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Abstract book

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Bridging Data, Policy & Patients in Drug Utilization Research

Bridging **Data, Policy** & **Patients** in Drug Utilization Research

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Abstracts of Oral Communications

Adherence

W-KL1/OC1

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Fredrik Nyberg: **"***The COVID-19 pandemic and statin adherence in Sweden: insights from cohort analyses before and during the crisis***"**

Nora Wulandari: **"***Factors associated with adherence to glucose-lowering medication among adults with diabetes in Indonesia: A national survey***"**

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99. Improving clinical outcomes through shared decision-making: Findings from the Initial Medication Adherence-cluster randomized controlled trial (IMA-cRCT)

Carmen Corral-Partearroyo[1,2], Alba Sánchez-Viñas[1,2], Ignacio Aznar-Lou[1,2], María Teresa Peñarrubia-María[3,2], Montserrat Gil-Girbau[1,4], Carmen Gallardo-González[3,4], María del Carmen Olmos-Palenzuela[3,4], Maria Rubio-Valera[1,2]

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Introduction: Poor adherence to treatments for cardiovascular disease and diabetes contributes to suboptimal clinical outcomes and increased costs. The Initial Medication Adherence (IMA) intervention is a multidisciplinary Primary Care (PC) strategy based on Shared Decision-Making (SDM). We aimed to assess its impact on medication adherence, clinical parameters, and cardiovascular risk compared to standard care.

Methods: This pragmatic, cluster-randomized controlled trial employed a hybrid effectiveness-implementation design, assigning 24 PC centers to intervention or usual care. Between March-September 2022, patients receiving a new prescription for antihypertensive, lipid-lowering, antiplatelet, and/or antidiabetic medications at intervention centers received SDM by physicians, nurses, and community pharmacists trained with the help of decision aids and followed-up for 12 months. Real-world data on prescription, dispensing, and clinical parameters was analyzed using multilevel regression models.

Results: 4,910 prescriptions were issued to 3,629 patients (Intervention = 2,148; Control = 1,481) by 150 physicians (Intervention = 91; Control = 59). No significant differences were observed between groups in medication adherence. However, a statistically significant 'time x group' interaction favoring the IMA intervention was detected for blood pressure, total cholesterol, LDL, and triglycerides.

Conclusions: While the IMA intervention did not impact medication adherence, it demonstrated potential benefits in clinical parameters, particularly blood pressure. A process evaluation embedded within the trial highlighted improved experiences for both patients and healthcare professionals, supporting discussions on broader implementation. Future efforts should focus on leveraging these benefits through professional training and patient support, addressing implementation challenges, and further exploring the impact of SDM, warranting additional evaluation.

261. The COVID-19 pandemic and statin adherence in Sweden: insights from cohort analyses before and during the crisis

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Background

The COVID-19 pandemic disrupted healthcare provision, potentially affecting medication adherence, particularly among individuals with cardiovascular disease. Given pre-existing issues of poor statin adherence and the potential protective effect of statins in patients with COVID-19, understanding how the pandemic influenced statin use is important. We therefore aimed to evaluate the impact of the pandemic on statin adherence by comparing persistence rates before and during the pandemic and identifying associated factors.

Methods

Using a historical two-cohort design, we assessed one-year statin persistence in patients initiating therapy in Sweden in July-December 2018 (pre-pandemic cohort, N=80,651) and July-December 2021 (pandemic cohort, N=92,693) with a 6-month washout period (no prior statin prescription). Data were collected from national registers on diagnoses, dispensed prescription drugs, and sociodemographic. Logistic regression estimated odds ratios for being persistent, adjusted for age, gender, country of birth, education, marital status, employment, income, secondary prevention diagnoses, and prior cardiovascular medications.

Results

Statin persistence remained stable (66.4% pre-pandemic and 69.2% during the pandemic). We observed that statin persistence varied across groups, with women, younger individuals, those born abroad, and with lower incomes exhibiting lower persistence. Higher persistence was linked to older age, higher income, secondary prevention, and prior use of antidiabetics and antihypertensives in both pre-pandemic and pandemic cohorts ($p<0.05$). Notably, higher education was associated with lower persistence pre-pandemic but showed no significant association during the pandemic.

Conclusion

Statin persistence remained stable during the pandemic in Sweden, but sociodemographic disparities remained. Strengthening support for vulnerable populations can help maintain adherence during future crises.

204. Factors associated with adherence to glucose-lowering medication among adults with diabetes in Indonesia: A national survey

Nora Wulandari[1,2], Rachmadianti Sukma Hanifa[3], Spyros Balafas[1], Muhamad Syaripuddin[4], Mahalul Azam[5], Sudibyo Supardi[6], Jurjen van der Schans[3], Talitha Feenstra[1], Katja Taxis[1]

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Background: Globally, non-adherence to medication is a major challenge for patients with diabetes.

Objective: To identify factors associated with adherence to glucose-lowering medication among adults with diabetes in Indonesia.

Methods: A cross-sectional study was conducted using data from the 2023 Indonesian National Health Survey (SKI), analyzing respondents with diabetes. Multivariable logistic regression with complex sample analysis ensured population representativeness.

Results: Among 13,960 participants using glucose-lowering medication, 87.7% adhered to their prescriptions, while 12.3% were non-adherent. Regular follow-ups at health facilities showed the strongest association with adherence (OR = 11.56, 95% CI: 8.74–15.27, $p < 0.001$). Other significant factors included receiving medication from medical personnel (OR = 4.13, 95% CI: 3.25–5.26, $p < 0.001$), insulin use (OR = 2.74, 95% CI: 1.76–4.27, $p < 0.001$), self-purchasing medication (OR = 1.5, 95% CI: 1.17–1.91, $p = 0.001$), diabetes management education (OR = 1.46, 95% CI: 1.20–1.79, $p < 0.001$), maintaining a healthy diet (OR = 1.57, 95% CI: 1.26–1.95, $p < 0.001$), and regular exercise (OR = 1.34, 95% CI: 1.10–1.65, $p < 0.001$). In contrast, herbal medicine use was negatively associated with adherence (OR = 0.54, 95% CI: 0.44–0.65, $p = 0.005$).

Conclusion: Medication adherence is associated with a combination of medication, and healthcare system/healthcare provider-related factors. Efforts to improve patients' engagement with the healthcare system, access to glucose-regulating medications, and improved patient knowledge about diabetes could increase the level of medication adherence.

70. The Annual Medication Consultation: Implementation study of an adherence intervention in Dutch community pharmacies

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Background
Nonadherence is a significant healthcare problem, but implementation of interventions is lagging behind. The annual medication consultation (AMC) is a novel evidence-based intervention. This study evaluates the implementation of the AMC in community pharmacies in the north of the Netherlands.

Methods
This was a mixed-methods evaluation based on the RE-AIM framework. The AMC consisted of a patient-tailored adherence consultation by pharmacy technicians who received training in mentalizing to prepare them for the consultations. Data collection included pharmacy technicians registering AMC-related activities and satisfaction in a structured form and patient reported satisfaction with the communication during AMC using a validated questionnaire (Communication Assessment Tool-pharmacy, CAT-Pharm). Data were reported by domain of the RE-AIM framework: Reach, Effectiveness, Adoption, Implementation and Maintenance.

Results
Overall, 1,318 patients (mean age 70, 55% female) received an AMC across 7 pharmacies (June 2023- November 2024). The average AMC lasted 17.6 minutes (Implementation). Invitation by phone generated greater attendance than invitation by email, 23.7% versus 10.5% in a sample of 300 patients (Reach). There was a mean of 2.6 interventions per AMC (Effectiveness). Patients reported high satisfaction with the quality of communication (mean CAT score 4.8/5 in n= n=67 patients) Technicians were also satisfied (mean score 4.5/5, in n=1318 patients) (Adoption). Barriers for implementation are staff shortages and lack of performance-based contracts (Maintenance).

Conclusion
The AMC was successfully implemented in daily pharmacy practice. Patients as well as pharmacy technicians were highly satisfied with the AMC. Barriers need to be addressed before upscaling in community pharmacy practice.

Crisis preparedness

W-KL2/OC2

Maarten Lambert: “*Pharmacists' Perspectives on Antibiotic Shortages: Implications for Clinical Practice in Australia*”

Andrea D. Bertoldi: “*Pediatric use of non-evidence-based medications and supplements for COVID-19 treatment or prevention during the pandemic: 2015 Pelotas (Brazil) Birth Cohort Study*”

Isabel Hach: “*Changes in the prevalence of diagnoses and psychotropic drug prescriptions in 12-17 year olds in Germany before and after the COVID-19 pandemic*”

Verena Knoll: “*Made in Europe - assessing the feasibility of reshoring active pharmaceutical ingredient production to Europe*”

147. Pharmacists' Perspectives on Antibiotic Shortages: Implications for Clinical Practice in Australia

Maarten Lambert[1], Chloe Smit[2], Katja Taxis[3], Lisa Pont[2]

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Background: Antibiotic shortages are a global challenge that significantly affect pharmacists' daily practice. Despite their central role in managing these shortages, pharmacists' perspectives on the clinical implications remain understudied. This study explores the impact of antibiotic shortages on clinical practice in Australian pharmacies and pharmacists' attitudes toward these challenges.

Methods: Semi-structured, fifteen-minute interviews were conducted with community and hospital pharmacists across Australia. Participants were recruited via social media, professional online platforms, and local networks. Data were analysed using grounded theory and thematic analysis.

Results: Seven key themes emerged: 1) experience with shortages, 2) shortage notifications, 3) shortage management procedures, 4) causes of shortages, 5) impact of shortages, 6) factors influencing the impact of shortages, and 7) strategies to reduce shortages. Pharmacists reported frequent encounters with shortages, which increased stress and workload while compromising patient care, leading to less effective therapies, more severe side effects, and an increased risk of antibiotic resistance. Contributing factors included late and incomplete notifications of shortages by regulatory organisations, the limited number of global manufacturing sites, Australia's small market size, insufficient collaboration or competition among pharmacies, and small stock capacities. Pharmacists expressed frustration over their limited ability to mitigate shortages and emphasized the need for policy-level solutions.

Conclusions: Antibiotic shortages pose a substantial challenge to Australian pharmacy practice and patient outcomes. Pharmacists perceive themselves as limited in their capacity to address this issue, highlighting the urgent need for coordinated national and international strategies to develop long-term solutions.

269. Pediatric use of non-evidence-based medications and supplements for COVID-19 treatment or prevention during the pandemic: 2015 Pelotas (Brazil) Birth Cohort Study

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Background: The COVID-19 pandemic was a turning point in the health misinformation and disinformation era, especially in Brazil. We aimed to describe the use of non-evidence-based medications and supplements in children enrolled in the 2015 Pelotas (Brazil) Birth Cohort.

Methods: We analyzed data from the 6–7-year follow-up (November 2021 to December 2022). Mothers were inquired about their children's use of non-evidence-based medication and supplements for COVID-19 treatment or prevention. Four medications (azithromycin, chloroquine, ivermectin, and nitazoxanide) and three supplements (vitamin C, vitamin D, and zinc) were described according to prescription usage and therapeutical plan. Based on a conceptual framework, we used Logistic regression to obtain the Odds Ratios (OR) and 95% Confidence Intervals (95% CI) of independent variables associated with (1) the use of non-evidence-based medications and (2) the use of non-evidence-based supplements.

Results: The sample included 3,867 children. The use of medications and supplements was 14.3% (95%CI 13.2-15.4). Ivermectin (5.5%) was the most used medication. Vitamin C (8.0%) was the most used supplement. Nearly 90% of azithromycin had a prescription, and 82.7% of ivermectin had a preventive use. In adjusted analyses, family income (richest income OR=1.81, 95%CI 1.11-2.96), children with positive test for COVID-19 (OR=3.22, 95%CI 2.40-4.34) and unvaccinated for Covid-19 (OR=2.50, 95%CI 1.90-3.28) were associated with the use of non-evidence-based medications.

Conclusion: This study highlights the pediatric use of non-evidence-based medications and supplements during the pandemic. The use of medications was associated with high family income, positive testing for COVID-19 children, and unvaccinated for Covid-19 children.

88. Changes in the prevalence of diagnoses and psychotropic drug prescriptions in 12-17 year olds in Germany before and after the COVID-19 pandemic

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Background: Antipsychotic prescriptions to German adolescents, which were growing even before the COVID-19 pandemic, further increased postpandemic, when the incidence of mental disorders in adolescents also rose. This study evaluates age- and sex-specific changes in prescription and diagnosis prevalence in the context of the COVID-19 pandemic. Only four new antidepressive and antipsychotic medications (i.e., aripiprazole, risperidone, fluoxetine, sertraline) are authorised for use in adolescents in Germany.

Methods: We analyzed prescription and validated diagnosis (ICD-10) data of 12–17 year-old adolescents (N= 3.352.291) from a large German statutory health insurance company (AOK). To capture changes in connection with the pandemic, we defined three time periods (prepandemic, pandemic, postpandemic), determined prescription and diagnosis prevalence in the corresponding periods and compared them.

Results: We found increases in the number of adolescents with psychotropic prescriptions for both sexes (F=female; M=male) during the observation period, e.g. for sertraline (post vs. pre: F: +158%, M: +87%), fluoxetine (F: +63%, M: +15%) or quetiapine (F: +40%, M: no change). We also found higher diagnosis prevalences post-pandemic among girls, but lower prevalences among boys in some cases (e.g. depressive episode, F32: F: +30%, M: -8%). The number of adolescents treated with medication within a certain diagnosis group often increased post-pandemic (e.g., fluoxetine in girls with F32: pre: 8.45%, post: 10.60%, $p<0.0001$).

Conclusion: Increases in psychotropic prescriptions can be partially explained by a rise in diagnosis prevalence. In addition, a multi-causal causation must be assumed, e.g. an overall change in prescription behaviour.

4. Made in Europe - assessing the feasibility of reshoring active pharmaceutical ingredient production to Europe

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As global reliance on Asian production of active pharmaceutical ingredients (APIs) grows, the relocation of API production to Europe (reshoring) has recently been discussed as a potential solution to decrease dependency on Asia and potentially prevent future medicine shortages. However, it is not yet well understood whether its implementation would be feasible, and under which conditions. This study aims to explore expert and stakeholder assessment of the feasibility of reshoring API production to Europe based on identified enablers, barriers, and prerequisites for implementing this measure. A literature review of peer-reviewed articles and grey literature was complemented by focus group interviews with stakeholders from Austria, France, and Spain, representing policy-makers, industry, and researchers. Our findings suggest that reshoring is considered feasible if certain conditions are met, such as financial incentives and committed stakeholder support. A coordinated European policy approach and advancements in production technologies are perceived as further enabling factors. However, challenges such as higher production costs and perceived lower profits in Europe compared to Asian markets may impede the reshoring of API production. The stakeholders' assessment also varied across countries: French and Spanish stakeholders considered reshoring as realistic, whereas Austrian stakeholders tended to be more hesitant. Stakeholders of all studied countries stressed the importance of strengthening existing local API production. For fostering API production, similar enablers, were proposed as for reshoring. While reshoring may increase the resilience of the supply chain, it is rather a supportive measure for supply chain stability than a standalone solution to prevent medicine shortages.

Quality use of medicines

W-KL3/OC3

Hanna Rättö: "*Comparing quality of pharmacotherapy across regions using register data*"

Edwin Tan: "*Quality use of antipsychotics in people with dementia: a national data linkage study*"

Juan Carlos Bazo-Alvarez: "*Prescription Patterns of Antipsychotics in People with Dementia in UK Primary Care: Dosage, Duration, and Restart Rates*"

Degefaye Zelalem Anlay: "*Balancing Palliative Care Needs and Medication Appropriateness: Prevalence and Risk Factors of Initiation and Reinitiation of Medications at the End of Life*"

143. Comparing quality of pharmacotherapy across regions using register data

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Background Quality of healthcare is a crucial element of health system performance, the monitoring of which is important at different levels of governance. The aim of this study is to assess the feasibility of newly-introduced Nordic register-based indicators of effective and safe outpatient pharmacotherapy using Finnish register data, and to compare variation across regions.

Methods The study uses nationwide data on reimbursable medicine dispensations, secondary healthcare use, and population characteristics. Quality indicators derive from a previous part of the study, in which suitable indicators were identified from literature and validated via Delphi method (forthcoming). Indicator set covers secondary prevention, acute care, chronic care, and safety dimensions. Feasible indicators are operationalised in detail, and calculated for 2019, for regions reflecting the current Finnish Wellbeing Service Counties.

Results Preliminary findings indicate that most of the indicators were feasible to calculate with available register data; however, some of the indicators would require sales data or data on dispensations beyond the reimbursed range. Further operationalisation was required for all identified indicators. The observed preliminary levels across indicators seemed plausible given the current clinical guidelines, and can possibly be used to estimate target levels to which regional variation can be compared.

Conclusions The newly-introduced quality indicators were mostly calculable; however required further operationalisation. Further research is needed to define appropriate target levels for each indicator and confirm their validity. Through this evidence, indicators offer potential for use in comparative analyses and benchmark in comparing quality of pharmacotherapy across Nordic regions and countries.

69. Quality use of antipsychotics in people with dementia: a national data linkage study

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Background: Clinical quality indicators for antipsychotic use in dementia care have focused on rates or duration of use; however, other important quality measures remain underexplored. This study aimed to investigate the prevalence and sociodemographic risk factors associated with quality use of antipsychotics in older people living with dementia in Australia.

Methods: This was a retrospective cross-sectional study using national linked data from the 2021 Census and Pharmaceutical Benefits Scheme (PBS). All people with dementia aged ≥65 years who received ≥1 antipsychotic dispensing between 1st August and 31st October 2021, were included. Potentially inappropriate use of antipsychotics was assessed by four clinical quality indicators (CQIs): drug-drug interactions (DDI), drug-disease interactions (DDSI), concomitant psychotropic medication (CPM), and prolonged duration of use (PDU). Sociodemographic factors associated with each CQI were explored using multivariate logistic regression.

Results: Of the 22,710 included participants, 19,576 (86.2%) had ≥1 CQI. The most common CQI was CPM (N=17,560, 77.3%), followed by DDI (N=7,059, 31.1%), DDSI (N=5,125, 22.6%), and PDU (N=2,129, 9.4%). Older age, higher educational attainment and living in a remote area were associated with lower odds of having CQIs, while multimorbidity increased the likelihood. Residing in residential care and having multiple prescribers significantly raised the odds of DDI, CPM and PDU. Indigenous and culturally and linguistically diverse populations had significantly higher odds of DDSI but lower odds of CPM.

Conclusion: Ensuring quality use of antipsychotics in individuals with dementia remains an issue, with almost nine in ten antipsychotic users having at least one CQI of poor-quality use.

121. Prescription Patterns of Antipsychotics in People with Dementia in UK Primary Care: Dosage, Duration, and Restart Rates

Holly Christina Smith[1], Irene Petersen[1], Joseph Hayes[1], Kelvin Jordan[2], Magnus Boman[3], Sube Banerjee[4], Kate Walters[1], Claudia Cooper[5], Juan Carlos Bazo-Alvarez[1]

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Antipsychotics are commonly prescribed to manage behavioural and psychiatric symptoms of dementia, such as agitation, aggression, depression, sleep disturbances, and psychosis. These symptoms significantly affect people-with-dementia and their families/caregivers. The National Institute for Health and Care Excellence (NICE) recommends using antipsychotics at the lowest dose for the shortest duration (1–3 months) due to their association with serious risks, including increased mortality, cardiovascular events and cognitive decline. Using the IQVIA Medical Research Database, we conducted a cohort study of 9,819 people with dementia aged 60–85 years who received their first antipsychotic prescription between 2000 and 2023. We assessed treatment duration, dosage changes, discontinuation and restart rates, and variations across patient characteristics. The median duration of initial antipsychotic treatment was 5.4 months, exceeding NICE guidelines. One year after initiation, 51.4% remained on medication (32.7% on low doses, 9.9% on high doses, 9.8% on other antipsychotics). Risperidone was the most common first prescription (38.6%). Individuals aged 60–70 years were more likely to start (24.4%) and remain (47%) on high-dose antipsychotics compared to those aged 71–85 years (17.2% and 33%, respectively). Among 5,547 individuals eligible to restart treatment, 56.3% restarted, with a median restart time of 3.1 months. The second treatment episode lasted a median of 2.6 months, consistent across sociodemographic groups. These findings highlight the need for improved adherence to prescribing guidelines and careful monitoring of antipsychotic use in dementia care. Optimising pharmacological management is essential to balance symptom relief with patient safety and quality of life.

277. Balancing Palliative Care Needs and Medication Appropriateness: Prevalence and Risk Factors of Initiation and Reinitiation of Medications at the End of Life

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Background: Medications deemed inappropriate and discontinued earlier in a life-limiting disease may become relevant for palliative care at the end of life, potentially necessitating reinitiation or new initiation. However, the incidence and associated factors with re(initiation) remain underexplored.

Methods: A retrospective cohort study using national healthcare reimbursement and administrative data in Belgium. The study included nursing home residents aged ≥ 65 who died between 2015 and 2019 with conditions potentially amenable to palliative care. Outcomes were: (1) reinitiation of previously discontinued STOPPFrail-listed medications, and (2) initiation of medications, regardless of prior use, in the last three months of life. Log-binomial regression analysis was used to estimate relative risks (RR) with 95% confidence intervals (CI).

Results: Among 158,689 decedents, 29.70% had at least one medication initiated, and 16.96% reinitiated among those with at least one medication discontinued (n=13,724). Re(initiation) was higher for symptom control medications than preventive ones: initiation (25.53% symptomatic vs. 6.71% preventive) and reinitiation (20.29% symptomatic vs. 11% preventive). The risk of re(initiation) was higher among those with cancer, hospitalized, or taking ≥10 chronic medications. Being younger-old (65–84) or dying after 2015 decreased initiation risk by 6-8%.

Conclusions: A significant proportion of residents underwent re(initiation) of medications. While many were likely prescribed for palliative purposes, a notable number of residents had preventive medications re(initiated) unlikely to benefit them. Clear guidelines on medication use in palliative care, along with support from specialist palliative care services, could help achieve a more balanced approach to medication management.

Accessibility of medicines

T-KL6/OC4

Satu Kuusisto: **"***Impact of reimbursement decision on asthma medication use – A nationwide register-based study from Finland***"**

Haitham Lamin: **"***High-cost protection and pharmaceuticals consumption in Sweden***"**

Maarten Lambert: **"***Impact of Antibiotic Shortages on Antibiotic Utilisation in the Community: A Cross-National Comparison***"**

Isabelle Sundell: *"Attitudes Among Swedish General Practitioners Surrounding the Use of GLP-1 Receptor Agonists for Treating Overweight and Obesity"*

162. Impact of reimbursement decision on asthma medication use – A nationwide register-based study from Finland

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Social Insurance Institution of Finland (Kela), Helsinki, Finland

Background

Patient's level of copayment influences medication use. In the Finnish system, in addition to basic reimbursement, there are higher, special reimbursement entitlements (SRE) for chronic and severe diseases, e.g. asthma, making medicine purchases more affordable. We examined how asthma medication use among individuals whose application for SRE was rejected differs from those whose application was approved.

Methods

The study was based on register data from Social Insurance Institution of Finland. The study population includes individuals who have applied for SRE for asthma between 2016–2022. Asthma medication was divided to controller medication (ATC4-codes R03BA, R03AK, R03AL) and reliever medication (ATC4-codes R03AC, R03BB, R03CC). Shares of asthma controller and reliever medication use were assessed in the year following the first decision of SRE.

Results

Altogether 106,477 individuals applied for SRE for asthma between 2016–2022. 12% (n=13,097) received a rejection. Of those with rejection, 87% purchased asthma medication within the next 12 months compared with 98 % with approval. Of all asthma medication purchases, the share of controller medication was 59% and reliever medication was 32% among those with SRE rejection, compared to 64% and 27%, respectively among those with SRE approval.

Conclusions

Based on the asthma medication purchases, those with a rejection of SRE used less controller medications. As the latter is the cornerstone of asthma treatment, this may have an impact on the disease balance. The rejection of SRE may be related to the diagnostic process, but it’s concerning that asthma medications are being left unpurchased.

313. High-Cost Protection and Pharmaceuticals Consumption in Sweden

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BACKGROUND: According to the Swedish reimbursement model, patients receive free medicines when passing a threshold of 2400 SEK (Year 2022) as copayment. However, providing free access to medicines without co-payment while trying to avoid overuse is a challenge.

AIM: The study aimed to describe the proportion of patients reaching the threshold for zero co-payment and to investigate if there is an increase in the amount of prescription medications after reaching the threshold.

METHOD: A retrospective cross-sectional registry-based study was conducted using data on all dispensed prescriptions in Sweden during the period 2012-2017. The proportion of patients reached the threshold was described annually by age and sex. Volumes of drugs dispensed measured in DDD were assessed for all major ATC 2nd level groups three month before and three months after patients reached the threshold, respectively.

RESULT: 32,4 Million persons purchased prescription medicines during the period. One third of them (33%) reached the threshold. On average a 30% increase in volumes of dispensed medications were observed when comparing dispensing of some therapeutic groups before and after the threshold was reached.

CONCLUSION: Access to medicines is a key factor in determining the overall quality and equity of a healthcare system. However, it is important to ensure the balance between cost, affordability, and rational use. This study showed that 33% of all patients reach the threshold annually with no gender difference and indicated that some patients purchased more after reaching the threshold. Further studies are needed to assess whether this is rational or not.

146. Impact of Antibiotic Shortages on Antibiotic Utilisation in the Community: A Cross-National Comparison

Maarten Lambert[1,2], Katja Taxis[3], Lisa Pont[2]

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Background. Drug shortages are an increasing global problem. This study investigates the impact of antibiotic shortages on their utilisation in Australia and the Netherlands.

Methods. A cross-sectional study was conducted using reimbursement and regulatory data from January 2022 to December 2023. The number and duration of antibiotic shortages per product were determined for each active ingredient. The clinical impact was assessed using national utilisation in Defined Daily Doses per 100,000 inhabitants. Changes in trends were analysed using Joinpoint regression.

Results. Shortages were reported for eighteen of the twenty-one (86%) oral antibiotics reimbursed in Australia and twenty of the thirty (67%) in the Netherlands. A total of 147 shortages were recorded in Australia and 135 in the Netherlands. Changes in utilisation coinciding with shortages were observed for eight antibiotics in Australia and six in the Netherlands. The impact of shortages in Australia was most pronounced for cefaclor (-20% decrease in utilisation) and roxithromycin (-26% decrease), while in the Netherlands, cefaclor (-60% decrease) and erythromycin (-80% decrease) showed the largest declines, with significant Monthly Percent Changes ($p<0.05$) in utilisation during shortages. Although relatively more antibiotics were affected in Australia, the impact appeared more severe for certain shortages in the Netherlands. The number of available alternatives seemed to play a role in mitigating the impact.

Conclusions. Antibiotic shortages were common in Australia and the Netherlands. The impact varied by antibiotic and country, with shortages coinciding with declines in utilisation. A multitude of factors seems to contribute to the impact of shortages.

37. Attitudes Among Swedish General Practitioners Surrounding the Use of GLP-1 Receptor Agonists for Treating Overweight and Obesity

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Background: Obesity is a growing global health burden, and effective treatments are limited. Glucagon-like peptide 1 receptor agonists (GLP-1 RAs) were originally developed for diabetes but are now approved for obesity treatment and are in high demand for their weight reducing effect. The resulting drug shortage and increasing pharmaceutical costs have aroused ethical debates surrounding the utilization of these drugs. Few studies have investigated the attitudes on GLP-1 RAs among prescribing physicians.

Aim: This study aimed to assess the attitudes surrounding the utilization of GLP-1 RAs for treatment of overweight and obesity among general practitioners in Sweden.

Method: This was a quantitative, cross-sectional survey conducted in the fall of 2024 directed towards general practitioners in the Swedish regions Gävleborg, Uppsala, Västernorrland, Västmanland and Örebro.

Results: The 190 responses yielded a response rate of 28%. Almost all respondents (98%) agreed that GLP-1 RAs are effective drugs for treating obesity, and 91% believed they will be important for obesity treatment in the future. Main identified barriers for prescribing GLP-1 RAs were low drug availability (86%) and high patient co-payment (69%), and 87% of respondents considered prescription of GLP-1 RAs to patients with obesity should be limited when availability is low.

Conclusion: Swedish general practitioners consider GLP-1 RAs effective for treating obesity, and they believe these drugs will play an important role in obesity treatment in the future. However, several barriers prevent physicians from prescribing GLP-1 RAs to patients with obesity, and they believe that prescriptions should be limited given the current shortage.

Drugs & environment

T-KL7/OC5

Elisabetta Poluzzi: "*Environmental impact of antidepressants: is a new prescription framework possible?"*

Lydia Niemi: **"***Integration of drug utilisation and environmental data: Working together towards environmentally informed pharmaceutical prescribing in Scotlan*d"

Björn Eriksson: **"***Promoting sustainable prescribing – experiences from two Swedish Drug & Therapeutics Committees*"

Milad Sadreghaemy: *"Patient Preferences Regarding Drug Use and Its Environmental Impact"*

256. Environmental impact of antidepressants: is a new prescription framework possible?

Matilde Bianconi[1], Valentina Giunchi[1], Michael Thiede[2], Marco Menchetti[3], Elisabetta Poluzzi[1]

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The antidepressants venlafaxine and sertraline have been identified as posing risks to water ecosystems. With the rising prevalence of depressive disorders and other mental illnesses, the prescription of these pharmaceuticals has increased and is expected to continue rising, highlighting the need to develop measures to mitigate their impact. This study explores the feasibility of a new framework for prescribing antidepressants that balances safety, efficacy, and environmental health.

To assess whether environmental risks could be mitigated by prescribing less polluting alternatives when appropriate, simulations were conducted. For sertraline, the alternatives considered were citalopram and escitalopram, while no specific alternative was identified for venlafaxine due to a lack of equivalent options. Environmental risk was calculated as PEC/PNEC. PEC was determined based on consumption data from Italy and Germany for 2022. A cost analysis was performed to evaluate the economic feasibility of this approach.

The findings indicated that shifting prescriptions from sertraline to citalopram and/or escitalopram would lower the environmental risk of sertraline without increasing the risk of citalopram and escitalopram. This shift would result in an increase in SSRI costs by 0.65% to 8.22% in Italy, but a decrease by 3.53% to 12.72% in Germany. No risk reduction was observed for venlafaxine.

Future clinical guidelines could prioritize first-line treatments with lower environmental impacts but similar efficacy, such as citalopram and escitalopram over sertraline. Combined with enhanced non-pharmacological strategies, these measures could be contrast environmental pollution, ultimately improving global health.

62. Integration of drug utilisation and environmental data: Working together towards environmentally informed pharmaceutical prescribing in Scotland

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Pharmaceutical pollution in the aquatic environment is recognised internationally as an important public health and environmental issue. In Scotland, healthcare sustainability targets call for improvements to medicine prescribing and use to reduce healthcare's impact on the environment. To develop a deeper understanding of this issue, representatives from the environment, water, and healthcare sectors collated monitoring data on pharmaceuticals in Scotland's water environment and combined this with community prescribing data. Environmental data was matched to standardised quantities of drugs prescribed (by population and mass) in an open-access data visualisation tool. The georeferenced tool includes data from 2014 to present and enables users to interrogate datasets over a range of spatial scales (by health board, GP practice and drainage operational area). The tool was used in a pilot project to develop a framework on the environmental impact of pharmaceuticals for use as a knowledge support tool towards environmentally informed prescribing. Pharmaceuticals and framework factors were selected through cross-sector consensus stakeholder workshops. Bayesian Network modelling was applied to predict the environmental impact (calculated from hazard and exposure factors) of selected pharmaceuticals, with Scotland-wide mapping for visualisation in freshwater catchments. The model calculated the pollution risk score of the individual pharmaceuticals, using the ratio of prescribed mass vs. mass that would not exceed the predicted no-effect concentration in the freshwater environment. This work demonstrates a collaborative, transdisciplinary approach to assess potential risks from pharmaceutical pollution in the water environment, and develop tools aiding collation and integration of environmental information into healthcare decision-making in Scotland.

312. Promoting sustainable prescribing – experiences from two Swedish Drug & Therapeutics Committees

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Aims: Swedish Drug and Therapeutics Committees (DTCs) promotes rational use of medicines. In recent years, integrated environmental considerations are included into their formularies and continuous professional education activities are targeted to healthcare professionals and patients. Experiences from two Swedish DTCs in promoting a more sustainable prescribing are presented in this paper.

Methods: Activities conducted by the DTCs in the two regions of Gävleborg and Västernorrland are described, along with trends in utilization of diclofenac, quinolones and antidepressants as selected pharmaceuticals potentially harmful for the environment. Data of sales of the selected pharmaceuticals were collected from the Swedish E-Health Agency.

Results

The amounts of oral diclofenac sold in Gävleborg and Västernorrland diminished from 127/137 kg/year in 2011, to below 20 kg/year in each region 2023. For topical diclofenac the amounts decreased from 60/50 kg/year in 2016 to below 35/year kg in each region in 2023. The sales of quinolones diminished from 77/70 kg/year (2012), to 60/52kg/year 2023. For antidepressants, the sales has increased in both regions. Sertraline, followed by venlafaxin were the most common antidepressants in both regions (DDD/TIN)

Conclusion

DTC activities stressing health hazards (oral) and negative environmental effects (topical) from diclofenac, has likely reduced the sales in both regions. Continous interventions promoting rational use of quinolones has reduced the prescription of quinolones in both regions. For antidepressants, the usage is still increasing. Increased efforts promoting optimised treament plans, including non-pharmacological treatment and de-prescribing antidepressants could help reduce future overprescription and lower enviromental impact.

132. Patient Preferences Regarding Drug Use and Its Environmental Impact

Milad Sadreghaemy[1], Daphne Philibert[1], Rob Heerdink[1,2], Ellen Koster[1], Marcel Bouvy[1], Lourens Bloem[1], Toine Egberts[1,3]

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Background

The healthcare sector contributes approximately 5% of global greenhouse gas emissions, with medicines playing a significant role throughout their lifecycle. Additionally, the disposal of unused medicines leads to resource wastage, financial losses, medicine shortages, and environmental pollution. Understanding patient preferences for medicine attributes and their environmental impact is essential for fostering sustainable healthcare practices.

Objective

To evaluate patient preferences and attitudes regarding the environmental impact of medicines in relation to cost and ease of use.

Methods

A cross-sectional survey was conducted among Dutch Pharmacy Monitoring Panel (AMP) members between December 2022 and January 2023. The survey included questions on sustainability in daily life and medicine use, along with a Discrete Choice Experiment (DCE) assessing preferences for three attributes: environmental impact, ease of use, and cost. Latent class analysis identified preference groups.

Results

Among 25,878 invited participants, 4,122 completed the survey (response rate: 15.9%; mean age: 68 years; 43% female). Four groups emerged: Group 1 (55.7%) prioritized environmental sustainability; Group 2 (20.1%) prioritized cost; Group 3 (16.4%) had balanced preferences; and Group 4 (7.8%) exhibited inconsistent priorities. Group 1 had the highest sustainability score (8.7/10), preferred environmental labelling (57%), and was most willing to use quality-assured redispensed medicines (78%). Across all groups, 72–83% supported returning unused medicines to pharmacies.

Conclusion

The majority of respondents prioritized sustainable medicine attributes, indicating strong public support for greener pharmaceutical practices. These findings highlight the need for policies promoting environmental labelling and medicine reuse to reduce healthcare's environmental footprint and mitigate international medicine shortages.

Methods in DUR

T-KL8/OC6

Robert Vander Stichele: **"***Linking the ATC classification to the ISO/CEN standardized global Identification of medicinal products and to national identifiers of medicinal product packages. Quality control and refinement of the measurement of exposure to medicines in big data***"**

Angela Boccia: **"***Contribution to the Development of the ATC/DDD Classification System from Italian Working Group on DDD: Assigning a Defined Daily Dose (DDD) to Anti-Angiogenic Drugs (ATC S01LA*)**"**

Aleksi Hamina: **"***Bias stemming from imbalance of incident and prevalent cases in follow-up studies of mortality — something to worry about?"*

Fabian Windfuhr: **"***European perspectives on ethical aspects around utilization of patient registries for medicines decision-making***"**

203. Linking the ATC classification to the ISO/CEN standardized global Identification of medicinal products and to national identifiers of medicinal product packages. Quality control and refinement of the measurement of exposure to medicines in big data.

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Since 2012, 5 IS0/CEN standards were published, governing the global identification of medicinal products (IDMP), with the aim to provide national medicinal products with a unique international number, so that medicinal products from anywhere in the world would be recognisable anywhere in the world. This ambition was underpinned by an European Horizon 2020 Action Program, called UNICOM, with 44 partners, including 11 National Competent Authorities for Marketing Authorisation.

IDMP provides all elements for a full standardisation of the official labeling. It will also provide the algoritm to construct a global identification number, called Pharmaceutical Product Identifier (PhPID), based on the precise active ingredient, the administrable dose form, and the strength of the medicinal product. For the precise active ingredient, INN nomeclature will be used, with a global system for substance identification (GSID), aligned with the European EU-SRS, the American UNII, WHODURG, and Snomed-CT. For the dose form, the European Directorate for Quality of Medicines (EDQM) Standard Terms for administrable dose forms will be used. For strength expression, business rules have been developped, under the governance of Upsalla Monitoring Centre (UMC) WHO CC for Pharmacovigilance, together with FDA and other members of the Global IDMP Working Group.

UMC will keep a repository of PhPIDs, to which national agencies can link, or request new codes. It is possible to link the PhPIDs in this repository to the ATC Classification, using an ontology of dose forms. This will result in higher quality of coding to ATC and higher precision in DUR and Pharmaco-Epidemiology.

238. Contribution to the Development of the ATC/DDD Classification System from Italian Working Group on DDD: Assigning a Defined Daily Dose (DDD) to Anti-Angiogenic Drugs (ATC S01LA)

Angela Boccia[1], Giulia Hyeraci[2], Anna Girardi[2], Rosa Gini[2], Gianluca Trifirò[3], Ylenia Ingrasciotta[3], Andrea Spini[3], Valentina Ientile[4], Giampiero Mazzaglia[5], Ippazio Cosimo Antonazzo[5], Manuela Casula[6], Elena Tragni[6], Olivia Leoni[7], Arianna Mazzone[7], Michele Ercolani[7], Martina Zanforlini[7], Ursula Kirchmayer[8], Valeria Belleudi[8], Marco Finochietti[8], Francesco Barone Adesi[9], Elisabetta Poluzzi[10], Giuseppe Roberto[2]

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The Defined Daily Dose (DDD) is a standardized unit for measuring drug consumption. DDD assignment is carried out by the WHO Collaborating Center of Oslo only upon request. Therefore, not all active substances in the ATC/DDD index have already received a DDD. The Italian working group on DDD (Ita-wg-DDD) was established with the aim of contributing to the development of the ATC/DDD system. Herein, we report on the work of Ita-wg-DDD on the assignment of DDDs to anti-angiogenic ophthalmic drugs (ATC S01LA).

We identified S01LA drugs currently marketed in Italy without WHO-assigned DDD. WHO guidelines, medicines' labels, and evidence on real-world utilization were considered for assignment. According to the reporting framework developed by ITA-wg-DDD, reference indication, reference daily dosage (RDD), assignment criteria, calculation formulas were described for each assigned DDD.

Twenty medicinal products packages corresponding to six ATC V codes were identified. For the six substances, the primary indication was age-related macular degeneration. In one case, the DDD matched the RDD (S01LA04 = 0.5 mg); in four cases, the RDD was divided by days of therapy cycle (S01LA05 = 0.06 mg, S01LA06 = 0.64 mg, S01LA08 = 0.04 mg, S01LA09 = 0.21 mg); in one case, RDD was multiplied by a body surface area (1.81 m2) of reference (S01LA01 = 10.8 mg).

Six DDD were assigned to a corresponding number of S01LA drugs. This work will be shared with WHO International Working Group for Drug Statistics Methodology to be considered for inclusion in the ATC/DDD index.

189. Bias stemming from imbalance of incident and prevalent cases in follow-up studies of mortality — something to worry about?

Aleksi Hamina[1], Tapio Gustafsson[1], Heidi Taipale[1,2]

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Background:

Incident and prevalent cases of an index disease are known to differ in their mortality risk. If observational longitudinal studies are not balanced for incident and prevalent cases at baseline, mortality estimates can be biased. We aimed to quantify the extent of this potential bias with an example from psychiatric epidemiology.

Methods:

We utilized the Finnish Hospital Discharge Registry to extract data on individuals diagnosed with bipolar disorder (ICD-10 F30–F31) in inpatient care in 1998–2018. We visualized the proportions of incident and prevalent cases (I-P balance) over time to establish the year after which an I-P balance is reached (cut-off year). Indirectly standardized death rates (SDRs) per 1000 person-years were calculated before and after the cut-off year.

Results:

Overall, there were 38,137 individuals diagnosed with bipolar disorder in 1998–2018; 57% were women, mean age was 41 years (SD: 17). The proportions of incident and prevalent cases (I-P balance) were stabilizing after seven years from beginning of the study period. SDR for the full observation period was 27.20/1000 person-years (95%CI: 26.47–27.93). Mortality was statistically higher during the years of higher I-P imbalance (1998–2004) compared to the years after that (2005–2018), SDR: 30.77 (95%CI: 28.52–33.16) vs. SDR: 26.67 (95%CI: 25.91–27.45), respectively.

Conclusion:

Incidence-prevalence imbalance bias may be of concern is studies with short follow-up periods. We will discuss the implications of a potential I-P balance bias and provide additional examples on people with schizophrenia-spectrum disorder and depression.

168. European perspectives on ethical aspects around utilization of patient registries for medicines decision-making

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Objectives:

To describe ethical considerations for using patient registry data to inform medicines decision-making.

Methods:

European regulators, Health Technology Assessors (HTAs), payers, patients, academia, industry, and healthcare professionals (HCPs) were invited through email and social media to complete an online survey (Dec 2024 – Jan 2025), including participants' demographics and perspectives regarding ethics-related aspects of patient registry usage (based on 5-point Likert scales). Data were analyzed descriptively.

Results:

Included were 382 participants (159 regulators/HTA/payers, 41 industry, 42 patient representatives, 140 academics/HCPs/others). Participants represented 31 countries, had a mean age of 48 years (SD±11) and 56% were women. Most participants (65%) indicated that registries should collect identifiable data and process pseudonymized data, 51% preferred an 'opt-out' consent for this. For secondary use of registry data, 34% of respondents chose transfer of anonymized data as the preferred method, and 'opt-out' consent was preferred for this by 61%. Respondents perceived information on a registry's use-and-access policy most important (mean 4.2; 95% CI: 4.1-4.3) and information on funding sources least important (mean 3.9; 95% CI: 3.8-4.0). Most participants (83%) preferred to find such information on a registry's website, followed by the European Medicines Agency – Heads of Medicines Agencies Catalogues of real-world data sources (66%). Participants on average considered 51% (scale:0-100%; SD±32) funding of registries by industry acceptable.

Conclusions:

Participants opted for higher granularity for data collection and processing by a registry, compared to data granularity for secondary use. Generally, 'opt-out' was preferred as a method for obtaining consent.

Polypharmacy

T-KL9/OC7

Daniala Weir: "*Medication Trajectories Among Individuals with Diabetes Type 2 and Other Chronic Conditions: A Descriptive Study*"

Ruveyda Yilmaz: "*Dose-dependent relationships observed for prescribing cascades: a cohort study*"

Kieran Dalton: "*Development of a prescribing cascade classification framework: a modified nominal group technique study*"

Alessandro Cesare Rosa: "*Identification of the target population for a deprescribing and medication review service in general practice: A pilot project in Italy*"

80. Medication Trajectories Among Individuals with Diabetes Type 2 and Other Chronic Conditions: A Descriptive Study

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Aims: To characterize and visualize common medication trajectories among individuals with type 2 diabetes mellitus (T2DM) and at least one other chronic condition.

Methods: This retrospective cohort study used administrative health data from Alberta, Canada between January 2008 and December 2021. Our study population included individuals with T2DM and one additional chronic condition. Medication trajectories were clustered by the first ATC level using k-medoids incorporating Jaccard similarity and Levenshtein distance. Age, sex, diabetes duration, average number of ATC classes included in the trajectories, and comorbidities were described overall and for each cluster. The most common seuqences of medication classes and most common drug molecules within each class were also described per cluster.

Results: This study included 412,101 patients, with 75,785 unique medication trajectories. The average age was 52.9 (SD15.7) years and 51.4% (211,890) were male. Hypertension (77.7%), dyslipidemia (55.5%), osteoarthritis (41.8%), and depression (36.9%) were the most common chronic conditions. Medication classes frequently targeted diseases related to the alimentary tract and metabolism (89.7%), cardiovascular system (78.6%), and nervous system (50.7%). Among twenty-five identified clusters, the five largest clusters commonly included metformin (43.4% - 57.6%) and pantoprazole (5.6% - 12.6%), rosuvastatin (9.0% - 18.6%) and atorvastatin (4.5% - 9.8%), as well as zopiclone (2.0% - 6.1%) and escitalopram (2.5% - 6.1%) at the start of the trajectories.

Conclusion: Multimorbid patients with T2DM have diverse medication trajectories, reflecting substantial variations in chronic conditions and treatments. These findings can inform personalized prescribing and future analyses targeting specific subgroups or medication classes.

124. Dose-dependent relationships observed for prescribing cascades: a cohort study

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Background: Prescribing cascades arise when a new medication is prescribed to manage an adverse drug reaction (ADR) induced by an initial (index) medication, contributing to polypharmacy and increased healthcare costs. The impact of the index medication dose on the development of these cascades remains unclear. This study investigated dose-dependent relationships in prescribing cascades across multiple drug classes, including ACE inhibitors, statins, and others.

Methods: A retrospective cohort study was conducted using prescription sequence symmetry analysis (PSSA) on data from over 600 Dutch community pharmacies. PSSA quantifies potential prescribing cascades by comparing the sequence of drug initiation before and after an index medication. Adjusted sequence ratios (aSRs) were calculated, where an aSR >1 suggests a prescribing cascade. Doses were categorized as low (<0.50 defined daily dose [DDD]), medium (≥0.50 to ≤1.50 DDD), and high (>1.50 DDD) to assess dose-dependency relationships.

Results: Among 18 identified prescribing cascades, 12 exhibited a dose-dependent relationship. All 7 ACEI-related cascades showed an increasing aSR with higher doses, e.g., ACEI-induced cough had an aSR range for the low dose of 0.86-2.09 and for the high dose of 1.51-2.75. Similarly, three statin-related cascades (e.g., erectile dysfunction, urinary incontinence, depression) demonstrated dose-dependency. No dose-dependency was found for cascades involving PPIs, diuretics, or NSAIDs.

Conclusion: These findings suggest that doses of an index medication play a role in the occurrence of some prescribing cascades. Recognizing these relationships can support the development of prescribing guidelines and policies aimed at reducing prescribing cascades. Further research is needed to confirm these findings.

304. Development of a prescribing cascade classification framework: a modified nominal group technique study

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Background

A prescribing cascade occurs where one drug (Drug A) is prescribed to manage the adverse effect of another drug (Drug B). Conflicting terminology has led to inconsistent descriptions of this phenomenon, complicating recognition and management. Given that prescribing cascades may occur in multiple ways, this study aimed to develop a comprehensive prescribing cascade classification framework using a modified nominal group technique.

Methods

Experts in prescribing cascades from six countries, with backgrounds in pharmacy, geriatric medicine, general practice, nursing, and public health were invited to participate. An initial draft framework was created based on a literature review and shared with participants via email, who independently provided feedback on term inclusion and framework refinement. A second draft was provided in advance of an online group meeting, which involved discussions on naming terms and framework optimisation. The final framework was developed through written feedback and team discussion.

Results

All invited experts agreed to participate (*n*=14). The final framework consists of four core categories that classify prescribing cascades based on their intentionality (intentional/unintentional), appropriateness (appropriate/inappropriate), timing of Drug B (reactive/prophylactic), and likelihood of being a prescribing cascade. Additional classifications are based on their mechanism (e.g. pharmacokinetic interaction or dose-dependency) and their number of components (e.g. more than one Drug A or Drug B).

Conclusion

This novel framework offers a standardised approach for classifying prescribing cascades, enhancing consistency in research, education, and clinical practice. It supports in recognising and managing different types of prescribing cascades, ultimately contributing to safer medication practices.

61. Identification of the Target Population for a Deprescribing and Medication Review Service in General Practice: A Pilot Project in Italy

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Background: Polypharmacotherapy is associated with an increased risk of adverse events, drug-drug-interactions and non-adherence. Medication review and deprescribing (MRDP) are tools to address polypharmacy and reduce potentially inappropriate prescribing. In Rome, a MRDP service for General Practitioners (GPs) has been proposed. Focusing on specific therapeutic areas, GPs receive evidence-based materials and a list of patients eligible for MRDP (target population, TP). This is a pilot phase of the project focused on statins. It aims to estimate the TP in 2 healthcare districts in Rome, i.e. elderly persons in polypharmacotherapy with potentially inappropriate statin use in 2023.

Methods: There is no evidence-based indication for statin use in primary prevention over 80 years. Accordingly, the TP consists in statin users aged 80+ years without indication for secondary prevention, such as previous cardiovascular events or diabetes. These subjects were identified using prescribing information available in the regional healthcare databases.

Results: In 2023, a total of 11,767 elderly statin users in polypharmacotherapy (10+ drugs) were identified. Excluding patients in secondary prevention, we retrieved 1,486 (12.6%) statin users in primary prevention, assisted by 250 GPs (mean=4.8 patients per GP, min=1, max=20). Patients are predominantly female, with a median age of 84 years.

Conclusions: Identifying the TP is a tool to facilitate MRDP interventions by GPs. The pilot project on statins is intended to increase GPs' awareness of the potential positive impact of this public health intervention and empower them to implement a community-based MRDP service, leveraging the identification of specific patient groups to focus on.

Drugs and safety

T-KL10/OC8

Iva Kuliš: **"***Analysis of JAK inhibitors prescribing trends in Croatia in the view of new risk minimisation measures***"**

Gabriela Rolová: **"***Mortality among patients with long-term prescription opioid use in Norway***"**

Carlotta Lunghi: **"***Psychotropic Medication Use and Mortality Risk in Cluster B Personality Disorders: A Nested Case-Control Study***"**

Mohammed Alsuwat: **"***Understanding Medication Safety in Prison Healthcare: A Review of Incident Reports*

114. Analysis of JAK inhibitors prescribing trends in Croatia in the view of new risk minimisation measures

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Background

Janus kinase inhibitors (JAKis) approved to treat several chronic inflammatory disorders underwent the EMA safety review (February 2022 to March 2023). One of the new risk minimisation measures (RMMs) is that JAKis should be used in patients ≥ 65 years only if no suitable alternatives are available. Analysis of JAKis prescribing trends in the view of new RMM in Croatia was performed.

Methods

Data is obtained from Croatian National Public Health Information System (NAJS). Number of prescriptions is stratified per patient age groups (<65 years and ≥ 65 years) and per month. Joinpoint Regression Program was used (version 5.3.0.0.) for statistical analysis of prescribing time trends using joinpoint models calculating monthly percent change (MPC).

Results

One joinpoint was observed for all patients in March 2022. From January 2020 to March 2022, prescribing increased with a statistically significant monthly percent change (MPC) of 2.53% ($p=0.004$). From March 2022 to December 2023 prescriptions remained stable, with a non-significant MPC of 0.61% ($p=0.5$). For patients <65 years, an increasing trend with a statistically significant MPC of 1.77% ($p<0.001$) was observed, with no joinpoints identified. For patients ≥ 65 years, two joinpoints were observed. In November 2021 the MPC shifted from 1.03% to 12.03%. Following February 2022, prescriptions remained stagnant.

Conclusion

It was shown that prescribing in patients <65 years increased steadily throughout the period, while in patients ≥ 65 years stabilised after February 2022, indicating that start of EMA safety review might have influenced prescribing trends in this patient group. Further research is needed.

90. Mortality among patients with long-term prescription opioid use in Norway

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Background: This study estimated all-cause and cause-specific mortality in long-term prescription opioid users compared to the general population.

Methods: A nationwide registry-based cohort study utilizing data of patients aged 15–69 years with no previous cancer diagnosis and a recorded episode of long-term opioid analgesics use (ATC group N02A; N = 116,006) in Norway, 2011–2019. Sex-specific crude mortality rates (CMR) and age-standardized mortality ratios (SMR) were calculated for all-cause and cause-specific mortality, i.e., natural and unnatural causes for the whole study population and for different age groups (15–34, 35–54, and 55–69 years).

Results: Overall, 4.6% (2,491/54,535) of men and 2.7% (1,680/61,471) of women died during the follow-up period. CMRs for all-cause mortality were 1194 and 724 deaths per 100,000 person-years (PY) in men and women, respectively. Men had higher CMRs across all causes, particularly unnatural causes (221 and 101 deaths per 100,000 PY in men and women, respectively). Patients with long-term opioid use had a four times higher all-cause mortality (SMR = 3.8 [95% CI = 3.6–3.9] in men and 3.7 [3.5–3.9] in women aged 15–69 years) compared to the general Norwegian population of the same age. Excess mortality was observed across all causes, particularly suicide, accidents, and accidental poisoning. SMRs decreased with age and were highest for the youngest age group (15–34 years), particularly among men.

Conclusions: Long-term prescription opioid use is associated with an increased risk of death. Clinicians should weigh the risks of long-term opioid use against the benefits.

142. Psychotropic Medication Use and Mortality Risk in Cluster B Personality Disorders: A Nested Case-Control Study

Carlotta Lunghi[1,2,3], Lionel Cailhol[4,5], Elhadji A. Laouan-Sidi[6], Victoria Massamba[6], Caroline Sirois[7], Elham Rahme[8], Suzane Renaud[9], Pierre David[5], Cathy Martineau[10], Robert Biskin[11], Marion Koch[12,13], Heidi Taipale[14], Alain Lesage[6,4,5]

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Background

Cluster B personality disorders (PDs) are severe conditions linked to a high risk of premature mortality, especially from suicide. This study examined the association between psychotropic medication use and all-cause and suicide-specific mortality in individuals with Cluster B PDs in Quebec.

Methods

We conducted a nested case-control study using Quebec's medico-administrative data from April 1, 2005 to March 31, 2022. The cohort included individuals aged ≥14 years diagnosed with Cluster B PD. Cases (deaths from any cause or suicide) were matched to four controls by age, sex, and year of diagnosis using density sampling. Psychotropic medication use within 12 months before death was the exposure. Conditional logistic regression models evaluated associations, adjusting for socioeconomic deprivation, psychiatric comorbidities, and physical health conditions.

Results

We identified 6224 cases of death from any causes and 914 from suicide, matched to 24,896 and 3656 controls, respectively. Cases were more often male (57.3% for all deaths; 62.0% for suicide) and had higher rates of psychiatric comorbidities than controls. Antipsychotics (odds ratio [OR]: 1.71; 95% confidence interval [CI]: 1.57–1.86), anxiolytics (OR: 1.94; 95% CI: 1.79–2.10), and antidepressants (OR: 1.10; 95% CI: 1.01–1.19) significantly increased the odds of all-cause mortality. For suicide-specific mortality, anxiolytics (OR: 1.88; 95%CI: 1.54–1.28) and antidepressants (OR: 1.59; 95%CI: 1.31–1.94) showed strong associations.

Conclusions

While indication bias cannot be completely excluded, psychotropic medications appear to be associated with an increased mortality risk in individuals with Cluster B PDs, emphasizing the need for careful monitoring and comprehensive assessment.

102. Understanding Medication Safety in Prison Healthcare: A Review of Incident Reports

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Background: Medication-related safety incidents in prisons are frequent and present unique challenges for healthcare delivery. Despite growing awareness of the issue, there is limited understanding of system-level factors contributing to medication incidents in prison healthcare.

Aim: To characterise the nature and severity of medication-related incidents in prison healthcare using the Systems Engineering Initiative for Patient Safety (SEIPS) framework.

Method: A retrospective analysis was completed of 1,123 medication error incidents reported to the National Reporting and Learning System (NRLS) in England (2018-2019). Descriptive analysis examined incident types, medications involved, and severity, while perceived contributory factors were systematically categorised using the SEIPS.

Results: Most incidents (1,015/1,123, 90.4%) resulted in no harm, with administration/supply errors predominating (681/1,123,60.6%). Omitted medicine/ingredient was the leading incident subtype (239/1,123, 21.3%), followed by wrong dose/strength (97/1,123, 8.6%). Analgesic medications were most frequently implicated within incidents (445/1,123, 80.2%), particularly opioids (242/1,123, 29.5%). Of the 1,123 incidents analysed, 508 (45.2%) had at least one identified contributory factor, with 162 (31.9%) of these having multiple contributory factors. Organisational factors were most frequently identified (328/672 contributory factors, 48.8%), with significant interactions between staffing and communication issues occurring in 23.8% (n=160) of all incidents. Technology problems (70/672,10.4%) and prison-specific environmental constraints (67/672,10.0%) were also notable, particularly affecting controlled medication processes.

Conclusions: Medication-related safety incidents in prisons arise from complex systemic factors influencing care delivery, and many are unique to secure environments. Key targets for improvement include communication interfaces, controlled medication processes, and accommodation of healthcare delivery within prison operational constraints.

DUR in cancer

T-KL11/OC9

Sieta T. de Vries: **"***Views of European Union medicine regulators and healthcare professionals on the approved versus prescribed dose of Protein Kinase Inhibitors: An interview study***"**

Claudia Garcia Serpa Osorio-de-Castro: **"***Perceptions of clinical oncologists and hospital pharmacists on shortages of cancer medicines in Brazil, Chile, Colombia and Ecuador: A qualitative study***"**

Aya Elhusseiny Shaaban: **"***Real-World Use and Survival Outcomes of Sacituzumab Govitecan in Metastatic Triple-Negative Breast Cancer and Hormone Receptor-Positive/HER2-Negative Breast Cancer: Insights from the French Early Access Program***"**

Igor Rubinić: **"***Real-world evidence for pembrolizumab in non-small cell lung cancer: a monocentric cohort study***"**

32. Views of European Union medicine regulators and healthcare professionals on the approved versus prescribed dose of Protein Kinase Inhibitors: An interview study

Margot Brinkhof[1,2], Sieta T. de Vries[3,1], Peter G.M. Mol[1,3], Dario Trapani[4,5], Irja Marije de Jong[2], K. Esther Broekman[1,6]

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Protein kinase inhibitors (PKIs) are widely utilized in cancer therapy, with approved doses determined from dose-finding phase 1 clinical trials based on pharmacokinetics (PK), pharmacodynamics (PD), toxicity, and sometimes also efficacy endpoints. However, inter-patients' PK variabilities and individual tolerability often result in increased toxicity at the recommended doses, indicating that label-approved dosages may not be optimal for the broader patient population. A qualitative study was conducted in which we aimed to explore the perceptions regarding the approved and actual prescribed doses of PKIs in clinical practice in the EU among regulators and healthcare practitioners (HCPs). A thematic analysis using a deductive and inductive approach was performed. Seventeen interviews were conducted. Regulators highlighted insufficient attention to optimal dose-finding, yielding approved doses often based on outdated maximum tolerated dose concepts, leading to uncertainties in efficacy and safety. HCPs reported using alternative dosing strategies in clinical practice to improve tolerability and quality of life (QoL) but noted a lack of robust evidence to guide such adjustments, and faced legal constrains to deviate from the approved dose. Participants emphasized the need for improved pre- and post-approval dose optimization to improve safety, enhance QoL, and bridge gaps between trial data and real-world patient diversity. Collaborative efforts involving multi-stakeholders including HCPs, regulators, pharmaceutical companies, insurers, governments, and patient representatives are essential to advance dose optimization and improve patient-centric outcomes, with further research needed to understand these stakeholders' perspectives.

232. Perceptions of clinical oncologists and hospital pharmacists on shortages of cancer medicines in Brazil, Chile, Colombia and Ecuador: A qualitative study.

Janeth López[1], Ana Gómez[2], Carlos E. Durán[1,3], Juanita Vahos[1], María B. Mena[4], Ximena Lagos[5], Lili Acuña[5], Angela Esher[6], Mario J.S. Silva[7], Claudia Osorio-de-Castro[6]

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Background

In Latin America, shortages of oncologic medicines are frequent at cancer services. The aim of this study was to explore the causes, the consequences, and the possible solutions to these shortages from the perspective of clinical oncologists and hospital pharmacists in 4 Latin American countries.

Methods

A multicenter protocol was developed, and ethical consent was sought in each participating country. A qualitative study was designed, with focus on thematic deductive analysis. Semi-structured interviews were carried out to oncologist and hospital pharmacists in national and regional cancer centers in Rio de Janeiro (Brazil), Valdivia (Chile), Bogotá (Colombia), and Quito (Ecuador).

Results

Forty-four interviews were carried out across the four study sites. This study reveals that the perceived causes of shortages are multifactorial and contribute simultaneously to this phenomenon. Frailty of public procurement systems, lack of transparency, misplaced incentives, lack of supply chain communication, and regulation voids are the most common perceived causes. Consequences are centered on increased mortality, the need to switch to another – less effective and more expensive – therapeutic alternatives. Incentivizing local production, centralized procurement and better clinical planning, were the most cited strategies to counter shortages.

Conclusion

Results show the need for better governance and procurement of oncologic medicines in the countries. It highlights the need for an early warning system at point-of-care and the development of clinical practice guidelines that consider stock-out scenarios, including treatment alternatives when first-line treatments are affected.

233. Real-World Use and Survival Outcomes of Sacituzumab Govitecan in Metastatic Triple-Negative Breast Cancer and Hormone Receptor-Positive/HER2-Negative Breast Cancer: Insights from the French Early Access Program

Aya Elhusseiny SHAABAN[1,2], Hugo Jourdain[1], David Desplas[1], Mahmoud Zureik[1], Nadia Haddy[1]

[1]EPI-PHARE, French National Agency for Medicine and Health Product Safety (ANSM) and the French National Health Insurance Center (CNAM), Saint Denis, France. [2]Paris Saclay University, Université Versailles Saint Quentin (UVSQ - EDSP), Orsay, France

Background

Sacituzumab govitecan(SG), an antibody-drug conjugate, was granted early access in France for third-line treatment of metastatic triple-negative breast cancer (mTNBC) in September 2021 and hormone receptor-positive/HER2-negative breast cancer (HR+/HER2−mBC) in February 2023. Our study aimed to assess SG real-world use and survival outcomes.

Methods

Using the French National Health Data System (SNDS), we identified SG initiations between July 2021 and December 2023, with follow-up until June 2024. Patients were described separately by indication (mTNBC or HR+/HER2−mBC). We recorded socio-demographic factors, comorbid conditions, and five years prior medical history. Kaplan-Meier method used to estimate time to treatment discontinuation (TTD) and overall survival (OS). Multivariable Cox regressions used to identify survival prognostic factors.

Results

The cohort included 2656 mTNBC and 1011 HR+/HER2−BC patients; median age of 59 years. Cardiovascular disease was reported in 13% of mTNBC and 15.9% of HR+/HER2−BC. Brain metastases occurred in 17% of mTNBC and 13.6% of HR+/HER2−BC. Median follow-up was 9.5months for mTNBC and 8 months for HR+/HER2−BC. Median OS was 11.4 months for mTNBC and 10.7 months for HR+/HER2−BC with 1-year survival rates of 48.2% and 44.3%, respectively. Median TTD (months) was 4.3 (mTNBC), 3.4 (HR+/HER2−BC). Brain metastases increased mortality in mTNBC group (HR=1.54 [95%CI:1.33;1.78]), while older age (≥60years) was associated with longer OS; HR=0.84 [95%CI:0.76;0.94]. In HR+/HER2−BC group, neither age nor brain metastases affected OS.

Conclusion

This is the largest study highlighted the poorer real-world survival outcomes of SG as compared to clinical trials. Further safety analyses are needed.

221. Real-world evidence for pembrolizumab in non-small cell lung cancer: a monocentric cohort study

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Background

Over the past decade, the approval of immune checkpoint inhibitors has revolutionized treatment for patients with advanced non–small cell lung cancer (NSCLC), significantly improving survival. Clinical trials have demonstrated that pembrolizumab provides durable, clinically meaningful, long-term survival benefits over chemotherapy, with no statistically significant difference in overall survival (OS) between patients who stopped treatment at 2 years and those who continued treatment indefinitely. However, real-world outcomes often differ from clinical trial results. This study assessed the real-world OS and progression-free survival (PFS) outcomes of first-line pembrolizumab in NSCLC irrespective of tumor programmed death-ligand 1 (PD-L1) expression and compared them to clinical trial results.

Methods

We conducted a retrospective analysis of all NSCLC patients for whom the Drug and Therapeutics Committee had approved treatment with pembrolizumab at Clinical Hospital Center Rijeka in the period from 2018 to 2024.

Results

Overall, 302 patients were included. At the time of evaluation, 15% of patients were still in treatment, while 8% of patients finished two-year treatment. 7% of patients never initiated treatment, and another 40% discontinued early due to various reasons.

Conclusion

Our real-world data show different effectiveness rates from those derived from clinical trials. The data also indicate that a more stringent assessment of patients who may benefit from the treatment is necessary.

233. Real-World Use and Survival Outcomes of Sacituzumab Govitecan in Metastatic Triple-Negative Breast Cancer and Hormone Receptor-Positive/HER2-Negative Breast Cancer: Insights from the French Early Access Program

Aya Elhusseiny SHAABAN[1,2], Hugo Jourdain[1], David Desplas[1], Mahmoud Zureik[1], Nadia Haddy[1]

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Background

Sacituzumab govitecan(SG), an antibody-drug conjugate, was granted early access in France for third-line treatment of metastatic triple-negative breast cancer (mTNBC) in September 2021 and hormone receptor-positive/HER2-negative breast cancer (HR+/HER2−mBC) in February 2023. Our study aimed to assess SG real-world use and survival outcomes.

Methods

Using the French National Health Data System (SNDS), we identified SG initiations between July 2021 and December 2023, with follow-up until June 2024. Patients were described separately by indication (mTNBC or HR+/HER2−mBC). We recorded socio-demographic factors, comorbid conditions, and five years prior medical history. Kaplan-Meier method used to estimate time to treatment discontinuation (TTD) and overall survival (OS). Multivariable Cox regressions used to identify survival prognostic factors.

Results

The cohort included 2656 mTNBC and 1011 HR+/HER2−BC patients; median age of 59 years. Cardiovascular disease was reported in 13% of mTNBC and 15.9% of HR+/HER2−BC. Brain metastases occurred in 17% of mTNBC and 13.6% of HR+/HER2−BC. Median follow-up was 9.5months for mTNBC and 8 months for HR+/HER2−BC. Median OS was 11.4 months for mTNBC and 10.7 months for HR+/HER2−BC with 1-year survival rates of 48.2% and 44.3%, respectively. Median TTD (months) was 4.3 (mTNBC), 3.4 (HR+/HER2−BC). Brain metastases increased mortality in mTNBC group (HR=1.54 [95%CI:1.33;1.78]), while older age (≥60years) was associated with longer OS; HR=0.84 [95%CI:0.76;0.94]. In HR+/HER2−BC group, neither age nor brain metastases affected OS.

Conclusion

This is the largest study highlighted the poorer real-world survival outcomes of SG as compared to clinical trials. Further safety analyses are needed.

DUR in psychiatry and pain management

F-KL12/OC10

Larus Gudmundsson: *"Opioids sales, treatment admissions and mortality in Iceland from 1973 to 2023"*

Ignacio Aznar-Lou: **"***Long-term use of benzodiazepines in Primary Care in Spain: magnitude of the problem and associated factors through a real world data based study***"**

Estelle Naumburg: **"***Association between cardiac events and ADHD-medical therapy in combination with other psychotropic medications in children, adolescents, and young adults***"**

Faiza Shahid: **"***Risk of insomnia in patients with depressive disorder following initiating SNRIs vs SSRIs: A Population based Cohort Study***"**

319. Opioids sales, treatment admissions and mortality in Iceland from 1973 to 2023

Larus Gudmundsson[1], Kristjan Linnet[2], Olafur Einarsson[3], Magnus Johannsson[4], Magnus Olason[5], Mimir Arnorsson[6], Ingunn Hansdottir[7], Valgerdur Runarsdottir[7], Thorarinn Tyrfingsson[7], Svava Thordardottir[4], Jakob Kristinsson[4]

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Introduction

Over the past couple of decades opioids have been associated with opioid use disorder (OUD) and opioid related mortality, but nationwide data spanning several decades are rare.

Methods

Opioid sales data (ATC-code N02A) covering Iceland were available for the years 1976-1978, 1981-1983 and 1989-2023 from the Icelandic Medicines Agency. Data on OUD cases admitted to Vogur treatment clinic, during 1979-2023 were used. Opioid related mortality was derived from forensic toxicology reports (Department of Pharmacology and Toxicology, University of Iceland). Values were 3-year moving averages.

Results

Sales during 1976-1978 and 1981-1983 were 1.1 and 0.6 (DDD/1000 inhabitants/day) respectively. During 1991-2005 the opioid sales increased from 6.4 to 27.5 DDD/1000 persons/day, OUD admissions increased 3.8-70.9 OUD admissions/100,000 persons/year and opioid-related mortality 0.1-3.0 deaths/100,000 persons/year. In 2023 the sales were at 21.6 DDD/1000 inhabitants/day, OUD admissions 79.5 admissions/100,000 persons and mortality 8.4 deaths/100,000 persons.

In the 1970s morphine was mainly used in hospital setting, where acute non-cancer pain was treated, and it was considered addictive. The introduction of pain as the fifth vital sign, changes in risk perception associated with opioid use and changes in prescribing practices are likely contributing factors in opioid sales, OUD admissions and opioid related mortality, all increasing in succession.

Conclusions

In this nationwide data covering fifty years there are several changes in prescription practices and risk perception associated with opioid treatment. These changes are likely contributing factors in the increase in opioid sales, OUD treatment admissions and opioid related mortality that followed.

71. Long-term use of benzodiazepines in Primary Care in Spain: magnitude of the problem and associated factors through a real world data based study

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Introduction: Long-term use of benzodiazepines (BZD) triggers health problems. There is evidence on the prevalence of use of BZD in Europe, however the number of long-term users (LTU) is still unknown.

Objective: The aim of the study is to estimate the proportion of primary care patients who initiate a BDZ prescription that subsequently become LTU and to identify its associated factors.

Design: Retrospective cohort of real-world data.

Setting and participant: Population over 15 years with a new prescription of BZD in Primary Care in Catalonia (Spain). Having at least 3 registries of dispensed BZD within 3 consecutive months to a new BZD prescription was criteria for LTU. The following variables were considered as potential associated factors: sociodemographic characteristics of patients and prescribers, pathologies, previous BZD use, number and type of visits, and prescription quality standard. We estimated the proportion of LTU among patients with a new prescription, stratified by age and sex, and estimated risk factors by multivariable logistic regression.

Result: 100,638 users with a new BZD prescription were included. 27.1% were LTU at 3 months and 14.5% at 6 months. LTU increases with age and is higher in women. Predictors of LTU are Spanish nationality, living in rural areas, having a mental illness, having used BZD in the past, having virtual visits or not meeting pharmacy-therapeutic quality standards.

Conclusion: The number of patients who develop LTU is high, especially in the elderly and women. Exploring the causes of this phenomenon could contribute to the development of future interventions.

259. Association between cardiac events and ADHD-medical therapy in combination with other psychotropic medications in children, adolescents, and young adults.

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Background:
Psychopharmacological treatment can be a risk factor for drug-induced cardiac events. This study aimed to assess the risk of cardiac events associated with attention-deficit/hyperactivity disorder (ADHD) medication combined with other psychotropics in young people.

Methods:
This case-control study utilized data from the Swedish National Registers, for individuals aged 5–30 years in Sweden (2006–2018). Cases were patients with a cardiac event; stratified to serious events (including cardiac arrest, ventricular tachycardia, atrial arrhythmia, supraventricular tachycardia) and non-specified arrhythmias. Five controls were matched by age, sex, and region to each case. The association between ADHD combined with other psychopharmacological therapy and cardiac events was assessed and adjusted for congenital heart disease, psychiatric and somatic disease and somatic medications.

Results:
Overall 6 082 cases with serious cardiac events were matched to 30 410 controls (median age: 22 years; 52% male), and 42 096 non-specified arrhythmia cases were matched to 210 480 controls (median age: 22 years; 51% female). There was an increased risk of non-specified arrhythmias associated with ADHD medication combined with psychopharmacological therapy (AOR = 1.62, 95% CI:(1.43-1.83). No association was found between serious cardiac events and ADHD medication combined with psychopharmacological drug use.

Conclusion:
Exposure to ADHD medication combined with other psychopharmacological therapy can be regarded as safe for serious cardiac events. However, it is associated with a 62% increase in risk of non-specified arrhythmias. This highlights the importance of cardiac assessment when prescribing psychotropic drug therapy to patients at risk.

246. Risk of insomnia in patients with depressive disorder following initiating SNRIs vs SSRIs: A Population based Cohort Study

Faiza Shahid[1], Marietta Rottenkolber[1], Henning Olbrich[2], Ralf Ludwig[2], Tobias Dreischulte[1]

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Background

An expert consensus study identified the use of selective serotonin reuptake inhibitors (SSRIs)/serotonin-norepinephrine reuptake inhibitors (SNRIs) and hypnotics as clinically relevant and potentially problematic prescribing cascades. We aim to assess whether patients initiating SNRIs were at an increased risk of developing

Insomnia and/or hypnotic initiation compared to those initiating SSRIs.

Methods

*Design***:** Population-based cohort study

Setting: The US Collaborative Network in TriNetX Research database (June 2004- June 2024)

Participants: Two cohorts of 1:1 propensity score-matched patients aged 18 years or older. Patients were followed up for a period of 180 days.

Exposure: New users of SNRIs or SSRIs

Main outcomes and Measures: The primary outcome deemed composite endpoint of incident insomnia and/or hypnotic prescription; secondary endpoint was incident insomnia and hypnotic prescription. Incidence rates [IR cases/1000 person-years (PY)] Hazard ratios (HR) and 95% confidence intervals (CI).

Results

In propensity score matching, we identified 18,081 patients pairs who initiated SNRIs or SSRIs. Mean age was 45 years; 66.7% were women. The incidence of composite endpoint was slightly higher SNRIs users (416 cases; IR=25.88 cases/1000 PY) than for SSRI users (352 cases; IR, 21.82/1000 PY). Compared to SSRI users, the initiation of SNRIs has established higher risk by 22% of composite outcome (HR of 1.22; 95% CI, 1.066 – 1.415). (These are preliminary findings; analysis is ongoing and anticipated to be accomplished by the end of March 2025).

Conclusion

Our findings underscore the notable risk of insomnia and hypnotic agents prescribing cascades among new initiators of SNRIs and SSRIs.

Digitalization and databases in DUR

F-KL13/OC11

Petra Denig: **"***Development of computerized algorithms to define deprescribing of cardiovascular and diabetes medication***"**

Pia Vattulainen: **"***Open-source application for estimating treatment episodes: PRE2DUP-R"*

Ghinwa Y. Hayek: **"***An AI powered tool to identify and assess fit-for-use registries for real-world evidence"*

Ivar Veszelei: **"***Introduction of biopharmaceuticals in Europe: opportunities and challenges to compare drug utilization patterns across countries***"**

149. Development of computerized algorithms to define deprescribing of cardiovascular and diabetes medication.

Peter Stuijt[1], Bram Hovius[1], Mette Heringa[2], Katja Taxis[3], Petra Denig[1]

[1]University Medical Center Groningen, Groningen, Netherlands. [2]SIR Institute for Pharmacy Practice and Policy, Leiden, Netherlands. [3]University of Groningen, Groningen, Netherlands

Background: Deprescribing is defined as the process of drug discontinuation, tapering or substitution in order to deintensify treatment. Tools are needed to assess rates of deprescribing using prescription data. We aim to develop computerized algorithms to classify changes in cardiovascular and diabetes medication as potential deintensification.

Methods: Guidelines for deprescribing are used to define changes in treatment (transitions) that can be classified at patient level as: (1) deintensification, (2) no deintensification, or (3) uncertain, requiring individual assessment. Transitions may include discontinuations, switches, additions, and/or dosage changes taking combination treatments into account. The ATC-classification system is used to define drug classes and develop computerized algorithms. The algorithms are tested using prescriptions from Dutch pharmacies.

Results: A first algorithm was developed for lipid-lowering medication. Treatment states at baseline included statin monotherapy, other lipid-lowering monotherapy, fixed and non-fixed combinations with statins and/or other lipid-lowering medication. Fifteen possible transition rules were specified, including eight defining medication deintensification and five requiring individual assessment. Applying the algorithm on data of 55 patients with lipid-lowering medication at baseline resulted in 49 (89%) correctly classified as either deintensification (six patients; four transition rules) or no deintensification (43 patients; one transition rule comparing statin equivalence at baseline and follow-up). The remaining six, including regimens with other lipid-lowering medication, required individual assessment (three transition rules; no deintensification). Seven transitions did not occur.

Conclusion: A computerized algorithm was successfully applied to classify 89% of patients regarding deintensifying lipid-lowering medication. Similar algorithms are developed for other cardiovascular and diabetes medication.

177. Open-source application for estimating treatment episodes: PRE2DUP-R

Pia Vattulainen, Heidi Taipale, Antti Tanskanen

Niuvanniemi Hospital, Kuopio, Finland

Background:

Estimating treatment episodes is a critical step in pharmacoepidemiological studies. PRE2DUP-R is an open-source R package that extends the PRE2DUP method, originally published in 2015, to calculate drug exposure periods from dispensing data.

Methods:

PRE2DUP-R utilizes detailed package-level data to calculate expected refill lengths based on sliding averages of daily defined doses (DDDs) and individual variation for each ATC code. The program also accounts for stockpiling, periods of hospitalization, which interrupt outpatient drug use, and allows users to customize parameters to tailor the calculations according to country specific dispensing regulations. Comprehensive guidelines support the user in configuring these parameters and interpreting the results. While maintaining the core principles of the original method, PRE2DUP-R incorporates updates to address modern data challenges and enhance usability. Validation against the original method has been conducted using Finnish data, and external researchers have tested the program with their datasets.

Results:

Comparisons between PRE2DUP-R and the original PRE2DUP method demonstrate high agreement in the number of exposure periods and total exposure times across individuals and ATC codes. External testers have tested the program using data from different countries and in various computing environments. Program development and testing are ongoing and program will be released in spring 2025.

Conclusion:

PRE2DUP-R offers a robust, shareable tool for estimating treatment episodes in pharmacoepidemiological research. Its adaptability and performance make it a valuable resource for researchers working with large-scale drug dispensing data.

302. An AI powered tool to identify and assess fit-for-use registries for real-world evidence

Ghinwa Y. Hayek[1], Pascal Godbillot[1], Coriande Clemente[1], Sonia Zebachi[1], Gaëtan Pinon[1], Boris Kopin[1], Elisabeth Bakker[2], Sieta T. de Vries[2], Peter G.M. Mol[2], Billy Amzal[1]

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The selection of appropriate real-world data (RWD) sources, particularly registries, is of primary concern for academia, industry, regulators, and health technology assessment bodies since the success of regulatory submissions depends on the quality and relevance of the data. The i**dentification of a RWD appears as a lengthy and burdened process** due to discoverability and accessibility gaps, notably the multiplicity of data catalogues, and unavailability of the metadata.

To address this gap, we developed **an AI-driven tool to support identification, and selection of fit-for use registries** throughout **the drug development lifecycle**.

The tool was developed focusing on **three pillars**: 1) Centralisation of data sources 2) Identification of relevant sources 3) Assessment of available metadata. **For pillar 1**: registries were extracted from HMA-EMA catalogues of real-world data sources, observational studies in Clinicaltrial.gov, and the published literature (PubMed and Semantic scholar). The available metadata were obtained and converged into a "common metadata model" based on **PICOTS** (population, intervention, comparator, time, setting). **For pillar 2:** a hybrid text search algorithm was created to capture context and intent behind the search query, to identify the most relevant sources. Further, filters based on population characteristics such as age group, geographical area and population size help the user narrow down their search. **For pillar 3:** a **large language model** was used to extract relevant information following **PICOTS from unstructured data in publications.**

This AI-powered tool is **a comprehensive platform** to identify adequate registries addressing diverse research questions throughout the entire drug development lifecycle.

21. Introduction of biopharmaceuticals in Europe: opportunities and challenges to compare drug utilization patterns across countries

Ivar Veszelei[1], Brian Godman[2,3], Katri Aaltonen[4,5], Gisbert Selke[6], Kristina Garuolienė[7], Agnese Cangini[8], Amanj Kurdi[2,3], António Rodrigues[9,10], Caridad Pontes[11,12], Carla Torre[13,14], Carlotta Lunghi[15], Edel Burton[16,17], Elita Poplavska[18], Freyja Jónsdóttir[19], Guenka Petrova[20], Irene Langer[6], Irina Iaru[21], Irina Odnoletkova[22], Juraj Slabý[23], Katarina Gvozdanović[24], Leena Saastamoinen[25], Ott Laius[26], Ria Benkö[27], Silvija Žiogaitė[28], Stuart McTaggart[29], Tanja Mueller[2], Thais de Pando[30,11], Tomáš Tesař[31], Zornitsa Mitkova[20], Björn Wettermark[1]

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Objectives: Despite the added value of biopharmaceuticals in the treatment of many diseases, there are few cross-national comparative studies assessing their introduction in different health systems. This study aimed to assess the availability of health authority data and variation in the early diffusion of biopharmaceuticals across Europe.

Methods: A cross-sectional study was undertaken to analyze the diffusion of 17 biopharmaceuticals, approved between 2015 and 2019, among European countries between 2015 and 2022. The study assessed data availability, diffusion rates, measured as Defined Daily Doses per 1,000 inhabitants, as well as relative rankings between countries during the first four years following market authorization.

Results: Twenty countries and two regions out of 31 European countries provided data on biopharmaceutical utilization for out-of-hospital care, 15 provided wholesaler data, and 14 provided hospital data. Certain countries and regions contributed data in multiple categories, while 6 did not provide any data. Diffusion rates were assessed for 17 countries and two regions showing large variation, with secukinumab and erenumab being introduced in most and follitropin delta and tildrakizumab in the least number of countries. Germany, Austria, and Norway demonstrated the highest early diffusion rates, while Lithuania, Romania and Latvia had the lowest.

Conclusion: This study revealed a substantial variation between European countries and regions in the early diffusion of biopharmaceuticals and the availability of data to monitor its use. The reasons behind these patterns require further investigation to support European countries in optimizing the use of biopharmaceuticals.

DUR in pregnancy and paediatrics

F-KL14/OC12

Carole Marxer: *"Exposure to potentially teratogenic medications before and during the first trimester of pregnancy compared to women of childbearing age: A retrospective analysis of Swiss claims data (2015-2021)"*

Silvia Segovia Chacón: **"***Use of hypnotics before, during, and after pregnancy in Sweden 2007-2022***"**

Rami AL-gueri. **"***Beyond Medication: How Danish Adolescents and Young Adults with Mental Conditions Integrate Humanities-Based Approaches in Their Treatment Journeys***"**

Carlotta Lunghi: **"***Two Decades of ADHD Medication Use Among Children, Adolescents, and Young Adults in Quebec, Canada: Prevalence and Patterns***"**

2. Exposure to potentially teratogenic medications before and during the first trimester of pregnancy compared to women of childbearing age: A retrospective analysis of Swiss claims data (2015-2021)

Carole Marxer[1,2], Sereina Graber[3], Daniel Surbek[4], Alice Panchaud[5], Christoph R. Meier[1,2], Julia Spoendlin[1,2]

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Background: Exposure to potentially teratogenic medications before and during the first trimester of pregnancy compared to women of childbearing age in Switzerland is underinvestigated.

Methods: Retrospective study using the Swiss Helsana claims database. In a pregnancy cohort (2015-2021) and a cohort of women of childbearing age (2021), we defined three 90-day time periods: 1) first trimester, 2) preconceptional period (day 180-90 before pregnancy), and 3) 01/01/2021-31/03/2021 (women of childbearing age). During all periods, we quantified the exposure prevalence to ≥1 dispensed weak, proven, and unequivocally potent teratogen overall and by age strata. We quantified the exposure prevalence to each individual teratogen, and to valproate during pregnancy by calendar year to compare its use before and after the introduction of a pregnancy prevention program (2018).

Results: Of 34584 pregnant women, 1.4% were exposed to potential teratogens during the first trimester (weak: 1.3%, proven: 0.06%, unequivocally potent: 0.04%). During the preconceptional period, 2.9% were exposed to any teratogen vs 4.7% of women of childbearing age (N_{total}=95059). Systemic glucocorticoids were the most prevalent weak teratogens during all time periods. In the first trimester, cotrimoxazole and thiamazole (weak teratogens), ranked second/third, followed by carbamazepine and topiramate (proven teratogens). Valproate use during pregnancy decreased after the introduction of a pregnancy prevention program (2.39/10000 [2015-2018] vs 0.93/10000 [2019-2021] pregnancies).

Conclusion: Most potential teratogens dispensed to women of childbearing age and pregnant women were weak teratogens. Many women discontinue treatment before pregnancy. Preliminary evidence suggests the valproate pregnancy prevention program in Switzerland may be beneficial.

229. Use of hypnotics before, during, and after pregnancy in Sweden 2007-2022

Silvia Segovia Chacón, Pär Karlsson, Johan Reutfors, Carolyn E Cesta

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Background

Sleep disorders are common in pregnancy and may warrant pharmacological treatment. We aimed to describe the use of hypnotics before, during, and after pregnancy in Sweden.

Methods

Pregnant women in Sweden between 2007-2022 were identified from the Medical Birth Register (n=1,754,381 pregnancies) and linked to prescription fills of propiomazine, zopiclone, zolpidem and melatonin in the Prescribed Drug Register. The proportion of pregnant women with ≥1 prescription fill: 1) from last menstrual period (LMP) to delivery by year, and 2) within 1-week intervals from 9 months before LMP to 9 months after delivery, was investigated.

Results

From 2007 to 2022, there was an increasing proportion of pregnant women using propiomazine (0.81% to 1.06%), zopiclone (0.28% to 0.54%), and melatonin (0% to 0.40%, with a 2021 peak of 0.53%), whereas zolpidem decreased (0.32% to 0.25%). By 10 weeks after LMP, the proportion of pregnancies with prescription fills for zopiclone, zolpidem and melatonin decreased by approximately 70% and continued to decrease through the remainder of the pregnancy period, while for propiomazine it decreased by around 30% by 10 weeks after LMP and began to increase at 25 weeks after LMP. For all four drugs, the proportion of women with prescription fills steadily increased over the 40 weeks after delivery but did not return to the pre-pregnancy levels.

Conclusions

Use of hypnotics in pregnant women in Sweden is low but increased over the study period. These findings highlight the need for evidence of their safety in early and late gestation and during lactation.

205. Beyond Medication: How Danish Adolescents and Young Adults with Mental Conditions Integrate Humanities-Based Approaches in Their Treatment Journeys

Lourdes Cantarero Arevalo, Rami Al-Ghreri

University of Copenhagen, Faculty of Health and Medical Sciences, Department of pharmacy, Copenhagen, Denmark

Background: Low adherence to psychotropic medication is common among adolescents and young adults (AYA) with mental health conditions. Many supplement medication with coping strategies like metacognitive therapy, sports, yoga, meditation and humanities-based approaches, which show positive outcomes. However, little is known about how these approaches interact with pharmaceutical treatment regarding adherence and deprescribing. Aim: To explore how Danish AYA combine medications with humanities-based approaches and how these practices influence their treatment experiences, including deprescribing.

Methods: Dialogical research and photovoice were conducted with 46 participants (aged 18–29) from different ethnic backgrounds. All participants were diagnosed with an affective disorder, received a prescription for psychotropic medication at some point, and engaged in humanities-based activities. To address participants' vulnerability, dialogues were guided by a narrative ethics framework (Frank, 2017). Recruitment occurred via social media and networks, with informed consent obtained. Data collection (February 2019 – February 2024) followed GDPR, with consent obtained from all participants.

Results: Among the 30 women and 16 men, only half were actively taking their medication, often discontinuing it due to side effects, ineffectiveness, or weight gain. Most combined medication with humanities-based activities but sought a balance, finding both approaches necessary. Group participation and intrinsically motivated activities were most effective. Medication was seen as a short-term crisis tool.

Conclusion: AYA often resists long-term psychotropic use, preferring it for acute crises. Humanities-based approaches, especially in group settings, can provide valuable support. These findings emphasise the need for holistic, patient-centred strategies that integrate medical and non-medical mental health care.

144. Two Decades of ADHD Medication Use Among Children, Adolescents, and Young Adults in Quebec, Canada: Prevalence and Patterns

Carlotta Lunghi[1,2,3], Alvine Fansi[4,5], Martin Gignac[6], Fatoumata Binta Diallo[7], Louis Rochette[7], Victoria Massamba[7], Eric Pelletier[7], Helen-Maria Vasiliadis[5,8], Elham Rahme[9], Samuele Cortese[10,11,12], Alain Lesage[7,13]

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Background

The prevalence of attention-deficit/hyperactivity disorder (ADHD) and its treatment has increased globally. This study aimed to examine trends and patterns of ADHD medication use among individuals aged ≤24 years in Quebec, focusing on variations by sex, age, deprivation, and medication type.

Methods

We conducted a repeated cross-sectional study using Quebec's medico-administrative data from April 1, 2000, to March 31, 2022. We calculated crude and age-adjusted prevalence rates with 95% confidence intervals. Analyses were stratified by sex, age, material and social deprivation, and medication type (stimulants [amphetamine- and methylphenidate-based] and non-stimulants [atomoxetine and guanfacine]). Age-adjusted proportions were analyzed by prescriber specialty.

Results

Among 4,771,183 individuals aged ≤24 years, 7.7% claimed ADHD medications. The age-adjusted prevalence of ADHD medication use increased from 1.9% in 2000 to 7.9% in 2017, then stabilized. Males had consistently higher use than females, and prevalence was highest among children aged 6–11 and adolescents aged 12–17. Stimulants dominated prescriptions, but prescribing patterns shifted: methylphenidate claims decreased from 90.0% of all ADHD prescriptions in 2000 to 53.7% in 2017, while amphetamine claims rose from 10.5% to 32.6%. ADHD medication use was more prevalent in economically disadvantaged areas, with disparities widening over time. Family physicians have overtaken pediatricians as the primary prescribers in recent years.

Conclusions

ADHD medication use has increased significantly in Quebec, reflecting broader diagnostic criteria and increased awareness. However, prevalence has plateaued in recent years. Disparities in use by sex, age, and economic status need further evaluation and continuous monitoring of prescribing trends.

Abstracts of digital posters and short oral communications

All conference posters are digital and they are displayed by theme in the university gallery. Short presentations will be organized in parallel sessions on Wednesday and Thursday as presented below:

		Wednesday	**Thursday**
Room	**Session**	**Topic**	**Topic**
I	14:15	Adherence 1	Adherence 2
	14:45	Safety 1	Safety 4
	15:15	Late breaking 1	Late breaking 2
IV	14:15	DU Pediatrics	DU Old age
	14:45	Quality 1	Quality 2
	15:15	Method 1	Method 2
VIII	14:15	Cross National Comparisons	Big data
	14:45	Therapeutic areas 1	Therapeutic areas 3
	15:15	Environment	Accessibility
IX	14:15	Health policy 1	Health policy 3
	14:45	DU other populations	Patient perspectives
	15:15	Therapeutic areas 2	Polypharmacy 2
X	14:15	Antibacterials	Antidiabetics
	14:45	Health policy 2	Health policy 4
	15:15	Safety 2	Safety 5
XI	14:15	Interventions 1	Interventions 2
	14:45	Polypharmacy 1	Polypharmacy 3
	15:15	Safety 3	Crises

Accessibility

13. High-Cost Medicines in Health Litigation in Brazil: a scoping review (2005-2022)

Claudia G. S. Osorio-de-Castro[1], Livia Teixeira de Mattos[1], Ione A .Gualandi de Oliveira[2], Patricia Krauze de Almeida[1], Rosângela Caetano[2]

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[2]Instituto de Medicina Social, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil

Background

A substantial portion of lawsuits for access to medicines in Brazil involve high-cost medicines (HCM), of which very little is known. The participation of HCMs and their characteristics was investigated in Brazilian scientific and academic literature on health litigation, from 2005 to 2022.

Methods

A scoping review was conducted. MEDLINE, EMBASE, LILACS, Web of Science, and Scopus, as well as the Digital Theses and Dissertations Library were used as search sources for empirical studies of health litigation that included HCMs. Pairs of independent reviewers performed selection and extraction of data, and a third researcher resolved disagreements. All medicines were classified according to ATC, and a dataset was produced in Excel®.

Results

Sixty-two articles and 66 theses and dissertations included 138 different HCMs. The main ATC groups were antineoplastic and immunomodulating agents (L), alimentary tract and metabolism agents (A), and systemic antiinfectives (J). A meaningful number of HCM were not financed by the Brazilian Public Health System. The Specialized Pharmaceutical Services Component, for products with greater unit or therapeutic costs, included those that were. Adalimumab; bevacizumab, tiotropium bromide, quetiapine hemifumarate, infliximab, long and fast-acting insulin analogs, methylphenidate, ranibizumab; rituximab and trastuzumab appeared in 30% or more of studies.

Conclusions

There was substantial heterogeneity in how HCMs were reported across the studies, resulting in the impossibility of establishing the financial burden of HCMs in the scenario of medicines litigation in Brazil. Most HCMs referred to in the studies were biologics, oncology medicines or insulin analogs and those employed for rare diseases.

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116. A Study of Recent Trends in Clinical Efficacy Evidence for Marketing Authorization of Orphan Medicinal Products by the EMA and the FDA

Elise Nordenberg[1], Ira Palminger Hallén[2], Diana-Ioana Lupu[1], Faranak Azarbayjani[1]

[1]Uppsala University, Uppsala, Sweden. [2]RegSmart Life Science AB, Uppsala, Sweden

Background: An orphan medicinal product is a medicine for the treatment of rare diseases. In Europe (EMA) and the U.S. (FDA), there are guidelines applicable to rare disease drug development. There are limited reviews on orphan medicine approvals, and a recent FDA guideline on additional confirmatory data to substantiate one pivotal study has raised the interest of studying the type of clinical evidence of effectiveness used in orphan medicine approvals.

Aim: This study aimed to characterize current clinical efficacy evidence in marketing approvals of orphan medicinal products at the EMA compared to the FDA.

Method: Data was extracted from publicly available marketing authorization documents issued by the EMA in the past two years that also received an FDA approval.

Results: The majority of orphan medicinal product approvals (21 of 24) was based on one pivotal study. Of these, around half included supportive data (43% EMA, 57% FDA), of various kinds. Uncontrolled, non-randomized, single-arm study designs were seen in 26% and 33% of EMA and FDA pivotal studies, respectively. Open-label designs were seen at 37% and 44%, respectively. The pivotal studies had a median of 103 participants (range 24-432).

Conclusion: Both the EMA and the FDA seemed flexible in the evidence required, by accepting less comprehensive data with a higher risk of uncertainty compared to what is generally required in a standard application. This flexibility applies to the pivotal study designs, quantity of clinical study evidence and the acceptance of supportive data as additional confirmatory evidence.

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130. Access to medicines in primary health care facilities (PHCF) of a municipality in the southeast of Brazil.

Elaine Miranda, Letícia de Castro, Isabelle Martins, Arthur Antonio Silva, Maria Eduarda Piassabussú, Maria Carolina do Couto, Gabriela Mosegui

Universidade Federal Fluminense, Niterói, Brazil

In Brazil, the Unified Health System (Sistema Único de Saúde or SUS) guarantees universal health care coverage which includes access to medicines. Besides having the right product, for a specific purpose, access to medicines requires quality assurance and information for proper use. We aimed to analyze dimensions of access to medicines in 60 primary health care facilities in a municipality in the southeast of Brazil. Patients leaving the pharmacies were approached to answer a questionnaire with close-ended questions regarding availability, accommodation, accessibility, affordability, and acceptability. The Research Ethics Committee of Universidade Federal Fluminense approved the research. A total of 290 patients were interviewed, 61.7% did not receive all the medicines sought in SUS public pharmacies in the last three months. The cleanliness and comfort of the pharmacy received positive ratings by 73% and 43.8% of the participants, respectively. The distance between the pharmacy and the participants' residences was considered close by 60.7%. The financial impact due to health-related expenses was reported by 35.9% of respondents, with the main reasons being the purchase of medicines (71.8%) and expenses with medical consultations or exams (50.5%). Finally, 79.2% said that the service in SUS pharmacies was respectful and courteous; however, 54.9% reported that staff did not provide information on how to use the medicines. To ensure access, the results highlight the need to improve the availability of medicines and guidance to users on their proper use.

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181. Stakeholder Engagement in Developing Frameworks for Systematic Updates to Brazil's Primary Health Care Essential Medicines List

Luciane Cruz Lopes[1], Jardel Corrêa de Oliveira[1,2], Maria Ondina Paganelli[3]

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Background

Maintaining an updated Essential Medicines List (EML) for Primary Health Care (PHC) based on the best available evidence requires periodic evaluation of medicines. This study aimed to develop and validate frameworks to identify medicines needing review and updates in Brazil's National List of Essential Medicines (RENAME) for PHC.

Method

An initial framework was developed to identify medicines in RENAME requiring evaluation for potential updates. This framework was refined through a hybrid Delphi process, involving policymakers, decision-makers, researchers, health professionals, and representatives of civil society. After adjustments were made, a guideline for its application was created and validated via public consultation.

Results

Twelve frameworks were developed to address analysis needs, organized into three domains: (1) legal considerations, (2) essentiality of medicines, and (3) RENAME structure. A comprehensive guideline was also produced, detailing these frameworks, their guiding questions, underlying rationale, and a table of information sources required to support the evaluation process.

Conclusion

The involvement of diverse stakeholders ensured the creation of a systematic, transparent, and accountable framework for updating essential medicines. These frameworks offer a practical tool for improving PHC-based EMLs and could be adapted for use in other countries with universal health systems centered on PHC.

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225. Characterising medication use and complexity among people with Sjögren's Disease and their relationship with treatment and financial burden

Jessica Bennett[1], Caroline McCarthy[1], Gráinne Tynan[1], Nikki Dunne[1], Patrick Dineen[1], Constanza Saka[1], James Larkin[1], James Barlow[1], Eoghan McCarthy[1,2], Michelle Flood[1], Frank Moriarty[1]

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Background

Sjögren's is a chronic, systemic autoimmune disease which occurs alone or alongside other autoimmune diseases. Little is known about medication prescribing patterns or treatment complexity, and their impact on the treatment and financial burden experienced by people with Sjögren's. This study aims to examine medication use and complexity among people with Sjögren's, and the factors influencing this.

Methods

In this cross-sectional study, people with Sjögren's in Ireland were invited to participate in an online (or postal/telephone) survey. Information collected includes demographics (age, ethnicity, gender, education), prescribed medications (name, strength, dose, formulation), and co-morbidities. Information was also gathered on healthcare utilisation and expenses, treatment burden (using the Multimorbidity Treatment Burden Questionnaire) and financial burden (using the COST tool).

Results

Results will describe participant demographics and co-morbidities. Medication use will be summarised as the number of medications, presence of polypharmacy (5+ medications), and prevalence of specific medications/drug classes. The medication complexity regimen index will be applied to each participant's medication details, capturing the number of medications, doses and formulations that can influence complexity of their medication use. Factors associated with medication regimen complexity (demographics, number and types of medications and co-morbidities) will be evaluated using multivariable linear regression, presenting beta coefficients and 95% confidence intervals. Similarly, associations between complexity and treatment and financial burden will be evaluated.

Conclusion

Findings will enhance our understanding of medication use and prescribing patterns in Sjögren's. This will inform strategies to improve Sjögren's care and reduce the associated burdens of treatment through optimising prescribing.

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250. Factors Influencing E-Pharmacy Adoption: A Study on Patient Perspectives in Lithuania

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Background
Online pharmacy sales of over-the-counter (OTC) medicines were legalized in Lithuania in 2016, with amendments in 2022 allowing the remote purchase of e-prescribed medications. Despite this, adoption remains low, with only 0.1% of e-prescriptions filled through e-pharmacies. Understanding patient perspectives is essential to increasing uptake and awareness of alternative medication access. This study assesses respondents' knowledge, opinions, and experiences regarding remote medicine purchases.

Methods
A cross-sectional study was conducted using an anonymous online survey hosted on the Qualtrics platform (April–May 2024). A non-probability sampling approach was applied combining convenience, targeted, and snowball sampling. Descriptive statistics were performed using R software.

Results
Among 1,032 respondents, 66% were aware of e-pharmacy services, but 24% were unaware of the option to authorize another person to purchase medicines on their behalf. Most respondents who had e-prescribed medicines obtained them at a physical pharmacy due to convenience. Notably, only 48% consistently obtained their medications from the same pharmacy. The likelihood of intending to purchase medicines online decreased by 2% with each additional year of age. Gender, education, and experience with online shopping were not associated with e-pharmacy use. Key barriers to e-pharmacy use included the short distance to a physical pharmacy, long delivery times, and the inability to obtain all necessary medications in one order.

Conclusions
Although most respondents were aware of e-pharmacy services, physical pharmacies remained the preferred choice. Strategies to encourage e-pharmacy use include expanding product availability, offering competitive pricing, ensuring fast and free delivery, and providing real-time pharmacist consultations.

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265. Investigation of the potential for in- and outpatient antimicrobial therapy (IPAT/OPAT), using elastomeric 24h infusion pumps (EIP), at Uppsala university hospital.

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Background:
Uppsala University Hospital is currently facing challenges related to a shortage of hospital beds and nursing staff. To address these issues, the introduction of inpatient and outpatient parenteral antimicrobial therapy (IPAT/OPAT) using elastomeric 24-hour infusion pumps (EIP) has been proposed. IPAT EIP aims to reduce nursing time spent preparing and administering antibiotics, while OPAT EIP would allow patients to receive intravenous (IV) antibiotics at home, thereby freeing up hospital beds.

Aim:
This study aims to assess the potential for implementing IPAT and OPAT EIP at Uppsala University Hospital, focusing on volume and potential reductions in bed occupancy and nursing hours.

Methods:
A retrospective review of electronic health records (EHRs) from 30 wards was conducted to identify patients eligible for IPAT/OPAT EIP based on predefined criteria. Eligibility for IPAT EIP included cognitively intact patients receiving benzylpenicillin, cloxacillin, cefotaxime, or piperacillin/tazobactam, administered three to four times daily for a minimum of two days.

Results:
Out of 476 screened patients, 147 were treated with IV antibiotics, and 60 were deemed eligible for IPAT EIP. Hypothetical administration of 24-hour infusion pumps for these patients would reduce nursing time spent on preparation and administration from 66 to 5 hours. Additionally, four potential OPAT patients were identified, with a total estimated saving of 60 bed days.

Conclusion:
The implementation of IPAT and OPAT EIP at Uppsala University Hospital has the potential to substantially reduce nursing time and hospital bed occupancy. Further planning and resource allocation are necessary for successful implementation

Adherence

112. How do medicine users remember to take their medicines?

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Background

Adherence is crucial for the effectiveness of medicines. However, it is known to be suboptimal. One reason for nonadherence is forgetfulness. There are different methods that medicine users can use to remember to take their medicines (e.g. pill boxes), but little research has been done on the topic. The aim of this study is to identify which methods medicine users typically use to remember to take their medicines, what user characteristics are associated with the use of different methods, and whether the use of these methods is associated with self-reported medication adherence.

Methods

The study data are based on the Finnish Medicines Barometer, a biannual population survey carried out by the Finnish Medicines Agency. In 2023, the survey included a module on medication adherence where respondents were asked what kind of methods they use to remember to take their medicines and whether they have forgotten to take their medicine in the past month. The study data will be analyzed using frequencies and logistic regression.

Results

There were 2,020 respondents to the survey. Over 70% of them used at least one prescription medicine regularly or as needed. The results of the statistical analyses will be presented in the conference.

Conclusion

Identification of methods used to remember to take medicines and their association with medication adherence can help health care professionals in medicine counselling to support medicine users' adherence.

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122. Annual medication consultation among direct-acting oral anticoagulant users in the pharmacy refill service: experiences of pharmacy staff and patients

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***Background**:* Implementation of adherence interventions is challenging due to barriers in clinical practice. Living lab "Amersfoort" introduced a pharmacy-led intervention to improve medication adherence by the introduction of an annual medication consultation. This study aimed to evaluate the experiences of patients and pharmacy technicians (PTs) with this annual medication consultation to enhance medication adherence and did so among DOAC-users using the pharmacy refill service.

***Method**:* After each consultation, PTs completed a checklist to determine intervention fidelity. Semi-structured interviews were conducted among patients and PTs. Interviews were recorded and transcribed verbatim. Thematic analysis following elements of the RE-AIM framework was used.

Results: A total of 114 registration forms were filled out. Consultations lasted on average 26 minutes. The component that was implemented most frequently was the questions whether the patients had questions (92%), the least often implemented was the offering of solutions (58%) as this was no always needed. Ten PTs and 21 patients from the three participating pharmacies were interviewed.

Facilitating factors in performing the consultation were communication training, the TRIAGE question set and being able to prepare for the consultations. Patients appreciated the improved contact and medication use checks. PTs mentioned clarifying the goal, matching planning to workload, being more involved during the implementation process and better documentation as key factors for sustainability.

***Conclusion**:* Implementing an annual medication consultation is feasible and supported by PTs and patients. Fidelity can be improved. The consultation is a way for pharmacies to increase visibility and build a trusting relationship with patients.

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145. Patient-centred complex intervention to improve Initial Medication Adherence in primary care (the IMA-cRCT study): a mixed-methods process evaluation

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Introduction: The Initial Medication Adherence (IMA) intervention aims to improve adherence to cardiovascular disease and diabetes treatments in primary care (PC) by promoting Shared Decision-Making (SDM) and interprofessional collaboration (GPs, nurses and pharmacists). This process evaluation assessed intervention implementation and integration into routine practice, explored its active mechanisms, and identified contextual factors influencing it.

Methods: The IMA-cRCT is an effectiveness-implementation cluster-RCT involving 24 Spanish PC centres (>300 professionals;>3,000 patients) based on real-world evidence. The nested process evaluation included quantitative and qualitative methods. Operational records and professional questionnaires were descriptively analysed to assess implementation and integration into practice. Qualitative methods involved framework analysis of field diaries, 36 semi-structured interviews and 2 focus groups to assess patients' and professionals' experiences.

Results: Intervention implementation fidelity (6.5/10) and integration into clinical practice (7.6/10) were adequate, especially for SDM and use of decision aids. Professionals SDM knowledge and attitudes improved as they recognised the importance and applicability to practice. Some patients reported participation in the decision-making process, although others preferred the GP to make decisions on their behalf. Patients found decision aids helpful in understanding information. Contextual factors influencing the intervention were mainly organisational (e.g. lack of time and familiarity with SDM).

Conclusions: The interprofessional SDM IMA intervention is considered feasible and acceptable in PC. The intervention was important for professionals, and patients accepted it overall. However, greater effort is needed moving towards patient-centred care models. These results have enhanced understanding of the IMA-cRCT results and support the refinement of the intervention for future implementation.

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153. Identifying and Contributing Medication Adherence Technologies Available in Ireland to the "European Network to Advance Best practices & technology on medication adherence" Repository

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Background

The European Network to Advance Best Practices & Technology on Medication Adherence (ENABLE) aims to improve medication adherence by raising awareness, enhancing understanding, accessing innovative technologies and practices, and advocating for cost-effective policies. The ENABLE repository serves as a central hub to identify and access Medication Adherence Technologies (MATech). However, the availability and accessibility of such solutions in the Republic of Ireland remain underexplored. This study sought to identify MATech available in Ireland and include their descriptions into the ENABLE repository.

Methods

A systematic search was conducted in the Apple and Google Play App Stores in June 2024, complemented by searches of PubMed, Web of Science, IEEE Xplore, and EBSCO in July 2024. Search terms included "medication adherence," "medication compliance," "digital health," and "Ireland." Eligible MATech were available in English and purchasable in the Republic of Ireland. From July to August 2024, developers of eligible MATech were surveyed to collect detailed information, aiding in mapping and inclusion in the ENABLE online repository.

Results

A total of 388 applications were identified from app stores, alongside 75 technologies retrieved via literature search. After applying eligibility criteria, 132 developers were invited to participate in the survey, and 16 confirmed their technologies' suitability for the repository. Of these, 12 were software-only solutions, while four integrated both hardware and software components.

Conclusion

Mapping the current MATech offer in Ireland has proven challenging. Our findings underscore the value of a centralised repository and the need for further stakeholder collaboration in promoting MATech accessibility and use.

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158. Outcomes of pharmacy-driven living labs implementing adherence interventions in the Netherlands: a mixed method study using the RE-AIM framework

Marcia Vervloet[1], Caroline van de Steeg[2], Mirthe Oude Lansink[3], Emily Baho[4], Laura Schackmann[1], Ruby Janssen[5], Liset van Dijk[1,4]

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Background

Four pharmacy-driven living labs implemented consultation-based medication adherence interventions in routine primary care. This study evaluated the implementation outcomes of these living labs.

Methods

This was a mixed-method study. Interviews were held with the four project leaders from the living labs after their project ended and were transcribed verbatim. Data were extracted from documentation generated by the living labs and Make-It consortium that guided and evaluated the living labs (e.g. reports of qualitative and quantitative research in the living labs, meeting minutes, logbooks). The Reach Effectiveness Adoption Implementation Maintenance (RE-AIM) framework was used to guide data collection, data extraction and analyses.

Results

Reach was successful as three living labs included (more than) their anticipated patient numbers. The fourth lab aimed to include all patients in their refill service, which was not feasible in their project duration. The majority of the pharmacy staff adopted the interventions. A highly motivated project leader and appropriate staff training facilitated adoption and implementation. Pharmacy staff and patients appreciated the interventions, strengthening their contact. Fidelity was high in all living labs. Implementation was facilitated by interventions being compatible, good leadership, intrinsic motivation of staff, and by short-cycle evaluations before scaling up. Patient-reported outcomes improved in all living labs. The interventions were not sustained in three labs due to limited capacity and finances.

Discussion points

Implementation of adherence interventions in primary care can be successful, but requires large investment to create support amongst all involved as well as to come to sustainable implementation.

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210. Pharmacy Labels and Written Information on Medication Adherence: PLIMA study protocol

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Background

It is the key responsibility of health care specialists to provide patients with readable and understandable information about their medication. Pharmacy labels are first seen as a safety measure that supports the safe and appropriate use of medicines. Yet some studies show that pharmacy labels could also be associated with improved medication adherence. Guidelines on pharmacy labels and written information vary across European countries. The aim of this study is to compare pharmacy label requirements and use in practice across European countries.

Methods

In this cross-sectional descriptive study, data from all European countries will be collected. Identified key opinion leaders will be contacted to collect pharmacy labelling information, including image examples, national legal requirements and perception on pharmacy label as medication adherence measures alongside responders' information. The study aims at 3 to 4 key opinion leaders or health care professionals per country. Respondents will be recruited through the COST Enable network by e-mail, and responses will be collected through the Qualtrics survey platform. Descriptive statistics will be used to analyse responses. Content, visual, and contextual analyses will be used on the images provided.

Results

This far, the recruitment process has started. The questionnaire has been created and is undergoing piloting. Primary results are planned in May 2025.

Conclusions

The findings of the PLIMA study have the potential to offer valuable insights into differences of pharmacy labelling and written information across countries. The results may inform decisions for better patient care and improved medication adherence.

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230. Community pharmacy-based motivational counseling and statin adherence: evidence from a nationwide Swedish cohort Study

Karin Svensberg[1], Björn Wettermark[1,2], Jenna Ramsin Eklund[1], Mohammadhossein Hajiebrahimi[1], Marie Ekenberg[1], Albin Tranberg[1], Sofia Kälvemark Sporrong[1]

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Background: Low adherence to statins, essential for reducing cardiovascular morbidity and mortality, is a well-documented issue. Community pharmacy services have been recognized as a potential strategy to improve adherence in this patient group.

Aim: To evaluate the effect of a motivational counseling service in Swedish community pharmacies in terms of persistence to treatment directed towards new statin users.

Methods: This cohort study compared one-year statin (ATC C10AA) persistence in patients who newly started statin and receiving a pharmacy-based counseling service (Oct 2022–June 2023) with matched controls (age and sex) from patients who newly started statin but not receiving the service. National register data on dispensed drugs, diagnoses, and socioeconomics were analyzed, and persistence odds ratios were estimated using adjusted logistic regression (socioeconomics, cardiovascular comorbidity).

Results: A total of 902 patients who received the service were included. Compared to the 4,510 age- and sex-matched controls, they had higher education and income, were more often Swedish-born, and had a lower prevalence of previous cardiovascular disease. The proportion of patients who continued to claim their statin prescriptions after one year was significantly higher among those who received the service compared to controls (80.2% compared to 73.6%). Adjusted odds ratios for being persistent after the intervention was OR=1.43 (95%CI: 1.19-1.71).

Conclusion: A motivational consultation service in community pharmacies enhances statin persistence one year after initiation Its impact could be further strengthened by targeting patient groups with low persistence

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234. Adherence trajectories to hypertension treatment among older individuals: effect of depression and anxiety

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Objectives:

This study aims to explore the adherence trajectories to antihypertensive medications among older adults in Quebec, Canada and examine the potential influence of anxiety and depression on these trajectories.

Methods:

Utilizing data from the *enquête sur la santé des aînés et l'utilisation des services de santé* (ESA-S) study, we analyzed a cohort of 986 older adults (aged 65 and above) who were using antihypertensive treatments. Adherence was measured using the Continuous Multiple-Interval Measures of Medication Availability 9th version (CMA9) method over a 12-month period. Group-Based Trajectory Modeling (GBTM) was employed to identify distinct adherence trajectories. Self-reported symptoms and diagnostic codes for anxiety and depression were used to assess for mental health disorders. Associations between depression or anxiety and adherence trajectories were investigated using logistic regression models adjusting for potential confounders.

Results:

Two distinct adherence trajectories were identified: a consistently adherent group (84.6%) and a consistently non-adherent group (16.4%). There was no significant association between the presence of anxiety or depression and adherence trajectories with adjusted odds ratios of 1.0 (95% CI: 0.6-1.6) for depression and 1.2 (95% CI: 0.8-1.9) for anxiety.

Conclusions:

While most older adults in the study maintained high adherence to antihypertensive medications, a notable minority demonstrated consistent non-adherence. The absence of a significant relationship between mental health disorders and adherence underscores the need for further investigation into other factors influencing medication adherence in this population.

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240. Medication adherence in the curricula of future European physicians, pharmacists and nurses - a cross-sectional survey

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Aim

There is limited knowledge on how medication adherence (MA) is taught to pre-graduate students. This study explored to what extent medicine, pharmacy and nursing students receive education about MA.

Methods

A cross-sectional study was conducted with an online survey and text analysis of submitted curricula. The survey inquired about definitions of adherence and related terms (ABC taxonomy); methods to identify, monitor and support non-adherence; consequences and outcomes of non-adherence, and other course characteristics. It was distributed between February and June 2024 to 731 persons teaching relevant courses across 142 European universities. The curricula inventory and free-text answers were analyzed using word frequency and thematic analysis, respectively.

Results

In total, 212 persons from 114 universities in 34 countries completed the survey. The ABC Taxonomy was extensively taught in pharmacy (73%), followed by nursing (60%) and medical education (52%). Respondents agreed to similar level on the need to emphasize MA, with 72% agreement in pharmacy, 71% medical, and 59% nursing education. The clinical impact of non-adherence was the most commonly taught topic, according to 89% respondents in pharmacy, 84% medical, and 76% in nursing education. The curricula inventory showed considerable heterogeneity in how MA content was described, and identified keywords such as: rational drug use, compliance and drug regimen.

Discussion and conclusion

Our findings indicate a lack of consistent MA education, highlighting the need to develop a unified curriculum for the subject considering the ABC taxonomy, and to facilitate a more patient-centered approach to improve MA.

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247. Associations between lifestyle and initiation of Cardiovascular Preventive Medicines – A prospective cohort study based on the VipViza-trial

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Background/Aim: Medicine-use complements a healthy lifestyle in cardiovascular disease prevention, but knowledge is lacking on how behaviours in these domains are related. This study aimed at investigating associations between physical activity level and diet, and time to initiation of cardiovascular preventive medicines.

Method: A cohort study within the "Visualization of Asymptomatic Atherosclerotic Disease for Optimal Cardiovascular Prevention" (VipViza)-trial, including 60-year-olds of low and moderate cardiovascular risk, treatment-naïve to antihypertensive or lipid-lowering medicines six months prior to trial-inclusion. Based on self-assessed physical activity and diet, participants were categorized in tertiles (least healthy– moderately healthy – healthiest) regarding each behaviour. Using dispensing data from Prescribed drug register, time to initiation of medicines was evaluated by sex-stratified Cox regression-analyses.

Results: Of 1893 participants, 197 initiated antihypertensive, and 263 initiated lipid-lowering medicines. In women, the healthiest diet was associated with faster (HR [95%CI] 2.457 [1.175-5.137], ref. least healthy), and moderate or high physical activity level with slower (HR[95%CI], moderate;0.511(0.297-0.880), high;0.483[0.304-0.766], ref. low) initiation of antihypertensive medicines. There were no significant associations between health behaviours and time to initiation of antihypertensive medicines in men, or lipid-lowering medicines in either sex.

Conclusion: The relationship between lifestyle and medicine initiation varies with health behaviour, drug-class, and sex. Regarding dietary habits, initiation of antihypertensive medicines in women agrees with the healthy adherer effect, whereas in the case of physical activity, additional factors seem to contribute to an inverse relationship. Current health behaviours do not seem related to the initiation-rate of lipid-lowering medicines.

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255. Improving the Cloud solution, Cassette, and Dispenser for an e-Dosette – a Design Thinking approach

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Background

In home care services, nurses fill weekly pill boxes for patients. Pill boxes can however be filled incorrectly, double-checking is cumbersome, and they are sometimes given to the wrong patient. The Mobili™ e-dosette is the only digital smart dispenser developed and produced in Norway. A unique RFID system connected via the 4G network, ensures that the right patients receive the correct cassette in the dispenser.

The aim of this study was 1) to study challenges home care nurses face with the medication management workflow of manual pill boxes, and 2) to innovate new and improved functions for the e-dosette before it is put on the marked for sale.

Methods

An interdisciplinary team took a Design Thinking approach, including observations in medicine rooms, site visits to technology companies, stress testing the app, cassette and dispenser, workshops with home care nurses, and reviewing all irregular dosing regimens for oral medications in Norway.

Results

The home care nurses spent considerable time on filling and double-checking pill-boxes. The Design Thinking approach resulted in new functions in the cloud solutions for setting up medicine plans and dosing regimes, new workflow procedures for the cloud assisted filling of the e-dosette, digital confirmation of doble-checks, and digital signatures for who and when these were performed.

Conclusion

We developed new functions for the cloud solution which were tested and implemented. We developed a more efficient and safer workflow for nurses when filling and doble-checking the medicines in the e-dosette.

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272. A data-driven method to evaluate the relation between medication adherence phases and drug utilization patterns: Real-World Evidence analysis on dermatological conditions

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Aim: Chronic dermatological conditions such as psoriasis and Atopic Dermatitis (AD) often require long-term pharmacological treatments, where Medication Adherence (MA) is critical to achieving optimal outcomes. This study aims to evaluate adherence patterns and drug utilization across dermatological conditions, focusing on biologics and topical therapies.

Methods: A retrospective observational study was conducted from an Italian sample (10% national representativeness). Patients diagnosed with psoriasis or AD treated with biologic drugs (e.g., secukinumab, dupilumab) and topical therapies (e.g., tacrolimus) between 2015 and 2022 were identified. A dynamic evaluation of MA was conducted using data-driven methods applied to an electronic health-related database. According to the EMERGE guidelines, MA evaluation involved the initiation (primary adherence) and persistence (discontinuation at 6 and 12 months) phases, incorporating variations in drug utilization patterns.

Results: Among patients with biologics, adherence at 6 months was 71% for psoriasis and 86% for AD. At 12 months, these rates declined to 62% and 68.7%, respectively. In contrast, topical tacrolimus for AD showed lower adherence, with persistence rates of 60% at 6 months and 22.5% at 12 months. Median treatment durations were longer for biologics (psoriasis: 8.5 months; AD: 4.4 months) compared to topical therapies (2.6 months for tacrolimus).

Conclusions: Biologics demonstrate better MA rates compared to topical therapies in dermatological treatments, highlighting their role in improving long-term outcomes. These findings highlight the importance of treatment personalization and support interventions to optimize MA and improve outcomes in chronic dermatological conditions.

280. Comparing Medication Adherence Strategies in Italy and Europe: Insights from the ElderCare Project

Sara Mucherino[1,2], Luca Pasina[3], Manuela Casula[4,5], Carlotta Lunghi[6,7,8], Emanuel Raschi[6], Andrea Rossi[4,5], Marco Salluzzo[6], Stefano Scotti[4,5], Valentina Orlando[1,2], Alessandro Nobili[3], Elisabetta Poluzzi[6], Enrica Menditto[1,2]

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Introduction: Medication adherence (MA) is an increasingly critical challenge, particularly among older adults on polypharmacy. This study investigated strategies for improving MA in Italy and benchmarks them against European findings. This research is embedded in an EU-funded Project (NextGenerationEU).

Methods: A cross-sectional survey was conducted from May to July 2024 among Italian healthcare professionals. The survey collected demographic and professional details, MA-related factors, and descriptions of known MA interventions. Participants were recruited via e-mail and professional networks. Data were analyzed to identify trends in adherence practices and compared with findings from the COST (CA19132) ENABLE survey across 37 European countries.

Results: A total of 342 responses were collected (55.8% response rate). Most respondents were nurses (39.8%), surgeons (15.7%), and pharmacists (10.5%). Overall, 64% of respondents reported routine monitoring of MA in their clinical settings, mainly through direct patient communication (60.2%) and prescription data monitoring (24.6%). European findings showed similar reliance on direct patient communication (86.4%), but Italian professionals reported lower use of validated adherence tools (5.9% in Europe vs. <2% in Italy) and technological interventions (10–15% in Europe vs. minimal uptake in Italy). Commonly reported barriers included complex treatment regimens and lack of patient education

Conclusions: The survey highlights the limited adoption of validated tools and technological solutions for MA monitoring in Italy compared to European standards while, direct patient engagement is central both in Italy than in Europe. Nevertheless, overcoming barriers such as management of complex regimens and insufficient patient education is key to implementing structured adherence-enhancing interventions.

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300. Long-Term Antihypertensive Medication Persistence and Treatment Changes: A Five-Year Cohort Study

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Background: Effective management of hypertension requires continuous medication adherence. Monitoring long-term persistence and treatment changes can help inform strategies to improve patient outcomes.

Objectives: To assess the 5-year persistence rate with antihypertensive medications and describe treatment changes among persistent patients over five years.

Methods: We performed a longitudinal cohort study using the iadb.nl database. We included individuals aged ≥18 years who initiated antihypertensive therapy (Anatomical Therapeutic Chemical codes C02, C03, C07, C08, C09) between 2014 and 2018, with no prior antihypertensive prescriptions in the preceding two years. Persistence was defined as the continues use of antihypertensive medications each year with a ±45-day window. The anniversary method was used to track treatment changes among persistent patients, who were categorized into four groups: no change, switching, intensification (dose increase or addition), or de-intensification (dose decrease or discontinuation) of antihypertensive medications.

Results: A total of 22,027 patients were included. The persistence rate for antihypertensive medications declined from 88% in year 1 to 70% in year 5. Of these, 11,598 (52.7%) remained persistent throughout the 5-year follow-up period. Among persistent patients, 46.6% had no change, 27.7% experienced intensification, 12.5% underwent de-intensification, and 13.1% switched regimens in year 1. By year 5, the proportion with no change increased to 70.8%, while intensification (16.4%), de-intensification (9.1%), and switching (3.6%) declined.

Conclusions: The persistence rate for antihypertensive medication declined over time. However, among persistent patients, treatment adjustments became less frequent, indicating a shift toward greater treatment stability.

Antibacterials

76. Barriers and Facilitators of Surgical Antibiotic Prophylaxis Prescribing Practices in Kuwait: A Qualitative Study.

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Background

Surgical antibiotic prophylaxis (SAP) is critical in preventing surgical site infections (SSIs). However, inappropriate SAP prescribing persists, influenced by individual, organisational, and patient factors. This study investigated facilitators and barriers to SAP prescribing in obstetric and gynaecological (OB/GYN) surgery in Kuwait to identify opportunities for improvement.

Methods

A qualitative descriptive study was conducted with 13 OB/GYN surgeons from public and private hospitals in Kuwait. Participants, recruited by purposive and snowball sampling, included junior doctors to consultants. Semi-structured interviews, conducted between December 25, 2023, and January 25, 2024, were audio-recorded, transcribed, and thematically analysed using the COM-B (Capability, Opportunity, Motivation, Behaviour) framework.

Results

Sixteen codes were identified and mapped to the COM-B framework. Under Capability, Physical Capability highlighted challenges in SAP documentation and prescribing experience. Psychological Capability showed variability in knowledge and clinical decision-making processes. In Opportunity, Physical Opportunity identified barriers related to drug costs, availability, and limited access to guidelines, while Social Opportunity emphasised influences from patient behaviours, audit and feedback, peer practices, traditional norms, and multidisciplinary team dynamics. In Motivation, Reflective Motivation described beliefs about antibiotic efficacy, infection prevention, and changes in prescribing behaviour. Lastly, Automatic Motivation described the influence of punishments and incentives.

Conclusions

SAP prescribing in Kuwait is shaped by clinical, organisational, and cultural factors. Additional education and training which would enhance knowledge, standardising guidelines, conducting audits, and fostering multidisciplinary collaboration could improve evidence-based prescribing and reduce antimicrobial resistance (AMR).

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101. Overuse of piperacillin-tazobactam for the treatment of acute cholangitis

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Background: Treatment of acute cholangitis (AC) often leads to the use of potent broad-spectrum agents, such as ß-lactam/ß-lactamase inhibitor combinations like piperacillin-tazobactam (P/T). According to the 2018 Tokyo Guidelines (TG18), P/T should only be used in patients with moderate or severe AC. We conducted a retrospective review of the treatment of patients admitted for AC in a university teaching hospital**.**

Materials/methods: Medical records of patients ≥ 18 years admitted for AC between Jan 1, 2021 and Dec 31, 2023 were reviewed. All patients underwent endoscopic retrograde cholangiopancreatography (ERCP). Severity of infection was defined according to TG18 Grade upon admission.

Results: 117 patients were included in the study; mean age was 75.4 years. 46 patients (39.3 %; 46/117) were classified as Grade I and Grade II infections, whereas 25/117 (21,4%) were Grade III. Piperacillin-tazobactam (P/T) constituted the first-line antibiotic in 83/117 (70,9%), regardless of the severity of the infection. Ceftriaxone+metronidazole (20/117; 17,1%) was the second most prescribed antibiotic treatment. Positive blood cultures were observed in 54/117 (46.2%) patients. Overall median treatment duration was 9 (IQR 8-12) days. Median length of stay was 4 days. Oral stepdown was done in 77.8 % of the patients, mostly with amoxicillin-clavulanate or ciprofloxacin.

Conclusions: P/T is largely prescribed for non-severe AC and seldom replaced by narrower-spectrum antibiotic after ERCP (except for oral stepdown). Additional measures should be considered to further reduce the use of P/T as first-line antibiotic, as well as the treatment duration for mild-moderate AC.

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156. Antibiotic use and risk of inflammatory bowel disease in older adults: a nationwide self-controlled case series study

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Background

Antibiotic use has been associated with inflammatory bowel disease (IBD) in early and mid-life, however data in older adults remain limited. We aimed to investigate the risk of IBD in adults aged 65 years and older on and following antibiotics treatment.

Methods

A nationwide self-controlled case series study including adults aged ≥65 years with a new prescription of antibiotics, diagnosed with incident, biopsy-confirmed, IBD in Sweden, 2007–2017. We estimated the incidence rate ratio (IRR) of IBD with a conditional Poisson regression for four risk periods: on treatment, 1-14, 15-91 and 92-365-days post treatment, compared with the non-treatment periods in the same individual. We also conducted a negative control outcome analysis.

Results

We identified 3,766 persons with incident IBD (median age 73 years). Compared with the non-treatment periods, the risk of IBD in the age-adjusted analysis increased on treatment (IRR: 2.2 [1.9-2.7]), 1-14 days (2.0 [1.7–2.4]), 15-91 days (1.6 [1.5–1.8]) and 92-365 days post treatment (1.3 [1.2-1.4]). In the negative control outcome analysis, the risk of biopsy-confirmed normal mucosa was also increased after antibiotics use, yet with a slightly lower effect estimates than for IBD: on treatment (1.6 [1.5–1.8]), 1-14 days (1.8 [1.7 –2.0]), 15-91 days (1.6 [1.5–1.6]) and 92-365 days post treatment (1.1 [1.1-1.2])

Conclusions

Antibiotic use was associated with an increased risk of IBD, which gradually decreased over time. However, negative control analyses indicated that a major portion of this observed risk may be attributable to heightened surveillance among patients receiving antibiotics.

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159. Serbia’s Progress Toward European Union Targets for Veterinary Antibiotic Use

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Antimicrobial resistance represents a critical global health issue, with veterinary antibiotics significantly contributing to its emergence. Serbia lacks standardised data on antibiotic consumption in food-producing animals, limiting the capacity to monitor trends and implement effective stewardship strategies. This study analyses veterinary antibiotic sales from 2017 to 2020, employing wholesale data and metrics recommended by the European Medicines Agency, expressed in milligrams of active substance per population correction unit (mg/PCU). The findings indicate a net increase in antibiotic consumption, rising to 109.49 mg/PCU in 2020. Regarding overall veterinary antibiotic use, Serbia would have ranked ninth in Europe for 2020, markedly falling short of the European Union's target. Penicillins, tetracyclines, and aminoglycosides were the most commonly sold classes of antibiotics, representing nearly two-thirds of total sales. A notable rise in macrolide and lincosamide use (+108%) was observed, alongside increased consumption of fluoroquinolones (+50%) and third-generation cephalosporins (+64%), which are classified as critically important for human health. Additionally, oral powders constituted 61.4% of total antibiotic sales, indicating widespread group treatments. These trends underscore the need for enhanced surveillance, stricter regulations, and the promotion of alternative antimicrobial strategies. Aligning Serbia’s veterinary antibiotic use with European Union reduction targets requires immediate action to optimise stewardship and mitigate resistance risks.

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180. Use of systemic oral fluoroquinolones in France between 2014 and 2023: A nationwide population-based study

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Background: Fluoroquinolones (FQs) are broad-spectrum antibiotics prescribed to treat severe bacterial infections. Several actions have been implemented in the past decade to limit their use and risks of adverse effects. The objective of this study is to evaluate the use of FQs in France and its evolution over the period 2014-2023.

Methods: All users who received at least one reimbursed oral systemic FQs delivery in community pharmacies between 2014 and 2023 were identified in the French National Health Data System. The number of FQs users and their sociodemographic characteristics and the characteristics of their prescribers were assessed by repeated annual cross-sectional data. Age- and sex-standardized user rates were calculated.

Results: A 50% decrease in FQs use was observed between 2014 and 2023 with standardized user rates estimated at 54.9(95%CI: [54.8;55.0]) and 25.6 [25.6;25.7] per 1,000 inhabitants, respectively. The female-to-male ratio dropped from 2.08 in 2014 to 1.03 in 2023. FQs use decreased by 40% among persons aged 60+ and by 60% in other age groups. From 2014 to 2023, use of ofloxacin, ciprofloxacin, levofloxacin and moxifloxacin decreased by 40%, 22%, 5% and 72%, respectively. From 2014 to 2019 (the delisting year), use of norfloxacin and lomefloxacin decreased by 86% and 79%, respectively. General practitioners were the main prescribers of FQs. In 2023, 82.9% of prescribers were general practitioners, 6.1% urologists-nephrologists, 1.6% ophthalmologists, 1.2% otolaryngologists and 1.1% gynecologists.

Conclusion: Although FQs use has decreased over the past decade, it remains high in France, making continued promotion of proper use essential.

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236. Geo-temporal analysis of Escherichia coli antimicrobial resistance and associated risk factors in the Australian community setting

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Background: *Escherichia coli (E. coli)* Antimicrobial resistance (AMR) is a growing threat to public health. With AMR known to vary across regions and over time, the aim of this study was to explore risk factors and *E. coli* AMR in community-dwelling individuals using geo-temporal analyses.

Methods: Three data sources: individual patient-linked health records, socioeconomic status, and microbiology data on *E. coli* AMR from urine isolates, were geospatially linked. Potential risk factors included antibiotic and corticosteroid use, comorbid diabetes, hospital admissions, and socioeconomic status. Geo-temporal associations between potential risk factors and AMR were explored using multi-level logistic regression for antibiotics commonly used in the management of urinary tract infection

Results: Risk factors for *E. coli* AMR varied per antibiotic. People living in areas with higher socioeconomic status were more likely to have *E. coli* resistance to trimethoprim (OR = 1.27, 95% CI: 1.12 – 1.45) and areas with higher prevalence of comorbid diabetes showed a higher resistance to amoxicillin (OR = 1.23, 95% CI: 1.03–1.47), and trimethoprim (OR = 1.21, 95% CI: 1.03–1.41). Higher spatial antibiotic use was associated with lower resistance to norfloxacin (OR = 0.63, 95% CI: 0.41–0.96), and areas with higher cefalexin use, showed a lower likelihood of resistance to cefalexin (OR = 0.22, 95% CI: 0.06 – 0.77).

Conclusion: This study highlights the complexity of risk factors for *E. coli* AMR in the local community, which varied per antibiotic type. Future research should incorporate individual-level data to further elucidate the mechanisms driving these associations.

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251. Real world evidence on Escherichia coli antimicrobial resistance and antibiotic utilization in Australian Nursing Homes

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Background: Antibiotic use has been identified as one of the key drivers for antimicrobial resistance (AMR). Nursing homes (NHs) have been identified as potential reservoirs for *Escherichia coli* (*E. coli*) antimicrobial resistance (AMR) due to high rates of urinary tract infections (UTIs) and frequent antibiotic use among residents. This study explored trends in *E. coli* AMR and antibiotic utilization in NHs, focusing on potential temporal relationships.

Methods: A retrospective, longitudinal, ecological analysis was conducted between 31 May 2016 and 31 December 2018. The primary outcomes were the monthly prevalence of *E. coli* AMR in urine isolates and residents using a systemic antibiotic recommended for the management of UTIs in national treatment guidelines (amoxicillin, amoxicillin with clavulanic acid, cefalexin, norfloxacin, and trimethoprim).

Results: From 2016 to 2019, 10,835 urine *E. coli* isolates were tested, and 3,219 residents received one or more medicines. Over one in five (23.3%) *E. coli* isolates were resistant to one of the antibiotics included. The temporal relationship between AMR and antibiotic utilization was unclear for amoxicillin, cefalexin, and norfloxacin. Potential relationships were observed for trimethoprim and amoxicillin with clavulanic acid. Trimethoprim showed a temporal decrease in both AMR and utilization, whereas amoxicillin with clavulanic acid exhibited a lag time of about four months between use and AMR.

Conclusion: This study highlights the dynamic nature of *E. coli* AMR. Up-to-date local surveillance guiding antibiotic use in NH settings may be needed to mitigate future AMR development.

Antidiabetics

28. Prescribing patterns of glucagon-like peptide-1 receptor agonists in the Swedish capital region – A register-based cross-sectional study

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Purpose: Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have gained considerable media attention, but there is limited knowledge about those receiving the drugs. This study aimed to assess demographic characteristics and previous diagnoses in patients dispensed GLP-1 RAs in Region Stockholm, Sweden, between 2019 and 2023, with a focus on prescribing off-label and outside pharmaceutical benefits scheme.

Methods: This was a register-based cross-sectional study including all inhabitants in Region Stockholm, Sweden, who were dispensed a GLP-1 RA between 2019 and 2023. Patient characteristics were assessed through record linkage with administrative healthcare data on demographics, healthcare consultations, diagnoses and other dispensed drugs.

Results: The prevalence proportion of GLP-1 RA dispensations in Region Stockholm increased from 4.7 patients/1000 inhabitants in 2019 to 17.5 patients/1000 inhabitants in 2023, and the incidence proportion from 1.8 patients/1000 inhabitants in 2019 to 7.4 patients/1000 inhabitants in 2023. GLP-1 RAs have become more common among a younger female population (47% in 2019 compared to 53% in 2023). The most common diagnosis shifted from type 2 diabetes mellitus (T2DM) (82% in 2019) to obesity (47% in 2023). During the same period, obesity without T2DM notably increased from 10% to 31%. Almost one-third (31%) of all patients dispensed the drugs in 2023 had no recorded diagnosis of either diabetes or obesity, compared to 8% in 2019.

Conclusion: This study showed an increase in utilization of GLP-1 RA with characteristics of patients changing towards more potential off-label use. The effectiveness and safety of the increasing prescribing warrant future studies.

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46. The impact of COVID-19 pandemic on the prescribing trends of antidiabetic medications in Scotland

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Background

The COVID-19 pandemic massively impacted Scotland's healthcare system which therefore lead to changes in antidiabetic utilisation in primary care. There is a lack of evidence on the long-term impact of COVID-19 on prescribing levels of antidiabetics in Scotland.

Methods

A segmented regression analysis was applied on monthly dispensed antidiabetic prescriptions using the Prescription Cost Analysis dataset (March 2019 – August 2024). Antidiabetics utilisation was measured using number of items dispensed per 1000 inhabitants (NTI) and defined daily doses per 1000 inhabitants per day (DID).

Results

Segmented regression analysis demonstrated an increase in the baseline trend of NTI for total antidiabetics and the level immediately after the first lockdown, however, not meeting statistical significance. Followed by a reduction in the time after the first lockdown, ending with a non-significant increase immediately after the second lockdown and the time trend after the second lockdown.

In terms of DID, there was an increase in the baseline trend of total antidiabetics, the level change immediately after the first and second lockdowns and the time after the second lockdown, but none of which met statistical significance. Furthermore, a reduction of total antidiabetic medication prescribing in the time after the first lockdown.

Conclusion

Utilisation of antidiabetics appears to have been affected, albeit not significant, by the lockdown measures which were put in place in 2020, to help reduce the spread of COVID-19. Antidiabetic utilisation was noted to have increased in the months following the second wave lockdown suggestive of the pandemic restrictions becoming less strict.

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47. The impact of COVID-19 pandemic on primary care antidiabetic prescription utilisation in England: An interrupted segmented regression analysis

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Background

Evidence on the long-term impact of COVID-19 on antidiabetic prescribing in England are scarce. The aim of this study was to identify the impact of COVID-19 on the prescribing patterns of antidiabetic medication in England.

Method

This study was a repeated cross-sectional analysis of the monthly antidiabetic drugs in England, using the prescription cost analysis data from March 2019 until August 2024. The monthly number of items dispensed per 1000 inhabitants (NTI) and the Defined Daily Dose (DDD) per 1000 inhabitants (DID) were used to quantify utilisation. Data was analysed using relative and absolute change. Segmented regression analysis was completed to assess the impact of first and second COVID-19 lockdowns in March and November 2020, respectively, on antidiabetic prescribing.

Results

The absolute and relative change for both the NTI (23.86, 34.78%) and DID (16.89, 19.35%) of total antidiabetic drugs showed an increasing trend across the study period. The segmented regression showed no significant impact of COVID-19 on the NTI of total antidiabetic medication. While the DID of total antidiabetic medication showed to be significantly impacted in the time trend following the first ($\beta_{3=}$-1.155; CI: -2.277, -0.032) and second lockdown ($\beta_{5=}$1.26; CI: 0.271, 2.25). Insulin and SGLT2 inhibitors appeared to be the main classes showing clinically significantly findings.

Conclusion

The impact of COVID-19 on antidiabetic prescribing showed little significance findings for most classes except insulins and SGLT2 inhibitors. This study provides an insight into the impact of COVID-19 on antidiabetic prescribing, and a need for further investigation using patient-level data.

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63. The impact of the COVID-19 pandemic on antidiabetic utilisation across the 14 Scottish health boards: a population based segmented time series analysis

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Background

It is suspected that the COVID-19 pandemic may have increased the rate of onset of diabetes through a variety of mechanisms, hence impacting antidiabetic prescribing patterns. However, evidence around this across health boards in Scotland is scarce.

Study design

Segmented regression analysis was applied to monthly antidiabetic medications using the Scottish Prescription Cost Analysis data between April 2019 and July 2024 for each of the 14 health boards in Scotland. The metrics DID (Defined daily doses/1000 people/day) and NTI (Number of items/1000 people) were used to quantify the data.

Results

The study found that prescribing rates vary vastly across health boards. Dumfries & Galloway had the highest mean monthly NTI (80.46) and DID (124.04), compared to the lowest rates, Lothian NTI (42.34) and Grampian DID (76.7). While all health boards saw an increase in prescribing rates over the study period and the Scottish total rates rose by DID(18.65% n=16.44) and NTI(30.57% n=15.09), the effects of the pandemic did not appear to be significant for the total prescribing rates for Scotland or any of the health boards. The second lockdown caused a monthly increase in both SGLT2i and insulin use for several health boards using both metrics.

Conclusion

A significant impact of COVID-19 on overall antidiabetic use in Scotland was not found. Increase in SGLT2i use is likely due to guideline changes, not the pandemic. Increase in insulin use possibly alludes to an increase in number of diabetics following the pandemic and warrants further research using patient-level data.

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224. The real world effectiveness of Tirzepatide, Semaglutide, and Liraglutide: A Systematic Review and meta-analysis of Observational Studies

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Introduction: Several RCTs suggested that GLP-1 RAs have the potential to manage a broader spectrum of obesity-related conditions in the future. Large trials such as LEADER, SUSTAIN-6, SURPASS-4 revealed that liraglutide, semaglutide and tirzepatide were effective in reducing the primary major adverse cardiovascular event end points. In addition, SCALE , STEP and SURMOUNT trials showed the efficacy of these agents in decreasing weight loss, HbA1c, blood pressure and lipid profile. Other RCTs reported reductions in liver fat and improvements in kidney outcomes, cardiorespiratory fitness, insulin sensitivity and overall mood. Similarly, findings from real-world practice align with the results of previous clinical trials. However, to our knowledge, no systematic review of observational studies has been conducted on the effectiveness of these three agents.

Aims and Objectives: Summarise available evidence for the effectiveness of subcutaneous semaglutide, liraglutide and tirzepatide in real world practice.

Method: In this is an ongoing study, we conducted an electronic search on Medline, Scopus, and Embase using key-words, such as (semaglutide, liraglutide and tirzepatide, Ozempic, Saxenda, Mounjaro). Eligible studies include any observational study (cross- sectional, cohort or case control) that evaluated the effectiveness of at least one of these medications. meta-analysis will be conducted as appropriate.

Conclusion: The preliminary results suggest the effectiveness of the three medication on different body system including cardiovascular system.

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292. Treatment Changes of Hypoglycemia-Associated Medications: A 5-Year Follow-Up Study

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Background: Intensifying and de-intensifying of hypoglycemia-associated treatment is important to improve patient outcomes and minimize complications for patients with type 2 diabetes.

Objectives: To assess treatment changes in hypoglycemia-associated medications over a five-year period in relation to patient characteristics.

Methods: We conducted a longitudinal cohort study using iadb.nl database containing prescription data from Dutch community pharmacies. Individuals aged ≥35 years with at least two dispensations of glucose-lowering medications were identified. We estimated transition probabilities of changes in hypoglycemia-associated medications (sulfonylureas and/or insulin) using Markov model for each year of follow-up. Associations with age, sex, and estimated hypoglycemia risk were analyzed with regression analysis.

Results: Overall, 25,057 patients were included (mean age 66 years, 51.8% male). The hypoglycemia-associated medication of the majority of patients remained unchanged in the follow-up period, de-intensification increased from 4.7% in the first to 6.5% in the fifth year, while intensification decreased from 7.7% to 6.9% over the same period. The Markov model showed that patients whose medication remained unchanged were most likely to have their medication de-intensified in the following year (HR: 1.52, 95% CI: 1.39–1.66). An estimated high hypoglycemia risk (OR 1.88, 95% CI: 1.69–2.09) and being female (OR 1.02, 95% CI: 0.93–1.13) increased the likelihood of de-intensification, while older age was negatively associated with intensification (OR 0.98, 95% CI: 0.98–0.99).

Conclusions: Over five years, de-intensification of hypoglycemia-associated medications slightly increased, particularly among patients with high hypoglycemia risk and females, whereas intensification decreased among older patients.

Big Data

100. Applying Artificial Intelligence in polypharmacy research using administrative data: challenges, lessons, and future directions

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Background: Recent advances in artificial intelligence (AI) make it possible to analyze big data containing billions of observations and millions of medication combinations. In this context, our team was tasked with conducting an innovative study to identify medication combinations at risk of adverse events. However, applying AI to polypharmacy revealed significant challenges, particularly those related to multidisciplinary collaboration and the integration and adaptation of AI methods in pharmacoepidemiology.

Methods: We conducted a postmortem analysis to document key issues, solutions, and lessons learned.

Results: Three major challenges emerged. First, the multidisciplinary nature of the team highlighted terminology differences, complicating communication. For example, after several months of AI methodological development, it became evident that "support"—the association measure used by the AI algorithm to identify the most at-risk combinations—was equivalent to prevalence. Instead of identifying high-risk combinations, the method was primarily detecting the most prevalent ones. The second challenge was selecting an association measure that balanced clinical relevance with computational efficiency. The entire team collaborated to develop a tailored rate ratio measure. Finally, confounding variables were not accounted for during AI algorithm development. To address this, we restricted analyses to homogeneous subgroups, sacrificing the population-based approach. Future studies should integrate confounding at development stage.

Conclusion: Despite these challenges, this project demonstrates the potential of AI and multidisciplinary collaboration to innovate in polypharmacy. The lessons learned, particularly regarding interdisciplinary cooperation and algorithm adaptation, provide a solid foundation for future research aimed at preventing medication-associated adverse events.

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108. Medicines in Acute and Chronic Care in Scotland (MACCS): a new research data resource

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Background: Medicines are fundamental to modern healthcare, but their safe and effective use poses challenges, particularly with an ageing population and the increasing prevalence of multimorbidity and polypharmacy. The Health Data Research (HDR) UK Medicines Driver Programme seeks to optimise medication use across the UK by leveraging linked health data. The goal is to create a robust, federated data infrastructure to support research into medicine usage, safety, and outcomes.

Methods: A medicine linked data infrastructure integrates diverse national-level health datasets, including primary care, secondary care, prescriptions, lab results, and mortality data is being developed. Supported by Public Health Scotland's eDRIS (electronic Data Research and Innovation Service), data is securely linked using CHI identifiers, anonymised, and accessed through the National Safe Haven. Collaborative efforts ensure harmonised sources and adherence to FAIR (Findable, Accessible, Interoperable, Reusable) principles for generating real-world evidence on medicine use and outcomes.

Results: The MACCS data resource is underway, with significant progress achieved in defining structure, identifying key datasets, and establishing robust governance mechanisms. Once completed, this resource will support researchers more efficiently with the tools and datasets to explore medicine-related access, use, equity, safety and outcomes. It also serves as an open invitation for researchers across the UK and internationally to collaborate with Scotland on innovative studies.

Conclusion: The evolving MACCS research resource highlights the transformative potential of linked health data in advancing medicines research and the opportunity for international collaboration.

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157. Pharosight: A Shiny-Based Interactive Platform with LLM-Enhanced Analyses and Predictive Modeling for Real-World Prescription Data

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Background

Real-world prescription data play a pivotal role in understanding medication utilization trends, treatment switches and adherence patterns. While commercial software for these analyses often lacks flexibility and advanced functionality, existing open-source solutions typically require significant methodological expertise and programming skills. We aimed to develop an intuitive Shiny-based application (Pharosight) for exploring and visualizing real-world prescription data.

Methods

Pharosight was developed as a cloud-based platform using R-Shiny, drawing on data from the Swedish Prescribed Drug Register. Dynamic visualizations and LLM-based functionalities were integrated into the web application. These LLM components provide textual summaries of interactive figures, guide users through statistical interpretations, and support natural language queries for rapid calculations (e.g., incidence rates, comparative statistics). Additionally, predictive models leveraging time-series methods were implemented to forecast future prevalence and incidence of drug use.

Results

In pilot testing with stakeholders (researchers, healthcare providers, and pharmaceutical company representatives), Pharosight generated actionable insights, identified prescribing trends, and highlighted variations in drug utilization. Users reported that LLM-generated summaries and one-click calculations facilitated deeper understanding of observed trends, while the predictive models offered valuable foresight into future prescribing patterns. However, a few users noted occasional ambiguities or oversimplifications in the LLM-generated summaries, pointing to the need for more robust contextualization. Preliminary feedback otherwise emphasized the platform's ease of use and its potential to guide hypothesis-driven research.

Conclusion

Pharosight combines interactive data visualization, LLM-assisted interpretation, and predictive modeling to support efficient, engaging exploration of real-world prescription data by non-expert users. Future directions include expanding the LLM's domain-specific capabilities.

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172. Novel safety signals of Candesartan: A real-world bioinformatics and disproportionality analysis using the FAERS database

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Background: Candesartan is commonly prescribed for hypertension and cardiovascular disorders. However, real-world analyses and signal detection, through the FAERS (FDA Adverse Event Reporting System) remain underexplored.

Objective: This study aimed to identify novel safety signals for Candesartan from the FAERS database, from 1998 to 2025.

Methodology: Data mining and disproportionality analysis of FAERS data for Candesartan was performed. The Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR) were calculated from the OpenVigil database. Signals were considered positive if PRR≥2, Chi-Square>4, and ROR - 1.96SE>2. Genes and proteins linked to hiatus hernia were identified through NCBI and HuGE Navigator, and analyzed using STRING database. Protein-ligand docking simulations with Candesartan were performed using BIOVIA Discovery Studio, PyRx, Pymol, and Swiss PDB viewer, assessing binding affinity and the likelihood of hiatus hernia.

Results: Out of 29,661,136 adverse events reported in FAERS, 7,305 were associated with Candesartan. OpenVigil data revealed 6 reports of hiatus hernia, with PRR of 2.769(1.243; 6.159), ROR of 2.772(1.244; 6.175), and Chi-Square of 5.125, indicating positive signal. Ten relevant genes identified for hiatus hernia using NCBI and Huge navigator were refined using STRING database, which yielded 4 genes. The four genes identified through bioinformatics analysis are IL2, IL6, CDX2, and CDX1 which showed binding affinities of -9.2, -8.8, -8.5, and -8.0 respectively, confirming a potential link to hiatus hernia.

Conclusion: The study suggests potential link between Candesartan and hiatus hernia through bioinformatics and docking simulations. Patient monitoring and further pharmacoepidemiologic studies are needed to validate these findings.

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248. Changes in prescribed medications after the introduction of an electronic prescribing system for patients with multidose drug dispensing

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Background: Multidose drug dispensing (MDD) is an adherence aid where medicines are machine-dispensed in disposable unit bags. Previous studies suggest that MDD patients are prescribed more medications than patients with ordinary prescribing. In Norway, an electronic prescribing system is currently replacing paper-based prescriptions for MDD patients, and the aim of this study was to examine whether the electronic prescribing affects the number of prescribed medications.

Methods: We performed a longitudinal study on data from June 2012 to August 2020. The patients piloting the new system were matched (1:1) by age, sex and number of prescribed medicines, to MDD users who were not part of the pilot. We investigated the number of prescriptions per patient 24 weeks prior to the implementation of the MDD e-prescribing system and 42 weeks after for both groups.

Results: Of the 2,102 patients who were dispensed MDD based on the electronic prescriptions at least once during the 8-year period, 507 patients had continuous data for 24 weeks prior and 42 weeks after implementation. Both groups were prescribed on average 9.9 medications at baseline, and 0.5 dietary supplements. The total number of prescribed medications increased to 11.1 in the intervention group and 10.6 in the control group. The number of prescribed dietary supplements sharply decreased among the patients in the intervention group down to 0.25, while the number prescribed remained at 0.50 in the control group.

Conclusions: Electronic prescribing of MDD seems to increase the number of prescriptions for patients and decrease the number of dietary supplements.

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253. The prevalence and associated risk factors of persistent post-operative opioid use in patients undergoing major surgery in England

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Background

Persistent post-operative opioid use (PPOU) is a post-surgical complication occurred in 2-65% patients depending on the definition used. The prevalence of PPOU and its associated risk factors remain under-studied in the United Kingdom (UK).

Methods

This retrospective cohort study analysed UK primary care data (Clinical Practice Research Datalink Gold) linked to Hospital Episode Statistics (2000–2020). Adults (≥18 years) undergoing major surgery were followed from their first opioid prescription within 30 days post-discharge for up to one year. PPOU was defined in two ways: (1) a prescription within 30 days post-discharge followed by another within 91–180 days; (2) a multi-dimensional algorithm (MDA) incorporating opioid dose, duration, and prescription count. Multivariable logistic regression identified risk factors for PPOU using both definitions, presented as odds ratios (OR_1 and OR_2).

Results

Among 91,528 patients, PPOU prevalence at one year using MDA was 0.28%, with 0.03% (n=15) and 0.5% (n=234) in opioid naïve and prevalent users, respectively. Alternatively, PPOU prevalence defined by continued opioid use beyond 91-180 days was 50%, with 12% (n=10,791) and 38% (n=35,081) in opioid naïve and prevalent users, respectively. The highest prevalence was seen in orthopaedic (65.4%) and vascular surgeries (13.4%). Significant risk factors included pre-operative opioid use (OR_1: 6.08 vs. OR_2: 7.37), long-acting opioids (OR_1: 62.87 vs. OR_2: 1.52), and high post-discharge doses (≥50 mg morphine equivalent/day; OR1: 12.03 vs. OR_2:1.97).

Conclusion

Discrepancies in PPOU prevalence highlight the need for a standardised definition. Modifiable risk factors can inform the development of targeted interventions to mitigate PPOU.

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266. Drug-induced QT prolongation – a retrospective cohort study investigating the association between risk classifications in a Swedish clinical decision support system and clinical outcomes.

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Background

Clinical decision support systems (CDSS) can signal potential adverse drug events based on patients prescriptions.

This study aimed to investigate associations between risk signals regarding drugs with QT-prolonging potential from a Swedish CDSS (Janusmed Risk Profile) and related clinical outcomes registered in electronic health records (EHR). Furthermore, the associations between these clinical outcomes and other presumed clinical risk factors were analysed.

Methods

Patients living in Kalmar County, Sweden, between 2011 to 2021 with prescribed risk drugs (risk level I: low risk, II: moderate risk, III: high risk of QT-prolongation) were extracted from the regional EHR and matched to controls (no risk) by age, sex and start of follow-up. Ventricular Arrythmia (VA), Torsade de Points, Cardiac Arrest and death were followed for one year. Regression analysis was performed.

Results

Among the 188 453 included patients, a higher proportion of patients classified as having a risk of QT-prolongation according to Janusmed did experience VA (risk level I = 0.26 %, II = 0.34 %, III = 0.71 %) during the follow-up year compared to controls (0.17 %). When adjusting for other presumed risk factors (i.e. age, sex, number of medications, previous diagnosis) the association was less clear, but risk level III remained significant with OR 2.1 (1.56-2.88) compared to controls. Similar results were seen for the other outcomes.

Conclusions

Although there is an association between Janusmed risk classifications and clinical outcomes only few patients are affected, and other factors, such as previous diagnosis, play an important role.

Cross National Comparisons

18. Perspectives of older polypharmacy patients on medication use complexity

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Background

Medication use complexity is associated with non-adherence, hospitalisations, and lower quality of life. It is measured with the Medication Regimen Complexity Index (MRCI), a tool developed using healthcare providers' perspectives, potentially overlooking patient perspectives. Therefore, this study aims to explore older patients' perspectives on medication use complexity.

Methods

This qualitative study was performed using semi-structured interviews among patients aged ≥70 years with ≥5 chronic medications, recruited at community pharmacies and a geriatric outpatient clinic. After medication reconciliation, open-ended questions about the patient's medication use, and four hypothetical medication regimens were discussed. All interviews were transcribed verbatim and coded independently by two researchers. Inductive thematic analysis using NVivo was applied.

Results

16 patients were included (median age 76, 56% female, and median number of medications 14). Four major themes were identified: medication characteristics, medication preparation for administration, regimen, and attitudes & beliefs. Within these themes, subcategories were identified. The subcategories and themes not covered by the MRCI were identification by appearance, size & shape & texture & taste of the medication, aids for administering, packaging, routine, and attitudes & beliefs. Routine was a relevant factor in medication use complexity for all patients.

Conclusion

Our study identified additional important factors determining medication use complexity from patients' perspectives to those measured in the MRCI. Medication use complexity was very individual and context-dependent. The MRCI tool may help identify patients with potentially high medication use complexity. An additional individualised assessment could better capture patient-specific challenges, ultimately improving the success of interventions.

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83. A worldwide regulatory landscape of RWD and RWE for market approval and post-marketing surveillance

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Background

The study of real-world data (RWD) and real-world evidence (RWE) regulations is essential for public health, as most real-world evidence is obtained from analytically imputed data that complement clinical trials. The objective of this research was to analyze the regulatory landscape of RWD and RWE around the world focusing on their use for marketing approval and post-marketing surveillance.

Methods

An internet search for norms on RWD and RWE was carried out for all continents. A non-exhaustive document analysis of existing regulatory documents was carried out on use of RWD and RWE for medicines registration and monitoring, in databases of the main regulatory agencies in the world. The data were analyzed descriptively.

Results

A total of 22 countries and 28 drug regulatory agencies produced 128 regulations on the use of RWD and RWE for marketing approval and post-marketing surveillance of medicines. More advanced regulations exist in North American and European countries. In Asia, the focus is on technological construction of health databases. In South America, Brazil is the only country regulating RWD and RWE, with four recent guidelines to harmonize with the USA, Canada and Europe.

Conclusion

There is an increase in RWD and RWE regulations around the world. Standardization of concepts and databases is necessary so that populations may benefit more. This strategy to produce quality evidence also enhances possibilities of monitoring, both for medicines entering the market as well as for those already licensed.

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134. Comparing the Rational Use of Psychotropics Across Countries: A Feasible Challenge?

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Background:
Anxiety and depression are major contributors to Years Lived with Disability (YLDs), significantly impacting quality of life and leading to severe consequences if untreated. Mental health care models vary globally, from hospital-based to community-based systems, with substantial differences in antidepressant and anxiolytic use. Despite comparative efforts, a comprehensive cross-national index remains lacking.

Objective:
This study introduces a novel index to assess mental health service performance across countries by integrating antidepressant and anxiolytic consumption, GDP per capita, and suicide rates.

Methods:
Publicly available data on antidepressant and anxiolytic DDD/TID, GDP per capita, and suicide rates were collected from OECD and Eurostat sources. A mathematical formula was developed to integrate these indicators into a single composite index. The methodology was guided by prior observations of notable disparities in antidepressant-to-anxiolytic DDD ratios across countries, alongside socioeconomic and cultural differences.

Results:
The index ranges from 0.92 (Croatia) to 11.10 (UK), revealing clear distinctions in mental health system effectiveness. Countries with community-based models, such as the UK, Australia, and Italy, scored higher, reflecting robust prevention and recovery networks. In contrast, hospital-centric systems, including Croatia, Latvia, and Lithuania, scored lower.

Conclusion:

The proposed index serves as a foundation for discussions on developing practical tools for comparing mental health service performance internationally. It offers insights into system strengths and areas for improvement, encouraging policymakers and researchers to refine data collection, integrate additional indicators, and enhance national mental health interventions.

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185. Drug Utilization Research Databases Appraising of Maturity (DURDAM)

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Background: Data used in drug utilization research (DUR) is routinely collected from sales data, reimbursement databases, disease registries, or electronic health records, with databases varying in characteristics, content, and accessibility between countries. The aim of this study is to determine whether the maturity of drug utilization (DU) databases used in drug utilization research (DUR) could be appraised and, if so, to build a maturity appraisal tool.

Aim: To build consensus among international experts on the key attributes of DU data for a national DU database maturity appraisal tool.

Method: A modified Delphi consensus process was used to develop draft statements to assess the maturity of DU databases. Recruitment targeted 20 to 30 participants across the globe with at least five years of DUR experience.

Result: Twenty-two (22) participants were successfully recruited and included clinical academics, healthcare professionals, and policymaker; achieving gender balance and a broad age range. Ten statements relating to DU database maturity were formulated, addressing comprehensiveness, completeness, and accessibility. In three Delphi rounds consensus was achieved with over 75% agreement on the proposed statements, with 13 participants providing feedback and 11 (85%) expressing support for all statements.

Conclusion: A consensus was established among a group of international experts regarding mature database attributes, leading to the development of a framework for the DUR maturity appraisal tool. In the next phase, the usability, acceptability and validity of the developed DU Databases Appraisal Tool will be tested.

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283. Cross-national comparison of sedative-hypnotic drug utilisation in Hungary and Norway

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Background

The use of benzodiazepines and benzodiazepine related drugs is often debatable due to potential adverse outcomes. Our study aimed to describe the use of benzodiazepines and benzodiazepine related drugs in ambulatory care in Hungary, and compare it to Norway.

Methods

Drug utilisation data of hypnotics and sedatives were obtained from sales data (Hungary) and the 2024 public report of Norwegian Drug Wholesales Statistics (Norway). We focused on the utilisation of benzodiazepine derivatives (ATC code: N05CD) and benzodiazepine related drugs (N05CF) between 2019 and 2023. The main outcome measure was the WHO defined daily dose per 1000 inhabitants per day (DID).

Results

During the study period, total utilisation of N05CD and N05CF drugs was relatively steady in both countries, although a mild change could be detected (+1.34% in Hungary and -7.97% in Norway). There was a significant difference between the two countries, total utilisation being considerably higher in Norway (31.24 vs 14.97 DID in Hungary in 2019, and 28.75 vs 15.17 DID in 2023).

In 2023, the use of N05CD drugs was 1.77 (Norway) and 4.73 DID (Hungary), while the use of N05CF drugs was 26.98 (Norway) and 10.44 DID (Hungary).

During the study period, the most used active ingredients were cinolazepam (N05CD) and zolpidem (N05CF) in Hungary, and nitrazepam (N05CD) and zopiclone (N05CF) in Norway.

Conclusions

This cross-national comparison revealed important qualitative and quantitative differences in the utilisation of benzodiazepine derivatives and benzodiazepine related drugs between Hungary and Norway.

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291. A cross-national survey on the implementation and maintenance of the ATC/DDD classification system from the EMMA project

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Background

The ATC/DDD classification system is a widely used standard for measuring drug exposure. The EMMA project (Exposure to Medicines Measured using the ATC/DDD classification system) aims to enhance comparability and reproducibility of studies using this standard. One of the goals of the EMMA initiative is to foster harmonization of the ATC/DDD implementation and maintenance process, since differences in the interpretation and application of the WHO guidelines are possible both within and across countries. However, no comprehensive and systematic documentation on how the process is managed in the different sites around the globe is currently available.

Methods

An online survey was developed based on 4 topics: 1)Respondent information; 2)Availability of, and accessibility to, a national medicinal product dictionary linked to ATC/DDD index; 3)Governance for the implementation and maintenance process; 4)Methodological details. Study population consisted of a convenience sample of nation-specific experts in the ATC/DDD Classification System, initially selected a priori and further expanded through snowballing. First distribution round started on January 28, 2025. Up to four distribution rounds, one month each, will be executed until May 31, 2025.

Results

A total of 181 experts from 66 countries were addressed during the first distribution round. On February 13th, 32 experts from 28 countries already completed the survey.

Conclusion

Results from the EMMA survey will be used to provide recommendations for fostering the harmonization of the ATC/DDD implementation and maintenance process, and ultimately facilitate the study of medicines use around the globe.

Crises

129. Socioeconomic indicators and psychoactive medicines consumption in Brazil during COVID-19 pandemic.

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The COVID-19 pandemic has had a major impact on Brazil, with more than 700,000 deaths due to the SARS-CoV-2 virus infection - the second biggest death toll worldwide. Mental health issues can arise in contexts of public health crises and psychotropic medicines prescriptions may increase. The impact of the pandemic could be related to and aggravated by socioeconomic inequality. We collected publicly available dispensing data of psychoactive medicines performed in Brazilian private retail pharmacies from January 2018 to December 2021, in order to estimate consumption, reported in defined daily doses (DDD) per 1000 inhabitants per day. The final selection of medicines included 21 items - anxiolytics, hypnotics/sedatives and antidepressants, plus clonazepam. By using generalized additive models (GAM) it was possible to correlate consumption and socioeconomic indicators: water treatment and sanitation services, life expectancy and employment by educational attainment level. Selective serotonin reuptake inhibitors (SSRIs) and selective serotonin and noradrenaline reuptake inhibitors (SNRIs) stand out as having increasing consumption trends (up to 37,5% for escitalopram and 81,5% for desvenlafaxine). While unit increases in the percentage of employed population with higher education and life expectancy led to an increase in the average consumption (3.8% and 2.5%, respectively), it was observed that increases of 10% in the index of inadequate water supply and sanitation, i.e. insufficient basic sanitation, reduced the expected consumption of the analyzed medicines by 2.9%. Our results indicate an influence of socioeconomic factors in psychoactive medicine use during the COVID-19 pandemic, which can have damaging effects during periods of crisis.

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154. Indirect Impact of Covid-19 on Long-Term Medication Use in the Paediatric Population

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The Covid-19 pandemic led to significant changes in healthcare utilization, with indirect effects on medication use, particularly in the pediatric population. This study aimed to analyze the long-term indirect effects of Covid-19 on medication use in children and adolescents. A retrospective study was conducted using pharmaceutical dispensing data from the Lazio region between January 2018 and April 2023, comparing medication use before, during, and after the pandemic. The medications analyzed included those for respiratory disorders, infections, and neuropsychiatric disorders.

During the winter season (September-April), there was an initial reduction in antibiotic use, followed by an increase, especially in the 3-5 and 6-13 age groups. For azithromycin, its prevalence increased from 609.9‰ in 2018/19 to 866.1‰ in 2022/23 in the 3-5 age group (+42%) and from 342.2‰ to 478.7‰ in the 6-13 age group (+40%). The 2022/23 winter season also saw increased use of medications for respiratory conditions and corticosteroids. Additionally, the use of palivizumab among infants aged 0-5 months doubled from 2018/19 to 2022/23.

Among neuropsychiatric medications, usage increased in adolescents, particularly females, with the quarterly incidence of antidepressants rising from 16.5‰ in 2018 to 34.3‰ in 2022.

While Covid-19 containment measures reduced pathogen circulation and antibiotic use, the pediatric population, especially children under 13, was more affected by respiratory infections in the post-pandemic period. The pandemic's psychological impact appears to have been particularly pronounced in female adolescents, with an increased need for antidepressants, reflecting the heightened mental health challenges faced by this group in the post-pandemic period.

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179. Initiation of anticoagulants in confirmed COVID-19 patients in Sweden: a population-based cohort study

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Background: Coronavirus disease 2019 (COVID-19) is suggested to be associated with a prothrombotic state and increased risk of venous thromboembolism. This study aimed to assess the impact of COVID-19 infection on anticoagulant therapy initiation in Sweden.

Methods: A cohort study including all individuals >18 years old with COVID-19 diagnosis between 2020.03.01 and 2023.02.28 in Sweden, based on linked register data from the SCIFI-PEARL project. Patients with COVID-19 diagnosis, identified through positive PCR test, were matched 1:1 by age and sex with people without positive test. The participants were followed from index date (first COVID-19 diagnosis or equivalent for unexposed) to initiation of anticoagulant or death, emigration, or end of study (2023.12.31). Anticoagulant drug initiation (outcome) was defined as a first dispensed prescription, after a one-year pre-index washout period, for warfarin, DOACs (Direct Oral Anticoagulants) and heparins. A Cox regression model adjusted for socioeconomic status (education, employment and marital status and place of birth), history of statin, antidiabetics, antihypertensives use and Charlson Comorbidity Index was performed to estimate hazard ratios (HR) and 95% confidence intervals (95%CI).

Results: Overall, 1,553,611 individuals with COVID-19 diagnosis matched with the same number of individuals without a COVID-19 diagnosis were included. Patients with a COVID-19 diagnosis were at higher risk of anticoagulant initiation (HR 1.44, 95%CI 1.42-1.46), DOACs (HR 1.28, 95%CI 1.26-1.31), heparins (HR 1.03, 95%CI 1.02-1.05), and at decreased risk of warfarin initiation (HR 0.72, 95%CI 0.63-0.83).

Conclusion: COVID-19 diagnosis increases risk of anticoagulant drug initiation after adjustment for socioeconomic status, drug use and comorbidities.

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184. Impact of COVID-19 diagnosis on initiation of antidepressant treatment in Sweden – a register-based cohort study

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The coronavirus disease 2019 (COVID-19) has significantly impacted drug utilization patterns worldwide. The specific impact of COVID-19 infection on initiation of antidepressant medications has not been sufficiently investigated. We aimed to investigate the impact of COVID-19 exposure on the initiation of antidepressant drugs in Sweden.

Method: We conducted a cohort study using the SCIFI-PEARL project dataset, encompassing all adults in Sweden. We included adults aged >18 years between 2020.03.01 and 2023.02.28. People with a positive PCR test for COVID-19 were classified as exposed. They were matched 1:1 on sex and year of birth with people without a positive test (unexposed group). The participants were followed from the index date (PCR test date for the exposed group or corresponding date for the unexposed) to migration, death, study outcome (first dispensed antidepressant prescription (ATC code N06A) or end of study (2023.12.31). Hazard ratios (HR) and 95% confidence intervals (95%CI) were estimated using Cox regression. We adjusted the results for Socioeconomic status (SES) (model-1), SES, and history of number of drugs except antidepressants (2015-2019) (model-2) and SES and the Charlson's comorbidity index at index date (model-3).

Results: In total, 2,529,114 participants (1,264,557 exposed and 1,264,557 matched unexposed participants) were included. The unadjusted HR was 1.16 (95%CI 1.15-1.17) for initiation of any antidepressants comparing exposed and unexposed. The adjusted HR was 1.19 (95%CI 1.18-1.20) in model-1, 1.11 (95%CI 1.10-1.12), and 1.17 (95%CI 1.16-1.19) in model-2 and 3, respectively.

Conclusion: Exposure to COVID-19 was associated with an increased initiation of antidepressant drugs.

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197. Initiation of anticoagulants during the COVID-19 pandemic in Sweden: an interrupted time series analysis

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Introduction

The COVID-19 pandemic may have increased anticoagulant initiation rates due to the thrombogenic nature of the disease, or decreased initiation rates due to the societal impact of the pandemic. We aimed to study the effect of the COVID-19 pandemic on initiation of oral anticoagulants or heparins in Sweden.

Materials and methods

We used national registry data from the “Swedish COVID-19 Investigation for Future Insights – a Population Epidemiology Approach using Register Linkage (SCIFI-PEARL)" project database. We conducted a new user design, single interrupted time series analysis on the monthly cumulative incidence of initiation (new dispensing) of non-vitamin K antagonist oral anticoagulants (NOAC), warfarin, or heparins, before and after March 2020.

Results

For anticoagulants in total, there were no substantial or statistically significant changes or differences in the trends of initiation after the start of the COVID-19 pandemic. There was a slight numerical decrease in initiation after the onset of the pandemic, particularly for NOACs. For individuals aged ≥ 65 years, however, the immediate decrease in initiation was considerable for NOACs. The pre-pandemic declining trend of warfarin initiation seemed to attenuate, i.e., became less negative, after March 2020.

Conclusions

We did not find any profound effect of the COVID-19 pandemic on the initiation of anticoagulants in total. However, among individuals aged ≥ 65 years, a notable immediate decrease in initiation of NOACs was observed. Furthermore, the onset of the pandemic may have attenuated the downward temporal trend in initiation of warfarin use.

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227. Trends in initiation of antithrombotic therapy in Swedish stroke patients before and after the Covid-19 pandemic – An interrupted time series analysis.

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Introduction: The outbreak of COVID-19 in December 2019 revealed the vulnerability of the world in facing a pandemic. Several studies have assessed the negative impact of the COVID-19 pandemic on drug utilization worldwide. However, knowledge remains limited regarding the impact on utilization of antithrombotic agents related to patients diagnosed with stroke.

Aim: To study the effect of the pandemic on the trends in initiation of antithrombotic agents in stroke patients in Sweden.

Method: We used data from the SCIFI-PEARL project database including linked data on diagnoses, dispensed prescription drugs, Covid-19 tests and socioeconomic factors from Swedish national registers. An interrupted time series analysis (ITSA) was conducted on the monthly proportion of patients initiated on antithrombotic in Sweden Jan 2019-April 2024 with intervention set at March 2020 (start of pandemic). Monthly proportion was calculated as the number of first dispensations divided by the number of patients newly diagnosed with stroke each month.

Results: A monthly average of 1,195 new stroke patients were identified during the study period. Overall, the pandemic had no significant impact on the total antithrombotic initiation. However, antiplatelets showed a significant pre-trend monthly increase of +0.29%, an immediate increase at intervention of +2.8% and post-intervention monthly decline of -0.26%. For anticoagulant agents, DOACs, warfarin, heparin and direct thrombin inhibitors, no significant trend change was observed.

Conclusion: The Covid-19 pandemic had no impact on the initiation of antithrombotic agents as total. However, antiplatelets showed a significant decrease in the initiation trend after the Covid-19 outbreak.

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279. COvid-19 among HEalth caRE professionals in the Nordic CountriEs (COHERENCE II): Methods for harmonizing data, study design and analyses in Denmark, Norway and Sweden

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Background: While register-based studies on the incidence of Covid-19 among healthcare professionals have been performed separately in Nordic countries, no study directly compares risks across countries. The current study aims to provide information on infections in healthcare workers, to support policy makers and organizations in planning prevention of disease spread and improving the workplace safety for healthcare professionals.

Methods: We identified occupational groups within the healthcare sector in the participating countries to establish harmonized categories based on the different classifications used. Compatibility of outcome definitions and the timing of Covid-19 incidence patterns (pandemic waves) were explored. For the analysis, we used a Nordic Common Data Model and a more generic Healthcare Event Data Model with a Modular Analytics Framework based on SAS macros.

Results: Despite variations in occupational codes and classifications, fairly detailed harmonization was achievable. Different coding systems were required to align outcomes, facilitated by a concept dictionary. Pandemic wave timing and duration also varied between countries, necessitating adjustments in study design and analysis.

Conclusion: Differences between Nordic administrative and healthcare registers pose challenges. We demonstrate the importance of harmonizing data, design and analyses in a multi-country study. With a common data model, it is possible to conduct compatible analyses, helping countries to prepare for future pandemics.

DU Old age

6. Association between medicine use and frailty among a cohort of Nigerian elderly outpatients – a pilot study.

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Background

Medicine use in the elderly is associated with multiple problems such as polypharmacy and use of inappropriate medications (including medicines with anti-cholinergic properties). Falls, impairment in daily functionality and other adverse effects have been linked to medication use in the elderly.

Objective

To assess the association between polypharmacy, use of anticholinergic medications and occurrence of falls, frailty and measures of disability in daily functionality among elderly outpatients in Nigeria

Methods

Prospective questionnaire-based cross-sectional study conducted among elderly patients attending the Family Medicine Clinics of two tertiary healthcare facilities in Nigeria. Information on patients' socio-demographical, history of falls and medication use was obtained. Frailty and level of functional independence of patients was assessed using the Frailty Index for Elders and Katz Index of Independence in Activities of Daily Living.

Results

One hundred and nine (109) elderly patients completed the study. The mean age and number of medicines was 71.8 ± 6.5 years and 3.7±1.6 respectively. Polypharmacy was seen in 30 (27.5%) of the respondents while 29 (26.6%) of them had medicines with anticholinergic activity prescribed. The association between polypharmacy and falls was statistically significant (p<.001; OR: 5.917 (2.105 – 16.629) while that between use of anticholinergic medications and falls was not (p= .551; OR: .903 (.296 – 2.753). The association between polypharmacy, use of anticholinergic medications and frailty was not statistically significant.

Conclusion

While there was a significant association between polypharmacy and falls among this cohort of patients, frailty was not significantly impacted by polypharmacy and use of anticholinergic medicines

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17. Assessing inappropriate prescribing and hospitalization risk in older adults: an analysis of administrative databases in Lombardy region

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Background and Aim: Optimizing drug treatments in older individuals enhances health outcomes and minimizes drug-related issues. This study aimed to develop an explicit indicator of potentially inappropriate medications (PIMs) in the elderly and evaluate its association with all-cause hospitalization.

Method: A tailored drugs list based on explicit criteria was developed and applied on administrative healthcare data from Local Health Units (LHUs) in Lombardy, Italy, to identify over65 individuals exposed to PIM between 2015 and 2018, defining the date of the first redemption of a PIM as index date. Risk-set matching was used to select controls and logistic regression models, adjusted for high-dimensional propensity scores (HDPS), was used to estimate the odds ratios (ORs) with 95% confidence interval (CI) of all-cause hospitalization within 90 days.

Results: Between 52.8% and 56.3% of the 641,230 older individuals were exposed to at least one PIM with higher prevalence in women and young adults (65–74 years). 128,063 matched pairs were analyzed showing hospitalization higher among exposed individuals (8.3–10.2%) compared to controls (5.1–6.0%). Pooled estimates showed a 55% increased risk of hospitalization for those exposed to PIMs (OR 1.55, 95% CI 1.48–1.62) with highest risk in young adults (OR 1.67, 95% CI 1.59–1.76) and in women (OR 1.62, 95% CI 1.55–1.70).

Conclusions: Over half of elderly individuals were exposed to at least one PIM, with an associated 55% increase in hospitalization risk in the short term. These findings highlight the pressing need for improved prescribing practices tailored to elderly populations.

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60. Impact of Fall-Risk-Increasing Drugs on accidental falls and injuries among older adults: an Italian case-control study

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Introduction: Falls are a leading cause of hospitalization among older adults, strongly affecting quality of life. Fall-Risk-Increasing Drugs (FRIDs) represent a key modifiable risk factor, yet their role in fall-related hospitalizations requires further investigation. This study aimed to assess the risk of falls associated with FRIDs, specifically opioids, dopaminergic agents, antipsychotics, anxiolytics, hypnotics-sedatives, and antidepressants.

Methods: A nested case-control study was conducted using administrative data from two Italian regions (~11% national representativeness). Cases included individuals aged ≥65 hospitalized for fall-injury in 2018, matched 1:1 by sex and age with controls (without fall-related hospitalizations or injuries in the same year). FRIDs exposure was defined as drug classes, duration, and recency. Adjusted odds ratios (aORs) were estimated using logistic regression models, adjusting by polypharmacy and comorbidities.

Results: Among 16,118 cases and 16,118 controls (68.77% females, mean age 79.76 years), cases showed higher prevalence of polypharmacy (5–9drugs: 42.03% vs 37.16%; ≥10drugs: 7.02% vs 5.44%; p<0.0001) and multimorbidity (≥3diseases: 6.42% vs 2.82%; p<0.0001). FRID use was higher in cases (37.7% vs. 26.5%, p<0.0001), with a 51% increased risk of hospitalization (aOR 1.51, 95% CI: 1.44–1.59). Opioids (aOR 1.40, 95% CI: 1.31–1.50) and antidepressants (aOR 1.45, 95% CI: 1.36–1.54) were associated with the highest risks. Prolonged FRID use (>9months; aOR 1.69, 95% CI: 1.57–1.83) and current FRID use (within 30 days before hospitalization; OR 1.78, CI 95%: 1.68-1.89) showed higher risk.

Conclusions: FRID use significantly increased fall-related hospitalisations in older adults. Optimizing prescribing and managing polypharmacy could improve safety.

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78. Association between socioeconomic status and high-risk drug classes in older citizens: a nationwide a cohort study

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Background: High-risk drugs have been identified as associated with medication-related harm in older populations.

Aim: To investigate if socioeconomic status (SES) was associated with the prescribing of high-risk drug classes in older community-based populations.

Methods: Data from The Irish Longitudinal Study on Ageing (TILDA) included interviews from 2018 and medication claims for 2 years. Educational level, household income, and private health insurance were analysed in relation to antithrombotic agents, beta-blocking agents, calcium channel blockers, diuretics, renin-angiotensin-aldosterone system, psychoanaleptics, NSAIDs and polypharmacy. For drug classes, we used binary logistic regressions, and for polypharmacy ordinal logistic regressions. All analyses were made with robust standard errors and as unadjusted and adjusted. Missing data in household income was handled using multiple imputation.

Results: The study population contained 2,482 individuals (46% males and median age of 76 (IQR:72-80)). Median number of conditions was 2 (IQR:1-3) and 577 (23%) had ≥10 drug classes. Individuals with lower education levels, household income below the national median, and no health insurance were more likely to be prescribed all included high-risk drug classes and experience polypharmacy compared to those with higher education, household income above median and with private health insurance. Psychoanaleptics were the highest-risk drug class prescribed to those with lower socioeconomic status: (adj. OR 3.87 [95%CI:2.63;5.69]) for primary education vs third/higher education, (adj. OR 2.25 [95%CI:1.74;3.46]) for low vs. high income, and (adj. OR 3.53 [95%CI:2.67;4.67]) for health insurance versus none.

Conclusion: A strong association was found between SES and high-risk drug classes and polypharmacy.

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160. Assessing fall risk and measuring balance parameters in older adults

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Background: Falls in elderly patients can result in severe injuries, creating significant burden for both patients and healthcare systems. Certain medications with anticholinergic and sedative properties may affect mobility and balance in elderly patients. This pilot study investigated the relationship between medication burden, measured by the Drug Burden Index (DBI), and fall risk assessed through the Berg Balance Scale (BBS) and Timed Up and Go (TUG) test.

Methods: Data were collected from 38 elderly participants (>65 years) across two Hungarian nursing homes in Szeged and Siófok. Patient records were reviewed for age, sex, and medication profiles. DBI was calculated for each participant (values >1.00 considered high), while fall risk was assessed by physiotherapists using BBS and TUG tests. Data analysis was performed using Microsoft Excel.

Results: The study population (mean age 84.16±6.99 years, 78.57% women) had a mean DBI of 0.78±0.61. Of 37 patients completing BBS, 18 showed low falling risk (41-56 points), 14 medium risk (21-40 points), and 5 high risk (<20 points). Twenty-nine patients completed the TUG test. Weak correlations were found between DBI and both BBS (negative) and TUG (positive) scores (R^2=0.05 DBI-TUG and 0.04 DBI-BBS). Patients with high fall risk had a mean DBI of 0.99±0.41.

Conclusions: Results suggest that higher DBI values may indicate increased fall risk, though the small sample size limits definitive conclusions. The study demonstrates that DBI could potentially serve as a quantitative measure for fall risk assessment.

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191. UTI-lizing Antibiotics in the Hungarian Elderly population

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Background

In Hungary, the population share of elderly (aged 65 years or above) increased from 19% in 2019 to 20.5% in 2023. According to previous knowledge, urinary tract infections (UTIs) represent one of the most common indications for antibiotic use in the elderly. This study aimed to analyze trends of antibiotic use in UTIs in the elderly between 2019 and 2023 in the Hungarian ambulatory care sector.

Methods

National data on redeemed and reimbursed prescriptions for the elderly were obtained from the Hungarian National Healthcare Service Center. We focused our analysis on systemic antibiotics (ATCJ01). Data were stratified by gender and age subgroups, with focus on prescriptions for UTIs (identified by corresponding ICD codes). The results were expressed as prescriptions (Rx) per 1000 inhabitants and per year.

Results

During the study, only minor fluctuations were observed: maximum values were in 2019 and 2022 (158.5 and 158.3 Rx/1000 inhabitants/year), while lower values occurred in 2021 and 2023 (148.3 and 149.9 Rx/1000 inhabitants/year). Gender differences were notable. The utilization was higher in women than men aged 65 years or above (165 versus 126 Rx/1000inhabitants/year in 2023), but the reverse was observed in those aged 85 years or above (men: 209, women: 191 Rx/1000inhabitants). Ciprofloxacin consistently led the toplist of antibiotics, accounting for about 30% of prescriptions, while fosfomycin being the second among women and sulfamethoxazole-trimethoprim among men, respectively.

Conclusion

Relatively stable antibiotic usage was observed among Hungarians elderly for UTIs, with gender differences in all age subgroups.

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244. Equity in Pharmacoepidemiology: Improving Understanding of Use, Benefits, and Risks of Medicinal Products in Human Populations

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Background

Clinical research has a long history of underrepresentation of women, racial and ethnic minorities, sexual minorities among others. This review describes the landscape of published research on the impact of SDoH and other drivers of health disparities on drug safety and effectiveness in the past 10 years.

Methods

The authors searched PubMed for observational studies conducted between 2014 – 2024 on drug safety and effectiveness, stratified by SDoH or underrepresented populations. The search combined a comprehensive set of terms for each component, including, study design, intervention, outcomes, and covariates.

The authors screened titles and abstracts and collected reasons for exclusion. After hitting a saturation of results, as determined by consensus of all reviewers, full-text reading and data extraction were conducted. Extracted data included: populations, outcomes, settings, covariates, and study methods. Study quality was assessed using the Newcastle–Ottawa Scale (NOS).

Results

From the 4202 titles first identified, data were extracted from 22. Many studies were excluded for only describing sociodemographic or SDoHs as baseline characteristics, without stratified analyses.

Most studies stratified analyses by age (n = 21) and sex (n = 20). 6 also stratified by race and ethnicity. Several studies also stratified results by SDoH indices: residential location, education status, employment status and health literacy.

Discussion

Integrating sociodemographic and SDoH indices into study designs enable researchers to produce findings with broader applicability to more patients. Improving data collection and establishing guidelines for study designs in observational studies may further illuminate the role of SDoHs in drug safety and effectiveness.

DU Pediatrics

38. Dispensing Trends of Commonly Prescribed Paediatric Medications in Ireland from 2016-2024: A Cross-sectional Study

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Background
Capacity and demand are critical in healthcare, particularly in paediatrics, where specific formulations and dosages must be consistently available. Recent Irish policies aimed at increasing healthcare access, such as reducing costs, have been counterbalanced by supply shortages and healthcare crises, limiting resource availability. This study examines dispensing trends for commonly used paediatric medications in Ireland from 2016 to 2024 to evaluate supply and demand dynamics.

Methods
We conducted a cross-sectional study using data from the Health Service Executive Primary Care Reimbursement Service "top 100" database. This includes monthly dispensing figures for reimbursed community pharmacy products. Monthly and annual trends for commonly prescribed paediatric medications, including those indicated for asthma and bacterial infections, were analysed from January 2016 to August 2024 using descriptive statistics.

Results
Dispensing of asthma medications increased significantly, including fluticasone (+58%) salbutamol (+40%), beclomethasone (+56%), and montelukast (+66%) from January 2016 to August 2024. During the same time period antibiotics also saw marked growth: amoxicillin (+198%), amoxicillin/clavulanic acid (+5%), and flucloxacillin (+1129%). Notable dispensing peaks occurred in March 2020, while antibiotic dispensing dipped at certain stages during 2021 and 2022. However a reduction in salmeterol/fluticasone dispensing (-23%) was observed across the study years.

Conclusion
While aggregate data limited age-specific analysis, the study highlights a period of increased healthcare access, such as free GP care for children under eight (August 2023), alongside supply challenges like pandemic-driven stockpiling (2020) and antibiotic shortages (2022). Ongoing evaluation of policies impacting supply and demand is crucial to ensure optimal care.

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190. Small Patients, high levels: Pediatric Antibiotic Use forRespiratory Tract Infections

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Background

Children (aged 0–19 years) account for 20% of population in Hungary. Most antibiotic prescriptions in this age group are for respiratory tract infections (RTIs). This study aimed to analyse trends in antibiotic use for RTI in children in the Hungarian ambulatory care sector.

Methods

Study period was between 2019 and 2023. We focused on systemic antibiotics (ATCJ01). Data on redeemed and reimbursed prescriptions for children (aged 0–19 years) were obtained from the Hungarian National Healthcare Service Center. Antibiotic prescriptions for RTIs (identified by corresponding ICD codes) were analysed by age subgroups. The results were expressed as prescriptions (Rx)/1000 inhabitants/year.

Results

In 2020, a decrease in antibiotic prescriptions for RTI in children was observed, from 558 in 2019 to 316 Rx /1000 children/year (more than 43% decrease). By 2023, the rates had returned to 490 Rx/1000 children/year. Children aged 5 to 9 years consistently showed the highest antibiotic use, both during (from 738 to 430 Rx/1000 children/year between 2019 and 2020) and after the pandemic (from 789 Rx/1000children/year by 2023). Broad-spectrum penicillin (co-amoxiclav) consistently ranked as the first most used antibiotic (28–38% of total J01 use), followed by azithromycin (17–26%) and different cephalosporins. The relative use of narrow-spectrum phenoxymethylpenicillin decreased from 5% in 2019 to 0.5% by 2023.

Conclusions

Pediatric antibiotic use for RTIs showed fluctuations in Hungary, including a marked decrease during the COVID pandemic. Although prescription rates returned to prepandemic levels, narrow-spectrum penicillins were largely displaced.

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222. Paediatric outpatient prescribing in Nordic and Baltic European countries since 2007

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Background: Paediatric drug utilization studies are important for increasing knowledge about drug use in children as well as for identifying gaps in knowledge and areas of improvement for rational drug use in children. The aim of this study was to identify types of drug utilization studies in the Baltic and Nordic countries and assess the prevalence of drug use across different therapeutic areas.

Methods: A systematic search (CRD42024528797) was performed in CINAHL, PubMed and Embase databases. We included registry-based paediatric (defined as less than 18 years old) outpatient drug utilization studies that were performed in Baltic and Nordic European countries (Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway and Sweden) that included data between 2007 and April 2024. Only studies published in English were included.

Results: A preliminary total of 113 studies were included in the review. More than 43% of these studies focused on use of antibiotics or psychiatric medications in children. Specifically, 27 studies investigated antibiotic use, 17 studies analysed ADHD medications and 8 studies investigated antidepressant use. Other major areas of paediatric drug utilization included asthma medications and antiepileptics.

Conclusion: Preliminary results indicate that psychiatric medications and antibiotics have been major areas of focus in outpatient drug utilization studies in children. However, data on other therapeutic areas remains limited.

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257. Trends in new users of neuroleptics in Swedish children between 2008 and 2021: relative changes of the most prescribed substances

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Background

Prescriptions of neuroleptics to Swedish children has increased despite often being off-label.

Objectives

To describe the change in number of new users per 10,000 children aged 5-17 of the most common neuroleptics by sex and substance between 2008 and 2021.

Methods

Register-based study including dispensations from the National Prescribed Drug Register in Sweden. All children 5-17 years of age with at least one prescription of neuroleptics (ATC-code N05A) dispensed between 2008 and 2021 were included, and the most common neuroleptics identified.

Results

The proportion of new users (after two years without a prescription) of any neuroleptic increased from 7.9/10,000 (2008) to 17.5/10,000 (2021), a total increase of 121%.

By sex, the highest increase was for aripiprazole, both to girls and boys: from 0.55 to 4.92/10.000 girls (+797%) and from 0.53 to 4.49/10.000 boys (+741%). Second was quetiapine: 0.79 to 6.25/10,000 girls (+696%) and from 0.38 to 1.88/10.000 boys (+396%). For olanzapine, new users increased from 1.36 to 5.53/10.000 girls (+306%), and from 0.55 to 1.20/10.000 boys (+118%). Risperidone, though being the most common substance by absolute number in boys over the whole period, showed a decrease by -15%. In girls, risperidone went from being the most common substance in 2008, to being the fourth in 2021 (-23%).

Conclusions

Over the study period, girls showed the highest increase in new users for aripiprazole, quetiapine and olanzapine. Risperidone, although a very common substance in absolute numbers, showed a decrease in both girls and boys.

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273. Paediatric adverse drug reactions reported in Sweden from 2002 to 2024

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Background: Paediatric drug use is substantial, considering vaccinations, dispensed prescribed drugs, use of over-the counter medications and drug treatment in hospitals. Possible adverse drug reactions (ADR) in children can differ from adults and ADR reports serve as a source of knowledge about paediatric ADRs. Our aim was to describe the frequency, severity, and patient recovery in reported suspected paediatric ADRs in Sweden, using data from a nation-wide ADR reporting system.

Methods: Data from ADR reports submitted to the Swedish Medical Products Agency were analysed for the period from 2002 to 2024.

Results: More than 25300 ADR reports were documented during the whole 23-year period in children 0-17 years of age. The proportion of children that suffered from a serious ADRs were 24% and that for drug related deaths 0.19%. Children reports represented 10% of the reports received during this period. The annual reporting frequency was about 1100 reports (71% vaccine, 29% non-vaccine). The most frequently reported reactions were skin reactions (17%) followed by fever (16%) and application site reaction (7%). The most frequently reported group of non-vaccine drugs were methylphenidate (7%) followed by Vitamin D analogues 4% and montelukast 3%. Among non-vaccines abdominal pain, urticaria and nausea were most reported.

Conclusion: Vaccines and their expected side ADR are found among ADR reports, but adverse drug reactions for other drug groups are not reported as frequently. The annual reporting frequency indicates a need for increased reporting to identify possible diverse ADRs in children.

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274. Metabolic side effects of neuroleptics among children and adolescents in Sweden 2008 – 2021: a cohort-study comprising 4,963 individuals

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Background

Prescriptions of neuroleptics, most often off-label, to children and adolescents have increased manyfold in Sweden over the past decades. Noteworthy adverse reactions of such treatment are various metabolic effects.

We aim to estimate the risk of incident metabolic conditions associated with the four most common substances.

Method

Using data from the National Prescription Register linked to the National Patient Register, we followed new starters of neuroleptics (ATC-code N05A), aged 5 to 17 starting treatment 2008 - 2021. They were followed from first dispensation until a treatment switch, 365 days without dispensation, or an event. A dispensation of metformin or any lipid lowering agent, a diagnosis of diabetes T2 or obesity in the Patient Register constituted the composite endpoint. A Cox-model was fitted with age and sex as covariates yielding adjusted Hazard Ratios (HR) with 95% confidence intervals (95%CI).

Individuals with a diagnosis of eating disorder were excluded from the study, since especially olanzapine is used to treat this condition.

Results

In 2,004 girls and 2,959 boys, 138 metabolic events (58 in girls, 80 in boys) were identified during 9,162 person-years (P.Y.) at risk with the first neuroleptic (in total 15.2 cases/1.000 PY; 17.3/1.000 and 13.6/1000 in girls and boys, respectively)

With risperidone as reference (45 events), the following HRs and 95% CI:s resulted: aripirazole 2.2 (1.5-3.3) 51 cases, quetiapine 2.3 (1.4-3.9) 31 cases, olanzapine 2.6 (1.1-5.5) 9 cases.

Conclusions

All three common neuroleptics were associated with a more than doubled risk for metabolic event compared to risperidone.

DU other populations

48. Dispensing patterns of antidepressants in Swedish children and young adults- Influence of sex and age

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Background: Depression and depressive symptoms affect approximately one in five children and adolescents worldwide. Treatment of emotional disorders such as depression may include both pharmacological and non-pharmacological interventions. Our aim was to describe the use of antidepressants among individuals aged 0-24 years in Sweden focusing on differences in age and sex.

Methods: Data on dispensed antidepressants (ATC-code N06A) to individuals aged 0-24 years in Sweden during 2011-2022 were retrieved from the National Prescribed Drug Register.

Results: The number of individuals aged 0-24 years in Sweden with at least one antidepressant drug dispensed increased from 18 to 35 per 1000 inhabitants from 2011 to 2022. Antidepressants were more common among females (49/1000 in females and 22/1000 in males in 2022). Antidepressant usage increased in all age groups, most prominently in young children (247% in children 0-11 years, 232% in children 12-17 years, and 73% in young adults 18-24 years). Antidepressants were most prevalent among young adults 18-24 years (130/1000 females and 54/1000 males in 2022). During the studied period, selective serotonin reuptake inhibitors were dominating the dispensations (8 out of 10 individuals in 2022). Sertraline was the most common substance in all age groups (1.1/1000 in children 0-11 years, 23/1000 in children 12-17 years and 42/1000 in young adults 18-24 years in 2022).

Conclusion: Antidepressant use among children and young adults in Sweden is common. The prevalence increased across all age groups during the study period 2011-2022, most prominently among younger children. The findings reflect the recommendations in national guidelines.

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54. Is it safe to use herbal medicinal products for pregnant women?

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Herbal products are often used by pregnant women, but in many cases women are unaware of the risks they may pose. Herbs are available as food supplements and there is no legal guarantee in Hungary that a food supplement is safe to use.

In an ongoing prospective study, adult, pregnant women have been asked to respond to a questionnaire in face-to-face interviews. The questionnaire comprised of questions on the participants' demographic features, socioeconomic status, characteristics of their pregnancy, use of food supplements and herbal products before and during pregnancy. We have used descriptive statistics to analyze the data.

So far, 346 pregnant women have answered our questionnaire. A large proportion of respondents (43.1%) are users of both western medicine and complementary and alternative medicine. 11.6% of the mothers used natural products to promote pregnancy. Of the reported products (n=23), only the use of *Vitex agnus-castus* is supported by scientific evidence. During pregnancy, 15.3% of the mothers used natural products. Our risk assessment have revealed that women were using products of questionable efficacy and safety, and we have discovered that illegal, potentially harmful products, and even products containing abortifacients being used.

The majority of respondents (76.0%) get their information about herbal products from various online sources and far fewer of them consult pharmacists (24.3%). It should be emphasised that consulting a pharmacist could help improve patient safety in this population.

This work was supported by the TKP2021-EGA-32, and the János Bolyai Research Scholarship of the Hungarian Academy of Science.

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55. Drug utilization among Hungarian pregnant women – should pregnant women endure everything?

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It is now well established that the first 1000 days of our lives have a major impact on our overall health. It is generally accepted that complaints should be dealt with using safe medicinal products during pregnancy.

Our aim was to determine the trends in the use of medications among Hungarian women and to identify possible risks.

In this prospective study, adult pregnant women were asked to complete a questionnaire in face-to-face interviews. Questions were asked about their current medical condition, the use of any kind of medication before and during pregnancy. Descriptive statistics were used to analyse the data.

To date, 346 women have completed our questionnaire. The most common complaints during pregnancy were nausea and vomiting (61.9%), fatigue (48.8%), headache (45.7%) and heartburn (43.6%). In many cases, the complaints were left untreated, with only 41.1% of the complaints being addressed. Heartburn was the symptom most likely to be treated, with 76.2% of those who experienced it treating it. Insomnia can be safely treated during pregnancy, but it was left unaddressed in 83.6% of the cases. Gingivitis can lead to preterm birth, but a significant one third (33.3%) of those who experienced it left it untreated.

Patient education is crucial during pregnancy, because by providing information to the women, it would be easier for them to relieve their complaints during pregnancy in an effective and safe way.

This work was supported by the TKP2021-EGA-32, and the János Bolyai Research Scholarship of the Hungarian Academy of Science.

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103. Association Between Treatment of Depression and 10-Year Cardiovascular Disease Risk: A Cross-Sectional Analysis Using Data from The Irish Longitudinal Study on Ageing (TILDA)

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Background

Cardiovascular disease (CVD) is a leading causes of morbidity and mortality worldwide. While several studies have shown an association between depression and CVD, the causal relationship remains unclear. This study assesses the association between depression treatment and CVD risk, whilst also considering the effects of other patient factors.

Methods

This is a secondary analysis of cross-sectional data from wave one (2009-2011) of The Irish Longitudinal Study on Ageing (TILDA). Inclusion was limited to TILDA participants who did not report doctor diagnosis of CVD. Depression status was defined by prior doctor diagnosis of depression, or a Centre of Epidemiologic Studies Depression Scale (CESD) score >16. Classification of depression treatment was based on prescription of anti-depressants. 10-year CVD risk was calculated using the SCORE2 risk prediction tool. Covariates included marital status, health insurance status, health behaviours and presence of chronic conditions. Multinomial logistic regression models were used to determine the effects of depression treatment on CVD risk.

Results

A total of 5,442 participants were included. High 10-year CVD risk was associated with being divorced, widowed or separated (RR 1.70 [1.37, 2.11]), having a full cover medical card or equivalent (RR 3.52 [2.69, 4.62]), a history of alcoholism or substance abuse (RR 1.24 [1.08, 1.43]), and diabetes (RR 2.25 [1.59, 3.18]).

Conclusion

Depression treatment was not found to be associated with CVD risk, possibly due to age-related increases in CVD risk. Nevertheless, a holistic approach to primary prevention of CVD must be applied to effectively manage the biological and psychosocial risk factors.

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193. Anti-seizure medication in pregnancy and pregnancy, baby, and child outcomes: Scotland-wide cohort study

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Background

Conditions requiring anti-seizure medicines (ASMs) treatment may occur during pregnancy; however, several ASMs are confirmed or suspected to be teratogenic. We aimed to address existing uncertainties regarding ASM treatment outcomes among pregnant women, their foetuses/babies and resulting live births.

Methods

We conducted a population-based cohort study of singleton pregnancies in Scotland conceived from 01/04/2010-02/07/2023. Exposures were all ASMs available in Scotland (grouped as 'Any ASM') dispensed 28 days prior to conception up to pregnancy end date. Unexposed comparators were matched to the exposed on gestational age and year of conception. Outcomes were pregnancy loss, congenital conditions and child developmental concerns at 27-30 months. Data were obtained from national datasets on prescribing, hospitalisations, child health, and congenital conditions.

Results

Among 911,027 singleton pregnancies, 11,011 (1.2%) were exposed to Any ASM. Most of the exposed were reported to have a condition indicating ASM use (9,297/11,011 pregnancies, 84.4%), including mental health (6,918/11,011 pregnancies, 62.8%), migraine or pain (5,763/11,011 pregnancies, 52.3%), and epilepsy (2,617/11,011 pregnancies, 23.8%), compared to 30.1% (32,502/107,889 pregnancies) in the unexposed. Pregnancy loss (3,175/11,011 pregnancies, 28.8% vs. 24,040/107,889 pregnancies, 22.3%), congenital conditions (253/8,370 babies, 3.0% vs. 1,830/82,085 babies, 2.2%) and developmental concerns (1,270/4,890 live births, 26.0% vs. 7,658/48,883 live births, 15.7%) were more common among the exposed vs unexposed.

Conclusion

A higher chance of adverse pregnancy, baby, and child development outcomes was observed in those with prenatal ASM exposure. We intend to conduct multivariable analysis to assess whether these associations remain after adjusting for confounding.

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207. Medication use in the pre-conceptional and pregnancy periods, focusing in drugs for chronic conditions. Data of the PregVal cohort, Spain (2009-2021).

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Background: The prevalence of chronic conditions in women who enter pregnancy has risen in the last years but evidence on current medication exposure before and during pregnancy is scarce.

Methods: *Design***:** We used data of PregVal (pregnancy population-based retrospective cohort - 2009-2021) in Valencia, Spain. Medication use was defined as at least 1 dispensing of the drug of interest. We defined 5 periods: 1) pre-conception (PC) 2) first trimester (T1), 3) second trimester (T2), 4) third trimester (T3). *Statistical analyses:* 1) Descriptive analysis of characteristics of the cohort; 2) proportion of drug use by ATC and period.

Results: Among 520,352 pregnancies during the study period (mean age 31.4 y.), two percent had chronic hypertension, 1.7 % type 2 diabetes and 7.1% depression when entering pregnancy. Any drug use was 80% and chronic conditions drugs accounted for 24,6% of medications used, with the most used ATC being antirheumatics and anti-inflamatory (25,7%). Overall, a decrease in use was observed as pregnancy progressed. It was the case for antidepressants (PC: 2.4%; T3: 0.5%), antipsychotics (PC: 0.6%; T3: 0.1%), antimigraine- (PC: 0.7%; T3: 0.04%) and antiepileptic- (PC: 0.6%; T3: 0.3%) drugs. However, use increased for antidiabetics (PC: 0.6%; T3: 2.0%), antihypertensives (PC: 0.8%; T3: 2.1%) and thyroid treatment (PC: 2.5%; T3: 6.2%).

Conclusion: An important proportion of pregnancies were exposed to medications for chronic conditions. Drugs aiming to treat mental health- or neurological conditions showed a decrease in use as pregnancy progressed. It would be necessary to evaluate the risk-benefit of these interruptions in exposure.

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310. Medicines Use Among Venezuelan Migrants in Rio de Janeiro, Brazil

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The Brazilian Unified Health System (SUS) guarantees universal and free access to healthcare for all individuals within its territory, including migrants. This cross-sectional study, conducted from November 2024 to January 2025, describes medicines use, in the context of SUS, by Venezuelan migrants living in Rio de Janeiro. A self-administered electronic questionnaire was developed using Research Electronic Data Capture. The link to access the questionnaire was sent to Venezuelan migrants identified through support institutions located in Rio de Janeiro and through public agencies that agreed to support this approach. Data were checked and analyzed using descriptive statistics. 50 participants participated in the study, 74% of whom were female. Preliminary results showed that 60% of participants obtain their treatments in public pharmacies, nevertheless they face challenges to receive care greatest difficulties being communicating (25%) and the way health professionals deals with migrants (30%). 5% have difficulties with their treatments. 50% consulted the SUS pharmacist for guidance on medicines use, 96% believe that these contributed to the correct use, and 38% feel confident in the pharmacist to clarify doubts. The results highlight the importance of considering the specific needs of migrants in the context of the SUS, which in turn guarantees access to healthcare for everyone, including foreigners, as provided by its legislation. Health professionals can adopt tools and practices that seek to connect with family and community members of foreigners and training to provide better care. Thus, it will be possible to guarantee more effective care and improve quality of medicines use.

Environment

106. Environmental Perspectives in Regional Treatment Recommendations for Depression and Anxiety in Sweden

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Background: Antidepressants improve the quality of life for many people with depression and anxiety, but they also have harmful effects on ecosystems. All antidepressant drugs have been reported to bioaccumulate in fish with therapeutic concentrations comparable to those found in humans. Drug & Therapeutics Committees (DTCs) develop regional treatment recommendations for common diseases, but it is not yet known to what extent they consider environmental factors in their recommendations.

Aim: To review how DTCs in Sweden take environmental considerations in treatment recommendations in general, and particularly within the areas of mild to moderate depression and anxiety. Furthermore, to explore different perspectives on DTC guidelines for antidepressants and their environmental impact.

Methods: Treatment recommendation review and semi-structured interviews were conducted with eight physicians and pharmacists. Data was collected from the 2024 version of public treatment recommendations in 21 regions and analyzed using document analysis. Semi-structured interviews were analyzed using qualitative content analysis.

Results: 16 out of 21 regions had environmental aspects as criterion for decision-making in developing treatment recommendations. Most regions recommended non-pharmacological treatment as first-line for depression and anxiety, primarily cognitive behavioral therapy (CBT). However, the interviewees considered limited availability of CBT and lack of environmental information as the main challenges.

Conclusion: Most regions consider environmental aspects in various ways, however, there is room for improvement. DTCs face several challenges in harmonizing treatment recommendations as the most environmentally friendly treatment, CBT, is not practically accessible. This highlights the need for further research to examine how treatment recommendations can be harmonized.

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131. Knowledge and practices of storage and disposal of medicines in households.

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Medicines and their metabolites can generate risks to the environment and health, especially when stored or disposed of inadequately. In this sense, domestic pharmaceutical waste requires differentiated disposal. The objective of this study was to identify knowledge and practice related to medicines storage and disposal in households at Niterói, a municipality in the metropolitan region of Rio de Janeiro. A cross-sectional study approaching households was conducted, including residents over 18 years old who answered an electronic questionnaire with close-ended questions about medication storage and disposal practices. The research was approved by the Universidade Federal Fluminense (UFF) Medical School Research Ethics Committee. A total of 290 participants were recruited. It was observed that 44.5% store expired or unused medications at home, however, almost half of the respondents (47.6%) have never received guidance on how to adequately store. The majority of respondents (77.2%) dispose of medicines improperly, either in household waste (64.8%) or in the sewage system (12.4%). About 85% of respondents do not know the appropriate places for disposal, only approximately 10% reported using such places. Less than 30% are aware of the possible consequences of improper disposal. Household pharmaceutical waste requires special attention, however, disposal in common garbage, sinks or toilets was widely observed. The results highlight a gap in the population's knowledge regarding best practices, underscoring the need to increase the dissemination of information, emphasizing the "one health" perspective and recognizing the interconnection between people, animals, plants, and their shared environment on health outcomes.

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155. Association between exposure to corticosteroids and fine particulate matter and mortality in older adults: an Italian cohort study

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Background

Previous research indicates an increased risk of cardiovascular and thromboembolic events (CTEs) associated to high levels of fine particulate matter (PM2.5) and corticosteroid use independently, while evidence for synergistic effects is limited. We aim to investigate independent and interactive effects of exposure to PM2.5 and corticosteroids on mortality in fragile elderly individuals. We present descriptive data on exposure and outcomes, the full analysis including CTEs will be finalised shortly.

Methods

A cohort of residents in Rome aged 65+ years and at high risk for CTEs was enrolled from regional health databases on January 31st, 2013. Follow-up ended at the first among death, emigration, censoring, study end (December 31st, 2019). For each trimester of follow-up, individual exposure to PM2.5 was derived from spatio-temporal models (resolution 1 km×1 km) at residence. Corticosteroid use was approximated through claims data. Study endpoint was overall mortality.

Results

We enrolled 33,079 elderly (mean age 77.1), with 47.1% females. Between 2013 and 2019, 16,466 (49.8%) deaths were observed, and mean follow-up was 4.9 years. Mean exposure to PM2.5 decreased over time from 24.1 μg/m³ in the first to 14.9 μg/m³ in the last trimester. Overall, 56% of the cohort had at least one corticosteroid claim, varying between 7.5% and 11.8% per trimester. 23.0% of deaths occurred among corticosteroid users and 4.5% among those exposed to PM2.5 above 25 μg/m³ during the trimester of the event.

Conclusion

Our data grant feasibility of analysing the synergistic effects of PM2.5 and corticosteroids on adverse events.

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178. Drug use in pets: redeems at (human) community pharmacies

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Background: The One Health approach emphasizes the connection between human, animal, and environmental health, highlighting the importance of analyzing veterinary prescriptions. While antimicrobial use in food-producing animals is well-documented, data on antibiotic exposure in companion animals remain scarce. Our research aimed to assess the scale and patterns of veterinary prescriptions in companion animals, focusing on antibacterial agents.

Methods: In this pilot study, eight community pharmacies from the Southern Hungarian region were included. The data pertained to 2 years. All veterinary prescriptions dispensed in these pharmacies were manually reviewed, and the following data were extracted: date of prescription and dispensing, name and quantity of the medication, dosage regimen, and animal species. Drugs were classified with the ATC index.

Results: A total of 2402 veterinary prescriptions, issued by 135 veterinarians, were analyzed. The majority of prescriptions were issued for dogs (1872;77.9%) and cats (364; 15.2%). Of the dispensed medications, 2310 (96.2%) were human medicinal products and 92 (3.8%) were veterinary medicines. Majority of prescriptions (1776; 73.9%) were for internal use. Ophthalmologicals (S01) accounted for 439 items, with dexamethasone + tobramycin being the most frequently dispensed drug (214; 8.9 %). The systemic antibacterials (J01) followed closely with 367 prescriptions. Among antibiotics, amoxicillin combined with clavulanic acid (213 Rx, 58% of J01) was the most commonly dispensed active agent.

Conclusion: The results highlight the significant use of human drugs in veterinary practice, and the frequent use of antibacterials especially broad spectra penicillins that might contribute to antimicrobial resistance in both animals and humans

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196. Development and Validation of a Questionnaire for Assessing Knowledge, Attitudes, and Practices on the Disposal of Unused and Expired Medications at the Household Level in the Community Setting: A Cross-Sectional Study

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Aim: To address the issue of storing unused and expired medicinal products, patients and their families require explicit instructions on proper disposal methods. This study specifically focuses on assessing the knowledge, attitudes, and practices concerning the disposal of unused and expired medications at the household level within the community setting.

Methodology: This thesis aims to conduct a Cross-Sectional Study in a community setting, utilizing a pre-validated KAP (Knowledge, Attitude, and Practice) Questionnaire, during the period from 1 year. The study includes participants who are 18 years of age or older, willing to provide consent, and actively participate.

Results: The study included a total of 300 participants, consisting of 159 [53%] males and 141 [47%] females. 97% of participants demonstrated knowledge that improper disposal of medications can have adverse effects on the environment, human health, and animal health. 86% of participants strongly agreed that safe drug disposal methods are required for all medications. 68% of participants reported never returning their medications to pharmacies or hospitals.

Conclusion: The findings emphasize the importance of targeted educational interventions to improve knowledge, the need to bridge the gap between attitudes and actual practice, and the necessity of implementing accessible and convenient medication disposal programs. By addressing these issues, it is possible to promote safe and responsible medication disposal practices at the household level, contributing to the protection of the environment and the overall public health.

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199. Identification of drugs with a risk to the environment based on drug utilization data in Serbia

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Background: The increase in use of drugs, aggravated by inadequate disposal contribute to drugs input into the environment, posing a risk to the living world. The aim of this study was to identify drugs with environmental risks based on drug utilization data in Serbia.

Methods: We have integrated drug utilization and ecotoxicological data to assess the environmental risk posed by 22 analyzed drugs. Based on Predicted no effect concetration (PNEC) data and Predicted environmental concentracion (PEC) data, we calculated the ratio of PEC to PNEC for each drug, thus predicting the ecological risk (low>0.1; medium>1; high >10).

Results: The ecological risk was estimated as high or moderate for 11 drugs based on their PEC/PNEC values. High risk was estimated for diclofenac, azithromycin, amoxicillin, sertraline, ciprofloxacin and venlafaxin, while moderate risk was estimated for felodipine, clarithromycin, levonorgestrel, fluoxetine and erythromycin.

Conclusion: This research has demonstrated the applicability of using drug utilization data to estimate potential environmental risk of drugs. This can help with identifying drugs where monitoring of concentrations in various environmental matrices is needed in our setting.

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217. Trends in Prescription Fills and Out-of-Pocket Costs of Inhaler Devices by Global Warming Potential in the U.S.

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Background: There is a lack of information on the affordability and use of inhaler devices based on their GWP in the U.S.

Objective: In this study, we analyze trends in prescription fills and out-of-pocket costs for inhaler devices and quantify their potential impact on carbon dioxide equivalent (CO_2e) emissions in the U.S.

Methods We used IQVIAs National Prescription Audit PayerTrak, which captures detailed information on all prescriptions filled and dispensed to individuals at retail pharmacies in the U.S. We calculated monthly fills (primary outcome) and mean out-of-pocket costs (secondary outcome) for inhaler devices by product type (MDI, DPI and SMI) between January 2021 and July 2024. We also calculated total CO2e emissions by product type, drug class, and for specific inhalers.

Results: Between January 2021 and July 2024, monthly prescription fills for inhaler devices increased modestly from 8,352,741 to 8,446,527 (p=0.03). HFA MDIs consistently accounted for over 71% of fills, while mean out-of-pocket costs (OOPC) were significantly higher for DPIs ($38.6) and SMIs ($35.5) compared to MDIs ($14.8) during this period. HFA MDIs contributed 98.9% of the 2.34 million metric tons (MMT) of CO_2e emissions from inhalers, with SABAs responsible for 73.4% of emissions and albuterol HFA alone accounting for 63.3%.

Conclusion: Efforts to increase the use of DPIs and SMIs and, in turn, reduce carbon emissions are needed in the U.S. Such efforts should ensure the availability and affordability of low GWP inhalers, particularly for HFA MDI inhalers widely used and disproportionately contrinuting to inhaler-related emissions (e.g., albuterol).

Health policy

10. Costs of initiated potentially inappropriate medication in 2021-2022 in Quebec, Canada

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Background: Usage of potentially inappropriate medications (PIMs) in older adults contributes to hospitalizations and adverse drug events (ADEs). Avoiding their initiation could prevent significant health and economic burdens.

Objective: To estimate the direct costs of PIMs initiated in 2021-2022 among older adults in Quebec, Canada.

Methods: Using claim data, we assessed the direct cost of PIMs initiated in 2021-2022 among adults aged ≥65 covered by the public drug plan who had not claimed these PIMs in the preceding year. Costs for 16 PIM classes, identified using 2019 Beers criteria, were calculated in 2024 Canadian dollars (CAD) and stratified by sex and age group (65-74, 75-84, ≥85).

Results: Total claim cost of PIMs initiated in 2021-2022 was CAD 23.7 million (M). PIM initiation was higher among women (18.2%) compared to men (14.6%) and was highest in the 65-74 age group, decreasing with advancing age. Five PIM classes alone accounted for 87.3% of total PIM initiation costs: proton-pump inhibitors (CAD 5.3M women, CAD 3.7M men), antipsychotics (CAD 3.0M, CAD 2.4M), benzodiazepines (CAD 2.0M, CAD 1.3M), antidepressants (CAD 1.3M, CAD 0.7M), and muscle relaxants (CAD 0.6M, CAD 0.4M). Although the direct cost only represents 0.7% of medication expenditures for adults aged ≥65, avoiding these most initiated classes could have saved over CAD 20M with additional savings considering indirect costs associated to ADEs.

Conclusion: To reduce negative health outcomes and public healthcare expenditures, initiatives preventing potentially inappropriate prescribing should prioritize the most frequently initiated classes and those associated with frequent and serious ADEs.

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16. Use and Potential Misuse of GLP-1 Receptor Agonists in France: a Nationwide Cohort Study

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Introduction

GLP-1 receptor agonists (GLP-1 RAs), introduced in France in 2008 for type 2 diabetes (T2DM), have been indicated in the treatment of obesity with comorbidities since 2021. Their sharply increasing use over the last years led to supply shortages. Additionally, misuse is suspected in subject searching for weight loss. Consequently, this study aimed to describe the use of GLP-1 RAs in France and evaluate potential misuse.

Methods

Incident users of GLP-1 RAs between 01/01/2017 and 06/30/2023 were identified in the French national health database (SNDS) based on possible indications: T2DM, obesity, and absence of T2DM or obesity. Monthly trends in GLP-1 RA use by indications were analysed. Profiles of incident users from 01/01/2017 to 30/06/2023 were described.

Results

As incident GLP-1 RA users increased (5,117 in January 2017 to 15,193 in June 2023), the proportion without T2DM or obesity rose from ~2% in 2020 to >5% in May 2022. They used predominantly semaglutide OZEMPIC® from July 2022. Among the 212,211 incident users in 2022/2023, 93% had T2DM, 2.1% had obesity without T2DM, and 4.9% had no identified indication. These latter users, predominantly female (68.7%) and younger than T2DM users (48.9 vs. 62.0 years), included 4,683 individuals (2.2% of all users) without comorbidities. Their consumption was equivalent to the annual treatment for ~1,700 patients with T2DM or obesity.

Conclusion

GLP-1 RA use has risen sharply, particularly among individuals without T2DM or obesity. 2.2% of misusers were identified. This misuse still warrants further monitoring as the risks are unclear.

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23. Navigating the Real World: A Scoping Review of Structured Frameworks to Effectively Identify, Evaluate, and Select Real-World Data Sources for Fit-for-Purpose Studies

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The potential of real-world data (RWD), particularly from patient registries, has been increasingly recognised over the last decade by academia regulators, and health technology assessment (HTA) bodies for its role in assessing a product's effectiveness and supporting regulatory submissions. The selection of an appropriate RWD source is of primary concern, since the success of regulatory processes depends on the quality and relevance of the data. In the more recent years, EMA and FDA have released extensive guidance on the use of RWD to produce evidence. Simultaneously, public and private research institutions have proposed structured frameworks developed to guide stakeholders in evaluating and selecting 'fit-for-purpose' RWD source.

This scoping review provides an overview of these structured frameworks, identifying ten key tools, including the Registry Evaluation and Quality Standards Tool (REQueST) and the Structured Process to Identify Fit-For-Purpose Data (SPIFD2). Each framework is briefly described, followed by a comparative analysis of the criteria they assess. These criteria relate to dimensions, such as study design, data reliability, data relevance, ethical considerations, and practical factors such as cost and feasibility.

Our findings indicate, that while these frameworks offer robust tools for ensuring the suitability of RWD sources, each has unique strengths and limitations depending on the specific context of use. By providing a comprehensive understanding of these frameworks, this review aims to assist stakeholders in identifying and/or evaluating and/or selecting the most appropriate RWD sources for generating high-quality evidence for regulatory and HTA purposes.

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24. A ten-year drug prescription analysis of a German Region using Morbidity Related Groups, correlations and partial correlations with a special consideration of the corona pandemic

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We analyze the prescriptions of all SHI insured persons in a federal state in Germany, from 2014 to 2023. For this purpose, the Morbidity Related Group (MRG) is used per patient and year. This is defined as the ATC code at four characters level according to the International ATC System. This approach is patient-oriented, which means that the prescriptions are evaluated jointly for all doctors involved.

As a methodology, the correlations and partial correlations are considered for three random variables in different contexts. A modulus value determines whether all correlations are greater or smaller in magnitude than the partial correlations, whereby the signs can be reversed.

For each MRG, we consider the number of patients affected per year, their average age and their average polypharmacy. Polypharmacy is defined as the number of ATC groups of the respective patient for the MRG. The linear trend over the 10-year period under consideration is determined for the three parameters under consideration. For all MRGs with a minimum case number of 100 patients, we obtain the correlations 0.216, 0.663 and 0.405 and with the modulus value of 1.044 and the partial correlations -0.073, 0.644 and 0.356.

To analyze the influence of the corona pandemic as an example, we look at the proportion of patients in 210 MRG for the years 2019, 2021 and 2023. These proportions are initially highly correlated with the coefficients 0.985, 0.988 and 0.978. With the modulus value of 21.999, the partial correlations are 0.581, 0.675 and 0.195.

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27. Real-world trends of use of antipsychotic medication in children and adolescents in Spain in the period 2014-2023 (Children and Adolescents Antipsychotic Research for Evidence-based Strategies – CARES project)

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Introduction

Spain is the European country with the highest prevalence of mental health problems among children and adolescents, and the consumption of antipsychotic drugs (AP) keeps growing. We aimed to describe the trends in AP use in youngers in our setting.

Methods

Population-based cross-sectional analysis of AP prescription in youngers (<20 years old) from 2014 to 2023 in a Spanish region with 5 million inhabitants. Outcomes were estimated on an annual basis (number of prescriptions, volume of patients treated, prevalence and incidence per 1000 inhabitants, and indications prescribed) and stratified by age strata and sex assigned at birth.

Results

The yearly number of treatments and of patients treated almost doubled in the period, led by the increase in use in 15-20 years old individuals and an overall trend upturn since 2020. Males were prescribed more AP during the period, but the growth rate of prescription and patients treated in females was steadier. Risperidone and ariprazole were the most prescribed AP, whereas lurasidone, olanzapine and quetiapine experienced the highest growth (74, 3.5 and 2.3-fold increase, respectively). Most prescribed indications were conduct disorders, autism and related disorders, anxiety related disorders (leading indication for quetiapine and olanzapine), and attention-deficit hyperactivity disorders.

Conclusion

AP are frequently used in non-authorised indications in children and adolescents, and their use is rising, especially in older youngers and after the pandemic. Urgent research is warranted on the observed patterns of use, their appropriateness and their association with health and safety outcomes.

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33. Healthcare professionals' and medicine consumers' awareness and understanding of the Black Triangle Scheme and its influence on adverse medicine event reporting in Australia: a mixed-methods study

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Background: The Black Triangle Scheme was introduced by the Therapeutic Goods Administration (TGA) in Australia in 2018 to enhance the reporting of adverse events related to new medicines, or medicines used in new ways. We aimed to evaluate healthcare professionals' (HCPs) and consumers' awareness of the Scheme and its influence on adverse event reporting.

Methods: A mixed-methods study was conducted consisting of an online questionnaire followed by a one-on-one online interview with participants who indicated in the questionnaire that they were willing to participate. Participants were HCPs and medicine consumers in Australia recruited via advertisements on social media, in general practices and pharmacies, and through professional and consumer organisations. The questionnaire included questions related to awareness and understanding of the Scheme, and reporting behaviour towards medicines labelled with the black triangle. A semi-structured guide was used during the interviews to gain more in-depth insights. Descriptive and qualitative data analyses were conducted.

Results: 405 participants completed the questionnaire (138 HCPs, 267 consumers) of whom 21 participated in the interviews (11 HCPs, 10 consumers). Preliminary analyses suggest that about half of the HCPs (52%) and a tenth of the consumers are aware of the Scheme. Moreover, 63% of the HCPs and 10% of the consumers indicated that they had ever seen the black triangle.

Conclusion: Awareness of the Black Triangle Scheme seems particularly low among consumers. Further analyses will increase our understanding of the Scheme's reach and serve as a guide to further improve adverse event reporting processes in Australia.

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40. Patterns of use of prescription opioids in the Spanish National Health System, 2013-21. A multi-database, population-based cohort study in four Autonomous Communities (OPI-SNS Study).

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FISABIO, Valencia, Spain

Introduction

The opioid epidemic has been extensively documented in the United States and Canada, but fewer data are available for Europe. We aimed to describe the trends in opioid use in four Spanish regions with over 15 million inhabitants.

Patients and Methods

Multidatabase, population-based cross-sectional analysis of opioid prescription in adults (≥18 years) from 2013 to 2021 in Catalonia, Valencia, Aragon and Navarre regions. Outcomes were estimated on an annual basis: number of prescriptions, prescription rate per 1000 inhabitants (pr/c), dosage per capita (morphine mg equivalents per 1000 inhabitants, MME/c) and volume of patients treated (overall and by drug).

Results

Over the study period, the yearly number of prescriptions grew by 1.4- fold, for a total of 59,790,882 opioid prescriptions. Tramadol accounted for 53.5% of prescriptions (of which 73.1% were tramadol combinations), followed by fentanyl (14.8% or 8,854,017 prescriptions) and tapentadol (5.5% or 3,242,914 prescriptions). Yearly volume of pr/c grew by 1.8-fold in Navarre to attain 386.25 pr/c in 2021, by 1.6-fold in Catalonia (398.72 pr/c in 2021), by 1.3 in Valencia (943.57 pr/c in 2021) and by 1.2 in Aragon (697.27 pr/c in 2021). The yearly number of patients treated increased by 1.6-fold, and total MME/c showed a 1.3-fold increase.

Conclusions

Even if proportions still seem far from epidemic, urgent research is warranted on the observed patterns of use, their appropriateness and their association with health and safety outcomes, especially for high-use and high-strength drugs.

41. Regulatory Scenario of Imported Medicinal Cannabis Products in Brazil

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Background

The National Health Surveillance Agency (Anvisa) authorizes importation of Cannabis-containing products for medicinal purposes in Brazil, none of which are market approved as medicines in the country, or in their country of origin. This study aimed to analyze the scenario of Medicinal Cannabis products authorized for importation in Brazil.

Methods

Data were obtained from the Anvisa web platform. Lists detailing authorized cannabis-containing products, from 2015 to 2024, available product information, as well as the number of importation authorizations from 2015 to 2023 were analyzed. Absolute and relative frequencies were calculated.

Results

Thirty lists of authorized products were issued in the period. The 2015 list included 11 products, while 617 were listed in 2024. However, product variation concerning container volume and concentration of active ingredients brings the number to more than 1,900 different products. Around 45% are oils or tinctures, but other presentations such as gummies (16%) and creams (5%) can also be found. Products from the last list originated in 37 countries, primarily from the United States (402, 65.2%). In 2015 850 individual import authorizations were issued, reaching over 290,000 in the period.

Conclusion

Regulatory gaps have led to a progressive increase in importation of Cannabis products which shows aggressive market expansion. Importation is a simplified process that bypasses sanitary benchmarks. While Cannabis products for recreational purposes are banned, those for medicinal use are permitted under controlled substances legislation. However, they have not undergone evaluation for efficacy, safety, or quality, raising public health concerns.

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42. What is Being Prescribed Before or in Association with Medicinal Cannabis products in Brazil?

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Background

Regulations on Cannabis prescribing in Brazil stipulate that other alternatives must be given before the products are granted by the courts, since Cannabis use has not been recommended by the National Committee for Technology Incorporation (CONITEC). A thorough understanding of what is prescribed before or during Cannabis use is necessary to audit prescribing, protecting patients from potential adverse events.

Methods

Judicial demands for Medicinal Cannabis products, from 2020 to 2023, were obtained from the Ministry of Health´s Judicial Department. Information on previous plaintiff prescriptions was extracted from lawsuits. Products were identified. Medicines were classified according to ATC. Prescribed indications were classified and aggregated. Absolute and relative frequencies were calculated.

Results

In a total of 2024 lawsuits, 9785 alternatives classified under 53 different ATC 3rd level codes were registered as having been issued before Cannabis prescription. Antiepileptics (N03A) were 50.8% of alternatives, antipsychotics (N05A) 15.5%, antidepressants (N06A) and anxiolytics (N05B) 7.7% each. For 170 cases no alternatives were prescribed and 69 were devoid of any information as to this requirement. Neither prescriptions nor ATC were able to elucidate indication for 19 medicines, because of various possible codes.

Conclusion

Although some regulation for Cannabis prescribing exists, it has not been followed by prescribers. Many different medicines were prescribed and covered much more than possible Cannabis indications. Although the extracted data was supposedly for medicines given before Cannabis products, there is no guarantee that prescriptions were discontinued, raising the need for monitoring for possible adverse events of co-medication.

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43. Medicinal Cannabis as a “Fluid Drug”: how anthropology may support DUR

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Background

Pharmaceutical anthropology is a field of knowledge that has characterized the dynamic role of drugs in society, making it strategic for Drug Utilization Research, and for studies involving pharmaceuticalization. The concept of ‘fluid drugs/entities’ has been presented as a benchmark tool, and Medicinal Cannabis is proposed as a case study due to unprecedented increase in judicial demands for Cannabis products in Brazil.

Methods

Data from judicial demands against the Brazilian Ministry of Health from 2020 to 2023 were explored. An analytical qualitative model involving literature-based dimensions and indicators was developed, under the hypothesis that understanding and categorizing representations and uses of Cannabis as ‘fluid entities’ - that are dependent on cultural, social, economic and political context - may lead to adequate interpretation of the phenomenon.

Results

Four dimensions were identified as well as descriptive indicators, that included: (i) Fluidity, Subjectiveness and Experiences - income, social benefits, reported clinical indications, ICD-10 and prescribers´ medical specialties; (ii) Redefinition of needs and Demands - number of demands through time, most prescribed phytocannabinoids, evidence-based diagnostic status; (iii) Commercial interests - number of authorized Medicinal Cannabis products sellers, product country of origin, financially-involved patient associations; (iv) Regulation - number of imported products and of those with authorized import status, registered Cannabis-derived medicines, compounded products.

Conclusion

The model shows the ‘fluid drug’ nature represented by different roles of Medicinal Cannabis in Brazilian society and explores the main agents of transformation. Although not technically medicines, Cannabis products may be appropriated by pharmaceuticalization.

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57. Prescribed indications and Medicinal Cannabis products in Brazilian judicial demands

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Background

Litigation for access to Medicinal Cannabis products has increased exponentially in Brazil over the last four years and the Federal Government, through the Brazilian Ministry of Health´s Judicial Department (DJUD/MS) is the main supplier. No information as to indications, age groups or product types had yet been systematized.

Methods

Judicial demands from 2020 to 2023 were obtained from DJUD/MS. Sociodemographic characteristics of plaintiffs, medical prescriptions, ICD-10 category and product supply orders were extracted from lawsuits. Prescribed indications were classified and aggregated. Product type was identified. Absolute and relative frequencies were calculated. Heat maps associating patient age, indication and product type were drawn.

Results

DJUD/MS received 2024 demands during the period, the majority, 682 (33.4%), in 2022. The plaintiffs varied in age from < 1 to > 80 yr. Children from <1 to 14 yr were the main recipients. Epilepsy was cited in 732 demands (36.1%) and autism in 550 (27.2%). A total of 3563 diagnosis/indication were presented. Main aggregates were epilepsy (1094; 30.7%), autism (680; 19.8%), pain (321; 9.0%). The most supplied products for all age groups were phytocannabinoid isolates (52.5%), followed by full-spectrum oils (42.0%).

Conclusion

Growing demand has resulted in a rising trend in litigation for access to Cannabis products, which do not yet present a body of high or moderate-level evidence that supports certain indications, such as autism. Children are especially at risk, since no efficacy, safety, quality assurance or typified composition requirements are in place.

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58. Information sources for prescribing anti-emetics for paediatric patients with cancer in Scottish paediatric oncology wards: A document analysis study.

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Background

Emesis is a common indication for pharmacological therapy in children with cancer. Little is known about the available information sources and their content to support the prescribing decisions of anti-emetics for children with cancer in Scotland.

Methods

Relevant documents were collected through two approaches; first, conducting a search on Bing and Google to retrieve publicly available documents; and second, consulting National Health Service (NHS) contacts for additional and publicly unavailable documents. Information on eleven medicine-relevant aspects, such as dose regimen, were searched for each antiemetic. Document analysis and summative content analysis were applied to characterise the documents.

Results

Overall, eleven documents were retrieved: international (n=2), national (n=6), and regional (n=3). Six documents were paediatric-specific documents whereas five included information on both children and adults. The most comprehensive document, in terms of details provided like anti-emetics administration, was the summary of product characteristics (SmPC). Across the retrieved documents, 15 anti-emetics recommended for use in paediatric cancer patients, mostly for the treatment of chemotherapy-induced emesis, were identified. The most commonly presented content was the recommended doses of anti-emetics. This content showed inconsistent dosing for eight antiemetics across the documents. There was evidence of some inconsistence regarding the listed anti-emetics among documents (e.g., certain documents provided information on additional recommended antiemetics).

Conclusion

This study identified variation in the prescribing information for certain antiemetics among the information sources to prescribe different antiemetics in Scottish paediatric oncology wards. Further studies would be useful to understand how these sources are used in the prescribing practice.

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68. Antimicrobial resistance in China across human, animal, and environment sectors - a review of policy documents using a governance framework

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Antimicrobial resistance (AMR) represents a multifaceted threat to human health, animal welfare, and environmental sustainability. In response, China has formulated a series of policies since the 2000s. However, a comprehensive assessment of these policy documents has yet to be conducted. This study aims to systematically review the content of AMR policy documents at the national-level.

A total of 44 policy documents from 2003 to 2022 were identified and analyzed, sourced from official government agency websites. The study used a governance framework that encompasses three key areas (Policy Design, Implementation Tools, and Monitoring and Evaluation) and 18 domians, which were slightly modified to adapt to the Chinese context.

The findings have revealed noticeable discrepancies across the three governance areas. The measures in the Implementation Tools area are well-established, with repeated inclusions in policy documents and subsequent developments over the past two decades, as seen in 'Surveillance' and 'Optimizing antimicrobial usage'. However, the Policy Design and Monitoring and Evaluation require significant strengthening, particularly in the domains of 'Coordination', 'Accountability', 'Sustainability', and 'Effectiveness'. From a 'One Health' perspective, efforts have been invested in the human and animal sectors, but the environment sector is largely missing from the policies reviewed, highlighting an imbalance in addressing AMR holistically.

Effectively addressing these challenges requires a stronger commitment and widespread support from diverse stakeholders. This study underscores the need for a more integrated and balanced governance framework to mitigate AMR risks. China can better align its AMR policies with the 'One Health' approach contributing to global community.

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96. Characterizing Hypercholesterolemia Patients Initiated in PCSK9 Inhibitor Treatment in Denmark from 2017 to 2022 – a National Registry-Based Study

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Background: Statins are the first-line treatment for high cholesterol, but 10-20% of patients discontinue treatment due to intolerance. Proprotein Convertase Subtilisin-Kexin type 9 inhibitors (PCSK9i) are biological drugs that have a favorable safety profile, but represent the last-line treatment option for dyslipidemia due to their high cost. We aimed to examine changes in PCSK9i initiation frequency and patient characteristics in Denmark from 2017 to 2022. We also investigated lipid-lowering treatment strategies used before PCSK9i initiation and the origin of PCSK9i prescriptions in the healthcare system.

Methods: National registry study including all patients initiated on a PCSK9i in the period 2017-2022. Patients were identified in the Danish National Patient Register and the National Hospital Medication Register.

Results: In 2017-2018, 225 patients were initiated on a PCSK9i, which increased to 494 patients in 2021-2022. Overall, 56.4% of patients had high LDL-C (≥2.6 mmol/L) before being initiated; 16.9% had an LDL-C lower than the treatment goal (<1.4 mmol/L). Most patients had tried a statin prior to PCSK9i initiation (96.6%), fewer patients had used ezetimibe (86.2%) or both a statin and ezetimibe (85.1%). Most PCSK9i initiations originated from cardiology departments (76.0%). The number of hospitals initiating PCSK9is increased from four in 2017 to 19 in 2022.

Conclusion: PCSK9i initiations in Denmark increased during 2017-2022, but the number of PCSK9i users is still low. Almost all patients had used a statin before being initiated on PCSK9i treatment; prior ezetimibe use was also common. Thus, most patients were initiated in accordance with national guidelines.

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98. Sweden’s National Pharmaceutical Strategy

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Background

Sweden has a National Pharmaceutical Strategy since 2011 and in February 2024, the fourth strategy was released. The vision is ‘Rational use of medicines to the benefit of patient and society’ and the current strategy covers three focus areas:

- Availability of new and old medicines,
- Pharmaceutical treatment and handling of medicines, and
- Development of new medicines and clinical trials.

The Swedish Medical Products Agency, through the Centre for Rational use of Medicines (abbreviated CBL), is responsible for coordinating and following up the work. The work within the strategy is performed together with 20 authorities and organisations, hereinafter referred to as ‘actors’.

Methods

Since 2011, CBL has, in close collaboration with the actors, produced environmental scanning analyses, action plans and worked with activities to improve use of medicines.

Results

Approximately 50 activities have so far been performed under the strategy, e.g. activities related to better use of medicine to children and managed introduction of medicines. The action plan for 2025 will be finalised in beginning of 2025 and will include e.g. activities related to pharmaceutical competencies and electronic package leaflets.

Conclusion

Through the strategy, agencies and organisations meet and discuss important areas that need to be addressed to improve use of medicines. Collaboration between agencies and organisation is crucial for the success.

In addition to activities within the strategy, there are government assignments, investigations and other initiatives that are in line with the National Pharmaceutical Strategy, which also contribute to improve the use of medicines.

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107. Adherence to Treatment Guidelines for Calcitonin Gene-Related Peptide Monoclonal Antibodies in Migraine Prophylaxis: A Register-Based Cohort Study

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Background: Monoclonal antibodies against Calcitonin Gene-Related Peptide (CGRPi) for migraine prophylaxis were introduced in Sweden through the National Joint Introduction of New Medicines to ensure an equal, cost-effective, and appropriate use nationwide. This study aimed to estimate adherence to treatment guidelines during the national introduction of CGRPi.

Methods: This register-based cohort study followed patients with a migraine diagnosis or CGRPi dispensations in the Stockholm region from January 1993 to June 2022. Treatment guidelines were evaluated across four categories: patient eligibility, prescriber qualifications, treatment evaluation, and monitoring/reporting. CGRPi persistence was analyzed with Kaplan-Meier survival analysis, and treatment switching/discontinuation patterns were visualized using a Sankey diagram. Univariate and multivariate regression models assessed the associations between patient characteristics and long-term CGRPi dispensation.

Results: Of 78 499 eligible patients, 2 217 (3%) had at least one CGRPi dispensation. Most CGRPi patients (89%) had a prior migraine diagnosis, and 78% had been prescribed at least two previous migraine prophylactic medicines. In most cases (97%), the initial and subsequent CGRPi prescriptions were issued by neurologists or physicians at specialized migraine clinics. Median persistence on CGRPi was 5.97 months (IQR: 9.25 months), though some patients continued treatment uninterrupted for over two years, and switching between different CGRPi types was common. Older age and female sex were associated with long-term CGRPi dispensation, but migraine-related health-care visits and prior migraine prophylactic drugs were not.

Conclusion: Prescribers in the Stockholm region adhered well to CGRPi treatment guidelines, with prescriptions generally supported by medical rationale.

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113. Profiling the Pattern of Medication Use During Pregnancy: A Scoping Review of Population-based Studies

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Background: Medication use during pregnancy has risen significantly in recent years. While these medications benefit both maternal and foetal health, their potential adverse effects require careful investigation. Therefore, it is essential to summarise and provide a comprehensive overview of the pattern/types of medications used during pregnancy.

Methods: The JBI methodology for scoping reviews and the PRISMA-ScR guidelines were followed. PubMed, Ovid MEDLINE, Scopus, Web of Science, CINAHL, and EMBASE, were searched for publications between January 2010 and April 2024. All included population-based studies (defined as multicentre) focused on pregnant women and investigated the medications used during pregnancy. Medications use were categorised according to the Anatomic Therapeutic Chemical (ATC) classification system.

Results: Out of 7,752 articles, 83 met the inclusion criteria. The most frequently observed ATC categories during pregnancy were the Alimentary tract and metabolism (A), which accounted for 82.3%, with vitamins (A11) contributing 41.4% of this category. The Nervous system (N) represented 68.2%, with analgesics (N02) making up 61.8% of that total. The Blood and blood-forming organs (B) reached 58.7%, with antianemic preparations (B03) comprising 57.5%. The Respiratory system (R) reached 51.3%, with nasal preparations (R01) constituting 18.7%. Finally, the Anti-infectives for systemic use (J) were at 50.7%, with antibacterials for systemic use (J01) comprising 34%.

Conclusion: These findings highlight the significance of medication in managing common pregnancy-related health issues, including nutritional deficiencies, pain, anaemia, respiratory disorders, and infections. They can provide valuable insights for healthcare professionals and policymakers to optimise medication use and improve maternal and foetal outcomes.

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119. Prescribing trends of Direct Oral Anticoagulant Drugs (DOACs) Across Scotland from 2011 to 2020: a population-based, retrospective study

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Introduction: This study aimed to report real-world oral anticoagulation prescription patterns in Scotland and to highlight changes in prescribing practice over time.

Methods: Retrospective cohort study using linked administrative data from Scotland to identify adults prescribed a first DOAC (dabigatran, rivaroxaban, apixaban, edoxaban) or warfarin in primary care for any indication from Jan 2011 to Dec 2020. Incidence rates were calculated and stratified by age, gender, geography, and socio-demographic factors.

Results: During the study period, 196,924 patients initiated oral anticoagulation (OAC). The incidence of OAC initiation increased significantly by 72.3%, from 250.6 per 100,000 population in 2011 to 431.8 in 2019, before slightly declining by 7.9 % to 397.6 in 2020. Prescribing patterns shifted markedly, with DOAC use rising and VKA initiation declining. In 2011, 98.9% (n=13,133) of patients started on VKA and 1.1% (n=148) on DOAC. By 2015, more patients initiated DOACs (n=11,889; 57%) than VKA (n=8,987; 43.1%), with rivaroxaban being the most prescribed DOAC. By 2020, DOAC use increased to 94.3% (n=20,282) of incident users, with apixaban (n=9,630; 44.8%) and edoxaban (n=6,472; 30%) as the most commonly prescribed. Warfarin initiation declined to 5.7% (n=1,232). Between 2012 and 2017, OAC initiation patterns varied substantially by age group and geographical area, including differences in the choice between DOACs and warfarin and the DOACs prescribed. From 2018 to 2020, these variations diminished significantly.

Conclusion: OAC prescribing patterns have shifted significantly over the study period with DOACs replacing VKAs as the preferred choice across all age groups, geographic areas, and socioeconomic levels.

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127. Drug use evaluations inform quality use of medicines and reimbursement decisions for Australia's Pharmaceutical Benefits Scheme

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Universal subsidised access to cost-effective medicines is a fundamental component of Australia's health system. Drug use evaluations are an ongoing component to ensure the program's viability and promote better quality use of medicines.

Objectives

To determine how findings of drug use evaluations for subsidised medicines are used to identify, assess and address inappropriate use and promote quality of medicines use.

Methods

We conducted a document analysis retrieving drug use evaluation documents published 2012-2022. We developed a standardised tool to extract information on review type, medicines reviewed, and patterns of use, and characterised policy recommendations to the funding agency.

Results

We analysed 111 reports (103 standard and 8 comprehensive reviews). These examined single medicines or combination products, multiple medicines/classes, or disease management.

Recommendations for intervention were made for 45% reviews; most frequently to review/change listing (14%) and educate prescribers (10%). Formulary restriction changes were much more commonly recommended following a comprehensive (88%) than a standard review (8%). It was equally common for a restriction to be relaxed as to be tightened. Quality use concerns were identified in 56% reviews (52% of standard, all comprehensive reviews), across a wide range of medicine classes, most commonly with non-cytotoxic antineoplastics. In only 8 reviews noting quality issues were no recommendations for intervention made. Quality concerns included inappropriate over or under use, safety concerns and cost-ineffective use outside restrictions.

Conclusions

Drug use evaluation embedded within program governance and implementation enables evidence-based recommendations to manage the scheme and address quality use of medicines concerns.

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148. Providing real-world evidence to support health technology assessment in Scotland: insights from the Cancer Medicines Outcomes Programme-Public Health Scotland (CMOP-PHS) collaboration

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Background

Health Technology Assessment (HTA) relies on evidence obtained through clinical trials. With an increasing focus on personalised medicine, specific indications may have very small patient numbers. Furthermore, to-be-treated local populations may not necessarily be entirely reflected in clinical trials. Consequently, additional evidence may be required to support the decision-making process.

The Cancer Medicines Outcomes Programme-Public Health Scotland (CMOP-PHS) collaboration has developed a methodology to provide real-world evidence (RWE) to support HTA processes in Scotland and has conducted a number of pilot studies to test the utility of this evidence in supporting the assessment of cancer medicines.

Methods

Data routinely collected in clinical practice in Scotland, including national systemic anti-cancer therapy (SACT) prescribing records, were used to explore, in the first instance, the use of cemiplimab in advanced cutaneous squamous cell carcinoma (CuSCC); and lorlatinib in patients with ALK-positive advanced non-small cell lung cancer (NSCLC).

Results

Overall, 97 patients initiated cemiplimab for CuSCC between February 2019 and February 2023; of these, n=14 (13.5%) had received prior SACT. Median overall survival (mOS) was 15.4 months (95% CI 4.1 – NE). Between January 2020 and April 2024, a total of 32 patients started treatment with lorlatinib for NSCLC after prior treatment, which included a range of different treatment options. mOS was 14.4 months (95% CI 7.8 – NE).

Conclusion

RWE obtained through routinely collected data supports the HTA process by providing insights into current standards of care and the generalisability of published evidence to the local context.

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164. Oral Anticoagulant Utilization in Hungary (2014 - 2022): Patterns Across Age and Gender

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Background: The primary cause of mortality among European residents in 2020 was cardiovascular diseases, accounting for one-third of all deaths. In Hungary, standardized death rate reached 731.4 per 100,000 individuals, more than twice of the EU average. Oral anticoagulants (OACs) play crucial role in lowering cardiovascular mortality rates.

Aim: This study aimed to evaluate age and gender specific utilization of OACs in Hungary between 2014 and 2022.

Materials and Methods: Data were obtained from the National Health Insurance Fund Database, including the reimbursed prescription medication use of the entire population. Data was collected and analyzed according to WHO's ATC/DDD method and expressed in Defined Daily Dose per 1000 inhabitants per day (DDD/TID).

Results: The use of OACs was 9.79 DDD/TID in 2014, reaching 18.73 DDD/TID in 2022. Utilization was higher in males than females; for VKAs (5.61 vs 4.23 DDD/TID) and DOACs (14.44 vs 13.26 DDD/TID) in 2022, respectively. In both genders, the utilization of OACs gradually increased with age over years and started to decline after the age of 85 years. Maximum utilization was observed in the 80-84 age group for both genders, with higher utilization in males than females for both VKAs (32.16 vs. 18.51 DDD/TID) and DOACs (96.73 vs. 71.23 DDD/TID) in 2022.

Conclusion: OAC utilization doubled during the nine-year study period. Utilization of OACs was higher in males than females, and gradually increased with age over years, with maximum utilization in age group 80-84 year for both genders.

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188. The prevalence of inappropriate use of Acid-Suppressing Agents: A Systematic Review

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Background: Inappropriate use of Acid-Suppressing Agents (ASAs) is one of the drug-related problems that could increase drug adverse reactions. We aimed to synthesize the evidence on the prevalence, and contributing factors of inappropriate ASA use.

Methods: This PROSPERO-registered systematic literature review used PubMed and Embase databases to identify original English-language studies published between January 2000 and June 2024. Eligible studies provided data on the prevalence of inappropriate ASAs use including/excluding data on the type, influencing factors, and consequences of this inappropriateness. EndNote, Rayyan, and ASReview were used to select studies.

Results: We report results of 87 studies from 34 countries, with 19 studies (22%) from the United States. The majority of studies were performed in the hospital setting (n=74, 85%). Out of 82,632 patients using ASAs, 39,885 (48.3%) patients were categorized as inappropriate ASA users due to a lack of indication for ASA use. 14 studies investigated whether age was a significant factor contributing to inappropriate ASA use. Older age was a significant predictor in 5 studies, younger age was a significant predictor in 4 studies and in 5 studies age was not significant. Concomitant use of ASA with other medicines and the presence of comorbidities (in 6 studies each) also contributed significantly to inappropriate ASAs use.

Conclusion: Worldwide, about half of ASA use was found to be inappropriate. Age is a commonly reported factor but which group is most at risk is unclear. Improvements in the prescribing of ASAs are needed to increase the quality of treatment.

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200. Oral antibiotic use with focus on fluoroquinolones during 2010-2021 in four European countries: Finnish results of the HORIZON-EU project "Real4Reg"

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Background

Regulatory authorities have given safety recommendations on fluoroquinolone (FQ) use. In the Real4Reg project, we evaluate changes in FQ dispensing rates and user characteristics in four European countries (Denmark, Finland, Germany, Portugal). This abstract reports findings from Finland.

Objectives

To determine the annual oral FQ dispensing rate, the proportion of FQ out of all dispensed oral antibiotic prescriptions and user characteristics among adult population in 2010-2021 in Finland.

Methods

A nationwide cohort of adults (age ≥ 18 years) with oral antibiotic purchases between 2010-2021 was identified from the Finnish national registers. The dispensing rate of FQ per 1000 persons was calculated yearly and the proportion of FQ out of all dispensed oral antibiotic prescriptions in 6-month time windows. Time trends in demographic characteristics and prevalence of comorbidities (cardiovascular diseases, stroke, diabetes, asthma/COPD, cancer, dementia) were assessed. The same statistics were calculated for cephalosporins and amoxicillin including combinations with clavulanic acid which were used as reference.

Results

Annual antibiotic dispensing rates declined during the study period from 580 to 266 prescriptions per 1000 persons for all oral antibiotics and from 43 to 17 prescriptions per 1000 persons for FQs. The proportion of FQ out of all oral antibiotics remained relatively constant throughout the study (range 7.5-5.2%). FQ users were older than the users of reference antibiotics and had an increase in the prevalence of all studied comorbidities compared to reference antibiotics.

Conclusions

The decline in FQ use is mainly in line with decline in overall use of antibiotics.

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202. Best Practices in Citizen Engagement for Pharmaceutical Policy: Insights from the WHO European Region and Scandinavian Case Studies

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Background: Citizen engagement (CE) in pharmaceutical policy is crucial for creating inclusive, equitable, and responsive health systems. CE ensures that diverse perspectives and tacit knowledge are incorporated into policy-making, enhancing the relevance and effectiveness of policies from marketing authorisation to distribution. This study aims to identify best practices in CE across the WHO European Region, with Scandinavian countries as case studies.

Methods: A comprehensive desk review was conducted across 53 countries under the WHO European Region. The Scandinavian countries were selected as case studies due to their advanced CE practices. Data collection included interviews with stakeholders from EMA, HTA agencies, and patient and citizen organisations. The theory of participatory governance was employed to assess best practices, categorising engagement into consultative, collaborative, and co-productive types (Palumbo 2017). Thematic analysis, as Braun and Clarke (2006) described, was applied

Results: High variability of CE was observed across the region. Scandinavian countries demonstrated robust frameworks for CE, particularly in collaborative and co-productive engagements. Key practices include transparent communication channels, structured feedback mechanisms, and inclusive decision-making processes. The thematic analysis highlighted the importance of trust-building between stakeholders, the need for continuous engagement rather than one-off consultations, and the value of integrating citizen feedback into policy revisions. However, hindrances to meaningful CE included a lack of formal processes and platforms for engagement, limited resources, and existing power imbalances.

Conclusion: Participatory governance frameworks are needed to enhance CE across the WHO European Region. The case-based findings from Scandinavia can inspire policymakers to adopt best practices in CE.

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275. Methylphenidate consumption in Brazil: a brief based on private pharmacy data

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Background

Attention Deficit Hyperactivity Disorder significantly impacts cognitive functions, requiring psychosocial treatment and, in some cases, medication. Methylphenidate is widely used as the first-choice medication. This medication is unavailable in public health units; patients can only obtain it through direct purchase and registration in the National System for the Management of Controlled Products (SNGPC).

Methods

To estimate the consumption of methylphenidate in the Brazilian population from data recorded in SNGPC, we examined a sample of all methylphenidate records dispensing in the SNGPC from 2014 to 2022, selecting the month of June each year. The consumption was expressed in the number of Defined Daily Doses per 1000 inhabit/day (DID), and the compound annual growth rate (CAGR) was estimated to estimate the magnitude of consumption over time.

Results

Approximately 778,072 dispensing data records were collected, covering 2014 to 2022. Missing data were systematically identified for all variables. A total of 749.229 vials/boxes were dispensed, and the immediate release was the most prescribed, 591.504 (79%). Consumption ranged from 11.4 to 34.10 DID (p-value 0.557) and CAGR -7.3%. The 10-14 year age group presented the highest DID in all years, ranging from 0.22 to 6.32 (p-value 0.003).

Conclusion

Despite a significant amount of missing data, there is a noticeable increase in methylphenidate consumption across all age groups without valid justification for its use. Moreover, the country's regulatory agency, which oversees the SNGPC, must ensure the quality of the data to certify the completeness of the available records in consumption studies.

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286. Trends in the use of benzodiazepines and benzodiazepine-related drugs in Estonia in 2010-2024

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Background Despite the well-known serious risks, the use of benzodiazepines and benzodiazepine-related drugs (BDZs) has been relatively common in Estonia. In 2023, the national prescribing regulation for BDZs were revised, e.g., quantity limits at the initiation and in continued treatment, pop-up alerts in the e-prescription system, only by electronic prescriptions, psychiatrist e-consultation service for family practitioners. We explored the trends in the use of BDZs in Estonia between 2010 and 2024.

Methods The nationwide wholesale data expressed as defined daily doses per 1000 inhabitants per day (DDD/1000/day) from the Estonian State Agency of Medicines was used. The drug classes of interest were: benzodiazepines (ATC groups N03AE, N05BA, N05CD), benzodiazepine-related drugs (ATC group N05CF). Joinpoint regression analysis was used to evaluate the trends during the study period. An annual percentage change (APC) with 95% confidence intervals (CI) was calculated for the identified trend segments.

Results The use of benzodiazepines decreased from 16,0 DDD/1000/day in 2010 to 14,0 DDD/1000/day in 2022 (APC -1.5%, 95%CI -2.2%...0.1%), followed by a decline of 9.7% (95% CI -14.9%...-3.1%) per year in 2023 and in 2024, being 11.3 DDD/1000/day in 2024. The use of benzodiazepine-related drugs increased from 12.7 DDD/1000/day in 2010 to 21.4 DDD/1000/day in 2022 (APC 2010-2014 10.5%, APC 2014-2022 1.6%), thereafter declined -9.5% (95%CI -11.4%...-5.8%) per year, being 17.5 DDD/1000/day in 2024.

Conclusion In response to the revision of national prescribing regulation for BDZs in Estonia, the use of BDZs has started to decline considerably. Further research should examine the differences in subpopulations affected.

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296. Impact of guidelines for andexanet alfa use on mortality and thromboembolic events in patients experiencing major bleeding during treatment with rivaroxaban or apixaban in Tuscany, Italy

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Background

The Tuscany Region (RT), in Italy, has implemented guidelines for andexanet alfa (AA) use to support emergency care decisions and restrict AA use to specific cases.

Objective

To assess the impact of AA guidelines on mortality and thromboembolic events in Tuscan patients that experienced severe bleeding during apixaban or rivaroxaban use.

Methods

The ARS Toscana regional healthcare administrative database was used. Since AA use is not recorded at patient-level, an ecological study was performed. Treatment episodes with rivaroxaban/apixaban were identified between 1/1/2018 and 1/8/2024. Major bleeding events occurred during treatment episodes were identified through emergency room and hospital discharge diagnoses. Three study periods were defined: 1)Pre-AA (1/1/2018-31/8/2021, excluding COVID19 emergency period 8/3/2020-22/6/2021), 2)AA available pre-guidelines (1/9/2021-31/7/2023), 3)AA available with guidelines (1/8/2023-30/9/2024). Mortality and cumulative incidence (CI) of thromboembolic events were observed up to 30 days from bleeding occurrence. The number of AA dispensations per month was also observed.

Results

According to preliminary study results, a total of 1,366 severe bleedings with rivaroxaban/apixaban were observed. Mean age at bleeding was 81.4, 81, 81.5 in period 1, 2 and 3 respectively. Thirty-day CI of thromboembolic events was 2.9% in period 1, 2.1% in period 2 and 4.7% in period 3. Mortality was 17.6% in period 1, 22.7% in period 2, and 19.8% in period 3. Average monthly AA dispensations was 7.4 in period 2 and 6.2 in period 3.

Conclusions

Extention of data collection to 31/3/2025 and analysis refinement (e.g. covariate adjustment) is warranted.

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320. Appropriate Use of Asthma Therapy: Are We All Lost in Translation?

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Background

Individual asthma medications may be considered as safe and effective, but the overall level of asthma control is nonetheless poor, due to inappropriate use of therapy (IUT). Poor asthma control affects Health-Related Quality of Life (HRQOL) and Medical Resource Utilization (MRU), and may lead to complex, costly, and avoidable treatment escalation.

We aim to demonstrate how *observed* benefit-risk ratios (BRRs) may differ from *expected* BRRs when the stakeholders (eg, regulators, healthcare professionals, educators, drug industries, analysts, academia, and patients) have distinct understandings and behaviors, rare interactions, and discordant objectives.

Material & methods/Results

Examples of IUT and their relationships with outcomes will be discussed, against a background of data collections / analyses producing *spotty* evidence.

Some common but disputable *health beliefs* will be exposed, that must be amended to improve actual use and effects of therapies.

Cases of *discordant* OBRR will be presented, with their impacts on recommendations.

The assumption will be defended that appropriate, consistent, and clear evidence may be produced, shared by all stakeholders, with a measurable impact on the quality of asthma care.

Conclusions

Poor overall control of asthma is a consequence of the deep ambivalence of therapies, the fragmentation of research on drug use and effects, and the silo behaviors of stakeholders.

There is an urgent need to reassess target populations from valid estimates of actual use and effects of therapy, and to synthetize and disseminate recommendations for evidence-based asthma care.

Interventions

14. A qualitative study exploring factors influencing the implementation and delivery of services provided by pharmacist-independent prescribers for people with mental illness in UK community settings

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Background: Non-medical prescribing by nurses, pharmacists, and allied professionals aims to improve access to mental health care. However, most emerging evidence exploring implementation and impact focuses on nurses despite the expanding role of pharmacists. Thus, this study explored factors influencing the implementation and delivery of pharmacist prescribing services for people with mental health illness in the community.

Method: Between January-June 2024 remote semi-structured interviews were conducted with pharmacist prescribers managing people with mental illness in UK community settings. Participants were recruited via purposive sampling through social media and professional networks. Independent coding of transcripts to generate the coding framework was followed by thematic analysis of the full dataset.

Results: Twenty pharmacists participated representing general practice, community mental health teams, perinatal teams, crisis/liaison teams, and primary care networks. Four main themes emerged: insecurity, ambiguity, training/education, and workload. Participants across all settings reported confidence and competence issues, with general practice pharmacists citing challenges related to a lack of confidence in managing patients with mental health illness while those in specialist services highlighted difficulties with risk management. Most participants noted gaps in training for mental health assessments. Role misunderstandings and workload concerns were reported. Participants cited high satisfaction levels from anecdotal patient feedback, but formal service evaluations were lacking.

Conclusions: Several factors were found which may promote successful management of patients with mental illnesses by pharmacist prescribers including enhancing mental health training, improving workload management, and clarifying roles. Future research should evaluate these services from both patients' and carers' perspectives.

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39. Exploring the Training, Attitudes, Confidence, and Knowledge of Hospital Doctors for the Prescription of "As Required" Medications: A Cross-Sectional Single Centre Survey

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Background: 'As required' (PRN) medications are widely used in managing acute and intermittent conditions in hospital settings. Despite the prescription of prn medications being a vital clinical skill, gaps in knowledge and practice exist, particularly among newly qualified doctors. This study investigates hospital doctors' training, attitudes, confidence, and knowledge regarding PRN prescribing.
Methods: A questionnaire was distributed to 150 medical doctors, from intern to consultant level in an Irish teaching hospital. It explored demographics, training, daily duties, attitudes, confidence, and knowledge about PRN prescribing. Data were analysed using descriptive and inferential statistics.
Results: Fifty responses were received (response rate: 33%). While 80% of respondents reported receiving formal medication prescribing training during medical school, only 58% had specific education on PRN prescribing. Post-qualification, general prescribing training dropped to 58%, with PRN-specific training decreasing further to 32%. A significant training gap was found between general and PRN prescribing ($p < 0.05$).
Confidence levels varied with only 36% of participants strongly agreed they felt confident in prescribing PRN medications, while 28% expressed uncertainty or disagreement. Knowledge gaps were also highlighted—just 12% strongly agreed they had adequate knowledge to prescribe sedative hypnotics, and 70% disagreed that they had adequate antipsychotic prescribing knowledge. Notably, 74% of respondents, particularly interns and SHOs (85%), expressed a desire for additional PRN training.
Conclusion: Significant gaps exist in PRN prescribing training, both at undergraduate and postgraduate levels. Targeted educational programs are necessary, particularly for junior doctors, to enhance their confidence and competence in PRN medication prescribing.

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59. Launching a Toolkit for routine PROMs collection in Scotland

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Background

Patient Reported Outcome Measures (PROMs) are not collected routinely in Scotland. The Scottish Government (SG)-funded Cancer Medicines Outcomes Programme-Public Health Scotland (CMOP-PHS) co-established the Scottish Cancer PROMs Advisory Group (SC PROMs AG) to provide a strategic approach to cancer PROMs.

Embedding PROMs into care can help monitor treatment impact on quality of life, inform decisions, and transform care pathways. Through stakeholder engagement and building on work done elsewhere in UK, the need for support for PROMs implementers was identified.

Toolkit development

Based on the NHS Wales Value in Health Care work, and through engagement with stakeholders/the Scottish Cancer PROMs Forum, the SC PROMs AG developed a PROMs Toolkit comprising: aim; background PROMs information; core literature and real-world examples of PROMs; PROMs Core Principles (developed through multi-stakeholder engagement and endorsed by SG); and links to SG strategy. Although developed in cancer, the toolkit is applicable in any clinical area, or to anyone planning/evaluating PROMs' implementation.

Toolkit launch & progress

The Toolkit is hosted on NHS Scotland's online learning platform (1). Page views and toolkit downloads were tracked using in-site functionality. The toolkit launched in October 2024 and in the first two months received 466 page visits and 84 downloads.

Next Steps

Feedback is being collected on the toolkit's acceptability and perceived usefulness from users. Dissemination is ongoing and uptake is being monitored through continuous tracking page visits and downloads.

References:

1. SC PROMs Toolkit (2024) https://learn.nes.nhs.scot/78153#

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85. Opioids prescription patterns after pediatric adenotonsillectomy: A cross-sectional survey of otolaryngologists across Canada

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Background: Adenotonsillectomy is one of the most common pediatric procedures, often complicated by postoperative pain, which can lead to reduced oral intake, dehydration, and potential readmission. In 2013, the Food and Drug Administration issued a warning against using codeine in children post-adenotonsillectomy due to the risk of severe adverse effects. This study aims to evaluate opioid prescribing practices among Canadian otolaryngologists following adenotonsillectomy.

Methods: In June 2024, a cross-sectional online survey with 14 multiple-choice and open-ended questions was distributed to members of the Canadian Society of Otolaryngology – Head and Neck Surgery. The survey gathered demographic information and opioid prescribing habits. Data were summarized using percentages, and associations between dichotomous variables were analyzed using χ^2 or Fisher's exact test.

Results: Of 517 active members, 100 responded, yielding a 19.3% response rate. Respondents came from diverse geographic regions across Canada. Overall, 73% reported using opioid-sparing regimens, with pediatric otolaryngologists more likely to adopt these practices compared to general otolaryngologists (91% vs. 67%, p=0.0194). Morphine was the most frequently prescribed opioid (82%), while codeine was the least favored. The minimum age for opioid prescription showed a characteristic tri-modal distribution.

Conclusion: This study reveals a significant shift toward opioid-sparing practices among Canadian otolaryngologists, particularly pediatric sub-specialists. Despite this progress, there remain areas for improved opioid stewardship, including the standardization of pain management guidelines and exploration of alternatives for younger children to further reduce opioid use and enhance patient safety.

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115. Elevating Insomnia Care: Pharmacist-Led Behavioral Treatments with Comprehensive Sleep Health Assessment

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Chronic insomnia affects 10–15% of the population, remains undertreated in primary care, and sleep pills are often the first choice despite their risks. Untreated insomnia worsens health outcomes. Cognitive and behavioral treatments for insomnia (CBT-I) are strongly supported by numerous studies demonstrating their effectiveness. Adaptations such as brief behavioral treatment for insomnia (BBTi) and pharmacist-led approaches in medical clinics, have also shown promising results. In Quebec, the presence of on-site pharmacists in family medicine groups (FMGs) makes this model particularly relevant and feasible.

This project evaluates the effectiveness and cost-effectiveness of pharmacist-led behavioral treatment for insomnia (BTi) inspired by BBTi, in Quebec FMGs. A randomized controlled trial will compare BTi to usual care (educational brochure) in 200 adults with chronic insomnia (DSM-V). The intervention group will receive a comprehensive evaluation, four tailored BTi sessions with sleep-diary monitoring, and support for deprescribing sleeping pills. Costs and patient satisfaction will be assessed at three months. The control group will receive a sleep health brochure and complete sleep diaries and ISI-7 at baseline and three months. Control participants will have access to the intervention after three months for ethical reasons. Data analysis will explore individual variability, followed by aggregate modeling. We anticipate significant ISI improvements, reduced sleeping pill use, and cost-effectiveness.

BTi is expected to reduce medication use and healthcare costs while improving outcomes, supported by existing evidence. This project highlights the added value of pharmacists in managing chronic insomnia and improving access to effective treatment while reducing reliance on medication.

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117. Acceptability Testing of the Inpatient Mental Health Pharmaceutical Assessment and Care Tool (IMPACT)

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Background: The Inpatient Mental Health Pharmaceutical Assessment and Care Tool (IMPACT) was developed to assist inpatient mental health pharmacy teams in prioritising patients for pharmaceutical review. This study aimed to assess the acceptability of the IMPACT tool.

Methods: An iterative qualitative approach was used to test the acceptability of the tool using the Theoretical Framework of Acceptability. Pharmacy staff from four NHS organisations were invited to participate. Participants were asked to attend a training session, complete the IMPACT tool for 10 patients retrospectively, record their views using reflection sheets, and attend focus group discussions. Following the analysis of the first focus group, the tool was modified before testing the second version. Ethical approval was obtained from the University of Manchester and the Health Research Authority.

Results: A total of seven pharmacists and five pharmacy technicians took part in the study. Four focus groups were conducted, and six reflection sheets were received. Most participants perceived the tool to be easy, effective, fair to patients, and were confident in their ability to use it. Few pharmacy technicians, however, found it difficult and doubted their ability to use it effectively. Whilst most participants found the tool time consuming, they also agreed that it was worth the time. Participants also gave valuable suggestions for improvement; some were applied in the second version which was well received by subsequent participants.

Conclusion: The IMPACT tool was generally acceptable by participants. Further qualitative and quantitative feasibility testing is required to ensure its efficacy and successful implementation.

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125. The perceived impact on patient safety and quality of care of pharmaceutical technical assistants in medication management in nursing wards: a qualitative study

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Background

Staff shortages challenge hospital nurses to maintain high-quality medication management. Pharmaceutical Technical Assistants (PTAs) have been introduced to assist with medication dispensation in hospital wards. However, limited evidence exists regarding the impact of PTAs on care quality and patient safety. This study aims to explore the experiences and perceptions of nurses, PTAs, and pharmacists regarding the implementation of PTAs to support medication dispensation on hospital wards.

Methods

This qualitative study (December 2022 – June 2024) employed a sequential methodological triangulation, consisting of two parts: 1) individual semi-structured interviews and 2) focus groups. Interviews explored personal insights from healthcare professionals, while focus groups captured general beliefs and emerging themes for quality improvements. All data were transcribed and thematically analysed.

Results

Twenty-eight interviews with nurses, PTAs, and pharmacists revealed three main themes: patient safety & quality of care, organization of care, and role development & collaboration. PTAs were seen as reducing medication errors without compromising care quality. Successful implementation required clear role descriptions and standardized communication. Consistent PTA assignment to specific wards improved team integration and collaboration. PTAs viewed their expanded roles positively, while nurses noted that working with PTAs reduced workload but challenged their supervisory role. Focus groups emphasized the need for structured communication, regular interprofessional team meetings, clear handover protocols, and joint training to enhance collaboration, role clarity, and workflow efficiency.

Conclusion

This study provides a comprehensive understanding of healthcare professionals' perspectives on PTA implementation. Recognizing PTAs as valuable contributors to medication management can improve medication safety and patient care.

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126. A systematic review on medication management tasks performed by pharmacy technicians on a hospital ward and their effect on patient, healthcare professional, healthcare organisation and quality of care.

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Background

Pharmacy technicians (PTs) play a crucial role in medication management on hospital wards, yet their full scope of tasks and impact on patient outcomes, healthcare professionals, and overall care quality remains underexplored. This review aims to assess PTs tasks on hospital wards globally and evaluate their effects on key outcomes, offering insights to inform policy, optimize workforce planning, and improve patient safety and care quality.

Methods

A systematic literature search was performed in PubMed, Embase, CINAHL, Web of Science, and Science Direct to identify studies on PT tasks on nursing wards and their effects on patient, pharmaceutical, nursing, and ward outcomes. The protocol for this systematic review was registered with PROSPERO (CRD42023465217).

Results

Out of 3 878 articles screened, 21 studies were included in the review. PTs tasks were categorized into five areas: medication preparation, medication stock and supply management, medication administration, obtaining medication history and reconciliation, and providing patient education. Measurements were conducted in the following categories: time and efficiency, medication administration and errors, clinical outcomes, cost and resource management, staff satisfaction, and patient satisfaction. These categories provided a comprehensive assessment of the impact of PT tasks on various healthcare outcomes.

Conclusion

PTs positively impacted time efficiency, the accuracy and timeliness of medication administration, clinical outcomes, and staff satisfaction. Their involvement in medication history, reconciliation, and patient education further contributes to medication safety and improves overall care quality. The evidence highlights their potential essential role in optimizing healthcare delivery and enhancing satisfaction among pharmacists, nurses, and patients.

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135. Educating for Safety: The Impact of a Brief Pharmacist-Led Intervention on Adolescent Medication Literacy

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Limited critical thinking and media literacy contribute to the spread of misinformation about pharmacotherapy, increasing the risk of improper medication use among adolescents. Despite recommendations from the Ministry of Health of the Slovak Republic advocating for pharmacist-led education in schools, both systematic medication literacy programs and data on adolescents' medication literacy remain lacking.

This study aims to assess adolescents' medication literacy and evaluate the impact of a brief pharmacist-led educational intervention on their medication-related knowledge and attitudes. Medication literacy is defined as the ability to obtain, comprehend, communicate, calculate, and apply patient-specific information about medications.

A validated online questionnaire will be administered to Slovak adolescents aged 15 to 19 to assess their knowledge, attitudes, numeracy, functional literacy, and behaviors related to medication use. The intervention will consist of a brief educational session covering essential topics such as basic information, potential side effects, safe storage practices, ecological disposal, reliable sources of medication information, and the importance of proper medication use while also encouraging open communication with healthcare providers. Data collection will occur during school sessions both before and after the educational intervention.

By providing adolescents with essential knowledge, pharmacist-led education has the potential to improve medication literacy, enabling informed health decisions and promoting safer self-medication. This research will also explore the relationship between selected aspects of medication literacy and perceptions of medication safety and efficacy, offering valuable insights for future educational strategies. Enhancing adolescents' understanding of medications is crucial for fostering responsible medication use, reducing risks, and supporting long-term health awareness.

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175. Deprescribing medicines of limited clinical value: perspectives from a Scotland health-board

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Background: Scotland's health-boards were consulted on national guidelines for medicines with limited clinical value in December 2023. Lidocaine plasters (licensed for post-herpetic neuralgia) were listed. In January 2024 NHS Greater Glasgow and Clyde (NHSGGC) health-board implemented a quality improvement strategy for lidocaine plasters; a concerted effort across primary and secondary care settings designed to clinically review practice and deprescribe unlicensed and non-formulary prescribing. The national guidelines were eventually published in December 2024.

Aim: To quantify the prescribing trends of lidocaine plasters across Scotland's health-boards during national consultation on prescribing guideline.

Method: This is a population-wide study using Prescription Information System (PIS) data for 5,490,100 residents of Scotland. Scotland has a fully funded healthcare system for all prescription-only medicines and most general sale medicines; there are no out-of-pocket costs.

Cost of lidocaine plasters calculated from all prescriptions between January 2022 and December 2024. Cost per 1,000 residents for each health-board was calculated using national population figures. Data for three island health-boards were aggregated.

Result: In 2023 the prescribing rate was highest in NHSGGC (€6,647.33 per 1,000 residents) and the lowest was €907.97. This 7-fold difference shrunk to a 5-fold difference in 2024 because of a fall in prescribing in NHSGGC (€5,919.21 per 1,000 residents) and an increase in all other health boards (the lowest was €1,088.28)

Conclusion: Development of national guidance in Scotland prompted deprescribing of unlicensed and non-formulary prescribing of lidocaine plasters in NHSGGC. The prescribing rate fell in 2024 but is still the highest across the Scotland health-boards.

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192. An Observational Study on Performance of Trigger Tool in ADR Identification in Emergency Medicine Department: Proposing a Specific Novel Tool for Indian Settings

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Aim: This study aims to evaluate the effectiveness of trigger tools in detecting adverse drug reactions (ADRs) in emergency intensive care units (EICUs) by assessing the sensitivity and specificity of the Institute for Healthcare Improvement: Global Trigger Tool (IHI GTT) and developing a new, EICU-specific tool.

Methodology: A prospective, single-center study was conducted over one year in the Emergency Medicine department with approval from the University Ethics Committee for Human Trials. Triggers were defined using the IHI GTT. Each flagged case underwent comprehensive review to balance efficiency with thoroughness in confirming ADRs. Performance metrics were analyzed, and a Delphi method based on multiple questionnaires was used to develop a new tool.

Results: Three hundred medical records were collected, and 167 cases (56%) were analyzed randomly using 87 triggers. The prevalence of ADR was found to be 28%. The trigger tools showed 83.8 % sensitivity and 48.7% specificity. The results showed that the negative predictive value (NPV) was 92.3% but the positive predictive value (PPV) was found to be 72.9%. A novel tool has been developed with 36 triggers for detection of ADRs in EICUs.

Conclusion: In EICU settings, trigger tools help identify early ADRs, despite challenges with specificity and false positives. The newly developed tool provides a streamlined, efficient approach for emergency departments, ensuring rapid implementation. Its simplicity and enhanced specificity improve reliability, patient safety, and care outcomes compared to existing alternatives.

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195. A pilot study for assessing the Feasibility and Implementability of a Nurse-Led Intervention in primary care for the deprescribing of Hypno-sedative medications

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The high intake of hypno-sedative drugs remains a problem in Belgium. Despite their initial effectiveness, prolonged use of hypnosedatives is associated with dependency, cognitive impairment, and increased fall risk. Hypno-sedatives are often prescribed first for sleeping problems, but discontinuation of those hypno-sedatives is not very common. Different strategies are already taken, but are more focused on residential care settings.

Objective: This study aims to assess the feasibility and implementability of a nurse-led intervention for hypnosedative tapering in home care, focusing on improving sleep quality and overall quality of life in older adults.

Methods: A pilot study will be undertaken in the period January-March 2025. Participants (aged 65+) currently using hypno-sedatives will be recruited. A complex intervention will be rolled out, focusing on the deprescribing process involving educational sessions, behavioral support, a structured tapering plan, and multidisciplinary collaboration between pharmacist, nurse and general practitioner.

Results: Primary outcomes include sleep quality (measured by the Insomnia Severity Index), general quality of life (EQ-5D-5L) and prevalence of hypno-sedative use. Data collection will also include all tapering steps (dosage changes), general well-being, and the nurse will monitor the deprescribing process on a weekly basis and report any deprescribing symptoms back to the general practitioner.

Conclusion: This research will provide insights into the practical application of deprescribing interventions in home care and inform future large-scale studies on optimizing hypnosedative reduction strategies for elderly patients.

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211. Patient-centered communication and shared decision-making during patient consultations aimed at deprescribing cardiovascular and diabetes medication

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Background: Patient-centered communication (PCC) and shared-decision making (SDM) are considered important elements of patient consultations on deprescribing. In the CO-DEPRESCRIBE trial, HCPs received training in PCC and SDM for deprescribing cardiovascular and diabetes medication during clinical medication reviews in primary care. We aimed to assess the extent to which HCPs practice PCC and SDM and compare this to patient experiences.

Methods: We analysed video-recordings of patient consultations using the Observation Scheme-12 (range:0-48) and OPTION5 (range:0-20) instruments to observe PCC and SDM. We assessed patient-reported experiences using the CAT-Pharm (range:0-60) and SDM-Q-9 (range:0-45) questionnaires, respectively.

Results: 26 patient consultations of 15 trained HCPs were video-taped. Sumscores indicated moderate to high levels of observed PCC (Observation Scheme-12 [median=34; IQR:30-39]) and low to moderate levels of SDM (OPTION5 [median=10; IQR:4-12]). For patient-reported experiences of both PCC (CAT-Pharm [median=45; IQR:43-52]) and SDM (SDM-Q-9 [median=32; IQR:20-35]) levels were moderate to high. We found no significant associations between observed skills of HCPs and patient experiences for PCC (r_s=.297,p=.123) and SDM (r_s=.402,p=.055), respectively. Both observed and patient-reported data showed relatively higher performance on 'using understandable language' and 'indicating the possibility to be involved in decision-making to patients' and lower performance on 'checking understanding' and 'assuring to help patients become informed as desired'.

Conclusion: PCC during deprescribing consultations conducted by trained HCPs was moderate to high according to both observed and patient-reported assessment. While observed SDM was suboptimal, most patients did not have this experience.

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305. Prospective observational study on the impact of community pharmacist-led self-monitored glycemic control consultations in diabetic patients management using continuous glucose monitoring (CGM) systems: Protocol development.

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Background
More than 160,000 in Lithuania, are living with diabetes. Community pharmacists (CP), as integral members of the diabetic patient (DP) care team, play a significant role in glycemic control management. Continuous glucose monitoring (CGM) system is effective method for tracking blood glucose levels. Pharmacists led CGM use consultations can improvemedicine use and diabetes outcomes. The aim of the study to evaluate the role of pharmacist-led intervention in glycemic control management.

Methods
The prospective observational study will involve 500 DPs and 500 CPs. CPs will be trained and provide consultations. DPs will receive at least three pharmacist consultations within the period of the study. Knowledge of diabetes management, experience with CGM, and attitudes towards pharmacist's consultation will be evaluated using questionnaires with 5-point Likert scales. Self-managed glycemic control results and CGM using errors will be documented. Impact of pharmacists led intervention on glycemic control and glycemic outcomes, including medicine use will be evaluated.

Results

Thus far, Bioethics committee permission will be received Feburary 2025. The questionnaires have been developed and piloted in 2024. Primary results showed that pharmacists led intervention resulted in significant positive change in theevaluation of glucose before the night time (p = 0.042) and DPs view on glycemic control 3.1±0.79/5 vs 3.5±0.65/5 (p = 0.014).

Recruitment process has started.

Conclusions
The study will conclude on the effectiveness of trained pharmacist-led consultation = in glycemic control management in DPs using CGM and develop a structured model for these consultations.

Method

7. Disproportionality analysis of enfuvirtide to identify a putative signal using real worldpost marketing surveillance data reported in the FAERS database.

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Background

Enfuvirtide is a synthetic peptide that prevents human immunodeficiency virus (HIV)-1 from binding to and infecting CD4 cells by inhibiting viral fusion. As the first fusion inhibitor drug, enfuvirtide has a unique mechanism of action. Signal detection and disproportionality analysis help identify previously unrecognized adverse drug reactions (ADRs).

Objective

To identify novel signals of enfuvirtide reported within the USFDA Adverse Event Reporting System (FAERS) database.

Methodology

A retrospective disproportionality analysis was conducted using the FAERS database. Reports of enfuvirtide, approved by the FDA in 2003, were analyzed. Two widely used data-mining algorithms, Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR), were applied using the OpenVigil database. Positive signals were defined as PRR≥1 and ROR-1.96SE>1.

Results

Out of 27,634,809 FAERS reports, 2,256 reports related to enfuvirtide were analyzed after data cleansing. These included 2,045 serious and 254 fatal reactions. A novel signal, plagiocephaly, was identified, with 27 reported cases. Data-mining algorithms yielded an ROR of 158.327 (58.905; 425.557) and PRR of 157.726 (58.9; 422.369), confirming the association of plagiocephaly with enfuvirtide.

Conclusion

This study revealed a novel ADR signal, plagiocephaly, associated with enfuvirtide. Healthcare practitioners should monitor patients for plagiocephaly. Further epidemiological studies are warranted to validate this signal in real-world settings and enhance patient safety.

Keywords: Enfuvirtide, Signal Detection, Plagiocephaly, FAERS Database, Human Immunodeficiency Virus

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19. Validation and Extension of IPW-Adjusted Cox Regression Using Super Learning: Insights from Antihypertensive and Antihyperlipidemic Therapy Comparisons

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Background
Super Learning (SL) is an advanced ensemble machine learning method increasingly used in medicine. Inverse probability weighting (IPW) is a common approach in causal effect estimation. Previous studies used IPW-adjusted Cox regression to compare the effectiveness of antihypertensive and antihyperlipidemic drug monotherapies in the primary prevention of cardiovascular disease (CVD), considering limited variables.

Objective
This study validates findings from IPW-adjusted Cox regression using R packages (e.g., SuperLearner) and investigates the impact of broader variable inclusion.

Methods
A retrospective cohort study analyzed antihypertensive and antihyperlipidemic drug monotherapies, including beta-blockers (BBs), calcium channel blockers (CCBs), thiazides, ACE inhibitors (ACEIs), and statins. Cox proportional hazards models adjusted with IPW used R packages (twang, ipw, SuperLearner) with limited and expanded covariates. Hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated.

Results
For antihypertensives, SL-IPW showed higher hazards for CCBs compared to BBs (HR: 1.27; expanded: HR: 1.35) and lower hazards for thiazides (HR: 0.91; expanded: HR: 0.92). ACEIs were associated with increased hazards. For antihyperlipidemics, atorvastatin and rosuvastatin had higher hazards than simvastatin (HRs: 1.26 and 1.22, respectively), with findings stable after including expanded variables.

Conclusions
Results obtained using SuperLearner aligned closely with traditional IPW methods, highlighting its reliability and the robustness of earlier findings in producing high-quality causal effect estimates.

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79. The use of International Classification of Diseases codes to identify hospital admissions linked with adverse drug events: validation study

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Introduction: Several methods exist to identify hospital admissions related to adverse drug events (ADEs). Clinical adjudication by healthcare professionals is the gold standard but is labor-intensive. Spontaneous reporting and routinely collected healthcare data using a set of International Classification of Diseases (ICD) codes often underestimate the prevalence of ADE-related admissions. Expanding the set of ICD codes could improve detection; however, validation is limited.

Objective: To examine the agreement between ADE-related ICD-10 codes and clinically adjudicated ADE-related admissions in two settings.

Methods: This study analyzed two datasets: 1,102 readmissions from a hospital in the Netherlands (180 ADE-related) and 1,228 admissions from a hospital in the Czech Republic (195 ADE-related). Clinical adjudication involved expert review including causality assessment to identify ADE-related hospital admissions. The sensitivities and specificities were calculated for a narrow code set (higher drug-likelihood codes containing words like drug-induced or due to drugs) and a broad code set of ICD-10 codes (including codes very likely, likely, and possibly ADE-related).

Results: The narrow ICD-10 set showed a sensitivity of 3% and a specificity of 99.6%. The broad set increased sensitivity to 27%, with specificity decreasing slightly to 93%. Preventable ADEs were identified less frequently with both ICD-10 code sets.

Conclusion: Only 3% of ADE-related admissions were detected by the narrow ICD-code set and 27% by the broad code set without a significant drop in the specificity. ADE-related ICD codes seem to serve as triggers for 1 in four ADE-related hospital admissions

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87. Do post-menopausal hormone therapies prevent dementia? Application of two risk of bias tools for observational studies within a controversial research area

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Background: Systematic reviews of treatment outcomes increasingly include observational evidence. Risk of bias assessment is a key component of evidence synthesis, with two tools often used: ROBINS-I (Cochrane) and NOS (Newcastle-Ottawa-Scale).

Although RCTs found that menopausal hormone treatment (MHT) increases dementia risks, a recent systematic review concludes that midlife MHT prevents dementia, based on meta-analyses of observational studies.[1] Risk of bias was not assessed; could it inform this controversy?

Aims: This study applies ROBINS-I and NOS to evaluate these tools' application and determine if risk of bias is associated with study outcome.

Methods: We assessed 43 observational studies with relevant outcomes in *Nerratini et al*. Using ROBINS-I and NOS, we classified each study as low, moderate or high risk of bias, using *a priori* thresholds and duplicate independent coding. To compare study results with risk of bias, we carried out meta-analyses with assessment of interaction effects between studies assessed as low/moderate versus high risk of bias.

Results: The 43 studies (25 case-control; 18 cohort) date from 1984 to 2022. Key differences include how exposure was assessed, adjustment for confounders, and completeness of follow-up. Preliminary results indicate frequent misclassifications by NOS; ROBINS-I fared better on individual criteria, but not overall ratings. Findings of dementia prevention were strongly associated with high risk of bias.

Conclusions: Risk of bias assessment is an essential component of systematic review methods. Our results suggest a need for better tools that reflect best practices in pharmacoepidemiology.

1.Nerratini et al. *Front Aging Neurosci* 2023; DOI : 10.3389/fnagi.2023.1260427

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89. Opioid prescribing trends in Scandinavia: Three measures, nine perspectives (2010–2023)

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Background: Opioid utilization studies relying on single metrics may result in misleading interpretations due to their limitations. This study analyzed opioid use in Scandinavia using multiple metrics.

Methods: A repeated cross-sectional study utilizing nationwide data on dispensed opioid analgesics (ATC group N02A) from Denmark, Norway, and Sweden (2010–2023). We analyzed one-year prevalence/1,000 inhabitants, defined daily doses (DDD)/1,000 inhabitants/day (TID), morphine milligram equivalents (MME)/TID, and DDD/user/year.

Results: Norway consistently had a higher and stable prevalence of total opioid use (105/1,000 inhabitants in 2023), while the proportion of users declined in Denmark and Sweden (57 and 61/1,000 inhabitants in 2023, respectively). Denmark had the highest opioid use in MMEs (742 MME/TID), driven by greater morphine and oxycodone use, yet Norway ranked highest in DDDs (15 DDD/TID). Sweden showed larger decreases in total opioid use by DDD/TID compared to MME/TID, while Norway's trends were even contradictory, with decreasing DDD/TID and increasing MME/TID. The prevalence of tramadol use declined in Denmark and Sweden but rose in Norway. The prevalence of oxycodone use increased in Norway and Sweden, with Sweden having the highest prevalence of use but the lowest annual quantity per user. Norway showed by far the highest morphine quantities per user in 2023.

Conclusions: We identified substantial differences in total opioid use and substance-specific prescribing patterns between countries, with results sensitive to the choice of measure. The study highlights the benefits of using multiple metrics to interpret opioid utilization data accurately.

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92. Different data sources, different results – a Hungarian example

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Background

In a drug utilization study, characteristics of data source are fundamental, and researcher must consider the strengths and limitations. Our aim was to demonstrate through a Hungarian example that the choice of data source can affect study results.

Methods

For the analysis (study period 2012-2021), two databases were used. The first was a wholesale database (IQVIA) that provides total coverage for drug sales in Hungary, including reimbursed and non-reimbursed medications from the ambulatory sector. The second database was an insurance database (National Health Insurance Fund), which is the only mandatory health insurance provider in Hungary, covering the entire population but contains only reimbursed drug dispensing in ambulatory care.

The investigated drugs were metformin and sitagliptin. In Hungary metformin is reimbursed, but not every product, while all sitagliptin products are reimbursed.

Results

In 2012 metformin use was 18.72DDD/TID (insurance database) and 25.48DDD/TID (wholesale database) and increased to 15.09DDD/TID and 32.55DDD/TID in 2021, respectively. The yearly differences between the databases varied between 33 and 115%. In case of sitagliptin, difference between the two databases was much lower. It was 0.528DDD/TID (insurance database) and 0.536DDD/TID (wholesale database) in 2012 and increased to 1.267DDD/TID and 1.286DDD/TID. The difference was 1.5-8.4%.

Conclusion

In a drug utilization study, considerable differences can occur in the same drug group depending on the data source used. During the presentation of utilization research, the results must be put into context and emphasize the limitations of the data source.

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167. Stakeholders' perspectives toward the use of patient registry data for decision-making on medicines: a cross-sectional survey.

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Objectives

To assess European stakeholders' perspectives regarding registry data in regulatory and Health Technology Assessment (HTA)/payer decision-making on medicines, and factors influencing intention for future registry data use.

Methods

Regulators, HTA/payers, and other stakeholders (industry, academia, healthcare professionals, patient representatives) were invited by email to a web-based survey (Nov 2023 - Jan 2024), containing questions based on 5-point Likert scales, analyzed descriptively and through logistic regression.

Results

Included were 191 respondents (16% response rate; 110 regulators, 24 HTA/payers, 54 other stakeholders), representing 33 European countries (36% from Western Europe). Respondents indicated that increasing registry usage would improve HTA and regulatory decision-making (respectively, mean:4.3; 95%-CI: 4.2-4.5 and mean:4.0; 95%-CI: 3.9-4.2), that they sometimes take registry data into account in decision-making (mean:2.9; 95%-CI: 2.7-3.1), and that they are open to doing so in the future (mean:4.2; 95%-CI: 4.1-4.3). Registries were considered most informative for characterization of disease epidemiology (mean:4.4; 95%-CI: 4.2–4.5). Reaching the relevant patient population was perceived as registries' biggest strength (mean:3.6; 95%-CI: 3.4–3.8), data quality as biggest weakness (mean:2.4; 95%-CI: 2.2–2.6). Compared to regulators, HTA/payers had a similar intention (OR:1.56; 95% CI: 0.47–5.16), other stakeholders had higher intention for future registry usage (OR:8.48; 95% CI: 3.00–23.98). High behavioral control regarding registry usage was associated with high intention (OR:3.45; 95%-CI: 1.37–8.64).

Conclusions

Respondents were open to increasing usage of registry data for decision-making. Perceived weaknesses will need to be addressed to align and improve stakeholders' perspectives on its future use.

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171. Construction of treatment episodes by time-varying dose

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Background: Modelling medication use by different doses from prescribed drug register data is useful when determining appropriateness of use and dose-response relationships. We aimed to develop a temporal dose modelling tool as a part of PRE2DUP method.

Methods: Treatment episodes constructed with PRE2DUP method were further processed to estimate temporal dose. Temporal dose is estimated for a specific drug, based on average dose in Defined Daily Doses (DDDs) per day, and it can be summed from all concurrent medications of a class (e.g. total antipsychotics dose). Dose is calculated as the sum of dispensed DDD amounts of the two previous dispensings divided by the outpatient time of these dispensings. The dose estimate is valid until the next dispensing when the dose is re-evaluated, meaning that dose changes are possible only at dispensing dates. We categorized doses in pre-defined DDDs/day -categories which were centered around typically used dose values, but allowing some variation around the targeted value (e.g. for 1 DDDs/day dose, variation allowed was from 0.9 to 1.1 DDDs/day).

Results: Dose estimation was applied to antipsychotics use in individuals with first-episode schizophrenia and dose changes over calendar time and by consequent psychosis relapses were described. The mean antipsychotic dose increased gradually after each new relapse from 1.22 DDDs/day (95%CI 1.18-1.26) before the first relapse to 1.56 DDDs/day (1.48-1.64) before the fifth relapse. In addition, the results on hospitalization-based outcomes for different dose categories were calculated.

Conclusions: Modelling of time-varying dose from register-based data is feasible.

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208. The difference in drug utilization rates between different databases. A pilot study

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Background

Different secondary data sources could be used in drug utilization research. In Lithuania several open-source datasets from wholesaler data to anonymized e-prescription data are available. The use of data depends on the research question and the scope of the study, yet comparison and correlation analyses between data sources have never been done before.

Aim

To compare medicine utilization rates between different databases.

Method

In this pilot study drug utilization rates from 2022 were compared between e-prescription and wholesaler open-source data sets. Monthly utilization rates of three drug classes N02A (opioids), N06A (antidepressants) and J01 (antibiotics for systemic use) in DDD/TID were compared. Regression models were used in R commander. Normality, R^2 statistics and autocorrelation Durbin-Watson test were used.

Results

The difference in opioid utilization rates between e-prescription and wholesale data was low and the correlation was strong and positive (R^2 0,727). In antidepressant utilization seasonality was observed and differences in rates were uneven between months. Antidepressant use correlation was weak and negative (R^2 0,129). The greatest difference in utilization rates was observed in antibiotics but differences between rates were continuous in time, correlation was strong and positive (R^2 0,896). Variations in utilization rates across data sources may be attributed to the nature of the data and differences in prescribing and dispensing regulations for the studied classes

Conclusion

Opioids, that stand out from other drugs due to their prescribing rules, had the lowest difference in rates comparing datasets. Further analyses with longer periods and more drug classes are needed.

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237. The Geo-temporal variation of antimicrobial resistance of Escherichia coli in the community

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Background: Antimicrobial resistance (AMR) is a global health challenge with significant global variation. Little is known about the variation on a smaller geographical scale. This study aimed to explore the geo-temporal variation of AMR in *Escherichia coli (E. coli)* urinary isolates from community-dwelling individuals in a region south of Sydney.

Methods: Microbiology susceptibility data from urine *E. coli* isolates from people living in the community were geospatially analyzed from 2008 to 2018. The proportion of resistant isolates were mapped by antibiotic type (amoxicillin with clavulanic acid, cefalexin, norfloxacin, and trimethoprim), postcode, and year. *E. coli* resistance was categorized (<5%, 5% - 9%, 10-19%, 20-29% and 30%-39%) and mapped using color-themed maps.

Results: A total of 61 662 urine samples had *E. coli* isolated from 2008 to 2018. Of these, 31.1% (n = 19 168) were resistant to at least one antibiotic included in our analysis. Resistance varied by antibiotic, postcode, and over time, with some postcodes showing increased resistance one year and a decrease the following. Areas with consistently higher resistance included metropolitan, port, and lake regions. We found relatively low resistance of *E. coli* to amoxicillin with clavulanate, cefalexin, and norfloxacin (< 5% to 10 – 19%), while resistance to trimethoprim was higher (10 – 19% to 30 – 39%). Overall, from 2008 to 2018, *E. coli* resistance to all four antibiotics increased in this region.

Conclusion: This study shows temporal and geospatial variations in *E. coli* AMR within small geographical areas, indicating the potential of geospatial analysis to inform area-specific empirical treatment guidance.

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262. Reporting definitions of drug exposure to oncology medicines in real-world evidence studies on colorectal cancer: a scoping review

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Background

Defining, measuring and reporting exposure in real-world data (RWD) is important to validly generate and interpret real-world evidence (RWE). Defining exposure to oncology medicines in healthcare data is challenging, due to complicated regimens, adjustments and variable data sources. This scoping review aims to assess the reporting of drug exposure definitions to oncology medicines in RWE studies, using colorectal cancer (CRC) as a case study.

Methods

Through a systematic search in PubMed and Embase, RWE studies assessing clinical outcomes of cyclically administered oncology medicines in CRC patients, published in 2023, were selected. Extracted information included: study setting, data source (e.g. primary care, hospital), origin of exposure data (e.g. prescription data), exposure-based inclusion criteria, active substance, definitions on start and end of drug exposure, and dose (e.g. intended dose, frequency and number of cycles).

Results

Thirty-five studies were included. Most studies originated from the hospital setting (68.6%). The data source was reported in 74.3% and mainly involved hospital data (51.4%). Origin of exposure data was reported in 49.6% of the studies. Studies included patients based on ≥ 1 administration (25.7%) or ≥ 1 cycle (14.3%). Active substance was reported in 71.4%. The majority of all studies (88.6%) defined the start of drug exposure, but only 28.6% defined the end of drug exposure. Reporting on dose was complete in 11.4%, partial in 28.6% and lacking in 60.0%.

Conclusion

RWE studies underreported definitions of drug exposure, hampering the interpretation of clinical outcomes of oncology medicines.

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271. Applying register-based proxies to identify indications for upadacitinib dispensations in Sweden

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Background

In Swedish registers, information on treatment indications is not directly available, and diagnoses are commonly used as proxies. Other potential proxies include prescribers specialty and workplace. This study evaluates three proxies — (1) diagnosis, (2) prescriber specialty, and (3) prescriber workplace — among new users of upadacitinib, a drug approved for use in rheumatology, dermatology, gastroenterology.

Methods

Patients with a first dispensation of upadacitinib recorded in the Prescribed Drug Register (PDR) between 2018 and 2023 were included.

For proxy 1, indications were assigned from ICD-10 codes from the National Patient Register at any time before or on the dispensation date.

For proxies 2 and 3, the therapeutic area was assigned based on prescriber specialty and workplace, as recorded in the PDR.

The proportion of dispensations uniquely classified into rheumatology, dermatology, or gastroenterology was determined for each proxy. The overlap and union of classifications across proxies were also studied.

Results

A total of 5,163 upadacitinib dispensations were identified. Among these, 78% were uniquely classified into one of the three therapeutic areas based on NPR diagnoses, 83% based on prescriber specialty, and 72% based on prescriber workplace. Diagnoses and prescriber specialty agreed on the therapeutic area in 63% of cases, while diagnoses and prescriber workplace overlapped in 53%. All three proxies assigned the same therapeutic area for 44% of dispensations.

Conclusion

The majority of the dispensations could be classified into rheumatology, dermatology, or gastroenterology using one of the proxies, however fewer than half of the dispensations were consistently classified across all three proxies.

Patient Perspectives

50. Inter- and intra- national variation of vaccine hesitancy: a survey in Denmark and Saudi Arabia

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Background

Vaccine hesitancy is determined by different factors. To understand if cultural heritage as a determinant of vaccine hesitancy may be affected by country of residence, we aimed to compare vaccine hesitancy between native Danish, Arab minority in Denmark, and the Saudi Arabian populations.

Methods

From January to April 2023, an international cross-sectional online survey was conducted utilizing validated Danish and Arabic translations of the Vaccination Attitudes Examination (VAX) scale separately addressing attitudes towards COVID-19 and other vaccines. To compare VAX outcomes across the three groups, linear regression was applied, adjusting for age and gender.

Results

Of 124 respondents in Denmark, 44 were of Danish, 63 of Arab, and 17 of other ethnicities; 164 individuals responded in Saudi Arabia. The Arab minority respondents in Denmark were the oldest (mean age 48 years). The highest proportion of females (77%) was in Saudi Arabia. The largest proportion of COVID-10 unvaccinated individuals was also in Saudi Arabia (9%); the largest proportion of participants who had received a COVID-19 booster dose was among Danes (50%). After adjusting for age and gender, a significant linear increase in both COVID-19 and other vaccines' hesitancy scores was observed across all VAX dimensions (mistrust of vaccine benefits, concerns about unforeseen effects, worries regarding commercial profiteering, preference for natural immunity), when comparing Danes, Arab minority and Saudi Arabian respondents ($p<0.001$).

Conclusion

Increasing hesitancy observed from Danish to Arab minority to Saudi populations suggests that cultural determinants of vaccine hesitancy may be modified by context of the country of residence.

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91. Medicine at work: The experiences of people with medication-self management in the context of work.

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Background – The number of people with a chronic condition in the workforce is rising. The majority uses medication. Medication self-management (MSM) at work might be problematic, but it is yet unknown how employees experience balancing their MSM with work.

Method – Semi-structured interviews were held with 18 working individuals with a variety of chronic health conditions, occupations and medications. Interviews were guided by a topic list, transcribed and open-coded. Thematic analysis identified factors that play a role in the interaction between MSM and performance and wellbeing at work.

Results – Fifteen participants used medication at work, mostly as-needed and often administered on the go or covertly. Regular medication use is often planned outside work hours. Medication use at work is often perceived doable due to flexibility and already established routines. Still, busy workdays, complex medication, changes in medication, and worries about perceptions of coworkers and employers can hinder successful integration of MSM and work. Medication often enables work participation, although side effects of medication can impact workability, and (anticipated) stigma can affect the extent to which people openly use medication and feel like they can be themselves at work.

Conclusion – MSM at work requires adaptability and acceptance from both individuals themselves, their colleagues and employers. Fostering a culture of acceptance and understanding at work while providing practical support can enhance MSM practices and wellbeing at work. It is important for prescribers and pharmacy staff to be aware of the impact of work on MSM.

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97. Vaccine Hesitancy Before and After COVID-19: Insights from a Household Survey in a Brazilian State Capital

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Background

The COVID-19 pandemic was accompanied by an intense infodemic related to the disease and vaccines. This scenario may have contributed to increased vaccine hesitancy (VH). To explore this phenomenon, the study aimed to assess VH among the population of Campo Grande, a capital city in Brazil.

Methodos

A cross-sectional study using data collected through a household survey was carried out in 2023. A WHO questionnaire was employed, including variables related to vaccine hesitancy (VH) and a 10-item Likert Vaccine Hesitancy Scale (VHS), applied to assess VH changes before and after the pandemic. Items were scored such that higher scores indicated greater VH. A linear regression model was used to identify determinants associated with VHS. The dependent variable was the score variation (difference) between periods.

Results

A total of 514 residents were included in the study. The mean Vaccine Hesitancy Scale (VHS) score before the COVID-19 pandemic was 18.2 (SD=5.8), which increased to 19.1 (SD=6.8) after the pandemic, showing a significant difference between the two periods ($p< 0.001$; 95% CI=-1.3 to-0.6). Hesitating to get vaccinated against any vaccine ($p<0.001$; $\beta=1.5$; 95% CI=0.8 to 2.3) and having access to sanitary sewer treatment ($p=0.021$; $\beta=0.8$; 95% CI=0.1 to 1.5) were significantly associated with higher VHS scores. Obtaining information from traditional media, such as television and radio, was linked to decreased VHS scores ($p=0.018$; $\beta=-2.5$; 95% CI=-4.7 to-0.4).

Conclusion

The findings reveal a potential rise in VH within the study population, likely influenced by the COVID-19 pandemic.

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151. Patient-reported outcomes in dermatological medicines: An overview of EU marketing authorizations from 1998 to 2024

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Background: Patient-reported outcomes (PROs) have become a key focus in medicines approvals over the past few years. PRO data obtained from clinical trials can complement traditional endpoints, such as objective clinical and laboratory outcomes, which may not always fully capture the impact of a treatment, particularly in dermatology. This study aims to evaluate the use of PROs in the marketing authorizations (MAs) of dermatological products.

Methods: The European Public Assessment Reports (EPARs) and Summary of Product Characteristics (SmPCs) of 21 dermatological medicines approved by the European Commission between 1998 and 2024 were systematically analyzed. For products including PROs, detailed information regarding their characteristics and applications was collected and descriptive statistics were conducted.

Results: Of the 21 medicines approved, 14 (66.7%) incorporated PROs and 9 (42.9%) were granted a label claim in the SmPC. Across the 64 studies included in the EPARs, 45 distinct PROMs were identified, of which the majority were disease-specific (62.2%). The most frequently covered PRO purpose was signs/symptoms (n=15; 33.3%), the most commonly used PROM was the Dermatology Quality of Life Index (DLQI) (29 times), and PROs were defined as secondary endpoints in 114 cases (36.3%).

Conclusion: This study highlights the heterogeneity in the use of PROs in regulatory procedures regarding dermatological medicinal products. Developing validated and standardized PRO instruments, along with achieving consensus on the most relevant and robust PRO instruments, could enhance the consistency and impact of PRO data in regulatory decision-making.

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152. Developing a Patient and Public Partnership to Guide Multidisciplinary Research in Drug Utilisation and Chronic Disease Management: Insights from an Idea Generation Meeting

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Background
Public and Patient Involvement (PPI) aims to align health research with the needs and priorities of patients, caregivers, and the public. Clinical pharmacy and general practice share key research areas, including prescribing, community care, and chronic disease management. Together, the disciplines aimed to develop a partnership integrating diverse lived experiences across various conditions and healthcare settings. An idea-generation meeting laid the groundwork for establishing the University College Cork (UCC) Clinical Pharmacy and General Practice PPI (UCC-CPGP PPI) Partnership. This study aimed to outline the process and outcomes of an initial idea-generating meeting involving PPI contributors and researchers.

Methods
In October 2024, an idea-generation meeting to initiate the development of the UCC-CPGP PPI Partnership was convened to co-develop a PPI plan and terms of agreement. The event included 20 participants: eight PPI contributors, six general practice researchers, and six clinical pharmacy researchers. Two facilitators (EB and ER) moderated roundtable discussions. The topics which were addressed included: PPI panel recruitment and retention, communication channels and preferred terminology for the partnership and related documents.

Results
PPI contributors emphasised the importance of transparent communication and clearly identifying the impact of their contributions to foster sustained, meaningful engagement. Participants preferred the term "partnership" over "panel" for its collaborative connotations and "terms of agreement" over "terms of reference", to reflect collaboration and co-operation.

Conclusion
This meeting integrated patient and public input into forming the UCC-CPGP PPI Partnership, laying the groundwork for a sustainable framework to guide impactful, patient-centred research in drug utilisation and disease management.

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174. Medication management tasks and support needs of informal caregivers: a nationwide cross-sectional survey

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Background: Informal caregivers increasingly manage medications for people with health problems living at home. In the Netherlands, approximately one-third of adults provide informal care. While medication management is a crucial component of informal care, its prevalence and associated challenges remain understudied. This study aimed to explore the medication management tasks, challenges, and support needs of informal caregivers, focusing on community pharmacy support.

Methods: A cross-sectional survey was conducted using a digital questionnaire among Dutch adults (≥ 18 years). The questionnaire addressed medication management tasks, challenges, and support needs. Data collection was performed in two phases: December 2024 (older adults) and January/February 2025 (younger adults). This abstract reports preliminary findings from the older adult phase. Descriptive statistics and thematic analysis of open text fields were performed.

Results: Among 3,050 older respondents (median age 72 years, IQR 65-77), 398 (13%, median age 71, IQR 63-77) reported medication management responsibilities as informal caregiver. Key tasks included ensuring correct medication use and returning unused medications to pharmacies. Main challenges comprised verifying medication intake, administering techniques, and proper application of topical medication. While 95% preferred to continue without professional support, 18% desired (regular) medication evaluations with pharmacists and 32% wanted a dedicated pharmacy contact person.

Conclusion: Preliminary findings indicate that medication management is a significant component of informal caregiving among older adults. While most prefer independence, there is notable interest in structured pharmacy support services. Complete findings, including younger adults data, will be presented at the conference.

Polypharmacy

3. Association between number of medications and indicators of potentially inappropriate polypharmacy: a population-based cohort of older adults in Quebec, Canada

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Background: The increasing number of medications raises concerns about inappropriate polypharmacy and medication-related harm.

Objectives: 1) To investigate the relationship between the number of current medications used by older adults and three indicators of potentially inappropriate polypharmacy: a) the mean number of PIMs, b) the average count of drug-drug interactions, and c) the anticholinergic burden; 2) To characterize the population-based burden of potentially inappropriate polypharmacy by calculating the proportion of individuals with these indicators.

Design: We conducted a population-based observational study using the Quebec Integrated Chronic Disease Surveillance System.

Methods: We included all individuals over 65 years insured by the public drug plan on April 1st, 2022. For each individual, we calculated the number of current medications, and the number of a) PIMs (Beers 2019), b) drug-drug interactions (Beers 2019), and c) anticholinergic burden (Anticholinergic Cognitive Burden [ACB] scale). Linear regression quantified associations, while prevalence with 99% confidence intervals (CI) were calculated.

Results: A total of 1,437,558 individuals (mean age: 75; 55% female) were included, taking an average of 4.9 medications (±4.1). For each additional medication, the mean number of PIMs, drug-drug interactions, and the anticholinergic burden increased by 0.11, 0.04 and 0.17, respectively (p-trend<0.0001).Nearly half the population (45.5%; 99%CI:45.5-45.5) had a regimen containing ≥1 PIMs, or ≥1 drug-drug interactions, or an ACB ≥3.

Conclusion: The strong association between increasing number of medications and reduced polypharmacy quality underscores the importance of medication count beyond therapeutic indications. With widespread medication use, many older adults face quality issues.

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11. Cost trends of potentially inappropriate medications among older adults between 2012 and 2021 in Quebec, Canada: A population-based repeated cross-sectional study

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Background: Potentially inappropriate medications (PIMs) are frequent in older adults, contributing to hospitalizations, adverse events, and healthcare burden. We aimed to estimate direct PIM cost trends from 2012 to 2021 among older women and men in Quebec, Canada.

Methods: Using medico-administrative data, we assessed costs of PIMs claimed by adults ≥65 years covered by the public drug plan. Costs for 16 PIM classes, identified using 2015 and 2019 Beers criteria, were calculated by fiscal year and stratified by sex and age group (65-74, 75-84, ≥85). We computed average costs/enrollee and usage prevalence for the costliest PIM classes. Trends were estimated using univariate linear regression with 95% confidence intervals.

Results: We found a non-statistically significant decrease in total PIM claim costs, from $206 million in 2012 to $186 million in 2021 (trend: -2.9[-17.4; 11.6]), representing 5.4% of medication expenditures for adults ≥65 in 2021. The reduction in total costs was more accentuated in women, whose annual costs were higher than those of men in all age groups. Average cost/enrollee decreased from $179 to $119 (trend: -7[-19; 5]), with a drop from $216 to $142 for women and $132 to $92 for men. Costs/enrollee were higher in 75-84 and ≥85 age groups. Costliest PIM classes included proton-pump inhibitors, benzodiazepines, antipsychotics, antidepressants, estrogens (women), and hypoglycemic agents (men). Cost trends did not always follow prevalence trends.

Conclusion: PIM costs among older adults slightly decreased from 2012 to 2021. Appropriate prescribing and deprescribing appear crucial for reducing these costs.

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12. Polypharmacy can predict risk of fall-related hospitalization in older adults

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Background: Medication is a modifiable risk factor for falls. We aimed to identify the best medication-based predictor for fall-related hospitalization among older adults.

Method: A population-based cohort was created using the Quebec Integrated Chronic Disease Surveillance System. We included individuals aged >66 on 04/01/2019 (index date), insured by the public drug plan and without fall-related hospitalization the prior year. We developed five medication-based predictors derived from the average number of medications claimed in the previous year (≥5, ≥10 medications, ≥5 third-level Anatomical Therapeutic Chemical classes; ≥1 Fall-risk increasing drugs [FRIDs]; ≥1 Potentially inappropriate medications [PIMs]). Hazard ratios (HRs) were estimated with sex-stratified Cox models to predict fall-related hospitalization in the year following index date. We compared predictive performance with c-statistics, R^2, and calibration slopes.

Results: The cohort included 647,795 women and 529,725 men. HRs ranged from 1.43(95%CI: 1.37-1.49) for ≥1 PIM (women) to 2.17(95%CI: 2.05-2.31) for ≥10 medications (men). Lowest predictive performance was for ≥1 PIM (c-statistic=0.724 [woman]; 0.722 [men]), and highest predictive performance was for ≥1 FRID (c-statistic=0.735 [women], 0.736 [men]). Calibration slope values were between 0.99 and 1.

Conclusions: No single medication-based predictor showed superior predictive performance. The choice of predictor should rely on its simplicity and accessibility.

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35. Selecting older adults on polypharmacy to discuss deintensifying cardiovascular medication: development of a screening tool.

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Introduction: Patients' beliefs about continuing and discontinuing medication are important to elicit before initiating the process of deintensification. Our aim is to develop a screening tool that can be used for selecting patients to discuss deintensification or deprescribing of cardiovascular medication.

Methods: Based on literature review a list of themes and subthemes was created, which can be relevant to predict a patient's willingness to discuss medication deintensification. Next, items were selected per (sub)theme, informed by existing questionnaires and expert consensus. A first list of items was piloted among adults of 75 years and older on polypharmacy to improve wording and content, and explore variation in answers.

Results: Sixteen (sub)themes were identified, including perceived burden, concerns, satisfaction, necessity of current medication, general beliefs about medication overuse and costs, and willingness to reduce the number of medicines in general and concerns towards discontinuing specific medication. A list with 19 items was created and piloted among 8 older adults. The wording or content of three items was adapted. Half of the items appeared to show relevant variation, including a newly developed item regarding reducing medication costs for society.

Conclusion: A first list with 19 items was developed, which can be used as screening tool to invite patients for the process of medication deintensification. Further research will be conducted to select the most discriminating items for identifying patients that agree with the initiation of deintensifying their cardiovascular medication.

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67. Population-based trends in polypharmacy and potentially inappropriate medications in older adults in Québec, Canada (2003-2023): An in-depth analysis of sex differences

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Background: Medication use is prevalent among older adults, with potentially inappropriate medications (PIMs) being a common concern. However, detailed patterns and sex-based comparisons in polypharmacy and PIM use remain insufficiently explored. This study aimed to examine sex-based trends in polypharmacy and PIM use between 2003 and 2023 in Québec, Canada.

Methods: Using the Quebec Integrated Chronic Disease Surveillance System, we constructed annual cohorts of all individuals aged 65 years and over from 2003 to 2023. For each year, we calculated the total number of medications and PIMs (Beers 2019) claimed at least once by each individual. Polypharmacy was defined as the use of ⩾5, ⩾10, or ⩾15 medications/year. Results were stratified by sex, and age-standardized proportions were used to compare the prevalence of medication use across the study period.

Results: From 2003 to 2023, the prevalence of polypharmacy increased by 7.3 percentage points in men (from 59.9% to 67.2%) and by 1.6 percentage points in women (from 69.2% to 71.2%), illustrating a narrowing in the sex gap in polypharmacy prevalence. The use of PIMs declined during this period, from 42.9% to 39.7% in men and from 59.6% to 49.6% in women.

Conclusion: While the prevalence of polypharmacy remains higher in women, a more pronounced increase was observed over time in men. Our findings suggest sex differences in polypharmacy prevalence and PIM use, though the implications remain unclear. Future studies should explore sex as a critical factor of analysis in medication use.

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72. Home Care Professionals' Experiences with the BEM Medication Management Assessment Tool in the Netherlands

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Background: The medication management assessment tool (BEM in Dutch) supports Dutch home care professionals in evaluating and supporting patients' medication management capabilities. The tool comprises a capability assessment, intervention recommendations, and interprofessional communication forms. Despite widespread implementation, home care professionals' experiences with its usability remain unexplored. This study evaluates experiences and perceptions of quality employees and home care nurses regarding the BEM tool's practical application and usability.

Methods: Semi-structured interviews were conducted with home care nurses (level 3, 4, and 6) and quality employees from Dutch home care organizations. Interviews were audio-recorded, transcribed verbatim, and analysed thematically using NVivo 12 software.

Results:
Twenty-one participants (15 home care nurses and 6 quality employees) from 9 organizations were interviewed. Nurses valued the BEM tool's utility, but mentioned challenges with post-assessment care plan clarity and administrative burden. Knowledge gaps existed regarding BEM procedures and electronic patient file integration. Quality employees perceived good practical integration but emphasized the need for electronic system implementation. Three main themes emerged: practical utility, implementation challenges, and opportunities for improvement.

Conclusion: While home care professionals generally value the BEM tool, its effective implementation equires additional training, standardized guidelines, and electronic integration. These improvements could enhance usability and work efficiency while maintaining quality of medication management assessment.

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73. The incidence of diuretic associated sequential prescribing cascades: a feasibility study

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Background

A prescribing cascade occurs when adverse drug reactions (ADRs) caused by one medication (index) are misinterpreted as a new medical condition, inducing the prescription of another medication (marker). Prescribing cascades can result in polypharmacy and impact patients' quality of life. While individual prescribing cascades with one index and one marker medication are well-studied, little is known about sequential prescribing cascades with a secondary marker following a primary marker. This study explores the feasibility of analyzing sequential prescribing cascades involving diuretics as primary markers by determining their incidence.

Methods

This retrospective cohort study used the Clinical Practice Research Datalink (CPRD) to identify patients aged ≥65 years who were newly prescribed diuretics as the primary marker within 12 months after the first prescription of a calcium channel blocker or gabapentinoid (index) between 2018-2022. Incidence was determined for the following secondary markers: antigout medications, urinary frequency and incontinence medications, and potassium salts and potassium-sparing agents within 12 months after diuretic prescription.

Results

Between 2018-2022, 608,225 new index users were identified, of which 28,240 patients were prescribed a primary marker. Of these, 1,877 (6.6%) were prescribed a secondary marker within 12 months. Antigout medications were prescribed for 311 patients (1.1%), urinary frequency and incontinence medications for 518 patients (1.8%), and potassium salts or potassium-sparing agents for 1,090 (3.7%) patients.

Conclusions

This study demonstrates that a substantial number of patients may be exposed to sequential prescribing cascades involving a diuretic as primary marker. This underscores the importance of improved recognition and prevention of ADRs.

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109. Evaluate and Compare Different Decision Support Tools Designed to Manage High-Dose Antipsychotic Prescriptions: A Scoping Review

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Background

High Dose Antipsychotic therapy (HDAT) involves prescribing antipsychotic at doses which exceed the recommended limits when there is a poor response to standard treatment. Despite off-label use, HDAT is associated with severe side effects which require close monitoring. Decision support tools can enhance management and patient involvement in their care. This project explores existing tools to determine if a standardised tool can improve HDAT prescribing and monitoring practises.

Method

A scoping review was conducted according to PRISMA-ScR guidelines to identify decision support tools for the management of HDAT. Literature searches were conducted on Medline, PubMed and Embase using relevant MeSH terms. Studies were selected from 2004 to 2024 using predefined inclusion criteria, then the data was extracted and collated.

Results

Of the 195 articles identified and screened, 23 articles met inclusion criteria. Four of which addressed the tool's use in the context of high-dose therapy, off-label use or antipsychotic polypharmacy. Two key areas emerged: Shared Decision Making (n=12) subdivided into, choice of antipsychotic and choice of antipsychotic based on side effects; and Monitoring of antipsychotic prescriptions (n=11), subdivided into guidelines and monitoring requirements, monitoring of side effects, avoiding interactions and dose adjustment.

Conclusion

This scoping review highlights limited availability of clinical decision support tools in the management of HDAT. While decision support tools, particularly digital, improve patient involvement and safety, gaps remain in development and implementation for HDAT. Future research in this field should focus on universally applicable decision support tools that enhance HDAT management and safer practice.

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110. Comparing the definitions used to calculate High-Dose Antipsychotics: A Scoping review

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Background

A rise in antipsychotic prescribing has led to an increase in polypharmacy regimens and "as required" dosing. Accurate methods for calculating high dose antipsychotic therapy (HDAT) are crucial to ensure appropriate monitoring and management for patients. Therefore, there is an ongoing clinical need for a standardised, user-friendly method to determine HDAT in clinical practice. This scoping review aims to identify and compare different methods for calculating HDAT and provide recommendations on how to incorporate this in the production of future clinical tools.

Methods

To identify studies the following three databases were searched on the 26th November 2024: EMBASE, PubMed and CINAHL. The studies selected were restricted to: published after 2000, full text availability, English language and no conference abstracts.

Results

This scoping review identified seven studies, which established three methods of calculating HDAT: BNF maximum method, Chlorpromazine Equivalents (CPZE) and Defined Daily Dose (DDD) method. The methods demonstrated moderate agreement in identifying patients on HDAT, though variation in quantification of drug potency led to discrepancies with CPZE and DDD methods. These variations impacted the number of patients classified as receiving HDAT, with differences observed in the equivalence of drug doses across the methods.

Conclusion

Limited literature directly compares the identified methods for calculating HDAT. CPZE requires further refinement for greater standardisation of results and the DDD method had no established threshold to define HDAT, limiting its clinical relevance. Therefore, the BNF maximum method remains the current most appropriate for clinical use whilst CPZE is more applicable to research studies.

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111. Identifying and Comparing Tools that assist in assessing and minimising the Anticholinergic burden associated with Psychiatric Medications

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Background: Medications with high anticholinergic properties pose risks such as cognitive decline and adverse physical outcomes. Psychotropic drugs, many with anticholinergic activity, are increasingly prescribed, highlighting the need for precise quantification of cumulative burden. While tools exist to calculate this burden, there's limited consensus. This scoping review aims to review current anticholinergic tools examining their effectiveness and applicability for healthcare professionals when prescribing psychiatric medications and making future recommendations for patient safety.

Methods: A search of Embase, Medline and Pubmed was conducted to identify studies published between 2000 and 2024 that reported use of anticholinergic burden tools on patient related outcomes. Studies were prioritised based on strict inclusion and exclusion criteria, with data extracted, summarised and reported as a narrative synthesis.

Results: From 75 records, 13 studies met the inclusion criteria, identifying 6 anticholinergic burden tools. These tools demonstrated significant variability, incorporating between 10 to 170 drugs with a high prevalence of those being psychotropics. Tools either used a grading system based on anticholinergic potency (n=5) or application of a formula considering dose and frequency (n=1). Themes such as central versus peripheral effects, patient groups and validated settings were also explored.

Conclusion: Considerable variability and poor agreement among anticholinergic burden tools highlights the need for further research. Developing a universally applicable tool with a consistent, evidence-based list of anticholinergic drugs – particularly inclusive of psychotropics - is essential for improving prescribing practices and enhancing patient safety.

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140. Trends and changes in polypharmacy incidence in the UK between 2010 to 2016: Retrospective cohort study using the UK Biobank data

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Introduction: Trends in polypharmacy incidence has been previously studied. However, existing research is outdated and lacks stratification by sociodemographic factors, highlighting the need for updated analyses of trends and subgroup distributions.

Methods: A retrospective cohort study (2010-2016) using UK Biobank data was conducted. Annual polypharmacy incidence was estimated and stratified by sociodemographic factors. Simple polypharmacy defined as annual dispensing ≥5 unique medication classes within 6 months before the index date (last prescription). Chronic polypharmacy defined as refilling ≥5 classes at least once annually. New incident was defined as polypharmacy-free in the year prior the index date. Trends were assessed descriptively and using average annual percent change.

Results: Of 3,392 participants (56.6% female, median age 59 [IQR: 51-64]), 87.4% were from England and 12.6% from Scotland. The overall incidence of simple polypharmacy was 14.4%, fluctuating between 2010 (3.5%) and 2016 (3.7%), peaking at 4.30% in 2011 (relative change: 20.88%, 2010-2011). The annual change showed a non-significant decline of -2.26% (95% CI: -6.49%-2.16%). Subgroups with the highest incidence included females, older age, moderate deprivation, and white ethnicity. Scotland had a higher overall incidence than England (18.3% vs. 13.9%). Chronic polypharmacy overall incidence was 26.4% with significant increase between 2010-2016. Males, older age, high deprivation, and Asian/Asian British had the highest incidence.

Conclusion: Between 2010-2016, simple polypharmacy fluctuated without significant decline, while chronic polypharmacy rose significantly. Simple polypharmacy was more common in females and white ethnicity, and chronic polypharmacy in males and Asian/Asian British, both linked to older age and deprivation.

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141. Trends and changes in polypharmacy prevalence in the UK between 2010 to 2016: Retrospective cohort study using the UK Biobank data

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Background: Polypharmacy prevalence has been previously studied. However, existing research is outdated and lacks stratification by sociodemographic factors, signalling the need for updated analyses on polypharmacy trends and distribution among different subgroups.

Methods: A retrospective cohort study (2010-2016) using UK Biobank data was conducted. Annual polypharmacy prevalence was estimated and stratified by sociodemographic factors. Simple polypharmacy was defined as annual dispensing ≥5 unique medication classes within 6 months before the index date (last prescription). Chronic polypharmacy was defined as refilling ≥5 classes at least once annually. Trends were assessed descriptively and using average annual percent change.

Results: Of 3,392 participants (56.6% female, median age 59 [IQR: 51-64]), 87.4% were from England and 12.6% from Scotland. Overall simple polypharmacy prevalence was 37.4%, rising from 21.2% in 2010 to 30.3% in 2016, with the largest annual increase of 3.16% (relative change: 13.55%, 2012-2013). The average annual increase between 2010-2016 was 6.13% [95% CI: 4.53%-7.74%], showing a significant growth. Males, older age, high deprivation, and Asian/Asian British showed the highest prevalence. Scotland had a higher overall prevalence than England (40.1% vs. 37.1%) with significant increase between 2010-2016. Ethnic group patterns differed with respect to prevalence, with Black/Black British in England, and Asian/Asian British in Scotland. Overall chronic polypharmacy prevalence was 26.7% (32.3% in England vs. 27.2% in Scotland), with similar subgroup patterns.

Conclusion: Between 2010-2016, simple and chronic polypharmacy rose significantly. Higher prevalence was observed in males, high deprivation, older age, and Asian/Asian British and Black/Black British subgroups.

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176. Extent and type of polypharmacy in a region of Scotland

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Background: Scottish Government guidance on polypharmacy states that the care of patients with multi-morbidities is the greatest challenge now faced by the health service. A key objective is to ensure resulting polypharmacy is safe and effective in all patients. Management of polypharmacy is a public health issue because multi-morbidities represent a substantial population burden, particularly where socioeconomic deprivation is highest.

Aim: To characterise polypharmacy at different ages and for different socioeconomic communities in a region of Scotland.

Method: Scotland has a fully funded healthcare system for all prescription-only medicines and most general sale medicines; there are no out-of-pocket costs.

We conducted a population-wide study using Prescription Information System (PIS) data for 1,388,396 residents of a single health board. Polypharmacy identified from all prescriptions dispensed in 3-months (July 2024 to September 2024). Residential address of patient on prescription linked to the national measure of socioeconomic deprivation.

Result: 49.4% of residents were dispensed 5,697,074 medicines. 16.3% were dispensed 5 or more different classes of medicine and 4.2% were dispensed 10 or more.

Polypharmacy occurs with greater frequency in women, in elderly and in residents living in areas of highest socioeconomic deprivation. The greatest number of residents with polypharmacy are aged 45 to 65 years of age living in areas of highest socioeconomic deprivation.

Conclusion: Polypharmacy is common, affect 16.3% of the population. In Scotland public health initiatives to ensure safe and effective polypharmacy need to include younger residents, particularly those in areas of the highest socioeconomic deprivation, as well as elderly residents.

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212. Primary care healthcare providers' perspectives on the process of deprescribing cardiovascular and diabetes medication during medication reviews after receiving communication training

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Background: Clinical medication reviews in primary care provide opportunities to discuss deprescribing cardiovascular and/or diabetes medication with older patients, but healthcare providers (HCPs) experience barriers. A multicomponent communication training was developed to facilitate sustainable deprescribing, and tested in a randomized trial. Our aim was to investigate HCPs' perspectives on the process of deprescribing cardiometabolic drugs after having received this training within the CO-DEPRESCRIBE trial.

Methods: We conducted semi-structured interviews with trained HCPs, covering reasons for participation in the CO-DEPRESCRIBE trial, how reviews were conducted locally, patient involvement, and application of training elements. Interviews were digitally audio-recorded, transcribed verbatim and analysed using thematic analysis.

Results: 14 pharmacists, 2 general practitioners, 3 practice nurses and 1 pharmacy technician were interviewed. Reasons for participation included development of professional skills and importance of timely deprescribing. Time- and staff shortages complicated conduct of reviews and interprofessional collaboration for some HCPs. Most training elements were considered useful and HCPs reported to focus more on patient-centered communication and shared decision-making after the training. Yet, some still experienced difficulties in eliciting patients' personal goals or preferences related to cardiometabolic medication use for patients who were generally satisfied with their treatment. Also, HCPs perceived that many patients preferred delegating decision-making to HCPs.

Conclusion: HCPs indicated that the CO-DEPRESCRIBE training facilitates conducting medication reviews with older patients to deprescribe cardiometabolic medication. HCPs still experienced some difficulties to practice shared decision-making. Other remaining barriers were related to limited resources and difficulties with interprofessional collaboration.

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215. Prevalence of Polypharmacy Among Hospitalized Adult Patients with Renal Impairment

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Background. Polypharmacy, defined as the concurrent use of five or more medications, poses significant risks for patients with renal impairment, including adverse drug reactions (ADRs) and drug-drug interactions (DDIs). These complications contribute to increased morbidity, mortality, healthcare costs, and prolonged hospital stays. This study examines the demographic characteristics and prevalence of polypharmacy among hospitalized patients in Bulgaria with kidney impairment, defined as an estimated glomerular filtration rate (eGFR) ≤50 mL/min/1.73m².

Methods. This is a retrospective cohort study utilizing real-world data from 67 hospitals across all administrative regions of Bulgaria. Digitized electronic medical records from hospitalized adult patients with reported serum creatinine between January 1, 2021, and December 31, 2023, were analyzed using Sqilline Danny Platform.

Results. A total of 436,486 patients with recorded creatinine levels were examined, of whom 75,547 (17.31%) had an eGFR ≤50 mL/min/1.73m². The most common conditions among these patients were COVID-19 (8.70%), heart failure (6.15%), and cerebral infarction (5.20%). Among them, 16,932 (22%) were prescribed six or more medicines simultaneously (range: 6–33), with 42% receiving at least eight drugs. The most frequently prescribed medicine in polypharmacy cases were furosemide (40.94%), enoxaparin (24.73%), bisoprolol (24.37%), and torasemide (20.8%).

Conclusion. The prevalence of polypharmacy in hospitalized patients with renal impairment is high. To minimize the risks of drug interactions, ADRs, and associated health complications, careful medication management, including dose adjustments and reducing unnecessary prescriptions, is crucial in this population.

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239. Integrated medicines optimisation for older people living with frailty: Preliminary results of a qualitative study across multiple health organisations

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Background

The UK health system is under pressure delivering care to an ageing population. Older people are facing significant health challenges such as frailty, co-morbidity, and polypharmacy, predisposing them to adverse outcomes. Medicines optimisation (MO) involves person-centred processes to encourage safe and effective medicines use. Cross-organisational MO is vital for integrated care; however, the current health system design hinders collaborative working leading to care fragmentation. This is associated with medication problems and poorer patient outcomes. This study aims to explore cross-organisational MO delivered by healthcare professionals (HCPs).

Methods

Following ethical approval, HCPs were identified iteratively using purposive and snowballing techniques. The first round of recruitment included eight semi-structured online interviews. Recruitment began in hospital and extended to community organisations. The interviews were transcribed and analysed using analytical strategies for ethnographic data.

Results

Participants included pharmacy technicians and clinical pharmacists, an advanced care practitioner, and a discharge coordinator. Pharmacists in the home-ward, general practices, and community pharmacy were also interviewed. Common themes developed highlighted issues around integrated MO: poor communication about medication changes post-hospital admissions, communication challenges due to numerous Electronic Health Records (EHR), and a one-way transfer of information with no feedback loop.

Conclusion

These initial interviews revealed issues commonly encountered by HCPs when providing MO, which can lead to fragmented and disjointed care. Promoting cross-organisational working through policies and shared EHR can improve and streamline communication paths across organisations. Additional interviews with a diverse range of health and social care professionals will explore the issues of integrated MO further.

242. Occurrence of potential prescribing cascades after hospital discharge: a cohort study

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Purpose: A prescribing cascade (PC) occurs when a medication (index) causes an adverse drug reaction (ADR), which is addressed by prescribing an additional medication (marker).

The study aimed to assess the cumulative incidence of 20 potential PCs post-discharge and identify the healthcare providers involved in prescribing the marker medication.

Methods: A cohort study was conducted among adult patients admitted in one hospital between 2019 and 2023, who initiated an index medication during their stay. A PC was defined as the initiation of a marker medication which may be intended to treat an ADR induced by the index medication. Data from the hospital and the Nationwide Medication Record System were used to identify potential PCs post-discharge. The primary outcome was the cumulative incidence of PCs, estimated for PCs with ≥10 patients initiating the index medication. The secondary outcome was the number of PCs for which ≥50% of marker medication was prescribed by a healthcare provider outside the hospital.

Results: Of 24,282 patients initiating index medication, 502 experienced potential PCs.
The cumulative incidence was estimated for 17 PCs, ranging from 0% to 12.3%. Examples of studied PCs include: ACE-inhibitors (ADR: cough) followed by antitussives (cumulative incidence: 5.4%), amiodarone (ADR: hypothyroidism) followed by thyroid hormones (4.0%) and dihydropyridines (ADR: edema) followed by high-ceiling diuretics (6.3%).

For nine PCs, over 50% of marker medications were prescribed by healthcare providers outside the hospital.

Conclusion: The cumulative incidence of potential PCs post-discharge can be substantial with marker medication often prescribed by healthcare providers outside the hospital.

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243. Adverse drug event-related hospital admissions: A population-based cohort study in two Scottish health boards

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Background: Studies evaluating polypharmacy interventions may often fail to show an impact on clinical outcomes because they insufficiently focus on those at highest risk of adverse drug events (ADEs) or measure all-cause hospitalizations (AC-H) rather than those related to ADEs. Therefore, the aim of this study is to examine incidence and patient factors associated with ADE-related hospitalizations (ADE-H) and to assess the utility of a new approach to measuring such hospitalizations in secondary data sources.

Methods: Retrospective population-based cohort study in people with polypharmacy ≥40 years, estimating the incidence of AC-H, adverse event-related hospitalizations (AE-H) and ADE-H in two Scottish health boards in 2019. Multivariate logistic regression with prior group lasso regression for variable selection was used to examine and compare baseline patient factors of AC-H, AE-H and ADE-H.

Results: Among the 123,662 people with polypharmacy ≥40 years, the combined cumulative incidence of AC-H, AE-H and ADE-H was 1,904.5, 574.9 and 260.4 per 10,000 residents, respectively. Fall (injury) was the most common AE-H as well as ADE-H (incidence 209.6 and 91.1 per 10,000 residents, respectively). ADE-H were most strongly associated with impaired renal function (end-stage versus normal; multivariate OR 2.47; 95% CI, 1.69–3.51) and older age (≥80 years versus 40-64 years; multivariate OR 2.79; 95% CI, 2.41–3.22).

Conclusion: This study presents a novel approach to measure ADE-H in administrative databases, offering enhanced specificity for drug-related admissions compared to AC-H and AE-H. Further research is needed to validate the approach and to develop predictive models for specific ADE-H events.

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254. International deprescribing guidelines did not impact actual practice in deprescribing of potentially inappropriate medications for nursing home residents: an interrupted time series analysis

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Background

Deprescribing guidelines reduce the use of potentially inappropriate medications (PIMs) in clinical trial settings; however, their real-world impact remains unclear. Therefore, this study assesses deprescribing trends and the impact of guideline publications (STOPPFrail, proton pump inhibitors [PPIs], and antipsychotics) on these trends among nursing home residents with limited life expectancy in Belgium.

Methods

We assessed deprescribing using healthcare reimbursement data for residents aged 65 and older who died between 2014 and 2019. Fifteen PIMs from STOPPFrail version 1 were selected. Deprescribing was defined as discontinuing at least one PIM within the last four months of life for those chronically prescribed these medications 6-12 months prior to death. To identify changes in deprescribing trends, we employed a Joinpoint linear regression model. Additionally, we used Autoregressive Integrated Moving Average (ARIMA) modeling to explore the impact of the guideline publications.

Results

Among 244,865 residents, 69.3% were prescribed at least one PIM, and 29.7% had one deprescribed. Deprescribing prevalence declined from 31.7% to 27.66% between the first quarter of 2014 and the fourth quarter of 2019, with an average quarterly decline of -0.47% (95% CI: -0.85, -0.10). No joinpoints were identified, indicating a consistent linear trend without significant shifts. ARIMA modeling showed no impact of deprescribing guidelines on trends.

Conclusion

Despite the high use of PIMs, and the publication of the STOPPFrail, PPI, and antipsychotics deprescribing guidelines, deprescribing rates remained low and even decreased. These findings emphasize the importance of implementation efforts that go well beyond guideline publications to effectively change deprescribing practices.

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297. PARTNER – Patient-centred deprescribing of potentially inappropriate medication in elderly patients with polypharmacy – protocol of a cluster-randomised trial

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Background: Although polypharmacy is not inherently inappropriate, it increases the risk of adverse drug reactions, particularly in older patients. The PARTNER trial evaluates 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/anticholinergic drugs.

Methods: PARTNER is a multicentre, cluster-randomised trial, accompanied by a health economic and process evaluation. Clusters consist of one GP practice and one or more collaborating pharmacies, randomly assigned to the intervention or control group. At least 45 GP practices will recruit 352 patients (≥ 65 years, polypharmacy, ≥ 1 psychotropic/anticholinergic drug) across three study sites. The intervention includes (A) educational material for GPs and pharmacists, (B) an interprofessional workshop, (C) patient empowerment through a patient-pharmacist consultation and leaflets, and (D) shared decision-making in a patient-GP consultation. The control group receives a pharmacist-led medication check without particular focus on psychotropic/anticholinergic drugs. The primary endpoint is a reduction in psychotropic/anticholinergic exposure, reflected by a ≥0.15-point reduction on the Drug Burden Index. Secondary endpoints examine the effect of the intervention on target drug use, clinical symptoms and patient-reported outcomes.

Results: This trial will establish whether the PARTNER intervention reduces psychotropic/anticholinergic drug use in older people, its benefit-risk ratio and barriers/facilitators to implementation. First results are expected in 2026.

Conclusion: The PARTNER project explores whether broad implementation of the PARTNER intervention is effective, efficient, and feasible while providing insights into how GP-pharmacist collaboration can succeed to enhance patient safety.

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306. Antidepressant-Associated Sexual Dysfunction in Outpatients: Differences Between Mono and Polypharmacy Users

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Background

Antidepressant therapy is associated with various forms of sexual dysfunction, which may lead to treatment discontinuation. This issue can occur whether the patient is on mono-pharmacy, using a single antidepressant medication, or polypharmacy. This study aims to examine antidepressant-associated sexual dysfunction in outpatients, focusing on differences between mono- and polypharmacy users and in terms of gender and age groups.

Methods

A total of 511 individuals volunteered to participate in the study. Participants were recruited from Psychiatry Outpatient Clinics of four different hospitals across three major cities in Türkiye (Istanbul, Ankara, and Antalya) between January 2023 and January 2024. All participants had been receiving antidepressant monotherapy for at least one month and consented to take part in the research. The Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ) was used to assess sexual dysfunction. Statistical analysis was conducted using SPSS 28.

Results

No statistically significant differences were observed in the PRSexDQ scores between mono- and polypharmacy users ($p = 0.490$), as well as between male participants ($p = 0.500$) and female participants ($p = 0.557$). Moreover, a significant difference was found in the PRSexDQ scores among male participants across different age categories (18-40, 41-50, 51-60, and 61-70), with a difference found between 18-40 and 41-50 age groups ($p= 0.047$).

Conclusion

Selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs) have a high potential for causing sexual side effects, potentially overshadowing the adverse effects of other medications used in polypharmacy. Longitudinal studies and larger sample-sized research are needed for further understanding.

Quality

44. Validation of register-based quality indicators towards safe and effective pharmacotherapy in the Nordic countries: An eDelphi study

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Aim: To select, following an expert-based consensus process, a set of relevant, valid, and actionable register-based indicators and definitions for quality assessment of outpatient pharmacotherapy across and within Nordic countries and subnational regions.

Methods: Delphi method, administered as an electronic survey (REDCap). Draft set of 15 indicators was compiled based on literature searches and further technical operationalisation by the study team. eDelphi panellists were recruited through study group networks and snowballing to include healthcare professionals, methodological experts, and representatives of bodies responsible for national and regional healthcare quality assessment and steering in the Nordic countries. Protocol with definitions of consensus and item dropping criteria were pre-registered. As rating methodology, a 9-point Likert scale is used. Panellists were able to comment the indicators and the set, and suggest new indicators. The Delphi will continue until consensus is achieved on all indicators, or for maximum four rounds.

Results: The first round yielded 21 completed answers. All draft indicators reached the pre-defined threshold of median rate of 7 or more for all attributes (relevance, validity and actionability). Consensus (75% or more in the highest tertile) was reached for 9/15 indicators for all attributes. Round 2 is currently ongoing, with 6 revised and 1 new indicator to be rated.

Conclusion: The set is envisaged to provide a standardised evidence base for register-based assessment of prescribing quality within and across the Nordic countries. All materials will be published open access for further development, validation, and application in research, benchmark, and quality assessment.

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84. Perceptions about infections, health seeking behaviors and antimicrobial use practices in a community in southern India: a qualitative study

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Background: Antimicrobial Resistance (AMR) is primarily driven by the misuse and overuse of antimicrobials. Lack of awareness about AMR, misconceptions about infections and sub-optimal health seeking behavior may increase antimicrobial use. Understanding these factors can help in planning messaging strategies and interventions in community settings.

Methods: A qualitative study, using Focus Group Discussions (FGDs) among key community stakeholder groups, was conducted in the state of Kerala, India. A total of 8 discussions were conducted using a pre-tested FGD guide. Manifest and latent content analysis was done.

Results: The community had good understanding of health, its determinants, and its various dimensions. However, infections were not viewed as a priority since people perceive a continuing reduction in incidence of infections and an increase in non-communicable diseases. There were variations in the risk perception associated with different infections and the health-seeking behavior was linked to it. Over-the-counter medications were seen as a convenient alternative to health centers. Hygiene was however considered a priority. The utility of antibiotics was well understood, but there was no appropriate translation or understanding of AMR.

Discussion: Most of the discussants considered good health as a function of several factors including hygiene, nutrition and mental health. However, the lower overall risk perception about infections and lack of appropriate translations may reduce the receptiveness of messages related to AMR. Community level perceptions about infections, hygiene and health seeking behaviors should be captured and used while designing and contextualizing awareness programs and interventions for AMR.

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118. The dual role of social media in self-medication and health practices among general population in Serbia during COVID-19 pandemic

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Background

Social media is a potent communication tool, enabling the rapid dissemination of public health information. During the COVID-19 outbreak, the impact of social media was polyvalent. Self-medication was triggered by multiple factors driven by the fear of becoming infected. This study aimed to identify determinants of self-medication during the pandemic, with a focus on the role of social media.

Methods

This online cross-sectional study was conducted in 2021 among adults in Serbia. The multivariate logistic regression model with self-medication as the dependent variable was used to identify the factor associated with self-medication practice.

Results

A total of 140 participants with a mean age of 35.9±13.6 years were enrolled. Only 13% of respondents reported the self-medication practice since the start of pandemic. More than two thirds used zinc and vitamin D in COVID prevention, and around 50% used azithromycin and nadroparin in COVID self-treatment. Facebook and YouTube were the predominant sources of health information among social media. The main perceived positive role of social media during the pandemic was its potential “to unite people and end discrimination by spreading awareness”, while the main perceived negative role was “fear and panic creation by disseminating the number of infections and death”. The determinants of self-medication were age below 50 years, chronic diseases, polypharmacy, and Facebook as a source of information.

Conclusion

Interdisciplinary collaboration between the health sciences and media can contribute to coordinated efforts to enhance the positive role of social media while mitigating its negative influence on inappropriate health practices.

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150. Real-World Data included in Post-Authorization Measures: A case study of approved Advanced Therapy Medicinal Products in the European Union between 2013 and 2024

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Background: Advanced Therapy Medicinal Products (ATMPs) often require long-term monitoring to assess both safety and efficacy post-authorization data in clinical practice due to uncertainties identified during the approval process. This study aims to characterize the use of Real-World Data (RWD) in post-authorization measures (PAMs) for ATMPs approved in the European Union.

Methods: A systematic extraction of all post-authorization measures (PAMs) from publicly available European Medicines Agency (EMA) regulatory documents for ATMPs approved between January 2013 and December 2024 was conducted. Additional databases including the HMA-EMA Catalogue of real-world data studies and sources and ClinicalTrials.gov were consulted. Data collection was managed in Microsoft Excel and descriptive analysis was performed using R software.

Results: Among 25 ATMPs approved by the European Commission over the study period, 119 PAMs were identified, of which 43 (36%) involved RWD. For these RWD-related PAMs, 38 (88%) corresponded to studies with an observational prospective design and the majority were imposed by the EMA (29 annex II conditions and 6 specific obligations, 81%). Nineteen PAMs used secondary data (44%) and 16 corresponded to registry-based studies (37%). Five (12%) included a comparator group and 13 (30%) studies incorporated patient-reported outcomes (PROs).

Conclusion: This study emphasizes the growing reliance on RWD for post-authorization monitoring of ATMPs in Europe. Nevertheless, establishing reliable data sources, overcoming practical challenges, and ensuring transparency can enhance RWD's potential, providing valuable insights to overcome uncertainties and guide future regulatory decision-making.

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166. Medication self-management in older people across the hospital-to-home transition: a qualitative study

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Introduction: Medication-related harm (MRH) poses significant risk for patients and financially burdens healthcare systems worldwide. Older age and care transitions increase MRH likelihood. Despite several interventions, understanding how to develop the patient's role in medication management and improve medication self-management (MSM) practices remains limited. This study identifies MSM activities across hospital-to-home transitions and examines how discharge processes influence preparedness for MSM at home.

Method: A qualitative multi-centre study across three hospitals in England, observing medication-related interactions between older people and healthcare professionals (HCPs) before discharge. Participants included older people (65+), taking 5 or more medications and discharged to their own home without professional support for all prescribed medication. Observation data will be analysed using Ideal Type Analysis to form typologies of patient MSM behaviours, underpinned by behaviour change theory.

Results: Preliminary findings indicate discharge decisions occur during multidisciplinary team meetings, but the process is unclear. Successful discharge depends on various factors; the discharge medication process is central. MSM capability is not formally assessed, and MSM is not perceived as an activity of daily living (ADL), so it is excluded when evaluating discharge preparedness. Interactions where patients attempt self-preparation include asking about medications and noting changes.

Discussion: MSM capability is not formally assessed for older people before discharge. Preliminary findings suggest behaviour change regarding understanding of ADLs, to include MSM. Insights from this study will help co-design a comprehensive assessment tool measuring MSM capability prior to discharge. Understanding the setting the tool will be utilised in, seeks to strengthen tool adoption.

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170. Utilisation patterns and quality of lipid control among patients prescribed lipid-lowering therapies in primary care settings in Kuwait: A nationwide cross-sectional study

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Background: Cardiovascular diseases (CVDs) are the leading cause of mortality in Kuwait with a reported rate of 68 per 100,000 inhabitants in 2023. Uncontrolled lipid levels remain a critical modifiable risk factor for CVDs. Primary health care centres (PHCCs) play a pivotal role in managing lipid disorders.

Objective: To evaluate prescribing patterns of lipid-lowering therapy (LLTs) and assess the extent of lipid control among patients attending PHCCs in 2023.

Methods: A nationwide, cross-sectional study was conducted using the WHO STEPwise approach to surveillance (STEPS) across six randomly selected PHCCs. Patients attending chronic clinics and prescribed at least one LLT were included. CV risk categories and lipid treatment goals (LDL-C and non-HDL-C) were defined using the 2021 Middle East consensus. The primary outcomes included prescribing patterns and the proportion of patients achieving therapeutic goals. Data analysis involved descriptive statistics and multivariate logistic regression.

Results: A total of 434 patients were included, with a mean age of 54.3±9.7 years and comparable gender distribution. Statins were the most commonly prescribed LLTs (98.8%,n=429), with 3.2%(n=14) receiving combination therapy with ezetimibe. Moderate-intensity statin therapy was used by 90.4%(n=388) of patients. Achievement rates for LDL-C and non-HDL-C goals across all CV categories were 20.4% and 26.6%, respectively. CV risk category was significantly associated with achieving LDL-C and non-HDL-C goals ($p<0.001$).

Conclusion: Despite the widespread use of statins, lipid control remains suboptimal. These findings highlight the urgent need for targeted interventions to optimise lipid management, including improving adherence and adopting more intensive LLT regimens.

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183. Use of testosterone-containing drugs in Germany: time trends and potential off-label use

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Background

An increase in the use of testosterone-containing drugs has been reported for some countries. As there are no drug utilization studies on this topic from Germany, we aimed to assess temporal trends in testosterone prescribing among men and to quantify potential off-label use.

Methods

Using a large claims database (GePaRD, 20% of the German population), year-wise cross-sectional analyses for 2006 to 2021 were conducted to estimate the age-specific and the age-standardized annual prevalence of testosterone-containing drug use per 1,000 men in Germany. Potential reasons underlying the testosterone prescribing were assessed among new users of testosterone. The study was financed by BfArM.

Results

The age-standardized prevalence of testosterone drug use increased by 75% between 2006 (1.86/1,000) and 2016 (3.26/1,000). Between 2016 and 2021, the increase was less pronounced (2021: 3.44/1,000). The prevalence was highest among men aged 50–59, 60–69, and 70–79 years. In 40% of new testosterone users, no potential indication was coded. Among those with a code for an indication, mainly hypogonadism (96%) was coded, which was accompanied by a code for a laboratory measurement of testosterone in 84% of these patients.

Conclusion

Our results indicate a strong increase in testosterone prescribing in men between 2006 and 2016 in Germany, stabilizing at a high level thereafter. The substantial potential off-label prescribing underscores the need for monitoring prescribing practices.

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186. Use of transmucosal fentanyl in Germany (2005–2020): Insights from a large claims database

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Background

Transmucosal fentanyl is approved for breakthrough cancer pain in previously opioid-treated patients. We aimed to investigate trends in the incidence of transmucosal fentanyl use in Germany and assess the presence of cancer and prior opioid prescriptions among new users.

Methods

Using the claims database GePaRD (20% of the German population) we identified new users (no prescription within ≥1 year) of transmucosal fentanyl prescribed in the outpatient setting between 2005 and 2020. For each year, we determined the prescription incidence (number of new users per 1,000,000 persons). Among new users, we determined the proportions with a cancer diagnosis and with ≥1 prior prescription for another opioid analgesic. The study was financed by BfArM.

Results

Between 2008 and 2020, the prescription incidence of transmucosal fentanyl increased across all age groups, particularly in the elderly. It rose approximately 7-fold (118.5 to 826.1/1,000,000) in persons aged 60–79 years and 18-fold (117.9 to 2,170.3/1,000,000) in those aged ≥80 years. No plateau was observed in these two age groups until 2020. A cancer diagnosis was coded in 82% of all 52,510 new users and in 68% of those aged 20–39 years (n=1,188). The proportion of new users with prior prescriptions for other opioid analgesics was 91% among all new users and among those aged 20–39 years.

Conclusion

New use of transmucosal fentanyl has increased since 2008 in Germany, particularly in older age groups. Most new users had a cancer diagnosis, and almost all had been previously prescribed another opioid analgesic.

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216. Development and evaluation of a tool for identifying and addressing prescribing cascades (CASC-ADE tool)

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Background: Prescribing cascades occur when a drug is prescribed to treat side effects of another drug. Healthcare professionals struggle to recognize and address prescribing cascades. We aim to develop and test a tool that provides information for Creating Awareness of prescribing Cascades & managing Adverse Drug Effects (CASC-ADE tool).

Methods: Based on literature review and expert input, we created a first knowledge document for the CASC-ADE tool, addressing the cascade of diuretics prescribed for oedema induced by calcium-channel-blockers. It includes background information and a summary with recommendations. Its perceived quality and usability were tested among medical and pharmacy students using an online 24-item questionnaire derived from the AGREE-instrument and User Experience Questionnaire. Additional open-ended questions were asked.

Results: Six medical and six pharmacy students reviewed a polypharmacy case containing the prescribing cascade along with the knowledge document. One completed only open-ended questions. Median scores of the others were positive, ranging from 5 (12 items) to 6 (9 items) on a 7-point Likert-scale. All expected that the document could help them to identify and address prescribing cascades but were less certain that it could help to prevent cascades. Suggestions were made to improve the clarity and prioritization of recommendations. Overall, the document was considered to be of good quality.

Conclusion: A knowledge document was developed for identifying and addressing the calcium-channel-blocker – diuretic prescribing cascade, which tested positive on quality and user experience for medical and pharmacy students. After evaluation among healthcare professionals, the document will be adapted for the final CASC-ADE tool.

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249. “We are just part of a community”: A qualitative study of antibiotic prescribing practices and antimicrobial resistance in surgical and orthopedic departments in Central India

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Background: Broad-spectrum antibiotics are routinely empirically initiated in surgery and orthopaedic departments, contributing to the AMR. This study aimed to explore the factors influencing surgeons’ and orthopedicians´ antibiotic prescribing behavior in Central India.

Methods: Semi-structured interviews were conducted with 15 doctors in orthopedic and surgery departments across three private-sector hospitals in Ujjain district. Questions were formulated to explore decision-making processes around prescribing antibiotics, perceptions of AMR and potential solutions. Manifest and latent content analysis was used.

Results: Three main themes emerged: 1) Decision on antibiotic prescribing is influenced by environmental and sociocultural factors; 2) The need for feedback and consultation on antibiotic prescribing depends on seniority level; 3) AMR is a social problem requiring collective effort. Respondents emphasized the critical role of environmental (e.g., dusty rural setting) and sociocultural factors (e.g., patients’ socioeconomic status) in influencing antibiotic prescribing. Prescribing protocols were largely experience-based and varied among participants. Perceptions of antibiotic prescribing quality and the need for feedback and consultation varied by seniority level. Junior practitioners expressed a stronger desire for regulation, guidelines, and feedback, whereas senior practitioners were more confident in their prescribing. The AMR problem in India was perceived as a broader societal issue requiring collective action. Proposed solutions included strengthening infection prevention and control measures, public education, stricter regulations on antibiotic use, and developing local department-specific guidelines.

Conclusions: Antibiotic prescribing decisions are context-specific, and strongly influenced by environmental and sociocultural factors. The study’s findings could inform targeted interventions to improve antibiotic use in Central India and beyond.

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282. Healthcare Professionals' Perspectives on Tools for Appropriate Prescribing: A Cross-Sectional Study.

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Background

Inappropriate prescriptions increase the risk of drug-drug interactions, adverse effects, hospitalizations, and mortality, particularly among older adults. While several prescribing tools exist to aid healthcare professionals, their actual implementation remains a challenge. This study aimed to evaluate healthcare professionals' knowledge of these tools and identify barriers to their adoption and potential facilitators for improving the prescribing process.

Methods

We developed a questionnaire for healthcare professionals to assess their knowledge of appropriateness tools, their adoption, encountered barriers, and the proposed facilitators. The tools included in the questionnaire were identified through a literature review and expert consensus. Open-ended responses were categorized using content analysis. Differences among professions were assessed with the Chi-square test or Fisher's exact test.

Results

We collected 657 responses from healthcare professionals: pharmacists (35%), nurses (26%), general practitioners (22%), geriatricians/internists (9%), and other physicians (8%). The Beers and STOPP/START criteria were the most adopted tools (38% and 34%), with significant differences among professions, driven by higher use among geriatricians and other physicians (p-value = 0.003 for both criteria). Furthermore, 34% of respondents utilized software embedded within their organization's computer systems. Lack of time (14%), insufficient knowledge (10%), and the accessibility or cost of digital tools (8%) were the main barriers identified by 294 respondents. The proposed solutions to improve prescribing practices included specialized training (38%), integrated software/apps (29%), and increased patient interaction time (11%).

Conclusions

Our research identified education, engagement, interprofessional collaboration, and innovation as essential components for enhance prescription appropriateness and ensure patient care.

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285. Drug-event pairs as indicators for the detection of potentially drug-related hospital admissions in routinely collected electronic data sources

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Background

Adverse drug reactions (ADRs) can cause significant harm to patients and, in severe cases, lead to emergency hospital admissions. The aim of this study was to develop drug-event pairs as indicators for the detection of potentially drug-related hospital admissions in electronic health record (EHR) data.

Methods

We conducted a consensus process based on the RAND/UCLA Appropriateness Method, in order to identify drug-event pairs as indicators for the most important adverse drug reactions (ADRs) at hospital admission. In the course of two assessment rounds, the first-round ratings were fed back to the panelists before the second-round ratings were placed. The experts were asked to assess on a 4-point Likert scale (1=unlikely to 4=certain) how likely the listed medication could be assumed to contribute significantly to the adverse event (AE) in an average patient. Drug-event pairs with a median rating of ≥3 without disagreement were defined as indicators of certain and probable ADRs.

Results

For 17 AEs, combinations with potentially causative medication (drug-event pairs) were assessed by 5 physicians and 6 pharmacists from 10 German university sites. After the second rating round, 44 (14%) out of 318 drug-event pairs were confirmed as indicators of potentially drug-related hospital admissions.

Conclusion

Our RAND survey led to a set of systematically developed indicators of clinically relevant ADRs in the setting of acute hospital admissions for implementation in EHR data. As such, they can be used as medication safety measures in clinical practice (e.g., decision support), clinical surveillance and research (e.g., as outcome measures).

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309. Improving Prescription Quality in Primary Health Care: A Study Based on Brazilian Legislation and WHO Indicators.

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The safe use of medicines depends on clear and complete prescriptions. These prescriptions must follow technical, clinical, and legal guidelines. This study aimed to evaluate the quality of medicines prescriptions in primary health care facilities, based on Brazilian legislation and on World Health Organization (WHO) prescription indicators.The Universidade Federal Fluminense Research Ethics Council approved this study. Patients leaving public municipal pharmacies were approached to give informed consent and prescriptions photographed for further analysis. The completeness of a prescription according to Brazilian law includes legibility, date, full name, signature and Medical License Number of the prescriber, medicine's generic name and dosage. A total of 333 prescriptions from 277 patients were analyzed. In terms of completeness, 30.33% of prescriptions had low completeness (0% to 50%), 33.03% had moderate completeness (50% to 80%), and 36.64% had high completeness (80% to 100%), with only 7.21% fully completed. Regarding the WHO indicators, 74.77% of prescriptions contained 1 to 3 medicine, with an average of 2.66 per prescription. Anti-infectives were prescribed in 14.11% of cases, and 4.06% involved injectables. Generic names were used in 49.85% of prescriptions, while 50.15% included at least one medicine prescribed by brand name. Furthermore, 44.50% of prescriptions included medicine from the municipal essential medicines list. These results highlight the need for interventions to improve prescriber compliance with Brazilian legislation and the municipal essential medicines list. These are opportunities to improve medicines safety and effectiveness in primary care settings.

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314. The prevalence and types of inappropriate prescribing and falls risk increasing drugs use in people who have experienced a fall: a systematic review and meta-analysis.

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After a fall, it is important to review and optimise prescribing to reduce risk of recurrent falls. This study aims to systematically review evidence on the prevalence and types of inappropriate prescribing, including falls-risk increasing drug (FRID) use, in individuals who have fallen.

A systematic search was conducted in July 2024 in MEDLINE, EMBASE, CINAHL, and Google Scholar using keywords for fall events, inappropriate prescribing, and FRIDs. Observational studies (cohort, case-control, cross-sectional, before-after) and randomised trials were included. Studies were eligible where participants had experienced a fall and they reported inappropriate prescribing (including FRID use). Random-effects meta-analyses were conducted to pool prevalence of inappropriate prescribing and mean number of inappropriate prescriptions across studies, with stratified analysis to assess heterogeneity.

Fifty papers reporting forty-six studies met the inclusion criteria. All studies assessed FRIDs, and twenty-nine assessed other forms of PIP. The prevalence of PIP at the time of the fall was reported in 43 studies, and the pooled estimate was 68.6% (95%CI 66.1-71.2%). Among 23 studies reporting it, mean number of inappropriate prescriptions per participant was 2.21 (95%CI 1.98-2.45). The most common FRIDs prescribed were sedatives/hypnotics, opioids, diuretics, and antidepressants. Twenty-one studies assessed changes in PIP prevalence post-fall; ten of these found a decrease in prevalence, with others noting increases, no change or mixed results.

Inappropriate prescribing is highly prevalent among fallers, with cardiovascular and psychotropic drugs the most common. This suggests a significant scope to optimise medicines use in these patients to potentially reduce falls risk and improve outcomes.

Safety

20. Prevalence and determinants of potentially inappropriate medication use in the German National Cohort (NAKO)

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Background: Concerns about the safety of potentially inappropriate medications (PIM) in older patients have increased.

Objectives: To identify determinants of PIM use in community-dwelling German individuals, aged 60-74 years.

Methods: We included participants aged 60-74 years from the German National Cohort (NAKO) baseline visit, recruited from 2014 to 2019. PIM were defined according to the FORTA (Fit fOR The Aged) list, which classifies the appropriateness of 299 medications for 30 indications.[1] Determinants of PIM use were identified by multivariable logistic regression models, with p-values adjusted for multiple testing using the false discovery rate.

Results: Among 54,313 individuals (mean age: 64.9 years, 50.1% females), the prevalence of PIM use was 31.4%. In the multivariate model, sex and income were strongly associated with PIM use, with 17% (0.83 [0.76-0.90]) and 15% (0.85 [0.78-0.92])) lower odds in participants with high income and males, respectively. Furthermore, we identified N=17 diseases and N=3 biomarkers as determinants of PIM use. Higher eGFR, grip strength, and diastolic blood pressure were protective factors. Interestingly, lifestyle factors (alcohol consumption, physical activity, and smoking) except BMI (OR [95%CI] per 5 kg/m²: 1.08 [1.05; 1.11]) were not associated with PIM use in the fully adjusted model.

Conclusion: PIM use is very common in the older German population and is particularly high among females and the relatively poorest citizens. A higher BMI, lower grip strength, and multiple diseases and biomarkers have been identified as further risk factors for PIM use.

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26. Continued use of potentially inappropriate medication after hospital discharge: a retrospective cohort study.

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Background

Many patients receive temporarily indicated medications, such as opioids, benzodiazepines, and antipsychotics, during hospitalization. Continued use of these medications at discharge can lead to potentially inappropriate medication (PIM) use post-discharge. However, data on continued PIM use in the Netherlands are lacking. This study aimed to investigate the incidence of continued use of opioids, benzodiazepines, and antipsychotics post-discharge in the Netherlands.

Materials and methods

This retrospective cohort study included patients aged ≥18 years discharged between January 2019 and May 2023 from a Dutch teaching hospital with a new prescription of an opioid, benzodiazepine, or antipsychotic initiated during hospitalization and continued at discharge. Patients were followed for one year using data from the hospital's information system and community pharmacy dispensing records. The study's primary outcomes were the incidence of continued PIM prescriptions and duration of use, classified into <30 days, 30-182 days, and >182 days.

Results

Among 6,835 patients, 82.7% were prescribed opioids (mean age 61.1y), 14.7% benzodiazepines (mean age 60.7y), and 2.6% antipsychotics at discharge (mean age 69.2y). 62.5% of new benzodiazepine users, 73.4% of opioid users, and 42.1% of antipsychotic users had a duration of continued use of <30 days post-discharge. However, a significant proportion continued PIM use for >182 days (13.4% opioids, 20.9% benzodiazepines, 36.0% antipsychotics).

Conclusion

Antipsychotics were most often continued >182 days post-discharge, followed by benzodiazepines and opioids. These results highlight the importance of recognizing PIMs and emphasize the need for careful evaluation of discontinuing these medications at hospital discharge or specifying a discontinuation date.

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29. Impact of COVID-19 and Licensing of SGLT2 Inhibitors on the Annual Prescribing Pattern of Anti-diabetic Drugs in England

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Background: Diabetes management is ever-changing, with the licensing of SGLT2 inhibitors in 2012 diabetics have experienced changes to their treatment due to advancements in guidelines and treatment options, while the COVID-19 pandemic affected their access to healthcare in 2020. We evaluated the impact of COVID-19 and the licensing of SGLT2 inhibitors in England on the prescribing patterns of antidiabetic drugs.

Research design and methods: Following the licensing of SGLT2 inhibitors in 2012 and the COVID-19 pandemic in 2020, a population-based segmented interrupted analysis was applied on annually dispensed antidiabetic drug prescriptions using the Prescription Cost analysis dataset (2012-2023). The quantity was measured using number of items dispensed per 1000 inhabitants (NTI) and defined daily doses per 1000 inhabitants per day (DID).

Results: Findings showed 537.29 (104.39%) and 34.29 (49.74%) increase in the NTI and DID, respectively, with biguanides being the largest contributor to DID immediately after lockdown (B4 = 3.97, 95% CI: 0.95, 6.99). While SGLT2 inhibitors did not see a rise in NTI until after lockdown (B5 = 27.77, 95% CI: 19.74, 35.80). In contrast, classes such as sulfonylureas showed a statistically significant decrease in NTI after the licensing of SGLT2 inhibitors (B3 = -9.31, 95% CI: -18.23, -0.40), with Meglitinides (B3 = -0.13, 95% CI: -0.24, -0.02) and thiazolidinediones (B3 = -1.91, 95% CI: -4.57, 0.76) following the same trend.

Conclusion: The licensing of SGLT2 inhibitors and the COVID-19 pandemic significantly influenced antidiabetic drug prescribing patterns in England highlighting the evolving management of diabetes.

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53. The use of nootropics among higher education students

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Nootropics improve cognitive function, enhance memory and facilitate learning. The use of nootropics has been well studied in patients with cognitive impairment, and there is growing evidence that these compounds may also be useful in healthy individuals. The majority of nootropics are of natural origin, not subject to prescription, and can be obtained in the form of food supplements.

The aim of this study was to investigate the prevalence and characteristics of nootropic use among higher education students in Hungary.

In this study university students were asked to complete an online questionnaire that included questions about participants' demographic characteristics, aims of nootropic use, nootropics used, frequency of use, perceived efficacy and tolerability. Descriptive statistics were used to analyze the data.

So far, 1,234 students have completed our survey. The students were using these products to increase alertness, memory capacity and study speed. The majority (89.5%) of the respondents used caffeine to improve cognitive function. Physical activity (60.2%) and food supplements (56.4%) were also popular, and 19.0% of the respondents used nicotine (mostly less than once a week) to improve their cognition. Over-the-counter and prescription-only medications were used by 14.3% and 6.2% of the respondents, respectively.

The safe use of nootropics is questionable based on our survey, as the most common sources of information were social media and friends, and it is alarming that 1 in 5 respondents believe that using these products is safe (without side effects) and cannot lead to addiction.

This work was supported by the TKP2021-EGA-32.

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56. The use of CBD-containing products in Hungary

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CBD (cannabidiol), an active ingredient found in *Cannabis sativa*, is becoming increasingly popular, but its clinical efficacy and safety have not been thoroughly investigated.

In this study, we assessed the use of CBD-containing products in Hungary. Participants completed an online questionnaire that included questions about the types of products used, purpose of use, perceived efficacy, and tolerability. Descriptive statistics were used to analyse the data.

A total of 839 respondents completed our survey, of whom, 542 used CBD products. A wide range of products were reported, with CDS drops (85.2%) being the most popular, and CBD-containing ointments (22.0%), herbal tea (12.2%), tablets or powder (13.4%), cigarettes (7.6%) and sprays (2.8%) were also mentioned. In some cases, more than one CBD-containing product was used. Based on our results, the respondents (n=921) used these products for different conditions, the most common indications were anxiety and sleep disorders (47.1%), depressed mood (33.8%) and depression (16.5%), and pain relief (26.8%). A total of 152 different adverse reactions were reported, dry mouth (n=23), dizziness (n=19) and gastrointestinal complains (n=19) were the most frequent ones.

In the majority of cases, users purchased the products online. Despite the fact that the medical use of CBD oil is not evidence-based, respondents said that in some cases doctors and pharmacists recommended the use of CBD products. Our findings highlight that CBD products are being used and that healthcare professionals and the lay public should be educated about CBD’s place in modern medicine.

This work was supported by the TKP2021-EGA-32.

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86. Data mining and bioinformatics analysis of novel signals of candesartan: A real-world analysis of US FDA adverse event reporting system database

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Background: Candesartan, a drug primarily used to treat hypertension and cardiovascular diseases, has garnered attention for signal detection to identify previously unreported adverse drug reactions (ADRs).

Objectives: This study aimed to identify novel ADR signals for Candesartan using the US FDA Adverse Event Reporting System (FAERS) database.

Methodology: Methodology: FAERS data was analyzed through disproportionality analysis to detect potential novel adverse events linked to Candesartan. The Reporting Odds Ratio (ROR) and Proportional Reporting Ratio (PRR) were calculated from the OpenVigil database. A positive signal was defined by PRR ≥ 2, Chi-Square > 4, and ROR - 1.96 SE > 2. Gene and protein associations with Henoch-Schönlein purpura (HSP) were explored using databases like NCBI and HuGE Navigator, refined via the STRING database. Protein structures were retrieved from the Protein Data Bank (PDB), and molecular docking simulations with Candesartan were performed using PyRx, PyMOL, and BIOVIA Discovery Studio for visualization.

Results: The FAERS database reported 29,661,136 adverse events, with 7,305 associated with Candesartan since its approval in 1998. OpenVigil data revealed 8 reports of Henoch-Schönlein purpura. Statistical analysis yielded a PRR of 10.66, ROR of 10.7, and Chi-Square of 17.43, indicating a positive signal for Henoch-Schönlein purpura. Genes implicated in HSP include PTPN22, IL6, S100A8, and S100A9, with binding affinities of -9.1, -8.8, -7.9, and -7.6 kcal/mol, respectively.

Conclusion: The identification of specific genes and their high binding affinities with Candesartan supports a potential association with Henoch-Schönlein purpura. This signal warrants further reinvigoration and investigation through pharmacoepidemiologic studies to confirm the association.

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95. Safe Medicines, Informed Patients: The Value of Consultative Dispensing

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Background
Pharmacies are crucial in healthcare by the dispensing of medicines in community settings. Providing accurate and thorough information to patients is essential for both patient satisfaction and the safe, rational use of medicines. In Hungary, the Professional Guideline on Pharmacovigilance in Pharmacies introduced in May 2024 emphasizes consultative dispensing as a key health service to ensure patient safety and improve pharmacy practice.

Methods
Dispensing practices were evaluated using a test purchase method. A young woman attempted to purchase a St. John's wort product according to a pre-defined scenario, presenting a specific anamnesis that included her illness and medications. Interactions with pharmacy staff, including questions and recommendations, were documented. The study involved 110 pharmacies.

Results
The education level of the dispenser was not identified in 39.1% of cases, while 35.5% were handled by pharmacists and 12.7% by dispensing assistants. In 44.5% of cases, the product was correctly refused because of the patient's medical background. Diagnosis was clarified in 24.5% of cases, 43.6% resulted in referral to a doctor. However, many dispensers did not adequately consider the patient's current medications, revealing shortcomings in consultation practices.

Conclusion
The study highlights the importance of consultative dispensing in ensuring patient safety and appropriate use of medicines. While good practices were identified, the results also revealed areas for improvement, particularly in the areas of patient history taking and consideration of concomitant medication use. This research aims to support the ongoing development of consultative dispensing in Hungary.

The study was supported by the EKÖP-24-3SZTE-214 and TKP2021-EGA-32.

105. Adverse drug reactions related hospital admissions and adverse drug events and their association with short and long-term health outcomes (health related quality of life (HRQOL), functional decline, and accident and emergency (A&E) visits) in older community-based populations

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Background: Adverse drug reactions (ADRs) and events (ADEs) are harmful responses to medications, with older adults at higher risk due to polypharmacy and age-related changes.

Aim: To investigate the association between ADR-related hospital admissions and ADEs in primary care in relation to HRQOL, functional decline, and A&E visits over time.

Methods: Two cohorts were used: ADAPT (230 patients, 93 with ADR-related hospital admission) and CPCR (605 patients, 465 with ADE) both in Ireland. Patients completed a baseline health questionnaire: ADAPT in 2016-2017 and follow-up 3 months later; CPCR in 2010-2011 and follow-up 24 months later. Multivariate regressions examined the link between ADR-related admissions/ADEs and HRQOL (EQ-5D-5L/3L), functional decline, and A&E visits, adjusted for age, sex, comorbidity, and polypharmacy.

Results: ADAPT patients were older (median age 79 vs. 75), had more morbidity (Charlson score ≥3: 40% vs. 7%), and more polypharmacy (≥10 medications: 38% vs. 31%) than CPCR patients. In ADAPT, frailty increased in both ADR (68% to 85%) and non-ADR (74% to 85%) groups ($p<0.01$). A&E visits decreased ($p<0.001$), and HRQOL did not change significantly. In CPCR, HRQOL decreased for both ADE ($p=0.001$) and non-ADE ($p=0.044$) groups. Functional decline risk rose for both (ADE: $p=0.020$, non-ADE: $p=0.039$). A&E visits increased ($p<0.001$). ADE patients had lower HRQOL and more frailty ($p<0.001$). No significant changes between ADR and non-ADR and ADE and non-ADE.

Conclusion: Understanding the impact ADRs/ADEs have on older patients' lives will inform the development of supports to manage medications and improve their well-being.

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120. Impact of the COVID-19 pandemic on the prescribing patterns of oral anticoagulant use in the Scottish primary care setting: Population-based time series analysis with segmented regression

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Introduction: This study aimed to investigate the impact of COVID-19 on oral anticoagulant (OAC) prescribing patterns in Scotland, in terms of incidence, prevalence, and switching from vitamin-K antagonists (VKAs) to direct oral anticoagulants (DOACs) during the pandemic.

Methods: An interrupted time-series analysis was conducted in this observational study spanning from Jan 1, 2018, to April 30, 2021, using routinely collected Scottish data. Two breakpoints were defined, relating to the two lockdowns that occurred in the country: the first at the start of the COVID-19 pandemic in March 2020, and the second in November 2020.

Results: Incident OAC use declined significantly immediately after the pandemic's onset (β_2 = -423.081, p= 0.0002). This trend reversed after the first lockdown, with a significant increase in the slope (β_3 = 38.674, p= 0.01). The proportion of patients switching from VKAs to DOACs increased significantly immediately after the first lockdown in March 2020 (β_2= 4.6542, p=4.80×10^{-9}), although the time trend for switching subsequently declined (β_3= -0.6683, p=5.11×10^{-7}). Notably, there was no significant change in switching immediately after the second lockdown (β4 = 0.3735, p = 0.6), but the switching trend significantly increased thereafter (β5= 0.7034, p=0.001).

Conclusion: The COVID-19 pandemic and associated lockdowns significantly influenced OAC prescribing patterns in Scotland**.** Incident OAC use initially declined significantly but later exhibited a significant upward trend post-lockdown. Switching from VKAs to DOACs increased markedly after the first lockdown, although the trend slowed over time.

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123. L-theanine for cognition – results of a meta-analysis

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Green tea (*Camellia sinensis*) has been consumed for centuries for its beneficial effects. L-theanine, an active ingredient in green tea, has been used to improve cognition and mood, but evidence supporting its efficacy has not yet been evaluated.

Our aim was to evaluate the effects of L-theanine on cognitive function. We therefore performed a meta-analysis of randomised, placebo-controlled clinical trials evaluating the acute effects of L-theanine compared with placebo. The meta-analysis was reported according to the PRISMA protocol. Literature searches were conducted using EMBASE, PubMed, Web of Science and the Cochrane Library. The risk of bias was analysed using the Cochrane Risk of Bias Tool. To compare mean data, MD (Mean Difference) with 95% CIs were computed for SRT results. Heterogeneity was examined with the Higgins I^2 indicator, which was the percentage of total variation.

A total of 4 studies with 118 participants were analysed. The participants took 50-250 mg of L-theanine once, and after taking L-theanine, simple reaction time (SRT) was measured 30-60 minutes. The effect of L-theanine on the cognition was non-significant based on the SRT test results (MD: 1.01 [-12.33; 14.35]).

Our study concluded that the acute effects of L-theanine on cognition in healthy adults fall short of expectations.

This work was supported by the TKP2021-EGA-32.

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133. Off-label medicines in paediatrics

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The use of off-label medicines in paediatrics is common practice worldwide, but the regulations vary from country to country. The underlying reasons for the widespread off-label prescribing include the small number of the clinical trials involving children and the lack of the adequate pharmaceutical forms. Although off-label use of medicines is sometimes the only option, a 2022 study found that only 14% of off-label prescriptions examined were supported by high-quality evidence, raising several drug safety and liability issues.

In Hungary, doctors need official authorisation from the National Centre for Public Health and Pharmacy for off-label prescription, and the authority keeps a register of the authorisations granted. Although there is a wealth of data available, a comprehensive analysis of off-label use of medicines has not yet been carried out. Our aim was to conduct an analysis to get a more complete picture of off-label drug use of medicines in the paediatric population in Hungary.

We analysed the data from this register between 2019 and 2024. Off-label prescriptions for children accounted for around 10% during the period studied, we have identified 3214 individual cases. The most common therapeutic areas were oncology and combined therapies (41,84 %), cardiology (12,87 %) and neurology (9,43 %). We investigated the cause of the off-label use, the most common indications, the level of evidence, and compared the Hungarian and international data.

Our research, which provides a comprehensive assessment of off-label use in paediatrics and highlights therapeutic needs, will enable the development of new guidelines.

This work was supported by TKP2021-EGA-32.

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138. Agranulocytosis associated with metamizole in methotrexate-treated patients with rheumatoid arthritis - a disproportionality analysis based on EudraVigilance data

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Background: Methotrexate (MTX), a disease-modifying anti-rheumatic drug (DMARD) is a mainstay in the treatment of rheumatoid arthritis (RA). A known adverse drug reaction (ADR) of MTX is haematoxicity including agranulocytosis. This study analyses the risk of agranulocytosis among MTX-treated RA patients when metamizole (dipyrone), a non-opioid analgesic, which itself has been associated with agranulocytosis, is used concomitantly.

Methods: Using the EudraVigilance database, we analyzed spontaneous reports of suspected ADRs associated with MTX in patients with RA (from Europe, until 2022). We compared case characteristics in users of metamizole and other comedication and performed disproportionality analyses estimating reporting odds ratios (RORs) and 95% confidence intervals (CIs) of agranulocytosis associated with the use of metamizole.

Results: We included 7,213 reports (72.1% female, median age: 64 years, 11.3% with an agranulocytosis). Overall, 1.7% of the cases used metamizole. Compared to those treated with other comedication, metamizole users were older (75 vs. 64 years) and far more often received additional pain medication such as opioids (27.3% vs. 8.9%) while treatment with other DMARDs was far less common (34.7% vs. 62.2%). Compared to other comedication, metamizole was associated with an increased risk of agranulocytosis (ROR: 9.8; 95% CI: 6.8-14.1) which decreased after adjusting for age, sex, other pain medication and DMARDs (ROR: 5.5; 95% CI: 3.6-8.6).

Conclusion: Concomitant metamizole increases the risk of agranulocytosis in MTX-treated RA patients and should be avoided. A sufficient disease-modifying anti-rheumatic therapy might decrease the need for pain medication and should be aimed at also in older RA patients.

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163. Short- and long-term health outcomes following an adverse drug reaction or an adverse drug event in older populations: A systematic review

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Background: Adverse drug reactions (ADR) and adverse drug events (ADE) represent a significant burden on older adults' health but are preventable. However, an up-to-date overview of evidence reflecting short- and long-term health outcomes of after ADR/ADE is not available.

Objective: To investigate short and long-term health outcomes associated with experiencing ADRs and ADEs in older populations.

Method: A systematic search was performed in Ovid Medline, Ebsco Cinahl, and Embase restricted to publication year (2013-2024), according to predefined methods (PROSPERO: CRD42024544258). We identified studies examining ADR/ADE prevalence and associated health outcomes (hospitalisation, outpatient use, GP visits, quality of life, depression, anxiety, falls, frailty, and functional impairments) in adults aged ≥65. Risk of bias was assessed using JBI critical appraisal tools.

Results: 15 studies were included measuring several outcomes, with sample sizes ranging from 112 to 34,593,000 older adults. Older patients that experienced an ADR/ADE had an increased risk of; hospitalisation (8 studies), mortality (7 studies), prolonged length of hospital stay (LOS) (4 studies), disability (2 studies) and overall survival (1 study). ADRs accounted for 3.3% to 16.6% of hospitalisations, and mortality rates from 4.3% to 21.6%. Hospital stays were prolonged by 17% to 2.8-fold increase for those affected. Most studies were of minimal to good quality.

Conclusion: The low number of studies identified with yet so many outcome measures and the fact that the results were varying among the studies within similar outcomes highlights the lack of consistent research in this area.

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182. Central Nervous System (CNS) medication use patterns before suicide among older adults

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Background

CNS medication is a common treatment for mental health problems among older adults. Old age is also a risk factor for suicide, particularly among men. While the efficacy and safety of CNS medications have been extensively studied, research on older populations is more limited. Examining medication use before suicide may help identify high-risk individuals and provide valuable insights for policymakers and clinicians.

Objectives

To investigate patterns of CNS medication use before suicide among Swedish older adults.

Methods

We used Swedish register data from the Total Population Register, National Patient Register, and Prescribed Drug Register (2005–2023). Medication use within 30 days, 90 days, and 12 months before suicide was analyzed for individuals aged 65 and older. Duration was estimated by dividing the total prescribed amount by the defined daily dose (DDD).

We examined the prevalence of CNS medication use, including antipsychotics, anxiolytics, hypnotics/sedatives, antidepressants, opioids, and other analgesics. Individuals were classified as users if they had at least one recorded dispensation.

Results

Among 5,478 suicides (median age 75), 72% were men. A total of 78.9% had been prescribed at least one CNS medication within 30 days before suicide, 80.3% within 90 days, and 83.5% within 12 months. The most commonly prescribed drug classes were hypnotics/sedatives and antidepressants.

Conclusion

Our findings indicate a high prevalence of CNS medication use before suicide in older adults. Understanding these patterns may help identify risk factors and inform targeted prevention strategies.

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198. Feasibility of Smart Paper Technology for Monitoring Maternal Vaccine Safety in The Gambia: A Data Quality Evaluation

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Background

Effective monitoring of maternal vaccine safety requires high-quality, individual-level data to capture adverse pregnancy outcomes. In low- and middle-income countries (LMICs), paper-based health management information systems (HMIS) rely on aggregate reporting, limiting their utility for pharmacovigilance. In The Gambia, Smart Paper Technology (SPT) was introduced as a hybrid paper-to-digital solution to digitise maternal and neonatal health data within routine care. This study evaluates the quality of SPT-generated data to assess its feasibility for vaccine safety surveillance during pregnancy.

Methods

A desk review will assess the accuracy, completeness, timeliness, and consistency of maternal and neonatal data captured through SPT in selected healthcare facilities across The Gambia over a defined period. The evaluation will apply the World Health Organization (WHO) Data Quality Review Toolkit, complemented by additional metrics, to assess key maternal and neonatal health indicators relevant to vaccine safety during pregnancy.

Results

The study will examine whether SPT improves data quality compared to traditional HMIS by enhancing completeness, timeliness, and consistency of health records. It will also evaluate the accuracy of the digitisation process and the linkage of maternal and child health and immunisation records. The findings will provide insights into the feasibility of integrating SPT into routine care and its suitability for pharmacovigilance applications.

Conclusion

This study will inform the potential of SPT to strengthen maternal and neonatal data collection. Results will guide decisions on SPT scalability and integration into existing pharmacovigilance frameworks. Future research should explore SPT's sustainability and examine other electronic pregnancy registries for comparative insights.

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209. Characterizing individuals with filled prescriptions of chloroquine or hydroxychloroquine in Sweden during the initial phase of the COVID-19-pandemic - A cross-sectional descriptive register study

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Background and aim

An article suggesting a high mortality among in-patients treated with hydroxychloroquine for COVID-19 was published in January 2024 (however subsequently retracted August 28, 2024). This paper created a lot of attention in lay media in Sweden, and in response we want to characterize the use of chloroquine and hydroxychloroquine to treat COVID-19 in the Swedish out-patient setting and estimate the mortality there.

Method

We linked all individuals who filled prescriptions of these drugs to Swedish national health registers to assess indication for use, infection with or hospital care for COVID-19 and mortality following dispensations of the drugs.

Results

During the first wave of COVID-19 in Sweden, sales of chloroquine and hydroxychloroquine both by prescription and requisition to hospitals increased dramatically.

During March and April 2020, 2,400 individuals filled a first prescription of either drug. Amongst those who filled one single prescription (n=1,885) only 2.6% had either a positive COVID-19 test or a diagnosis of COVID-19 in in- or out-patient care within 14 days before or 90 days after the first dispensation.

No deaths were observed within 90 days, and one death occurred between 91 and 365 days after a dispensation of chloroquine or hydroxychloroquine.

Conclusion

The very low proportion of individuals with trace of serious COVID-19 infection may indicate that the prescriptions were issued to be used ‘as needed’. No deaths were observed in temporal proximity to dispensations of chloroquine or hydroxychloroquine.

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213. Barriers and predictors of pharmacist-led deprescribing of CNS-acting medications in Greece.

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Background: Deprescribing central nervous system (CNS)-acting medications is essential for optimizing pharmacotherapy. Pharmacists' role in deprescribing initiatives in Greece remains underexplored.

Objective: This study assesses pharmacists' perceptions of deprescribing CNS medications and identifies key barriers and predictors influencing their engagement.

Methods: A cross-sectional survey was conducted among community pharmacists in Greece. The questionnaire collected demographic data, deprescribing attitudes and barriers Statistical analyses were employed to determine significant associations and predictive factors.

Results: A total of 166 pharmacists participated, with a mean age of 42.5 years (SD = 9.8). The majority were female (54.2%) and with bachelor's degree (72.3%). Among participants, 48.2% discussed deprescribing.Male pharmacists were significantly more likely to engage in deprescribing discussions (χ^2 = 3.9,p = 0.048). Key barriers included concerns about symptom relapses (38.2%) (OR = 1.79,p = 0.018, 95%CI [1.06-3.48]) and physician resistance (28.1%) (OR=0.3,p = 0.027, 95%CI[0.15-0.89]).Postgraduate pharmacists more frequently cited physician resistance as a major barrier (χ^2 = 29.212,p = 0.004). The most used deprescribing strategies were physician collaboration (72.3%), patient education (58.3%), and encouraging non-pharmacological alternatives (44.6%). While 66.7% of pharmacists occasionally collaborated with physicians, this did not significantly predict deprescribing engagement (χ^2 =8.135,p = 0.087). Among machine learning models, Logistic Regression performed best (Accuracy=64.3%,F1-Score =61.5%), suggesting it could be useful for predicting deprescribing engagement. Clustering analysis revealed three pharmacist subgroups, highlighting variations in deprescribing attitudes and resistance patterns.

Conclusion: To enhance pharmacist-led deprescribing in Greece, efforts should focus on addressing systemic barriers through interprofessional collaboration and patient education.

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218. An Analysis of Temporal Trends in Psychotropic Medication Prescribing Patterns Among Hospitalized Patients in Peru During the COVID-19 Pandemic.

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Background

The COVID-19 pandemic disrupted healthcare systems, affecting psychiatric care for hospitalized patients. Increased psychological distress and shifts in clinical priorities may have influenced psychotropic prescribing patterns. This study aims to examine the prescribing pattern and trends of psychotropic drugs in a consultation-liaison psychiatry unit at a Peruvian general hospital during the COVID-19 pandemic.

Method

We conducted a time-trend analysis of 27 psychotropic drugs, coded using the Anatomic Therapeutic Chemical (ATC) classification system, based on medical records of 4,912 inpatients from 2020 and 2022. Prescription rates per 1,000 patients per year (RPY1000) were calculated. A binary logistic regression assessed prescription trends. Odds ratios (OR) with 95% confidence intervals (CI) were reported.

Results

In the total population (54.7% were female), almost half of the patient population received at least one psychotropic drug (40.17%). The medication classes with the highest RPY1000 were antidepressants (246.4, and 209.9 in 2020 and 2021, respectively) and anxiolytics (183.4 in 2022). Sertraline (N06AB06) and Mirtazapine (N06AX11) were the most frequently prescribed antidepressants; sodium valproate (N03AG01) and carbamazepine (N03AF01) were the most commonly used mood stabilizers; alprazolam (N05BA12) and clonazepam (N03AE01) were the predominant anxiolytics; and haloperidol was the most frequently prescribed antipsychotic during the study period. Finally, we observed a decreased trend over time (2020 - 2022) in the prescription of the total antipsychotics (OR=0.84; 95% CI=0.76-0.93; p<0.001).

Conclusion

Psychotropic medication use was substantial, particularly for antidepressants and anxiolytics. However, overall psychotropic prescribing declined over time, suggesting changes in clinical practice during the pandemic.

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219. Trends in the consumption of psychotropic drugs in France, in children, adolescents and young adults between 2012 and 2023

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Background

Few data are available on the use of psychotropic treatments by French children, adolescents and young adults, specifically during COVID-19 pandemic.

Methods

To describe trends in the prevalence of psychotropic use, we used data from the French National Health Data System (SNDS), covering 99% of the population. We counted, each year between 01/01/2012 and 31/12/2023, users under 45 who received at least one medication, and analysed changes in prevalence rates for six therapeutic classes (anxiolytics, hypnotics, antidepressants, antipsychotics, thymoregulators, psychostimulants) and nine age groups (0-5, 6-11, 12-15, 16-18, 19-24, 25-29, 30-34, 35-39, 40-44).

Results

Between 2012 and 2023, overall prevalence rates decreased slightly for anxiolytics (7.6% to 7.1%) and hypnotics (2.6% to 1.8%), but increased slightly for antidepressants (3.9% to 4.4%) and psychostimulants (0.1% to 0.5%) and were fairly stable for antipsychotics (1.2% to 1.4%) and thymoregulators (0.3% to 0.2%). However, these trends differ according to age groups.

Between 2020 and 2023 the prevalence of use has risen sharply, particularly for: hypnotics among under-19s (0-5: 0.1% to 0.4%; 6-11: 0.2% to 0.8%; 12-15: 0.2% to 0.8%; 16-18: 0.5% to 0.9%), antidepressants among women aged 12 to 35 (12-15: 0.6% to 1.1%; 16-18: 2.2% to 3.7%; 19-24: 4.3% to 6.7%; 25-29: 5.7% to 8%; 30-35: 6.9% to 8.6%), antipsychotics among women aged 16 to 29 (16-18: 0.9% to 1.5%; 19-24: 1.1% to 1.8%; 25-29: 1.3% to 1.7%).

Conclusion

Regular monitoring of psychotropic use in children, adolescents and young adults is essential, particularly to observe the longer effects of the COVID-19.

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220. Reported side effects of cariprazine in elderly people

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Cariprazine is a relatively new atypical antipsychotic drug, used in treating various psychiatric disorders, such as schizophrenia, bipolar manic or mixed episodes in adults. Cariprazine has demonstrated efficacy in treating both positive and negative symptoms of schizophrenia with favorable safety profile. Since the European Commission (EC) has granted marketing authorization to Reagila® (cariprazine) in 2017, reports of adverse reactions are accumulating in EudraVigilance.

Our aim was to assess the suspected side effects of cariprazine based on the publicly available information of the EudraVigilance database.

The total number of individual cases identified for cariprazine was 1,976 up to 02 February, 2025. Of the individual cases, 127 affected patients between 65 and 85 years of age. The total number of the events were 407 in this age group, and of these the most common adverse effects were “nervous system disorders” (n=71), „psychiatric disorders” (n=44), and „general disorders and administration site conditions” (n=42). These three groups cover the most often occurring side effects of drugs affecting the nervous system. All together 94 serious and 33 non-serious cases were reported in this age group. Regarding the outcome of the cases, 112 reported events did not recover (27.5%) and there were five fatal cases. Four of these were due to events unlikely to be related to cariprazine (i.e. pulmonary embolism, end-stage renal disease, dementia, cerebral haemorrhage). In one case the patient committed suicide. It should be emphasised that close monitoring of high-risk patients should accompany antipsychotic therapy.

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226. Pills, Thrills, and Overfills: The characteristics of ED intoxications

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Background: Intoxications pose a significant burden on emergency departments (EDs), with diverse clinical presentations and complex management challenges. Understanding their epidemiology is crucial for effective treatment and prevention strategies.

Objective: This study aims to analyze the incidence, types, and outcomes of drug and 'illicit' substance related intoxications presented at a third level ED.

Methods: A retrospective review of medical records for a three-year period was conducted in the ED of the University of Szeged. Data on patient demographics, substances involved, treatment protocols, and outcomes were collected and analyzed. Children and certain isolated intoxications (ICD codes T51-61) were excluded.

Results: A total of 1526 intoxications were recorded during the study period. Gender distribution was nearly equal, with the dominance of young adults (18-40 years, 41%). Out of all cases, 684 intoxications (44.8%) were classified as intentional, 824 cases (54.0%) as unintentional (including abuse) and 18 cases were unclassified. Unintentional intoxications were more prevalent except for middle-aged patients. Alprazolam was the most common substance among both intentional and unintentional intoxications, and also in all age groups for intentional cases. Acenocoumarin led unintentional intoxications in the elderly (>60 years) and alprazolam in middle aged adults (40-60 years). Specific antidotes were used in nearly 20% of all cases. The average ED stay was 10 hours, with over 36% of cases requiring admission to the psychiatric clinic for further management.

Conclusion: The findings underscore the high prevalence of intoxications in the ED and the high burden on the health system.

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231. Potential adverse drug events in children identified with decision support algorithms from Janusmed Riskprofile – a retrospective population-based study

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Background: Adverse drug events (ADEs) due to harmful combinations of medications can cause suffering, hospitalizations, or death. Knowledge about pediatric pharmacodynamic interactions causing ADEs is limited. Clinical decision support systems (CDSSs) can be used to identify preventable ADEs. Janusmed Risk Profile is a CDSS evaluating the risk for nine serious or common ADEs resulting from combined pharmacodynamic effects. The aim of this study was to analyze prevalence of potential ADEs among children using CDSS algorithms from Janusmed Risk Profile.

Methods: This cross-sectional study included all children aged 0-17 years with at least one medication event (prescribed, dispensed, or administered medication) during a defined period of 120 days in a Swedish region during 2020. The medication events during the defined period were analyzed using the algorithms of the Janusmed Risk Profile knowledge database to identify potential ADEs.

Results: Preliminary results shows that more than 4% of all included children (*n=10 767*) had an increased risk of bleeding, constipation, QT-prolongation, or renal toxicity based on their medications according to Janusmed Risk Profile. The proportion of children with an increased risk varied from 0,9% to 7,4% across the different categories of ADEs. There were gender differences with higher risk of orthostatism and sedation among boys and renal toxicity in girls.

Conclusion: The study shows that potential ADEs in children can be identified with the support of a CDSS. Future studies need to investigate if the risk assessment from current CDSS is clinically relevant for children and correlates with clinical outcomes.

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241. Risk of substance use disorder after long-term prescription opioid use: a population-based cohort study

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Background: Opioids have limited benefits in chronic pain and long-term treatment may lead to problematic use. We investigated the incidence of substance use disorders (SUDs) after long-term prescription opioid use (LTOU) and identified associated socioeconomic and clinical risk factors.

Methods: We identified 114,916 individuals aged 18–67 years with new LTOU in Norway in 2011–2019 with a 1-year washout. We calculated age- and sex-stratified incidence rates (IR), incidence rate ratios (IRR) and age-standardized incidence rates (ASIR) for any SUD diagnosed in primary or secondary care (ICPC-2 codes: P15–P16, P18–P19; ICD-10: F10–F16, F18–F19). Multivariate Cox regression was applied to investigate socioeconomic and clinical variables associated with the development of SUDs to derive adjusted hazard ratios (aHR).

Results: In total, 6069 individuals (5.3%) were diagnosed with SUD (ASIR=19.59/1000 person-years). Males had higher IRs compared to females (IRR of 1.44, 95% CI 1.34–1.54) among 18–44-year-olds and 45–67-year-olds (IRR 1.37; 1.27–1.47). Low education (aHR=1.87, 1.66–2.11) and unemployment (1.26, 1.15–1.38) had the strongest association with SUD in the younger age group, while low income (1.37, 1.21–1.57) and living alone (1.53, 1.41–1.65) had the strongest association in the older age group. Previous mental disorders and use of benzodiazepines or benzodiazepine-related drugs (BZDRs) were associated with SUD in both age groups (1.85, 1.71–2.01 and 2.37, 2.18–2.57).

Conclusions: Being male, young, having low socioeconomic status, previous mental disorders or BZDR use were associated with increased risk of SUD among individuals with LTOU.

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245. NOAC in patients with multidose drug dispensing: Drug interactions, concomitant use of anticholinergic or fall risk increasing drugs

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Background

In Norway, non-vitamin K-dependent oral anticoagulants (NOACs) became available in 2012. The four drugs Dabigatran, Rivaroxaban, Apixaban and Edoxaban have at large replaced Warfarin. There is still limited knowledge on how these drugs are prescribed and whether physicians follows prescribing guidelines. The aim of this study is to examine the prescribing of NOAC in a sample of patients receiving multidose drug dispensing (MDD), interactions, and concomitant use of either fall risk increasing drugs (FRIDs) or anticholinergic drugs (ADs).

Methods

A cross-sectional study of patients receiving MDD in 2019. The dataset is comprised of medication lists of 87,327 patients. We used the Norwegian Medicine Agency online tool to investigate the prevalence of drug interactions with NOACs. We used lists from the Swedish National Board of Health and Welfare to investigate concomitant use with DOACs and either FRIDs or ADs.

Results

Of the 87,327 patients included, 16% used NOAC. Of these, 10,370 received home care services, 2,648 were in nursing homes and 652 were home-dwelling. They were prescribed on average 11.2 medications. Drug-drug interaction with NOACs was found in 3,711 (27.2%) of the patients, of which 34 (0,9%) were severe interactions that should be avoided. Almost all patients (96.7%) used at least one FRID, and about half (50.4%) had an anticholinergic score ≥ 3.

Conclusion

The use of NOAC is higher in patients receiving MDD than the general population. Concomitant use with AD and/or FRIDs was high, which increases the risk of bleeding and serious adverse drug reactions.

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267. Evaluation of the Completeness of Patients' Medication Reports and Discharge Summaries at Discharge from Two Wards Using Complete Medication Documentation at Discharge Measure (CMDD-M).

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Background:
In Sweden, hospital discharge documentation must include a patient-directed discharge letter with a detailed medication report outlining all medication changes made during hospitalisation. Inadequate documentation has been linked to medication errors and subsequent hospital readmissions. Evaluating the quality and completeness of medication documentation is thus essential to improving patient safety.

Aim:
This study aimed to assess the quality and completeness of discharge documentation at geriatric and internal medicine wards as part of a quality improvement initiative using the *Complete Medication Documentation at Discharge - Measure* (CMDD-M).

Methods:
A retrospective cross-sectional study was conducted by reviewing electronic health records from two hospital wards. Patients admitted in October 2021 with at least one lasting medication change were included. Discharge documentation was assessed using CMDD-M, which provides a maximum score of 7 points when all medication changes, reasoning, and follow-up plans are documented.

Results:
Among 80 patient records reviewed, only 19 (23.8%) achieved the maximum score of 7, with an average score of 4.6. Eight (10%) records lacked a medication report entirely. The most common omission was failure to document one or more medication changes (48, 60%), followed by the absence of reasoning for changes (22, 27.5%). There was a non-significant trend suggesting that a higher number of medication changes correlated with lower documentation completeness.

Conclusion:
Most discharge documentation did not meet Swedish legal requirements, highlighting the need for quality improvement. CMDD-M is a practical tool that can support caregivers and serve as an outcome measure in research aimed at enhancing discharge practices.

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268. Leveraging global pharmacovigilance data to identify suboptimal use of medicines.

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Introduction: Adverse event reporting systems can provide lower bounds and opportunities to profile certain types of suboptimal medicine use, not easily captured by prescription and dispensing data.

Method: We designed bespoke Medical Dictionary for Regulatory Activities (MedDRA, v 27.1) lists to define and retrieve reports concerning suspected suboptimal use of medicines in VigiBase, the WHO global database of adverse event reports as of 31/12/2024. We studied in detail reporting patterns for three known historical instances of suboptimal use: promethazine recreational use, substandard ethanol-based hand sanitizers, and counterfeit sildenafil.

Results: Our overall descriptive analysis identified the following categories of suboptimal use as most commonly reported in VigiBase: administration errors (4%), misuse (1.06%), overdoses (0.87%), storage errors (0.37%), and accidental exposure (0.28%). We noted temporal and regional trends in reporting patterns corresponding to the known historical events. For instance, 52% of promethazine overdose reports originated from Sweden, peaking in 2018-2019 due to recreational use among young people. Similarly, a peak in methanol intoxication reports during the SARS-CoV-19 pandemic reflects a known issue with substandard ethanol-based hand sanitizers. Peaks in counterfeit sildenafil reports in the USA in 2015 and in France in 2023 have a less clear explanation.

Conclusion: Reporting patterns of suboptimal use in VigiBase were coherent with the literature, compatible with global and country-specific trends in suboptimal use. VigiBase could provide complementary perspectives on drug utilization, but findings must be interpreted with caution, accounting for selection and reporting biases and the inherent heterogeneity in reporting.

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284. Insights into Methylphenidate Consumption Trends in Estonia between 2005 and 2024

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Background. In recent years, awareness and diagnosis of attention deficit hyperactivity disorder (ADHD) have risen significantly, leading to an increase in the use of psychostimulants, particularly methylphenidate. This study analyses the trend in methylphenidate consumption in Estonia over 20 years from 2005 to 2024, in context of its reimbursement and reported cases of methylphenidate poisoning.

Methods. National annual wholesale data, measured as defined daily doses per 1,000 inhabitants per day (DDD/1000/day), were obtained from the Estonian State Agency of Medicines. The data from the Estonian Poisoning Information Centre on poisonings was included in the study.

Results. The use of methylphenidate was modest during 2005–2010 (0.02–0.07 DDD/1000/day). Following its reimbursement for age group 6–19 years in 2010, the use rapidly increased during the next 10 years, reaching 1.18 DDD/1000/day in 2020. A more significant increase started in 2021 escalating from 1.67 to 5.0 DDD/1000/day by 2024. Since 2023 methylphenidate has been reimbursed to all age groups of ADHD patients. The number of methylphenidate poisoning cases per year ranged from 1–6 in 2013-2021. In recent years, the number of cases has increased remarkably: 2022 (19 cases), 2023 (45 cases), 2024 (48 cases), mainly concerning age groups 9–17 and 18–29.

Conclusion. Methylphenidate is an essential medicine in the management of ADHD and the changes in reimbursement system have improved the access to treatment. However, the increased use correlates with an increase in poisonings, thus highlighting the need to ensure safe use, particularly among vulnerable youth populations.

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288. Improving Post-Discharge Medicines Management: Developing a Patient-Reported Measure for Older Patients

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Background
Medication-related harm during care transitions is a global patient safety concern, particularly for older patients with multimorbidity. Existing outcome measures for medicines management at hospital discharge typically focus on: medication-related problems or errors, healthcare utilisation and, quality of life. There is no patient-reported experience measure (PREM) for post-discharge medicines management, which makes it difficult to assess the impact of interventions on patient and caregiver experiences.

Methods
We gathered potential items for a post-discharge medicines management PREM from existing literature, previous research, patient and public involvement (PPI) work, and co-design events. Items were refined and prioritised in collaboration with stakeholders (patients, carers, and healthcare professionals) across four workshops. We used readability tools to ensure clarity and a piloting process to refine content and design.

Results
Initially, 99 items were identified. Duplicate and redundant items were removed after review by 6 older patients and carers, and 6 healthcare professionals. Remaining items were grouped into five domains, (e.g. relationships and autonomy), and further refined by stakeholders. Two PREMs were developed: 18 items for use two weeks post-discharge reflecting experiences during the hospital stay/ discharge; and 15 items for use three months post-discharge to explore experiences at home. The design was updated after pilot testing.

Conclusion
To our knowledge, this is the first PREM focused on post-discharge medicines management. A limitation is the small, homogeneous sample, which may not fully represent diverse patient experiences across different populations. Future steps include validating the tool with a larger, and more diverse, sample of older patients.

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289. Association between medications and hospitalizations - a scan of all medications in Norway

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Background

Medications treat diseases but can also increase the risk of hospitalization. We have studied the association between medication use in Norway and hospitalization using a case-control design.

Methods

Cases were 50000 randomly selected individuals admitted to acutely to hospital in Norway in 2019. Control individuals without a acute hospital admittance and were matched 1:1 on age. The medication use was estimated using pharmacy dispensing data at four time points, 7, 30, 90 and 180 days before hospitalisation/index date. Medication use was determined by generating end-dates for each prescription adding the dispensed number of DDD+20% to the dispensing-date.

Only medications with at least 250 users (0.5% prevalence) in both groups were included. RR was calculated, and the top ten drugs in each time point was assessed for clinical relevance.

Results

134 medications fulfilled the inclusion criteria. There were 6 medications that consistently where in top-10 increased risk at all points. These 6 medications where mirtazapine (anti-depressant commonly used for sleep), isosorbide mononitrate (nitrate used mainly in unstable angina), acetylcysteine (used as needed by COPD patients), oxazepam and diazepam (benzodiazepines used for anxiety and sleep) and tiotropium bromide (Long-acting muscarinic agent used by COPD patients with at least moderately severe disease). RRs was between 1.2-1.45.

Conclusion

The initial results found 6 medications with an increased risk of hospitalization at 7, 30, 90 and 180 days before hospitalization. These medications all have clinically plausible reasons for the association. Future work includes the exploration of individual time points and combinations of medications.

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293. Series of Cases: Role of Lymphocyte Transformation Test (LTT) in Immune-Related Adverse Events (irAEs) in Cancer Patients Treated with Immune Checkpoint Inhibitors (ICIs).

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Background: Immune-related adverse events (irAEs) are a significant concern in patients receiving immune checkpoint inhibitors (ICIs)

Method: This study analyzed seventeen irAE cases from our pharmacovigilance unit to assess the utility of the Lymphocyte Transformation Test (LTT) in assisting Spanish Pharmacovigilance drug causality algorithm for irAE causality assessment. Data collected included diagnosis, ICI type, comedication, initial and rechallenge irAEs, and LTT results.

Results: Patients (mean age 64.8,range 45-76) had diverse cancers, mainly lung, melanoma, and urothelial. ICIs included nivolumab/ipilimumab (2 patients), pembrolizumab (9), and another ICI monotherapy (6). Twenty-six initial irAEs were documented: hepatic (7), respiratory (5), nephrology (5), dermatologic (2), neurologic (2), musculoskeletal (2) ocular (1), digestive (1) and endocrine(1). Fourteen (53.8%) of these were of high-grade (G3-G4). The median causality score was 6 (range 3-8)for ICI, and 6 (range 3-9) for comedication (range 3-9). LTT was positive for ICI (3.9–13.6,cut-off >=2.5) in five patients, 4 of whom had high-grade initial irAEs, and for comedication (3.2–25.8) in six patients (one positive for both). Positive LTT results precluded ICI or comedication rechallenge.After ICI rechallenge (10 irAEs in 9 patients), 6 (60%) recurred: 4 high-grade (3 pneumonitis and 1 hepatitis), and 2 low-grade (nephritis, myositis). All but one pneumonitis case led to ICI discontinuation. Two patients developed new irAEs (arthralgias), also prompting discontinuation. No patients died from irAEs.

Conclusion: This study evaluated 17 ICI-related irAEs cases, integrating clinical features, drug causality algorithm, and LTT results to inform rechallenge decisions. The small sample size warrants further research.

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295. Off-label use of Glucagon-like peptide 1 (GLP-1) drugs in Brazil and possible regulatory implications: preliminary results

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Background

In Brazil, agonists of Glucagon-like peptide 1 (GLP-1) are approved for type 2 diabetes and weight loss in overweight and obese patients. Nevertheless, there has been an “infodemic”, encouraging *off-label* use of these medicines, often for aesthetic purposes.

Methods

It is a cross-sectional study identifying off-label use of single-active ingredient GLP-1 agonist drugs (dulaglutide, liraglutide, semaglutide, and tripeptide) from Individual Safety Case Reports (ICSR) received at the VigiMed System in Brazil from January 2012 to December 2024 and transmitted to the WHO Global database (VigiBase®). Quantitative and qualitative analyses were conducted on VigiLyze®, including *Signal of Disproportionate Reporting (SDR)* analysis (Bayesian methods).

Results

During the study period, 1222 ISCRs were received for these drugs. Off-label and unapproved indication use were reported in 23.4% (284) of them; of which 156 (55.1%) in 2024. Most of the off-label reports were of women (221; 78.1%), 82 (35%) between 14-44 years (median of 51 years). The *SDR* showed off-label use for semaglutide (176; IC=3.4; IC_{025}=3.1), liraglutide (32; IC=1,6; IC_{025}=1.1) and tirzepatide (11; IC=3.4; IC_{025}=2.3) and use in unapproved indication for semaglutide (66; IC=3.6; IC_{025}=4.0) and liraglutide (8; IC=1.6; IC_{025}=0.5) to be further investigated. The most frequently concomitant reported adverse events include nausea, vomiting, and malaise. At the global database, off-label and unapproved indication use represented only 5.7% (1,968/268,059) of the ISCR.

Conclusion

The “infodemia” and easy access corroborate with high rates of off-label use. This data supported a proposal for tightening the regulatory classification of GLP-1 agonists for dispensing with prescription retention only.

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315. Patterns of analgesic prescribing and high-risk prescribing in primary care in Ireland 2014-2022: a repeated cross-sectional study

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Pain is a significant burden on individuals, healthcare systems, and society. Analgesic drugs carry many therapeutic benefits; however, all drugs are associated with adverse effects and risk of harm. Opioids and NSAIDs have been identified as particularly high-risk given side effects and dependency risk. This study aims to examine how patterns of analgesic prescribing (including high-risk prescribing) have changed in primary care in Ireland between 2014 and 2022.

Monthly data on medicines prescribed and dispensed in primary care on the means-tested General Medical Services (GMS) scheme in Ireland was used. Prevalence, initiations, discontinuations, chronic use, and high-risk prescribing were summarised per year. Logistic regression assessed odds of use over time adjusted for age and sex.

The prevalence of overall analgesic use decreased slightly during the study, with 48.3% of all GMS eligible individuals dispensed an analgesic in 2014 and 46.3% in 2022. This was largely driven by a decrease in NSAID use, decreasing from 29.4% in 2014 to 25.0% in 2022. Prevalence for all other analgesic drug classes increased, however after adjusting for age and sex this increase only persisted for gabapentinoids and amitriptyline. Some forms of high-risk prescribing increased, with fewer decreasing, with similar results after adjusting for age and sex.

The findings of this study suggest an overall reduction of analgesic use in Ireland, driven by a decrease in use of systemic NSAIDs. While most other drug classes are increasing, this may largely be explained by a change in demographics, in particular the age profile of the population.

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316. Trends and patterns of sedative prescribing in primary care in Ireland between 2014 and 2022: a repeated cross-sectional study

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Trends in sedative use have varied in recent years. Benzodiazepines and z-drugs are indicated for anxiety and sleep disorders, but should be limited to short term use. The aim of this study is to examine trends and patterns in sedative prescribing in Ireland between 2014 and 2022, as well as comparing trends between Ireland and England within the same period.

Monthly data on medicines prescribed and dispensed in primary care on the means-tested General Medical Services (GMS) scheme in Ireland was used. Volumes of prescribed benzodiazepine and z-drug use and patterns of prescribing, including initiations, discontinuations, chronic use, and high-risk prescribing were summarised per year. Other sedating agents (sedating antihistamines, antidepressants, and antipsychotics) were also analysed. Volume of use outcomes were compared with NHS data from England for the same period.

The rate of benzodiazepine and z-drug dispensings per 1,000 GMS population decreased by 4%, from 1,531 in 2014 to 1,474 in 2022. T By comparison in England, there was a steeper decrease of 27% in the dispensing rate and the level of use was substantially lower, falling from 288 dispensings per 1,000 population in 2014 to 210 in 2022. In Ireland, dispensing rates were highest amongst women and older age groups. High-risk dispensings of benzodiazepines and z-drugs decreased over the study period

Despite decreases in benzodiazepine and z-drug dispensings, rates remain high in Ireland and may suggest a need for enhanced availability of non-pharmacological interventions, and improved education and deprescribing support for healthcare professionals.

Therapeutic areas

51. An Economic and Utilization Analysis of Cardiovascular Diseases Treatment at the Security Forces Hospital in Riyadh, Saudi Arabia

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This study analyzes trends and factors in the price per day and year of cardiovascular drugs therapy that approved to use at the Security Forces Hospital (SFH) in Riyadh for the period January 2020 to December 2024.The list of cardiovascular drugs, It was obtained from the hospital computer system SPT and HBO database. The Food and Drug Administration (FDA) defined daily dosage (DDD) and yearly dose information for each drug was obtained from the US FDA approved label. Drugs were classified using the World Health Organization WHO anatomical therapeutic chemical classification (ATC). The prices, brand name, generic name, strength, route of administration, form, and package size for drugs were collected from the SBT database.Descriptive statistics, Wilcoxon Rank Sum test, and multiple linear regressions were performed. Over the 5-year period from January 2020 to December 2024, the Security Forces Hospital approved 116 cardiovascular drugs representing 13% of all formulary drugs approved to use the Security Forces Hospital in the study period . The median cost per year of cardiovascular drugs increased from SAR 910.64 in the period 2020 to SAR 1,220.40 in the period 2024, representing an increase in the median cost per year during the study period. Route (oral and others) and utilization (chronic use and non chronic) are the main determinants of the price of cardiovascular drugs during the study period (p= 0.00965).Median prices of cardiovascular drugs have increased over the time. Chronic use medications, non-oral route formulation, are the main determinants of the price of cardiovascular drugs.

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64. Real-World Therapeutic Patterns of Biologics in Moderate-to-Severe Psoriasis: A Hospital-Based Analysis

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Background

Biologic agents are commonly used to treat moderate-to-severe psoriasis. These agents belong to different target groups, but a common challenge is the loss of efficacy, which often necessitates switching to alternative biologic treatments. This study investigates real-world treatment trajectories, the duration of biologic therapies, and influencing factors, aiming to identify differences among them.

Methods

Data were retrospectively collected from health records of psoriasis patients treated with biologics at Bologna University Hospital. State sequence analysis identified groups of therapeutic trajectories, and their homogeneity concerning demographic and clinical variables was assessed through Shannon entropy regression models. Hierarchical regression models were used to explore the determinants of treatment duration.

Results

The sample included 364 patients. Adalimumab was the most common first-line therapy (27%), followed by secukinumab (18%), and etanercept (16%). Nearly half of the patients (48%) required a second-line therapy, where secukinumab (20%) and adalimumab (16%) predominated. Ustekinumab had the longest median durations across all lines: first-line (1,841 days), second-line (1,537 days), and third-line (1,506 days). Etanercept showed the shortest durations: first-line (639 days) and second-line (337 days). Gender differences emerged, with adalimumab lasting longer in men (884 vs. 291 days) and Etanercept in women (549 vs. 366 days). The increase of age was associated with an increased homogeneity in treatment trajectories ($\beta = -0.0014$, $p = 0.0022$).

Conclusion

While guidelines prioritize anti-TNFα agents as first-line therapies, they show early secondary failure. Ustekinumab demonstrated superior durability and a favourable benefit-risk profile. Age limits treatment options, underscoring the need for personalized approaches.

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77. Drugs reducing proteotoxicity and inflammation experimentally might reduce Alzheimer's Disease in humans

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Introduction: Alzheimer's Disease and Related Dementia (ADRD) affects 10.9% of people >65 years old in the US. We previously screened 2700 FDA approved drugs in two models of ADRD (C. elegans and microglia) for their ability to reduce inflammation and proteotoxicity, hallmarks of aging implicated in ADRD, and identified phenothiazines among the most protective class of drugs. This study aimed to use a pharmacoepidemiological approach with Medicare claims data to assess if phenothiazines could be repurposed in humans to treat ADRD.

Methods: To test our hypothesis that phenothiazines were protective against ADRD, we examined 1 year of cross-sectional Medicare fee-for-service claims data of 1 million beneficiaries >65 years. We performed multivariable analysis adjusted for demographics and ADRD risk factors to evaluate the association between ADRD prevalence and phenothiazine exposure. Our principal outcome was ADRD as defined by a modified Bynum algorithm (unavailable Amyloid documentation in our dataset).

Results: 33,600 (3.5%) beneficiaries (70.0% women) were exposed to the drugs of interest. The mean age of exposed beneficiaries was 74 years (SD 6.6) versus 75 years (SD 7.3) for unexposed beneficiaries. The multivariable analysis revealed a significantly lower ADRD prevalence in phenothiazines exposed (≥1phenothiazine) vs unexposed beneficiaries (Incident Rate Ratio 0.9; 95%CI 0.9-0.97).

Conclusions: By leveraging real-world data with Medicare fee-for-service claims, phenothiazine exposure was associated with a lower risk of ADRD in US individuals >65 years. Further longitudinal studies are warranted to confirm the observed association between phenothiazine exposure and protection against ADRD in humans.

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82. Consumption of anti-infectives and AWaRe categories in Brazilian pediatric hospitals

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Background

Hospital consumption of systemic anti-infectives may be an important determinant for antimicrobial resistance (AMR). Describing consumption patterns is worthwhile to inform and support antimicrobial stewardship, and policy decisions. In Brazil, prescribing patterns differ among regions and hospital use may reflect these differences. The objective was to characterize anti-infective consumption according to their potential for AMR in five pediatric hospitals.

Methods

Medicines of the ATC J01 group were analyzed. Consumption was measured in DDD, considering children over 30kg. The Drug Utilization 90% (DU90%) identified anti-infectives responsible for the greater part of consumption, categorizing each according to prescribing frequency. AWaRe (Access, Watch and Reserve) profiles in each hospital were drawn.

Results

Hospitals H3 e H2 complied with WHO recommendations, with predominance of Access (>60%). Higher use of Watch anti-infectives was observed in hospitals H1 and H4. At H5, the DU90% mainly consisted of Access medicines, followed by Watch, while antifungals and Reserve drugs showed reduced use outside the DU90%. Reserve anti-infectives showed restricted consumption in all five hospitals. However, ceftriaxone, classified as Watch, was overall the most consumed anti-infective, pointing to the possibility of bacterial selection. DU90 highlighted the need for continuous surveillance of class, dose and treatment interval, to ensure appropriate use

Conclusion

Differences in AWaRe categories stressed the need to maintain close surveillance and active stewardship programs. Even though several anti-infectives were present in the DU90% of all five hospitals, distribution varied greatly. Policies focusing on local conditions are critical for hospitals to control AMR, while ensuring effective treatments.

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94. Utilization of antiosteoporosis medications in Hungary between 2009 and 2023

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Background

Osteoporosis mainly affects the elderly population and is characterized by decreased bone density. Due to structural changes, bones become weaker, leading to increased risk of fractures. The use of antiosteoporosis medications can reduce the risk of bone fracture in patients at risk. Our aim was to analyze the utilization trends of antiosteoporosis drugs in Hungary between 2009 and 2023.

Methods

The source of data was the National Health Insurance Fund database which includes the entire population's reimbursed prescription drug use from the ambulatory sector. Data was analyzed according to WHO's ATC/DDD method (ATC code:M05) and expressed in Defined Daily Dose per 1000 inhabitants per day (DDD/TID).

Results

The total use of antiosteoporosis drugs was 10.9 DDD/TID in 2009 and after a decreasing tendency until 2021 (8.0 DDD/TID), the use increased again and reached 9.5 DDD/TID in 2023. While in 2009 the vast majority of antiosteoporosis medication consumption was bisphoponates (10.4 DDD/TID, 94.7% of total consumption), its use decreased and in 2023 it was only 41.3% of the total consumption (3.9 DDD/TID). The most commonly used bisphosphonates in 2023 were ibandronic acid and risedronic acid. The use of denosumab gradually emerged and reached 5.6 DDD/TID in 2023 (58.7% of total use). The use of strontium ranelate peaked in 2012 (0.76 DDD/TID, 7.4% of total use), then gradually decreased, until it was withdrawn from the market in 2017.

Conclusions

During the study period, antiosteoporosis medication utilization pattern showed a substantial rearrangement.

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128. Utilization of Antiepileptic Drugs in Romania over 25 years

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Background and Aim

To investigate the trends of antiepileptic drug (AED) utilization in Romania during 1998 – 2022.

Methods

Data were provided by CEGEDIM Romania, originating from the Pharma & Hospital Report. Quantitative data for each ATC N03 antiepileptic drug were converted to total defined daily doses (DDDs) and DDD/1000inhabitants/day (DDD/TID).

Results

The temporal analysis of AED utilization in Romania indicated an overall upward trend and a 2.76-fold increase from 1998 (3.80 DDD/TID) to 2022 (10.34 DDD/TID). However, there was a slight decline of 5.89% during the interval 2000-2002. Throughout this period, first-generation AEDs represented the highest proportion of the total AEDs (99.86% in 1998 and 56.09% in 2022). Phenobarbital was the most frequently used until 2010 (peak of 2.55 DDD/TID in 1998), when valproic acid took the lead (peak of 2.65 DDD/TID in 2022). The utilization of second-generation AEDs demonstrated a consistent upward trend during 1998 – 2022. Lamotrigine was the most utilized second-generation AED until 2006 (0.09 DDD/TID) when oxcarbazepine and pregabalin became most prescribed until 2008. Starting 2008 gabapentin prescription increased abruptly, becoming the most used 2nd generation AED during 2011 (0.38 DDD/TID) – 2022 (1.79 DDD/TID). The utilization of third-generation AEDs started in 2012 with lacosamide (0.0026 DDD/TID).

Conclusion

AEDs showed an increasing utilization trend in Romania during 1998–2022. The highest utilization was found for valproic acid in 2022. The uptake of second- and third-generation AEDs in Romania started in 1998 and 2012, respectively, and peaked in 2022.

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161. Practice variation in opioid prescribing in primary care in Region Stockholm

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Background: Opioid prescribing patterns in primary care settings can vary significantly, impacting patient outcomes and healthcare system efficiency. Understanding the factors influencing these variations is crucial for promoting more appropriate and safer prescribing behavior since opioids can lead to tolerance and serious adverse effects.

Aim: The study aimed to examine practice variation in opioid prescribing in primary healthcare within Region Stockholm in 2023, focusing on the factors influencing prescribing patterns.

Methods: A cross-sectional study was conducted, analyzing dispensed prescription data from primary care centers (PCCs) in Region Stockholm. Anonymized data was extracted from the Stockholm County Council data warehouse VAL. Descriptive statistics and regression analyses were used to explore opioid prescribing patterns and factors associated with practice variation. Analyses were stratified by population age or sex, practice size, and mode of operation.

Results: The study revealed substantial variation in opioid prescribing between PCCs in Region Stockholm. Patient age and sex only explained 22.1% of the variation in Defined Daily Doses (DDD) per listed patient. Additionally, mode of operation and practice size had no significant effect on DDD per listed. The results suggested that several other factors beyond demographics contribute to the large differences in prescribing patterns.

Conclusion: Understanding and addressing practice variation in opioid prescribing is crucial for enhancing patient care and promoting safer opioid use in primary care settings. By identifying the factors contributing to prescribing differences, healthcare providers and policymakers can implement targeted interventions to improve the quality of opioid prescribing behavior, patient outcomes, and cost-effectiveness of healthcare.

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165. Antidepressant prescribing pattern in Croatia – 6-year longitudinal study (2017-2022)

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Objective: Antidepressants (ADs) use is increasing worldwide, reflecting broader trends in mental health care. Our study examines antidepressant prescribing patterns in Croatia with the aim to describe and compare prescribing practices in Croatia with those in other countries, identifying differences and potential areas for improvement.

Methods: This is an observational, longitudinal, retrospective study based on the analysis of electronic prescriptions for antidepressants prescribed in Croatia from January 1, 2017, to December 31, 2022. This study covers a national sample with the medicine ATC code N06A present as a criterion for prescription retrieval. Analyses encompass annual prescription counts, drug types and quantities, utilisation trends, indications, and patient demographics (age, gender).

Results: Over 6 years (2017–2022) 8.66 million antidepressant prescriptions were prescribed to 415,328 patients in Croatian primary care. During the study period utilisation of antidepressants increased by 22.32% (from 22.4 to 27.4 DDD/TID). Despite the increase, Croatia's antidepressant utilisation remains significantly lower than the European average. SSRIs dominate antidepressant prescriptions with nearly 60% AD utilisation. Woman/patient in older age groups (≥ 65 years) drive the AD utilisation. 401694 prescriptions (4,64%) were for the patients with posttraumatic stress syndrome.

Conclusion: The findings reveal a steady increase in antidepressant use but below the European average possibly linked to traditionally very high benzodiazepine utilisation. AD usage pattern underscores the need for targeted evidence-based mental health policies, particularly for the elderly and individuals affected by war-related trauma, while also highlighting the importance of exploring the socioeconomic factors on prescribing practices.

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169. Real-world effectiveness of proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors in a specialised tertiary hospital in Kuwait: A retrospective cohort study

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Background: Statins are the cornerstone for managing uncontrolled low-density lipoprotein cholesterol (LDL-C), with ezetimibe as an add-on for insufficient control. In 2016, proprotein convertase subtilisin/kexin type 9 inhibitors (PCSK9Is) were introduced in Kuwait for patients with persistent lipid control issues.

Objective: To assess lipid control following PCSK9I initiation at a specialised tertiary hospital (2017-2022).

Methods: This retrospective cohort study was conducted at Al-Dabbous Cardiac Centre and utilised pharmacy dispensing data. The study evaluated patients who had newly been prescribed a PCSK9I (evolocumab/alirocumab). Incident PCSK9I users were defined as those without any PCSK9I prescriptions in the previous 12 months. The effectiveness of PCSK9I was assessed by relative reductions in LDL-C and non-HDL-C within 90 days of initiation and the proportion achieving 2021 Middle East consensus lipid targets. Descriptive statistics and relative median percentage reductions were used for analysis.

Results: Between 2017 and 2022, incident PCSK9Is users rose by 300% (n=99). Within 90 days of PCSK9I initiation, the median LDL-C (n=104) was 1.7mmol/L, reflecting a 41.9% reduction (95% CI: -50.9% to -24.1%, p<0.001), and the median non-HDL-C (n=115) was 2.4mmol/L, showing a 38% reduction (95% CI: -46.5% to -23.0%, p<0.001). Lipid targets were achieved by 43% for LDL-C <1.4mmol/L and 45% for non-HDL-C <2.2 mmol/L (extreme risk), and by 52% for LDL-C <1.8mmol/L and 53% for non-HDL-C <2.6 mmol/L (very-high/high risk).

Conclusion: Although PCSK9Is achieved significant lipid reductions, these results didn't fully replicate trial outcomes. Further investigation using comprehensive patient-level data is needed to confirm their effectiveness.

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194. Regional variations in opioid prescribing in Germany on a district-level in 2023: a population-based study using claims data

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Background

Assessing regional variations in opioid prescribing is essential for understanding prescribing practices. Recent data on the extent of regional differences in opioid prescribing are lacking, particularly for non-cancer pain, where opioid use remains controversial. This study aimed to describe regional variations in the prescribing frequency of opioids for non-cancer pain in Germany.

Methods

This cross-sectional study utilized claims data from Germany's largest statutory health insurance (~27 million persons). We included persons without a cancer diagnosis. Users were identified as persons with at least one opioid outpatient prescription (ATC code N02A). For each district, we calculated the age- and sex-standardized prescription prevalence and incidence for the year 2023, both for all opioids and for high potency opioids.

Results

The study sample included at least 9,500 persons in each of the 400 districts. Across all districts, the prescription prevalence of opioids ranged from 35.32 to 69.38/1,000, with the 5th and 95th percentiles at 40.53 and 63.31/1,000, respectively (median: 51.68/1,000). For high-potency opioids, the prevalence ranged from 6.85 to 28.60/1,000, with the 5th and 95th percentiles at 9.64 and 21.88/1,000, respectively (median: 15.05/1,000). The opioid prescription incidence showed similar differences across the districts. For example, for high-potency opioids, it ranged from 3.10 to 12.53/1,000 (median: 6.19/1,000).

Conclusion

The prescribing frequency of opioids for non-cancer pain varied substantially across German districts, particularly for high-potency opioids. As the extent of these variations is unlikely to be driven by differences in morbidity, our results suggest potential for improving rational prescribing of opioids in certain regions.

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201. Exploring the Role of Patient-Reported Outcomes in Chemotherapy-Induced Peripheral Neuropathy

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Introduction: Chemotherapy-Induced Peripheral Neuropathy (CIPN) is a common complication of anti-neoplastic agents. Dearth in data regarding early identification of CIPN and associated risk factors is considered the major research gap. Recently, Patient-Reported Outcome Measures (PROMs) are being leveraged for the early identification of a wider spectrum of symptoms to support clinical decisions.

Aims and Objectives: The aim of this study was to assess the proportion of CIPN in oncology patients through PROMs, and to identify the factors and study different management strategies to alleviate CIPN.

Methodology: This prospective observational study was carried out in the Department of Medical Oncology. CIPN severity and symptoms were evaluated using EORTC-QLQ CIPN20 questionnaire after each chemotherapy cycle. The risk factors and management provided were examined and suitable statistical methods were utilized to analyze the data.

Results: The study included 93 participants (53% females, 47% males) with a mean age of 52.47 ± 12.36 years and BMI of 33.46 ± 2.131 kg/m². Patient-reported outcomes identified 29.04% of patients with CIPN, compared to 26.88% via clinician-based reporting. Females had higher odds of neuropathy (OR 1.89), and poor sleep quality was strongly associated with CIPN (OR 4.56, p = 0.002). Combination chemotherapy, particularly platinum-containing regimens (OR 8.64), significantly contributed to CIPN, while patients with diabetes, hypertension, and hypothyroidism had over twice the odds of developing neuropathy.

Conclusion: The findings from the study imply that utilization of PROMs in regular clinical practice is necessary to identify and alleviate early CIPN symptoms.

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206. Implementation and Evaluation of a Pharmacist-Driven Integrated Care Program in Hematological Malignancy Centre

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Introduction: Therapeutic strategies of hematologic cancer encompassing chemotherapy and Hematopoietic Cell Transplantation (HCT) demand vigilant monitoring. As an integral part of the multidisciplinary healthcare team, onco-clinical pharmacists play a crucial role in optimising the therapeutic protocols.

Aims: This study applied the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework to assess the scope of pharmacists in Hemat/HCT settings.

Methodology: A prospective observational study was carried out using RE-AIM framework to evaluate the need of an additional pharmacist in hematology and HCT settings. The Pharmacist-Driven Integrated Care Program was established by assigning one full-time pharmacist to each of the units to optimize immunosuppressive therapies and address drug-related problems. Therapeutic drug monitoring of Cyclosporine and Tacrolimus was evaluated using Time in Therapeutic Range (TTR) to ensure optimal immunosuppressant levels. Finally, a survey was conducted with the patients/caretakers and healthcare professionals to assess the humanistic outcomes.

Results: The HCT pharmacist monitored 15 allogeneic and 6 autologous transplant patients, while the onco-pharmacist cared for 82 patients with hematologic malignancies. A total of 435 medication-related problems were identified, with 378 interventions made by the HCT pharmacist, and 239 problems identified, with 520 interventions by the onco-pharmacist. For immunosuppression management, the TTR for Cyclosporine and Tacrolimus was 73.07% and 71.11%, respectively. In the satisfaction survey, 88% of patients expressed strong satisfaction and 86% of healthcare professionals supported the continued need for an additional pharmacist.

Conclusion: The implementation of an HCT pharmacist services and novel practice models positively enhanced the clinical and humanistic outcomes.

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223. Trends of Opioid Utilisation in Hungarian Counties

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In certain countries, there is a concerning upward trend in opioid use, whereas in others, opioid use is too low to meet population's pain management needs. Analysis of opioid use at the regional level in Hungary has not yet been conducted. We analyzed opioid use trends in Hungarian counties from 2012 to 2021 in ambulatory and hospital care. The study reported regional opioid usage as defined daily doses (DDD) per 1,000 inhabitants per day (DID) for ambulatory care and DDD per 100 patient-days for hospital care (DHPD), stratified by administration route and potency. Interregional differences were assessed using maximum to minimum ratios. Nationwide opioid use in ambulatory care rose from DID values of 4.29 in 2012 to 6.28 in 2021, while hospital use stayed steady with DHPD values around 8.00 in 2012 and 2021. Regional trends were similar to the national ones, except in Nógrád County, where there was an increasing trend in opioid use in hospital care. Ambulatory care differences had maximum to minimum ratios of 1.73 in both 2021 and 2012, while hospital ratios increased from 1.90 in 2012 to over 3.00 in 2021. The hospital care sector also demonstrated a six-fold and over a four-fold regional difference in the use of parenteral and weak opioids in 2021, respectively. There was a growing trend in opioid use in ambulatory care across Hungarian counties, while usage remained steady except one county in the hospital sector. Regional variations were significant, and increased further in the hospital care sector.

228. Tonsil Surgery: Cutting Back on More Than Just Tissue? Analysis of pre- and post-surgery antibiotic use

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Background: Recurrent tonsillitis is a prevalent condition and is often managed with repeated courses of antibiotics. Tonsillectomy and adenotomy are widely performed surgical interventions aimed at addressing recurrent infections by removing the primary source of inflammation. Despite their established role in treatment, the impact of these procedures on reducing antibiotic dependency has not been fully explored.

Aims: To assess antibiotic prescribing patterns before and after tonsillar surgery and explore whether tonsillectomy and adenotomy may reduce antibiotics consumption.

Methods: A retrospective analysis was conducted using nationwide patient level data, provided by the National Directorate General for Hospitals of Hungary. We involved patients who underwent tonsillectomy in 2018, and recorded their antibiotic redeems two years before and two years after the surgery date. Patient demographics, surgical procedures and antibiotic prescription related data, both pre - and postoperatively, were analyzed.

Results: A total of 17470 patients were included in the cohort. We recorded a slight male dominance (51.52%). The majority of patients belonged to the youngest age group (0-4 years, 36.18%) and nearly 70% (11880 patients) of our total patient population was younger than 14 years. Antibiotics were redeemed at pharmacies in the two-year period before surgery in 92.07% of the patients and antibiotic use was noted in 78.75% of patients in the postoperative 2-year period. Patients redeemed on average 6 antibiotics prescriptions before and 4 antibiotic prescriptions after the removal of the tonsils.

Conclusion: The results indicate that tonsillar surgery decreased the reliance on antibiotics for patients after tonsillar surgery.

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235. Systemic Antibiotic Use in an Urgent Care Clinic: A Retrospective Study

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Antimicrobial resistance (AMR) is a global health threat, drived by inappropriate antibiotic use. Urgent Care Clinics (UCCs) are the starting point for managing infections, however data on antibiotic use in UCCs remain limited. This study aimed to assess systemic antibiotic use in a UCC in Indonesia. A retrospective observational study was conducted at the UCC of Cilacap Teaching Hospital, Indonesia, in 2022. Data were extracted from electronic medical records, including patient demographics and prescribed systemic antibiotics (WHO ATC: J01). Patterns were analyzed by age group (children: 0-14 years, adults: 15-64 years, elderly: 65+ years), route of administration and WHO AWaRe classification. Data of 14,396 patients were analyzed due to antibiotic use initiated at the UCC (52.1% of presenting patients). Adults represented 68.5% of cases. Cephalosporins were the most prescribed group in all age groups (ranged between 42.4 % to 50.9%). Penicillin was used more frequently in children (29.9%) vs. adults (10%) and elderly (6.6%), while fluoroquinolones were more frequently used in the elderly (21.1%) vs. adults (16.2%). "Watch" antibiotics accounted for 63.9% of all prescriptions, particularly among the elderly (71.9%). Oral antibiotics were predominantly prescribed (65.8%), especially in children (76.5%). The most frequently prescribed antibiotics were cefixime in the adults and elderly, and amoxicillin in children, while ceftriaxone ranked second in adults and the elderly and cefixime in children. This study identified differences in antibiotic prescribing across age groups and revealed some suboptimal patterns. Findings underscore the importance of targeted antimicrobial stewardship programs to optimize antibiotic use.

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252. Usage of anticoagulants in patients with atrial fibrillation

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Backgrounds: Atrial fibrillation is one of the most common heart rhythm disorders. Treatment has three main goals; correction of the heart rate, rhythm cardioversion and anticoagulation. Anticoagulants play the key role in the ischemic stroke prevention. Our goal was to determine the prevalence of oral anticoagulant use in patients with AF, in relation to CHA2DS2-VASc score.

Material and methods: This cross-sectional study examined 1437 patient's electronic medical records, in a largest hospital in this part of Serbia. All hospitalized patients with a diagnosis of AF between January 1st 2022 and September 9th 2022 were eligible for inclusion. Data on sex, age, diagnosis, oral anticoagulant (OAC) drug use (DOACs (Direct Oral Anticoagulants) and VKA (vitamin K antagonists) were extracted, and CHA2DS2-VASc score was calculated. Data was analyzed using Microsoft Excel.

Results: Out of 875 patients included, 514, 58.74% were on VKAs, 271, 30.97% were on DOACs, and 10.29% were not on any OAC, despite having CHA2DS2-VASc >2. Most commonly prescribed medication was acenocumarol. Prevalence of using DOACs was lower in female and older people.

Conclusion: VKAs are still drugs of choice in our setting. NOACs seem to be underused, probably due to reimbursement limitations.

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278. Defining a minimal dataset for non-small cell lung cancer real-world data registries: Essential variables for drug assessment

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Background

Registry based real-world data (RWD) can enhance the evaluation and appropriate use of new drugs for non-small cell lung cancer (NSCLC), as small treatment populations and single arm trials currently challenge the evaluation of drug effects for regulatory authorities, health technology assessment (HTA), payers, and clinicians. Therefore, we aimed to develop a minimal dataset enabling all relevant stakeholders to evaluate NSCLC drugs using registry-based RWD.

Methods

The minimal dataset was developed through a literature review of existing datasets, followed by two expert meetings to review the variables, and identify any missing important variables. First, experts - including pulmonologists, hospital pharmacists, and a patient representative – provided input on the minimal dataset (n=11). Subsequently, the Regulatory Science Network Netherlands organised an expert meeting including regulators, HTA, industry, academia, and a patient representative (n=15).

Results

In literature, four existing suitable datasets were identified and used to define the initial minimal dataset. Expert input was then incorporated to further refine it. The final minimal dataset includes general patient characteristics (n=9), disease-specific factors (n=20), treatment details, including systemic therapy, surgery, and radiotherapy (n=28), outcomes such as death, progression, response (n=7), and patient reported outcome measures (n=18).

Conclusions

This minimal dataset contains essential variables required to address most stakeholder questions about drugs used in NSCLC. However, experts noted that not all variables can be defined for every specific regulatory and HTA decisional situation, as they depend on a specific question. Our dataset provides guidance for registry owners in building a relevant core NSCLC patient registry.

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287. Study Protocol: Real-World Effectiveness of Ofatumumab vs. Cladribine in Relapsing-Remitting Multiple Sclerosis

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Aim: Ofatumumab (OFA) and cladribine (CLA) are high-efficacy disease-modifying therapies (DMTs) approved for relapsing-remitting multiple sclerosis (RRMS). To the best of our knowledge, no head-to-head comparisons of their effectiveness exist from randomized controlled trials or real-world studies. This study aims to compare the real-world effectiveness of OFA and CLA in RRMS patients.

Methods: This retrospective observational cohort study will include adult RRMS patients (≥18 years) who initiated monotherapy with OFA or CLA at the University Medical Centre Ljubljana, Division of Neurology, and are registered in the MSBase international registry. Patients will be assigned to two cohorts based on prescribed therapy, with an expected minimum of 300 patients per group. Propensity score matching will balance baseline characteristics, including sex, age, disease duration, prior treatment, and baseline disability status. Data extracted from MSBase will include demographic information, disease history, treatment details, annual relapse rate (ARR), Expanded Disability Status Scale (EDSS), MRI outcomes, and additional clinical assessments, if available.

Results: Primary outcomes will include ARR, confirmed disability progression at 3 and 6 months (CDP-3, CDP-6), and MRI lesion activity. Secondary outcomes will include time to first relapse, proportion of relapse-free patients, proportion of patients with stable or improved EDSS, and proportion of patients with “No Evidence of Disease Activity” (NEDA-3). Subgroup analyses will explore treatment effects by sex, age, disability level, and prior therapy.

Conclusion: This study will provide valuable real-world insights into the comparative effectiveness of OFA and CLA in RRMS management. Findings may help guide clinical decision-making regarding treatment selection.

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301. Longitudinal drug utilization study on dermatological antifungals

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Background

Increasing antimicrobial resistance is recognized globally, however the main focus has been antibacterial resistance. Now antifungal drug resistance is increasingly reported. For dermatophyte fungi, antifungal resistance is rare, but now reported to increase. Antifungals for dermatological conditions can be purchased without prescriptions (OTC) but may contribute to the emergence of resistant fungal infections, hence it is important to identify possible overuse and misuse. We aimed to analyze use of dermatological antifungals in Norway.

Methods

Drug sales data of dermatological antifungals were captured from the Norwegian Drug Wholesales Statistics for the period 2002-2024. The use of topical formulations was analyzed by weight of substance while the use of oral forms was measured in DDD/1000 inhabitants/day (DID). The OTC share was calculated. Furthermore, data was extracted from the NorPD to get an overview of age and gender patterns.

Results

For oral dermatological antifungals, a stable increase was observed; 0.84 DID (2002) - 1.45 DID (2024). The sales of the topical formulations slightly increased from 0.08 - 0.09 kg/1000 inhabitants/year. Total weight of topical antifungals in 2024 was 475 kg, of which the OTC share represented 81%. Men are prescribed more dermatological antifungals than women.

Conclusion

We found an increasing use of antifungals for dermatological use in Norway. Further research is needed and comparison with antifungal use for animals/agricultural purposes should be performed.

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308. Views of pharmacists, doctors, and nurses on pharmacist prescribing of chemotherapy regimens: a cross-sectional survey

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Background

With cancer incidence rising worldwide, introducing pharmacist prescribing of chemotherapy (PPOC) may help minimise healthcare system pressures and enhance patient care. This study aimed to evaluate the views of pharmacists, doctors, and nurses on PPOC.

Methods

A survey was distributed by email via a national pharmacist regulator, an oncology/haematology pharmacist contact group, a medical oncology society, and an oncology nurses association. Eligible respondents were state-registered pharmacists, doctors, and nurses who were currently working or had previously worked in a cancer setting. Descriptive and inferential statistics were performed on closed-ended statements. Open comments underwent reflexive thematic analysis.

Results

Of 200 eligible responses received, 69.5% were pharmacists, 18.5% were nurses, and 12% were doctors. The majority of pharmacists, doctors, and nurses agreed that PPOC should be implemented in hospitals (90%/81.1%/79.2%), that it would reduce errors (92%/63%/78.3%), be more efficient (91.3%/70.8%/73.7%), and increase patient safety (98.5%/62.5%/73%).

From the open comments, the four main themes focused on pharmacists having the capabilities to prescribe chemotherapy (with training to enhance development), the necessity for resourcing and governance to support this, that the scope of practice would be as part of a multidisciplinary team, and pertaining to its potential impacts on patient care.

Conclusion

PPOC was perceived as a welcome introduction and should be considered for implementation in jurisdictions where it does not yet exist. This study has highlighted the necessity in having appropriate resources, training, and governance structures in place to help deliver the various perceived positive impacts on healthcare delivery and patient care.

Late breaking

324. A population-based study of incident prescribing for hypercholesterolaemia and hypertension in Scotland: Is the healthcare system recovering from the impact of COVID-19?

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Background:
The COVID-19 pandemic caused major disruptions to healthcare delivery, leading to marked declines in new prescriptions for hypercholesterolaemia and hypertension. The extent of healthcare recovery in initiating treatment for these conditions post-pandemic remains unclear. This study assessed trends in new prescribing and general practitioner (GP) encounters in Scotland to evaluate system recovery.

Methods:
We conducted a retrospective cohort study using national prescription data and in-hours GP encounter records in Scotland from January 2020 to December 2022. Incident prescribing for lipid-lowering and antihypertensive medications was compared against pre-pandemic levels (2018–2019). Data were stratified by health board and socioeconomic status.

Results:
From mid-2021, new initiations for both drug classes exceeded pre-pandemic expectations, with around 40,000 and 60,000 additional prescriptions for lipid-lowering and antihypertensive drugs, respectively, by December 2022. Increases were more pronounced in less deprived populations. GP encounter trends closely followed prescribing patterns, with a sharp decline from March 2020 and gradual recovery by March 2021. Post-recovery encounter rates were statistically similar to pre-pandemic trends.

Conclusions:
The rise in new prescribing of lipid-lowering and antihypertensive medications indicates substantial recovery of healthcare services in Scotland. However, the elevated post-pandemic initiation at a rate higher than-expected may reflect both delayed treatment and new-onset conditions related to potentially long-term sequelae associated with COVID-19 including both direct and indirect impact of COVID-19. These findings highlight the importance of ongoing pharmacovigilance and healthcare flexibility in responding to long-term consequences of the pandemic and suggest opportunities for further research into changes in prescribing behaviour.

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325. UK Antimicrobial Virtual Registry-Scotland: Innovative Methods for Monitoring the Use and Effectiveness of Newly Licensed Antimicrobials

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Background

Antimicrobial resistance (AMR) is a growing global health concern that undermines the effective treatment of infections. Recently licensed antimicrobials (RLAs) target multidrug-resistant pathogens; however, real-world data on their utilisation and outcomes remain limited. The UK Antimicrobial Virtual Registry (Scotland), led by the University of Strathclyde, was established to assess inpatient use of 11 RLAs across Scotland.

Objective

To examine utilisation patterns and clinical outcomes e.g., treatment success, ICU admission, readmission, and 28-day mortality, associated with RLAs using routinely collected, linked healthcare data.

Methods

A retrospective cohort study using pseudonymised prescribing data from the Hospital Electronic Prescribing and Medicines Administration (HEPMA) system across eight Scottish health boards (~65% inpatient coverage). Data from June 2019 to June 2023 were accessed in the National Safe Haven and analysed using R. Analyses covered demographics, prescribing patterns, infection types, and outcomes.

Results

The study included 308 adults with 353 RLA prescriptions. Mean age was 50 (SD 17); 54% were male. Most were of white ethnicity (77%), and 39% lived in the most deprived SIMD quintile. Dalbavancin was most prescribed (75.5%), followed by ceftazidime/avibactam and ceftolozane/tazobactam (each 6.8%), and cefiderocol (5.3%). Dalbavancin was commonly used via OPAT. Treatment success (no recurrence within 28 days) was achieved in 61% of patients. Concomitant antibiotics were used in 37% of cases, most often flucloxacillin, metronidazole, and amoxicillin.

Conclusion

This first large-scale real-world evaluation of RLA use in Scottish hospitals demonstrates the value of linked data for virtual antimicrobial registries and informs stewardship strategies.

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327. Janus Kinase Inhibitors on Rheumatoid Arthritis Pain

Andrej Belančić[1], Seher Sener[2], Yusuf Ziya Sener[3], Almir Fajkić[4], Marijana Vučković[5], Antonio Markotić[6,7], Mirjana Stanić Benić[8], Ines Potočnjak[9,10], Marija Rogoznica Pavlović[11], Josipa Radić[5,12], Mislav Radić[12,13]

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Despite multiple treatment options for rheumatoid arthritis (RA) patients, pain is still one of the most debilitating symptoms. Pain often persists despite patients achieving inflammatory remission, and it significantly impairs quality of life. In this review, we evaluated the clinical benefit and mechanistic pathways of Janus kinase (JAK) inhibitors for attenuating RA pain. Randomised clinical trials showed that JAK inhibitors could offer significant and rapid pain relief, often better than methotrexate or biologic disease-modifying antirheumatic drugs (bDMARDs). Patient-reported pain scores seem to improve within 1-2 weeks and maintain improvement over time. In addition to their anti-inflammatory effects, JAK inhibitors modulate nociceptive signalling and central sensitisation through decreasing IL-6 and GM-CSF activity, attenuating activation of astrocytes and microglia, and downregulating excitation of nociceptors in dorsal root ganglia and spinal pathways. Preclinical models indicate that JAK inhibition interrupts neuroimmune feedback loops crucial for the maintenance of chronic pain. Network meta-analyses and comparative analyses position JAK inhibitors among the most effective drugs for controlling pain in RA patients. Individual differences in response underline the need for a biomarker-guided approach. JAK inhibitors represent distinct and clinically significant pharmacological treatments that target inflammatory and non-inflammatory pain in RA patients. Implementing JAK inhibitors into personalised RA patient pain management proposes a promising treatment for one of the most significant patient unmet needs.

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328. Effect of Tumor Necrosis Factor-Alpha on Rheumatoid Arthritis Pain

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Rheumatoid arthritis (RA) is a widespread chronic inflammatory disease that presents with progressive deterioration of the joints, symmetrical polyarthritis and debilitating pain. A pro-inflammatory cytokine, Tumor Necrosis Factor-alpha (TNF-α), has been implicated to modulate central and peripheral pain pathways. TNF-α inhibitors have shown substantial efficacy in pain relief in addition to their anti-inflammatory effects and ability to diminish structural damage in RA. In this paper, we explore the pathways through which TNF-α contributes to pain and analyse the role of TNF-α inhibitors in modifying these pathways. The evidence implicates that TNF-α reduce synovial inflammation and modifies central nervous system **(**CNS) activity associated with nociceptive stimuli. Variability in patients' responses and long-term safety requires further research in personalised pharmacotherapeutic strategies. Furthermore, identification of biomarkers that are predictive in pain management could improve patient treatment. The integration of TNF-α inhibitors into a pain management approach could improve quality of life of RA patients in addition to improving clinical outcomes.

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329. Commonly used non-antifungals promote antifungal drug resistance in the fungal pathogen *Candida albicans*

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The growing prevalence of fungal infections, particularly among individuals receiving complex drug treatments, poses a significant clinical challenge. However, the extent to which drugs targeting human biological systems influence fungal pathogens, and thereby impact the response to antifungal therapies, remains largely unexplored. Focusing on the prevalent fungal pathogen *Candida albicans*, this study systematically investigates how commonly prescribed drugs in fungal high-risk settings may modulate the response of the pathogen to standard antifungal drugs. We selected and tested a shortlist of 119 non-antifungals frequently co-prescribed in conditions linked to elevated fungal infection risk. Of these, 34 agents considerably influenced *C. albicans* susceptibility to the antifungal fluconazole and/ or anidulafungin. Remarkably, ten drugs were identified that antagonized fluconazole by promoting either antifungal resistance or tolerance. The antagonistic effect was further validated in *Galleria mellonella* larvae, where combined treatment with fluconazole and the fluconazole antagonist, such as loperamide, ethinyl or levothyroxine, reduced larvae survival compared to fluconazole monotherapy. These results underscore the potential for commonly used non-antifungal medications to interfere with antifungal efficacy. They also highlight the need to consider polypharmacy as a critical, yet underrecognized, contributor to antifungal resistance and treatment failure.

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330. A Target Trial Emulation with an Extension to Subgroups: an Example for Relapsing-Remitting Multiple Sclerosis

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Background:
The target trial emulation (TTE) framework may help reduce bias in observational analyses and improve transparency of design and decisions. However, conclusions are limited to the restricted trial populations. Therefore, knowledge gaps for neglected subpopulations often remain. In this study, we emulated the CONFIRM trial using strict eligibility criteria, and compared the estimates to a pragmatic scenario which included these ineligible subgroups.

Methods:
CONFIRM studied efficacy of dimethyl fumarate (DMF) and glatiramer acetate (GA) in reducing relapses in relapsing-remitting multiple sclerosis (RRMS) patients. Here, we designed a retrospective cohort study and followed two scenarios, where we 1) adhered to original trial criteria and 2) followed a pragmatic approach which included otherwise ineligible subgroups. Outcomes were the annualized relapse rate (ARR) and the probability of experiencing a relapse, adjusted for covariates and overlap weights.

Results:
Using strict eligibility criteria, 288 RRMS patients were included (111 DMF, 177 GA). In the pragmatic scenario, 1831 patients were included (1072 DMF, 759 GA). The ARR ratio for DMF versus GA was 0.76 (95%CI 0.56-1.02) in CONFIRM, 0.75 (95%CI: 0.44-1.29) in the strict scenario, and 0.58 (95% CI: 0.36-0.94) in the pragmatic scenario. Similarly, the HR was 0.93 (95%CI 0.64-1.34), 1.05 (95%CI: 0.83-1.33) and 0.56 (95%CI: 0.46-0.67) respectively.

Conclusion:
Comparable results between CONFIRM and the strict scenario were observed. In the second step, methodological advantages of TTEs were extended to excluded subgroups, thereby embracing the added value of observational data, that is, the wider variety in the patient population often ignored in experimental settings.

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332. Global perspectives on the use of biosimilars

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Biosimilars play a key role in improving access to biologic therapies, especially in resource-limited settings, though their global adoption differs due to varying regulations, policies, and evaluations.This study aimed to compare different regulations, policies and decision-making processes for biosimilars in selected countries.

A convergent mixed-methods design was used between February and May 2025 to assess national biosimilar regulatory frameworks and the role of Health Technology Assessment (HTA) in influencing adoption and utilization. Eleven countries (two from each WHO region, except the Eastern Mediterranean) were included, comprising 14 key informant interviews. Semi-structured, in-depth interviews were conducted using a combination of convenience sampling for country selection and purposive sampling to identify knowledgeable informants. Qualitative data were analyzed using inductive thematic analysis, while content analysis was applied to derive quantitative insights from themes identified.

We found robust regulatory systems and HTA-processes in Sweden, Lithuania, Australia, Canada, Brazil, and Thailand. Detailed registries and scientific evaluations enhanced confidence among healthcare professionals by facilitating market access and reimbursement. In contrast, Vietnam, Sri Lanka, Uganda, Nigeria, and Ecuador lacked formal biosimilar regulatory frameworks and HTA policy systems, resulting in a fragmented approval process, limited market access, inadequate pharmacovigilance, and a lack of knowledge and awareness among healthcare providers.

Diverse regulatory environments impacts biosimilar access and adoption, with key barriers including policy inconsistency, regulatory fragmentation, and resource limitations. This study underscores the need for harmonized regulatory frameworks, strengthened reliance-based evaluation mechanisms, comprehensive pharmacovigilance systems, and targeted educational initiatives to optimize global biosimilar uptake.

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333. Potential drug interactions with Direct Oral Anticoagulants among prescriptions by Belgian general practitioners in patients with non-valvular atrial fibrillation

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Background: Direct Oral Anticoagulants (DOACs) have been increasingly prescribed in recent years, yet concurrent use with interacting drugs may compromise their efficacy and safety.

Aim: To assess the prevalence of potential drug-drug interactions (pDDIs) with DOACs among prescriptions from Belgian general practitioners (GPs) in patients with non-valvular atrial fibrillation (NVAF).

Methods: We used real-world data from The Health Improvement Network (THIN). We included all adult NVAF patients who received ≥1 DOAC prescription from a GP between August 1, 2022 and July 31, 2023. Interacting drugs were identified using the Pharmaceutical Information Library of the Belgian Pharmaceutical Association. A pDDI was defined as a prescription by the GP for both a DOAC and an interacting drug within the same week.

Results: A total of 13,334 DOAC prescriptions were issued to 5,637 patients. Apixaban was the most prescribed (40.4%), followed by rivaroxaban (25.4%), edoxaban (23.6%) and dabigatran (10.6%). The prevalence of pDDIs among prescriptions ranged from 12.2% for edoxaban to 17.9% for rivaroxaban; among patients, those with ≥1 pDDIs ranged from 17.2% for edoxaban to 24.7% for dabigatran. Approximately 90% of pDDIs were pharmacodynamic interactions, mainly involving three drug classes: selective serotonin reuptake inhibitors (29.6% to 38.8%), platelet aggregation inhibitors (17.6% to 23.0%), and non-steroidal anti-inflammatory drugs (15.6% to 18.9%).

Conclusion: Approximately 1 in 5 patients received a DOAC prescription from a GP that included ≥1 pDDI. The majority of these pDDIs were pharmacodynamic in nature. Closer attention to these three drug classes may contribute to reducing bleeding risk.

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334. The introduction of new pharmaceuticals in Sweden during the Covid-19 pandemic

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Introducing new pharmaceuticals is a lengthy process with strict requirements from regulatory and health technology assessment authorities. However, during the Covid-19 pandemic, vaccines and medicines reached the market faster. Limited knowledge exists on how regulatory processes and the number of approved pharmaceuticals changed during this period. This study aimed to assess whether the number of pharmaceuticals approved by the European Medicines Agency (EMA) changed, whether timelines for market introduction varied, and if regulatory timeframes shifted during the pandemic.

A cross-sectional study was conducted from January to June 2025 using data on decisions from EMA, the Swedish Pharmaceutical Benefit Agency (TLV), the Council for New Therapies (NT Council), and sales data from the Swedish E-health Agency. Timelines were created with dates from EMA application to sales start in Sweden. The annual number of approved pharmaceuticals and those starting sales were calculated. Data were analyzed descriptively using mean, median, and range.

Results showed no statistically significant difference between before, during and after the pandemic in pharmaceuticals approved by EMA or starting sales in Sweden . The median time from EMA application to sales start was two years. EMA approvals peaked in 2021, infectious disease pharmaceuticals peaked in 2020, and sales peaked in 2022. Only 47% of EMA-approved pharmaceuticals between 2015 to 2025 began sales in Sweden from which 22.3% applied for reimbursement, and 13.4% were assessed by the NT Council.

No major shifts in introduction of new medicines occurred during the pandemic except for antivirals, which had shorter approval times and more approvals.

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335. The Impact of the COVID-19 Pandemic on the Initiation of ADHD medication, Antidepressants and Anxiolytics among Children and Adolescents in Sweden: An Interrupted Time Series Study

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The COVID-19 pandemic disrupted children's lives globally, raising concerns about youth mental health. In Sweden, the use of ADHD medications and antidepressants was increasing before the pandemic, but its impact on initiating these treatments remains unclear.

To investigate the effect of COVID-19 pandemic on the initiation of ADHD medications, antidepressants, and anxiolytics among people aged under 18 in Sweden. A secondary aim was to assess differences in trends by age and sex.

We conducted a nationwide interrupted time series study using SCIFI-PEARL dataset. All people younger than 18 with a first-ever prescription for an ADHD medication, antidepressant, or anxiolytic from March 2019 to December 2024 were included. Monthly initiation rates per 100,000 were calculated. We analysed three periods: pre-pandemic (Mar 2019–Feb 2020), at pandemic (Mar 2020–Jun 2023), and post-pandemic (Jul 2023–Dec 2024). Segmented regression estimated changes in initiation levels and trends, stratified by sex and age groups (1–6, 7–11, 12–14, and 15–17 years).

After a brief decline in early 2020, initiation rates for ADHD medications and antidepressants rose, particularly post-pandemic. ADHD initiations increased most among boys aged 7–11, while antidepressant starts to increase notably in girls aged 15–17. Anxiolytic initiations declined steadily, especially among females.

The pandemic accelerated existing trends in ADHD and antidepressant medication use, particularly in boys aged 7-11 and older adolescent girls, while anxiolytic initiation declined. Initiation patterns of psychotropic medications changed during the COVID-19 pandemic, highlighting the need for ongoing monitoring of youth mental health treatment trends

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336. Towards greener prescribing? Swedish general practitioners' support for policies to reduce pharmaceutical pollution

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Background

Pharmaceuticals are essential in the healthcare system, however, they may have a considerable influence on the environment. Through their prescriptions physicians guide the consumption of pharmaceuticals. It is therefore important to understand their perspectives and how they assess discussed policies reducing environmental pollution.

Aim

The aim is to investigate to which extent physicians are supportive to policies reducing the environmental pollution of pharmaceuticals.

Methods

A questionnaire was distributed to 1,233 general practitioners and physicians in training working in Sweden assessing their attitudes to policies drafted with the aim of reducing the environmental impact of pharmaceuticals. From September 2023 and June 2024 the obtained response rate was found to be 22%. The respondents were asked to rate their support on a 5-point-Likert-scale, ranging from very negative to very positive. Furthermore, the participants were asked to answer how frequently they consider the environmental impact of pharmaceuticals in the prescribing process.

Results

While 68% of the respondents were of the opinion that environmental impacts should be considered during prescribing, few reported that the environmental impact often influence their prescription. Policies directed towards other stakeholders, such as the pharmaceutical industry, authorities and pharmacies were highly supported by the physicians.

Conclusion

Swedish physicians support that environmental aspects should be considered while prescribing pharmaceuticals. However, they attribute a higher responsibility to other stakeholders.

337. A Comprehensive Review of Safe Medication Prescribing Using Electronic Prescribing Systems in Primary Healthcare Settings in Lithuania

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Objectives: Electronic prescribing systems (EPS) have become highly relevant modern healthcare components due to their advantage in increasing the efficiency of the prescribing process and reducing errors. This study evaluated the functionalities of EPS used in Lithuania's primary healthcare centers, focusing on their role in supporting safe prescribing.

Methods: A qualitative semi-structured interview approach was employed, utilizing key informant interviews with the prescribers working in the primary healthcare setting and using one of the four most utilized EPS in Lithuania: ESPBI IS, FOXUS, POLIS, ESIS. The guide was developed through desk research with a focus on key features facilitating safe prescribing: 1) availability of drug information; 2) dose adjustment according to patient age; 3) drug interaction monitoring; alerts about: 4) contraindications; 5) allergies, 6) prescribing during pregnancy; 7) impaired kidney or liver function.

Results: Seven family doctors were interviewed: 1 using ESPBI-IS, 2 – FOXUS, 2 – ESIS, and 2 – POLIS. All examined EPS incorporate an integrated drug interaction checker. 2 out of 4 (FOXUS, POLIS) feature functionalities enabling rapid drug information review. Only POLIS informs about identified contraindications. None of the analyzed EPS include features for dose modification based on patient age or impaired drug excretion. Furthermore, none of the EPS provide alerts about drug allergy or pregnancy.

Conclusion: Results highlight the demand for further development of EPS utilized in Lithuania's primary healthcare centers regarding safe and rational prescribing. This study also contributes to other scientists' findings and underscores the necessity of a regulatory framework to ensure EPS' quality and safety.

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