Vancomycin therapeutic levels were reached on day 5. The dose remained unchanged for the remainder of the course and levels taken every 3 days were appropriate. The pharmacist prepared a weaning plan for morphine and clonidine. The pharmacist advised reducing dexamethasone and stopping when no longer required due to raised blood glucose measurements.

Lessons learned How to obtain and administer diphtheria antitoxin. What chemoprophylaxis to provide to family and staff, the difficulties of supplying this to so many adults in a children's hospital and the pressure the hospital faced having 34 staff members excluded for 48 hours while cultures were taken The importance of personal protective equipment to protect staff and other patients Monitoring parameters: vancomycin levels, renal function, cardiac function, blood sugars Importance of encouraging parents to have their children vaccinated with all the primary immunisations to protect their children and others

REFERENCE

1. Public health England: Diphtheria in England 2017. Accessed via: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/711453/hpr1818_dphthr17.pdf

P006 HOW CAN ELECTRONIC ORDER SETS REDUCE TIME TAKEN TO PRESCRIBE MEDICATIONS ON ADMISSION TO PICU?

Jenny Gray, Jane Hutchinson. *Bristol Royal Hospital for Children*

10.1136/archdischild-2019-nppc.16

Aim Our paediatric intensive care unit (PICU) has been using the Phillips ICCA electronic prescribing system since 2016. This system has an 'order set' function that allows a prepopulated list of medications to be created for use in certain situations. Potential benefits include reduced time to prescribe medications, reduced medication error rate and improved prescribing efficiency. The PICU quality improvement group and Pharmacy Informatics team created an order set for patients under 1 year of age admitted from theatre following cardiac surgery, which was implemented in June 2017. Our theatres do not use the ICCA system so as the patients are transferred with infusions running, there is a time gap where the patient has infusions running on PICU without a live prescription on ICCA. The aim of this project was to establish a reduction in the time taken for all 13 medications to be prescribed. In turn this would reduce the risk of running infusions without a live prescription.

Methods Data was collected retrospectively from the ICCA system on 15 patients pre and 15 patients post the introduction of the order set. Time of admission was set when the patient was allocated a bed on ICCA. The times at which each medication was prescribed were taken directly from ICCA. A user satisfaction survey was also sent out to during the order set implementation phase.

Results The time taken to prescribe all 13 medications was reduced on average by 9.4 hours per patient. The average time saved per medication was 43 minutes. Pre implementation, the average time to prescribe the medications was 11.4 hours (95% CI [5.5, 17.3]). Post implementation, the time taken to prescribe the same medications was 2 hours (95% CI [0.5, 3.5]). Pre implementation, prescriptions were started at least 30 minutes (average) after the patient arrived on PICU. Post implementation, prescriptions were started 30 minutes before patient admission and completed within 30 minutes of arrival. 20 staff members completed the user satisfaction survey. The survey had a 13% return rate. 70% of users agreed or strongly agreed that using the order set function improved prescribing efficiency and 55% of users agreed or strongly agreed that the order set helped ensure appropriate doses.

Conclusion Implementation of an order set for this patient group removed the risk of running infusions without a live prescription. This project is an example of how prescribing support functions within electronic prescribing packages can reduce time taken to write up medications within our unit, allowing prescribers to spend more time on other duties. Following the success of this intervention, further order sets will be created for use on our unit. A high level of clinical knowledge from the pharmacy support team and strong engagement with the clinical team was essential in creating a product that was fit for purpose. Limitations of this project are that we did not have the capability to assess a reduction in medication error. We now have increased support within the Pharmacy Informatics team to enable this for future projects.

P007 IMPROVING PAEDIATRIC CHEMOTHERAPY PRESCRIBING THROUGH USE OF AN ELECTRONIC PRESCRIBING SYSTEM

[1]Charlotte Summerfield, [2]Susan Kafka, [2]Michelle Lewis, [2]Guy Makin, [2]Joseph Williams, [2]Samuel Wood . *[1]University of Manchester; [2]Royal Manchester Children's Hospital*

10.1136/archdischild-2019-nppc.17

Aim Paediatric prescriptions are almost 50% more likely to contain an error than adult orders. The risk of prescription error is further increased when prescribing for malignant disease.[1] In 2017 the Trust introduced ChemoCare, an electronic prescribing system for paediatric chemotherapy. The primary aim of this study was to investigate whether implementing ChemoCare has affected the incidence and type of errors made in paediatric chemotherapy prescriptions, compared with written prescriptions. A secondary aim was to explore possible reasons why these prescribing errors may occur. Since 2014 it has been mandatory for all NHS England specialist trusts to send monthly submissions to the Systemic Anti-Cancer Therapy (SACT) Database, regarding the treatment of malignant disease in secondary care.[2] Therefore, the study also analysed Trust compliance with communicating treatment data to SACT.

Methods Data collection took place over a four-week period in Spring 2018. Prescriptions were reviewed by pharmacists and categorised as written or electronic. Prescriptions were then checked for 7 different error types; calculation error, drug prescribed on wrong day, incorrect drug prescribed for cycle, incorrect dose of concomitant medications, incorrect surface area used, not adjusted dose for previous age or weight related toxicities, no drug prescribed. The Fisher's Exact test was employed to detect significance between chemotherapy prescription type and error incidence. A written questionnaire was designed to obtain the views of consultants, pharmacists and specialist trainees, and explore possible

reasons why prescription errors occur. ChemoCare treatment data was retrospectively reviewed in order to determine how many prescribed cycles had been marked as 'completed'.
Results 143 prescriptions were analysed. 34.4%(n=21) of written prescriptions contained errors, compared with 11.4% (n=5) of electronic orders. Two of the error types measured

- 'wrong calculation' and 'wrong drug prescribed for cycle'
- occurred significantly more frequently in written than electronic prescriptions.

The Fisher's Exact test produced p values of 0.017 and 0.008 respectively. Of the 409 treatment cycles prescribed and administered on the electronic system, 56.5% (n=231) had not been marked as 'completed', so would not be returned to SACT as administered chemotherapy. Failure to communicate accurate chemotherapy data to SACT not only limits research opportunities to progress safety aspects of delivering chemotherapy, but also has significant cost implications for the Trust, as chemotherapy treatment costs are not recovered.
Conclusion This study supports the use of an electronic prescribing system for ordering paediatric chemotherapy, given the significant reduction in errors compared with written prescriptions. The introduction of a chemotherapy-specific safe prescribing poster is suggested in order to improve compliance with ChemoCare. Further studies analysing national compliance with data return to SACT, are required to identify cost implications for the NHS and subsequent areas for quality improvement.

REFERENCES

1. Avery AJ, Ghaleb M, Barber N, *et al*. Investigating the prevalence and causes of prescribing errors in general practice: The practice study. *Pharmacoepidemiol Drug Saf* 2012;**21**:4.
2. NCRAS. Systemic Anti-Cancer Therapy Dataset [Internet]. [cited 2018 June 26]. Available from: http://www.ncin.org.uk/collecting_and_using_data/data_collection/chemotherapy

P008 MEASURING MEDICINES ADHERENCE IN CHILDREN: A SYSTEMATIC REVIEW

Mohammed Aldosari, Sharon Conroy, Ana Oliveira. *Nottingham University*

10.1136/archdischild-2019-nppc.18

Aim 30–70% of children prescribed long-term medicines have poor adherence.[1] Knowing the degree of adherence is important to understand the consequences of nonadherence and to develop strategies to improve medication adherence in children. We therefore performed a systematic review to identify measures of medication adherence used in children and the strengths and weaknesses of those measures.
Methods A systematic literature search was performed using PubMed, EMBASE, Medline, CINAHL, IPA and Cochrane library databases covering the period March 2008 to March 2018 in order to focus on the methods recently used to assess adherence. Inclusion criteria were original research studies measuring medication adherence in children (aged 0–18 years) and included all countries and languages. To be included, the assessment tool used to measure adherence in each study needed to be described in detail. Exclusion criteria included: review articles, editorials, conference papers, reports, and studies reporting only adherence outcomes/rates without reporting measurement methods. As a reliability measure, 5% of titles and abstracts were assessed independently by a second researcher.
Results Of 9,747 papers identified by the search, only 31 articles met the inclusion criteria. Most studies were conducted in the US (14) with four in South Africa, three in Kenya and the remaining ten studies in various countries including one in the UK. Diseases studied included: HIV/AIDS (13), asthma (5), inflammatory bowel disease (3), epilepsy (2), type 1 diabetes (2), others (6). In the commonest disease studied, HIV, self-report, Medication Event Monitoring Systems (MEMS), dose counting, pharmacy refill data and medication plasma levels were used to assess adherence. In patients with diabetes, mobile phone, medication plasma levels and self-report were used. Canister weight and MEMS were used to assess adherence in patients with asthma. Self- reporting was the most commonly used method to assess adherence and was reported to be flexible, inexpensive, and time saving but it was the least accurate and overestimated adherence rates. MEMS was the most accurate method but was also the most expensive. Dose counting was easy to use and inexpensive but adherence was also overestimated with this method. Measuring medication plasma levels was more precise than self-reporting and dose counting but was costly, time consuming and difficult to perform. Pharmacy refill data was more accurate than self-reporting and less accurate than MEMS and medication plasma levels. Mobile phone methods were reported to be very expensive and difficult to perform. Canister weight had the same efficacy as using MEMS and was less expensive, but was only applicable to inhalation devices.
Conclusion Currently, no gold standard method to measure adherence to medicines in children exists as each method has its own advantages and disadvantages. Overall, the MEMS method was the most accurate but most expensive, while self-reporting was the least accurate but least costly.

None of these measures were reported to be highly accurate in the assessment of adherence, so it is important to use a combination of multiple measures in order to gain a true picture of adherence.

REFERENCE

1. Chappell F. Medication adherence in children remains a challenge. *Prescriber* 2015;**26**(12):31–4.

P009 MEDICINES OPTIMISATION WHEN TRANSITIONING FROM PAEDIATRIC TO ADULT CRITICAL CARE

Karen Bourne, Shreen Howson. *Sheffield Children's Hospital*

10.1136/archdischild-2019-nppc.19

Introduction Transitioning is the process of preparing, planning and moving from children's to adult services.[1] More young people are surviving with long-term conditions and it is therefore inevitable that more patients will require specialist care into adulthood.[2] Effective transition requires effective communication and planning between paediatric and adult multidisciplinary teams and must engage both the patient and their parents/carers.[1] A trust critical care transition pathway was developed in 2016 by the adult and paediatric critical care teams.
Case summary A 17-year-old transitioning patient required an urgent transfer from paediatric to adult critical care to receive treatment that was unavailable at the paediatric trust. On arrival at the adult trust, it became apparent that patients' previous and current drug history and allergy status was poorly documented resulting in confusion and delay in