

asked about the problems the most common response being supply of medicines or administration difficulties. 79% reported that parents/carers at their hospital were given the opportunity to administer medicines whilst their baby was an inpatient.

Conclusion Preliminary results show there is room for improvement with the information and support provided to parents/carers. The timing that the information is provided is key with 'throughout the hospital stay' being the most popular parent/carer response however, only 24% of HCPs reported information being given throughout the hospital stay. Both groups identified some of the same challenges.

P01

REDUCING INTERRUPTIONS DURING ADMINISTRATION OF MEDICINES TO CHILDREN

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Aim Many studies have identified that interruptions occur frequently during administration of medicines and may cause errors.¹⁻³ Bundles of interventions aimed at reducing interruptions have been investigated in adults.⁴ This study aimed to determine whether a 'Do not interrupt' bundle of interventions on paediatric wards, would reduce the number of interruptions to medicines administration and whether this would reduce the number of administration errors reported.

Method Six paediatric wards in a specialist children's hospital was included in the study. Three were designated as 'control' wards and 3 as 'intervention wards'. Baseline observations were undertaken on all 6 wards prior to the introduction of a 'Do not interrupt' bundle on the intervention wards. Four weeks later observations were repeated on all 6 wards. Electronic surveys were circulated to staff before and after the introduction of the bundle.

The 'Do not interrupt' bundle consisted of staff education; information for parents/patients; red aprons; banners; posters and 'Distraction free zone' floor stickers.

Results Red aprons were worn during 82% episodes of medicines administration on the intervention wards compared with 43% on the control wards. 92% of medicines were prepared in a designated 'distraction free zone' on the intervention wards.

There was at least 1 interruption during medicines administration for 69% of patients. The number of interruptions per 100 patient episodes reduced from 157 to 135 (14%) on the intervention wards compared to an increase from 191 to 218 (14%) on the control wards. Nurses were most often observed to be responsible for causing interruptions (48%) compared with other staff, parents/patients, buzzers etc. The most common types of preventable interruptions on all wards were social conversation and missing equipment or keys. Use of 'distraction free zones' did not prevent interruptions.

Reported administration error incidents increased from 2 to 7 per month (350%) on the intervention wards and from 4 to 15 (375%) on the control wards. This increase corresponded with an increase in activity and winter pressures across the hospital.

15% of nurses responded to the electronic survey. 76% thought the bundle did not make a difference, however 85% wanted the interventions to continue. Nurses disagreed with

the finding that they were the most common cause of interruptions.

Conclusion Use of red aprons increased following introduction of the bundle indicating it did have some effect. Overall, interruptions occurred more frequently than expected. Interruptions appear to have reduced on the intervention wards although this wasn't significant. Nurses were the most common cause of interruptions although they thought other staff and parents were. Many interruptions happened when medications were prepared near the nursing station, despite these being 'distraction free zones'. The bundle does not appear to have influenced the number of administration errors reported.

The 'Do not interrupt' bundle requires revision prior to trust-wide roll out. This will include provision of more education for staff, especially nurses, regarding interruptions; a focus on the awareness of preventable interruptions and strategies to avoid preparation of medicines at nursing stations.

REFERENCES

1. Raban MZ, Westbrook JI. Are interventions to reduce interruptions and errors during medication administration effective? A systematic review. *BMJ Qual Saf* 2014;**23**:414-21.
2. Westbrook JI, Woods A, Rob MI, *et al.* Association of interruptions with an increased risk and severity of medication administration errors. *Arch Intern Med* 2010;**170**:683-90.
3. Blijnaut AJ, Coetzee SK, Klopper HC, Ellis SM. Medication administration errors and related deviations from safe practice: an observational study. *J Clin Nurs* 2017 Nov;**26**(21-22):3610-3623. doi: 10.1111/jocn.13732. Epub 2017 Mar 22. PMID: 28102918.
4. Westbrook JI, Li L, Hooper TD, *et al.* Effectiveness of a 'do not interrupt' bundled intervention to reduce interruptions during medication administration: a cluster randomised controlled feasibility study. *BMJ Qual Saf* 2017:bmjqs-2016-006123.

P02

USE OF INTRATHECAL FLUORESCEIN TO IDENTIFY CEREBROSPINAL FLUID (CSF) RHINORRHEA IN PAEDIATRICS: A CASE REPORT AND LITERATURE REVIEW

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Early identification of CSF rhinorrhoea can reduce the risk of meningitis and potentially decrease the length of hospital stay. To determine the exact site of leak, intrathecal fluorescein (IF) is frequently used as a diagnostic tool adjunct to repair surgery in rhinorrhoea. Although this is generally considered safe, there is a slight risk of seizures, radicular symptoms such as numbness and transient paraparesis.¹

Miss. AB, a 20 month old child weighing 11.6kg with history of traumatic subdural collections was admitted with episodes of absence seizures, ataxia and unresponsiveness. Initial investigations involved an electroencephalogram which reported a normal background rhythm. A follow up MRI scan reported no definite site of abnormal CSF leak to confirm the working diagnosis. Hence, IF was proposed as a diagnostic tool to identify the location of a possible leak. The pharmacist conducted a therapeutic review with the aim of appraising existing evidence for the use of IF in paediatrics.

A total of 12 articles were identified using Medline and Embase. 5 case series and 1 case report were selected for further review to determine the safety profile, optimal dose and appropriate formulation for the diagnostic procedure. Studies showed at lower concentrations, with doses ranging from 25-100mg the rate of minor complications such as

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.

REFERENCES

1. Javadi S, Samimi H, Naderi F, *et al.* The use of low- dose intrathecal fluorescein in endoscopic repair of cerebrospinal fluid rhinorrhea. *Archives of Iranian Medicine* 2013;**16**:264-266.
2. Rainer K, Wienke A, Wolfgang D, *et al.* Use of sodium fluorescein solution for detection of cerebrospinal fluid fistulas: an analysis of 420 administrations and reported complications in Europe and the United States. *Laryngoscope* 2004;**114**:266-272.
3. Crosara P, Becker C, Stamm A, *et al.* Chemical and cytological analysis of cerebral spinal fluid after intrathecal injection of hypodense fluorescein. *Brazilian Journal of Otorhinolaryngology* 2015;**81**:549-553
4. Lue A, Manolidis S. Intrathecal fluorescein to localize cerebrospinal fluid leakage in Bilateral Mondini Dysplasia. *Otology & Neurotology* 2004;**25**:50-52.

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.

REFERENCE

1. Paediatric Formulary Committee. *BNF for Children* (online) London: BMJ Group, Pharmaceutical Press, and RCPCH Publications [Accessed on 17.08.2020]

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