considering the available drug products for administration or the therapeutic range of the drug. This can lead to lack of consistency in dosing and drug administration errors, which affects many children of all ages treated with medicines.[1] There are no established standards for dose-banding in national or international healthcare systems. This project aimed to establish dose-banding limits for paediatric medicines, to be used for prescribing and administering accurate, safe, and effective drug doses.

Method A list of the most common oral prescribed medications was established from the medication dispensing database of four hospitals in the UK. Then the evidence for safe and effective dose ranges for each drug on the list was identified from paediatric reference books, Summary of Product Characteristics (SPC) and published literature. After using these data to develop dose bands based on body weight, we used a Delphi process to achieve healthcare professionals' consensus about the suggested dose bands for each drug on the list.

Results A total of 45 drugs for 45 specific indications were included. Four categories of dose-banding limits were established; drugs with 2-weight bands; 3-weight bands; 4-weight bands and 5-weight bands. Overall, for 53.3% (24/45) of the included drug, all their suggested dose-banding limits reached consensus after two rounds of Delphi. For 92% (22/24) of them, consensus was achieved on all their suggested bands in the first round. Only for 2 drugs the agreement was achieved after the second round. For the drugs included in 2-weight band and 5-weight band categories, all their suggested dose-banding limits received total consensus after round 1 of the Delphi process. For 9 drugs included in the 4-weight bands category, the agreement was achieved only on either one or two of their suggested dose bands. For 12 drugs, no agreement was reached on any of their suggested bands.

Conclusion The study results provide healthcare professionals with a set of recommended dose-banding limits for commonly prescribed drugs in the UK. These recommended limits could establish the basis for change in clinical practice to improve health care provided for children.

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P47 EXTENT OF PAEDIATRIC EXPOSURE TO PHARMACEUTICAL EXCIPIENTS: AN EXPLORATORY STUDY

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Aim The assumption that excipients are inactive therefore non-harmful to patients is a declining opinion due to raised safety concerns of excipient activity, particularly in children.[1] There is limited data on the safety of excipients in children and a lack of standardisation of the risk-benefit use of excipients in the different paediatric populations.[2] This study aimed to investigate the extent of excipient exposure in children taking long-term oral liquids, admitted to Hospital, and to identify whether patients could be switched to a solid alternative due to the harm posed from liquid formulations.

Method A prospective observational study conducted in a UK paediatric hospital. The electronic medication chart for hospitalised children aged 0–18 years on long-term (for ≥6 weeks) oral liquid medicines, were reviewed over a four-week period. A priority list of eight excipients (called harmful excipients) with known reported hazards was developed based on literature: propylene glycol, ethanol, parabens, benzyl alcohol, aspartame, sorbitol, polysorbate 80 and benzoic acid. The list was used to determine the extent of children exposure to the harmful excipients. Considering patient factors (age, swallowing ability, treated condition), prescribed dose and availability of solid dosage forms, the included long-term liquid medicines were assessed for a potential solid form alternative by a specialist paediatric clinical pharmacist.

Results A total of 302 oral liquid medicine formulations prescribed for 60 patients (age range 10 days – 17 years) were included in the study, of which 68.9% (208/302) were long-term oral liquid formulations. The 208 oral liquid formulation contained a total of 1044 excipients resulted in 17.4 (± 9) excipients per patients. Majority of patients (98.3%, 59/60) were exposed to at least one harmful excipient in their medicines. Children aged 2–11 years and 6–11 years were exposed the most to harmful excipients (mean 8.2 ± 4.9 exposure per patient). Parabens (81.7%, 49/60) was the most common harmful excipient patients were exposed to, followed by sorbitol (76.7%, 46/60), ethanol (75.0%, 45/60) and propylene glycol (70.0%, 42/60). Considering patient factors, prescribed dose and availability of solid formulations, it was found that almost third of the prescribed long-term oral liquid medicines (33.0%, 68/208) could be switched to tablet or capsule forms by pharmacist without any change to the prescribed dose. While for another 3.4% (7/208) long-term liquid medicines could be switched to solid dosage forms with prescriber approval, as prescribed doses would need to be adjusted slightly.

Conclusion The study highlights the extent of excipients exposure in children on long-term oral liquid medicines, many of which could potentially be harmful. Healthcare professionals should aim to reduce the long-term risks of excipients by providing an oral solid substitute to replace oral liquid formulation, where possible, and ensuring excipients are within safe, acceptable limits.

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P48 AN AUDIT OF COMPLIANCE OF AGE AND CRITICAL DRUG RELATED MONITORING CRITERIA/REQUIREMENTS FOR PATIENTS RECEIVING CARBOPLATIN DOSES WITH THERAPEUTIC PHARMACOKINETIC DRUG MONITORING

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Aim To determine the level of compliance to age and critical drug monitoring parameters required for patients receiving

carboplatin doses with therapeutic drug monitoring.[1] This audit will focus on age at administration and, whether pharmacokinetic (PK) levels, audiology and creatinine clearance were conducted prior to administration of carboplatin as per the protocol.

Method Data was collected retrospectively from December 2018 till January 2019 of patients treated from 2017-present using the PK monitoring carboplatin in any protocol. Data collected includes -patient demographics, age at time of carboplatin administration, date of administration, course of treatment, target AUC, dose (actual, protocol and dose difference), whether audiology was completed, AUC levels and creatinine levels.[2,3,4] The data was compared against set standards to determine percentage of compliance.

Results A total of 7 patients were identified as fitting the inclusion criteria – 3 males and 4 females – between them there were 26 courses of carboplatin. The patients had a variety of diseases – neuroblastoma (n=1), low grade glioma (n=1), astrocytoma (n=1) and retinoblastoma (n=4). 85.7% of patients (n=6) had audiology tests conducted, however only 28.6% (n=2) had them at baseline pre-treatment as per the protocol. All patients apart from two (71.4%) has their creatinine levels investigated prior to the first course of chemotherapy as per protocol. Of the 26 courses of carboplatin, 20 courses accurately received PK monitoring as per protocol where doses were modified as per the levels (76.9%). Furthermore, those following JOE chemotherapy protocol for retinoblastoma were all <3 months at the start of treatment and hence were within the age criteria to receive PK monitoring. The other disease states had a range of ages at the start of treatment from 2 months to 6 months, but still underwent PK monitoring for most of their treatment, i.e. only 2 (29%) patients did not meet the age criteria for PK monitoring.

Conclusion The findings showed that the correct age criteria were selected to receive PK monitoring, however typically they would monitor throughout their treatment even over 3 months. They also showed that the critical drug monitoring requirements before and whilst undergoing treatment with carboplatin were not consistently met for all patients as per protocols. To improve compliance to protocols, all practitioners should receive information on what monitoring requirements are necessary, when they need to be done and the importance of them for patient **care, an SOP should be produced to include this information.**

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P49 AN AUDIT OF BASELINE VITAMIN D LEVEL TESTS FOR NEWLY DIAGNOSED PAEDIATRIC HAEMATOLOGY/ ONCOLOGY PATIENTS AGAINST TRUST GUIDELINES

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Aim

1. 100% of patients should have their vitamin D levels checked at diagnosis' as stated in the current trust guideline for the management of vitamin D deficiency Treatment and Prevention.
2. 100% of patients who had a baseline vitamin D level had these acted upon if necessary following the recommendations in the trust guideline.
3. All of the patients who were given treatment had been prescribed were given an appropriate dose as stated in the trust guideline.

These standards are supported by the recommendations in 2016 by Public Health England (PHE) that everyone (regardless of age and ethnicity) needs vitamin D equivalent to an average daily intake of 10 micrograms via supplementation.[2 3]

Method This retrospective audit was conducted using internal clinical and prescribing programmes to access patient records and medical histories to retrieve data. The inclusion criteria for patients included in this audit were all new diagnoses of malignant haematological and oncological disease over a 6 month period, from April 2018-October 2018. The data collected for these patients were: if they had been tested for Vitamin D, the date of the test and their level of total vitamin D level Serum total 25-hydroxyvitamin D concentration. Patient data from the electronic prescribing system was utilised to check if patients had been prescribed vitamin D. Once data completed, patients with vitamin D levels, assessed against trust guidelines to determine if appropriately treated.

Results A total of 78 patients met the inclusion criteria, where 56% of patients were tested for vitamin D during admission. Of the 78 patient, 43 were oncology patients and 33 haematology patients.In the oncology cohort (n=15) only 35% were tested whereas 83% of haematology patients (n=28) were tested. Of the haematology cohort of patients who were tested (83%): 69% had sufficient levels of vitamin D (serum total 25-hydroxyvitamin D concentration >50 nmol/L); 11% had insufficient levels (25–50 nmol/L) and 3% were deficient (< 25 nmol/L). Of the oncology cohort who were tested (35%): 28% had sufficient levels of vitamin D; 5% of patients had insufficient levels; 2% were deficient. 6% of haematology patients and 5% of oncology patients with sufficient levels of vitamin D received treatment that was not indicated. Furthermore, the 5% of oncology patients with insufficient levels of vitamin D did not receive any treatment.

Conclusion The standards set for this audit were not met. It is concerning that those with low levels were not treated effectively and are at risk of complications. Although the findings of this audit may not be a true reflection of the entire patient population due to the small cohort size; the insight into at risk patients suggests there is a need to improve practice and reach 100% for all the aims of this audit.

To improve smart and efficient prescribing of medication, clinicians should adhere to the revised trust 'Guideline for the Management of vitamin D deficiency' to guide their decisions on initiating therapy. Pharmacists should check vitamin D levels for all new admissions and follow up as appropriate for any pending tests. Having a default test built into the current new prescribing system will also support in improving the results.