open-ended questions and active listening to bring out their beliefs, needs and priorities. During an understanding interview, among the 44 OMAGE cards representing 7 health/pharmaceutical problems - described with images and large comprehensible words- each patient selected those that represent their priorities. Moreover drug-related problems (DRP) were detected by a structured therapeutic optimization method. Participation of clinical pharmacists in interprofessional meetings to bring relevant DRP and elements of understanding interviews.

Results: 24 patients were included, age 87 $\pm$ 5.4 [min:78;max:95], receiving 11 $\pm$ 3.0 [5;18] drugs during hospitalization, including 1.8 $\pm$ 1.2 [0;5] drugs increasing fall-risks. Understanding

interview's duration was 37 ± 12.0 min [20;60]. The number of cards retained was 10 ± 3.9 [5;18]. Concerning the 15 most retained cards, 4 cards concerned *mobility*—particularly *I have pain*- 5 *physical problems*, 3 *gastro-intestinal/nutritional problems* and 3 *psychological problems*. The number of priorities per patient was 3 ± 2.4 [1;13]. 74 DRP were detected, including 34% for *untreated indication*, 27% *inappropriate/duplicate medication* and 14% *underdosing*. The most represented PIs types were *drug initiated* (32%), *drug discontinued* (30%) and *dosage adjusted* (24%), with 85% PIs accepted by prescribers. Drugs of digestive/metabolic system were the most involved in PIs (30%). Clinical pharmacists participated in 8 interprofessional meetings and presented 3 ± 1.1 [2;4] patients met in understanding interviews. 61 patient's needs were highlighted by clinical pharmacists during interprofessional meetings. The number of issues discussed per patient was 3 ± 0.8 [1;4].
Conclusion: Interprofessional team's feed-backs were enthusiastic and reported "a real and concrete resource", "a very relevant presence" to "refocus on needs and understanding of patients, with the adaptation of treatments". The next step of this exploratory project will be to develop therapeutic education with patient-centered programs according to identified needs.

Disclosure of Interest: None Declared.

PP061

Documentation of clinical pharmacy services at Semmelweis University

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Background and Objective: There is a high influx of new hospital-clinical pharmacists due to a recently introduced national residency program in Hungary which is leading to an increase in accessibility of clinical pharmacy services. There is no official documentation system or benchmarking of clinical pharmacy services in place. As a first step we created an online tool that focuses on registering the provided clinical pharmacy interventions and services at Semmelweis University.
Design: A prospective (pilot) register of clinical pharmacy services was established. The documentation system has two domains. The first part is dedicated to register the identified drug related problems, based on the Pharmaceutical Care Network Europe Classification (v8.02). The second domain is dedicated to register the provided clinical pharmacy services. The online documentation system were filled out by the clinical pharmacists at multiple departments of the university, immediately at the bedside or later in the office.
Results: Thirteen pharmacist from 9 departments documented interventions for 48 months. There were 919 drug-related problem cases identified and 2301 consequent therapeutic interventions documented. The most important interventions were discussions with the prescriber about the drug-related problem (287); dosage changes (201) and drug discontinuation (128). The proposed interventions were accepted by the prescribers in 822 cases (89.4%), and were fully implemented in 599 cases (65.2%). Additionally we provided clinical pharmacy services on 568 occasions, consisting of patient education (240), literature review (137) and professional consultation (103).
Conclusion: The designed tool was easily accessible and simple to use and. It helped to start the process of documenting the previously unrecognized clinical pharmacy services. Clinical pharmacists' interventions were recorded in high number. As clinical pharmacy services might improve patient safety, accurate documentation of these services is crucial.

Disclosure of Interest: None Declared.

PP062

Use of venetoclax in different hematological diseases

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Background and Objective: Venetoclax is used in many pathologies, but only is authoriced for the treatment of chronic lymphocytic leukemia (CLL). The objective of the study was to describe the use of venetoclax in patients with different hematological diseases.
Design: Retrospective study of the treatments with venetoclax from 2016 to 2021. Demographic data (age and sex), type of disease, and the pharmacotherapeutic history of the patients were collected. The use of venetoclax was evaluated according to the following criteria: diagnosis and indication, dosage regimen (including the use of a dose escalation), and treatment as monotherapy or in combination.
Results: Thirty-one patients (55% female) were included with a median age of 65 years [20–81] and a median number of previous lines of treatment of 4 [2–6]. Thirteen of the patients (42%) were diagnosed with CLL and venetoclax was used in the second (n = 8), third (n = 3) or sixth (n = 2) line of treatment. The others 18 patients (58%) were diagnosed with other hematological pathologies different from those authorized in the data sheet: acute myeloid leukemia (n = 11), myelodysplastic syndrome (n = 2), multiple myeloma (n = 2), and other hematological pathologies (n = 3). In these cases, patients received venetoclax from the first to the ninth line of treatment. Regarding the dosage regimen, all patients with CLL started treatment with dose escalation and received the established daily dose of 400 mg. The 18 patients with other diagnosis, 6 began treatment with the dose escalation, 3 patients reached doses higher than 400 mg, and in another 4 the dose was reduced due to being receiving concomitant treatment with azole antifungals. The patients with CLL, 2 received venetoclax as monotherapy, 8 in combination with rituximab and 2 with ibrutinib, in this case as unautorized indication, as in the rest of the pathologies, in which venetoclax was used in combination with hypomethylating agents (n = 12), cytarabine (n = 2) and other drugs (n = 4).
Conclusion: Venetoclax is used most times in unauthorized indications, in differents hematological diseases and in advanced lines of treatment when there are no other therapeutic alternatives.

Disclosure of Interest: None Declared.

PP063

Hospital pharmaceutical services at transition of care points: a scoping review

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Background and Objective: Pharmaceutical services in hospitals can be very diverse and take place at different interfaces of patient care. They are an important tool for optimising medication safety.

Nevertheless, they are not yet sufficiently implemented in hospitals around the world. In order to obtain an overview of already existing pharmaceutical services in hospitals and associated key performance indicators, a scoping review was conducted. The aim was to summarise the existing hospital pharmacy services at transition of care points and report the key performance indicators necessary for hospital pharmacists.
Design: A literature search was conducted across four databases (PubMed, Cochrane Library (Ovid), ScienceDirect and PubPharm). An extensive search strategy was developed and, with the help of a librarian, refined. The subsequent title, abstract and full text selection was carried out by two researchers independently using the PRISMA-ScR method. Defined inclusion and exclusion criteria were set at the beginning, including only studies from developed countries (since 2011) and published in the English language. Study types considered were original studies, randomised controlled trials and systematic reviews. The data obtained was extracted and summarised with a bespoke data extraction form, developed for this study.
Results: 69 papers met the inclusion criteria. Most studies are from North America (n = 30) and Europe (n = 30). A review of the literature showed that there is predominantly data on medication reconciliation (n = 9) when patients are admitted from the emergency department. However, very little is known about pharmaceutical services for internal hospital transfers. Studies from the USA show that Transition of Care Teams (TOC) are a great advantage as an interdisciplinary approach. Pharmaceutical services reduced medication errors, 30-day readmission rates, and length of stay. Key performance indicators, such as medication reconciliation or patient education, increase therapeutic success and patient safety.
Conclusion: Given the positive impact of hospital pharmaceutical services at transition of care points on patient safety their expansion across hospitals world-wide is urgently needed. Furthermore, more studies on services for internal transfers of patients and key performance indicators would be desirable.

Disclosure of Interest: None Declared.

PP064

Hospital pharmacy services at point of admission: a scoping review

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Background and Objective: Medication errors are defined as any type of error that causes an adverse drug event (ADE) or causes harm to patient safety. On average, one in ten patients is affected by an ADE during their hospital stay and it is estimated that the costs to the healthcare system is $42 billion annually. The Global patient safety action plan published by WHO in 2021 aims to improve medication-related patient harm at transition of care points. The aim of this scoping review was to determine which hospital pharmacy services exist at on admission to hospital and how these services can improve patient medication safety.
Design: An extensive literature search of four databases (PubMed, PubPharm, Cochrane Library (Ovid) and ScienceDirect) was conducted. A detailed search strategy was created and refined with the help of a librarian. The search was limited to original studies, randomised controlled trials and systematic reviews published since 2011 in developed countries. To ensure quality and eliminate bias, title, abstract and full text selection was completed by two researchers independently using inclusion and exclusion criteria as defined by the study protocol. Discrepancies were discussed and resolved with the help of a third independent researcher. The study was reported in accordance with the PRISMA-ScR items to ensure quality standard reporting.
Results: Out of 5734 studies screened, 69 were included in the final data analysis. Studies mainly originated from North America (n = 30) and Europe (n = 30). The most frequently performed pharmacy services at the hospital admission interface were medication reconciliation (n = 15), Best Possible Medication History (BPMH) (n = 6) and medicines review (n = 6). These services resulted in improved patient medication safety and therefore patient outcomes. In addition, a reduction in the medication error rate and the 30-day re-admission rate was observed although this was not statistically significant.
Conclusion: Hospital pharmacy services on admission have shown to have a positive impact on patient medication safety by improving patient and prescribing safety throughout their stay in hospital and reducing re-admission rates. A systematic literature review and meta-analysis of the clinical and economic impact hospital pharmacist involvement at admission to hospital is desirable.

Disclosure of Interest: None Declared.

PP066

Psychology training for enhanced pharmacy polypharmacy reviews

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Background and Objective: Encouraging and supporting patients to have an active role in manageing their medicines and health conditions can lead to increased health literacy, adherence and safety. The 'Transforming medication safety in Northern Ireland'[1] document commits to making medication safety a priority, aligned the the World Health Organisation's third global challenge[2]. The iSIMPATHY (implementing Stimulating Innovation in the Management of Polypharmacy and Adherence Through the Years) team are delivering medication reviews to patients in secondary care in Northern Ireland. A need was identified to enhance knowledge and skills to ensure patients were fully encouraged and supported to be active in manageing their health and medicines.
Method: Four sessions were developed by a clinical psychologist and the iSIMPATHY pharmacy team. These included motivational interviewing, adherence, difficult conversations, manageing change and identifying and supporting patients' mental health. Sessions were analysed by focus group. These sessions led to the development of a psychology workshop for final year pharmacy students at Ulster University. This session was analysed using a post-workshop questionnaire which had received ethics approval.
Main outcome measures: Pharmacist and student satisfaction, enhanced skills and patient outcomes.
Results: The pharmacist education sessions were very beneficial, positively received and have led to increased pharmaceutical outcomes for patients including motivational interviewing for lifestyle change and increased mental health identification and support. Pharmacists feedback considered the enhanced knowledge and confidence in a number of important areas. The final year pharmacy students all agreed or strongly agreed that they enjoyed the psychology session and feedback was very positive.
UUa: 'The role psychology can have when interacting with a patient'.

UUb: 'The health psychology component is highly relevant for us as pharmacy students and I think is a valuable skill. I hope this is a component that will be explored further for pharmacy education'.

UUc: 'Listening to the role play helped me gain a better understanding of the type of conversation you would have'.

Conclusion: The pharmacist psychology sessions were well received and have led to increased patient care. Pharmacy students found the introduction of teaching by a psychologist to be valuable. There is great potential to enhance the delivery of student pharmacist education by psychologists.

Disclosure of Interest: None Declared.

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PP067

Patient psychological types in pharmaceutical care

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Background and Objective: Effective communication is an important factor for increasing patients adherence and compliance to the pharmacotherapy. For ensuring it understanding each other perceptive needs and abilities are needed [1].
Design: We analyse 5 scales evaluation of people (patient) personality for consideration in clinical settings.
Results: For the assessing patient's psychological features different scales can be used eg. OCEAN, FRIST, Insights Discovery, and the Socrates method. The first three scales are based on performing a multi-question test, which should be written in calm conditions, without a lot of thinking about the answers. Socrates divided people into four character groups using their behaviour assessment. Scale OCEAN is the Five-Factor Model of Personality: Agreeableness, Openness to Experience, Conscientiousness, Extraversion, Neuroticism [2]. They describe our distance to the social world, openness to people, duty, susceptibility to stimulation and approach to difficulties. For its evaluation, different test can be performed. Scale FRIST is based on the definition of the Four Thinking Styles [3]. A Competitor for whom facts matter the most, a Partner for whom relationships are the most important, a Visionary is the dominant perspective of an idea, and a Researcher who prefers information analysis. Insights Discovery divide people into colors: Red, Management Type, which pays attention to data and experience, Color Blue—facts and figures, Color Yellow—impulsive type, life of the party, Color Green—friendly type [4]. The scale of Socrates consider the human attitude towards the world. Sanguine has a positive attitude to the world, a Choleric is a man of action, a Melancholic is a sensitive introvert, and a Phlegmatic, who is an observer [5].
Conclusion: The common features of these methods are a fairly objective assessment, based on the assessment of behavior, i.e. body language, words used for communication and the general impression made by the patient. In the work of a pharmacist who has a short contact with the patient, the Socrates Method seems to be the most useful, because it is the least complicated and allows for a quick assessment of the personality, and thus the way of forwarding the information about the drug. Each patient is different and for each a different approach may be effective. The role of the pharmacist is to adapt the message to the individual person in order to increase the chances of success of the therapy. The increasing role of the pharmacist in the multidisciplinary teams caring for the patients providing drug education creates a need for improving communication skills among healthcare workers. A friendly and substantive place that helps to come to terms with and survive the inconveniences of treatment of serious diseases.

Disclosure of Interest: None Declared.

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PP068

Drug related problems identified by clinical pharmacists and associated risk factors at medical wards in Thailand

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Background and Objective: Drug-related problems (DRPs) are events involving drug therapy that can impact the patient's outcome of therapy and medication safety. Effective identification and resolution of DRPs is an important role in reducing patient harm. Knowledge of the nature and associated risk factors of DRPs is help to target patient at high risk or patients who most need pharmacist's interventions. This study aims to identify DRPs and associated risk factors to design effective strategy of targeting patient at high risk.
Method: A prospective observational study was conducted at medical wards of Lampang hospital, Thailand between January and July 2020. Adult patients $\geq$ 18 years old and admitted at least 24 h of hospital stay were included. Patients were assessed for DRPs by clinical pharmacists as part of their routine daily services. Identified DRPs were recorded and classified using the pharmaceutical care network Europe (PCNE) classification system and assessed their preventability and severity. Each DRP was independently assessed by a senior clinical pharmacist at study site. Preventable DRPs rated the severity at NCC MERP category C and above were considered as clinically preventable DRPs, which were included for analysis. Multivariate logistic regression analysis was carried out to determine risk factors associated with DRP.
Main outcome measures: Incidence and charecteristics of DRPs.
Results: A total of 1350 hospital admissions were enrolled in analysis. Approximately, sixty-two percent (n = 844) of the patients were male with a mean age of 64.3 (16.09) years. The majority of patients (81.70%, n = 1103) had one or more comorbidities and used an average of 6.02 (3.21) drugs. A total number of 271 admissions were identified occurring at least one DRP, of which 155 were clinically preventable DRPs. Sixty-two (40%) clinically preventable DRPs were detected during hospital stay. Overall, these DRPs were most commonly classified within the treatment effectiveness (38.7%, n = 60) and treatment safety (45.2%, n = 70) domain. The most commonly causes of DRP were dosage too high (32.3%, n = 50) followed by no drug treatment in spite of existing indication (25.2%, n = 39) and dosage too low (8.39%, n = 13). Risk factors associated with DRPs were regular drugs prescribed on admission $\geq$ 5 items (OR = 1.49, 95Cl%: 1.02–2.19, $p = 0.040$), advanced age ($\geq$ 65 years) (OR = 1.66, 95Cl%: 1.12–2.44, $p = 0.011$), chronic cardiac disease (OR = 1.71, 95Cl%: 1.14–2.56, $p = 0.010$), parenteral administration (OR = 2.05, 95Cl%: 1.29–3.26, $p = 0.002$), and using drug with special instruction (OR = 2.14, 95Cl%: 1.47–3.10, $p < 0.010$).

Conclusion: DRPs are common in hospitalized patients and potentially preventable. For the patients investigated, there are five important independent risk factors associated with DRPs. Taking these results into account, clinical pharmacists will be able to target patients at high risk of DRPs. Consequently, early given interventions could be useful for the optimization of drug therapy.

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PP069

Development of clinical pharmacy on the geriatric ward in a 192-bed general hospital in Belgium

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Background and Objective: Polypharmacy is a common problem for elderly patients. In Belgium, about 34% [1] of the population aged 65 years and older is concerned. The presence of a clinical pharmacist on the geriatric ward is therefore valuable. In june 2020, clinical pharmacy was introduced on this ward in our institution, a 192-bed secondary care general hospital. The aim of this project was to integrate a clinical pharmacist into the geriatric ward to optimize the treatment of each patient in a multidisciplinary way and to assure medication reconciliation.
[1] https://www.mloz.be/fr/Polymedication75plus
Design: At first, the missions of the clinical pharmacist were presented to and discussed with our geriatrician and nurse staff and are resumed as follows:

- Drug history for each patient on admission
- Medication reconciliation
- Analysis of the treatment: checking the posology, interactions, side effects,…
- Suggestions for treatment adaptation
- Therapeutic patient education
- Preparing and explaining a treatment plan to the patient and his social environment for his discharge

After receiving their approval, our work could start in June 2020. The drug history, screenings for drug related problems and pharmaceutical interventions are made and recorded in the patient's electronic record. Every tuesday, a multidisciplinary meeting is conducted. At this time, the physician, nurse, physiotherapist, occupational therapist, dietician, social worker, psychologist and clinical pharmacist can discuss the treatment evolution of every patient.
Results: From June 2020 to May 2022 867 patients were seen by a clinical pharmacist, a rate of 95,91% of patients admitted to the ward. Positive feedback was given by the nursing staff, physician and patients. The presence of the clinical pharmacist on the geriatric ward helps to reduce workload of the nursing staff and the physician. At the same time it allows an optimized patient management.
In addition to this daily work, an audit on preparing and administering drugs was performed during march 2021. The aim was to analyze, optimize and therefore secure the current drug circuit on the ward.
Conclusion: To evaluate the real impact of his work, the acceptance rate of the pharmaceutical interventions will be recorded and a survey will be conducted. An extension of this project to all geriatric patients located at the hospital and the geriatric day clinic is intented.

Disclosure of Interest: None Declared.

PP070

Polypharmacy and comorbidities in older patients with COVID-19

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Background and Objective: As COVID-19 severity and mortality increase with age, older patients are more prone to hospital admissions, in which the complex pharmacotherapy of COVID-19 is combined with frequent polypharmacy. Our monocentric study aimed to analyse the chronic pharmacotherapy and comorbidities of hospitalised COVID-19 patients.
Method: Chronic pharmacotherapy and comorbidities in COVID-19 patients hospitalised in the University Hospital Trnava were accessed in pseudonymised form and analysed. Chronic pharmacotherapy and comorbidities were divided into groups according to the ATC system and organ groups. Data were evaluated in groups of patients under 65 years and above.
Main outcome measures: To analyse the composition of chronic pharmacotherapy, present comorbidities, and clinical outcomes of elderly hospitalised patients with COVID-19.
Results: Out of 135 patients, 49.6% (n = 67) were 65 years and older ($\geq$ 65). Full vaccination status was higher in $\geq$ 65 patients (16.4% vs. 10.3%). The $\geq$ 65 patients were hospitalised for a shorter period (median 9 days vs. median 11 days). A higher number of non-survivors was observed in the $\geq$ 65 years group (40.3% vs. 32.4%), together with discharges from the hospital (34.3% vs. 23.5%), but with fewer transfers to another ward (25.4% vs 44.1%). The $\geq$ 65 patients also suffered from more comorbidities of organ systems (median 4 vs. median 3). Most common comorbidities were from the group of cardiovascular diseases, obesity, metabolic syndrome, and type 2 diabetes mellitus. The median number of medications in $\geq$ 65 patients was 6 (0–21) belonging to 2 (0–11) different ATC groups vs. 2 (0–15) from 1 (0–7) ATC group. Drugs from ATC groups C (cardiovascular system), B (blood and blood forming organs) and A (alimentary tract and metabolism) were the most common.
Conclusion: Half of the patients hospitalized with COVID-19 were $\geq$ 65. Polypharmacy and comorbidities in $\geq$ 65 patients hospitalised with COVID-19 were common. Hospitalisation of $\geq$ 65 patients was shorter than in younger patients. Drug-related problems and adverse events in polypharmacy and complex COVID-19 therapy should be considered.
Acknowledgement: This project was supported by VEGA 1/0283/22, 1/0815/21, APVV SK-FR-19–0005 and UK/355/2022.

Disclosure of Interest: L. Markusková Other: internship at Roche Slovensko, s.r.o., Z. Javorová-Rihová: None Declared, T. Fazekaš: None Declared, A. Martinkovičová: None Declared, D. Rábarová: None Declared, M. Soľavová: None Declared, D. Dingová: None Declared, A. Hrabovská: None Declared.

PP073

Procedure for the analysis of pharmacogenetic polymorphisms affecting Siponimod response

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Background and Objective: Multiple sclerosis (MS) is a neurological, chronic and demyelinating disease of the central nervous system. Siponimod is the first oral treatment option for secondary progressive multiple sclerosis (SPMS). The main objective of pharmacogenetics (PGx) is to predict the response of patients to different drugs. Genetic polymorphisms in enzymes related to metabolism give rise to interindividual differences in response to drugs. The CYP2C9 enzyme is responsible for the metabolism of siponimod and there are differences in its effect when comparing the wild-type CYP2C9 genotype (CYP2C9 * 1/* 1) versus CYP2C9 * 2/* 2 and * 3/* 3.The main objective of the study is to describe the implementation of CYP2C9 * 2 and CYP2C9 * 3 genotyping before treatment with siponimod in our daily clinical routine.
Design: Descriptive multicenter study of 14 patients prescribed siponimod. Demographic variables of the patients, the genotype and phenotype resulting from the genetic test and the therapeutic recommendations were collected.
Results: Patient circuit:When SPMS is diagnosed and siponimod is prescribed, doctors place an electronic request for PGx. Patients are informed and asked to sign the informed consent for genetic tests. Then, a nurse takes a saliva sample. Each sample is identified. These data are recorded in a database.CYP2C9 * 2 and * 3 are genotyped using pre-engineered TaqMan® genotyping assay technology and analyzed with real-time PCROf the 14 genetic tests that were performed, 71% (10/14) corresponded to patients with a CYP2C9 * 1/* 1 genotype, 14% (2/14) to CYP2C9 * 1/* 2 patients, 7% (1/14) were CYP2C9 2 */* 3 and 7% (1/14) were CYP2C9 * 3/* 3.The PGx unit recommends that patients with CYP2C9 (CYP2C9 * 1/* 3 and * 2/* 3 genotypes) use 50% of the standard dose and patients with CYP2C9 (CYP2C9 * 3/* 3 genotype) should avoid siponimod.
Conclusion: The figure of the pharmacist in the PGx unit is very important to be able to predict how the drugs will behave in different patients according to the pharmacogenetics of each one.

Disclosure of Interest: None Declared.

PP075

Deprescribing proton pump inhibitors in the older population

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Background and Objective: Long-term use of proton pump inhibitors (PPIs) in the older population can cause adverse effects including hypomagnesaemia, pneumonia and fractures. Hospitalisation presents an opportunity for assessing PPI appropriateness, and dose reduction or drug discontinuation should be considered. The objective of this study is to determine deprescribing practices for PPIs in older patients and to contribute to improving appropriateness of treatment by pharmacist intervention.
Method: Patients $\geq$ 65 years, on PPI treatment at a rehabilitation hospital and discharged during January–July 2021, were identified by retrospective review of pharmacy patient profiles. Data was collected using a validated data collection form which included indication, dose, duration, concurrent medication, comorbidities, and care issue documentation for inappropriate prescriptions. Results were disseminated to the clinical pharmacy team at the hospital by the researcher to promote rational use of PPIs. Periodic email reminders, reinforced by recent publications regarding PPI deprescribing, were sent to the clinical pharmacy team during September–December 2021. A second audit is being carried out on a similar cohort of patients discharged during January–July 2022 to assess any improvement in PPI appropriateness and care issue documentation. Data was analysed using Microsoft Excel®.
Main outcome measures: Appropriateness of treatment; documentation of clinical pharmacist interventions on pharmacy patient profiles.
Results: 137 patients $\geq$ 65 years on PPIs were reviewed, with omeprazole being the most common medication (97.8%) as a daily dose of 20 mg. The most frequent indication for PPI prescription was gastroprotection due to concurrent high-risk medication. Anticoagulants, selective serotonin reuptake inhibitors, clopidogrel and dipyridamole were the most common high-risk medications prescribed concurrently with aspirin, justifying PPI use. PPIs were overprescribed in 97 (70.8%) patients, of which 26.8% had the PPI discontinued and 24.7% had the dose reduced at the rehabilitation hospital. For those patients who required deprescribing, care issue documentation was completed by the clinical pharmacist in 43.4% of patients.
Conclusion: Preliminary results indicate a substantial proportion of patients on inappropriate PPI therapy and lack of documentation on pharmacy patient profiles. The second audit will determine whether PPI appropriateness improves through interventions by clinical pharmacists.

Disclosure of Interest: None Declared.

PP076

Polypharmacy of oncology palliative patients and potential role of clinical pharmacist in multidisciplinary palliative team

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Background and Objective: Plenty oncologic palliative outpatients are polymorbid patients with polypharmacy. In a pilot study we collected data from 250 patients who visited the palliative oncology outpatient department from 13th March 2020 to 30th March 2022. Clinical pharmacist is a member of palliative team since January 2020 in our hospital. The goal of clinical pharmaceutical care of palliative patients in this pilot study was to screen and review a complete list of patients' actual medication and to compile an individual list of their current medications. Patients' medication was graded as low, medium and high risk (according to Decree No 421/2016 Coll) and in cooperation with palliative physicians to provide more effective and safe of pharmacotherapy of palliative outpatients.
Method: Clinical pharmacist obtained all data from medical records during each visit (including information about personal medical history, diagnostic summary, current pharmacotherapy, current clinical parameters (weight, BMI, blood presure, heart rate), palliative care plan, revised updated medication (added or discontinued). Descriptive statistics was used to analyze data, mean with standard deviation (SD) or frequency analysis.
Main outcome measures: To describe degree of polypharmacy, specify the most frequent drugs in medication of oncology palliative outpatients, to identify high risk or unnecessary medication and by cooperation within multidisciplinary team to improve efficacy and safety of patient's pharmacotherapy.
Results: A total of 509 visits were provided during this period since some patients came repeatedly during this period (maximum 9 visits). The study sample consisted of 126 women (50.4%) and 124 men

(49.6%) and were stratifed into five age categories. 137 patients (54.8%) had polypharmacy (8 or more drugs in their medication), number of drugs in pharmacotherapy ranged from 1 to 21. The most common groups of drugs were analgesics (in 76.4% of patients) and antihypertensives (in 68.4% of patients). 20.4% of patients had diabetes mellitus on pharmacotherapy and 10.8% suffered from atrial fibrillation on therapy. According to criteria of pharmaceutical care in the Czech Republic, defined by Decree No 421/2016 Coll, regular patient medication was graded as low risk in 27.2% patients, medium risk in 61.2% patients and high risk in 10.4% patients.

Conclusion: This project demonstrates prevalent polypharmacy in oncology palliative care patiens and specifyies the most frequent medication groups in polypharmacy. This project confirmed the important role of the clinical pharmacist as a member of the multidisciplinary palliative care team by early identification of high risk medication and modification of pharmacotherapy in collaboration with palliative care physicians to make an individual pharmacoterapy more effective and safe.

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Disclosure of Interest: None Declared.

PP077

Drug-related problems in internal medicine wards

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Background and Objective: Patients hospitalized in the internal medicine ward usually have many chronic diseases. Thus, polypharmacy and drug-related problems are higher in this population. This study aimed to determine the drug-related problems in the internal medicine ward and show the role of the clinical pharmacist (CP) in providing pharmaceutical care.

Design: This study was carried out between September 26, 2018, and August 09, 2019, at internal medicine wards of a university hospital. The patients followed up by three different CP residents to provide pharmaceutical care and the patients with at least one CP recommendation were included into the study. Demographic and therapy data of the patients were obtained from the electronic hospital information database, patient files, and verbally from the physicians. In regard to evaluation of possible drug-drug interactions, counseling and recommendations were provided about choosing the appropriate doses according to body weight and kidney functions and determining adverse effects. Micromedex, Lexicomp, Drugs.com, Sanford Guide to Antimicrobial Therapy, and relevant, up-to-date guidelines were used to generate CP's recommendations.

Results: Two hundred seventy-two patients were followed during the study period, and at least one recommendation was made in 91 (33.5%) patients. Of those, fifty-three patients (58.2%) were women, and the mean age (± standard deviation) was 60.0 ± 17.6 years. The most common causes of hospitalization were dyspnea (18.7%), cancer (14.3%), and hypervolemia (9.9%). The most common chronic diseases were hypertension (53.8%), diabetes (37.4%), chronic kidney failure (27.5%), coronary artery disease (25.3%), chronic obstructive pulmonary disease (16.5%), and congestive heart failure (15.4%). The patients used a total of 1012 drugs (median of 11.2, minimum:5, maximum:21) and 157 recommendations were provided to physicians (1.7 recommendations per patient), and 137 (87.3%) of these recommendations were accepted by physicians (Table 1). Although it was accepted, 4 (2.9%) recommendations were not implemented.

Conclusion: Drug-related problems can adversely affect the treatment success, the patient's quality of life and treatment adherence. The involvement of clinical pharmacists in the treatment process may reduce these problems and increase adherence to the principles of rational drug use.

Disclosure of Interest: None Declared.

PP078

Medication safety: analysis the use of drug alerts after conversion to a commercial electronic health record

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Background and Objective: Interruptive clinical decision support (CDS) integrated to computerized prescriber order entry can alert physicians about potential risks and suggest suitable alternatives. Physicians bypass most of them, limiting their effectiveness. The study assesses the effects of conversion to a commercial electronic health record (EHR) (Epic®) on the use of drug alerts.

Method: A repeated retrospective observational study conducted in a Belgian tertiary care teaching hospital. We analysed the triggering and bypass of drug alerts at the prescribing stage concerning inpatients for 14 months.

Main outcome measures: Main outcomes were (1) alerts burden, (2) bypassed rates. Both overall and specifically for three types of alerts: dose, duplication and drug interaction alerts. As second outcome we assessed correlation between bypass rates and different variables such as patient age, hospitalization unit or type of alert.

Results: Average number of alerts triggered per day increased by 180%, from 249,1 alerts/day to 698, following the conversion to Epic®. In both EHR, the overall alert bypass rates were 87.7% ($p = 0.98$; Fisher's exact test). The absolute value of accepted alerts has increased by 180%, from 30.6 alerts accepted/day to 85.7. We observed a significant difference specific to three types of alerts. Bypass rates for dose and interaction alerts increased by 10%, from 82 to 92% ($p < 0.0001$*; Fisher's exact test). While the bypass rate for duplication alerts decreased by 4%, from 89.6% to 85.6% ($p < 0.0001$*; Fisher's exact test). Furthermore, bypass rates were statistically correlated to different variables, including patient age and care unit ($p < 0.0001$*; Pearson's chi-squared test). For example, intensive care prescribers bypassed 92.15% of alerts, almost 5% more than the average.

Conclusion: Following the conversion from an institutional to a commercial EHR, the number of alerts triggered has increased significantly and bypass rates remain overall stable. The absolute number of accepted alerts has increased, suggest that commercial EHR has improved the safety of prescriptions. In order to trigger more relevant alerts and to limit prescribers alert fatigue, it would be interesting to adjust the sensitivity and specificity of alerts to characteristics such as the needs of the care units, the age and the health condition of the patient.

Disclosure of Interest: None Declared.

PP079

Doctors' perceptions of barriers and facilitators to deprescribing fall-risk increasing drugs in older adults

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Background and Objective: Falls can lead to hospitalisation and death in older people (1). Polypharmacy is a major risk factor, and deprescribing Fall-Risk Increasing Drugs (FRIDs) is one of several possible important preventive measures (2). The objective of this study was to explore the factors that influence doctors when deprescribing FRIDs in a hospital setting.
Method: Semi-structured interviews were conducted at a large teaching hospital. Participants were hospital doctors experienced in dealing with patients aged 65 years or older. The discussion was directed by an interview guide. The interviews were audio recorded and transcribed verbatim, with subsequent thematic analysis using NVivo 12 software.
Main outcome measures: Enablers and challenges of the process from the doctors' perspective.
Results: Eighteen participants were interviewed. The median duration of the interviews was 16.2 min. Barriers to deprescribing FRIDs included insufficient time, incomplete patient records, difficulties following up patients after discharge, poor communication, and reluctance to change medications initiated by other prescribers. Facilitators included the ability to monitor patients during their inpatient stay, the use of electronic patient records, follow up in the day hospital, and support from other healthcare professionals e.g. clinical pharmacists.
Conclusion: Deprescribing FRIDs in older adults is challenging. Targeted initiatives based on identified facilitators, such as improved documentation, enhanced communication between prescribers and the support of team members with expertise in medication review might enhance the feasibility of deprescribing.

Disclosure of Interest: None Declared.

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PP080

Proton pump inhibitors and oral antidiabetics deprescribing among elderly during geriatric hospitalization

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Background and Objective: Proton pump inhibitors (PPIs) and oral antidiabetic drugs (OADs) are widely used in older people. Algorithms for deprescribing PPIs and OADs are available from FARMAKA (https://farmaka.cbip.be) and deprescribing.org. The objective of this study was to describe the deprescribing opportunities among these two drug classes.
Method: These algorithms were retrospectively applied to geriatric hospitalized patients at Cliniques Universitaires Saint-Luc in 2018 in order to compare these recommendations with what has been decided in practice. A multivariate logistic regression identified factors associated with "nondeprescribing/deprescribing".
Main outcome measures: The primary outcome of this study was the percentage of non-deprescribing, at discharge from the hospital, of a PPI or an OAD among the patients who respectively had a PPI or an OAD on admission and in whom it was recommended to deprescribe it (missed opportunities for deprescribing).
Results: Among the 228 patients included in this study, 191 (83.8%) had a PPI at admission (median age $[P_{25};P_{75}]$ = 88 [84;91]; 77.0% of female) and 55 (24.1%) had OAD (median age $[P_{25};P_{75}]$ = 85 [81;88]; 56.4% of female). Deprescribing recommendation for PPIs has not been followed in 61.9% of case (n = 109/176) (FARMAKA algorithm) and in 60.5% of case (n = 101/167) (deprescribing.org algorithm). Deprescribing recommendation for OADs has not been followed in 33.3% of case (n = 10/30) (deprescribing.org algorithm). For PPIs, one factor has been found to be associated with non-deprescribing: PPI dose < 40 mg/day admission" (OR [95%CI] = 5.06 [2.65; 9.67]). With regard to OADs, only the variable "metformin in antidiabetic treatment" was associated with non-deprescribing (OR [95%CI] = 0.20 [0.06; 0.71]) meaning that there is a fivefold increase in the likelihood of OAD deprescribing if the patient has metformin in his or her antidiabetic treatment on admission.
Conclusion: Although already practiced, some opportunities for deprescribing, highlighted by the application of the algorithms, persist during a hospital stay in older geriatric patients. Improvement initiatives could focus primarily on PPIs.

Disclosure of Interest: None Declared.

PP081

Identification of potentially inappropriate medications in elderly according to the FORTA and EU (7)-PIM lists: an observational study

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Background and Objective: Elderly have a greater risk in terms of drug-related problems due to the high number of diseases and increased number of drugs. Hence, it is necessary to be careful about the drugs used in this patient group. Potentially inappropriate medications (PIMs) identified by several tools/criteria. Here, we identified PIMs using FORTA (Fit fOR The Aged) and EU (7)-PIM lists. We aimed to compare and evaluate the frequency of PIMs according to these two different lists.
Method: A prospective observational study was carried out with hospitalized patients in internal medicine ward between November 2021-February 2022. All drugs used by geriatric patients with an estimated glomerular filtration rate (eGFR) of less than 60 during their hospitalization were included and evaluated for PIMs according to FORTA and EU (7)-PIM lists. This study was approved by the local ethics committee with approval number of 18/12.
Main outcome measures: Evaluation of the frequency of PIM in elderly patients according to two different lists.
Results: Within the scope of this study, 65 patients were included. Out of 65 patients 64.6% (42) were female. Participants average age was calculated as 76.2 ± 6.25 years. The mean of eGFR values was 38 mL/min/1.73 m^2. The most common diseases among patients were hypertension (87%), diabetes mellitus (53.8%), and coronary artery disease (30.7%). The mean number of drugs used per patient was 12.46 ± 4.59. A total of 116 PIMs were detected according to the

FORTA list, 97 (83.6%) of them were classified in C category and 19 (16.37%) were in the D category. The most common drugs recorded for category C were doxazosin (13.4%), spironolactone (13.4%), enoxaparin (10.3%), and tramadol (9.27%); for category D were haloperidol (26.3%), ciprofloxacin (21%), and diltiazem (15.7%). On the other hand, 117 PIMs listed for EU (7)-PIM. Among those doxazosin (11.1%), proton pump inhibitors (11.1%), and tramadol (7.69%) were the most common listed drugs. Mean number of PIMs was recorded 1.78/patient for FORTA, and 1.8/patient for EU (7)-PIM.

Conclusion: Although the total number of PIMs was similar in two list, the drug profile was different. Also, some drugs could not be evaluated for reasons such as not being included in the lists [EU (7)-PIM, FORTA] or not having an indication for use (FORTA). Considering these factors updates on lists may be beneficial in terms of reducing inappropriate drug use.

Disclosure of Interest: None Declared.

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PP082

Anticholinergic drug burden of older adults in the geriatric ward of a tertiary hospital in Turkey

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Background and Objective: Anticholinergic drug burden (ADB) is an increasing concern for elderly patients. This study aimed to assess anticholinergic drug burden in hospitalized older adults.

Method: This descriptive cross-sectional study conducted in the acute geriatric ward of a tertiary university hospital in Turkey. Anticholinergic drug burden for each order was calculated using Anticholinergic Risk Scale (ARS)[1], Anticholinergic Cognitive Burden (ACB)[2] scale and Anticholinergic Drug Scale (ADS)[3]. Anticholinergic risk potentials of drugs are scored 0–4 for ARS and 0–3 for ACB and ARS.

Main outcome measures: Prevalence of exposure to anticholinergic drugs was the main outcome measure.

Results: Among the 200 medication orders of 91 patients enrolled (age 80.33 ± 0.46) and the mean number of medications was 8.2 ± 3.2. Polypharmacy (≥ 5 medications) was identified in 87.5% of them (n = 175). 167 (83.5%) of the 200 orders included at least one anticholinergic drug. Mean (IQR) ARS, ACB and ADS scores were 0.57 ± 0.81, 1.4 ± 1.61 and 1.07 ± 1.16, respectively. The most prescribed anticholinergic drug was furosemide (28.5%, in ACB) followed by metoprolol (23.5%, in ACB) and sertraline (22.5%, in ADS). A weak positive correlation was observed between ADB scores (ARS, ACB and ADS, respectively) and number of drugs used (Pearson's r: 0.276, $p < 0.001$; 0.225, $p < 0.001$; 0.228, $p < 0.001$).

Conclusion: Although anticholinergic drug exposure prevalence was high, total anticholinergic burden is far from disconcerting levels. Polypharmacy may not be the strongest predictor for patients hospitalized in geriatric wards. This may be due to the positive effects of comprehensive geriatric assessment of patients in the geriatric ward by a healthcare team, including a clinical pharmacist.

Disclosure of Interest: None Declared.

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PP084

Medication reconciliation at admission at the emergency department and the short-term hospitalization unit: feedback of one year of experience

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Background and Objective: Admission of patients at the emergency department (ED) is a critical step as it often lead to chronic treatments modifications. The increase in the demand for health care has led to the creation of a hospitalization waiting area called the "virtual beds" inside the ED of our hospital. Since 2019, the pharmacy has implemented a medication reconciliation (MR) team for the patients of the "virtual beds" area as well as for the short-term hospitalization unit (STHU). The role of the MR team was to investigate on the patient's medication history, to compare it with the ED prescription and finally to optimize and discuss the discrepancies with the physicians. The objectives of this study were to describe and assess the impact of the medication reconciliation activity at the ED over one year.

Design: A single-center retrospective study was performed between January and December 2021. All patients who benefited from a MR through this period were included in the study. All data were extracted through the prescribing system (Pharma®). Demographic and MR-related data were collected such as hospitalization stay, admission unit (STHU of "virtual beds" area), MR delay after admission, number and type of sources, number and type discrepancies identified by the MR, the drug classification for each discrepancies and finally the corrected prescriptions rate following the MR.

Results: In one year, 772 (19%) patients benefited from a MR including 308 (12.3%) at the "virtual beds" area and 464 (29.4%) in STHU. The majority were performed in less than 24 h (68.5%; n = 529) and 54% of patients (n = 416) were over 75 years old. One to 3 sources were used at "virtual beds" area and 1 to 5 at STHU. A total of 1095 discrepancies were identified following the MR with 855 (78%) undocumented discontinuation and most of them were drugs from the cardiovascular system. There was an average of 1.5 (0.11) discrepancies per prescription at STHU and 1.5 (0.14) at "virtual bed" area. Finally, after the intervention of the pharmacists, 519 (47%) of them were corrected.

Conclusion: This study highlighted the importance of the implementation of the clinical pharmacy inside an ED since half of the discrepancies were corrected following the MR. On the other hand, gathering the optimal conditions to carry out the MR inside the ED could be very challenging (with the confidentiality issues, the prioritization of the acute pathologies management as well as the frequent turnover of the ED staff). In the future, we would like to increase the MR's rate, the number of medication history sources and to set up the medication reconciliation of the geriatric patients before their discharge.

Disclosure of Interest: None Declared.

PP085

Implementation of pharmaceutical care for ambulatory patients in a clinical hospital—first year experience

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Background and Objective: Pharmaceutical care in a hospital setting is a growing area of interest [1]. In Poland many independent activities were started, but without formal acknowledgment [2]. On December 16th 2020 The Act on the Profession of Pharmacist was signed [3] increasing the search of new solutions to introduce pharmacist into the multidisciplinary teams caring for the patient. The objective of this work is to present activities undertaken to implement pharmaceutical care service for ambulatory patients in University Clinical Centre in Gdansk, Poland and the results obtained during the first year of work.
Method: In collaboration with physicians, epidemiologists, informaticians and medical services billing department in the hospital we have prepared Standard Operating Procedure, modified hospital informatic system and adapted the room to provide new service. 14 question survey were prepared to use during the patient's visit.
Main outcome measures: In the period from April 1st 2021 to March 31st 2022 we have subsequently introduced a pharmaceutical care for patients of 5 therapeutic programs, including multiple myeloma, myelodysplastic syndrome, chronic lymphotic leukemia and breast cancer.
Results: During one year we have provided 809 of individual drug dispensation visits. At a first meeting using 14 question survey we verified patients basic information on the pharmacotherapy and provided additional explanation eg. on adverse effects, drug-drug interactions, drug-food interactions, solutions for compliance problems. Basic information were repeated at each subsequent visits. Possible major problems were consulted with the physician.
Conclusion: Implementing the pharmacist into the multidisciplinary team caring for the patient helps to provide specialised additional knowledge to the patient on the use of drugs as well as can help to save physician and nurse time.

Disclosure of Interest: None Declared.

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PP086

Analysis of paradoxical psoriasis associated with anti-TNF treatment

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Background and Objective: Paradoxical psoriasis (PP) represents a peculiar type of skin condition that may occur during treatment with tumor necrosis factor-alpha inhibitors (anti-TNF). The main objective was estimate the incidence of PP associated with anti-TNF treatment and analyse clinical management.
Method: Retrospective observational study on patients who started anti-TNF (infliximab, adalimumab and etanercept) in a second-level hospital between October 2018-October 2021 and developed PP was performed. Only cases confirmed by punch biopsies were included. The following variables were collected from medical records: sex, age, type of disease, type of anti-TNF, time from onset of anti-TNF to development PP (TPP), type of PP, clinical management, and time to resolution since therapy change (TR).
Main outcome measures: To evaluate the result of intervention we collected time to resolution since therapy change (TR).
Results: 218 patients started anti-TNF over the reference period (97 patients with adalimumab, 83 infliximab and 38 etanercept). Five patients developed PP: incidence 1% with adalimumab (n = 1), 2.6% etanercept (n = 1) and 3.6% infliximab (n = 3). Average age in PP group was 44.8 ± 10.7 years, 60% women. Four patients were diagnosed with inflammatory bowel disease and 1 patient with rheumatoid arthritis. Median TPP was 140 days (63–908). One patient had positive history of hidradenitis suppurativa. All patients developed de novo PP, 60% inverse psoriasis and 40% palmoplantar pustular psoriasis. Two patients continued with the same anti-TNF agent associated with immunosuppressive drugs for psoriasis: 1 patient with topic corticosteroids without resolution of PP and 1 patient with metothrexate with resolution of PP. Three patients discontinued anti-TNF: 2 patients were retreated with a second anti-TNF agent with resolution of PP and 1 patient switched therapy to ustekinumab with resolution of PP. Median TR was 72.5(63–133) days.
Conclusion: PP induced by anti-TNF has been observed to be a class-effect. There was no consensus on the best therapy between change therapeutic target, retreat with a second anti-TNF and even associate an immunosuppressive drug. We recommend discussing treatment options case-by-case and incorporating multidisciplinary care physicians.

Disclosure of Interest: None Declared.

PP087

De-prescription of potentially inapropriate medications in elderly multimorbidity patients

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Background and Objective: Polypharmacy in elderly patients increases the occurrence of adverse effects and decreases adherence. To solve this problem, the most common strategy is to use lists of potentially inappropriate medications (PIM). The aim of the study was to identify PIM which should be de-prescribe in elderly multimorbidity patients admitted to second-level hospital.
Method: We carried an observational, prospective study between November 2020-April 2021 in patients admitted in Geriatric Service and codified as high-level intervention patients (HLI): chronic

patients selected according to the level of risk assigned by the adjusted morbidity groups (GMA stratifier tool). The electronic prescription was checked against what the patient/primary caregiver reported taking, to be sure of the real treatment. We recorded demographic and clinical data: age, sex, number of prescribed drugs at hospital admission (PD), comorbidities and pharmacotherapeutic group of prescribed drugs.
Main outcome measures: The confirmed treatments were evaluated with STOPP-2014, BEERS-2019, PRISCUS-2010. We reviewed drug-related problems (DRP) based on the Third Consensus of Granada.
Results: Eighty-two patients (50% women) with a mean age of 86.0 ± 7.1 years were included. Average PD were 12.7 ± 4.6. 105 PIMs were detected (10.3% of drugs before hospitalization): 76.2% based on STOPP-2014 criteria, 13.3% BEERS-2019 and 0.9% PRISCUS-2010. According to the pharmacotherapeutic group: 17.1% were benzodiazepines, 14.3% statins, 8.6% antiaggregant, 8.6% antigout agent, 6.7% antipsychotics, 5.7% proton pump inhibitors, 5.7% urinary antispasmodics, 3.8% non-steroidal anti-inflammatory drugs, 2.9% antidepressants, 1.9% antiepileptics, 1.9% diuretics, 1.9% vitamins, 1.9% alpha-antagonists, 1.9% corticosteroids, 1.9% nutritional supplements and 14.3% other drugs. 75 DRPs were detected: 24% possible adverse reactions, 21.3% duplicity between drugs, 17.3% drug dose adjustment for renal failure, 12% contraindicated drug, 10.7% drug interactions, 5.3% dose adjustment according to drug levels, 2.7% frequency adjustment, 2.7% drug not indicated, 2.7% related to the route of administration and 1.3% prescription error.
Conclusion: In high-level intervention patients, 10.3% of drugs prescribed before hospitalization should be de-prescribed according to explicit criteria, being most prevalent benzodiazepines. Polypharmacy increases the occurrence of DRPs, particularly adverse events and duplicity between drugs. Systematic review of treatment at hospital admission would avoid adverse effects and improve adherence to treatment in these patients.

Disclosure of Interest: None Declared.

PP088

Drug interactions during hospital admission

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Background and Objective: A significant percentage of patients admitted to hospitals are elderly and polymedicated. This makes them more susceptible to drug interactions that can even compromise their lives. The objective of this study was to identify, quantify and analyze the interactions in the pharmacological treatment prescribed during hospital admission in an Internal Medicine Service.
Method: Prospective observational study carried out during the month of November 2021 in a regional hospital. All patients admitted for hospitalization during the study period in the Internal Medicine Service were included.The sources of information used were: health history and electronic-prescription software. A list was prepared with the medication of each patient and the Lexicomp® database was used to confirm the existence of interactions and their severity.
Main outcome measures: The variables measured were: age, gender, number of drugs prescribed, number and type of interaction.
Results: 53 patients were included (mean age 68 years; 48% men, 52% women). 91% of the patients presented at least one interaction between some of the prescribed drugs during hospital admission. 398 drugs were reviewed, finding an average of 3.6 interactions/patient. Regarding severity, 22.8% were category B (no action necessary), 62.7% category C (monitor treatment), 12.4% category D (modify regimen) and 2.1% category X (avoid combination). The most important according to their severity (category X) were: antipsychotic agents—metoclopramide (1.6%), anticholinergic agents—inhaled ipratropium (0.5%).
Conclusion: Nine out of ten hospitalized patients present at least one interaction between their pharmacological treatment that requires monitoring, modification of the regimen or even discontinuation of one of the drugs involved. Prevention and detection of these interactions can help improve patient safety.

Disclosure of Interest: None Declared.

PP089

Pharmaceutical interventions related to electronic prescription validation process

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Background and Objective: Achieving optimal results from pharmacotherapy requires collaboration between healthcare professionals involved in patient care, including physicians, pharmacists, and nursing staff. Pharmaceutical intervention (PI) refers to actions in which the pharmacist participates in decision-making and in patient therapy. The objective of this study was to describe the prevalence, type, and reason for PI associated with the medical prescription validation process during hospital admission.
Design: Descriptive observational study carried out during the month of April 2022 in a regional hospital. The variables measured were: number and type of PI, reason for intervention, means of communication with the prescriber and degree of acceptance. The source of information used was the hospital electronic prescription software. During the study period, the pertinent PIs associated with the medical prescription validation process were carried out. Those accepted by the prescriber were considered medication errors.
Results: 129 PIs were performed in 114 patients. The most frequent types of intervention were a request to suspend a drug (32.6%), a request to change the dose (18.6%) and a request to change the dosage interval (7%) and the most frequent reasons were potential risk for the patient (24.8%), high dose (17.8%) and duplicate treatment (17.1%). Communication with the prescriber was carried out by computer in 84% of cases and verbally by telephone in the remaining 16%. The degree of acceptance of PIs was 56.6%.
Conclusion: The most frequent type of PI was the request to suspend a drug and the reason was the potential risk for the patient. The pharmacist plays an important role in the detection of medication errors, helping to increase the safety of pharmacotherapy.

Disclosure of Interest: None Declared.

PP091

Evaluation of a medication reconciliation program at hospital admission in patients requiring urological surgery

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Background and Objective: Our aim is determining the incidence of reconciliation errors (RE) in elderly or polymedicated patients who are admitted for scheduled surgery in a urology department, analyzing the different types of RE and the pharmacological groups involved.
Design: Prospective observational study carried out from June to December 2021, in which all patients aged 65 years or older or in

treatment with at least 5 drugs were included. The variables measured were: number of medicines prescribed, number of RE, pharmacological group involved and severity of RE. The sources of information used were: Diraya-Clínica®, APD-Prisma® (Hospital electronic prescription software) and interview with the patient or caregiver. The complete list of home medication was collected by consulting the previously mentioned sources of information. This list was compared with the prescription made at the hospital electronic prescription sofware for admission. If any discrepancy was found that required clarification, it was reported to the doctor for resolution before hospital admission. To classify a discrepancy as RE, the prescriber had to accept it as such after requesting clarification.
Results: 161 patients were included. 1018 drugs were reviewed, resulting in a mean of 6.3 drgus/patient. An average of 4 RE/patient was found. 97% of the patients presented at least one RE. 69% of discrepancies were considered unjustified and required clarification. The most frequent type of RE was medication omission (95%). Regarding the seriousness of the errors, 100% does not reach the patient as they are clarified with the doctor before admission. Drugs from 88 pharmacotherapeutic groups were analyzed according to the Anatomical-Therapeutic-Chemical classification level 4. The main groups involved in RE were: alpha adrenergic receptor antagonists (9.1%), HMG Co-A reductase inhibitors (8%), benzodiazepines (6.6%), platelet aggregation inhibitors (6.1%) and selective beta-blockers (5.9%).
Conclusion: The most frequent RE is the omission of medications. The pharmacist has a key role in avoiding these RE. Medication reconciliation at the time of planning the hospital admission appears as an opportunity to prevent RE from reaching patients.

Disclosure of Interest: None Declared.

PP092

Potential prescription errors at hospital discharge in an orthopedic surgery and traumatology service

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Background and Objective: The appearance of potential prescription errors can interfere with the pharmacological treatment process, posing a risk to patients. These potential errors include: duplication, errors in dosage and/or regimen, prescription of drugs that are not recommended in certain patients, the need to monitor certain parameters or length of treatment among others. The aim of this study is determining the prevalence and type of prescription errors at hospital discharge.
Design: Prospective observational study conducted from July to December 2021 in a regional hospital. Polymedicated patients (5 drugs or more) who were discharged from an orthopedic surgery and traumatology service during the study period were included. Variables measured: age, gender, prescribed drugs, number and type of prescription error. Information sources: electronic clinical history, electronic prescription software and patient interview. During admission, the pharmacotherapeutic history of the patient was written, including a complete list of medication prior to admission, prescribed during admission and included in the discharge medical report.
Results: 194 patients were included with a mean age of 76 years, 47% male and the remaining 53% female. 92.8% of patients had at least one prescription error at hospital discharge with an average of 4.4 errors per patient. 858 prescription errors were detected, the most frequent ones were omission (57.6%), incomplete prescription (40.7%) and duplicity (0.9%).
Conclusion: Nearly all patients discharged from hospital have at least one prescription error. Knowing the prevalence of prescription errors as well as the most frequent types can contribute to the development and implementation of strategies to avoid them and improve the prescription quality and safety.

Disclosure of Interest: None Declared.

PP093

A qualitative exploration of key stakeholders' views and perceptions in relation to organisational change for the implementation of polypharmacy management in Oman

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Background and Objective: Polypharmacy contributes to patient non-adherence and increases medication harm. Barriers to implementation prevent desired outcomes when addressing inappropriate polypharmacy at organisational levels and there is a need for theory-based strategies for change management. The objective of this study was to explore the views and perceptions of key stakeholders in relation to organisational change for the development and implementation of a polypharmacy management healthcare strategy in Oman.
Method: Qualitative face to face interviews started in March 2022 with key stakeholders in Oman Ministry of Health (MOH) including leaders from practice of Medical, pharmacy and nursing as well as academic leaders from school of medicine, pharmacy and nursing. The interview schedule developed based on a scoping review, Kotter's first three steps of leading change and grounded in the consolidated Framework for Implementation Research (CIFR). Interviews were digitally recorded, transcribed, and analysed independently by at least two researchers using CFIR as a coding framework. Ethics approval was in place prior to data generation.
Main outcome measures: Identified themes related to views and perceptions of key stakeholders in relation to the topic area.
Results: To date, ten interviews have been conducted with directors of medical (n = 2), pharmacy (2) and nursing practice (1), academic healthcare leaders (3), a healthcare policy developer (1) and patient safety leader (1). Additional interviews are planned and will continue until data saturation. Emerging themes show that participants have views that polypharmacy is a burden on healthcare services and there is a need for organisational change in relation to polypharmacy management. Perceptions of reported organisational level barriers were; fragmentation of care, lack of systems for coordination among healthcare providers, absence of electronic link between the government and private sector, lack of sense of urgency among leaders regarding the polypharmacy and shortage of pharmacists. Facilitators were; the presence of well-developed electronic health system and leadership support.
Conclusion: There is a need for for organisational change in relation to polypharmacy management in Oman. Further research is needed to obtain consensus of Omani stakeholders on the plan for a strategic framework for organisational change in relation to polypharmacy management.

Disclosure of Interest: None Declared.

PP094

Transfer of care and the implementation of IT supported improvement measures

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Background and Objective: Discrepancies in the transcription of medication in-patient hospital admissions have been frequently reported as "faulty" in the critical incident reporting system (CIRS) called RISKOP® at Tauernklinikum Zell am See—a rural 350 bed general hospital in Austria.
Design: To evaluate the causes of these errors 145 patient admissions were assessed between 6th of December 2021 and 14th of February 2022. Included in the assessment were patient admissions from surgery, orthopaedics, gynaecology, urology, ENT and internal medicine. Information was collated via the hospital's electronic prescribing system MedCaSol® and anonymised. During the evaluation period Austrian electronic health files (ELGA—elektronische Gesundheitsakte) were not accessible in the hospital's electronic prescribing system.
Results: The evaluation showed that in only 10% (14/145) of admissions had two or more information sources been used with information sources recorded in only 34% (50/145) of cases. Medication history was not recorded within 24 h of admission in 23% (33/145) of cases. Over the counter products and patient's own medication had not been recorded in 98% (142/145) and 97% (141/145) of cases, respectively. Transcription errors were detected in 18% (26/145) of admissions. Changes in medication had been made in 35% (51/145) but only 8% (12/145) of these had documented reasons. Allergies and adverse drug reactions were not queried in 3% (5/145) of cases and discrepancies in allergy reporting and prescriptions discovered in 6% (9/145) of cases.
Conclusion: Following this evaluation the Austrian electronic health files (ELGA) were included in the electronic prescribing system of Tauernklinikum Zell am See. Clinical pharmacists provided recommendations by email to all staff reporting assessment outcomes. A checklist for step-by-step patient information reporting on admission will be implemented in the electronic prescribing system MedCaSol®. Data for inpatient admissions will be re-evaluated after implementation of all measures.

Disclosure of Interest: None Declared.

PP095

Quality assessment of medication documentation in discharge letters after the introduction of new legislation

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Background and Objective: Discharge letters are an essential component for successful communication between the different health professionals involved in inpatient and outpatient care, particularly with regard to medication information. In Germany, new legal requirements concerning discharge management came into force in 2017 [1]. Regarding the medication documentation in discharge letters, it enforces e.g. mentioning the drug name, strength, dosage form, schedule, treatment duration, and explanatory notes about inhospital medication changes. To meet these requirements at the local level, the electronic prescribing system at our hospital was adapted and all users were trained. In an ongoing observational study, the current state of quality of medication documentation in discharge letters is assessed after implementation of the new legal requirements.
Method: The study was performed at Heidelberg University Hospital, an urban hospital providing primary and tertiary care to > 60,000 inpatients and > 1 mio outpatient visits/year. The inhouse electronic prescribing system supports the medication documentation process but is yet not used consistently on every ward. We defined assessment criteria regarding medication documentation quality (e.g., unambiguity and comprehensibility) in accordance with the new legal requirements and the recommendations "Good prescribing practice in drug therapy"—as published by the German alliance of patient safety [2]. A representative sample of discharge letters was consecutively drawn from the major clinical departments and is currently being analysed.
Main outcome measures: Besides overall statements of the fulfilment of the quality criteria, discharge letters will be analysed separately for the various elements of medication documentation quality and examined for influences of the given setting, such as involvement of hospital pharmacists on the wards or usage of the electronic prescribing system.
Results: Between Mai and July 2021, over 600 discharge letters were screened for eligibility; 352 discharge letters of 42 wards (on average 8 letters/ward) met the inclusion criteria. Approximately more than 2 out of 3 discharge medications were created using the electronic prescribing system. Quality scores tended to be higher for electronic prescriptions than for prescriptions documented without electronic support. Overall, documentation of explanatory notes about inhospital medication changes seemed particularly challenging.
Conclusion: These study results will describe the current quality of medication documentation in discharge letters after implementation of the new requirements and help to identify factors that influence the flow of information and thus potentially the seamless continuation of a patient's medication after hospital discharge.

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PP096

Real-life experience with ceftazidime/avibactam in a tertiary care hospital

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Background and Objective: Ceftazidime/avibactam (CAZ/AVI) is a 5th generation cephalosporin. Avibactam is a non-beta-lactam inhibitor that inhibits most class A, C and some D beta-lactamases, including extended-spectrum beta-lactamases (ESBL) and KPC.The aim of the study was to describe our experience in patients treated with ceftazidime/avibactam.
Method: A retrospective observational study performed in a tertiary university hospital.All prescriptions with ceftazidime/avibactam were included from the moment this drug was introduced in the hospital's guidelines (2017)until 30 September 2021.The variables were collected through the electronic medical record.The variables collected were: demographic and epidemiological characteristics of patients,-focus of infection,type of microorganism isolated,daily dose and duration together with concomitant antibiotics.
Results: A total of 307 prescriptions with CAZ/AVI were enrolled. 217 (70.7%) were male with the age of 62 (52–70)years. 18.9% of patients had been admitted in the previous 30 days, 2.9% from social health centres, 19.9% transferred from another hospital, 7.5% with interventions in the previous month, 84.4% with some underlying disease, 26.7% with diabetes, 12.1% with renal disease, 14.3% with COPD, 46.6% with CV disease, 25.1% patients with haematological diseases. McCabe's index was 64.2% non-fatal and 29.0% ultimately fatal. 81.8% of infections were nosocomial. 28.0% were in patients with COVID. 29.7% of patients were colonised by MDR bacteria prior to initiation of CAZ/AVI treatment. Prescription of CAZ/AVI was mostly in combination therapy (52.1%), of which 34.2% were associated with aztreonam, amikacin,tigecycline or fosfomycin.43.9% of the prescriptions were for infection of respiratory origin (pneumonia) followed by 24.8% for urinary tract infections and 10.7% for intra-abdominal infections. 20.2% of infections involved bacteraemia. 50.5% in patients with sepsis or septic shock. 43.0% of prescriptions were for targeted therapy, 41.0% for empirical therapy and 16.0% for empirical rescue therapy.The median duration of treatment with CAZ/AVI was 6 (3–10) days.The dose used in 88.9% was 2 g/8 h. 13.0% of prescriptions were in patients undergoing CRRT. The reason for end of treatment was mainly de-escalation and/or adjustment to antibiogram 37.5%, 31.3% cure, 18.9% exitus,12.0% clinical or microbiological failure and 0.3% due to toxicity. 3.3% of patients had C.difficile infection.
Conclusion: In most cases, CAZ/AVI was prescribed empirically in critically ill patients with nosocomial infections of respiratory origin.

Disclosure of Interest: None Declared.

PP097

Deprescribing fall risk-increasing drugs in older patients

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Background and Objective: Drug-related falls are of particular concern in older people since they lead to increased morbidity and mortality. The aim was to assess applicability and outcome of the application of fall medication risk assessment tools.
Method: The research was conducted at Karin Grech Hospital, a rehabilitation hospital. A literature review identified five multifactorial tools and three medication-based tools. The STOPP-Fall[1] tool from the medication-based category was chosen. To assess the extent of deprescribing of fall risk-increasing drugs (FRIDs), pharmacy profiles of patients aged 60 years and over admitted due to a fall with or without a fracture were retrospectively analysed during January to July 2021, and after intervention during October 2021 and January 2022. Clinical pharmacists were presented with the application of the STOPPFall tool to deprescribe FRIDs as an intervention to support deprescribing during medication management. T-test for one proportion and paired t-test were applied.
Main outcome measures: Deprescribing of fall risk-increasing drugs; assessment of effectiveness of intervention to empower pharmacists using STOPPFall tool.
Results: In the pre-intervention study, the average age of the 55 patient profiles assessed was 81 years (65% females). Antidepressants (n = 35), diuretics (n = 34), opioids (n = 31) and benzodiazepines (n = 23) were the most frequently prescribed FRIDs. Significant deprescription rates were evident for opioids (97%, $p < 0.01$) and benzodiazepines (70%, $p = 0.030$). Diuretics (47%), antipsychotics (46%) and antidepressants (37%) showed lower deprescription rates. The post-intervention study evaluated 58 patient profiles with an average age of 79 years (71% females). Diuretics (n = 41), opioids (n = 39) and antidepressants (n = 26) were the most commonly prescribed FRIDs. Opioids (97%, $p < 0.01$) and antipsychotics (67%, $p = 0.027$) were significantly deprescribed. Results of pre and post analyses showed that the intervention did not significantly increase the deprescription of the FRIDs.
Conclusion: The intervention to enhance application of the selected tool by clinical pharmacists did not significantly increase deprescribing of FRIDs.

Disclosure of Interest: None Declared.

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PP099

Clinical decision support systems to optimize prescription in hospitalized older patients

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Background and Objective: Inappropriate prescriptions (IP) are common among hospitalized older adults. Reducing IP is a major and global challenge. Incorporating clinical decision support systems (CDSS) into electronical medical records across hospitals might be a good strategy to optimize prescription in hospitalized older patients. The aim of this study is to develop, implement and assess a CDSS based on STOPP/START (*Screening Tool of Older People's Prescription/Screening Tool to Alert to Right Treatment*) Version 2 in order to reduce the number of potentially inappropriate prescriptions (PIP) among older patients.
Method: This was a before/after study including hospitalized patients ($\geq$ 75 years) in an academic hospital. First, the team selected 44 criteria to implement based on clinical impact from the literature and technical feasibility. The intervention consisted of activation of CDSS

based on STOPP/START criteria available for all prescribing physicians working in the hospital (besides palliative care, intensive care, operating area, and emergency). These CDSS appear as a non-interruptive information visible to prescribers at any time in the medical chart of inpatients aged 75 and over. Each period has a duration of six weeks.

Main outcome measures: Mean number of PIP was estimated in each period. Multivariate logistic regression analysis was used to determine patients factor associated with the detection of at least one PIP.

Results: 470 patients were included in the preintervention group and 546 in the postintervention group. The mean number of PIP was 28% lower in the postintervention group compared to the preintervention group (0,58 and 0,80 respectively; p-val < 0.05). During the preintervention phase, there was a relative increase of 6% of the PIP number between the 1st and 15th day of hospitalization. During the postintervention phase, there was a relative reduction of 36% of the PIP number between the 1st and 15th day of hospitalization. Age, sex and number of home medication were not significantly associated with number of PIP. Most frequent STOPP and START criteria were respectively about opioids without laxatives and persistent high blood pressure without antihypertensives.

Conclusion: CDSS based on STOPP/START criteria reduce PIP among hospitalized older patients. Additional studies are needed to further reduce PIP use.

Disclosure of Interest: None Declared.

PP100

Importance and necessity of pharmacists in the management of polypharmacy in heart failure patients with comorbidities

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Background and Objective: The progressive use of many medications and a complicated therapy protocol is frequent in heart failure (HF) and is encouraged by international guidelines. Because HF is an ailment frequently seen in the elderly, patients often have multiple comorbidities that require additional specific therapy, resulting in the simultaneous use of multiple drugs (1). Polypharmacy, described as the continuous use of five or more drugs, is an underappreciated issue in the treatment of heart failure patients (2). Polypharmacy has a major effect on HF treatment because it frequently leads to incorrect drug prescribing, poor adherence to pharmacological treatments, drug-drug interactions, and side effects (3). As the part of the medical crew the pharmacist can take responsibility to determine and help solution of drug-related problems. The aim of this study was to determine the frequency of comorbidity in HF patients, the rate of exposure to polypharmacy and the frequency of drug interactions.

Method: A prospective pilot observational research was conducted on HF patients in a cardiology department of a hospital between 22–30 September 2021. Patients' demographic data and other relevant informations were collected via face-to-face.

Main outcome measures: Sociodemographic characteristics of heart failure patients. Comorbidities, regularly used drugs, drug-drug interactions, commonly seen side effects.

Results: 39 heart failure patients with a mean age of 78.87 ± 2.34 were participated in the study. 22 (56.4%) of the participants were male. Patients in the study had heart failure for an average of 6.97 ± 1.39 years. 37 (94.9%) of the patients had comorbidities and 28 (71.8%) of the patients had at least 2 comorbidities. Hypertension (30%) was the most commonly seen comorbidity and the average comorbidity number of the patients in the study was 2.5. 30 (77%) of the patients were using 5 or more drugs in a day. 207 (74.7%) drug-drug interactions were detected among a total of 277 drugs used by patients. 197 (95.2%) of drug interactions were in category C, others were in category D and X. Furosemid 50 (18%) and metformin 34 (12.3%) were the drugs with the most drug interactions. 34 (87.2%) of the patients complaint about side effects and nausea 16 (47%) was the most commonly seen side effect.

Conclusion: It was detected that 30 (76.9%) of the patients suffer from polypharmacy and there was a significant rate of (74.7%) drug-drug interactions. Polypharmacy which is the most common cause of drug-drug interactions, leads to greater drug expenses, more adverse events, and nonadherence to medicine. On the other hand polypharmacy is inevitable in some situations such as the presence of comorbidities. It is essential that pharmacists—who are the pharmaceutical specialists-take responsibility especially when polypharmacy is unavoidable and guide physicians in drug selection. Thereby polypharmacy related drug-drug interactions and other problems can be reduced.

Disclosure of Interest: None Declared.

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PP104

Self-management practices in multiple sclerosis patients

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Background and Objective: In comparison with other chronic diseases, Multipl Sclerosis (MS) patients feel more uncertainty and less control over the disease, and consequently, their self-management abilities become frail (3). Inadequate number of self-management programs is contributing factor for the failure to fully adopt self-management by MS patients (4). This study aims to assess MS patients self-management abilities at short and long term after the provision of education and counseling by a clinical pharmacist.

Method: This prospective, randomized controlled study included adult MS patients followed between February–August 2020 in the neuroimmunology outpatient clinic of a tertiary care hospital in Turkey. Demographic data were collected by a clinical pharmacist, then oral and written education was provided to the study group patients on the disease, drug therapy, compliance and active participation issues in the MS treatment process, and monitoring of disease symptoms. The Multiple Sclerosis Self-Management (MSSM-R) scale was administered to the patients at baseline and at 4 and 8 months after the educational session. The scale consists of 5 subdimensions and the total score ranges between 24–120. Higher values indicate a higher level of self-management.

Main outcome measures: Main outcome measure was to evaluate patients self management skills by the MSSM-R scale over the period of 8 months.

Results: A total of 100 patients (51 in study group, 49 in control group) were included in the study. There was no difference between

the study and control groups in terms of age, gender, education, duration of disease and MS treatment. A significant difference was found between the study and control groups in terms of the mean scores of the total and sub-dimension scores of the MSSM-R scale measured at baseline, 4 and 8 months after the education ($p < 0.001$). The MSSM-R scale scores of all sub-dimensions for study and control groups at baseline and 4 months were evaluated and a significant difference was found between the time periods ($p < 0.001$).In the sub-dimensions of treatment adherence/barriers ($p = 0.222$), social support/family support ($p = 0.122$), and health maintenance behavior ($p = 0.138$), it was observed that the scale scores decreased between 4 and 8 months, but no significant difference was obtained. Although the total score of patients in the control group was not changed significantly, the total score of the MSSM-R of patients in the study group was increased at 4 months, however was decreased between 4 and 8 months.

Conclusion: It has been shown that patient counseling and comprehensive education given by a clinical pharmacist can contribute to self-management of MS patients, particularly on compliance, social/family support and health maintenance behavior issues. Given the fact that relations with health care providers and knowledge on the disease may decrease over time; patient education and counseling should be emphasized and performed at certain intervals during MS treatment process in order to increase patients' self-management skills.

Disclosure of Interest: None Declared.

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PP105

Iatrogeny in the elderly: assessment of pharmaceutical interventions in a cardiology department

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Background and Objective: The aging of the population is associated with polymedication and therefore a significant likelihood of Potentially inappropriate drug Prescriptions (PIPs) in the elderly. PIPs are associated with a risk of adverse effects and increased: morbidity, use of care, and mortality. Many PIPs are related to cardiovascular care. Since 2020, clinical pharmacy activities have been developed in the cardiology department and pay particular attention to good prescribing practices (GPP) in the elderly subject. The objective of this work is to evaluate pharmaceutical interventions (PI) in the cardiology department with elderly subjects.

Design: Retrospective analysis of PIs performed in cardiology over a 1-year period (November 2020 to 2021) in patients over 75 years old. The PIs were extracted using the ACT IP® software of the SFPC (French Society of Clinical Pharmacy). Analysis of PIs with regard to recommendations on GPP in the elderly and categorization of these according to 4 groups: in connection with an PIP; overuse (prescribing without a justified indication), underuse (absence of prescribing for a justified indication), in connection with cardiovascular care.

Results: In total, over the period, 1504 PIs were performed in the department, of which 790 (52.2%) concerned patients over 75 years of age. 26.7% of PIs resulted from non-optimal prescribing: 10.2% concerned PIPs, 10.9% underuse and 5.6% overuse. In addition, 35.3% of PIs were related to cardiovascular care, of which 17.3% also concerned sub-optimal prescribing in the elderly. The PIs combining non-optimal prescribing and cardiovascular care mainly concerned the discontinuation of central antihypertensive drugs (18.8%), hypoglycemic sulfonamides (27.1%) and the re-evaluation of statins (18.7%). The PIs issued for non-optimal prescribing not related to cardiovascular care were mainly for the re-evaluation of long half-life benzodiazepines (10%). For underuse, the PIs recommended vitamin D and calcium supplementation (28.2%). Finally, the majority of overuse concerned proton pump inhibitors (17.2%) and hypouricemics (5.5%). The acceptance rate for all PIs was 96.6%.

Conclusion: Many of the PIs concern PIPs and therapeutic optimization in the elderly. Also, some PIPs are treatments indicated in cardiovascular pathologies, thus allowing an optimization of the cardiovascular care of patients. The high acceptance rate of PIs reflects the interest of prescribers in this issue and the importance of a pharmaceutical presence in the care services. A detection of PIPS during the drug reconciliation at the entrance by the pharmacyst students has been set up in order to continue this time-consuming work. In addition, new prescribers must be briefed about the need to reduce drug-related iatrogeny in the elderly.

Disclosure of Interest: None Declared.

PP106

Drugs at risk: assessing pharmacy and medical interns' knowledge of injectable antidiabetics

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Background and Objective: Insulin is one of the hight alert medications and errors related to its administration are among the list of Never events. In 2020, in the Institute for Safe Medications Practice study, insulin was the drug most frequently involved in errors related to care. In this context, it seems essential that all healthcare professionals involved in the medical management of patients have a correct level of knowledge of Injectable Anti Diabetics (IAD). In addition, in recent years, new insulins and other IAD (like GLP-1 analogs) have been introduced on the market, which may lead to prescription errors. The objective of this work is to carry out an inventory of the level of training and knowledge of medical interns (MED-INT) and pharmacy interns (PHA-INT) with regard to DAIs, particularly insulin.

Design: Development of a 27-item questionnaire on DAIs by clinical pharmacists in the cardiology department. The questionnaire was distributed to the MED-INT in cardiology and the PHA-INT in our hospital. The results are expressed as the average percentage of correct answers.

Results: A total of 16 MED-INT and 16 PHA-INT responded to the questionnaire. The overall Good Response Rate (GRR) was 75% for MED-INT and 85.5% for PHA-INT. For the items on knowledge of insulin as a risky drug, the GRR was 79.2% for the MED-INT and 95.8% for the PHA-INT. For the items on general knowledge of insulin, the GRR is 87.5% for MED-INT and 84.4% for PHA-INT. For the items on the insulin circuit (storage and dispensing) the GRR is 55.2% for MED-INT and 89.6% for PHA-INT. The GRR concerning good insulin administration practices was 87.5% for MED-INT and 89.1% for PHA-INT. Knowledge of the pharmaceutical specialties,the GRR is 65.63% for MED-INT and 68.7% for PHA-INT. Finally, concerning the feelings of the INTs, 90.6% felt that they did not have enough training time on insulins. Only 25% of the MED-INT and 37.5% of the PHA-INT were comfortable with the management of a diabetic patient on insulin and 84.3% of the INTs were

interested or very interested in training on injectable drugs indicated in the management of diabetes.
Conclusion: This work shows that there are gaps, as INTs have partial knowledge of IAD, including the new therapies available and the different insulins. The majority of INTs feel that their training is lacking and few are comfortable with the management of diabetic patients on insulin. In order to reinforce the safety of the medication management of patients on IAD, an interactive hands-on training will be set up.

Disclosure of Interest: None Declared.

PP107

Prospective monocentric observational study of impact on the proper use of injectable antibiotics in the infectious diseases department of a French hospital

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Background and Objective: Injectable antibiotics are a major health issue due to the high risk of resistance and owing to their appropriate usage. Powdered forms must be totally dissolved and diluted before administration. These steps, specific to each ATB, must be respected. The aim of this work is to improve the appropriate use of injectable ATB for adults by nurses through a guide and an educational course given by the pharmacy intern.
Method: An observational study was conducted to find out the areas of improvement for the reconstitution and administration of ATB. A questionnaire was developed from this data, submitted to the 15 nurses of the department, consisting of 13 questions about reconstitution, dilution, dissolution, dose calculation, adaptation to the renal function and differences between the generics and the originators. The questionnaires were online and anonymous. An educational course was carried out with two parts. The first one was theoretical (same notions as in the survey) and the second one described each injectable ATB (reconstitution and stability modalities). The same questionnaire was submitted again to the nurses to assess if the course had improved their knowledge. At the end of the study, a satisfaction survey was conducted.
Main outcome measures: From the observational study were extracted the main percentages of difference between the expected practice and hospital referential. The answers to the survey were analyzed assigning 1 if correct, 0.5 if one mistake and 0 point if 2 mistakes were made. The answers before and after were collected and analyzed with the average percentage per question and overall score out of 13, compared with a Wilcoxon signed rank test ($n = 13$, $\alpha = 5\%$). An average satisfaction score of the nurses was also calculated.
Results: A total of 44 observations of ATB were conducted. Patient's identity was checked each time. 24% of the nurses did not respect sterile conditions (hand washing or non-disinfected vial), 51% the dissolution volume of the powder and 13% the reconstitution solvent. 40% of the bags were not homogenized and 34% of the labels were not complete. In 97% of cases the correct solvent and volume of final dilution were used. 15 and 13 nurses replied to the questionnaire before (B) and after (1): the overall score was 7/13 (B) and 9/13 (A). The Wilcoxon signed rank test showed a significative difference between these scores. The answers after the course significantly improved ($W(\alpha = 5\%, n < 30) = 86$). Reconstitution of the powder was the least well-scored question before (27%) but has shown good results after (69%). The loss of product and risk of under-dosing the patient were better assimilated by the nurses (40%(B)-62%(A)). ATB dissolution (77%(B)-96%(A)) and labels are also better known (53%(B)-65%(A)). Satisfaction level was high with an overall score of 17.2 out of 20.
Conclusion: This work has permitted us to see the key issues related to injectable ATB use. The course has led to an improvement in the knowledge of each step such as the total dissolution of the powder. All the nurses were satisfied and requested regular courses of this type.

Disclosure of Interest: None Declared.

PP112

Experience in pharmacokinetic monitoring of posaconazole as prophylaxis of invasive fungal infection in hematological patients

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Background and Objective: Due to the large interindividual and intraindividual variations in posaconazole pharmacokinetics, therapeutic drug monitoring (TDM) has been proposed to ensure adequate exposure, especially when the suspension formulation is used. However, compared to the suspension, the delayed-release tablets show an improved bioavailability. The aim of this study was to evaluate the usefulness of posaconazole TDM when it is used as prophylaxis for invasive fungal disease (IFD) in hematological patients.
Method: Prospective observational study (July 2020 –April 2021) performed in hematological patients receiving posaconazole as prophylaxis for IFD followed up by TDM program at a university hospital. Demographics information, primary diagnosis and biochemical parameters were obtained. Posaconazole was administered as Noxafil® tablets in accordance with the drug's SmPC, and plasma concentrations were measured by UPLC using a Luna Omega C18 column (1.6 μm; 2.1 mm × 50 mm, Phenomenex Company).
Main outcome measures: In hospitalized patients sampling times starting day 2 were the following: trough concentration; 1, 3.5 and 24 h post-dose. Area under the curve (AUC) was calculated by the lineal trapezoidal rule. In non-hospitalized patients, one sample was drawn between 12 and 24 h after drug administration. A trough concentration (Cmin) target > 0.7 mg/L was considered.
Results: Thirty-nine patients were included (20 females), with a median (range) age of 52 (24–73) years and body mass index of 24.0 (16.4–35.9) Kg/m^2. Most frequent diagnosis was acute myeloid leukemia (n = 19), followed by myelodysplastic syndrome (n = 5). Median (range) of biochemical parameters was: total bilirubin 0.43(0.19–1.28) mmol/L, AST 24(9–69) IU/L, ALT 34(11–264), alkaline phosphatase 70(41–207) IU/L, GGT 43(11–280) IU/L, creatinine clearance 98.8(436–141.0) mL/min, albumin 4.1(2.7–4.8) mg/dL. Median (range) of posaconazole $AUC_{0\text{-}24}$ and Cmin were 33.3(7.8–74.4) mg·hr/L and 1.82(0.57–5.07) mg/L, respectively. After TDM, the dose did not need to be modified in any patient. Cmin target level was reached in 94.9% of the patients.
Conclusion: The use of posaconazole tablets leads to adequate Cmin in general practice. As target levels are reached in almost all the patients under prophylaxis when the tablet formulation is used, posaconazole TDM should only be performed in exceptional cases.

Disclosure of Interest: None Declared.

PP113

Voriconazole dose-related hepatotoxicity in a patient with an ultra-rapid CYP2C19 metabolizer genotype

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Background and Objective: Because of pharmacokinetic variability, therapeutic drug monitoring is used to achieve optimal trough voriconazole concentrations (TVC). Moreover, to control hepatotoxicity, assessesing serum transaminases and bilirubin is recommended. The objective was to describe the case of a patient in whom gammaglutamyl transpeptidase (GGT) increased significantly despite infratherapeutic or normal TVC.
Design: A 33-year-old patient with pulmonary aspergillosis and autoimmune hepatitis was started on voriconazole therapy. Dose adjustment sought to maintain TVCs between 1–6 mcg/mL, determined by ARK^{TM} Voriconazole Assay (Architect c4000, Abbott). Antifungal consumption and laboratory test results were retrieved from clinical history. Adverse drug reaction causality was assessed throughout Naranjo algorithm.
Results: After the initial intravenous therapy, on day 3 the patient was switched to oral voriconazole 200 mg qd. Liver function test values (LFV) at baseline were GGT = 337 U/L, alanine transaminase (ALT) = 38 U/L, aspartate transaminase (AST) = 86 U/L, Bilirubin = 1.79 mg/dL, alkaline phosphatase (FA) = 192 U/L. Since TVC on day 7 was 0.6 mcg/mL, a dose of 150 mg bid was established. Two weeks later a similar TVC (0.73 mcg/mL) was observed. Any lack of adherence was discarded. Considering voriconazole metabolism by cytochrome P450 isoenzymes CYP3A4, CYP2C19 and CYP2C9, a genetic test was ordered. It revealed an ultra-rapid CYP2C19 metabolizer genotype (Allele *1/*17). A regimen of 300 mg bid was implemented and after four days TVC of 4.1 mcg/mL. LFV values at that moment were GGT = 1895 U/L, ALT = 86 U/L, AST = 66 U/L, Bilirrubin = 0.71 mg/dL and FA = 362 U/L. A hypothesis that high concentrations in the portal blood, secondary to high doses needed to maintain adequate TVC, may damage the liver was proposed. Despite a recommendation from the pharmacy to use posaconazole, metabolized by glucuronidation, prescribers decided to continue with voriconazole 100 mg qd. One month later values of GGT, ALT, AST, bilirubin and FA were 535 U/L, 70 U/L, 43 U/L, 0.75 mg/dL, and 113 U/L, respectively. The Naranjo algorithm showed a possible association (score 5).
Conclusion: A voriconazole dose-related case of hepatotoxicity, with an increase in GGT in an ultra-rapid CYP2C19 metabolizer is described. Since no supratherapeutic TVC were observed, high concentrations in the portal blood may be the cause.

Disclosure of Interest: None Declared.

PP114

Case report: therapeutic drug monitoring of ustekinumab in managing acute graft versus host disease digestive grade IV

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Background and Objective: Acute graft-versus-host disease gastrointestinal (aGVHD-GI) is one of the most common complications in patients undergoing allogeneic hematopoietic stem cell transplantation (HSCT). Pharmacological management is complicated. Ustekinumab is proposed as a therapeutic alternative in patients with aGVHD-GI resistant to multiple lines of treatment. To describe the usefulness of ustekinumab therapeutic drug monitoring (TDM) in managing treatment in one patient with aGVHD-GI.
Method: Prospective study of one-year follow-up in an 18-year-old male patient with myelodysplastic syndrome who underwent allogeneic HSCT developed aGVHD-GI grade IV. Ustekinumab was administered as seventh line of treatment after corticosteroid high doses, clinical trial, itacitinib, mesenchymal stem cells plus vedolizumab, ibrutinib, extracorporeal photopheresis plus ruxolitinib and imatinib. Response was measured by clinical criteria (resolution of diarrhea), imaging tests (gastroscopy and colonoscopy) and inflammatory biochemical markers (fecal calprotectin). Partial response was defined as resolution of aGVHD in one or more organs without worsening in others, and complete response as resolution of all symptoms.
Main outcome measures: Trough ustekinumab serum concentrations (USC) were determined by ELISA. Ustekinumab clearance (CL) and volume of distribution (Vd) were estimated using a Bayesian population pharmacokinetic approach applying a population pharmacokinetic model validated in patients with inflammatory bowel disease (IBD). Due to the lack of population data in aGVHD patients, USC target of 5–10 μg/mL was considered.
Results: Ustekinumab 390 mg was administered as IV infusion during induction phase and the estimated pharmacokinetic parameters were CL = 2.79L/day and Vd = 16.7L, higher compared to those in IBD patients. USC measured at week 4 after induction was 0.69 μg/mL (infratherapeutic) and with no response. The pharmacist recommended increasing the dose to 260 mg every 2 weeks. UCR measured after this was 4.99 μg/mL and response was partial. Therefore the pharmacist recommended increasing the dose to 130 mg every week and the resultant level was 7.72 mcg/mL, achieving complete response. During the following 8–10 months, routine TDM was carried out in order to maintain target USC.
Conclusion: Due to the higher CL in the aGVHD-GI patients, TDM of ustekinumab is useful for individualizing treatment, avoiding therapeutic failure.

Disclosure of Interest: None Declared.

PP117

Therapeutic drug monitoring of micafungin in haematological patients

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Background and Objective: Little evidence supports the use of therapeutic drug monitoring (TDM) for optimization of micafungin dosages. However, some authors have identified some populations with higher interindividual variability in the pharmacokinetics which can lead to underexposure to the drug. The aim of this study was to evaluate the need for micafungin TDM in haematological patients to individualize the dosage for invasive fungal disease (IFD) prophylaxis.
Method: Prospective observational study (January–June 2021) performed in allogeneic hematopoietic stem cell transplant (STC) recipients. Demographics information, primary diagnosis and biochemical parameters were obtained. Micafungin intravenous infusion was administered over 30 min at a dose of 50 mg/day as prophylaxis for IFD. Plasma concentrations were measured by reverse phase ultra-

high-performance liquid chromatography using a Luna Omega C18 column (1.6 μm; 2.1 mm × 50 mm, Phenomenex Company). Sampling times were 0.5 h, 3 h and 24 h after dose, on the fifth day after the STC.
Main outcome measures: Concentrations were fitted to a one-compartment model (Gumbo et al., 2008) using Bayesian analysis (PKS®, Abbott) and individual pharmacokinetic parameters were estimated. The area under the concentration curve (AUC) was calculated by the linear trapezoidal rule. The cut-off points for AUC and trough concentrations to maximize the efficacy of micafungin against Candida sp were set at 50 mg·h/L and 1 mg/L, respectively.
Results: Ten patients were included (5 females), with a median (range) age of 54 (31–63) years and body mass index of 25.7 (22.8–36.2) Kg/m2. The most frequent diagnosis was acute myeloid leukemia (n = 5). Thirty plasma samples were obtained. Median (range) of the pharmacokinetic parameters were: volume of distribution 4.1 (1.7–6.3) L, clearance 1.3 (0.8–2.4) mL/min and elimination half-life 11.1 (7.1–35.3) h. Mean (range) of AUC and trough concentrations were 42.1 (26.8–90.5) mg·hr/L and 0.9 (0.3–2.1) mg/L, respectively. Only 30% of the AUC and Cmin values were above the selected cut-off points.
Conclusion: A high variability in micafungin pharmacokinetic parameters has been found in haematological patients. The use of the standard dosage regimen for prophylaxis can lead to equinocandin underexposure and treatment failure. These preliminary results support the usefulness of TDM to personalize treatment.

Disclosure of Interest: None Declared.

PP118

Study of the use of parenteral nutrition in critical patients admitted to a third level hospital

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Background and Objective: To analyze the use of parenteral nutritional support (PNS) with a specific commercial formula for the acute phase of the critical patient in patients admitted to the Resuscitation Unit or Intensive Care Unit (ICU) of a tertiary care hospital.
Design: Retrospective descriptive observational study of patients who started hyperproteic/hypocaloric specific central PN (Parenteral Nutrition) for critical patients with composition: 15.9 g nitrogen, 129 g glucose and 43.8 g lipids in 1518 ml (1350 kcal) from 11–18-2021 to 10 -2–2022. Patient variables analyzed (age, sex, admission unit, CONUT, prealbumin level, death) and SNPs (diagnosis, duration and concomitant enteral nutrition (EN). Data were obtained from the Digital Medical Record and prescription module APD-ATHOS-Prisma®.
Results: Twenty patients were included, 60% men (12/20; 60%). The mean ± SD age was 62.95 ± 13.4 years. 70% of the patients were admitted to resuscitation (14/20) and 30% to the ICU (6/20). The average CONUT was 7.18 and prealbumin 9.88. 90% of the patients (18/20) had a diagnosis related to digestive disorders and 55% (11/20) a neoplasm. 5% (1/20) had COVID pneumonia and 5% (1/20) had heart problems. The mean ± SD of duration of nutrition was 6.6 ± 3.7 days. 15% of the patients (3/20) received EN concomitantly with PN, and 15% (3/20) received it when tolerance began. 30% of the patients (6/20) continued with critical patient PN at hospitalization ward, 15% (3/20) had their PN changed on the ward, 45% of the patients (9/20) were nutrition changed in the ICU/REA and 10% (2/20) died in these services
Conclusion: The majority of patients who used critically ill PN were admitted to resuscitation unit and underwent digestive surgery. It is necessary to review the causes of the continuation of this PN in hospitalization ward, the usefulness of short-term central PN and the progression to EN when this route is possible.

Disclosure of Interest: None Declared.

PP119

Analysis of drugs prescription errors administered in an outpatient infusion center

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Background and Objective: Medication errors are any preventable incident that may cause harm to the patient, or result in an inappropriate use of medications. International studies that comparatively investigated manual and electronic prescriptions, showed a reduction in prescribing error rates with the implementation of an electronic system. To quantify and characterize the medication errors that occur in the manual prescription of treatments in an outpatient infusion center before implementing an electronic prescription system.
Design: An observational, retrospective study was carried out between March 2021 and April 2021. 465 prescriptions from 320 patients treated at a third-level outpatient infusion center were analyzed. Data was obtained from the Electronic Medical Record Program (Diraya) and from the outpatient infusion center prescription sheets and were exploited with an Excel spreadsheet. Variables were: administration date, age, sex, medical service responsible of the prescription, drug, drug indication and type of errors.
Results: The mean age was 52.63 ± 14 years, 45% men (210/465) and 55% women (255/465). 34 errors were detected, of which 65% (22/34) corresponded to incorrect dose prescriptions, 32% (11/34) to errors in the periodicity of drug administration and 3% (1/34) to erroneous drug prescription. The digestive tract department was the medical service with a highest number of errors (15/34) (44%). 74% (25/34) of theses errors were related to infliximab followed by vedolizumab with 6% (2/34). Rheumatology department represents the 29% (10/34) of the total and autoimmune diseases department the 12% (4/34). The remaining percentage correspond to neurology (2/34), pneumology (1/34), dermatology (1/34) and nephrology (1/34). By pathology: Crohn's disease 26% (9/34), rheumatoid arthritis 12% (4/34) and ulcerative colitis 12% (4/34).
Conclusion: The most prevalent prescribing errors were related to drug dose, especially infliximab in Crohn's disease. Other important errors have been those related with periodicity of drug administration. Electronic prescription clearly reduces medication errors that can lead to adverse reactions.

Disclosure of Interest: None Declared.

PP121

BMPR2, EDN1, SOX17 gene polymorphisms in patients with suspected pulmonary arterial hypertension

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Background and Objective: The study aims to determine whether gene polymorphisms of BMPR2 (bone morphogenetic protein receptor type II), EDN1 (endothelin 1) and SOX17 (SRY-

Box transcription factor 17) are more prevalent in patients with pulmonary arterial hypertension (PAH), and if they may serve as markers of PAH predisposition.
Method: 51 patients with suspected pulmonary hypertension after right heart catheterization; single nucleotide polymorphisms of EDN1 (rs5370), BMPR2 (rs6435156), SOX17 (rs10103692) were detected by qPCR; statistical analysis included t-test, (N-1) chi-squared test, Z-test.
Main outcome measures: Median of prescribed medications, allelic frequency of variant genes, relative risk of PAH in patients with detected polymorphism, comparison of clinical values in patients with or without gene polymorphisms. Comparison of sample allelic frequency with overall European population.
Results: 51 patients (22 female), median age of 54 (range 21 to 80 years), categorized into 2 groups: PAH(n = 14)—with diagnostic criteria of PAH (mPAP $\geq$ 20 mmHg, PAWP $\leq$ 15 mmHg, PVR $\geq$ 3 WU); nonPAH(n = 37)—comparators. The median of prescribed medications was 6 vs. 9 (PAH vs nonPAH resp.). The frequency of variant EDN1 allele was 50% in PAH compared to 14% in nonPAH. This variant was associated with 3.25 $\times$ higher risk of pulmonary hypertension (RR = 3.25; 95%CI 7.29–1.49; $p = 0.0051$), lower NYHA score (2.4 vs. 3 resp.; $p = 0.008$) and higher catheterization values including mPAP (47 vs. 32 resp.; $p = 0.025$). Allelic frequency of BMPR2 variant was in our overall cohort higher than expected in European population (51% vs. 26.7% resp.; $p < 0.0001$).
Conclusion: EDN1 (rs5370) polymorphism was associated with increased risk of PAH and related clinical parameters. Higher frequency of BMPR2 (rs6435156) variant was present in our cohort with cardiopulmonary disorders. We also observed considerable polypharmacy in patients susceptible to PAH. Novel predictors of PAH such as candidate gene polymorphism of EDN1 could lead to early diagnosis and subsequently to optimization of pharmacotherapy.

Disclosure of Interest: None Declared.

PP127

Availability of information on geriatric dosing for potentially inappropriate medications in summary product characteristics

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Background and Objective: Proportion of seniors in the population is increasing worldwide, therefore rational pharmacotherapy in older adults is more emphasized. Considering the fact that seniors were usually not included in randomized controlled trials, information about specific geriatric dosing for many medications is not often clarified in Summary of Product Characteristics (SmPCs). The aim of this study was to determine whether in case of PIMs (potentially inappropriate medications in the aged) the information about geriatric dosing is stated in SmPCs or at least general warnings that these medications are potentially inappropriate in older persons.
Method: For the evaluation of SmPCs, conducted from winter 2020 to spring 2021, the list of 327 PIMs was used. We searched SmPC of drug products that were approved for clinical use in the Czech Republic and were currently marketed. Due to a wide range of these medicinal products, the work was limited only to monocomponent medicinal products in a solid single-dose oral drug form.
Main outcome measures: In evaluated SmPC we searched for information on geriatric dosing. For information search we used Database of registered drug products, administered by the State Institute for Drug Control of the Czech Republic. Quantitative research was conducted by "content analysis" which enabled us to quantify obtained results. For statistical processing of results, we used basic descriptive statistics.
Results: We analyzed 381 SmPC of medicinal products containing 121 PIMs. For 29 (24%) PIMs we found at least some information on geriatric dosing in SmPCs, in 16 (13%) PIMs there were recommendations to use lower doses in seniors in the SmPCs (not specified numerically) and in 9 (7%) of PIMs it was recommended to use these medications with caution in seniors. In 23 (19%) of PIMs, the SmPCs reported same doses as in the middle-aged population and no information on geriatric dosing was available for 20 (17%) of PIMs in analyzed SmPCs. There was a recommendation to be careful in administering PIMs to older adults (but without a dose change) in 9 (7%) PIMs. For 17 (14%) PIMs there was a different information available in evaluated SmPC and for remaining 7 (6%) PIMs it was not possible to match information to any above stated categories.
Conclusion: In evaluated SmPCs containing PIMs for only 24% of PIMs there were clarified geriatric doses. In SmPC of 36% PIMs, there was no information about dosage change in older patients, neither general information about caution in administration of PIMs to seniors. Insufficient specification of dosing for high-risk medications in the aged in SmPCs makes rational pharmacotherapy in geriatric patients more complicated. With the ageing of the population, also at the regulatory level more attention should be given to recommended geriatric dosing and rational geriatric pharmacotherapy.

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PP134

Neurological deficits or adverse events? A pilot study

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Background and Objective: Side effects of pharmacological therapies and drug-drug interaction in ageing could influence aspects of patients' life, not related to their pathology. During Brain Awareness Week (March 14th–20th 2022), a global campaign to raise awareness about neurological disorders, the Neurological Department, assisted by Hospital Pharmacists, hosted an event to screen neurocognitive disorders in spontaneous patients. This study aims to highlight pharmacological interactions that could influence the cognitive deficits and to correlate possible neurologic/psychiatric adverse effects (AE) of drugs to cognitive complaints.
Method: The study recruited 36 subjects between 40 and 75 years, who spontaneous request to participate. Were collected information on the usual pharmacological therapy and subjectively reported symptoms; patients were divided into two groups: GROUP-A, with subjective memory deficits with/without pharmacological therapies; GROUP-B with no subjective memory deficits with/without pharmacological therapies. To screen neurological status, a neuropsychological battery of tests was performed and patients were classified as normal, SCD (with subjective memory deficits, but no tests under the cut-off score), MCI (with mild cognitive impairment) and UCD (with no subjective memory deficits, but at least one test under the cut-off score, unreported).

Main outcome measures: The database FARMADATI® was used to collect information on common AE of each drug. AE were classified according to their frequency and their relation to cognitive deficits and related to patients' symptoms. We analyzed the pharmacological interactions of patients with polytherapy, using INTERCheck® program.
Results: The analysis of neuropsychological tests identified: 14 normal subjects; 6 SCD; 6 MCI and 10 UCD. Patients in GROUP-A were 12, and most of SCD (83%) are in GROUP-A with pharmacological therapy. The analysis of the side effects shows that all patients are in therapy with drugs at high risk of neurological/psychiatric common AE; moreover, for each treatment was reported at least a side effect related to confusion or memory loss. In GROUP-B, 60% of UCD are in the subgroup with pharmacological therapy. Most of the patients (67%) have at least one medicine in therapy with no neurological/psychiatric common AE, and just 50% of the subjects have side effects related to confusion or memory loss. From the analysis of the effect of the pharmacological interactions, none has a potential neurological or psychiatric impact.
Conclusion: The data analysis on GROUP-A suggests a possible relation between subjective neurological deficits reported by patients and AE. The symptoms, not clinically confirmed by tests, could be a consequence of pharmacological therapy. These findings, which must be investigated with a larger sample of patients, highlight that the possible effects of polytherapy must be considered in clinical practice and not underestimated. This issue could be overcome with the close collaboration between clinicians and clinical pharmacists.

Disclosure of Interest: None Declared.

PP135

Trends of systemic antibiotic use in a large tertiary care centre

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Background and Objective: The relationship between antibiotic use and antimicrobial resistance development is well known. One of the first steps of institutional stewardship activities is to perform drug utilisation studies on antibiotic use. The aim of the present research is to assess the aggregated antibiotic utilisation trends and patterns in our institution with the aim of identifying problematic areas.
Method: Systemic antibiotic use was assessed for the study period of 2010–2020. All systemic antibiotics dispensed to the clinical units from the central pharmacy were included in the analysis. Antibiotics were classified and calculations were performed according to the WHO ATC index (version 2022).
Main outcome measures: Antibiotic use was expressed as DDD per 100 patient-days.
Results: In 2010 the institutional antibiotic use was 27.7 DDD/100 patient-days, which creeped up to 44.5 DDD/100 patient-days by 2020. Use of parenteral formulations increased both in absolute and relative manner (47.5% and 69.9%, respectively) during the study period. The absolute and proportional use of third generation cephalosporins (J01DD, 6.8% and 12.5%), carbapenems (J01DH, 2.4% and 8.3%) and parenteral glycopeptides (J01XA, 1.6% vs. 4.3%) increased significantly. At both endpoints cefuroxime and co-amoxiclav headed the toplist of use, while in 2010 ciprofloxacin, and in 2020 ceftriaxone was the third most used antibacterial. By 2020 two carbapenems, vancomycin and piperacillin tazobactam was also among the top 10 most used agents. Positive changes were also detected: decreased utilisation of fluoroquinolones (J01M) (absolute decrease: 21.1% proportional decrease: 9.1%), and the increased consumption of cefazolin (from 0.16 to 1.29 DDD/100 patient-days).
Conclusion: Systemic antibiotic use increased gradually during the study period, and this pertained to almost every antibiotic subgroup. The pattern of use changed toward broad spectra agents. The detected trends necessitate interventions.
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Disclosure of Interest: None Declared.

PP136

Outpatient fluoroquinolone use in elderly population of two European countries

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Background and Objective: The number and proportion of the elderly population is constantly growing worldwide. Elderly are at increased risk of many infectious diseases because of the progressive functional decline of their immune system. This study aims to compare elderly antibiotic use specifically on fluoroquinolones (FQ) in the outpatient sector in Hungary and in Sweden. Fluoroquinolones in elderly patients can be cautiously used due to the several side effects (e.g. QT interval prolongation, dysgycaemia, tendinopathy, CNS toxicity, Clostridium difficile infection precipitation).
Method: A cross-national comparative research was conducted by applying retrospective and descriptive methods. Data were derived from the Hungarian National Health Insurance Fund (NEAK) and the Swedish eHealth Agency for one calendar year.
Main outcome measures: Fluoroquinolone use (ATC code: J01M) was expressed as the number of prescriptions/1000 inhabitants per year or per month and was further stratified by elderly age subgroups, gender, and seasonal variability.
Results: Fluoroquinolone use in the elderly population in Hungary was four times higher compared to Sweden (224.38prescriptions/1000 inhabitants/year versus 54.41 prescriptions/1000 inhabitants/year). In Hungary, fluoroquinolones were more frequently used compared to Sweden (34.53% vs. 9.98% of total ambulatory antibiotic use). In both countries fluoroquinolone exposure of the two sexes of the elderly population showed similar trend in the age subgroup analysis: it increased with age in both sexes, except a slight decline in Hungarian women over the age of 85 years. Seasonal variation of fluoroquinolone use in Sweden was quite constant over the entire year (ranged between 4.17–7.88 prescriptions/1000 inhabitants/month), but in Hungary, it showed substantial seasonal variation with a minimum value of 13.06 prescriptions/1000 inhabitants/month in July

and reaching a maximum of 27.86 prescriptions/1000 inhabitants/month in January.
Conclusion: The scale and pattern of elderly patients' fluoroquinolone consumption differed in Hungary and Sweden. In Hungary interventions are needed to optimize fluoroquinolone use and thus avoid potential adverse effects.
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Disclosure of Interest: None Declared.

PP137

The adverse effects of long-term exposure to anticholinergics among older adults with intellectual disabilities: a scoping review

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Background and Objective: People with intellectual disabilities experience a higher incidence of morbidities—2.5 times greater than the general population [i] and in Ireland older adults with intellectual disability are exposed to excessive polypharmacy ($\geq$ 10 medications) at rates 10 times higher[i]. They are exposed to a high anticholinergic burden [ii, iii] due to the high prevalence of drugs to treat mental and neurological disorders [iv, v]. This scoping review aims to map and evaluate the research literature on the physical and cognitive adverse effects associated with the long-term use of anticholinergics in this group.
Method: The search was conducted in: PubMed, Cochrane library, EMBASE, Medline, Science Direct, CINAHL Complete and PsycINFO. Additionally, preliminary studies, grey literature, and conference papers were searched in related electronic databases. The searching terms included related to 'anticholinergic', 'long-term exposure', 'intellectual disability' and 'adverse drug reaction' with Boolean operator 'and'. Long term use was defined as studies with $\geq$ 3 months of exposure. The search was restricted to research papers on people with intellectual disability aged 40 or over and publication in English language only.
Main outcome measures: This review examined both cognitive and physical outcomes associated with the long-term exposure to anticholinergics in older adults with intellectual disability. The physical and cognitive outcomes include all of the reported and measured central and peripheral adverse-effects associated the long-term use of these medications. There were no restrictions of tools used to report or measure the adverse outcomes.
Results: Searches in 2021 retrieved 509 records of both publications and grey literature. Duplicates were removed by using EndNote 20 and resulted in 432 remaining records. Then, the records were screened for relevance based on the titles and abstracts by two members of the search team. After that, 426 further records were excluded. Only 6 full articles were obtained and were assessed by two members (MO'D, LAA) of the research team. All were excluded due to the types of populations studied. This resulted in no studies meeting the stated inclusion criteria.
Conclusion: In conclusion, further research is urgently required to examine the long term adverse effects associated with higher anticholinergic scores among elderly people with intellectual disability to determine if they are exposed to unnecessary risk.

Disclosure of Interest: None Declared.

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PP139

Exposure to anticholinergic and fall-risk increasing drugs in older patients admitted to University Hospital Hradec Kralove

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Background and Objective: Explicit criteria can be used to signal potentially inappropriate prescribing for older patients. The aim of this study was to identify the most common medications listed in the Anticholinergic Cognitive Burden (ACB) scale and the STOPPFall (Screening Tool of Older Persons Prescriptions in older adults with high fall risk) in the medication history of older patients admitted to University Hospital Hradec Králové.
Method: The data were obtained from our previous study (Očovská et al. 2022), which examined the drug-relatedness of unplanned hospital admissions to University Hospital Hradec Králové, Czech Republic. This analysis included only patients aged $\geq$ 65.
Main outcome measures: The most common medications listed in the ABC scale and STOPPFall identified in the medication history of

older patients admitted to University Hospital Hradec Králové via the department of emergency medicine.
Results: Out of 1252 hospital admission from the previous study, 812 (65%) hospital admissions concerned older patients (≥ 65 years old). The median age of these patients was 79 (IQR 72–86), the median Charleson comorbidity index was 5 (IQR 4–7) and the median number of medications in the medication history was 7 (IQR 4–10). 74% and 28% of patients had at least 5 and 10 medications in the medication history, respectively. The most common anticholinergic medications with ACB score of 3 included quetiapine, olanzapine, and paroxetine. The most common fall-risk increasing medication classes in the medication history of patients included loop diuretics, antidepressants, alpha-1 adrenergic receptor antagonists, antipsychotics, opioids, and benzodiazepines.
Conclusion: The identified medications represent only a signal of inappropriate prescribing for older patients as there might be a favorable benefit-risk ratio for individual patients. Clinical pharmacists should evaluate the benefit/risk ratio of these medications in each individual older patient and possibly suggest deprescribing strategies. The adverse drug events associated with anticholinergic drugs and fall-risk increasing drugs are often multifactorial, unrecognized, or delayed. Nevertheless, an increased risk of anticholinergic adverse effects and falls associated with these medications should be borne in mind. *This study is supported by Charles University (project SVV 260 551, project GA UK 14120).*

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PP141

Factors associated with up titrated antihypertensive strategies in 12 low and middle-income African countries: the multination eight study

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Background and Objective: Sub-Saharan Africa (SSA) faces the highest rate of hypertension worldwide. The high burden of elevated blood pressure (BP) in black people has been emphasized. Guidelines recommend two or more antihypertensive medications to achieve a BP control. The EIGHT study already underlined a high proportion of patients with hypertension 80/110 mmHg still treated with monotherapy. We aimed to identify factors associated with prescription of up-titrated antihypertensive strategies in Africa.
Method: We conducted a cross-sectional study on outpatient consultations for hypertension across 12 SSA countries.
Main outcome measures: Collected data included socioeconomic status, antihypertensive drugs classes, BP measures, cardiovascular risk factors and complication of hypertension. Prescriptions of up-titrated antihypertensive drug strategies are defined by moving from a less intensive strategy to a more intensive therapeutic strategy. We used ordinal logistic regression to assess factors associated with prescription of up-titrated strategies.
Results: The study involved 2123 treated patients with hypertension. Patients received monotherapy in 36.3% VS 25.9%, two-drug in 42.2% VS 45% and three and more drugs strategies in 21.5% VS 29.1% in low(LIC) and middle(MIC) income countries respectively. In low income countries, diuretics were more frequently prescribed in monotherapy(15.7% VS 6.2%) and CCB in two-drugs therapy(40.7% VS 34.3%), than in middle income countries. In middle income countries, β blockers(60.1% VS 49.7%) and ACEI(42.6% VS 34.2%) were most widely prescribed as a part of three drugs strategies than in low-income countries. Patients with sedentary lifestyle(OR 1.4 [1.11–1.77]), complication of hypertension(OR 2.4 [1.89–3.03]), former hypertension(OR 3.12 [2.3–4.26]), good adherence(OR 1.98 [1.47–2.66]), from MIC (OR 1.38 [1.10–1.74]) and living in urban cities (OR 1.52 [1.16–1.99]) were more likely to be treated with up-titrated strategies. Stratified analysis shows that in LIC, up-titrated strategies were less frequent in rural than in urban patients(p for trend < 0.01) while such difference was not observed in MIC.
Conclusion: In this African setting, besides expected factors, up-titrated drugs strategies were associated with country-level income, patient location and finally, the interplay between both in LIC.

Disclosure of Interest: None Declared.

PP142

Regional differences in the treatment of patients with diabetes mellitus

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Background and Objective: Diabetes is a growing health problem, and elderly population is highly affected. The overall prevalence of diabetes in the Hungarian population was 11.2% while among the elderly (≥ 65 years) it was 33.4% in 2019. Our aim was to assess the regional differences in the treatment of patients with diabetes mellitus in Hungary among the 20 counties in 2019.
Method: Drug utilization data of Hungary for the year of 2019 were collected from the National Health Insurance Fund (NHIF). NHIF is the sole, mandatory health insurance provider, and it covers the entire population (nearly 10 million people) of the country. The medication dispensing database captures data on all reimbursed drug dispensing. Antidiabetics were filtered and analyzed from the crude data according to the WHO's ATC/DDD methodology (ATC group: A10) version 2022.
Main outcome measures: Data were expressed in Defined Daily Dose per 1000 inhabitants per day (DDD/TID).
Results: There were considerable differences among counties in antidiabetic use. The mean antidiabetic use was 77.02 DDD/TID (min: 67.34 DDD/TID, max: 94.71 DDD/TID max/min ratio: 1,63). Regarding antidiabetic subgroups in most cases 1.3–2.0 fold differences were found in regional consumption: insulins (mean:26.43

DDD/TID; max/min ratio: 1.6), metformin (23.72 DDD/TID; max/min ratio: 1.38), sulfonylureas (20.28 DDD/TID; max/min ratio: 1.89), DPP4 inhibitors (8.50 DDD/TID; max/min ratio: 1.74), SGLT2 inhibitors (4.94 DDD/TID; max/min ratio: 2.06). The most considerable difference was observed in case of the GLP1-analogue use showing a threefold difference between the counties (mean: 2.57 DDD/TID, min:1.41 DDD/TID, max: 4.45 DDD/TID). Alpha glucosidase inhibitor, thiazolidinedione and glinide use were marginal.
Conclusion: Although there are clear and up-to-date Hungarian and international therapeutic recommendations regarding the treatment of diabetes, the antidiabetic drug consumption differences are high on county level. Further studies are needed to identify the potential causes of regional differences.
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Disclosure of Interest: None Declared.

PP143

Estimating polypharmacy among the elderly

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Background and Objective: Polypharmacy is generally defined as the use/co-prescribing of ≥ 5 concurrent medications. For this definition, accessing applicable data on a population level is difficult in a lot of countries. Without access to patient-level data, our objective was to give a population-level estimate of the rate of polypharmacy among the elderly, and to explore possible inequities in drug use.
Method: We obtained aggregated national drug utilisation data of 764 196 elderly patients (248 846 men and 515 350 women, ≥ 75 years, who redeemed at least 1 prescription in 2019) from the Hungarian National Healthcare Service Center, covering a period of 1 year. Considering Hungarian prescription rules, a prescription usually contains a one-month supply of one medication. Based on that, we defined polypharmacy as at least 60 ($= 12 \times 5$) dispensed prescriptions per year. To assess inequity in drug use, we used the Gini Index and the Lorenz Curve.
Main outcome measures: Annual number of prescriptions per patient and mean number of prescriptions.
Results: Our study population was dispensed almost 43 million prescriptions in 2019. 13 520 186 prescriptions were dispensed for men and 29 439 063 for women. The mean number of prescriptions was 56.2 per year per patient. Of the study population, 41.7% were dispensed at least 60 prescriptions during one year, qualifying as polypharmacy patients by our definition. The minimum number of annual prescriptions was 1 both among men and women, but there was a major difference in the maximum number of prescriptions (275 among women and 367 among men). Based on the Lorenz curve, 5% of the patients receiving the most prescriptions were responsible for 13% while 50% of them accounted for 76% of all prescriptions. The Gini index was 0.35.
Conclusion: The prevalence of polypharmacy in the study population was considerable (41.7%), so despite the limitations of the method (it provides a low estimation), our definition proved to be a good proxy for recognising polypharmacy. Inequity was not substantial among the elderly.
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PP144

How much opioid analgesics are used in Hungary?

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Background and Objective: Opioid use is uneven around the world: some countries have nearly no access to opioids while others struggle with overuse. Opioid utilisation is well-documented in various countries, but for Europe, available data are limited. In this study, we analysed Hungarian opioid utilisation in ambulatory care between 2016 and 2020, to assess the national situation.
Method: We obtained national drug utilization data on reimbursed opioid analgesics (ATC code: N02A) from the Hungarian national health insurance database for a 5-year period (2016–2020).
Main outcome measures: We examined utilisation of opioids using oral morphine equivalent per 1000 inhabitants per day (OME) as a volume-based metric. We analysed our data based on analgesic potency and reimbursement categories.
Results: Total opioid utilisation increased during the study period (30.6%) and reached 275.1 OME by 2020. The upward trend was driven by an increase in weak opioid use (33.6%). Throughout the study period, weak opioids represented the majority of opioid utilisation (> 93.6%), tramadol being the main active ingredient (157.5 OME in 2020). Since tramadol and paracetamol combination products first appeared in the database in 2017, the utilisation of this combination increased threefold (105.9 OME in 2020). Based on reimbursement categories, opioid use for cancer pain declined during the study period (-20.2% in OME), while musculoskeletal pain became a more common indication for opioid use (6.2% increase in OME).
Conclusion: Our study found a general increase in opioid use between 2016 and 2020. Among the active ingredients, tramadol and tramadol and paracetamol combinations were dominant, most likely because prescribing legislations were less restrictive for these products. We also found that prescribing opioids for musculoskeletal pain became more common during the study period.
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Disclosure of Interest: None Declared.

PP145

Financial demands on pharmacotherapy in the elderly outpatients—a cross-sectional study

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Background and Objective: Even though the first explicit criteria of potentially inappropriate medication in the elderly patients were published more over 30 years, in everyday clinical practice can occur several problems related to multimorbidity and polypharmacotherapy of geriatric patients. In this context, health risks and the related financial demands on the healthcare systems should be observed and evaluated. The study aims to evaluate medicines prescribed for the elderly outpatients from economic aspects.
Method: One-month prescription of medicinal products was analysed for outpatient geriatric patients aged 65 and older, insured at the Dôvera Health Insurance Company, Inc. in Slovakia.
Main outcome measures: Focusing on the amount of prescribed medication, total price of prescribed medicines, proportion of their reimbursement and patients' co-payment, and structure of the costs concerning the specified age groups.
Results: The set consisted of 167,182 patients (22.8% of the Slovak population 65 years and older), who were prescribed 366,241 packages of medicinal products in one month. The total price of prescribed medicinal products was 4,136,675 EUR, of which the health insurance company reimbursed 84%, and 16% represented the patients' co-payment. The most expensive outpatient treatment was ascertained in the patients' age group of 65–69 years—35.8% of the total costs. The average price of medicines on one medical prescription increased up to 79 years, with 80-year and older patients had a decreasing trend.
Conclusion: In the studied set, the general practitioners had prescribed twice as many potentially inappropriate medicines as specialists. So, it is necessary to pay close attention to adherence to current recommendations and guidelines and consider the financial impacts of inappropriate medicine use to improve the quality of pharmacotherapy in elderly patients.
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Disclosure of Interest: None Declared.

PP147

Applying pharmaceutical entrepreneurship as a pharmacoeconomic paradigm shift in clinical pharmacy

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Background and Objective: Pharmaceutical entrepreneurship could be a critical aspect to support the growth and development of clinical pharmacy in innovative healthcare systems. The objective is to examine the strengths, weaknesses, opportunities and threats related to the use of entrepreneurship skills in promoting active ageing and reducing polypharmacy with special reference to pharmacoeconomic implications.
Method: Research setting: Pharmaceutical Products Entrepreneurship Unit, Malta Medicines Authority and Ministry for Active Ageing. Participants: Divergent thinking patient carers, public health officers, leaders in clinical pharmacy recruited from Health and Social Centres and Institutions. (1) A systematic literature review consisting of an examination of entrepreneurship skills in critical areas and their application and adaptation to clinical pharmacy settings, with special emphasis to traits and skills that contribute to innovation. (2) Semi-structured interviews with the participants. (3) Development and evaluation of a training program.
Main outcome measures: Measurement of proactiveness versus competitive aggressiveness and pedagogical efficacy versus real world approach. Measurement of accountability in entrepreneurship using pharmacoeconomic tools including cost–benefit analysis.
Results: Literature showed that no consensus exists on the pharmacoeconomic impact of entrepreneurship in clinical pharmacy practice and training. Entrepreneurship is shown to be considered a product of creative thinking, the taking of calculated risk when embarking on new clinical pharmacy ventures and evidence-based decision-making. Entrepreneurship with pharmacoeconomic implications leads to the progression of innovative advancement in the clinical pharmaceutical field. Of special interest to the pharmacoeconomic dimension of clinical pharmacy is that entrepreneurship adopted in the clinical scenario is distinct from the invocation of business aptitude and successes, the delivery of service and the management of cost and budgets in other areas significantly used as role models for the pharmaceutical processes such as the airline industry. The semi structured interviews have addressed the questions of how entrepreneurship contributes to a pharmacoeconomically sound clinical innovation, addresses the concept and role of education and training in the evolvement of entrepreneurship in the clinical arena, and the ethics accountability and good governance of the use of entrepreneurship skills in a patient-centered setting. A training program in the application of entrepreneurship skills in a clinical scenario should include emphasis on creative pharmacy concepts, divergent-thinking in patient-care, risk taking in saving lives, versatility and critical thinking, cultural economic and social public dealing competences, and persistence in disruptive pharmaceutical development.
Conclusion: In the vein of the study entrepreneurship has been shown to be still in its infancy, more so when entrepreneurship is considered in a clinical setting.

Disclosure of Interest: None Declared.

PP148

Effectiveness and safety of guselkumab in patients with moderate-severe psoriasis controlled with ustekinumab: cost-efficiency strategy

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Background and Objective: Gulsekumab is a biologic drug that has demonstrated superiority over ustekinumab in the treatment of moderate-severe psoriasis. The objective of the study is to analyze the effectiveness, safety and cost savings of switching to guselkumab in patients with moderate-severe psoriasis currently controlled with ustekinumab.
Method: Observational, retrospective, single-center study that included selected patients with moderate-severe psoriasis controlled with ustekinumab, for switching to guselkumab. Clinical data was obtained from medical history. We analysed the change in clinical outcomes from baseline with ustekinumab and after 3 and 9 months of switching. The cost/treatment/year per patient, without loading dose, was calculated to determine the cost savings.
Main outcome measures: The BSA, PASI, PGI, VAS (itching), DLQA scales were analyzed as efficacy outcomes during treatment with ustekinumab and after the protocolized switch to guselkumab at 3rd and 9th months after the switch. PASI-90 was calculated at 9 months after switching to guselkumab in patients with a PASI level > 0 during ustekinumab treatment. Adverse effects were collected as a measure of safety. Demographic variables, areas of psoriatic involvement and comorbidities were also collected.
Results: Twenty-eight patients, 12 women and 16 men with a median age of 51.5 years, were included. Ten patients were being treated with 90 mg doses of ustekinumab. Of the total, 16 patients had scalp involvement, 9 had nail involvement, 3 had palmoplantar involvement. Comorbidities were: type II diabetes (n = 6), dyslipidemia (n = 8), hypertension (n = 5) and fatty liver disease (n = 2). Scale scores during ustekinumab treatment were (median): BSA 1; PASI

0.8; PGA 1; VAS (itch) 0; DLQI 1. At 3 and 9 months after switching to guselkumab: BSA 0; PASI 0; PGA 0; VAS (itch) 0; DLQI 0. PASI-90 was calculated at 9 months after switching to guselkumab in 19 patients with PASI > 0 during ustekinumab treatment: 17 patients (89.4%) reached the target. No patients experienced adverse effects. The calculated cost/patient/year is 9637.3 € and 9076.6 € for ustekinumab and guselkumab, with a difference of 560.7€/patient/year and overall difference of 15,699.6 € for the patient cohort (n = 28).
Conclusion: Switching to biologic therapy in patients with moderate-to-severe psoriasis controlled with ustekinumab is a cost-effective strategy with reduced BSA, PASI, PGA and DLQI scores at 3 and 9 months, and lower treatment costs per year, with no adverse effects on patient safety.

Disclosure of Interest: None Declared.

PP152

Galcanezumab after failure to erenumab

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Background and Objective: Monoclonal antibodies targeting the calcitonin gene-related peptide pathway (anti-CGRP) have have been introduced into the therapeutic arsenal of episodic and chronic migraine prophylaxis. These new drugs offer a new alternative for refractory patients to other therapies, Although clinical trials report similar efficacy between them, there is no evidence of switching to another one after failure. Our objective was to analyse the effectiveness of galcanezumab (a calcitonin gene-related peptide inhibitor) in patients which failed to erenumab (a calcitonin gene-related peptide receptor inhibitor).
Design: Observational retrospective study carried out between February 2021 and October 2021 in a secondary level hospital. All patients with migraine treated with galcanezumab and prior failure to erenumab were included. Patients data were taken from clinical records and patients' migraine calendar. Variables analysed were demographics (age and sex) and clinical (monthly migraine days before and after erenumab, number of preventive treatments, days of treatment with erenumab, causes of switch to galcanezumab, monthly migraine days with galcanezumab and days of treatment with galcanezumab). Effectiveness end point was reduction of monthly migraine days after at least two months after the start of galcanezumab. Difference between both groups (monthly migraine days during erenumab therapy and monthly migraine days with galcanezumab) was analysed with Student's t test (SPSS).
Results: Eight patients of 25 (32%) treated for migraine prophylaxis with erenumab were included: 87,5%(n = 7) were womenand average age was 44.6 ± 4.5 years. Regarding number of preventive treatments, average was 6.6 ± 1.5. Average of monthly migraine days before and after erenumab was 17.6 ± 9.9 and 16,9 ± 7,3 respectively. Median days of treatment with erenumab was 220 (24–273). Causes of change were not improvement in (87,5%), constipation (25%) and myalgia (12.5%). During galcanezumab treatment, monthly migraine days were 18.7 ± 9.8 and time of treatment 105.1 ± 48 days. The Student's t test showed no statistically significant difference ($p = 0.671$).
Conclusion: Our population did not present improvement after switch from erenumab to galcanezumab. Large studies are needed to determine if a second line with another anti-CGRP could be effective in refractory patients.

Disclosure of Interest: None Declared.

PP153

Overall survival and event free survival in patients with high-risk neuroblastoma after targeted therapy

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Background and Objective: Neuroblastoma belongs to the most common extracranial solid tumors of childhood age. In children diagnosed with high-risk neuroblastoma, the effectiveness of the treatment is low, and the therapy often fails. Targeted therapy uses the principle of drug repurposing, a strategy for identifying new uses for approved drugs outside the scope of the original medical indication. Study aimed to evaluate the effectiveness and safety of targeted therapy in pediatric patients with refractory or relapsed neuroblastoma.
Method: The group analyzed consisted of 11 pediatric patients diagnosed with high-risk neuroblastoma at the Department of Paediatric Oncology, University Hospital Brno. Neuroblastoma was diagnosed in patients in two areas: retroperitoneum and adrenal gland. All patients had distant metastatic disease to lymph nodes, bones, and bone marrow. Treatment of the patients was carried out in three phases: first-line treatment, second-line treatment, and targeted treatment. Based on a comprehensive analysis of tumor changes and their microenvironment, the possibility of targeted influence on the changes present was first evaluated and then assessed whether the proposed targeted therapy is available and suitable for the given child population. The retrospective data collection was performed from September 2020 to July 2021.
Main outcome measures: The tumor response was evaluated according to the Response Evaluation Criteria in Solid Tumours: I^{123}MIBG (metaiodobenzylguanidin), whole-body MRI (magnetic resonance imaging), CT scans (computer tomography), and bone marrow examination. Responses were assigned as complete response (CR), partial response (PR), stable disease (SD), and progressive disease (PD). Clinical effectiveness was evaluated by Overall Survival and Event Free Survival. Toxicity was evaluated using Common Toxicity Criteria.
Results: Targeted therapy included dinutuximab beta, sunitinib malate, propranolol, vinblastine succinate, crizotinib, lorlatinib, ribociclib succinate, ceritinib, nivolumab, nintedanib esilate and regorafenib. The final tumor response to the targeted therapy was CR in 9%, SD in 27%, and PD in 64% of patients. Compared to the historical cohort (survival in relapsed and refractory neuroblastoma two years after diagnosis 10–15%), all patients experienced objective treatment response, increased progression time, and overall survival. Tolerance to the targeted therapy was good. No patient experienced life-threatening toxicity, maximum toxicity was haematological grade IV in one patient, but it spontaneously resolved after discontinuation of the targeted therapy.
Conclusion: Targeted therapy can prevent death in 54% of patients with relapsed and refractory neuroblastoma using precision medicine procedures within two years of diagnosis. The results suggest that neuroblastoma is a very aggressive tumor that is very difficult to treat; however, the precision medicine approach and targeted therapies may become new modern perspectives for treating high-risk tumors.

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PP154

Electronic and self-reported adherence to direct oral anticoagulants in patients with atrial fibrillation

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Background and Objective: Adherence to the dosing regimen of direct oral anticoagulants (DOACs) is fundamental for their therapeutic effect. The objective of this study was to analyse electronic and self-reported medication adherence (MA) to DOACs over a six-month period in adult outpatients with atrial fibrillation (AF). Another objective was to find out some characteristics of patients related to adherence through questionnaire tools.
Method: This is an ongoing prospective single-center follow-up study conducted from May 2021 to June 2022 consisting of outpatients visiting University Hospital Brno. Inclusion criteria were adult age, AF, and DOACs taken at least for 3 months. The Medication Event Monitoring System (MEMS) buttons were used to evaluate objective adherence in two follow-up visits (in 3rd and 6th month). Czech validated versions of five-question Medication Adherence Report Scale (MARS-CZ) and eleven-question Beliefs about Medication Questionnaire (BMQ-CZ) were used to evaluate the patients' medication taking behaviour by answers using Likert scale. The selected characteristics of the patients came from a questionnaire survey conducted in the form of a structured interview.
Main outcome measures: Electronic and self-reported MA of patients with AF to DOACs in long-term use.
Results: An ongoing study with a total of 101 enrolled patients currently allows the assessment of adherence data in 78 patients. Most patients were retired (85.00%), treated with rivaroxaban 20 mg once daily (38.50%). A cohort of patients characterized by complete satisfaction with their DOAC (88.50%) and self-reported their health mostly as good during the study had a relatively high value of necessity scale (3.79) and low concerns scale (0.63) based on BMQ-CZ. The mean value of electronic monitored adherence for an average of 192 days was 92.15%. Although adherence kept high throughout the study, a statistically significant decrease was found between two time-checkpoints (93.04% vs 91.21%; $p = 0.001$). On the contrary, self-reported MA by MARS-CZ was increasing without statistical significance (adherence 71.8% to 82.1%; $p = 0.231$).
Conclusion: Outputs of the questionnaire focused on beliefs about medications indicated a strong need for DOAC treatment with low worries about the potential adverse effect of DOACs. Overall, electronically monitored adherence to DOACs was high, however, there was a significant decrease during the 6 months of follow-up.

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PP155

Attitudes and experience with direct oral anticoagulants in patients with atrial fibrillation

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Background and Objective: The objective was to analyze the opinions, attitudes, and experience of outpatients with atrial fibrillation (AF) treated with direct oral anticoagulants (DOACs).
Method: This is an ongoing prospective single-center follow-up study conducted from May 2021 to June 2022 in adult outpatients on chronic oral anticoagulation for AF. The included patients were addressed by the questionnaire survey divided into three-time points (1st at the begging of the study, 2nd after three months, 3rd after six months at the end of the study) comprising a total of 55 items focused on medication taking behavior, opinions, attitudes, and experience. Questionnaires were performed by a structured interview between a pharmacist and a patient. A combination of open, closed, and Likert scale answers was employed in the study. Descriptive statistics was used for processing the outputs.
Main outcome measures: Opinions, experience, and attitudes of patients treated by DOACs for AF.
Results: A total of 101 enrolled patients currently allows data assessment in 91 patients (mean age 74.4 years; 54% men; mean weight 86.4 kg; mean height 172 cm, 81.3% were retired). They were characterized as non-smokers (65.9%), drinking alcohol from time to time (57.1%), treated by 5 prescription drugs on average, and 80% also reported the use of food supplements, over-the-counter drugs, or herbs. Patients described using medication dispensers in 60.4%. The majority of patients were with warfarin history (73.6%), currently treated by rivaroxaban 20 mg once daily (37.4%), apixaban 5 mg twice daily (17.58%), and dabigatran 150 mg twice daily (21.98%). Overall, patients were completely satisfied (90.1%) with the prescribed DOAC and 84.9% have not seen any limits in DOACs in comparison with warfarin. A lower frequency of doctor visits (78.8%) as well as fewer dietary restrictions (54.6%) were reported as an advantage of DOACs. A major part of patients did not experience any adverse drug reactions of DOACs (83.5%). Patients on rivaroxaban had awareness about the necessity of using the drug with food (69.4%), however, only 20.7% of users of dabigatran were educated about the proper storage of the drug. Participants reported regularly measuring their blood pressure (96.7%) and heartbeat (67%).
Conclusion: Patients were more satisfied with DOACs than with warfarin and mostly declared no adverse drug reactions. They perceived DOACs as treatment with strong benefits and low limitations. Nevertheless, patients with DOACs need more education about the proper use of DOACs that can improve their effectiveness.

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PP156

Can dual ART mitigate the risk of potential drug-drug interactions among people living with human immunodeficiency virus under stable ART?

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Background and Objective: The people living with human immunodeficiency virus (PLWH) are getting older. Age-related comorbidities in PLWH result in polypharmacy and increase the risk for potential drug-drug interactions (pDDIs). This study aimed to identify pDDIs between antiretrovirals and comedications in a retrospective cohort of patients under stable antiretroviral treatment (ART). The second objective was to investigate the theoretical effects of choosing the dual antiretroviral options [dolutegravir/lamivudine (DTG/3TC) or cabotegravir/rilpivirine (CAB/RPV)].
Method: This study was conducted at the infectious diseases' outpatient clinic of a university hospital as a follow-up of a previous study (1).The data of PLWH receiving at least 1 comedication other than antiretrovirals was retrospectively reviewed and analysed. 'Drugs.com/Drug Interactions Checker' and 'University of Liverpool HIV Drug Interactions Checker' databases were used to identify pDDIs and their severities. The University of Liverpool HIV Drug Interactions Checker database provides pDDIs information for the oral and injectable (long-acting) forms of CAB/RPV.
Main outcome measures: The number of pDDI among PLWH under stable ART and the theoretical effects of choosing dual antiretroviral options (DTG/3TC or CAB/RPV) on pDDIs.
Results: A total of 75 PLWH; (83% male) with mean age (± standard deviation) of 46.5 (± 12.98) years were included. There was at least one comorbidity in 68% of the patients, and the median (minimum–maximum) number of comorbidities was 1 (1–5). The most common comorbidities were hypertension (31%), dyslipidemia (20%), depression (17%), and diabetes mellitus (16%). The median (minimum–maximum) number of medications per patient was 6 (4–11). Polypharmacy was detected in 79% of the PLWH. The most commonly used ARTs were emtricitabine/tenofovir (93%), dolutegravir (25%), and ritonavir (25%), and elvitegravir (20%). In the Drugs.com database, no significant difference was found in terms of pDDIs between the treatment of current ARTs (64%) and DTG/3TC (%44) ($p = 0.06$) or CAB/RPV (%64) ($p = 0.521$). However, in the Liverpool University database, the current rate of pDDIs (55%) was found to be significantly higher compared to the theoretical treatment of DTG/3TC (40%) ($p = 0.029$), oral CAB/RPV (48%) ($p = 0.003$), and injectable CAB/RPV (31%) use ($p = 0.006$).
Conclusion: Risk of pDDIs can be reduced when dual therapy options are chosen. Furthermore, injectable options may provide additional benefit.

Disclosure of Interest: None Declared.

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PP157

Pharmacogenetic analysis enables optimisation of pain therapies: a case report

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Background and Objective: It is well known that patients suffering from chronic pain may respond individual differently to opioid or non-opioid medications. For some, pain relief is insufficient, while others experience side effects. With this case report, we want to illustrate that both the efficacy and tolerability of analgesics can be influenced by genetic polymorphisms.
Method: The patient described in this case report was included in an ongoing observational study in our hospital. This study includes patients who show treatment failure and/or drug side effects. We conduct panel pharmacogenotyping, which includes more than 30 genes coding for transport proteins, metabolising enzymes, or drug targets. Based on the genetic results and a comprehensive medication review, a clinical pharmacist compiles a medication recommendation. After 1 and 6 months, we conduct a follow-up interview with the patient and ask about changes in medication as well as efficacy and tolerability.
Main outcome measures: Description of a case.
Results: We herein report the case of a 34-year-old woman who was operated at our hospital because of a discus hernia. In addition to back pain, she also suffered from chronic pain in her left ankle and had a history of NSAID-induced non-erosive antral gastritis. In a medication reconciliation meeting with a pharmacist, the patient reported insufficient efficacy of oxycodone, fentanyl, and morphine in the past. For this reason, we performed a pharmacogenetic analysis postoperatively. At that time, the patient was treated with oxycodone 40 mg/d, ibuprofen 1800 mg/d, and metamizole 4000 mg/d. Considering the genetic results, we could explain the opiate ineffectiveness and the NSAID-side effects in the past: decreased activity for CYP2D6 led to reduced bioactivation of oxycodone, increased activity for CYP3A5 elevated inactivation of oxycodone and fentanyl, and the variant in the μ-opioid receptor was associated with a decreased response to all three opioids. Decreased activity for CYP2C9 led to a slowed metabolism of ibuprofen and thus increased the risk for gastrointestinal side effects. Based on these findings we recommended a switch to hydromorphone and paracetamol, whose metabolism was not affected by genetic variants, instead of oxycodone and ibuprofen. In the follow-up interviews, the woman reported adequate pain control with the new analgesic regimen.
Conclusion: Pharmacogenetic analysis can be helpful for patients with complex pain problems and inadequate response to therapy and/or medication side effects.

Disclosure of Interest: None Declared.

PP159

Clozapine augmentation with long-acting injectable antipsychotics—experiences in the Czech republic

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Background and Objective: Clozapine is the drug of choice for drug-resistant schizophrenia, in which a combination of two antipsychotics with different mechanisms of action had no therapeutic effect. However, many patients have a continuing lack of response to treatment, so clozapine is combined with other psychotropic drugs. In the case of a clozapine-resistant patient who is in addition nonadherent to therapy, augmentation of clozapine with long-acting injectable antipsychotics (LAI APs) is offered. This combination is not yet widely used due to the possible occurrence of side effects (blood dyscrasias, weight gain, hyperglycemia, etc.).
Method: The poster presents a summary of previous experience with the combination of clozapine and LAI APs in patients hospitalized in the psychiatric disorders department of the regional hospital in the Czech Republic in 2016–2020. Patients (20–53 years) with a diagnosis of paranoid, catatonic schizophrenia, or schizoaffective disorder

who had clozapine and LAI APs used concomitantly were included in the comparison.
Main outcome measures: A total of 15 patients who met the entry criteria for this comparison were included in the retrospective assessment. The work evaluates in particular the representation of individual diagnoses, the duration of therapy, the representation of individual depot antipsychotics within the augmentation approach and the occurrence of clinical side effects.
Results: 1st generation LAI APs, especially flupenthixol decanoate, were most often used in the evaluated case reports. The clinical manifestation of the side effects of combination therapy appears to be low in our sample of patients, with mild and pharmacologically solvable side effects (tachycardia). Only one of the cases reported neutropenia, which resulted in discontinuation of clozapine, leaving the patient with LAI APs. More than half of the patients achieved remission of the disease, 4 patients relapsed due to recurrent nonadherence to therapy, 1 case relapsed due to substance abuse, and only 2 patients relapsed due to insufficient clinical response to treatment.
Conclusion: Experience with the combination of clozapine and LAI APs suggests that patients who are nonadherent and resistant to clozapine therapy could benefit from this treatment, although the amount of clinical data is currently low. Therefore, augmentation of clozapine with LAI APs should be individualized, based on sufficient medical experience.

Disclosure of Interest: None Declared.

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PP160

A biopsychosocial approach to migraine management: a patient perspective of disease and treatment

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Background and Objective: To use qualitative methods to elicit chronically ill patients' experience with illness and treatment from a holistic view to understand the potential needs and barriers for implementing a biopsychosocial approach to chronic disease self-management.
Method: A qualitative study based on semi-structured interviews was nested within an open-label randomized clinical trial investigating the effectiveness of acupuncture in migraine prophylaxis (October 2015 to April 2017), taking place at the Czech-Chinese Centre for Traditional Chinese Medicine in the University Hospital Hradec Kralove. A purposively selected sample of 16 adults with interest in a complex intervention for chronic disease management of different sexes, ages, and education levels, having different experiences with a chronic disease. All interviews were audio-recorded, transcribed, and analyzed using thematic analysis. Data were analysed by MAXQDA version 12.
Main outcome measures: Migraine patients' experience with illness and treatment from a holistic view.
Results: Thirteen women and two men between 19 and 69 years (median 41) agreed to give the interview. They had a history of migraine for at least 12 months and a minimum of four days of migraine per four weeks on standard pharmacological treatment. The average interview duration was 50 min (range 30—90). Patients managed their migraine primarily by means of pharmacological treatment or elimination of migraine triggers and occasionally by using complementary therapies. Although patients sometimes admitted that external stressors can worsen their headache, they rarely saw it as a causal factor, did tend to believe they cannot, or lack capacity to, change their life circumstances, and almost never sought a psychotherapist or a holistic practitioner. They were often found in their pre-contemplative or contemplative phase of making lifestyle changes for improvement of their migraine and overall health. They almost never perceived their illness as an opportunity for personal growth and self-transformation.
Conclusion: Patient education and empowerment in the light of a salutogenic approach to health and disease should be implemented in order to increase the effectiveness and uptake of biopsychosocial and spiritual interventions in the management of chronic diseases.
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Disclosure of Interest: None Declared.

PP161

The role of intervention in improving adherence to hypotensive therapy by hemodialysis patients

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Background and Objective: Adherence to treatment recommendations is particularly important in the treatment of chronic diseases. Such diseases include chronic kidney disease (CKD) and hypertension. Both of these conditions significantly increase cardiovascular disease (CVD) morbidity and mortality compared to the general population. In the era of highly effective hypotensive drugs, one of the most important elements of successful therapy is adherence to therapeutic recommendations. Good cooperation between medical personnel and patients, and consequently a high level of compliance, depends largely on the patient's knowledge of the nature of his disease, the principles of non-pharmacological management and pharmacotherapy. The aim of this study was to identify commonly

used hypotensive drugs and their metabolites in blood samples collected before and after the intervention.
Method: The intervention conducted consisted of interviewing the patient about the importance of medication adherence. Identification was performed by high-performance liquid chromatography coupled to mass spectrometry with time-of-flight analyzer (HPLC-TOF-MS).
Main outcome measures: It seems that for patients with CKD, especially those on hemodialysis, the simultaneous introduction of educational measures, simplification of the treatment regimen, self-monitoring of blood pressure, and extensive support from medical staff and family can significantly improve compliance.
Results: The obtained results were analyzed taking into consideration the available medical records of the patients. Analysis of the chromatograms allowed us to reach the conclusion that the majority of the patients examined did not entirely follow physicians recommendations.
Conclusion: The following study aims to investigate the extent to which the intervention will improve adherence to therapeutic recommendations for the use of hypotensive medications in a group of hemodialysis patients.

Disclosure of Interest: None Declared.

PP162

Systematic review of international guideline recommendations on the safe use and discontinuation of antidepressants

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Background and Objective: While antidepressants are essential in the treatment of severe depression, their effectiveness is less well established in patients with mild to moderate symptoms and there are safety concerns, especially in the elderly. The use of antidepressants has increased over the last decades due to new indications and long-term prescriptions. Clinical guidelines typically specify whether and when to start antidepressants, but clear recommendations on when and how to stop them are also important. The objectives of this systematic review of international guidelines are therefore to investigate (1) to which extent clinical guidelines provide information on when antidepressant deprescribing should be attempted in the management of different psychiatric disorders, and (2) to compare recommendations by different guidelines on durations of therapy and any safety concerns.
Method: We search online guideline registries, websites of national and international organisations and PubMed for clinical practice guidelines issued by national health authorities in Germany, Switzerland, Austria, England, Scotland, Ireland, United States, Canada, Australia, and New Zealand. We also include guidelines of international health organisations. We identify recommendations on potential *overprescribing* of antidepressants by considering the duration of antidepressant therapy for depression, anxiety- and panic disorder, insomnia and neuropathic/chronic pain. In order to identify recommendations on *high-risk prescribing* of antidepressants we consider any mentioning of contra-indications as well as cautions for use on accounts patient age, co-prescription or comorbidity. For all relevant recommendations, we also extract the grades of recommendations.
Main outcome measures: Guideline recommendations on overprescribing of antidepressants, high-risk prescribing of antidepressants, specified grades of recommendations on both.
Results: The systematic review is ongoing but will be completed by the time of the symposium. We expect that the selected guidelines lack specific recommendations on when to deprescribe antidepressants, and that guidelines vary with respect to all outcome measures specified above.
Conclusion: Deprescribing antidepressants may generally be attempted when the risk of harm begins to outweigh its benefits. This systematic review synthesises guideline recommendations on treatment durations and precautions for antidepressant use, thereby providing a basis for the development of more specific guidance on deprescribing antidepressants in future guidelines and decision support tools.

Disclosure of Interest: None Declared.

PP166

Analysis of potential drug-drug interactions in hospitalized patients

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Background and Objective: Prescriptions with more than one drug increase the risk of drug-drug interactions, treatment failure, large pharmacological effect and adverse events.The objectives of this study were to estimate the frequency of potential drug-drug interactions in prescriptions for hospitalised patients, and to identify the factors associatedwith these prescriptions.
Method: The work was in part sited in the Hospital in Rybnik (Poland) with the pharmacotherapy team. One of the tasks of the Team was to assess on the basis of documentation, the frequency of random combinations of drugs prescribed and the risk of adverse interactions. Analyses of prescriptions for medicines were made on randomly selected days.
Main outcome measures: The analysis included 760 patients on the fourteen different wards of the hospital. Age, gender and administration of the drugs were noted. The potential D-DIs were identifi ed and recorded.
Results: Generally 59,42% of the patients received drugs identified as potentially causing D-DIs (52% of the patients were women, 48% were men). 59% of patients older than 65 years of age received a prescription including one potential D-DI. The average number of medicines taken by one patient was 3,29. The highest numer of medicines was taken by a cardiology patient (8) and an internal patient (5). The greatest risk of occurrence of drug interactions in patients who experienced cardiology departmentmedical care facility (84,3%) and internal medicine department (69.9–80%). The lowest was observed in patients laryngological department, ophthalmic and rehabilitation.
The most frequently pairs of drugs prescribed, which are potentially dangerous were: furosemide-angiotensin converting enzyme inhibitors, nonsteroidal antiinflammatory drugs—angiotensin converting enzyme inhibitors, nonsteroidal antiinflammatory drugs—warfarin, spironolactone-potassium and proton pump inhibitors-simvastatin. Gender and the number of drugs received were associated factors to the potential D-DI.
Conclusions The high percentage of prescriptions with potential drug–drug interactions makes it necessary to adopt alerting strategies that include warning about any associated factors identifi ed and to implement educational programs. This action may improve the quality of prescribing and reduce the risks for hospitalised patients.

Disclosure of Interest: None Declared.

PP167

STUDY THE PRESCRIPTION OF VITAMIN D AND THE ASSOCIATION WITH SARS-COV2 INFECTION AND SEVERITY

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Background and Objective: Infection with the coronavirus SARS-CoV2 is characterized by an important clinical variability, which suggests that there are important host-related factors that impact in COVID-19 outcomes. One of these factors has been postulated to be vitamin D deficiency. Observational studies have described an association between low serum levels of 25-hydroxyvitamin D(25OHD) and higher risk of SARS-CoV2 infection and mortality. However, evidence that these drugs are helpful to treat or prevent SARS-CoV2 infection is still controversial. This study was aimed to analyze the associations between cholecalciferol or calcifediol supplementation, serum 25-hydroxyvitamin D (25OHD) levels and COVID-19 outcomes in a large population.
Design: We performed a single-center retrospective study to analyze the use of cholecalciferol or calcifediol from December 2020 to March 2021 in patients with SARS-CoV2 infection. The variables collected were: sex, age, Charlson Comorbidity Index,days of hospitalization, vitamin D prescription, duration and dose, specific COVID treatments, clinical evolution (admission to intensive care unit or death), analytical parameter, and adverse reactions. Data was obtained from electronic prescription (Prisma®) and medical records (Diraya®) applications.
Results: In total 322 patients with vitamin D prescriptions were reviewed. Of which 320 were covid-19 patients. 55.4% were men. Among the relevant antecedents, 50% had hypertension, 24.7% had diabetes mellitus, 22.6% had dyslipidaemia,20.5% had pulmonary disease and 15.7% were obese. Median age was 66 years (IQR: 55–76), Charlson index 3(1–5). Length of hospital stays was 14 days (IQR 8–26). In-hospital mortality was 21.7%. Before starting vitamin D treatment only 34.6% had serum levels measured. Among them 43.5% of patients had vitamin D levels below 10 nmol/ml. The median daily dose of vitamin was 800UI (IQR400-1200). Median duration of vitamin D treatment was 8 days (IQR 5–14). On bivariate analysis, the factors associated with mortality in these patients, we found that the analytical request for serum vitamin D concentration was less frequent (44.4% vs 55.6%, $p = 0.048$), while vitamin D levels below 10 nmol/ml were found in 59.4% of patient's vs 40.6%, $p = 0.033$.
Conclusion: In conclusion, we consider that vitamin D utilization was very heterogeneous. There were no consensus criteria for its use. Regarding the relationship with mortality, a more detailed analysis is needed to avoid bias.

Disclosure of Interest: None Declared.

PP170

Effectiveness and safety in clinical practice of bitherapy with lamivudine and dolutegravir in the treatment of HIV

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Background and Objective: Dolutegravir (DTG)-lamivudine (3TC) treatment is indicated for the treatment of Human Immunodeficiency Virus type 1 (HIV-1) infection. Bitherapy has a number of advantages over conventional triple therapy: the number of tablets is reduced, favoring adherence, the adverse effects associated with the administration of a greater number of drugs are avoided, and interactions with the rest of the medication are minimized concomitant.The main objective of this study is to evaluate the effectiveness and safety of dual therapy with DTG and 3TC in the treatment of HIV.
Design: Retrospective observational study in a specialty hospital, which included all HIV patients treated with DTG AND 3TC, administered as a single tablet, from September 2019 to April 2022. The data were obtained from the digital medical record (Diraya ®) and the outpatient dispensing program (PRISMA-APD®). The variables collected were: sex, age, duration of treatment until the end of the study, presence of concomitant antiretroviral treatment, interactions with home treatment, most recent viral load (VL) (copies/ml), most recent CD4 T lymphocyte count (cells/ml), adverse effects (AE) and adherence to treatment. To evaluate the effectiveness, the viral load was determined, considering < 50 copies/ml a good virological response, and the CD4 T lymphocyte count, considering 540–1660 cells/microl normal levels. To assess safety, AEs and interactions were recorded.
Results: Thirty patients were included, of which 7 had to be ruled out because they did not present data in the clinical history due to follow-up in other hospitals. Taking into account the remaining 23, 8 were women and 15 men, with a median age of 60 years (28–67). The median duration of treatment was 15 months (0.9–49). 8 patients had concomitant treatment with darunavir/cobicistat. Median CD4 levels were 928 cells/microL (273–1725), although 4 patients had levels below the range. Only two patients had detectable viral load, one of them due to lack of adherence and the other patient due to having only been on treatment for one month at the time of the analysis. Interactions associated with the use of calcium supplements were detected in patients, without affecting the effectiveness of the treatment. Regarding safety, only one patient presented pruritus as a possible AE. The remaining patients had good tolerance to treatment.
Conclusion: Treatment with DTG and 3TC has been shown to have an effectiveness not inferior to triple therapy, without increasing the risk of virological failure, since it maintains undetectable VC and CD4 lymphocyte levels do not vary significantly. In addition, it presents a favorable safety profile in our study.

Disclosure of Interest: None Declared.

PP171

Effectiveness of pirfenidone in idiopathic pulmonary fibrosis: results from a real-life study

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Background and Objective: Idiopathic pulmonary fibrosis (IPF) is a rare disease of unknown etiology, characterized by progressive and irreversible fibrosis of the interstitium of the lung. Pirfenidone is an antifibrotic compound approved for the treatment of mild-moderate IPF. The aim of this study was to describe the efficacy in terms of Overall Survival (OS) in IPF patients treated in our center.
Method: This retrospective observational study included data from patients who received Pirfenidone for the treatment of IPF from 26th September, 2013 to May 13th, 2022. All the patients completed at least 3 months of treatment with Pirfenidone 2403 mg/day. Demografic and clinical data, as the age, the smoking status, prior line therapies, Forced Vital Capacity (FVC), Diffusing capacity of the Lungs for carbon monoxide (DLco), 6-min walk test (6MWT) distance and outcome were collected from electronic medical records.

OS was estimated according to the Kaplan–Meier method, using R Software 4.0.2.
Main outcome measures: We present our real world experience in terms of Pirfenidone's effect on survival in patients with IPF.
Results: This analysis shows preliminary results for 88 patients (of which 76% are male; median age 72 ± 7 years) affected by IPF. The majority of the patients (92%; n = 81) were not smokers. The radiological pattern of definite usual interstitial pneumonia (UIP) on high resolution computed tomography (HRTC) was seen in 64 patients (72%) while 25 patients (28%) underwent a surgical lung biopsy. Seventeen patients (19%) received previous treatments, 4.5% were treated with cortisone compounds, 5.6% with N-acetylcysteine and the 11.36% with nintedanib. Mean FVC was 79.2% (Standard Deviation, SD, 16.7) and mean DLco was 56.9% (SD 15.6) predicted, 6MWT distance was 335 m (SD 115). Pirfenidone was mainly discontinued because of death (21.5%, n = 19), patient decision (14.7%, n = 7), toxicity (4.5%, n = 4), progression (3.4%, n = 3) and clinical decision (1.1%, n = 1). The 3-years survival was equal to 80.5%.
Conclusion: This study, designed on a long-term follow up, confirmed through real-life data the effectiveness of Pirfenidone in mild-moderate IPF. More real life studies with a higher number of patients who are unlikely to be eligible for inclusion in pharmaceutical trials are needed to evaluate the effect of Pirfenidone on disease progression.

Disclosure of Interest: None Declared.

PP173

Patients' experience with the use of real-time telemedicine as a clinical management option: a cross-sectional survey

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Background and Objective: Real-time telemedicine is increasingly viewed as a cost-effective service that improves access to healthcare by allowing healthcare professionals and patients to communicate at any time and from any location[1,2]. This study aims to investigate patients' experience with the use of real-time telemedicine as a clinical management option through quantifying the level of acceptance and satisfaction based on the corresponding outcome of the service in comparison to regular face-to-face consultation.
Method: Online cross-sectional survey was used to collect data anonymously from patients who went through the real-time telemedicine experience in outpatient clinics in United Arab Emirates. General population was approached via convenience sampling and survey was offered in both Arabic and English languages to increase response rate. Survey collected data regarding: (1) participants' demographics, (2) quality and outcome of the service and (3) level of satisfaction. Responses were extracted to Excel sheet and then statistically analysed using IBM SPSS software version 28.0 for descriptive and inferential statistics.
Main outcome measures: Outcomes include measuring the level of acceptance and satisfaction with the quality of the service.
Results: A total of 218 responses were received over six weeks duration, mostly females, young age (median age 30), college level education who experienced telemedicine in governmental hospitals. Median % score for participants satisfaction with outcome and quality of the consultation was 66.67 (0.0–100.0), with the highest score of satisfaction with consultation privacy and confidentiality. Of note that provision of pre-consultation instructions, successful management of symptoms and treatment came low on the ranking scale. Majority of participants indicated preference for face-to-face clinic visit (N = 130, 59.6%) rather than real-time telemedicine for their next consultation despite the high satisfaction level with real-time telemedicine experience. Multiple reasons were identified for participants' preference such as; more accurate diagnosis and effective communication in case of face-to-face clinic and less waiting time and easy access for care in case of telemedicine.
Conclusion: Majority of participants were satisfied with the quality and outcome of real-time telemedicine experience. Despite the reported benefits of this service, many participants prefer face-to-face clinic due to reasons related to diagnosis and communication.

Disclosure of Interest: None Declared.

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PP174

The impact of disability progression on quality of life in multiple sclerosis patients

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Background and Objective: Multiple sclerosis (MS) represents one of the most frequent causes of disability in young adults with over 1,000,000 people affected across Europe. While the physical disability is of great importance, quality of life (QOL) also is considered increasingly important. The aim of this study was to assess the QoL in patients with MS and its association with disability respectively disability evolution in time.
Method: Retrospective study from January to December 2020. Data collected were: age, sex, Expanded Disability Status Scale (EDSS) at onset, EDSS and duration of treatment. EDSS score ranging from 0 (no disability) to 10 (death due MS) was used for the evaluation of disabilities. Statistical data analysis was performed using SPSS program, and significant relationships between variables were evaluated by applying appropriate tests. Results with probability less than (5%) were considered statistically significant ($p < 0.05$). Pearson correlation coefficient was used to detect the association between disability and QOL.
Main outcome measures: EDSS evolution in time represents.
(EDSS -EDSS onset)/(age- age at onset)
MS patients completed MSQL-54 used to evaluate QOL. It provides physical health composite score (PCS) and mental health composite score (MCS) expressed on a scale of 0 (poorest QOL) to 100 (best possible QOL).
Results: 54 patients, predominantly female (77.77%) with a median age 41,14 (standard deviation + 10.15), completed the MSQL-54. Median disease duration was 5.35 years with a mean EDSS evolution = 0.08. Mean EDSS score was 2(full walking capacity). Mean PCS and MCS were 68.27 ± 21.84 and 71.68 ± 22.7, reflecting a moderate impairment in the QoL. Physical and mental health scores were directly related ($p < 0.0001$). There was a significant correlation between the current EDSS score and QOL, mainly in the physical

function, ($P < 0.01$). (Results also found in studies in the researched literature) (1, 2). Patients with higher EDSS have a worse QOL. On the other hand, the evolution of the EDSS has not been correlated with any indicator of QOL, possibly because, for MS patients, QOL is rather dependent on their current status (age, EDSS and other patient-dependent factors) and less on EDSS evolution over time.
Conclusion: We find correlation between QOL and the disabilities, in these patients the EDSS could be a predictor of the level of QOL. Intervention that reduces neurological disability and encouraging treatments to improve or delay physical progression of MS are thus expected to improve QOL.

Disclosure of Interest: None Declared.

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PP175

Local field study on antibiotic use in inpatients

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Background and Objective: The increasing antimicrobial resistance is a huge problem worldwide. Improper antibiotic use is one of the key drivers of antibiotic resistance. Analyzing data of antibiotic use in different clinical departments can help us to identify potential local problems. The aim of this study was to investigate the use of antibiotics and microbiological sampling in internal medicine profile departments based on patient-level data.
Method: Using an extended point prevalence study design, we performed a retrospective chart review of inpatients admitted to the internal medicine departments of a tertiary care medical centre.
Main outcome measures: We defined the prevalence of antibiotic use, microbiological sampling, type of therapy (mono or combination) and all performed changes (e.g. deescalation, parenteral per os switch, etc.).
Results: Out of the 294 inpatients, 104 received antibacterial therapy during their hospital stay (35,4%; CI 95% 30.45–41.35). Patients who received antibacterial therapy had an average age of 67 years and 47.1% of them were women. Almost every second patient had a minimum of 5 score on the Charlson comorbidity index, the maximum value was 12 points. Overall 66 patients (63.5%) were sampled for microbiology before initiating antibiotic regimen. Blood culture was obtained in 37 patients, in 23 cases properly (2 pairs). In case of 38 patients (36.5%) we have not recorded documented clinical signs and in further 16 patients the concrete clinical signs were not mentioned. Fourty seven patients (45.2%) received combination antibiotic therapy. In case of 43 patients, there were changes in the antibiotic regimen: we recorded for 12 patients parenteral per os switch, for 13 patient dose correction (for three patients we recorded 2 cases). Deescalation could be identified for 12 patients, escalation for 16 (for three patients we recorded two therapy escalations). Clinical cure were recorded for 41 patients, while 42 patients were further prescribed antibiotic upon discharge.
Conclusion: We proved that antibiotics are prescribed for every third inpatients, sometimes in the lack of documented clinical signs. Microbiological sampling was suboptimal. The low rate of de-escalation therapies should be further investigated.
Acknowledgement: ITM NKFIA TKP2021-EGA-32.

Disclosure of Interest: None Declared.

PP176

Tyrosine-kinase inhibitors in the treatment of non-small cell lung cancer in usual clinical practice

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Background and Objective: Tyrosine kinase inhibitors (TKIs) have been an alternative to traditionally used intravenous treatment. These drugs have advantages such as easier administration, more manageable adverse reactions or more selective action, but they have drawbacks such as less patient control. The aim of this study is to analyze the effectiveness of oral TKIs in the treatment of non-small cell lung cancer in routine clinical practice.
Design: Retrospective observational study carried out between August and November 2021 in a regional hospital. Patients who received oral TKIs between January 2017 and November 2021 were included. The variables measured were: age, sgender, disease stage, drug, progression-free survival (PFS), and overall survival (OS). The sources of information used were: clinical history and electronic prescription software.
Results: Thirteen patients were included (mean age 64 years; 76.9% men, 23.1% women). 84.6% received erlotinib and 15.4% gefitinib. 100% of patients presented stage IV at the beginning of treatment. 61.5% of the patients received TKI as second line, 30.8% as third line after progression to both conventional chemotherapy regimens (CT) and the remaining 7.7% after progression to CT and another oral TKI. The median PFS was 1.20 months in the second line, 0.16 months in the third line, and 0.13 months in the fourth line. In the same order, the OS was 1.16 months, 0.21 months, 0.20 months.
Conclusion: The median PFS and OS were higher in patients who received ITK after progression to CT compared to those who received it after progression to CT and a previous ITK. This difference may be due to the appearance of resistance to ITK due to prior exposure to them.

Disclosure of Interest: None Declared.

PP177

The use of cefiderocol for extensively drug-resistant gram-negative bacterial infections: a case series

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Background and Objective: Cefiderocol is a siderophore cephalosporin. In additional to passive diffusion through outer membrane porin channels, it can bind extracellular free iron through its siderophore side chain, allowing active transport into the periplasmic

space of gram-negative bacteria via siderophore uptake systems. It has activity against carbapenemase-producing enterobacteria, Pseudomonas aeruginosa, Stenotrophomonas maltophilia and Acinetobacter baumanii. It is not currently commercialised in Spain and is processed through the website of the Spanish Agency for Medicines and Health Products (AEMPS) by the Pharmacy Service under certain criteria. It is currently a safer alternative for patients with severe Acinetobacter baumanii infections. The aim of this study was to describe our experience in the management of severe infections with cefiderocol as a salvage therapy.

Design: Retrospective observational study.

Results: We treated 7 patients with 8 prescriptions of cefiderocol in a tertiary level university hospital from January 2021 to January 2022.4(57%) were male, median age was 67 (56–70) years. 2/7 were COVID-19 patients.2/7 had been admitted within the previous 90 days. 4/7 patients with very severe prognosis.In 4/7 patients with Acinetobacter baumanii OXA-23 bacteraemia; 2 patients with respiratory infection (sputum isolation): one with IMP-producing P.aeruginosa and one with Achromobacter xylosoxidans. And one patient with urinary tract infection caused by P. aeruginosa XDR. In patients 1 and 2 the MIC for cefiderocol was not tested. The origin of the infection was: two bacteraemias: one associated with the catheter and the other in a colonised patient, in four patients respiratory infection and one with urinary infection. All infections were nosocomial in origin. 4 patients had rectal colonisation prior to treatment.3 by the same micro-organism that caused the infection and one by K.pneumoniae OXA-48, although the infection was caused by P.aeruginosa IMP. 5/7 of patients were treated with cefiderocol in combination therapy (2 with colistin, 2 with tigecycline and one with fosfomycin). Median duration was 8 (7–13) days.

Conclusion: Our experience suggests that cefiderocol is an effective alternative for treating patients with severe infections caused by multidrug-resistant bacteria.

Disclosure of Interest: None Declared.

PP178

Too much of a good thing? Development of indicators for high-risk and overprescribing of antidepressants

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Background and Objective: Antidepressant use has increased substantially internationally. While it has been important to address previous under-detection and under-treatment of depression, antidepressants may increase the (1) risk of serious adverse effects, especially among elderly patients with multimorbidity and polypharmacy. In addition, observational studies have demonstrated that the observed increase in antidepressant use is mainly driven by (2) long-term prescriptions and new indications. In order to support clinicians in identifying opportunities for antidepressant deprescribing, the objectives of this study are to develop indicators of (1) high-risk prescribing and (2) overprescribing of antidepressants.

Method: The study design is a consensus process based on the RAND Appropriateness method (RAM). The RAM combines best available evidence and expert opinion in a two round rating process, with a moderated discussion among panelists in between rating rounds. The panel comprises 12 members including general practitioners, pharmacologists and geriatricians/geronto-psychiatrists. Candidate indicators for (1) high-risk and (2) overprescribing of antidepressants are identified via a structured literature review. Each indicator is rated with respect to three constructs on 9-point Likert scales, namely *necessity of review* (i.e. "How necessary is it to conduct a critical review of the antidepressant use in order to prevent adverse effects or reduce medication burden?"), *likelihood of harm* (i.e. "How likely is it that the patient experiences harm from the use of antidepressants?"), and *severity of harm* (i.e. "How severe would the harm be if the patient experienced it?"). An indicator is rated necessary (irrespective of *likelihood* or *severity* ratings), when the median *necessity* rating across all expert ratings is ≥ 7 without disagreement.

Main outcome measures: For candidate indicators, we report consensus (positive or negative) or disagreement after two rating rounds on (A) the necessity of review (primary outcome), (B) likelihood of harm, and (C) severity of harm.

Results: The RAND-consensus process will deliver prioritized clinical situations that require a timely critical review of antidepressant use. We will present consented and declined indicators of high-risk and overprescribing of antidepressants as well as the results of analyses exploring the relationships between *necessity* ratings on the one hand, and *likelihood of harm* and *severity of harm* ratings on the other.

Conclusion: These prioritized indicators will be used to develop decision support tools for clinicians, which may be used in deprescribing interventions targeting the safe and appropriate use of antidepressants.

Disclosure of Interest: None Declared.

PP179

The impact and acceptability of a multimorbidity pharmaceutical care planning checklist in primary care

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Background and Objective: Polypharmacy review is a key role for primary care pharmacists in Scotland.[1] Pharmacists' ability to identify care issues can vary.[2,3] In response to this, two Advanced Clinical Pharmacists in NHS Lothian, with input from specialist teams, have developed an evidence based, multimorbidity checklist for pharmaceutical care planning. The checklist, covering 13 common chronic conditions, lists potential care issues with standardised actions to optimise patient care and reduce harm. The aim of this study was to assess whether the checklist could improve the identification of pharmaceutical care issues and to evaluate its acceptability.

Method: Primary care pharmacists (n = 36) in NHS Lothian completed four mock medication reviews, two using standard practice and two using standard practice plus the checklist. They were asked to record: all care issues and actions identified, time taken for each review, and rate their acceptability of the checklist using a Likert scale. Data were analysed descriptively and using appropriate parametric and non-parametric statistical tests.

Main outcome measures: Number of care issues and actions identified, time taken per review, time taken per care issue identified, and participant acceptability of the checklist.

Results: The median number of care issues identified using the multimorbidity checklist for pharmaceutical care planning was significantly higher than when using standard practice alone. (9.81 vs 7.94 issues, $p = 0.040$). The median time to complete the reviews with the checklist was longer but variance was not significant.

(42.5 min vs 40.0 min, $p = 0.182$). Time taken to identify one care issue was consistent across both groups. User feedback for the checklist demonstrated good acceptability with 91% of pharmacists reporting that they would use the checklist in their practice and recommend it to a colleague.
Conclusion: This study demonstrates that the checklist increases the identification and follow up recommendations for care issues aiding optimisation of patient care. Use of the checklist increased median time taken per review, although not significantly, and was widely acceptable to participants.

Disclosure of Interest: None Declared.

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PP180

Effectiveness of dupilumab in atopic dermatitis

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Background and Objective: Atopic dermatitis is characterized by inflammation, itching and dry skin. The basic treatment of atopic dermatitis is based on hydration and the use of topical corticosteroids. The objective was to analyze the efficacy of treatment with dupilumab in patients with atopic dermatitis.
Design: The data was obtained by analyzing the medical records in the Diraya®. The efficacy variables evaluated were EASI (Eczema Area and Severity Index) and PGA (Physicians Global Assesment) at different times: start of treatment and at 16, 24 and 52 weeks from the start of treatment. The administered dose of Dupilumab was 600 mg as a loading dose, and subsequently 300 mg every 2 weeks.
Results: The study included 41 patients, 22 men and 19 women, who started treatment with Dupilumab from January 2020 to September 2021, both inclusive. At the study date, the patients had been in treatment for a median of 39 weeks: 22 patients were at week 16, 8 patients at week 24 and 11 patients at week 52 post-treatment initiation. Patients had a mean baseline EASI of 32 and a mean baseline PGA of 4. Following the indicated administrations, they had mean EASI scores of 5.9, 5.94, and 3.94 at 16, 24, and 52 weeks, respectively, from the start of treatment. The same way, mean PGA indices of 1.57, 2.12, 1.09 were recorded at 16, 24, and 52 weeks, respectively. Percentage-wise, the EASI reduction was 81.6%, 81.5% and 87.7% and the PGA reduction was 60.75%, 47% and 72.75% at 16, 24 and 52 weeks compared to baseline values.
Conclusion: During the study period, the objective indices evaluated experienced a significant improvement. After its analysis, the sharp reduction produced in the first 16 weeks from the start of treatment stands out, with a subsequent continuous but moderate decrease in subsequent controls.

Disclosure of Interest: None Declared.

PP181

Residents' and informal caregivers' preferences on their involvement in the medicines' pathway in nursing homes

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Background and Objective: Person-centered care has been shown to be beneficial for nursing home residents. Research on person-centered care regarding the medicines' pathway and medication decision-making in nursing homes, however, is lacking. This study aimed to provide an understanding of the experiences and preferences of residents and informal caregivers on their involvement in the medicines' pathway and medication decision-making in nursing homes.
Method: A qualitative, explorative study was performed by means of semi-structured interviews with 17 residents and 10 informal caregivers from four nursing homes. Interview transcripts were analyzed by means of an inductive thematic approach. Analysis was performed by an interprofessional team, consisting of researchers with a background in pharmacy and nursing.
Main outcome measures: Experiences and preferences of residents and informal caregivers on their involvement in the medicines' pathway and medication decision-making in nursing homes.
Results: Four interacting themes were derived from the interviews, describing the experiences and preferences of residents and informal caregivers on their involvement in the medicines' pathway and medication decision-making in nursing homes. First, the interviews clearly showed that residents acknowledged only one behavior as a contribution to their medicines' pathway, i.e. the intake of oral medicines, although different other behaviors were named. Second, attitudes of resignation and reconciliation were noted among residents and informal caregivers towards involvement in the medicines' pathway and medication decision-making, respectively. Third, the interviews pointed towards factors contributing to this attitude, including the nursing home's institutional character. These factors seemed to impede residents and informal caregivers in perceiving opportunities to be (more) involved. Nevertheless, as described in the final theme, also drivers for action were identified throughout the interviews, including the observation of potential errors during medication administration rounds and the perceived lack of necessity or effectiveness of prescribed medicines.
Conclusion: Nursing home residents and informal caregivers are not aware of their own contributions to the medicines' pathway and medication-related decisions, nor of opportunities to be (more) involved therein. As such, initiatives are needed to improve awareness on opportunities for resident and informal caregiver involvement in the medicines' pathway and medication decision-making in nursing homes.

Disclosure of Interest: None Declared.

PP182

A person-centered medication review for nursing home residents: development of the RESPECT-tool

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Background and Objective: Healthcare professionals (HCPs) and patients need support to elicit patient goals. However, no comprehensive method currently exists that allows the elicitation of patient goals and integration thereof in a medication review for nursing home residents (NHRs). This study aimed to develop and optimize such method (i.e. the RESPECT-tool).
Method: A stepwise approach was used to develop the RESPECT-tool: (1) a draft of the RESPECT-tool was established by the research team, based on the results of a scoping review on patient goal elicitation and evaluation methods, (2) feedback on the draft was collected through focus group discussions with nursing home (NH) staff, and (3) pilot interviews were performed with NHRs by members of the research team and NH staff. All focus groups and interviews were audio-recorded and summarized in a narrative way. Summaries were analyzed deductively.
Main outcome measures: The feasibility of the RESPECT-tool.
Results: A scoping review identified four patient goal elicitation methods and one evaluation method. These methods were integrated in a draft of the RESPECT-tool, consisting of five modules. Four focus groups were held with a total of 23 HCPs. Overall, HCPs provided positive feedback on the feasibility of the tool, and named the modular approach of the tool as an advantage for its use in daily practice. Nevertheless, discussions indicated that the general objective of the tool and the broader concept of goal-oriented care needed further clarification. Six pilot interviews were performed with NHRs. Pilot interviews performed by NH staff highlighted the added value of an existing relationship between the interviewer and NHR for goal elicitation. Some questions related to medication initially seemed too abstract for residents, but examples of potential answers listed in the tool provided the necessary clarification.
Conclusion: The stepwise approach used for the development of the RESPECT-tool allowed modifications to improve its feasibility. An optimized version of the RESPECT-tool and supportive material to clarify the concept of goal-oriented care for NHRs are now ready for further pilot testing.

Disclosure of Interest: None Declared.

PP183

Deprescribing in polypharmacy patients under the age of 65 years: a scoping review

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Background and Objective: Reduction in Polypharmacy is a key strategic aim of the 3rd WHO Global patient safety challenge, "Medication without harm". Most published research focuses on polypharmacy in patients over the age of 65 years old despite it being a mounting problem in younger age groups. The aim of this scoping review was to describe the published deprescribing-measures to prevent severe, avoidable medication related harm in polypharmacy patients under the age of 65 years old since 2017.
Method: A scoping review was conducted involving PubMed, ScienceDirect, Web of Science and Cochrane databases (2017–2021) including original studies and systematic reviews and their reference lists. Two independent reviewers screened titles, abstracts and full text articles and completed data extraction with discrepancies being verified by a third. Reporting was completed in accordance with PRISMA-ScR.
Main outcome measures: Deprescribing strategies including barriers, facilitators, and educational interventions.
Results: Out of 232 papers, only five met the inclusion criteria. Two scoping reviews (n = 2; 40%), one randomized controlled trial (n = 1; 20%), one mixed methods study (n = 1; 20%) and one conference abstract (n = 1; 20%) were included. Interventions are multifaceted, address different population groups and can be classified into 4 key points: Further Research and Development, Change in Prescribing Culture, Interdisciplinary Collaboration, and Staff/Stakeholder Training. In addition, it was found that guidelines and measures to prevent polypharmacy related harm exist but have not yet been implemented across the board.
Conclusion: There is a distinct paucity of research exploring the use of deprescribing strategies in patients under the age of 65. Future work to address new WHO Global patient safety action Plan (2021–2030) "*Towards eliminating avoidable harm in health care*" should focus on the avoidance of inappropriate polypharmacy becoming an integral part of the prescribing culture in younger adults.

Disclosure of Interest: None Declared.

PP184

Are there socioeconomic inequalities in polypharmacy among older people? A systematic review and meta-analysis

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Background and Objective: Socioeconomic status (SES) may influence prescribing, concordance and adherence to medication regimens. This systematic review and meta-analysis set out to investigate the association between polypharmacy and an individual's socioeconomic status, to inform prescribing policy and practice.
Method: The search was conducted in four databases: Medline (OVID), Web of Science, Embase (OVID) and CINAHL, from inception to July 2021. Observational studies that reported polypharmacy according to SES were eligible for inclusion. Studies underwent a further selection process to identify those that could be included within the meta-analysis. A random-effects model was undertaken comparing those with polypharmacy ($\geq$ 5 medication usage) with no polypharmacy (0–4 medication). Unadjusted odds ratios (ORs), 95% confidence intervals (CIs) and standard errors (SE) were calculated for each study.
Results: Fifty-five articles (reporting 54 independent studies) from 13,412 articles screened met the inclusion criteria. The measure of SES used were education (50 studies), income (18 studies), wealth (6 studies), occupation (4 studies), employment (7 studies), social class (5 studies), SES categories (2 studies) and deprivation (1 study). Thirteen studies were excluded from the meta-analysis. Overall, lower socio-economic status was associated with higher polypharmacy usage: people of higher educational backgrounds were 17% less likely to be in receipt of polypharmacy. Similar findings were shown for the pooled analysis of occupation, income, social class, and socioeconomic categories.
Conclusion: This study has demonstrated people of lower SES are significantly more likely to be in receipt of polypharmacy. The findings support targeted intervention and further work to help reduce healthcare inequalities.

Disclosure of Interest: None Declared.

PP189

Opinions of medical oncologists on vaccination in cancer patients

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Background and Objective: The timing of vaccination against vaccine-preventable diseases in cancer patients varies according to the cancer treatment regimens (1,2). This variation can be challenging for physicians in clinical practice. In this study, opinions of medical oncologists in recommendation of vaccines to cancer patients were evaluated.
Method: A questionnaire-based study was conducted among medical oncologists in Turkey between September 2019 and February 2022. A questionnaire was consisted of 23 questions regarding demographics as well as opinions and practices on vaccinations in cancer patients. The questionnaire was delivered to the group of medical oncologists via e-mails with two reminders.
Main outcome measures: Descriptive statistics such as numbers, percentages, and mean (standard deviation).
Results: Eighty medical oncologists responded to the questionnaire; of those 44 were female, 68 (85%) worked in university hospitals. The most common vaccines recommended by the oncologists were influenza (94.28%), pneumococcus (88.57%), hepatitis B (78.57%), HPV (32.86%), diphtheria-tetanus (31.43%), Hib (14.29%), and Zoster (8.57%). As clinical guidelines recommend vaccines for patients receive conventional cytotoxic chemotherapy, only 2 (2.5%) and 3 (3.75%) oncologists stated not recommend inactivated or live vaccines at any stage of the treatment process, respectively. In regards to administration time, 13 (17.25%) oncologists did not have an opinion on timing of vaccination during conventional cytotoxic chemotherapy. In regards to patients receive anti-B cell antibody treatment, few oncologists not recommend inactivated (5; 6.25%) and live (18; 22.5%) vaccines at any stage of the treatment process. A total of 17 (21.25%) participants had no opinion on administration time of inactivated and live vaccines during anti-B cell antibody treatment. Although clinical guidelines do not recommend to administer the vaccines for the following timing schedule; vaccination was recommended 'just before the treatment' (39.44%), 'between the treatment cycles' (28.17%) and 'immediately after the end of the treatment' (18.31%) by oncologists. **Conclusion:** A majority of oncologists are aware that of vaccination schedule should be completed for cancer patients. Influenza, pneumococcal and hepatitis B vaccines are commonly recommended for patients with cancer. Although administration of vaccines depends on the types of treatment regimen and vaccine itself, clinicians should be aware of these variations and inform the patients accordingly.

Disclosure of Interest: None Declared.

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PP190

Patients' and health professionals' experiences and views of non-cancer chronic pain management in the Middle East and North Africa region: a qualitative evidence synthesis

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Background and Objective: Chronic pain, commonly defined as that which persists or recurs for longer than 3 months, greatly impacts quality of life and consumes vast healthcare resources. While a plethora of systematic reviews have collated data on clinical effectiveness, cost-effectiveness and safety of therapeutic approaches, there is less evidence on management processes. Of note, no systematic reviews have been conducted on studies originating in the MENA region (24 countries in Middle East and North Africa). Given the stark differences in ethnicity, culture, and healthcare systems and processes, evidence from other parts of the world may not be generalizable or transferable to the MENA region. The objective was to extract, critically appraise and synthesize the qualitative evidence of the experiences and views of patients and health professionals towards non-cancer chronic pain management in the MENA region.
Method: Following protocol registration (PROSPERO, CRD42022312426), the search was conducted in PubMed, Embase, CINAHL and ProQuest from inception until February 2022. Published peer-reviewed primary qualitative studies of the experiences and/or views of any non-cancer chronic pain patients and/or health professionals in MENA were included. Quality assessment (Critical Appraisal Skills Program) and data extraction were independently performed by two researchers, with synthesis following a meta-aggregation as recommended by the Joanna Briggs Institute.
Main outcome measures: Synthesized, pooled data on experiences and views of patients and health professionals towards non-cancer chronic pain management.
Results: Of the 2966 titles and abstracts screened, 52 were retained for full text screening, of which 5 studies of 116 participants (30 health professionals) were included in the review. Studies had limitations in terms of research trustworthiness. Twenty-five findings were extracted, grouped into 10 categories, with 4 synthesized findings: health system-related challenges (largely dissatisfaction); treatment preferences beyond analgesics; patients' experiences influencing their perceptions towards received care (positive and negative); and reluctance to seek healthcare.
Conclusion: There is a lack of high-quality qualitative research in the MENA region. The limited data from patients and health professionals suggest a need to optimize the healthcare system-related services.

Disclosure of Interest: None Declared.

PP192

The impact of polypharmacy on the clinical outcomes in multimorbid patients with COVID-19—a systematic review

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Background and Objective: The COVID-19 pandemic has caused a global crisis, with millions lives lost, healthcare, economic and social disruptions, affecting disproportionately the most vulnerable. Polypharmacy is common among the elderly patients with

multimorbid conditions, who are at greater risk for severe COVID-19 infection. [1,2] In some cases polypharmacy is necessary and only through such approach the therapeutic results are achieved. On the other hand, improper polypharmacy leads to an increase in the direct and indirect medical costs and a decline in the life quality of patients. The aim of the present study is to assess the impact of polypharmacy on the clinical outcomes of multimorbid patients with COVID-19.
Method: A systematic review in the electronic databases PubMed, Scopus, EMBASE, Cochrane library and Google Scholar was conducted for relevant articles, reporting the impact of polypharmacy on the treatment of COVID-19 patients. A search using the following keywords were used: "COVID-19″, "polypharmacy"," comorbidity", "elderly". The inclusion criteria were full text articles, written in English, published between January 2020 and April 2022.
Main outcome measures: The systematic review explored the impact of polypharmacy on the risk of infection, the severity of the disease and the incidence of adverse drug reactions (ADRs) in COVID-19 patients.
Results: A total of 91 articles were identified and 25 met the inclusion criteria. A review of the included articles shows that the double threat of COVID-19 infection and polypharmacy for the same vulnerable group—the elderly and people with pre-existing multimorbidity, is particularly problematic. Polypharmacy leads to suboptimal results of treatment for various diseases. Polypharmacy is associated with an increased risk of COVID-19 infection. A clear relationship was found between polypharmacy and the increased risk of a positive test result for COVID-19. Classes of drugs associated with severe COVID-19 include proton pump inhibitors, laxatives, many classes of drugs acting on the central nervous system, nutritional supplements and nonsteroidal anti-inflammatory drugs. The relationship between the incidence of ADRs and patients with COVID-19 who had ADRs received a higher average number of drugs than patients with COVID-19 without ADRs.
Conclusion: Improper polypharmacy poses a threat to public health and causes social and economic problems. The pandemic further endangers the health of the most vulnerable groups of society.

Disclosure of Interest: None Declared.

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PP193

Incidence and risk factors of diabetes mellitus, results from the Demographic and Health Survey 2017 in Jordan

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Background and Objective: Socioeconomic factors are envisioned to affect the predisposition of diabetes mellitus, a chronic disease highly prevalent in Jordan. The present study attempted to assess the prevalence and risk factors for diabetes from a representative sample from Jordan and investigate whether living standard as measures by the validated wealth index can affect the probability of having diabetes enumerated from statistically significant, independent risk factors for diabetes.
Method: A secondary analysis of the 2017–2018 demographic and health survey was used. It surveyed nationally representative sample of Jordanian population from all geographical areas. A sum of variables was obtained, such as incidence of diabetes and sociodemographic and socioeconomic parameters, including the wealth index. Associations were assessed using chi-square test, t-test and logistic regression analysis.
Main outcome measures: The main outcome measure is the incidence and risk factors of diabetes mellitus.
Results: A total of 93,347 individuals were included in the final dataset, of which 4.0% (n = 3728) were diabetic. A sum of 50.2% of the sample were males, the sample included participants from all age groups and approximately 60% of the participants when diagnosed with diabetes were in the age of 40–49 years and 50–59 years. Gender, age, geographical location, highest education level attained, marital status, nationality and wealth index were statistically significant with incidence of diabetes on univariable analysis. Statistically significant variables associated with the incidence of diabetes using logistic regression analysis were, male gender (Odds ratio = 0.891), central (1.2) or north (1.39) location, never married (2.762), married (7.193), widowed (8.099), divorced (7.5), not living together (10.376), increased age (1.08), poorest (0.707), poorer (0.803) and middle (0.873) in wealth index, elementary (1.602) and preparatory (1.271) education, Jordanian (7.731), Egyptian (6.201), Syrian (6.502), Iraqi (4.281) and other Arab nationalities (7.675). The probability of diabetes as formed from this risk factor logistic regression model was increasing with the change of the wealth index from poorest, poorer, middle, richer to richest.
Conclusion: The findings highlight that people with higher socioeconomic levels can be at increased risk of diabetes, this might own to the increased ease of life and availability of more food, which might be unhealthy. Healthcare professional and healthcare decision makers should pay attention to direct counseling regarding healthy lifestyle habits to those with higher wealth quintiles, together with other at-risk groups. Such trends are similar to that typically noted in developing countries.

Disclosure of Interest: None Declared.

PP195

Exploring experiences, behaviours and associated behavioural determinants of healthcare professionals in Qatar regarding medically related social media use

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Background and Objective: There is an accumulation of evidence that healthcare professionals are increasingly using social media to provide services to patients, share and disseminate information, and develop their professional skills. Research originating from the Middle East is rare and guidelines for healthcare professionals on appropriate use have only recently emerged. The objective of this study was to explore the experiences, behaviours and associated behavioural determinants of healthcare professionals in Qatar regarding medically related social media use and recently issued national guidelines.

Method: Doctors and pharmacists in Qatar posting medically related information at least once per month on social media platforms and who had more than 300 followers were identified. Potential participants for qualitative interviews were selected through purposive and snowball sampling to provide a range of professions, sexes, and clinical specialities. A semi-structured interview scheduled was developed underpinned by the Theoretical Domains Framework (TDF), and piloted. Interviews were conducted via Zoom, transcribed, and independently analysed by two researchers using a framework approach. The study received ethics approval prior to data generation.
Main outcome measures: Identified themes related to experiences, behaviours and associated behavioural determinants.
Results: Eight interviews have been conducted (five physicians and three pharmacists), with additional interviews planned until data saturation. Emerging themes at this stage relating to behaviours are that the choice of platform and nature of posting vary with intended use (e.g., social versus professional). Associated determinants align to several TDF domains, largely belief of consequences (e.g., likely improvement in knowledge of others), professional role, social influences of others, and behavioural regulation (e.g., feedback on posts). Positive (rewarding) and negative (responses of others) experiences of social media use were described. Most were unaware of the specific content of the national guidelines, and although largely supportive of their introduction, they identified multiple issues (e.g., the need to include professional registration details in biography).
Conclusion: A range of determinants influence medically related social media use. While there may be potential to align behaviour to the guidelines, there may be merit in review of the guidelines.

Disclosure of Interest: None Declared.

PP196

Knowledge, expectations, and other behavioural determinants impacting asthma practices in schools

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Background and Objective: There is a relatively high prevalence of school children with asthma in Malta, yet there is limited information about how these children are managed and supported while at school. Therefore, the overall aim of this study was to explore knowledge, expectations, and other behavioural determinants impacting asthma practices in schools amongst a purposive sample of state primary school teachers, parents of children with asthma, and children with asthma.
Method: Three focus groups were conducted with a purposive sample of state primary school teachers in Malta, parents whose children were aged between 6–11 years and had asthma, and 6–11-year-old children who have asthma. A similar semi-structured topic guide for each focus group was developed based on previous data collection (Caruana et al., 2021), the Theoretical Domains Framework (TDF) (Cane et al., 2012), and a study in which similar focus groups with children, teachers, and parents were conducted (Boyle et al., 2004). Focus groups were audio-recorded, transcribed verbatim, and analysed using the framework approach. The key themes and sub-themes which emerged were mapped to the relevant 14 TDF domains.
Main outcome measures: Knowledge, expectations, and other behavioural determinants impacting asthma practices in schools.
Results: A total of four teachers, three parents, and five children participated. Twenty-five key themes emerged which were mapped to the relevant TDF domains. While teachers were unaware of any guidelines in their school that they can refer to when supporting children with asthma, they all expressed the wish to have such guidelines and, if implemented, willingness to use them. Neither the parents nor the children made a distinction between the salbutamol and corticosteroid inhalers. Some children expressed their embarrassment in using the inhaler at school and in discussing their condition with the teacher. Teachers expressed their reluctance to discuss the condition with a student who has asthma due to their lack of knowledge about the subject.
Conclusion: This study has shown that no standard approach is currently followed with regards to the management of school children with asthma within Maltese primary state schools. This study emphasises the importance of developing national policies or guidelines enabling schools and teachers to properly support children with asthma while at school.

Disclosure of Interest: None Declared.

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PP197

Factors associated with intention of breastfeeding and pregnant women to have the Coronavirus vaccine

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Background and Objective: In this study, it is aimed to determine the COVID-19 vaccine intention of breastfeeding women and pregnant women and identify the factors related to their intention. Secondary objective was to develop a scale based on Health Belief Model framework.
Method: The cross-sectional study was conducted on breastfeeding women and pregnant women who visited to the Obstetrics and Gynecology or Pediatrics service or outpatient clinic in Istanbul of Turkey between November 2021 and April 2022.
Main outcome measures: The rate of their intention based on Transtheoretical Model of Behaviour Change. Scores of HBM scale,

Fear of COVID-19 Scale. Cronbach alpha and principal component analysis for a HBM scale.
Results: The response rate was 91.5%. Among 422 women, 25% of the participants were pregnant and 75% were breastfeeding women. 63.7% had an intention to receive the COVID-19 vaccine. Not having had COVID-19 disease (OR = 1.81, 95% CI 1.19–2.76; $p < 0.01$), having greater fear of COVID-19 (OR = 2.95, 95% CI 1.4–6.2; $p < 0.01$) associated with the intention to have COVID-19 vaccine. With 74.5% of the total variance explained (Kaiser–Meyer–Olkin test: 0.880 and Bartlett's Test of Sphericity = $p < 0.001$), four components were determined in the scale. Cronbach's alpha values for the total scale and each component were found to be between 0.899 and 0.914. Based on HBM scale, perceived impact of COVID-19 (OR = 1.44 95% CI 1.13–1.83; $p < 0.01$), perceived susceptibility of COVID-19 (OR = 1.51 95% CI 1.16–1.96; $p < 0.01$), perceived impact of COVID-19 vaccine (OR = 0.67 95% CI 0.51–0.88; $p < 0.01$) and perceived cues to receive COVID-19 vaccine (OR = 0.68 95% CI 0.52–0.81; $p < 0.01$) were associated with their intention to have COVID-19.
Conclusion: Future strategies for promoting vaccination coverage of pregnant and breastfeeding women will be developed based on HBM framework.

Disclosure of Interest: None Declared.

PP198

Assessment of medication literacy in breastfeeding women: preliminary data

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Background and Objective: In this study, it was aimed to assess the medication literacy score of breastfeeding women and to determine the factors associated with medication literacy. Secondary objective was development of a medication literacy scale to evaluate medication literacy level of breastfeeding women.
Method: The cross-sectional study was conducted on breastfeeding women (18 years old or older) who visited to the Family Health Centre in Istanbul, Turkey between December 2021, and April 2022.
Main outcome measures: Results of Single-Item Literacy Scale (SILS), Medication Literacy Scale and Beliefs about Medicines Questionnaire. Kuder Richardson 20 for reliability of a medication literacy scale.
Results: Among 100 breastfeeding women, the median age of them was 31.00 (25.00–44.00) and 66% had an education level of $\geq$ 12 years. Of them, 40% of them used at least one medication for acute conditions during breastfeeding. Of them, 10% of breastfeeding women used an oral contraceptive pill. The Breastfeeding Women's Beliefs about Medicines Questionnaire median score was 22.00 (18.00–26.75), while the Medication Literacy Scale median score was 3.00 (2.00–4.00). According to the SILS scale, 74% of the participants had high reading ability of health-related information. The Kuder-Richardson (KR-20) value of medication literacy scale was 0.683. High reading ability of health-related information were associated with higher score of medication literacy scale (OR = 10.70, 95% CI 2.24–46.58; $p < 0.01$).
Conclusion: Medication literacy scale can be used to evaluate medication literacy of breastfeeding women. Pharmacist led services can be developed to promote rational medication usage in breastfeeding women.

Disclosure of Interest: None Declared.

PP199

Prioritizing of drug management for cardiovascular diseases in 17 Sub-Saharan African countries: the February study (2016–2021)

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Background and Objective: Sub-Saharan Africa(SSA) is experiencing an epidemic of cardiovascular diseases(CVDs). CVDs account for 30% of global deaths, and about 80% of them occur in low- and middle-income countries, including SSA. Our study aims to describe the current drug management of CVDs in hospitalization in 17 SSA countries.
Method: We conducted a transversal and longitudinal study in CV department of 37 hospitals from 23 cities in 17 SSA countries(Niger, Guinea, Benin, Mali, Democratic Republic of Congo, Tchad, Burkina Faso, Togo, Burundi, Ethiopia, Cote d'Ivoire, Senegal, Cameroon, Congo, Soudan, Mauritania, Gabon). This ongoing observatory included all inpatients in February from each year since 2016.
Main outcome measures: Data including socio-demographic and clinical characteristics, causes of admission, clinical, biological, complementary examinations, treatments, length of stay were collected by the investigating physicians. All analyses were performed through scripts developed in the R software (4.0.3(2020-10-10)).
Results: Overall, 4360 patients were admitted to hospital over the 6 years of the study(56.7 $\pm$ 16.8 years;56.4% of male). Mean of length of stay was 9.95 days and death rate was 11%. The main cause of admission was heart failure(41.5%) followed by acute coronary syndrome(ACS)(12%) and stroke(11%). In-hospital, mean of drugs received by patients was 3 $\pm$ 1.9. Diuretics(57%) was the most common in-hospital drug prescribed, followed by angiotensin-converting enzyme inhibitors(ACEI)(49%) and anticoagulants(45%). In-hospital, antithrombotic therapy was prescribed for 2% of patients and was mainly used to manage ACS and pulmonary embolism. At discharge, mean of drugs received by patients was 2 $\pm$ 1.8. Diuretics(39%) was the most common drug prescribed followed by ACEI(38.5%), antiplatelet therapy(29%). Antiplatelet therapy was mainly prescribed in patients with heart failure(40%), ACS(27%) and stroke(17%). Anticoagulants were mainly prescribed in patients with heart failure(44%), pulmonary embolism(16%) and deep vein thrombosis(14%). At discharge, among patients diagnosed for ACS, 34.5% received a combination of 4 secondary prevention medicines(ACEI, antiplatelet therapy, lipid-lowering agents and beta-

blockers) from 0% in Gabon to 57% in Guinea, but didn't vary significantly according to country-level income.
Conclusion: In-hospital, less than 5% of patients had access to antithrombotic therapy. At discharge, among patients with ACS, one third had access to secondary prevention medicines.

Disclosure of Interest: None Declared.

PP201

Council of Europe 'Resolution CM/RES(2020)3 on the implementation of pharmaceutical care for the benefit of patients and health services'—a step forward in the promotion of appropriate use of medicines and patient-centred care

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Background and Objective: The European Directorate for the Quality of Medicines and Healthcare (EDQM) is part of the Council of Europe. Inappropriate and irrational use of medicines including polypharmacy are widespread problems which lead to sub-optimal medication outcomes, significant health harm for patients, and decrease the efficiency and effectiveness of healthcare systems. Pharmaceutical care addresses the medication needs of patients directly and comprehensively and it contributes to promoting patient-centred care, optimising medication use and improving a patient's quality of life. However, the intergovernmental Committee of Experts on Quality and Safety Standards in Pharmaceutical Practices and Pharmaceutical Care (CD-P-PH/PC), coordinated by the EDQM, found that there was significant variation in the acceptance of pharmaceutical care among stakeholders outside of pharmacy organisations and in the implementation of pharmaceutical care in Europe. To address this, the CD-P-PH/PC sought to draft a statement of principles and recommendations concerning pharmaceutical care in a soft law instrument, known as a resolution.
Design: A multidisciplinary working party was established in 2018 consisting of pharmacists, academics and representatives of national competent authorities. Through a combination of face-to-face meetings, circulation of draft text and informal consultation with stakeholders a text was prepared that was accepted and approved and, after a legal and structural review, translated into French (i.e. one of the two official languages of the Council of Europe alongside English).
Results: A Council of Europe resolution on the implementation of pharmaceutical care for the benefit of patients and health services from the intergovernmental Committee of Experts CD-P-PH/PC was adopted by the Committee of Ministers of the Council of Europe in March 2020. The resolution provides health authorities with guidance and recommendations supporting the promotion and implementation of pharmaceutical care as a quality-enhancing element in healthcare systems at regional and national level. It also provides healthcare professionals and associations with a legal basis for the implementation of pharmaceutical care and related services in their daily activities.
Conclusion: The implementation of the resolution's provisions in national healthcare systems and daily practice is expected to play an important role in achieving the benefits of responsible use of medicines, promoting rational use of healthcare resources and reducing inequalities in healthcare for the benefit of all European patients, especially the most vulnerable in society. The EDQM currently deploys efforts in better monitoring the implementation of this resolution as well as the implementation of pharmaceutical care and clinical pharmacy services through targeted surveys.

Disclosure of Interest: None Declared.

PP202

Council of Europe's guidelines to harmonise the medication review process in Europe

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Background and Objective: In March 2020, the Committee of Ministers of the Council of Europe adopted Resolution CM/Res(2020)3 on the implementation of pharmaceutical care for the benefit of patients and health services. The Resolution recommends that medication reviews (MRs) be performed under the pharmaceutical care process. Polypharmacy, especially in vulnerable and older people and medication changes at transitions of care expose many patients to considerable risk and harm. The MR process appears to have been implemented in different ways and to different degrees across the Council of Europe member States. Therefore, in 2019 the Committee of Experts on Quality and Safety Standards in Pharmaceutical Practices and Pharmaceutical Care (CD-P-PH/PC) coordinated by the European Directorate for the Quality of Medicines and HealthCare (EDQM—Council of Europe) agreed to develop a guidance document to support the harmonisation of the pharmacist-led MR process in Europe.
Design: A multidisciplinary working party of pharmacists, academics and representatives of national competent authorities is developing the guidelines through a combination of face-to-face meetings, circulation of draft text and a planned consultation with stakeholders.
Results: Consisting of 9 chapters the guidelines harmonise the terminology and definitions around MR to establish a common understanding of what MR is. In addition, the guidelines focus on the process of conducting a MR, how to collect and store the data and the required education, to support the development of this service and to facilitate the implementation into practice at European level. Finally, the guidelines also point to MR resources. Consultation will take place later in 2022 with the aim of publishing in 2023.
Conclusion: The guidelines will assist national competent authorities, pharmacists and healthcare professionals involved with medicines to ensure that MR is carried out in a structured and systematic manner in order to ensure efficient medicines management and medicines optimisation, achieve responsible use of medicines, and ultimately improve patient safety and patient health outcomes.

Disclosure of Interest: None Declared.

PP203

Attitudes, perceptions, and beliefs regarding the use of herbs and supplementary medications with COVID-19: a systematic review

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Background and Objective: There is growing interest in the use of herbs and supplementary medications to treat and/or prevent COVID-19, evidenced by multiple reports exploring their value, effectiveness, and safety. The appeal to use herbs and supplementary medications may be deemed a health behavior which is attributed to the influence of perceptions, attitudes, and beliefs. This systematic review aims to summarize and critically appraise the reported attitudes, perceptions, and beliefs regarding the use of herbs and supplementary medications to prevent and/or treat COVID-19.
Method: In December 2021, the databases EMBASE, PubMed, ScienceDirect, Scopus, Cochrane (library), and WebOfScience were

searched for studies investigating attitudes and beliefs on the use of herbs and supplementary medications to treat and/or prevent COVID-19. Two reviewers independently screened the articles for eligibility and charted the data. A descriptive narrative approach was employed to synthesize the data.

Main outcome measures: Attitudes, perceptions, and beliefs regarding the use of herbs and supplementary medications to prevent and/or treat COVID-19.

Results: 17 studies were included in the review. All studies but one were cross-sectional. Participants across most studies held positive attitudes regarding herbs and supplementary medications and perceived them to have a beneficial role in treating and/or preventing COVID-19. However, these findings should be reviewed in the context of the significant flaws in study design and reporting. This included inconsistent definitions of herbs and supplementary medications, a lack of theoretical models and conceptual frameworks underpinning the study of beliefs and attitudes in addition to methodological issues of robustness affecting the validity and reliability of data.

Conclusion: Despite the dubious evidence of their safety and efficacy, the studies included in this review have indicated that herbs and supplementary medicines are used and trusted to prevent and/or treat COVID-19. Further larger-scale and more robust studies are required to better elucidate the factors influencing stakeholders' behaviours, beliefs and attitudes regarding their use and advocation.

Disclosure of Interest: None Declared.

PP204

The impact of religious beliefs on adherence to medication in the Muslim population: a systematic scoping review

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Background and Objective: Factors influencing medication adherence are well-established, however, how religious beliefs influence medication adherence is less well researched. In the Islamic faith, strict dietary laws exist. It arguably prohibits certain animal derived, and alcohol-based foodstuff both in the diet as well as in medicines. Religiously Prohibited Medicines (RPMs) are medicines that contain ingredients, active or otherwise, proscribed by Islam's canonical texts (1). Potential circumstances exist where Muslim patients avoid RPMs thus presenting a possible dilemma for patients and healthcare professionals involved in their care.

This study aimed to scope the literature and summarise the reported influence of religious beliefs on adherence to RPMs in the Muslim population and highlight gaps for further research.

Method: A systematic scoping review methodology was employed and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews(2).PubMed, Medline, Scopus and EBSCO (CINAHL, IPA, PsycINFO) were systematically searched. Eligible studies included investigations involving any stakeholder regarding the influence of RPMs on medication adherence within the Muslim population. Two reviewers independently screened the full papers. A narrative approach to data synthesis was employed.

Main outcome measures: Influencers of RPMs on medication adherence within the Muslim population.

Results: 15 articles were included. Most studies investigated healthcare practitioners' awareness and knowledge of religious-factors influencing medication-adherence (n = 13). These studies revealed that level of exposure to diverse populations and cultural competence training were of most significance. Some studies explored market availability of RPM alternatives with recommendations for clearer labelling on packaging and reference sources (n = 2). Two case reports detailed accounts where Muslim patients prescribed RPMs resulted in non-adherence.

Conclusion: The strength of this review is that it is the first to explore the influence of religious beliefs on adherence to RPMs and provides an overview of the existing literature. The review identified two case reports demonstrating the possible risks RPMs pose to medication-adherence, however, the lack of studies exploring this field restricts the understanding of the topic, limiting the research. Studies provided evidence that further training of healthcare professionals in cultural competence and awareness of RPMs, may facilitate the necessary support to deliver culturally-sensitive care to Muslim patients. However, multi-stakeholder perspectives of RPMs, and evidence-based strategies to address their potential negative implications, remains largely unexplored and warrants further research.

Disclosure of Interest: None Declared.

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PP205

Diversity in classroom of pharmacy students: new paradigm for education and learning

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Background and Objective: When seeking to improve the human thinking, or trying to modify teaching methods, one should start by defining the nature of thinking. Fortunately, this was already done by Benjamin S Bloom who extensively contemplated the nature of thinking and came up with blooms taxonomy. Blooms taxonomy is a novel multi-tiered model of classifying thinking according to six cognitive levels of complexity, which are Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Around the world, domains of learning, including learning styles and teaching methodologies, have widely changed due to the rapid development we are facing. Along with that, diversity in class room is also contributing to this rapid change. Among pharmacy colleges, the diversity of student pharmacists continues to increase, yet the diversity of faculty among schools and colleges of pharmacy has not matched such growth. The diversity among pharmacy students and its impact on learning should be emphasized and we need to develop, design, and facilitate the delivery of skilled diversity in pharmacy student's education. The objective is t overcome the problems faced due to this diversity (like language barriers or attitude differences) and link these cultural differences with the learners remembering, understanding, applying, analyzing, evaluating and creating the cognitive domain as a whole.

Design: Several procedures were followed to ensure high quality review of the literature on the impact of diversity in learning among pharmacy students. Methods and designs used for this systematic review are reported in line with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Results: The implication of diversity will not only affect the learning process of the pharmacy student, but will extend beyond that to the

real life practice and career in the future, where it would facilitate working in a multinational society and providing better interactions with patients in clinical practice.
Conclusion: The combination of different cultures and backgrounds in a single learning place largely contributes to the way of learning. The cultural diversity should be well addressed by the pharmacy instructors to make use of this diversity in improving the learning experience and enabling students to dive in a new global culture.

Disclosure of Interest: None Declared.

PP206

Pharmacist-led deprescribing of antihypertensive medication in long-term care: the OPTIMIZEBP randomized controlled trial

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Background and Objective: Older adults in long-term care facilities (LTC) often have comorbidities, complexity, frailty, and often polypharmacy. One area that may be overtreated is hypertension, given the uncertain benefit and possible harms of treating hypertension in this population. In LTC pharmacists are integral in prescribing and deprescribing decisions. The purpose of our study is to describe the impact of a pharmacist-led intervention for deprescribing antihypertensive medications in LTC in Alberta, Canada.
Method: LTC were approached across Alberta and approval for site participation was obtained from the medical director at each LTCF. The pharmacists providing services to Alberta LTC, either through the provincial funder Alberta Health Services, or through private contracts with community pharmacies, were invited to participate in the study. Inclusion criteria are LTC residents with hypertension $\geq$ 70 years of age in Alberta, Canada, with a mean SBP $<$ 135 mmHg and taking $\geq$ 1 daily antihypertensive medication. The intervention is a pharmacist-led algorithm to deprescribe antihypertensive medication every second week, with a target SBP of 140 $\pm$ 5 mmHg. Data is collected through the Alberta SPOR SUPPORT Unit, a governmental steward of Alberta administrative health claims data. In addition, pharmacists will complete a survey based on the RE-AIM research translation framework before and after the intervention to assess barriers and facilitators to deprescribing. Intention-to-treat analysis and per-protocol analysis will be used.
Main outcome measures: For the LTC residents: all-cause mortality (primary outcome), quality of life, and cost.
Results: The pilot stage of this trial was completed in a 200-bed long-term care facility in fall 2021. Of the eleven residents randomized to deprescribing during the pilot, 5 had all antihypertensives discontinued, and the remaining 6 discontinued or dose-reduced $\geq$ 50% of antihypertensives. The subsequent two participating facilities had all eligible residents randomized in April 2022. Randomization of residents at several other long-term care facilities is anticipated by fall 2022, with final results expected in 2024.
Conclusion: Deprescribing antihypertensive medication in LTC residents is feasible and can be done with pharmacists leading the implementation based on the pilot results. The full trial will provide evidence on the benefits and potential risks of antihypertensive deprescribing in a frail older adult population.

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PP207

Overcoming challenges and building on trust—a review of pharmacy practice research barriers and facilitators in community pharmacy

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Background and Objective: There are a multitude of studies demonstrating the impact of community pharmacists in identifying, assessing, and intervening to improve patient outcomes. Community Pharmacist interventions are well supported by high level evidence from across the world. However, a recent trial that we launched, in the province of Alberta, Canada, focusing on lower urinary tract symptoms in older adults (the PILUTS study), was challenged by delayed recruitment and pharmacist attrition despite Alberta having one of broadest scopes of practice in the world. As such, we conducted a narrative review to identify the facilitators and barriers to pharmacist participation in community based pharmacy practice research studies.
Method: A narrative review was conducted using a systematic search of MEDLINE, EMBASE, and Scopus to identify relevant published literature on community pharmacists' attitudes and experiences with practice research, as well as the barriers and facilitators to their participation. Data extraction was pre-determined and thematic analysis were performed. Barriers, facilitators, and potential considerations via checklist were compiled from the evidence.
Main outcome measures: Facilitators and barriers identified from the narrative review.
Results: A total of 35 studies from 11 countries were included. Studies used a variety of methods such as questionnaires, interviews, and/or focus groups. Twenty-three facilitators were found, and grouped into pharmacist-specific, pharmacy setting and study characteristics.. The most common reported facilitators were pharmacist-specific and addressed intrinsic motivation, including altruism and a hope of advancing the profession. On the other hand, 20 barriers were identified. Lack of time was the most commonly reported barrier, followed by pharmacist self-perceived incompetence. Physician and patient barriers were also reported as major barriers to participation. In order to address the uncovered factors we created a 16-item checklist for future researchers to consider before starting their pharmacy practice research project.
Conclusion: The pharmacy practice literature shows that pharmacist altruism is the main driver of participation, but many other factors play a role in terms of the pharmacist willingness to participate and succeed.

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PP208

Community pharmacist intervention to address lower urinary tract symptoms in older adults: a randomized controlled trial

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Background and Objective: Lower urinary tract symptoms (LUTS), including urinary incontinence, are common in older adults, yet often unrecognized. Although pharmacists have knowledge regarding the therapeutics of LUTS, there are no randomized controlled trials demonstrating impact of their interventions on LUTS. In the province of Alberta, Canada, pharmacists have one of the broadest scopes of practice, supporting assessment and prescribing activities. The purpose of this project was to determine the impact of pharmacist case finding and intervention on LUTS in older adults.
Method: The community pharmacies were identified through a pharmacy practice research network with EPICORE Centre, University of Alberta, and through email/social media invitations through the provincial pharmacy advocacy body. Pharmacists received a review of therapeutics regarding LUTS and were oriented to the study procedures and data entry. Patients were included if they were 60y and older, able to speak English, have an email address, and screen positive for LUTS symptoms. Once enrolled the patients were randomly assigned to a control arm where they completed a baseline questionnaire, and another a follow-up questionnaire at 8 weeks or an intervention arm where they completed a longer baseline questionnaire, met with the pharmacist for assessment and development of a care plan, and then completed another follow-up questionnaire at 8 weeks.
Main outcome measures: For the patient bladder symptoms 3 validated tools are used, the Patient Perception of bladder Condition (PPBC), the Bladder Self-Assessment Questionnaire (B-SAQ), and the International Continence Questionnaire—Short Form (ICI-Q-SF), were measured at baseline and again at follow-up. The primary outcome was the PPBC. Secondary outcomes include pharmacist feasibility through time spent. Actions taken through the care plans are being captured.
Results: The study was delayed due to COVID, and has been adapted to allow for online delivery. To date 15 patients were enrolled from 9 pharmacies (16 active pharmacists) across Alberta.
Conclusion: Community pharmacist engagement for assessment and management of LUTS in older adults is feasible.

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PP209

The impact of European interprofessional education programmes on long term health outcomes: systematic review

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Background and Objective: Safe and effective delivery of care to the geriatric population necessitates a multidisciplinary approach.[1] Interprofessional education (IPE) has been highly promoted as a means of enhancing interprofessional practice and thereby having a positive impact on healthcare systems and patient outcomes. Various documents mention that sufficient evidence has been accumulated to demonstrate the effectiveness of IPE, yet it is not completely clear what type of evidence is being alluded to. Although general educational principles of IPE may be applicable to geriatric medicine, further research is still required.[2] The objective of this review was to gather evidence about IPE programs that resulted in effective long-term outcomes in healthcare and patient outcomes. Secondary outcomes included identification of the types of models that met the success criteria.
Method: A systematic search was conducted as per study protocol published, PROSPERO-2020 CRD 42020178116. Databases used included PubMed, Web of Science, CINAHL and Scopus. The review considered studies that dealt with undergraduate and postgraduate students among more than one health profession. Papers published in the English language published between 2010 and end of 2020 were included in the study.
Main outcome measures: Kirkpatrick's model of outcomes at level 4a (organizational change) and level 4b (benefits at the patient level) were used.
Results: Only five studies out of 191 full papers reviewed, fully matched the criteria. These included settings from elderly hospital patients to mental health practices as well as emergency. The papers varied in quality and provided limited evidence of impact on long term outcomes including patient safety.
Conclusion: Overall, the studies show that although there is an emphasis on practice-based learning, there is no robust specific evidence of long-term impact on healthcare and on patients' outcomes. Appropriate longitudinal studies need to be designed to identify the impact of IPE on long-term health outcomes.

Disclosure of Interest: None Declared.

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PP210

Inappropriate prescribing in older adults: a systematic review of assessment criteria and tools

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Background and Objective: Inappropriate prescribing refers to both potentially inappropriate medications (PIMs) and potential prescribing omissions (PPOs). Polypharmacy and potentially inappropriate medications (PIMs) are prevalent in older adults and are associated with adverse clinical outcomes. This systematic review aims to provide a comprehensive overview of the published criteria sets to assess inappropriate prescribing in older adults.
Design: A systematic search was conducted on PubMed, CINAHL, EMBASE, Scopus and grey literature (1991–2018). The search terms related to inappropriate prescribing, criteria development/validation or update, and older patients (aged 65 years or more). Original articles published in English were included if they describe development/validation of explicit or implicit criteria sets that

addressed appropriateness of medications from multiple classes, or principles of appropriate prescribing, respectively.
Results: The search yielded 47 tools. 42 of these were based on explicit statements. Most criteria (n = 38) employed formal consensus development methods, mainly the Delphi method and its modifications (n = 33). Many tools were designed explicitly for patients ≥ 65 years (n = 28), and for use in multiple care settings (n = 12). Almost all explicit tools were designed to address PIMs; most frequently inappropriate dose (n = 25), duration (n = 22), and drug-disease interactions (n = 20). The most reported PIMs, ordered by frequency, were psycholeptics, psychoanaleptics, non-steroidal anti-inflammatory agents (NSAIDs), opioids, antithrombotic drugs, urinary antimuscarinics, gastrointestinal antispasmodics and propulsives, antihistamines, and centrally acting antihypertensives. Only 10 explicit tools identified instances of clinically important PPOs. Only two tools suggested polypharmacy indicators based on the numerical count of medications, while 12 explicit sets concerned unnecessary duplication (≥ 2 drugs within the same level (level 3 or 4) of the World Health Organization's Anatomical Therapeutic Chemical (ATC) classification). Most implicit criteria assessed prescribing appropriateness with respect to indication, effectiveness, dose, drug-drug interactions, and drug-disease interactions.
Conclusion: Different criteria exist to assist clinicians and researchers in identifying inappropriate prescribing in older adults. However, more comprehensive tools are needed to address other issues of inappropriate prescribing (e.g. PPOs, unnecessary therapeutic duplication, inappropriate drug-drug interactions, inappropriate antimicrobial use, inappropriate use of complementary and alternative medicine products) and polypharmacy.

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PP211

Person-centred approach to address polypharmacy in a diabetes outpatient clinic setting

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Background and Objective: Polypharmacy is the use of multiple medicines and is becoming a significant public health challenge. Although sometimes appropriate, polypharmacy can increase the risk of adverse medical outcomes. iSIMPATHY is an EU project that uses a multidisciplinary approach across three European countries to deliver person centred polypharmacy medication reviews, building on the methodology set out in SIMPATHY[1], to build a sustainable solution to optimise outcomes with medication use and support patients.
Method: Polypharmacy medication reviews were carried out using the 7-steps approach[2] in a Diabetes outpatient clinic setting. Patient selection was 5 or more medications or on high risk medication, using criteria set out in the polypharmacy guide[2].
Main outcome measures: Interventions for each review were recorded and graded using the Eadon Scale, and person centred medications appropriateness index (PC-MAI). Patient feedback from the reviews were also collected.
Results: 564 polypharmacy reviews have been delivered since the start of the project. From quarter one 139 polypharmacy medication reviews, the average number of co-morbidities per patient was 6 with 9.4 interventions and reduction of two medicines per review. Using Eadon, 10% interventions were grade 3, 88.6% grade 4 and 1.4% grade 5. 45.1% were categorised as Patient Education, 17.2% as Drug related, 12.7% were referral to other professional and 10% were test request or review. Pre and Post PC-MAI were collected for 10% of the reviews and the average reduction in score was 5.
Conclusion: Majority of the interventions were grade 4 and 5 both of which are significant and result in an improvement in the standard of patient care and reduced the contact needed with other healthcare services. The reviews were well received by both patients and other health professionals. Patients appreciated the dedicated quality time spent reviewing their medication and positively welcomed the interventions. Using the iSIMPATHY methodology, patients were integral to decisions made about their medicines, realistic goals were set and patients were empowered to achieve them.
Health professionals recognised that the quality of the review reduced the number of interactions needed with themselves, thus reducing workload and potentially reducing hospital admissions.

Disclosure of Interest: None Declared.

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PP213

Drug-related emergency department visits in older patients: an applicability and reliability study of an existing assessment tool

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Background and Objective: The Assessment Tool to identify Hospital Admissions Related to Medications (AT-HARM10) is a research tool to identify possible drug-related hospital admissions. It is unclear whether the tool can be applied to emergency department visits as well. The aim of this study was to investigate the applicability and reliability to identify drug-related emergency department visits in older patients with AT-HARM10.
Method: A random sample of 400 patients aged 65 years or older from a clinical trial in four Swedish hospitals was selected. All patients' emergency department visits within 12 months after discharge were assessed with AT-HARM10.
Main outcome measures: The main outcome measures were the percentage of successfully assessed visits for applicability and the interrater reliability (Cohen's kappa).
Results: Of the initial sample (n = 400), 113 patients [median age (interquartile range): 81 (76 to 88) years] had at least one emergency department visit within 12 months. The patients had in total 184 visits, of which 179 (97%) were successfully assessed. Fifty-three visits (29%) were possibly drug-related. The Cohen's kappa value was 0.70 (substantial).
Conclusion: It seems applicable and reliable to identify possible drug-related emergency department visits in addition to hospital

admissions in older patients with AT-HARM10. As a consequence, the tool has been updated to support its novel use in clinical research.

Disclosure of Interest: None Declared.

PP214

Dupilumab in atopic dermatitis severe: a single case experimental design

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Background and Objective: Dupilumab is a selectively immunosuppressive biologic therapy that treats chronic moderate-to-severe atopic dermatitis (AD) through inhibiting signaling transmission of interleukins (IL) 4 and 13. The Spanish National Health System has funded it according to objective criteria for patient selection established in the Pharmacoclinical Protocol for the use of dupilumab in severe atopic dermatitis in adult patients. To assess the effectiveness and safety of dupilumab treatment in a patient with severe AD.
Design: A single case experimental design was utilized to explore the effectiveness of Dupilumab in a 27-year-old man with severe atopic dermatitis. Four weeks of baseline data and 24 weeks of treatment data were collected for three assessments: the number of body areas affected, the severity of the eczema (Eczema Area and Severity Index; EASI) and the adverse events. To analyze the results we performed a visual analysis (Fisher's conservative Dual Criteria Method), which was confirmed by statistical analysis (non-overlap of all pairs; NAP).
Results: Baseline measures presented high stability, without trends of spontaneous improvement of eczema. Visual analysis of the dual criterion showed a pronounced effect of the treatment on the number of body areas affected (from 21 affected areas at baseline to 5 body areas at week 12 of treatment and 2 body areas at week 24 of treatment) and the severity of the eczema (EASI at baseline: 24.3; EASI at week 12 of treatment: 1.8; EASI at week 24 of treatment: 1.6). The value of the NAP agreed with the dual criterion with a large effect of the treatment on the number of body areas affected (NAP = 0.98, $p = 0.002$) and on the severity of the eczema (NAP = 1.00, $p = 0.001$). A slight increase on the severity of the eczema at weeks 7 and 8 was observed, coinciding with the recommendation of the dermatologist of delaying the administration of the treatment due to COVID-19 vaccination of the patient. No adverse events were reported at baseline or treatment phase.
Conclusion: The results of the present study confirm the effectiveness of dupilumab treatment in patients with severe atopic dermatitis, improving the severity of eczema and significantly reducing the affected areas. In addition, tolerance was observed to be adequate.

Disclosure of Interest: None Declared.

PP215

Use and effectiveness of treatment with alirocumab and evolocumab in real clinical practice

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Background and Objective: Alirocumab and Evolocumab, hypolipemiants anti-proprotein convertase subtilisin-kexin type 9 (PCSK9-inhibitors) monoclonal antibodies, have been funded by the Spanish Agency for Medicines and Health Products (AEMPS) in patients with heterozygous familial hypercholesterolemia (HeFH) or homozygous familial hypercholesterolemia (HoFH; Evolocumab only) or atherosclerotic cardiovascular disease (ASCVD), uncontrolled (defined as low-density lipoprotein cholesterol(LDL-C) greater than 100 mg/dl) with the maximum tolerated dose of statin, or any of the above groups who are intolerant to statins or have contraindications to them. To assess the use and effectiveness of iPCSK9 in real clinical practice.
Design: A retrospective descriptive study was carried out in 44 patients (72.7% women) aged 27 to 74 years (M = 55.6; SD = 9.3) in treatment with PCSK9-inhibidors according to the indication approved by the technical sheet and therapeutic positioning report (TPR) of the AEMPS. We collected information about statin intolerance, therapeutic indication: ASCVD, HeFH or HoFH, LDL-C before treatment initiation and LDL-C after treatment initiation (in a range of 3–6 months). All the information was gathered from the digital medical history and from assisted electronic prescription records.
Results: Regarding the therapeutic indication, 31.8% were ASCVD patients, 68.2% were HeFH, without any case of HoFH. Eleven patients were statin-intolerant (27.3%). The mean level of LDL-C at baseline significantly decreased from 172 mg/dl (range: 101–355) to 68 mg/dl (range: 20–183) after treatment with iPCSK9 ($p < 0.001$); the difference in mean percentage change from baseline was approximately 61%. LDL-C levels < 100 mg/dl were achieved by 5 patients (11.4%) and LDL-C levels of < 70 mg/dl were achieved by 31 patients (70.4%).
Conclusion: PCSK9-inhibitors were effective in decreasing LDL-C levels (< 100 mg/dL) after a period of 12 to 24 weeks of treatment. Most patients in treatment have HeFH. All requests for initiation of treatment met TPR funding criteria. It would be necessary to study whether the reduction in LDL-C levels correlates with the decrease in cardiovascular events in real clinical practice.

Disclosure of Interest: None Declared.