SP4 NICU STAFF PERSPECTIVES ON THE PROPOSED INTRODUCTION OF STANDARDISED DRUG INFUSION CONCENTRATIONS

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Background In April 2021, the NPPG proposed standardised concentrations (SC) of IV drugs for use within the PICU environment, this was supported by the RCPCH and is beginning to be implemented nationally.[1] These concentrations were deemed to be suitable for all children over 2kg, therefore the neonatal population especially preterm infants need further consideration. Many United Kingdom NICUs still use weight-based dosing and therefore the concept of SC would constitute a significant change in practice which requires careful thought and preparation prior to implementation. The aim of using SC is to improve medication safety within our neonatal units as they have been shown to be safer and more efficient than the weight-based prescribing currently classed as standard practice.

Aim To obtain the views of neonatal staff on the concept of introducing standardised drug infusion concentrations.

Method Potential SC for NICU drug infusions were compiled and a briefing paper sent to senior neonatal staff including comparisons with current practice to illustrate what the change might mean. A semi-structured focus group was led by the neonatal pharmacists to discuss the concept of SC and conceivable problems with implementation. The focus group consisted of 11 Neonatologists, the neonatal unit matron, and six Band 7 nurses including the nurse lead for the neonatal transport service and the system manager of the clinical information systems in critical care.

Results Discussed advantages of SC included the ease of preparation, standardisation across the neonatal network improving transfers between units, and the potential for compatibility testing with other drugs and parenteral nutrition. Concerns included the expense and storage of pre-filled syringes, and selecting the correct concentration at both prescribing and administration stages when several options are available. The consensus was that robust guidance would be required including which initial concentration to select dependent on patient weight and methods employed to reduce the chance of picking errors. Education was a dominant theme to ensure all medical and nursing staff were confident in calculating rates, they would have the electronic drug templates and smart pumps with drug libraries providing an additional check. When asked about launching SC on NICU, it was agreed that all drugs with SC switch on a specified date but acknowledged that not all drugs would have a SC on NICU and therefore a hybrid system would initially be required.

Conclusion This work demonstrates the initial thoughts and concerns of NICU staff that need consideration whilst planning implementation of SC of IV drug infusions to encourage a smooth and safe transition in changing practice. The consensus was to launch all new standardisation concentrations at the same time to avoid confusion, ensuring that necessary staff support, and education was in place. Limitations of this work were that not all grades of staff were invited to the focus group and views were only from one tertiary NICU and it is known that practices differ between units within the region.

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SP5 'FAVIPIRAVIR ODYSSEY' (RESPIRATORY SYNCYTIAL VIRUS TREATMENT AND MONITORING IN SEVERE COMBINED IMMUNODEFICIENCY)

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A patient with a failed bone marrow transplant on paediatric intensive care unit (PICU) was commenced on Favipiravir as part of management to suppress Respiratory Syncytial Virus (RSV) on the background of Severe Combined Immunodeficiency Disease (SCID). As a non-formulary and unlicensed medication, this was approved via the Trust's Medicines Management pathway based on relevant literature, expert opinion, and anecdotal information from another children's hospital. Known adverse reactions of enteropathy, hepatitis and hyperuricemia were balanced up against the risk of the child dying from untreated pneumonitis. Medicines supply was sourced from Japan and the product was assessed, over labelled, and released by the Quality Control team before dispensing to the ward. Drug dosing was communicated to the medics. Drug administration was via the nasogastric (NG) tube; the pharmacist provided advice on crushing and dispersing in water for NG administration.

Favipiravir levels were required for dose optimisation however this could only be conducted by a laboratory in France. Trough and peak bloods had to be obtained on treatment day 7 which were then centrifuged and frozen awaiting international courier delivery, thus maintaining the cold chain. The Pharmacist liaised between the medical, nursing, laboratory and transport teams in addition to the recipient laboratory professor in France to facilitate this complex process. Favipiravir level results were returned to pharmacy via email, 11 days after being taken on the ward, and these showed a low trough level< 0.25micrograms/ml. The pharmacist liaised with the testing professor in France, a pharmacologist and the patient's consultant and it was agreed to increase the dose frequency from twice daily to three times a day. Furthermore, the M1 metabolite level was measured to ensure sufficient metabolic clearance to avoid toxicity. Following this, repeated bloods were taken after 7 days of the increased dosing regimen and delivered following the previous process, again orchestrated by the pharmacist. This showed the drug level had increased and it was agreed was optimal for this patient.

The patient received the proposed medication in a timely manner and the nursing team were provided with clear information on how to administer it. Monitoring was successfully overseen by the ward pharmacist leading to dose optimisation and ensuring safe use of a medication which was unfamiliar to the multi-disciplinary team (MDT).

This event shows the value the ward pharmacist can add to patient care, medication safety and optimisation in a secondary care setting. Excellent organisational and communication skills were demonstrated to various teams, departments, NHS

trusts and organisations. Leadership qualities were displayed by the pharmacist taking responsibility for a medication related issue, but one which was not necessarily part the core job role and would usually be done by the medical team. The logistical management improved rapport with various groups and ultimately boosted the reputation of pharmacy within the hospital teams. Other pharmacy departments could learn from this example and take the lead on novel aspects of medicines management within their sectors.

SP6 ORAL LIQUID MEDICINE CONTRIBUTION TO THE CARBON FOOTPRINT OF HEALTHCARE SYSTEM: SCOPING REVIEW

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Aim Medicines account for 25% of NHS England's carbon footprint.[1] By exploring a carbon footprint breakdown of oral liquid medicines (OLMs), their contribution to the carbon footprint of healthcare systems can be described. Carbon-intensive aspects can be highlighted, and recommendations can be hypothesised to achieve a more sustainable pharmaceutical supply chain. This scoping review aimed to explore what constitutes the carbon footprint of OLMs and the extent of their contribution to the carbon footprint of healthcare systems.

Method A systematic search of studies published in English language was conducted on EMBASE, PubMed, Scopus, and grey literatures. Data screening and extraction were performed independently by two reviewers. The quality of included studies was assessed using modified-NIH (National Institute of Health) and modified-AACODS (Authority, Accuracy, Coverage, Objectivity, Date, Significance) quality assessment tools.[2, 3] The review was conducted in accordance with the PRISMA guidelines for systematic reviews.[4]

Results In total, 65 articles were identified for full text review. None of them fully met the inclusion criteria, however 20% (13/65) of them provided data for our outcomes of interest: those reporting on the contribution of pharmaceuticals and chemicals to healthcare's carbon footprint (n=5); those reporting on the pharmaceutical waste by dosage form and packaging (n=4); and those described the causes of pharmaceutical waste and potential waste-minimising recommendations (n=4). Evidence showed that the contribution of pharmaceuticals and chemicals to the greenhouse gas emissions of the NHS in England was reported to have decreased by 26%, while anaesthetic gases and metred-dose inhaler emissions decreased by 75%, between 1990 and 2019. Wasted OLMs were largely associated with medicine non-adherence and inappropriate dosing frequencies. Medicines packaged as liquids were found to be the most wasted due to packaging size, inappropriate prescribing, and inadequate disposal procedures. Prescriptions that were no longer required and inadequate storage were found to be the main reasons reported for accumulating medicines.

Conclusions This review showed that there was no doubt that medicines and chemicals have had a substantial impact on the carbon footprint of healthcare systems over the past three decades, although no definitive conclusion could be made on the contribution of OLMs. However, OLMs were found to have a higher wastage and non-adherence compared to oral solid medicines. We know that unused and wasted medicines cause unwarranted pressure on the environment and carbon footprint and thus these two aspects need to be reduced.

Further research on the sustainability and carbon footprint of all medicines including OLMs in health care systems is warranted. The implementation of end-to-end traceability and an absolute record of carbon emission data across the life cycle of medicines might enable identifying the root cause of carbon-intensive dosage forms.

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SP7 MEDICINES OPTIMISATION ACROSS CARE BOUNDARIES: EXPERIENCE FROM A TERTIARY PAEDIATRIC ASTHMA CLINIC

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Background Regular reviews of children with asthma are essential to ensure adherence to medication and correct use of delivery devices. Any medication changes made in hospital clinics should be continued in primary care. Transfer of information about medications across care boundaries can be challenging; between 30 and 70% of patients have either an error or an unintentional change to their medicines when their care is transferred.[1]

Aims i) To determine whether medication changes made in a tertiary hospital asthma out-patient clinics are continued in primary care and ii) to explore parents/carers experience on medicines optimisation across care boundaries.

Methods Mixed-methods service evaluation using qualitative and quantitative methods. Electronic patient records were used to identify children who had medication changes made in clinic between September-November 2020 and to see if this change was reflected on GP summary care records (SCR) three months later.

Telephone interviews using semi-structured questionnaires were conducted with parents/carers of children in whom medication changes had been made in an out-patient clinic in a tertiary paediatric asthma centre, exploring their experiences and categorized into themes.

The service evaluation was registered with the Trust clinical audit department.

Results 23 parents/carers provided SCR consent to view their child's prescribing data. Children with a median age of 9 (4-16) years of which 14 were males and 9 females', prescription records were analysed.

52% (12/23) of changes were accurate on SCR records, 35% (8/23) of changes were inaccurate and in 13% (3/23) no changes appeared on SCR.

Patient's responses in the interviews were grouped into themes:

1. Medication supply issues: