## P43 PHARMACOKINETICS AND TARGET ATTAINMENT OF ANTIBIOTICS IN CRITICALLY ILL CHILDREN – A SYSTEMATIC REVIEW OF CURRENT LITERATURE

[1]S Hartman*, [2]R Brüggemann, [1]L Orriëns, [1]N Dia, [3]M Schreuder, [1,4,5]S de Wildt. [1]*Pharmacology and Toxicology*; [2]*Pharmacy*; [3]*Pediatric Nephrology, Radboudumc, Nijmegen*; [4]*Intensive Care and Department of Pediatric Surgery, Erasmus MC – Sophia Children's Hospital, Rotterdam*; [5]*Pediatric Intensive Care Medicine, Radboudumc, Nijmegen, The Netherlands*

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**Background** Pharmacokinetics (PK) are severely altered in critically ill patients due to changes in volume of distribution (Vd) and/or drug clearance (Cl). To what extent this affects the PK of antibiotics in critically children is largely unknown. We aimed to identify gaps in current knowledge and to compare published PK parameters and target attainment of antibiotics in critically ill children to healthy children and critically ill adults.
**Methods** Systematic literature search in PubMed, EMBASE and Web of Science. Articles were labelled as relevant when they included information on PK of antibiotics in critically ill, non-neonatal, pediatric patients. Extracted PK-parameters included Vd, Cl, trough concentrations, AUC, probability of target attainment, and elimination half-life.
**Results** 45 relevant articles were identified. Studies focusing on vancomycin were most prevalent (15/45). Other studies included data on penicillins, cephalosporins, carbapenems and aminoglycosides, but data on ceftriaxone, ceftazidime, penicillin and metronidazole could not be found. Critically ill children generally show a larger Vd and higher Cl than healthy children and critically ill adults. Reduced target attainment was described in critically ill children for multiple antibiotics, including amoxicillin, piperacillin, cefotaxime, vancomycin, gentamicin, teicoplanin, amikacin and daptomycin. 32/45 articles included information on both Vd and Cl, but a dosing advice was given in only 18 articles.
**Conclusion** The majority of studies focus on agents where therapeutic drug monitoring is applied, while other antibiotics lack data altogether. The larger Vd and higher Cl that is observed in critically ill children might warrant a higher dose or extended infusions of antibiotics in this patient population to increase target attainment. Studies frequently fail to provide a dosing advice for this patient population, even if the necessary information is available. Our study shows gaps in current knowledge and encourages future researchers to provide dosing advice for special populations whenever possible.
**Disclosure(s)** Nothing to disclose

## P44 TYPE 2 DIABETES MELLITUS IN CHILDREN: NON-INSULIN MEDICATION, WHERE ARE WE UP TO?

[1,2]R Austin, [3]P Paul, [4]D Hawcutt*. [1]*Department of Women's and Children's Health, University of Liverpool*; [2]*Clinical Research Facility, Alder Hey Children's NHS Foundation Trust*; [3]*Alder Hey Children's Hospital*; [4]*Institute of Translational Medicine, University of Liverpool, Department of Women's and Children's Health, Liverpool, UK*

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**Background** Childhood type 2 diabetes mellitus (T2DM) is a relatively rare condition but is an important health concern as its prevalence continues to rise. Current management consists of lifestyle modification, metformin and insulin. Several new pharmacological classes are currently used in adult medicine but are not yet available in paediatric care.

In this review we will look at the current evidence for use of these newer medications in the paediatric population.
**Methods** A literature search (EMBASE, Medline, Pubmed, CINHAL) was performed for papers studying the use of non-insulin medications in children; including a separate search of ´clinicaltrials.gov´ to identify any ongoing trials in paediatric T2DM.
**Results** Newer classes of medications include incretin mimetics, dipeptidyl peptidase-4-inhibitors, sodium/glucose-cotransporter-2-inhibitors, and thiazolidinediones. There have been a small number of pharmacokinetic/pharmacodynamic studies carried out in small cohorts of paediatric participants, but larger long-term efficacy and safety trials are lacking. These studies and individual case-reports have shown good tolerability but are unable to identify any long-term effects associated with these medications.

Randomised controlled trials studying rosiglitazone and glimepiride use in children have been performed. However, safety concerns in adults and notable side-effects including weight gain, mean their future use is uncertain.

Currently many relevant trials involving paediatric patients listed on ´clinicaltrials.gov´ are awaiting completion.
**Conclusion** Medical management for T2DM in children remains limited. Ongoing studies are aiming to equip practitioners with wider treatment options in the future. However, there are concerns regarding the long-term safety of these medications due to the increased risk of pancreatitis, gallbladder conditions and bladder malignancy in adult patients.

Paediatric T2DM patients suffer from complications earlier and more severely compared with adults, making this is a pressing issue. Long-term surveillance studies to identify adverse effects and a framework for highlighting research gaps are required to enable improvements in paediatric T2DM management.
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## P45 THE ACCEPTABILITY OF USING GENETIC INFORMATION TO GUIDE TREATMENT OF ASTHMA TO CHILDREN, YOUNG PEOPLE, AND PARENTS (PILOT STUDY)

[1]C King, [2]L Bracken, [2]E McDonough, [3]M Pirmohamed, [2]M Peak, [4,5]D Hawcutt*. [1]*School of Medicine, University of Liverpool*; [2]*Department of Research, Alder Hey Children's NHS Foundation Trust*; [3]*Centre for Drug Safety Science, Department of Molecular and Clinical Pharmacology, University of Liverpool*; [4]*Department of Women's and Children's Health, Institute of Translational Medicine, University of Liverpool*; [5]*NIHR Alder Hey Clinical Research Facility, Alder Hey Children's NHS Foundation Trust, Liverpool, UK*

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**Background** There are multiple pharmacogenomic studies in children's asthma. It has not been established how (or if) children, young people or their parents/legal guardians would accept use of their genetic information to guide their treatment.
**Aim** To determine the views of CYP, and parents/legal guardians, on aspects of using genetic testing to guide management of childhood asthma.
**Methods** Focus group session with both the Liverpool's young people advisory group (YPAG), and Parents' group, at Alder Hey Children's Hospital. Group members completed anonymous questionnaires determining the importance and privacy