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SP1 EVALUATING MEDICINES USE REVIEWS (MURs) IN CHILDREN

¹Rebecca Venables*, ¹Eirini Iliopoulou, ²Tania Cork. ¹School of Pharmacy, Keele University; ²North Staffs and Stoke Local Pharmaceutical Committee

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Aim To evaluate Medicines Use Reviews (MURs) in community pharmacies, with a focus on MURs conducted with children alone and with their guardian(s).

Method A service evaluation of MURs was conducted using a questionnaire proforma. The questionnaire proforma design was informed by current literature and MUR guidance (PSNC)¹ and included both quantitative and qualitative questions in order to understand how pharmacists approach and perceive conducting MURs, with a specific focus on those with children alone and with their guardian(s). Participants were community pharmacists holding an MUR accreditation by a Higher Education Institution, whom had already performed at least one MUR. Quantitative data formed descriptive statistics and this was supported by the qualitative data which was analysed using a thematic framework approach. Ethics was not required; this work was a service evaluation.

Results In total, 16 community pharmacists participated. The majority 81% (13/16) reported that they did not conduct any MURs in patients younger than 18 years. All participants reported feeling confident when conducting MURs in adults; whilst 56% (9/16) of participants reported feeling confident in conducting an MUR with a child with their parent/guardian present and only 25% (4/16) feeling confident with a child alone. Lack of confidence regarding child MURs was linked to paucity of opportunity, insufficient experience and training, and the need to amend question technique. Regarding consent, 75% (12/16) of participants reported that they were not confident in taking MUR consent from children, and 31% (5/16) from adolescents. Reasons for low confidence in gaining child/adolescent consent included never conducting MURs in children - so no experience in gaining consent, concern regarding child understanding, and always wanting a responsible adult present. Further barriers to MURs in children included: issues surrounding safeguarding, children possibly not having the necessary knowledge to participate if parents are responsible for medicines management, child ability to provide full consent and child anxiety, thus impact on aptitude to communicate effectively.

Conclusion This was a small-scale evaluation exploring MURs in children. Supporting anecdotal evidence prior to this study, study findings suggest that very few MURs are conducted in patients less than 18 years. Community pharmacists discussed poorer confidence in conducting MURs with children and adolescents compared to adults. Reports highlighted that the major barriers to conducting MURs in this patient cohort may be related to pharmacists' concerns surrounding child consent and potential lack of experience and training. This study

should be used to inform larger studies exploring barriers to gaining consent in children, and also conducting appropriate services with children. Analogous studies with other healthcare professional groups would be beneficial, and this data could be compared. Findings should also help to shape future education and training for pharmacists and allied healthcare professionals in order to optimise future patient services, thus patient care.

REFERENCE

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SP2 MANAGEMENT OF ETHYLENE GLYCOL POISONING IN AN ADOLESCENT: A CLINICAL PEARL

Nicola Wilson*. Greater Glasgow and Clyde Health Board

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Situation 16 year old girl admitted with suspected ingestion of ethylene glycol. She was treated with fomepizole and continuous renal replacement therapy (CRRT).

How the Pharmacy Team Contributed Ethanol was prescribed until fomepizole arrived. The volume of ethanol to be administered was calculated wrongly by the consultant due to confusion about the available strength. The Paediatric Intensive Care Unit (PICU) pharmacist intervened and the correct dosage information was given.

PICU pharmacist used Toxbase to determine the correct treatment of ethylene glycol poisoning and advised on dosing regime, including adjustment due to CRRT. The pharmacist facilitated prescribing on the electronic system (added drug to system, set up administration instructions and assisted with prescribing – pharmacist was not an Independent Prescriber). This allowed medical staff to concentrate on resuscitation, monitoring cardiac function, inserting intravenous lines and obtaining access for CRRT.

The PICU pharmacist and pharmacy technician co-ordinated initial supply of fomepizole. Fomepizole is usually ordered directly from the manufacturer during office hours. The patient presented in the early evening so further supply had to be obtained from a hospital hundreds of miles away after referring to the Rarely Used Medicines list. Pharmacist contacted appropriate on-call pharmacist and arranged for transfer of medicines via courier. Pharmacy technician arranged for further supply from the manufacturer the following day.

Pharmacy technician arranged supply of additional dialysis fluids for CRRT due to the higher than usual administration rate.

Without contribution from the pharmacy team the patient is likely to have been given the wrong dose of ethanol and fomepizole, and there would have been delay in initiation of treatment followed by an interruption, as it was wrongly assumed that it was kept as stock in the adjoining 'adult hospital' and subsequent supply from a local hospital would not have been sought by ward staff until original supply ran out.

Outcome Ethylene glycol poisoning was confirmed on laboratory testing. Levels of ethylene glycol fell steadily over 36 hours, allowing CRRT and fomepizole to stop. Patient was discharged from PICU after 48 hours with no apparent long-lasting effects, but was referred to various specialities including renal, gastroenterology and psychology.

Patient and family denied knowledge of intentional or accidental ingestion. Police investigation was inconclusive.

Lessons to be Learned Larger supplies of fomepizole are now kept in stock within Health Board. Supplies were missing from emergency cupboards when stock was needed, despite being on stock lists, necessitating courier fees to transfer stock from elsewhere. Procedures reviewed to ensure that stock is available in emergency cupboards at all times.

This patient demonstrated that current (target) stock levels of fomepizole were inadequate for providing treatment during CRRT as the required doses are substantially higher (administered every four hours rather than every twelve hours) and would have lasted less than 12 hours for this average sized teenager. National Rarely Used Medicines list was updated to reflect actual stock levels and other hospitals increased their stockholding due to the realisation that existing stock was inadequate and that further supplies were hard to obtain out of working hours.

SP3 EVALUATING THE IMPACT OF CONCENTRATED STANDARDISED PARENTERAL NUTRITION ON GROWTH OF PRETERM INFANTS

Lucy Stachow*, T'ng Chang Kwok, Ramune Snuggs, Rowan Toyer, Emmanuel Oyewole, Deepa Panjwani, Kamil Effendi. *University Hospitals of Leicester NHS Trust*

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Background and Aim Concentrated standardised parenteral nutrition (CSPN) may reduce the delay in commencing parenteral nutrition (PN) in preterm infants compared with conventional individualised PN. Optimisation of early nutrition, with emphasis on earlier commencement of PN to include amino acids and addition of lipids within 24 hours of birth, ameliorates early postnatal growth failure.^{1 2} Cumulative nutritional deficit often seen in significantly preterm infants may lead to poor neurodevelopmental outcome.^{3 4} CSPN was introduced in our neonatal unit in December 2017 with the objective of improving early nutrition. The aim of this service evaluation was to assess the suitability of CSPN and its impact on the growth of preterm infants in our tertiary level neonatal unit.

Methods In December 2017, the neonatal PN provided was switched from individualised PN to CSPN based on a modified 'SCAMP' regimen. Retrospective and prospective growth parameter data was collected for infants receiving PN within 24 hours of birth born between September to November 2017 (individualised PN arm) and from September to November 2018 (CSPN arm). Infants were excluded if they died or transferred out of the local neonatal service before day 28 of life, or died before transitioning from PN to full enteral feeds. Weight and head circumference at birth, 28 days old and 36 weeks corrected gestation/discharge were converted to z scores using the LMS method. The Mann-Whitney test was used to compare continuous data. Annual PN expenditure, and wastage of ordered PN, before and after the switch to CSPN, was calculated using the pharmacy stock management system, pharmacist and finance records.

Results 20 infants (mean gestational age 28 weeks) and 21 infants (mean gestational age 29.6 weeks) were included in the CSPN and individualised PN groups respectively. There were no differences in demographic data of each group. CSPN was commenced earlier (median 8 hours old (n=20)) than individualised PN (median 25 hours old (n=19)), (U=42,

p<0.0001). There was no statistical difference in the change in weight z score from birth at 28 days old (median -0.47 (n=20) CSPN vs -0.66 (n=19) individualised PN, U=178.5, p=0.75) and at 36 weeks corrected gestation/discharge (median -0.72 (n=20) CSPN vs -0.86 (n=21) individualised PN, U=106, p=0.7). There was insufficient data collected to analyse effect on head circumference. Replacing individualised PN with CSPN resulted in a 37% reduction in procurement costs, despite an increase in the wastage of ordered PN from 7.2% to 8.5%.

Conclusion A PN strategy using concentrated standardised PN can be implemented successfully in a tertiary neonatal unit setting in the United Kingdom and allows earlier commencement of PN. Use of CSPN appeared to have no adverse effect on weight gain, although small sample size may account for the lack of statistical significance in improvement of weight z score seen. Improved rates of head circumference documentation for our patients are required. Introducing CSPN resulted in a considerable reduction in procurement costs, and identifying strategies to minimise wastage of CSPN bags would further improve cost-effectiveness.

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SP4 MEDICINES OPTIMISATION IN ACTION: THE DEVELOPMENT OF A DOSING SCHEDULE AND AN EXTEMPORANEOUS FORMULATION OF PAZOPANIB TO TREAT A CHILD WITH A RECURRENT DESMOID TUMOUR OF THE HEAD AND NECK

Victoria Holden*, Andrew Lowey, Simone Wilkins, Rachel Greer. *Leeds Teaching Hospitals*

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Background International experts recommended pazopanib to treat a 9 year old boy with a recurrent desmoid tumour. The tumour had progressed, leading to blockage of the airway and dysphagia. The child had previously received three lines of intravenous chemotherapy as well as surgery and local radiotherapy. Treatment intent was to give an effective oral therapy with minimal side effects aiming to maintain a reasonable quality of life and prevent further life threatening respiratory compromise. As the child had an unsafe swallow, the drug would need to be given via a gastrostomy tube.

Pharmacy Input A literature review was completed to establish the evidence to support the use and dose of pazopanib to treat desmoid type tumours in children.^{1 2} Attempts made to find a commercial supply of pazopanib liquid yielded no results. In the absence of any data or experience from other principal children's cancer centres in the UK, first principles were used to review the physico-chemical properties of the molecule. Given the highly insoluble nature of pazopanib, an extemporaneous formulation for a pazopanib suspension was developed using Orasweet®, by adapting a formula suggested by the University of Oklahoma.³ A risk assessment for the