nausea/vomiting, headache and dizziness was negligible.[1 2] No complications were accounted in using the lowest dose (<25mg).[2] Another study specifically mentioned no adverse reactions observed in children when 0.1ml/kg of 5% fluorescein was administered.[3] The case report presented a paediatric patient (16 months) with CSF leak who was administered 0.125ml (6.25mg) of 5% IT to identify the leak.[4] The potential dosage for Miss. AB was decided as between 10mg to 25mg balancing the increasing risk of adverse reactions with higher doses and possibility of false-negative result with lower doses.

The neurosurgical team used this evidence to present the patient's case to the chairman's board for an off-label use approval at the trust. Upon enquiring various manufactures, the 5% unlicensed injection was unavailable to purchase and the 10% injection is unsuitable for intrathecal use. Therefore, the 20% fluorescence sodium injection which is an unlicensed 'specials' product usually used in adults was recommended by pharmacy. The smallest measurable dose of 0.1ml (20mg) of 20% fluorescein sodium, diluted in 10ml CSF with 5ml infused via a 0.2micron filter was recommended. The batch number and pyrogen free certificate was obtained from pharmacy procurement and application was submitted.

Upon receiving the panel approval, IF was used and a CSF leak was identified. This has aided the surgeons to confirm diagnosis and repair the rhinorrhea. With this successful intervention, the use of IF can be an established option to diagnose CSF rhinorrhea prior to surgery in the trust. These findings will be used in submitting a formulary application and drafting trust guidance for extending the use of IF to paediatrics as a diagnostic tool in neurosurgery.

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P03 PARACETAMOL DOSING IN HOSPITALISED CHILDREN – A NATIONAL SURVEY

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Aim The purpose of this survey was to establish how closely paracetamol prescribing for paediatric inpatients reflects dosing guidance in the British National Formulary for Children (BNFC).[1]. The project was a collaboration between the Neonatal and Paediatric Pharmacists Group (NPPG) and the Paediatric Pain travelling Club (PPTC).

Method An electronic survey was developed jointly by members of the NPPG and PPTC and emailed to the memberships of both organisations (430 NPPG members, 155 UK sites and 293 PPTC members, 54 UK sites) in July 2020. A reminder was circulated 1 week afterwards and the survey was open for 3 weeks in total. Survey Monkey software was used to generate the e-survey. Descriptive statistics and thematic analysis were used to describe the data.

Results 169 people responded to the survey (response rate 23.4%). 103 NPPG members responded (response rate 23.9%). 66 PPTC nurses or anaesthetists responded (22.5% response rate).

76 UK sites were represented, 57.4% of all UK PPTC sites and 43.9% of all UK NPPG sites. Between 1 and 7 people per site responded (mean 1, IQ range 1-2).

51 (67%) sites reported use of locally developed guidelines to dose oral paracetamol rather than the BNFC. For example, 34% of sites use weight-based dosing for all inpatients, whereas the BNFC recommends a mixture of age-banded and weight-based doses, depending on the indication. 'Appropriate dosing' of oral paracetamol for children over 1 month of age generated the most variation, frustration, confusion and disagreement between respondents both within sites and between sites. Strong views on avoiding sub-therapeutic doses in children with pain and not wanting to overdose children of low weight for age were voiced. In some cases the views of the PPTC members were very different to the pharmacists, probably reflecting the difference between prescribing for post-operative or severe pain vs treatment of pyrexia or mild to moderate pain.

65% of respondents adhere to BNFC regimen for IV paracetamol. Of the 16 (21.3%) sites which did not use the BNFC for IV dosing, 15 (93.8%) had a specialist paediatric pain team. Variation in dosing of IV paracetamol was mainly seen for neonates and patients over 50kg. For neonates, respondents reported using the recommended maximum daily dose in the BNFC but many altered the individual dose and/or frequency to optimise analgesia. For example 30mg/kg/day might be achieved using 7.5mg/kg every 6 hours vs the recommended 10mg/kg every 4 hours which would leave a large part of the day without doses able to be given. Patients over 50kg were often prescribed weight-based IV doses rather than the recommended 1g every 6 hours.

Conclusion Paracetamol dosing for inpatients is highly variable and does not reflect dosing guidance in the BNFC. Clinical concerns of safety vs efficacy contribute to the variation identified and must be addressed in future dosing guidance to optimise treatment for paediatric inpatients.

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P04 VARIABILITY IN CONCENTRATION OF ORAL LIQUID MEDICINES PRESCRIBED FOR CHILDREN IN ENGLAND- AN ANALYSIS

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Aim Liquid medicines are commonly prescribed for children. Multiple concentrations are in use for many drugs, increasing the risk of error. This project aimed to describe the variability in the concentrations prescribed for children in England.

Method The NHS Business Authority (NHSBA) was contacted to obtain details of all liquid medicines dispensed against FP10 prescriptions for patients aged under 18 years across a twelve month period from 1st February 2019 and 31st

January 2020. For each individual active pharmaceutical ingredient (API), a list of the dispensed concentrations and total number of items dispensed at that concentration was provided in a Microsoft Excel spreadsheet. Data on medicines listed within Chapter 5 of the BNF were not provided by the NHSBA.

The data were then assessed by three paediatric pharmacists: liquid medicines not intended for oral use (e.g. nasal sprays and enemas) were excluded from analysis, as were multivitamin products, cough and cold remedies and simple antacids. Analysis included independent determination of the number of concentrations per API, total volume of API dispensed, identification of licensing status and assessment of therapeutic risk. In assessing licensing status, if there was a licensed liquid of the API at that concentration listed on the *Electronic Medicines Compendium* or the MHRA products website, it was assumed that all liquids supplied at that concentration were licensed.

Results Following application of exclusion criteria, 257 APIs were identified. 67 APIs were classified as high risk due to one of the following:

- multiple concentrations of unlicensed products (n=39)
- multiple concentrations of a mixture of licensed and unlicensed products (n=25)
- no unlicensed products, but multiple concentrations of licensed products and narrow therapeutic index (n=3)

For the high risk APIs, the median number of concentrations per drug was 3 (IQR 2-5), range 2-15. 18 of the high risk APIs are used primarily for neurological conditions, 17 were cardiovascular agents, and 10 were electrolyte or nutritional drugs.

The APIs with the highest number of different concentrations in use were colecalciferol (15), omeprazole (13), glycopyrronium bromide (12), ergocalciferol (10), melatonin (9), gabapentin (8), spironolactone (8), azathioprine (8), sodium chloride (8), clonidine (7) and co-careldopa (7). Nationally recommended standard concentrations have been published for azathioprine, sodium chloride and spironolactone[1]; the proportion of dispensed items at the recommended standard concentration for each drug were 72%, 58% and 57% respectively.

By volume, the most frequently dispensed APIs were (number of items dispensed; number of different concentrations): colecalciferol (87,553; 15), melatonin (72,215; 9), omeprazole (58,235; 13) calcium carbonate (57,915; 5), folic acid (32,878; 3), clobazam (27,466; 7), dexamethasone (20,500; 5), glycopyrronium bromide (20,200; 12), gabapentin (14,417; 8) and diazepam (11,757; 4).

Conclusion Oral liquid medicines dispensed for children in England vary considerably in terms of concentration. For the relatively few drugs for which there is a nationally recommended standard concentration, significant variation still exists. The continued use of multiple concentrations for the same API potentially poses a significant risk to patient safety. Further national standardisation is required, and methods of driving adoption of such recommendations need to be developed.

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P05 A PROJECT TO RATIONALISE THE PRESCRIBING OF UNLICENSED SPECIALS FOR CHILDREN IN A UK CLINICAL COMMISSIONING GROUP

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Aim Due to a lack of licensed formulations for children, the use of unlicensed and off-label medicines is, in many circumstances, the only appropriate alternative.[1] Data obtained on prescribing of unlicensed specials to children <18 years of age in a UK Clinical Commissioning Group (CCG) demonstrated both a wide variability in concentrations being supplied, and a significant amount being spent. A project was therefore set up with the aim of standardising prescribing of these medicines, to improve patient safety (through reduction of inadvertent dose misadministration due to changes in concentrations) and reduce costs.

Method ePACT2 data on medicines prescribed within the CCG and identified as unlicensed specials (as designated by the Drug Tariff) was used to create a specials dashboard in Microsoft Excel. A target list of medicines, based on variability of strengths and preparations available, as well as cost, was identified. A team of two dedicated specialist paediatric pharmacists was funded to set out strategies to standardise prescribing of those target list medicines, as well as to improve awareness of prescribing and supply of unlicensed medicines to children.

The project team employed a variety of methods to achieve their aim including; email communications advertising their roles and the support offered; coordinating meetings with GP's and primary care pharmacists to discuss practice and primary care network-specific specials prescribing; promoting use of the local paediatric formulary; delivery of a paediatric prescribing webinar; and guidance on switches to alternative formulations.

Results Since July 2021, the project team have responded to 12 e-mail queries related to specials prescribing from GP practices. 21 meetings to discuss practice-level specials prescribing data were co-ordinated between July-August 2021, with 61 switches to a preferred formulation for safety and/or cost-effectiveness identified and discussed with GP's and practice pharmacists for review. The webinar was well attended by multiple boroughs and healthcare sectors, and although it cannot be quantified, awareness of the local paediatric formulary has improved.

In one instance the dashboard highlighted a significant patient safety issue, whereby a child was prescribed three different concentrations of unlicensed phenobarbital oral liquid over three consecutive months. The project team worked with the GP practice pharmacist to ensure the patient was receiving the correct dose of phenobarbital, and to rationalise the concentration of oral liquid for future prescriptions.

The project is on-going and at this time the impact on spend cannot be shown but will be reported later this year.

Conclusion Although work has been undertaken at national level to standardise concentrations of unlicensed liquid medicines,[2] this work has highlighted that there is still much to be done to reduce the variability in concentrations of prescribed medicines and the potential harm associated with this. The number of queries received from colleagues within primary care has emphasised a need for greater understanding of prescribing and supply of unlicensed medicines to children, as