

significantly smaller and more premature than those in the OT, which could have had an impact on our results

64 THE USE OF GRAPH ANALYTICS TO ENHANCE THE UNDERSTANDING OF HOSPITAL ADMISSIONS FOR PAEDIATRIC RENAL TRANSPLANTS

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Aim The interactions between patients and Health Care Providers (HCPs) within a hospital admission are complex and difficult to navigate using traditional analytical approaches when applied to Electronic Patient Record (EPR) data. The collaboration between HCPs, is not clear and could serve as an important signal to assess quality of care and patient safety. The objective of this paper is to demonstrate whether graph analytics can be applied to EPR data to distinguish different HCPs collaboration and interaction network structures with individual patients undergoing the same procedure.

Method We apply graph analysis to the HCPs interactions with an individual patient over the period of a complete hospital admission during which each patient underwent a renal transplant. Collaboration between HCPs was defined by the interaction of HCPs with the same patients within a 60-minute window. Separate sessions were defined by whether a patient was in the Intensive Care Unit (ICU) or in a standard hospital ward. A report is generated that explores the daily interaction and collaboration network structures within an admission.

Results HCPs and patient interactions for 120 hospital admissions where the principal procedure was Allotransplantation of kidney in the period May 2019 to June 2023 were extracted. 2,300 individual graphs were constructed to analyse each patient's HCP's interactions within a 60-minute window per day of admission. Varying types of admission were identified, by sex and age group of the patient, length of stay and with or without an ICU visit.

Conclusions Graph analysis provided a novel way to augment the numeric data to visualise differing collaboration and interaction network structures which can be used to gain a deeper understanding of the complex nature of Paediatric patient care.

67 BOTH HUMAN AND TECHNOLOGY BASED SOLUTIONS HAVE THEIR PLACE IN THE FUTURE DELIVERY OF HOSPITAL FOOD

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Background Hospital food influences experiences and outcomes of care and optimising nutrition for hospitalised children is universally recognised as important for recovery. Whilst barriers to oral food intake have been identified, interventions to address them are limited. As part of a proof of concept (PoC) trial, our aim was to explore both technology and person to person solutions to this perennial problem.

Methods Our two-pronged approach involved exploring the potential for developing the catering liaison role (low tech) and implementing and evaluating a Food on Demand Delivery Service (FODDS) app (high tech) at Great Ormond Street Hospital. The catering liaison role was evaluated through individual case studies with 4 long-term patients whereas a PoC trial was undertaken on six inpatient wards during a 4 week period to evaluate the FODDS app. Data were collected using quantitative (surveys) and qualitative (focus groups and individual interviews) approaches with families and staff.

Results Overall, 149 families and 19 staff participated in data collection. Both solutions were positively evaluated by all stakeholder groups, with the Net Promotor score in relation to the FODDS app moving from a baseline score of -26 to +44 during the PoC. Challenges of both solutions were identified, particularly in relation to communication and logistics, but overall findings supported upscaling both the catering liaison manager role and the implementation of the FODDS app across the hospital.

Discussion Technology and person to person solutions both offer potential for addressing barriers to oral intake for hospitalised children. Challenges will need to be addressed prior to scaling up for a hospital-wide roll out but the benefits for children, families and staff, as well as potential resource benefits for the hospital, were evident and support further work to enable such solutions to be introduced across the hospital, alongside a comprehensive evaluation programme.

69 HYPOXIC CHALLENGE TESTING IN CHILDREN USING PHRENIC NERVE PACING

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Background Phrenic nerve pacing (PNP) uses implanted devices to provide diaphragmatic stimulation from repeated electrical stimulation of the phrenic nerves in children with central hypoventilation disorders. Hypoxic Challenge Testing (HCT) is performed in respiratory disorders to assess whether patients need oxygen supplementation (O₂) during flying. As children with hypoventilation disorders may worsen if given O₂ alone, we aimed to assess whether children with PNP need O₂ or respiratory support when flying.

Method An adapted HCT protocol monitored oxygen saturation (SpO₂) and transcutaneous pCO₂ (tcpCO₂) in a hypoxic environment (15% O₂) used to simulate the aircraft cabin at altitude.¹ Children with PNP were monitored self-ventilating (SV) in air, and then with PNP in a hypoxic chamber to see if it provides adequate ventilation to maintain SpO₂ >90%, the threshold for O₂.

Results We performed HCT in two patients (1 male) with PNP. They had normal baseline SpO₂(98-99%) in room air and desaturated to <90% when self-ventilating in the hypoxic chamber. Phrenic nerve pacing increased SpO₂ to baseline (96-97%) in both patients and O₂ was not required. TcpCO₂ rose from baseline when SV in 15% FiO₂, but returned to baseline once PNP started.

Conclusion PNP maintained SpO₂ at baseline, without the need for O₂ in children with central hypoventilation disorders. This confirmed that PNP alone during a flight can

appropriately support a patient to maintain SpO₂ above 90%. PNP avoids hypoventilation during flight that is masked by oxygen use, and in addition improves convenience for families when flying, as in-flight oxygen is not needed.

REFERENCE

- Riley M, Brotherston S, Kelly P, Samuels M, Pike KC. Modified hypoxic challenge testing in children needing nocturnal ventilation: an observational study. *Pediatr Pulmonol.* 2022;10:10. doi:10.1002/ppul.26163

71

SUSTAINABLY SUPPORTING MOBILITY – DEVELOPING A WALKING AID RE-USE SCHEME AT GOSH

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Background GOSH has targeted 2031 to be net zero for direct emissions and 2035 – 2040 for indirect emissions therefore must do all it can to meet this. Walking aid re-use schemes have been introduced UK-wide as the products are durable, can be refurbished and reused repeatedly, reduce landfill waste and avoid carbon emissions from new production. The GOSH Physiotherapy Sustainability Team set out to; recognise what exists nationally, identify the current process at GOSH, then advance the provision, return and recycling of mobility aids.

Method The Physiotherapy Sustainability Team attended national webinars and contacted other trusts to establish current processes and potential barriers. To ensure safety and feasibility, GOSH sustainability and estates teams were consulted and cleaning guidance was sought through Green NHS. A Smart Survey was distributed to 99 physiotherapy staff with 23 responses.

Results At least 100 trusts already had a scheme and were able to share case studies and processes, including another London tertiary centre.

The survey identified 26% of physiotherapy staff 'did not accept' returned walking aids. Of the 58% who 'always accepted' aids, the management of returns varied; 10% placed them in the gym, 10% the basement and 37% said 'other'.

Conclusion One quarter of physiotherapy staff did not process returned aids and processes for those that do were inconsistent. Following the survey we created a standardised pathway allowing physiotherapy staff to safely assess aids for re-use.

Next steps Education will be provided to all physiotherapy staff to establish reliability, with sustainability champions identified to support the process. Advice will be given to families verbally and via posters in waiting areas. Long-term aims include; audit to evaluate the effectiveness of the pathway, including return rate, the impact on patient care and the contribution to the trust's sustainability pledge.

72

A BESPOKE EDUCATION PATHWAY FOR QUALIFYING NURSING APPRENTICES

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Background In 2019 the first NMC Registered Nursing Associates (NAs) qualified following a national pilot and were supported through the GOSH Preceptorship Programme for their first year. In 2021 they enrolled on the 'The Recognition of Prior Educational Learning (RPEL) Nursing Apprenticeship', supported by the Gosh Learning Academy (GLA). Following successful completion, they are now registered paediatric nurses at GOSH.

Educational Pathway The Clinical Apprenticeship Team designed a bespoke educational pathway to enhance the academic support already provided. A spiral curriculum approach was taken to build a transition pathway beginning at the start of the 3 month sign-off placement on their home wards, focusing on core clinical competencies such as intravenous (IV) therapy. The second two days straddled qualifying to bridge the gap between the apprenticeship and becoming registered nurses. These days were built upon previous Preceptorship themes of accountability, resilience and leadership. The apprentices were supported for 6 months as they consolidated their band 5 skills, and then enrolled onto the Graduate Year 2 Programme themed around four essential elements for their future careers of clinical, research, leadership and education. This provided a streamlined educational pathway, from the Preceptorship Programme through to joining the Graduate Year 2 Programme.

Results On average the qualifying nurses were IV competent in 6.1 weeks of receiving their NMC PIN. Although expected to be faster than other newly registered nurses (NRNs), an IV study day would only just be delivered to NRNs on starting their careers at 6 weeks.

On surveying the pathway, all apprentices stated it was extremely useful and well timed. Feedback included 'I felt more prepared to start my new role as a registered nurse'.

The effectiveness of the pathway to date is shown in short IV competency completion, positive course feedback and 100% retention at 5 months post qualification.

75

CRF EMBRACES DIGITAL BEDROOM PROJECT TO ENHANCE PATIENT ENGAGEMENT AND IMPROVE PATIENT EXPERIENCE IN PARTICIPATING IN RESEARCH THROUGH INNOVATIVE TECHNOLOGY

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The NIHR Clinical Research Facility (CRF) at Great Ormond Street Hospital is the first department in our research hospital to implement a Digital Bedroom Project to enhance patient experience. We would like to share our vision and experience to inspire others to think about using existing technology in an innovative way to improve patient experience and research participation.

Patients seen in the CRF often have rare and complex Paediatric conditions, furthermore, some may have learning disabilities or specific communication needs and patient and family could benefit from having more information readily available at their fingertips regarding the care they receive during a research visit.

In our Digital Bedroom Project, we have identified the most widely used and popular clinical room in our unit as a demo room to install new digital devices and develop personalised digital content to enhance patient experience during