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TIME AND MOTION STUDY TO ASSESS WORKLOAD VERSUS STAFFING AT IN PAEDIATRIC HOSPITAL CHEMOTHERAPY MANUFACTURING UNIT

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Objectives In order to improve efficiency of the staff workload in the Paediatric Hospital Chemotherapy Manufacturing Unit, tasks conducted by the pharmacy staff were evaluated with their expected roles. The aims of this study were to establish an understanding of the workload at this unit and to develop a proposal for the unit to become technician-led.

Methods The time taken to perform a pre-determined list of tasks by the senior pharmacy technician was recorded, collated, and compared to tasks performed by the pharmacist. This established the key activities that could be delegated from the pharmacist and the senior pharmacy technician to other members of staff. The findings were discussed with a focus group to establish the efficiency of the manufacturing unit and enable a proposal to be formed.

Key findings A substantial part of the pharmacist's and senior pharmacy technician's time was spent on activities which could be delegated to other members of staff of a lower pay band. The financial implication of this estimated that there would be a reduction of around £8,696.70 with the correct utilisation of the staff members. The pharmacists leading this manufacturing unit were spending most of their time on computing and training, therefore reducing the time available for them to focus on patient-facing clinical activities.

Conclusions The current skill mix was highlighted as being inefficient, due to a lack of delegation from the pharmacists and senior pharmacy technician. A technician-led manufacturing unit can improve the focus of pharmacists on clinical tasks while reducing the cost of activities.

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EVALUATING PROPRANOLOL PREPARATIONS FOR USE IN INFANTILE HAEMANGIOMA

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Aim To evaluate oral liquid formulations of propranolol and to select the optimal preparation for use in Infantile Haemangioma.

Method Four oral liquid preparations of propranolol were considered:

A – an alcohol-free suspension prepared as a 'special' (the current treatment of choice)

B and C – generic solutions available in four different strengths

D – a French solution not marketed in the United Kingdom (UK)

Preparations were evaluated against six criteria:

- Licensing status
- Ease of purchase
- Shelf life
- Excipients
- Ease of dosing
- Cost

RESULTS

Licensing status: Preparation A is unlicensed and should not be used if a licensed product is suitable. Preparations B and C are licensed in children but not for Infantile Haemangioma. Preparation D has a European license for Infantile Haemangioma.

Ease of purchase: Preparation A is made to order but has a short lead time. Preparations B and C are available from wholesalers. No current importer for Preparation D was found.

Shelf life: The licensed preparations have 2–3 years shelf life. Preparation A has a 1 month shelf life.

Excipients: All excipients were considered. Aspartame, ethanol, maltitol, methylhydroxybenzoate, propylhydroxybenzoate, propylene glycol, saccharin sodium and Sunset Yellow can all cause adverse effects. The excipient most likely to cause problems was propylene glycol. This is eliminated by both renal excretion and liver metabolism but, in infants, these processes are immature and accumulation occurs with resultant toxicity. Preparation A contains no propylene glycol and can be used in children of all ages. Levels in Preparations B and C are safe for use in children over 1 month.¹ The propylene glycol content of Preparation D could not be ascertained. Preparation B contained ethanol. Levels were below safety limits² but ethanol competes with propylene glycol for metabolism via alcohol dehydrogenase increasing the risk of propylene glycol toxicity.

Ease of dosing: Dose volumes were calculated for a neonate (3.5 kg), a 6 month-old (7.6 kg) and a 1 year-old (9 kg). All preparations with strengths between 1 mg/ml and 3.75 mg/ml gave suitable dose volumes. Doses for Preparation D are expressed as propranolol base. In the UK, doses are expressed as propranolol hydrochloride. This could be confusing and lead to prescribing or dispensing errors.

Cost: Preparation A was more expensive than B or C. The cost of Preparation D could not be established.

Conclusions Although Preparation D is licensed for Infantile Haemangioma, its use would be complicated by difficulties in

obtaining supplies, likely cost and the risk of confusion between propranolol base and hydrochloride when prescribing and dispensing. Preparations B and C are suitable for use in children over 1 month of age. Preparation C is recommended because it contains less propylene glycol and no alcohol. Preparation A should only be used in children under 28 days. Using Preparation C instead of Preparation A gives the benefits that a licensed preparation is used, dispensing delays are reduced and costs are reduced.

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A BASELINE REVIEW OF THE ACTIVITY OF THE PICU PHARMACISTS USING ELECTRONICALLY CAPTURED DATA

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Aim To date there are no metrics for the clinical pharmacist service to PICU. It is accepted that use of a Clinical Information Management System (CIMS) has a role in medication safety,¹ however there are few studies that review the information potential of a CIMS for collecting pharmacist activity.²

Method Additional fields and custom reports were configured in the CIMS to enable PICU pharmacists to record their activity in the following areas:

- Medicines reconciliation within 72 hours of admission to PICU
- Discharge kardex review
- Analgesia and sedation (A&S) review
- Clinical pharmacy review

Other interventions & medication error reporting continued as per normal practice. Data was analysed using Microsoft Excel®.

Results Complete data was available from July 2017 to end of 2018.

There were 1274 medicines reconciliations by a pharmacist within 72 hours of admission (78% admissions). 14% of discharge kardexes had been reviewed prior to discharge to the ward. There was an average of 190 pharmacy reviews per 100 bed days. A total of 780 Pharmacist A&S Plans were documented by the clinical pharmacists – an average of 2 per working day, and 48% of admissions.

Comparisons between each six month period showed a significant increase in the number of pharmacist medicines reconciliations ($p < 0.001$). No other differences were found.

Conclusion This study has shown that electronic tracking of pharmacist ward activity is possible. It has the potential to demonstrate compliance with external or internal standards

and audits. This data continues to be collected, and therefore these results will be used as a baseline to compare future activity. The findings of this study may encourage other units to replicate, providing data that can be used for comparison. Further configuration of the CIMS to capture other metrics such as TDM, and document discrepancies in medicines reconciliation is planned.

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A REVIEW OF THE USE OF INTRAVENOUS IMMUNOGLOBULIN (IVIG) IN PAEDIATRIC NEUROLOGY PATIENTS AT A CHILDREN'S HOSPITAL FROM APRIL 2017 TO APRIL 2019

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Aim To determine if the use of IVIG in neurology patients at a children's hospital was appropriate according to local¹ and national guidance^{2, 3}.

Method All paediatric neurology patients supplied with IVIG from the hospital pharmacy from April 2017 to April 2019 were identified retrospectively using the pharmacy dispensing system. The standards were based on local and national guidelines from the Department of Health (DoH). Patients' details, for example indication and dose, were recorded and analysed on Microsoft Excel.

Standards

1. 100% of patients will have an IVIG request form completed.
2. 100% of patients will have IVIG prescribed for indications approved by the DoH.
3. 100% of patients will have panel approval before being supplied with IVIG.
4. 100% of patients will have the appropriate dose and duration of IVIG for the corresponding indication according to guidelines.

Results A total of 20 patients were identified for this audit with 4 patients from 2017/18 and 16 from 2018/19. Standard 1 was met by 100% of patients. 8 patients (40%) were given IVIG for indications that do not have automatic approval from the DoH guidelines, i.e. for indications under 'grey' or 'black' categories. 2 patients (10%) did not have panel approval and both of these patients had acute flaccid myelitis, which is a 'black' indication. 16 (80%) patients were prescribed IVIG at a dose or duration advised by local and DoH guidelines.

Conclusion and Discussion During the study period the method for completing the IVIG request forms changed to a new electronic system. The two patients with acute flaccid myelitis were incorrectly approved by the IVIG panel due to an error in the new electronic request form. The approval system was updated to prevent this error from reoccurring. All other patients that did not have automatic approval from the DoH guideline were approved by the local IVIG panel before use. Overall cost and usage increased significantly from