Introduction Paediatric polypharmacy is defined as two or more medicines, which is lower than the definition in adults (>5 medicines). A recent scoping review of paediatric polypharmacy found a mean prevalence of 39.7% with a large range from 0.9% to 98.4%.
Methods Prescribing data from 85 active practices across Liverpool Clinical Commissioning Group (CCG), was extracted on the 6th January 2021 to include all patients below 18 years of age. Prescribing data was also obtained for Alder Hey Children's Hospital from the electronic prescribing system, Meditech on the 12th January 2021. Descriptive analysis was performed.
Results Of the 110,097 CYP registered in primary care, 17,271 (16%) were prescribed >2 medications, 3,507 (3·2%) >5, 715 (0·7%) ≥10, and 202 (0·2%) ≥15. The median number of CYP prescribed ≥10 and ≥15 medications per primary care practice was 7 (range 0–34) and 2 (range 0–11), respectively.

Within Alder Hey Children's Hospital, 139 inpatients were identified, with 126 patients (91%) prescribed two or more medicines. The most frequently prescribed medicine was paracetamol. When 'as required' and 'one off' medicines were removed, omeprazole was the most frequently prescribed medicine.
Conclusions Many children within Liverpool CCG meet the definition for paediatric polypharmacy. Further research is required to assess the consequences of paediatric polypharmacy and address its management which is under recognised and underrepresented in the literature to date.

26 INTRODUCTION OF THE PROJECT OF THE CZECH DRUG DATABASE IN NEONATOLOGY AND PEDIATRICS IN 2022

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Introduction Evidence-based (EB) data on various medicaments and safe drug dosing in pediatric population are already available across Europe. However, their systematic translation and clear processing are lacking in daily pediatric clinical practice in the Czech Republic. The purpose of our work is the development of a Czech drug database similar to some already existing internationally based formulary lists.
Methods A systematic approach to the processing of recommended dosages of drugs used in the Czech environment, all compiled in the Czech language. The active substances will be arranged according to the ATC classification system. The strategy of the initial focus on the most commonly used drugs is set (the statistical data will be obtained from SÚKL), more rarely used drugs will be approached subsequently. The server-side system will be based on PHP and MySQL technologies, enabling easy scalability and deployment to a wide range of servers, including the ability to deploy to scalable servers with a load balancer front-end server.
Results In 2022, the Czech team managed to obtain support for the creation of a database called Gama 2 project TP01010040, supported by The Centre for Knowledge and Technology Transfer of Charles University (EudraCT#). As expected, the database will be developed in the most appropriate data processing framework and validated throughout the year.
Conclusions The Gama 2 database project aims to extrapolate strictly EB data systematically processed according to ATC groups into the Czech environment, where it will become a unique reference for safe prescribing, dispensing and administration of drugs in pediatric population. When processed in the Czech language, this might be beneficial for healthcare providers in Czech medical facilities.

27 RISK FACTORS OF AUGMENTED RENAL CLEARANCE IN CRITICALLY ILL CHILDREN USING IOHEXOL CLEARANCE FOR RENAL FUNCTION ASSESSMENT

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Introduction Augmented renal clearance(ARC) of hydrophilic drugs is frequent in PICU patients and warrants adjustment of standard dosing regimens to prevent therapeutic failure. Knowledge of patient-, disease- and therapy-related factors associated with ARC, would allow to predict before the start of treatment, which patients would benefit from higher drug doses. We aimed to identify predictors of ARC in critically ill children with normal serum creatinine(Scr) using iohexol plasma clearance (CLiohexol) to quantify renal function.
Methods We performed a post hoc analysis of data collected from an interventional study conducted at our academic PICU, which measured glomerular filtration rate (GFR) by CLiohexol in patients with normal Scr. ARC was defined as GFR exceeding normal values for age plus 2 standard deviations. Multivariable logistic regression analysis was performed to identify predictors of ARC.
Results GFR was measured in 85 patients, median age was 16 [IQR 5;89] months, 59% had a surgical profile. Median CLiohexol was 122[IQR 75;152] ml/min/1.73m2. Fourthy patients out of 85 (47%) expressed ARC. Postoperative status was identified as independent predictor of ARC (p=0.014, OR 4.253, 95%CI 1.338–13.517). However, in patients after cardiac surgery the odds of developing ARC were significantly lower (p=0.010, OR 0.163, 95%CI 0.041 –0.644). There was a trend suggesting more ARC in male patients and in those without need for vaso-active drugs, however, this was not statistically significant.
Conclusion Our findings raise clinicians' awareness about ARC potentially being present in children after major surgery. This knowledge allows to anticipate on enhanced elimination of drugs by using empirically adjusted dosing regimens immediately from the start of treatment.

28 PAEDIATRIC MEDICATION ERROR PREVENTION (PMEP) A TRIPARTITE ALLIANCE WORKING TOGETHER

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Prescribing and medication administration errors are common themes in Paediatrics. We observed an increasing trend of errors in our ward and assessment area. We undertook an audit to quantify errors within our department as per the EQUIP criteria suggested by the General medical council. A zero-tolerance approach was undertaken, and all errors from minor to severe were recorded. An alarming 90% of admissions within the audit period had minor to significant errors recorded in the initial audit. With the zero-tolerance approach, minor errors with no harm to life were also recorded.

Previous research has suggested that good quality care depends upon different professions working together. We created a tripartite alliance involving nursing, pharmacy and medical teams. Our primary aim was to reduce medication prescription and administration errors by at least 10%. The small incremental change target was made in line with the quality improvement principles. We placed education at the heart of the change process, and the programme involved no costs apart from the time invested by the team.

As a result, medication errors have been substantially reduced over the last five years, and education has been at the heart of the change process. The group has achieved change that is sustainable and prudent in design. We aligned staff, method and delivery to minimise avoidable harm and promoted co-production with patient involvement in educating staff about the impact of such errors. Working together as a team involving all three disciplines has helped us understand and modify practices that have led to an overall reduction in medication errors. We would like to share our change model that has influenced consistent and reliable results over several audit cycles.

29 WHAT DOMAINS RELATED TO MEDICINES WERE MEASURED IN STUDIES OF BURDEN OF CARE FOR PAEDIATRIC PATIENTS? A SYSTEMATIC REVIEW

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Introduction Medicines are becoming increasingly common for all populations and polypharmacy has been shown to have numerous risks. Although primary studies and reviews have explored the impact of medical conditions on patients and caregivers, there are no known reviews on the impact of medicines on paediatric patients. This systematic review therefore aimed to determine the domains commonly assessed in studies assessing treatment burden in different conditions for paediatric patients and their caregivers.

Methods Searches were conducted on Medline, CINAHL, EMBASE, Web of Science and Cochrane Database of Systematic Reviews to find relevant papers. Two reviewers independently screened the papers based on the chosen inclusion and exclusion criteria. The quality of the papers was assessed independently by two reviewers using the Newcastle Ottawa Scale. This review was registered with PROSPERO (PROSPERO registration number: CRD42021285097) and conducted according to PRISMA methodology.

Results 6 papers with 8276 participants were identified in this review. The domains most commonly assessed were the perceived effectiveness of medications (4/6 studies), psychosocial impact (3/6 studies) and the impact on work and school (3/6 studies). Other domains included the ease of use of medicines, side effects from medicines, adherence to medicines, time requirements, costs, using healthcare resources and support from family/friends/organisations.

Conclusions Studies assessing the burden of care due to medicines assessed a range of domains related to the impact of medicines on patients and caregivers. The results from this review will be used create a questionnaire for a cohort study that aims to determine the impact of polypharmacy on paediatric patients and their parents.

30 UTILIZATION OF AND BARRIERS TO INDIVIDUAL TREATMENT TRIALS IN MUCOPOLYSACCHARIDOSIS – INTERIM RESULTS OF AN EXPERT SURVEY

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Introduction Mucopolysaccharidoses (MPS), comprise a group of rare chronically debilitating metabolic diseases and associated with reduced life expectancy and a substantial unmet clinical need. Current research directs towards a number of new treatment targets and strategies. Individual treatment trials (ITT) could make these options rapidly available to patients. Based on scientific publication, this is hardly used. We assess the utilization of and relevant barriers to ITT in MPS as well as potential solutions.

Methods Phase 1 was done with 5 international top experts. After this interim analysis, the survey will be rolled out to a broader group of experts.

Results Five MPS experts from Austria, Brazil, Germany and Italy have been enrolled. In total these clinicians manage about 350 MPS patients. Only three experts ever ran 1–3 numbers of ITT in MPS patients, solely MPS type II (n=2) and VI (n=1), summing up to a total of five ITTs, which is about 1.4% of their patients. The treatments used in ITTs comprise Montelukast, THC, Curcuma and a viral vector with transgene. As barriers for a wider use of ITTs, the im-practicability for implementation (n=1) and the insufficient training in ITT (n=1) have been indicated. All experts consider it highly likely that a decision analysis tool increases the use of ITT in MPS.

Conclusions ITT are used in about 1% of MPS patients. This seems extremely low, considering the commonness of off label use in children with severe conditions, the high unmet medical need in MPS and the number of research results, which indicate various promising repurposing strategies. This interim analysis already demonstrates several relevant barriers and high potential of the planned decision framework tool to overcome this.