

**Aim** The aim of this work is to evaluate the impact of the introduction of a preterm concentrated stock bag on the need for bespoke PN in preterm babies.

**Method** The new concentrated PN bag was transitioned into use from November 2017. Data regarding the number of preterm patients admitted and the type of PN they received was collected from January to October 2017, (Group A), this was then repeated for all preterm patients admitted from August 2018 to May 19, (Group B), after the preterm concentrated bag was fully introduced. Preterm babies were classified as babies that were born < 34 weeks gestation as the concentrated bag was formulated with these patients in mind.

**Results** Group A, (n=143), had 1045 bags supplied over the collection period. 47% of the PN bags supplied were bespoke PN bags, largely due to the need to provide PN in a smaller volume than the 130 ml/kg/day that the preterm stock bags available at that time. Group B, (n=118), had a total of 965 bags supplied, 16% of these bags were bespoke PN. The reasons behind requiring bespoke bags included the need for manganese free bags, requiring a reduction in glucose and a high electrolyte requirement in patients especially those with stomas. This has resulted in an overall reduction in spend on preterm PN of 34% and a reduction in compounded PN spend of 69%.

**Conclusion** This work has highlighted several benefits of introducing preterm concentrated PN bags. Firstly having concentrated preterm stock bags available on the ward has meant that a larger proportion of babies are maintained on stock PN without recourse to compounded PN. Secondly this has preserved the compounding capacity of our technical services unit so when a patient requires a bespoke bag that facility is available. Also, capacity for the compounding service has been preserved across the hospital minimising the need to outsource compounding. Finally the neonatal unit has seen a reduction in overall PN costs in this patient group. The introduction of this bag has been instrumental in reducing the need to outsource PN bags to commercial compounding units during periods of high demand, meeting national recommendations on the management of aseptic compounding capacity.<sup>3</sup>

## REFERENCES

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## PROVOCATION OF PAEDIATRIC HEARTS – A SAFE AND SMART SOLUTION

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**Aims** Provocation challenges are used to diagnose certain inherited life-threatening cardiac conditions; treatment can prevent malignant arrhythmias and sudden death. Provocation medications are administered to unmask pathognomic conduction characteristics on real-time electrocardiography. Pre-prepared rescue medications are administered should a ventricular arrhythmia be unintentionally provoked. These high-risk

medications, in line with safety agency recommendations, should be delivered using smart-pump technology.<sup>1</sup> They are also often unlicensed and expensive.<sup>2</sup> We investigated the utilisation of smart-pumps and development of a guideline to optimise medicines management and safety of these procedures in an Irish tertiary paediatric hospital.

**Methods** Published literature and current practices, including those in other paediatric and adult hospitals in Ireland and the UK, were reviewed to ascertain appropriate dosing and administration in the paediatric population.<sup>3 4</sup> Multi-disciplinary input from nursing, cardiology, pharmacy and biomedical engineering was sought in guideline development.

**Results** Evidence for such challenges in paediatrics is sparse. Suitable dosing was agreed and an indication-specific smart-pump drug library created. The 'PCA Therapy' module was employed to deliver repeated weight-based doses of the provocation medication (Ajmaline) in a controlled and timely manner; the rescue medication (Isoprenaline) was programmed as a continuous infusion. An auxiliary calculator was developed in Microsoft Excel® to direct staff on preparation of both infusion solutions and bolus doses of medications to be manually administered (Magnesium and Isoprenaline). In 2017, relevant staff were trained, and the 'Ajmaline Challenge' guideline was approved and implemented in the Cardiac Catheterisation Laboratory (CCL) and Cardiac Day Unit. Estimated cost savings of €19,400 were realised between January 2017 - October 2018 due to reduced wastage of unused medications. Further savings are likely due to decreased utilisation of the CCL.

**Conclusion** Multi-disciplinary collaboration and health technology can improve the safety and cost-effectiveness of high-risk cardiac diagnostic procedures in the paediatric setting. Similar processes for other provocation challenges are under development.

## REFERENCES

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## DIRECT OBSERVATIONAL STUDY OF INFUSION ERRORS ASSOCIATED WITH SMART-PUMP TECHNOLOGY IN PAEDIATRIC INTENSIVE CARE

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**Aims** Processes for delivery of high-risk infusions in paediatric intensive care units (PICUs) are complex. Standard concentration infusions (SCIs), smart-pumps and electronic prescribing are recommended medication error reduction strategies.<sup>1 2</sup> Implementation rates are low in Irish and UK hospitals.<sup>2 3</sup> Since 2012, the PICU of an Irish tertiary paediatric hospital