Great Ormond Street Hospital Conference 2018: Continuous Care

23 November 2018

The Journal of the Royal College of Paediatrics and Child Health
GOSH Conference 2019

Save the Date

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Archives of Disease in Childhood
BMJ Publishing Group Ltd
BMA House, Tavistock Square
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Welcome to the GOSH conference 2018: Continuous Care

This is the 2nd Annual conference held by Great Ormond Street Hospital. We hope it will provide a platform to share novel research and innovative projects, both within the Trust and with our colleagues around the world who care for children.

There has been a fantastic response to the call for abstracts and we will be showcasing as much of the skilled and varied projects as is possible in a one-day programme. Knowing that staff at GOSH continue to produce extraordinary work that is presented at local and international forums, we have also encouraged work already presented elsewhere to be submitted and shared amongst ourselves and our local healthcare community. Please do make time to look at the posters and digital displays, which beautifully represent the scope and quality of work being done to advance paediatric care.

We encourage you to make use of the conference to put questions to our speakers, presenters and your colleagues attending the day. Please download the app for the conference and let us know your thoughts using #GOSHconf2018 on social media – our ‘Info DJs’ will be on hand throughout the conference to support!

We are proud to be able to work with the children, young people and families involved in developing and delivering content for today’s event. There will be a fantastic mix of speakers, with special thanks to our opening keynote speakers, Prof Russell Viner, Rozzy Amos, Kath Evans, Dr Liam Brennan and former patient Anthony Bennett.

Whether you work at GOSH or have come from another hospital, field, profession or background, we hope you enjoy the day.

Peter Steer (Chief Executive), Sanjiv Sharma (Deputy Medical Director for Medical Education) and Craig Knott (Postgraduate Medical Education Fellow)
Oral presentations

001 RITUXIMAB IN FREQUENTLY RELAPSING/STEROID DEPENDENT NEPHROTIC SYNDROME: DOES THE DOSE MATTER?

K. Tullus, H. Webb, E. Yu-Hin Chan. Department of Nephrology, Great Ormond Street Hospital

Background Rituximab (RTX) is a commonly used and effective treatment in frequently relapsing/steroid-dependent nephrotic syndrome (FR/SDNS) in children. Data regarding the most effective dosing regimen are however limited.

Methods We conducted a multi-centre retrospective cohort study at 11 centres in Asia, Europe and North America. Children and young people with complicated FR/SDNS receiving RTX and followed for at least 18 months from 2005–2016 were recruited. Three dosing regimens: low (375 mg/m²), medium (750 mg/m²) and high (1125–1500 mg/m²), and the effect of concomitant immunosuppression (IS) were examined. Kaplan-Meier analysis and Cox regression were used to evaluate factors associated with relapse.

Results We analysed 517 patients (mean age 11.2±4.0, 67.3% boys), of whom 193, 212 and 112 were given low, medium and high dose, respectively. Proportions of children with sustained long-term remission at 12, 18 and 24 months were similar among the regimens. 58.2% children discontinued all co-medications. Median relapse-free survival of low, medium and high dose were 11.7, 11.9 and 13 months, respectively (p=0.42). When IS was factored into the analyses, relapse-free survival of the regimens was different between the Kaplan Meier Curves (p=0.005). Risk of relapse in children who had been given high dose RTX without IS and children given all RTX regimens with IS were significantly lower than in those given the low RTX dose without IS. Adjusted hazard ratios (HRadj) ranged from 0.33 to 0.44 (p<0.008).

Conclusion Rituximab dose and use of concomitant IS had important effects on the long-term control of complicated FR/SDNS. Children given the low dose of RTX without IS had a shorter relapse-free survival than the other children.

002 INFLUENCE OF A RENAL BIOPSY RESULT ON TREATMENT AND MANAGEMENT OF STEROID-RESISTANT, IDIOPATHIC NEPHROTIC SYNDROME IN CHILDREN

H. Webb, S. McKeever. Department of Nephrology, Great Ormond Street Hospital

Background Steroid-resistant nephrotic syndrome (SRNS) is the second biggest cause of childhood end-stage renal disease (ESRD). Renal biopsy is widely used as a classification tool in SRNS, but immunosuppression response and identification of disease-causing genetic mutations appear better predictors of those at risk of renal failure. A biopsy can, however, identify patients with SRNS caused by other diseases, which could necessitate a change in treatment.

Aim To explore whether renal biopsy results influence first line immunosuppression in childhood, idiopathic SRNS.

Method A service evaluation of children presenting with idiopathic SRNS was undertaken. Rates of change in treatment following renal biopsy were identified. Response rates to immunosuppression at twelve months and up to five years, and the rate of genetic mutations were obtained. Rates of ESRD were compared between different groups to identify predictors of renal failure.

Results Seventy-six children met the inclusion criteria. Two had a biopsy result that changed their first line management, although one also had a positive genetic mutation. At 12 months, 52 children (69%) were in complete remission, with a median time to remission 2 months, whilst 7 (9%) had a partial response, and 16 (21%) having no response to immunosuppression. Five children were identified with a positive genetic result. Nine patients (12%) developed ESRD, with response to immunosuppression appearing a better predictor than biopsy result (p=0.01 vs p=0.053 by Fisher’s exact test).

Conclusion For most patients with idiopathic SRNS, first line immunosuppression is rarely changed as a result of the biopsy. Progression to ESRD is a risk for patients unresponsive to immunosuppression. A genetic screen should be carried out in all primary SRNS. Implications of this single centre study should be explored in other centres to assess the repeatability of results.

003 IMPROVING PATIENT AND FAMILY EDUCATION: DEVELOPMENT OF A MOBILE APPLICATION (APP) TO PROVIDE PERSONALISED PHYSIOTHERAPY INSTRUCTION

K. Koupanou, Y. Zhou, X. Liu, D. Mohamedally, S. Conner, N.J. Sebire, P. Harriss. Digital Research, Informatics and Virtual Environments, Great Ormond Street Hospital and University College London

Background Children attending Great Ormond Street Hospital (GOSH) often have complex and highly individual therapy requirements and traditionally instruction is provided verbally and in paper form.

Aim The aim of this study was to create a mobile application that would allow healthcare professionals, in this exemplar case physiotherapists, to record and personalise therapy instruction, including video demonstrations, for use by parents at home.

Methods We developed a cross-platform mobile application using Ionic Mobile Development Framework, coding done with Visual Studio. HTML, CSS and typescript and Ionic creator were used for front-end development with node.js and the SQLite used to store data locally.

Results We demonstrate a working prototype of the customised patient information app which allows personalised recording of instructions to be made on the patient/parents’ device. We demonstrate the use of a healthcare professional ‘Record Video’ button to access the camera to take a video (<1 min) which is saved locally, and an ‘Exercise’ button for patients and families to access exercises and information, in addition to the ability to add their own comments. The app provides
the ability for patients and families to follow personalised demo videos and instructions for physiotherapy exercises and add their own comments for discussion at future consultations.

Conclusion Further work is required to develop the UI, resize the video player according to recording type and expand the provider information type features. Furthermore, it is planned to add a recording system such that after every exercise has been performed the patient could ‘complete’ this exercise for the day and rate how he/she felt about it, also allowing a diary function linked to comments and/or other patient-reported outcomes.

Background The ability to critically appraise scientific papers and apply best evidence to clinical practice are skills vital to all doctors that were traditionally developed through journal clubs. Unfortunately time for face-to-face meetings amongst anaesthetic departments has become increasingly contracted and these skills are being lost. We describe the use of social media to reintroduce a regular journal club within the anaesthetic department at Great Ormond Street Hospital.

Most doctors own smartphones and the use of social media for hospital communication has increased significantly in recent years. Anaesthetists spend a great deal of time away from our desks and rely increasingly on our phones for email and communication. We are a department of 80 doctors and WhatsApp has become the preferred method for communication. We are a department of 80 doctors and rely increasingly on our phones for email and communication.

Methods Trainees and consultants are added to the ‘GOSH gas journal club’ and once a month a scientific paper is uploaded via the ‘admin’ along with a critique by a trainee. The platform is then open for comments for the remainder of the month.

Papers, critiques and comments are archived on the departmental database.

All members are encouraged to remain in the group once they leave Great Ormond Street Hospital.

Results The group has over 100 members in 6 countries and has covered 17 papers to date. Feedback has been very positive and at least one copycat journal club has started. There have been important changes to practice including the introduction of a new drug through pharmacy. Two letters have been submitted to journals and one research project has commenced. Most importantly there has been much lively debate and we are once again a department with a journal club!

A recent survey reports a decline in disabled children’s services (https://disabledchildrengroup.org.uk/wp-content/uploads/2018/06/DCP-survey-report-June-2018.pdf). This presentation will focus on the organisational context in England for healthcare delivery in hospitals to children and young people with learning disabilities. We report staff perceptions of their ability to identify and meet the needs of these children and their families and provide high-quality hospital care. We also report on the extent of dedicated learning disability nurse provision in specialist children’s hospitals. The views about the care of children and young people with learning disability were collated from an anonymised online survey (n=2261) and individual interviews (n=65) with hospital staff working with this population in 24 English hospitals.

Within and across hospitals these data show that uncertainty and variation exist regarding what is currently available and accessed in terms of the organisational policies, systems and practices in place to support this patient group. Staff perceived this population to be included less, valued less, and less safe than those without learning disability. Staff also reported having less confidence, capability and capacity to meet the needs of this population compared to those without learning disability. Whilst learning disability nurse provision may impact staff capability to care for children and young people with learning disability, this was not the case in terms of their capacity or confidence or how children and young people are valued within the hospital, their safety and access to appointments. Our study suggests that children and young people with learning disabilities may be invisible, unheard and disadvantaged with respect to receiving individualised high-quality hospital care that meets their needs. In order to deliver continuous high-quality care further in-depth research is needed to understand:

1. the experience of this population;
2. the ability of staff to meet their needs;
3. the impact of the learning disability nurse.
HEALTHCARE COMPUTING DEVELOPMENT: GOSH
PROJECT EXPERIENCE WORKING WITH UCL COMPUTER
SCIENCE (CS) INDUSTRY EXCHANGE NETWORK (IXN)

D Mohamedally, Y Fu, S Conner, NV Priestman, S Sidhuram, G Hughes, T Winstanley, NJ Sebire. Department of Computer Sciences, University College London; Digital Research, Informatics and Virtual Environments, Great Ormond Street Hospital

Background There is an urgent need for the UK healthcare sector to increase clinical informaticians and healthcare computing expertise and workforce (Wachter report/Topol review) but no national plan for achieving this goal.

Aim We describe the initial experience with the UCL GOSH Industry Exchange Network (IXN) programme in healthcare.

Methods The IXN programme allocates UCL Computer Science (CS) students to ‘real-world’ projects at Great Ormond Street Hospital (GOSH) supported by industry/corporate partners (Microsoft/NTT Data). Student projects receive input from clinical experts (‘clients’), CS academic supervisors (academia) and corporate/technology companies (partners) to address the healthcare issues.

Results The initial programme included 33 undergraduate CS students allocated in teams of three to 11 GOSH healthcare projects on subjects including: growth charts, augmented reality gamification, content delivery systems, patient safety, staff training and patient instruction mobile apps, medical drawing tools, secure communication devices and interactive booking systems among others. All projects resulted in satisfactory outcomes in terms of GOSH deliverables and student project marks. Around half of the projects demonstrated a successful proof of principle such that ongoing development is planned or underway and three projects are being translated directly to operational deployment following minor additional development effort.

Conclusion The healthcare, academic and industry IXN offers the unique opportunity to provide ‘real world’ project experience for CS students and a platform for the NHS to significantly accelerate early phase digital development. This highly effective model should be considered an exemplar for expanding the new area of healthcare computing and clinical informatics.

EXPLORING PERCEPTIONS OF CONSANGUINITY IN WOMEN FROM AN EAST LONDON COMMUNITY: ANALYSIS OF DISCUSSION GROUPS

MA Cupp, M Adams, M Hey, M Lakhanpaul, E Alexander, M Peachey, L Manikam. Population, Policy and Practice, University College London

Background Consanguinity refers to relationships between blood relatives. Consanguineous relationships are prevalent in many parts of the world, especially in South Asian and Middle Eastern populations with particularly high prevalence in those of Asian Pakistani descent. There are potential health risks associated with consanguinity due to the increased risk of children with consanguineous parents being diagnosed with an autosomal recessive genetic disorder. This study explores perceptions of consanguinity by reporting the experiences and opinions of women in an ethnically diverse community in London.

PARTNERS IN CARE

S Subll, Department of Nephrology, Great Ormond Street Hospital

Paediatric Nephrology is generally based in tertiary hospitals, each serving as the regional referral centre to a large catchment area, resulting in long waiting times for outpatient appointments and inpatient beds. Likewise, from the tertiary nephrologists’ point of view, there is a need for patients to have a specialist closer to home, following discharge from acute renal care, during A and E attendances or for outpatients in shared care models. General paediatricians with a specialist interest (SPIN) in nephrology based in secondary
care have already been supporting tertiary centres for a long time, as have satellite clinics run by tertiary nephrologists in secondary care hospitals.

We are presenting a new model of care, promoting a partnership in care rather than supportive care between the SPIN doctors and their tertiary nephrology centre which as a consequence questions some of the long standing views of ownership of care, for the sake of excellent patient care:

- Clear clinical pathways in all subsections of nephrology on where the patient’s care is best based
- Regular discussion of complex patients and their management between a named tertiary consultant and the SPIN doctor
- Networking activities such as training days for general paediatricians, with faculties consisting of SPIN doctors and tertiary nephrologists.

A practical example of partnership is showcased in our care for patients with nephrotic syndrome, the commonest childhood kidney condition. Clinical protocols written by Great Ormond Street Hospital teams were tailored by Imperial College Healthcare NHS Trust to enhance care for complex patients managed by general paediatric teams with supervision of the SPIN doctor. Partnering with the GOSH team, world class care can be delivered closer to patients’ home, with significantly less movement between different hospitals and doctors. This approach with inherent flexibility illustrates a novel two way partnership in care which benefits patients’ welfare.

Abstract 009 Figure 1 Schematic of CYP-centred model

- inadequate professionals’ training;
- the voice of CYP not being heard;
- poor communication;
- lack of a tailored approach for individual CYP.

The following factors were identified as enablers for improvements in care:

- better communication (between CYP/families and professionals, and between professionals);
- a more tailored approach;
- increased, improved, meaningful data that is individualised;
- a strategy that works across all sectors (including mental health, education and social care).

Conclusion Our work identified factors preventing good care for CYP with epilepsy, and ascertained avenues for improvement. Crucially, these findings derived from the perspectives of CYP themselves. Any solutions to improve epilepsy care must be person (and family) centred, individualised, better integrated across all relevant sectors, and measured against meaningful outcomes.
### Abstract 010 Table 1  
Comparison of ward changes

<table>
<thead>
<tr>
<th>Child’s experience in 2013</th>
<th>Problem</th>
<th>Solution</th>
<th>Child’s experience in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to leave bedroom of ward</td>
<td>Limited staffing to leave the ward</td>
<td>Increased staff and a culture of weekly trips out</td>
<td>Frequent trips off the ward</td>
</tr>
<tr>
<td>Inappropriate space to play</td>
<td>Small bedrooms – children often left in bed with toys</td>
<td>Building a developmentally stimulating play room and larger bedrooms</td>
<td>Access to play room and larger bedrooms</td>
</tr>
<tr>
<td>Limited access to developmental support</td>
<td>Sporadic MDT involvement, nursing team report little time/ experience in developmental support</td>
<td>Joint MDT, goals, regular nursing and play input</td>
<td>Regular access to developmental support</td>
</tr>
<tr>
<td>Staff unable to recognise developmental delay</td>
<td>No development milestones for children</td>
<td>No dedicated parents to support and social interaction</td>
<td>Staff involved in development care</td>
</tr>
<tr>
<td>Parents unable to stay on ward</td>
<td>No room for parents to stay, no space for parents to spend time other than their child’s small bedroom</td>
<td>Large ensuite bedrooms and space provided for child’s progression</td>
<td>Parents on ward for longer, participating in wake-up and bedtime routines</td>
</tr>
<tr>
<td>No developmental assessments</td>
<td>Staff outsourcing developmental assessments to neurodisability team every 6 months</td>
<td>MDT completing regular developmental assessments and highlighting needs. Still a need for developmental paediatric role on the ward</td>
<td>Regular formal developmental assessments completed to track progress</td>
</tr>
<tr>
<td>Ward care focused on medical needs</td>
<td>Little focus on developmental care for children</td>
<td>Changes to nursing daily plans to monitor developmental care e.g. trips out, protected mealtimes etc</td>
<td>Developmental care now monitored via paperwork completed daily by nursing team</td>
</tr>
<tr>
<td>TV and dummies regularly used for comfort as children left alone for long periods</td>
<td>Children left to play alone with TV and dummies in some children presenting with challenging behaviour e.g. self-decanulation if left alone</td>
<td>Staff made aware of impact of TV’s and dummies and reduced reliance on these</td>
<td>Staff now using volunteers if children left alone for long periods of time</td>
</tr>
</tbody>
</table>

### Results

Semi-structured interviews established that all staff felt that the current situation for these children was unacceptable. Key targets were embedded in the children’s routine care such as: trips off the ward, encouraging parent-led activities, improving staff awareness, developing the ward environment including improved parent and child spaces. Developmental ward rounds were created to support staff to target developmental milestones.

**Conclusion**  
This study has shown that critical analysis of a complex situation requires creative thinking and MDT engagement. Small changes to ward routines and staff culture can potentially improve the developmental outcomes for children.

All children who stay in hospital long-term should have their developmental needs considered to reduce the potential impact of a long hospital stay. The ethics of medically complex children, requiring lengthy hospital admissions, remains a complex issue that requires a team approach to service provision and evaluation.

The MDT plans to continue to monitor the developmental outcomes for children on the ward to support future clinical planning.

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**THE BRITISH CHILDHOOD VISUAL IMPAIRMENT AND BLINDNESS STUDY (BCVIS2): 1-YEAR OUTCOMES**

L. Tech, J. Rahi, A. Solebo, P. Cumberland. Population, Policy and Practice, University College London

10.1136/goshabs.11

**Introduction**

BCVIS2 aims to provide, for the first time, nationally representative data on the incidence, causes, risk factors, management and treatment of all-cause, full spectrum childhood visual impairment.

**Methods**

All children newly diagnosed as VI or SVI/BL using the WHO classification (VI: 0.5–1.0 LogMAR, SVI: 1.01–1.30 LogMAR and BL:<1.30 LogMAR in the better eye) were identified in the U.K. within a 1 year period. Dual source active surveillance schemes was carried out through the British Ophthalmological Surveillance Unit and the British Paediatric Surveillance Unit. Great Ormond Street Hospital was a key reporting centre that showed excellent engagement across ophthalmology, neuro-disability and endocrinology departments.

**Results**

To date, of the 833 cases reported, 770 have confirmed visual disability comprising 247 VI and 336 SVI/BL cases. 12% were lost to follow up, and 6% died within 1 year (26 children SVI, 1 child VI).

Analysis of SVI/BL cases (n=464) shows that – children of low birth weight, of ethnic minority origin, or from the most socially deprived group are over-represented – most children (74%) have additional major non-ophthalmic disorders – disorders of the visual pathway/cortex remain predominant with increased contribution of 62%.

Children with VI (n=308), in comparison to SVI/BL are: – diagnosed later (42% vs 57% diagnosed aged <1 year) – less likely to have additional non-ophthalmic conditions (56% vs 86%) – more likely to have a retinal disorder such as retinal dystrophy (23% vs 11%) or oculocutaneous albinism (13% vs 4%).

**Discussion/conclusion**

Outcomes at 1 year will be presented for the entire BCVIS2 cohort (n=770) including treatment and management of key disorders.

National age-specific incidence rates for SVI/BL will be presented and compared to that from the first study of childhood blindness.
Abstracts

012 MORPHINE REQUIREMENTS IN PAEDIATRIC LIVE RELATED RENAL TRANSPLANT RECIPIENTS RECEIVING CONTINUOUS TRANSVERSUS ABDOMINIS PLANE CATHETER

H Hume-Smith, N Dobby, N Cluries Ross, R Young, C Masardi, K Kawamoto, F Calder, C Callaghan, M Drage, N Kessaris, S Marks. Department of Anaesthetics, Great Ormond Street Hospital

Introduction Effective postoperative pain management is important following paediatric renal transplant (pRT). Currently, the mainstay of pain control at Great Ormond Street Hospital (GOSH) is opioid analgesia. A previous audit demonstrated that patients on opioid analgesia on the renal ward at GOSH have significantly more postoperative nausea/vomiting and pruritus than non-renal patients.

The use of single-shot transversus abdominis plane block (TAPB) and continuous TAP (cTAP) infusions may reduce opioid consumption and related side effects. They have been shown to reduce opioid consumption in the first 24 hours post-surgery in adults (Farag E, et al. Continuous transversus abdominis plane block catheter analgesia for postoperative pain control in renal transplant. J Anesth 2015;29:1, pg 4-8).

Methods After institutional approval, an observational study was conducted of pRT recipients. A standard general anaesthetic was administered to all patients. For those receiving a cTAP infusion, a multi-orifice catheter was placed into the wound under direct vision by the surgeon. Statistical analysis was performed using Man Whitney U-test with significance level p<0.05.

Results 38 patients aged 3-17 years with end-stage kidney disease undergoing living donor RT were analysed. 10 received a cTAPB +N/PCA, 28 received TAPB+N/PCA or N/PCA only. The median dose of total postoperative opioid consumption was 1.39, 22.50 and 22.47 mcg/kg/hr in cTAPB +N/PCA, TAPB+N/PCA and N/PCA groups respectively (IQR=0.33, 4.9; 15.83, 28.00; 15.18, 37.48). A significant difference was seen in morphine consumption between TAPB+N/PCA and cTAPB+N/PCA groups on D0 (p=0.00453), D1 (p=0.03515) and D2 (p=0.01578).

Conclusions The cTAPB technique shortens the duration of N/PCA use and shows promising results for reduction in opioid requirements postoperatively. Patients receiving cTAPB appeared more comfortable and used their N/PCA less.

013 ACUTE RETINAL DETACHMENT IN RETINOPATHY OF PREMATURITY (ROP-RD): UK NATIONAL OUTCOMES OF ENDOSCOPIC VITRECTOMY IN 51 CONSECUTIVE CASES

C Wong, D Yeo, R Henderson, CK Patel. Department of Surgery, Great Ormond Street Hospital

Introduction ROP-RD can lead to bilateral blindness in a premature infant. Surgery is complex, necessitating sacrifice of the natural lens (lensectomy) of the eye in 57% with conventional surgical approaches with associated long-term ocular morbidity. Retinal re-attachment outcomes are variable. A novel surgical approach was developed at Great Ormond Street Hospital (GOSH) in 2014, combining endoscopic and microscope visualization during vitrectomy surgery. GOSH has since become the de facto UK national surgical centre.

Purpose To evaluate the efficacy and safety of endoscopic vitrectomy (Endo-Vit) for ROP-RD.

Methods This was a single centre, non-comparative consecutive case series of surgery for ROP-RD in ROP, between November 2014 and August 2017. Inclusion criteria were stage 4A or 4B ROP-RD. All cases had primary high-resolution 19-gauge endoscopy combined with conventional 23-gauge vitrectomy.

Results Fifty-one eyes of 35 patients were included. Mean gestational age, birth weight and follow-up were 26.0 weeks, 801 g and 4 months, respectively. ROP-RD stage was 4A in 24 eyes (47%), 4B in 21 eyes (41%) and 4B/5 in 6 eyes (12%). Forty-three eyes (84%) had prior laser treatment, and 16 eyes (31%) prior intravitreal bevacizumab. Median age at primary Endo-Vit was 44.7 weeks postmenstrual age. Median number of surgeries was 1. Bilateral simultaneous surgery was done in 16 patients (46%). Primary retinal re-attachment was 86% overall, 96% in stage 4A, 81% in stage 4B, and 67% in stage 4B/5. None required primary lensectomy. Intraoperative complications occurred in 4 eyes (8%), with 1 lens touch and 3 iatrogenic retinal breaks. Postoperative complications occurred in 2 eyes (4%), with 1 glaucoma and 1 treatment-requiring cataract.

Conclusion Endoscopic vitrectomy significantly reduces the need for primary lensectomy in high-risk ROP-RD compared to published outcomes (0% vs 57%), with favourable anatomic outcomes particularly with earlier intervention.

014 CAUDALS AND COMPLICATIONS IN HYPOSPADIAS REPAIRS: CORRELATION OR CAUSATION?

D Nielsen, M Johnson, C O’Donnell, S Afzal, ML Thomas. Department of Anaesthesia, Great Ormond Street Hospital and University College Hospital

Introduction Regional anaesthesia, usually in the form of caudal epidural, is a foundation of analgesia for hypospadias repairs. Recent publications have demonstrated a strong association between caudal blockade and fistula formation or granular dehiscence. If caudals were causing complications, abandoning of caudals would necessitate a plausible and efficacious alternative that may itself be associated with side effects. We sought to review our own institutions’ outcomes in this area.

Methods Retrospective case note review in partnership with University College Hospital (UCH). Data analysed in Microsoft Excel using XLSTAT.

Results A total of 177 boy’s notes were reviewed; 116 from Great Ormond Street Hospital (GOSH). Median age was 18 months (IQR 11) and median weight 11.5 kg (IQR 3.5). Median duration of surgery was 90 min (IQR 48.25). 94% received caudal anaesthesia with a median volume of 0.7 ml/kg (IQR 0.2). Clonidine was an adjunct in 41% of caudals but was only used at GOSH. There were 40 wound complications including 21 fistulae and 7 dehisced wounds. 5 were lost to follow-up. OR for wound complication with caudal anaesthesia was 0.41 (95% CI -0.1–1.5). Significantly less intra-operative fentanyl was administered to boys receiving caudals, p<0.005.

Conclusion Complication rates were similar to previously published studies with respect to urethrocystaneous fistula. Surgical duration was markedly lower. Usage of caudal
Using Middle Finger Length to Determine the Internal Diameter of Un-Cuffed Tracheal Tubes in Paediatrics

M Thomas, S Ritchie-McLean, V Ferrier, B Clevenger. Department of Anaesthesia, Great Ormond Street Hospital

Abstract 015

Selection of an appropriately sized tracheal tube is of critical importance in paediatric patients to reduce both the risk of subglottic stenosis from a tracheal tube that is too large and inadequate ventilation or poor end-tidal gas monitoring from a tracheal tube that is too small. Age formulae are widely used, but known to be unreliable, often resulting in a need to change the tracheal tube. Previous work has shown that the length of the middle finger and the internal diameter can both be used to guide depth of tracheal tube insertion. Therefore, we hypothesised that middle finger length may also be related to tube internal diameter.

We enrolled children aged up to 12 years presenting to our institution for elective anaesthesia and measured the length of the middle finger on the palmar aspect of the hand. Anaesthetists chose the airway device they felt most appropriate for the procedure and were unaware of the middle finger measurement. Of 160 patients who were enrolled, 108 were included in the final analysis.

We found a linear relationship between un-cuffed tracheal tube internal diameter and median middle finger length for each size of tracheal tube. The relationship between middle finger length and cuffed tracheal tube internal diameter was less clear. We propose that the formula: middle finger length (cm) [round up to nearest 0.5] = internal diameter of un-cuffed tracheal tube (mm) may be an improvement compared with age formulae for selecting un-cuffed tracheal tubes in children, although this requires formal testing.

Driving Diagnostic Change; Microchimerism in Thymus Transplant Patients

E Watt, S Kricke, S Adams, G Davies. Specialist Integrated Haematological Malignancy Diagnostic Services, Great Ormond Street Hospital

Abstract 016

Athymic patients are now receiving thymus transplants, allowing for mature T-cells to begin populating the bloodstream. Although much care is taken when preparing the thymus tissue for transplantation to ensure the complete removal of donor-derived T cells, the patients show clinical symptoms, such as rashes. These symptoms, usually classed as autoimmunity, may be explained by the presence of donor T cells in the recipient and may, therefore, be linked to alloimmunity rather than autoimmunity.

Current methods (short tandem repeat analysis) for chimerism analysis are sensitive to 99%, however, the presence of extremely low levels of donor cells may fall below this threshold and avoid detection. In order to overcome this and detect microchimerism at very low levels, we are developing a method to increase sensitivity up to 1:100,000 cells, based on qPCR targeting sequence polymorphisms (SP). We used a panel of markers to screen recipient (pre-transplant) and donor samples for their specific SP. This allows us to identify suitable markers to discriminate between the recipient and donor T cells in a post-thymic transplant sample. The standard curve was created by using healthy human blood to create a serial 10-fold dilution in order to accurately quantify the results.

Preliminary results show that the donor thymus, although washed out, still contains donor T cells at very low levels. This implies that a number of symptoms may be caused by alloimmunity rather than autoimmunity. Using this qPCR based method for the detection of microchimerism, we have shown in a small number of patients tested so far that we can accurately quantify the amount of donor T cells present in the recipient, meaning appropriate treatment options can be given to reduce symptoms.

Talking to Families When Death Becomes a Likely Outcome – A Pilot Simulation Programme to Improve End of Life Conversations During and Around PICU Admission

P Sidgwick, P Du Pre, T Kerr-Elliot, J Downie, S Skellett. Paediatric Intensive Care Unit, Great Ormond Street Hospital, Department of Palliative Care, Great Ormond Street Hospital

Abstract 017

End of life conversations form the basis of many complex communication scenarios in paediatric intensive care (PICU). These conversations are often initiated late in the disease process. There is evidence that many clinicians shy away from the subject matter for a wide variety of reasons.
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A multidisciplinary, one-day pilot simulation course to address this unmet need was designed by the PICU and palliative care teams for members of the multidisciplinary team (MDT) who admit to our PICU. The course was oversubscribed and candidates were evenly drawn from medical and senior nursing roles; specialties represented included PICU, immunology, bone marrow transplant, oncology, pulmonary hypertension and craniofacial surgery.

A range of clinically complex and personally challenging clinical scenarios were developed for use with experienced educational actors.

These included:
- Previously fit and well-child post cerebrovascular accident with a deeply religious family
- Child with end-stage cancer whose parents had the option of an experimental treatment
- Child with advanced pulmonary hypertension whose parents are angry about failure of treatment
- Child with incurable malignancy with parents reluctant to ask for withdrawal of life-sustaining treatment but who secretly wish it to be offered.

A demonstration scenario was run by the faculty for all candidates and four simulations were run in groups of four. Simulation safety and debrief tools were utilised throughout and feedback from the day was universally positive. Plans are now underway to extend this course to a wider cohort of the PICU MDT and run it on a regular basis.

Talking to Parents About Their Preferences for Their Child’s Place of Death: A Prospective Study

E Henderson, J Peake, E Al-Khazzaz, R Langner, A Dinsdale, F Craig, M Bluebond-Langner. Louis Dundas Centre for Children’s Palliative Care

Background: Government policy identifies home as the preferred place of death (PPOD) for children and young people (CYP) and suggests a home death as an indicator of a quality of care. A recent systematic review found a lack of compelling evidence for both home as the preferred place of death and the suitability of home death as a quality outcome. Rather, one study suggested that offering a discussion is more important for outcomes. Despite these findings, the achievement of preference remains a common quality measure of paediatric palliative care (PPC) services. This study explored factors which influenced the initiation of discussions, preferences, achievement of preferences and their value as an outcome measure.

Methods: A prospective case series review was conducted from March 2015-February 2017. Data included: 1) Routinely collected PPC PPOD data for CYP and their parents including the offer of a discussion, preferences expressed and if preference was achieved 2) Field notes taken at multidisciplinary team (MDT) meetings between clinicians where preference was discussed after the child’s death 3) Advanced care planning and place of care data extracted from medical notes.

Results: Data was available for 256 CYP (117 female). 29% of CYP had a solid tumour malignancy, 10% had a haematological malignancy and 61% died of non-malignant disease. Parents of CYP with malignancies were more likely to be offered a discussion of PPOD (60/73 compared to 84/156 of those with non-malignant disease). A hospital was preferred by 38%, home 28% and hospice 18%. Preference for hospital or hospice was more likely to be achieved. Per clinician report, parent preference was influenced by patient condition, continuity of care, family and social factors and availability of services.

Conclusion: Contrary to government policy and voluntary sector statements home deaths are not preferred by most parents. Achievement of PPOD is unsuitable as a measure of service performance.


A Butler, K Vincent, M Bluebond-Langner. Department of Population, Policy and Practice, Great Ormond Street Institute of Child Health, University College London

Background: A recent study of recruitment practices in paediatric palliative care research found that clinicians selectively recruited families, preventing them from making their own choice about research participation. Recognising this as a broader problem, we developed a multi-pronged approach to explore barriers to research participation for children and young people with life-limiting conditions and life-threatening illnesses (CYP with LLC/LTIs).

Aims: The BRAVES project aims to understand barriers to research with CYP with LLC/LTIs, and develop guidance to further enable the research process.

Methods: The BRAVES project uses a mixed methods approach, and involves five work-packages:
1. A systematic review exploring recruitment practices in research with CYP with LLC/LTIs
2. A survey of palliative care clinicians’ perceptions of barriers to research with children
3. A national survey of chief investigators’ (CIs) experiences conducting studies involving CYP with LLC/LTIs
4. An analysis of documents for studies of CYP with LLC/LTIs submitted for research ethics committee (REC) review
5. Interviews exploring REC member experiences of reviewing research involving CYP with LLC/LTIs

Results: To date, three work-packages have been completed. The systematic review found that recruitment information is consistently underreported in studies involving CYP with LLC/LTIs, making it difficult to assess potential bias. Barriers identified in the survey of clinicians included time and resources; attitudes to research; clinicians’ perspectives of the families; and the REC review process. Similar issues were identified by CIs in the national survey, where ethical and regulatory processes, access to families, and funding were viewed as barriers to research with CYP with LLC/LTIs.

Conclusion: Clinicians and researchers continue to identify multiple barriers to involving CYP with LLC/LTIs in research. These barriers may be clinician driven, resource-based, or due to regulatory and REC review processes. Findings from the BRAVES project will facilitate the development of guidance for overcoming these barriers.
Paediatric anaesthetic guidelines for the management of preoperative fasting of clear fluids are currently 2 hours. The traditional 2 hours clear fluid fasting time was recommended to decrease the risk of pulmonary aspiration and is not in keeping with current literature. It appears that a liberalised clear fluid fasting regime does not affect the incidence of pulmonary aspiration and in those who do aspirate, the sequelae are not usually severe or long-lasting. Fasting for prolonged periods increases thirst and irritability and results in detrimental physiological and metabolic effects. With a 1 hour clear fluid policy, there is no increased risk of pulmonary aspiration. There is less nausea and vomiting, thirst, hunger, and anxiety if allowed a drink closer to surgery. Children appear more comfortable, better behaved and possibly more compliant. In children less than 36 months this has positive physiological and metabolic effects.

A local quality improvement project over an 18 month period identified a mean clear fluid fasting time of 6.3 hours a 2 hour clear fasting policy.

This project gave all children a drink on arrival and incorporated a prompt in the WHO checklist for children later on the list to be offered a drink up until 1 hour prior to general anaesthesia. The change led to a mean fluid fasting time reduced to 3.1 hours with no increased risk of aspiration or cancellations.

This led to a national joint consensus statement supported by the Association of Paediatric Anaesthetists of Great Britain and Ireland, the European Society for Paediatric Anaesthesiology, and L’Association Des Anesthésistes-Réanimateurs Pédiatiques d’Expression Française that unless there is a clear contraindication, it is safe and recommended for all children able to take clear fluids, to be allowed and encouraged to have them up to 1 hour before elective general anaesthesia. Local policy is currently being updated.

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**020** PROOPERATIVE CLEAR FLUID FASTING FOR CHILDREN UNDERGOING GENERAL ANAESTHESIA

C Morrison, M Thomas, R Newton, E Schindler. Department of Anaesthesia, Great Ormond Street Hospital

Paediatric anaesthetic guidelines for the management of preoperative fasting of clear fluids are currently 2 hours. The traditional 2 hours clear fluid fasting time was recommended to decrease the risk of pulmonary aspiration and is not in keeping with current literature. It appears that a liberalised clear fluid fasting regime does not affect the incidence of pulmonary aspiration and in those who do aspirate, the sequelae are not usually severe or long-lasting. Fasting for prolonged periods increases thirst and irritability and results in detrimental physiological and metabolic effects. With a 1 hour clear fluid policy, there is no increased risk of pulmonary aspiration. There is less nausea and vomiting, thirst, hunger, and anxiety if allowed a drink closer to surgery. Children appear more comfortable, better behaved and possibly more compliant. In children less than 36 months this has positive physiological and metabolic effects.

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**021** THE EFFECTIVENESS OF DEXMEDETOMIDINE FOR PEDIATRIC SEDATION IN A RADIOLOGY SETTING

A Cerullo, C Stuart. Department of Radiology, Great Ormond Street Hospital

**Background** Paediatric patients presenting for MRI scans may not always be able to lie still. In the past, the options for these children were to either administer a Chloral Hydrate sedation or a General Anaesthetic, both of which have their limitations. Nurse-led Chloral Hydrate sedation has limitations including only being able to sedate children less than 20kgs with no underlying respiratory issues, and general anaesthetic has both safety and resource limitations. This led us to investigate the use of dexmedetomidine as a protocol for nurse-led sedation in the MRI setting at GOSH.

**Aims** To examine whether dexmedetomidine would be a useful medication for the use of obtaining paediatric MRI scans, and prevent children from having unnecessary general anaesthetics. The main areas of focus were patient safety, patient (and their families) experience, and the effect on the number of general anaesthetics undertaken.

**Method** Quantitative data was taken from audit sheets, with graphing techniques used to determine the safety of pharmacodynamics. The RIS database was also interrogated, with comparative exercises undertaken to determine the usage of lists. Qualitative data was collected through ‘friends and family’ tests, to evaluate patient/parent experience, and to compare experiences between sedation and general anaesthetic for those patients who experienced both.

**Results** The use of dexmedetomidine showed no unplanned admissions and no adverse events other than vomiting. General anaesthetic lists had to be converted into sedation lists due to demand. Furthermore, results from the ‘friends and family’ test suggested parents would prefer future scans under sedation rather than general anaesthetic.

**Conclusion** The study showed dexmedetomidine worked well as a sedative for paediatric MRI scans. The protocol is still evolving and further improvements are being investigated, but on the whole the study suggested its use was both effective, and a positive change for patient experience.

**022** GENETIC INVESTIGATIONS IN RENAL TUBULOPATHIES

1D Bockenhauer, 1E Ashton, 1W Van’t Hoff, 1W Hayes, 1R Kleta. 1Renal Department, Great Ormond Street Hospital; 2Department of Regional Molecular Genetics, Great Ormond Street Hospital

We have established the only specialised clinic for renal tubulopathies in children. The clinical diagnosis of these disorders can be challenging, as they are rare and characterized by significant phenotypic variability. Advances in sequencing technologies facilitate the establishment of a molecular diagnosis.

We aimed to investigate the diagnostic yield of a next-generation sequencing panel assessing relevant disease genes in children with a clinical diagnosis of a renal tubulopathy followed through three national networks. DNA was amplified with a kit provided by the European Consortium for High-Throughput Research in Rare Kidney Diseases with 9 multiplex PCR reactions producing 571 amplicons to cover 37 genes associated with tubulopathies, followed by massively parallel sequencing and bioinformatic interpretation. Identified mutations were confirmed by Sanger sequencing.

Overall, we assessed 384 index patients and 16 siblings. Most common clinical diagnoses were Bartter/Gitelman syndrome (n=174) and distal renal tubular acidosis (n=76). A total of 269 different variants were identified in 27 genes, of which 95 were considered likely and 136 definitely pathogenic and 100 had not been described at annotation. These mutations were confirmed by Sanger sequencing.

A total of 269 different variants were identified in 27 genes, of which 95 were considered likely and 136 definitely pathogenic and 100 had not been described at annotation. These mutations were confirmed by Sanger sequencing.

Our results demonstrate a high diagnostic yield of genetic testing in children with a clinical diagnosis of a renal tubulopathy, consistent with a predominantly genetic aetiology in known disease genes. Genetic testing helped establish a definitive diagnosis in almost two-thirds of patients and thereby informed prognosis, management and genetic counselling.
Abstracts

023 EVALUATION OF AN INNOVATIVE CLINICAL SYLLABUS TO SUPPORT UNIVERSITY CURRICULA

L Porter, G Simpson, B Low, T Tonkin, N Gowers. Nursing and Non-Medical Education Team, Great Ormond Street Hospital

10.1136/goshabs.23

Rationale Student nurses commonly present in clinical practice displaying difficulty in relating to university taught theory and the impact that has on preserving safety in clinical practice, and how the two correlate.

Objectives The theory and skills syllabus is mapped to university curricula to ensure the link between theory and practice is clearly visible.

Methods A pilot syllabus integrating theory and skills was devised and run in-house at Great Ormond Street Hospital for all pre-registration nurses meaning that the sessions were easily accessible to all.

The syllabus design sees a central topic for each week in clinical practice, allowing more students to benefit from extra training and allowing for off-duty patterns enabling us to prioritise the students. It also allows students to attend multiple sessions enabling them to use the theory and apply it to the skill learnt as with repetition and constructive feedback, a skill can be successfully mastered. It is delivered by the multi-disciplinary team from differing specialities and subject areas have been included which are clinically relevant, these sessions are taught using multiple modes of teaching to promote engagement and learning styles.

Results An overall evaluation of the syllabus was conducted using an online survey completed by our student nurses. This yielded 93 results with third-year feedback still to be evaluated. On analysis of this data, the primary results show that 89% of our students found these sessions beneficial for their clinical practice, commenting that this syllabus helps to bridge the theory-practice gap. Feedback received from stakeholders identified the following themes; showing more initiative, problem-solving and increase in confidence and competence being identified the following themes; showing more initiative, problem-solving and increase in confidence and competence being seen enabling them to practice effectively, therefore, promoting professionalism and trust in line with the Nursing and Midwifery Council.

024 A, B, C WHAT ABOUT ME- TRAINING STAFF TO COPE WITH NON-CLINICAL EMERGENCIES ON TRANSFER

C Roberts. Children’s Acute Transport Service, Great Ormond Street Hospital

10.1136/goshabs.24

Introduction The Children’s Acute Transport Service (CATS) is a stand-alone paediatric critical care transport service that performs approximately 1200 transfers each year in the North Thames region. Transfers are primarily by road in a dedicated ambulance, with approximately 25 flights per year (fixed wing and rotary). They perform international transfers and repatriations.

All CATS rotational staff undertake annual updates to ensure continuing professional and educational objectives are achieved. Training previously focused on clinical situations and emergencies, with limited time allocated for non-clinical incidents including tyre blow out or ambulance evacuation. To address these, annual update days were redesigned to accommodate these situations.

025 WHO GETS TRANSPORTED FOR EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO), DO THEY RECEIVE ECMO AND DO THEY SURVIVE?

A Annicq, E Randle. Children Acute Transport Service

10.1136/goshabs.25

Introduction ECMO is used for severe respiratory or cardiac failure when conventional treatments fail. Prompt referral is essential but transport is challenging. Mortality rate of 11% is reported before transport and 40% during transfers. Mobile ECMO programmes have been established and proven safe but are not routinely available for children in the UK. Mortality during or prior to transport is not considered when evaluating ECMO outcomes.
Aim To identify: The proportion of ECMO referrals transported, how many received ECMO and the mortality rates.

Methods Retrospective review of all ECMO referrals made to the largest UK specialist paediatric transport service, between January 2014 and July 2017.

Results 235 ECMO referrals were made [194 neonates (76.2%) of which 134 (59.3%) were transported. Thirty one (12.1%) died prior to receiving ECMO. 27 patients (27.6%) died after ECMO 0 (0%) during transport. 4 after transport]. And 68 (26.4%) patients were cannulated for ECMO, 14 prior to transport. Mortality rate was 17.6% in those receiving ECMO.

Conclusions Timing and indication for transport for ECMO remains a difficult topic. A quarter of referrals (26.6%) received ECMO, only 44.2% of those exposed to the risk of transport.

Mortality rate for all ECMO referrals was 16.9% with 27 (10.5%) dying prior to transfer. These are children who could potentially be supported by a mobile ECMO programme. 14 patients were transported by a different team with mobile ECMO.

Further work is needed to identify factors that can predict which children will require ECMO before exposing them to the transport risk.

REFERENCES

026 APPLYING A CHILD/YOUNG PERSON-CENTRED APPROACH TO DEVELOP VISION-RELATED QUALITY OF LIFE (VQoL) AND FUNCTIONAL VISION (FV) INSTRUMENTS FOR CHILDREN/YOUNG PEOPLE

A Robertson, V Tadic, JS Rahi. 1Department of Ophthalmology, Great Ormond Street Hospital for Children NHS Foundation Trust; 2University College London; 3UCL Institute of Child Health and Great Ormond Street Hospital for Children NHS Foundation Trust

Introduction Developmentally sensitive measures of vision-related quality of life (VQoL) and functional vision (FV) are needed to capture age-specific concerns about the impact of living with visual impairment (VI) during childhood and adolescence.

We report a child/young person-centred approach to adapting our validated VQoL and FV instruments for visually impaired children aged 10–15 years to a broader age-range of children and young people (YP).

Participants were children and YP aged 7–19 years with VI (acuity worse than 0.48 logMAR) attending Great Ormond Street Hospital and Moorfields Eye Hospital, London, supplemented, in the final phase, by patients attending 20 further UK hospitals. The study followed standard phases of questionnaire development comprising of qualitative interviews with participants to inform age-appropriate modifications to questionnaire content and formats and questionnaire administration via postal survey to pilot and evaluate the instruments.

Rasch analysis was applied to assess instruments’ psychometric performance and calibrate age-specific versions.

Results Qualitative interviews informed minor modifications to the existing instruments to address age-specific needs, resulting in two age-appropriate extensions: one for children aged 8–12 and the other for YP aged 13–17 years. The VQoL_Child, FV_Child, VQoL_YP and FV_YP instruments comprise 20-, 28-, 22-, and 38-items respectively, with 12 VQoL and 24 FV overlapping ‘core’ items across the extensions.

Discussion/conclusion Age-appropriate versions of VQoL and FV instruments have been calibrated to enable comparisons across different ages, whilst retaining age-specific content. These instruments have a wide application in research and clinical practice (e.g. in trials evaluating vision-specific treatments, or longitudinal follow-up, of children/YP aged 8–17 years), whilst maintaining specificity to developmental nuances of childhood and adolescence.

027 AN IMAGE-DERIVED, PATIENT-SPECIFIC COMPUTER SIMULATION TOOL TO TEST MITRAL VALVE TREATMENT

B Biffi, C Capelli, M Gritti, M Fontana, S Anderson, J Davar, J Parajmit, C Whelan, A Grasso, S Schievano. Department of Cardiology, Great Ormond Street Hospital

10.1136/goshabs.27

Mitral valve (MV) function is the result of the mechanical interaction of different anatomical structures complexly arranged within the left heart (LH), with the blood flow. MV or LV structural abnormalities might cause valve regurgitation which in turn can lead to cardiac muscle overload and heart failure. Surgery remains the standard of care for operable patients, and interventional approaches for MV repair and replacement have more recently expanded the therapeutic options for high-risk patients. Patient-specific computational models of the heart are now becoming more and more reliable in reproducing realistic in-vivo conditions, allowing to investigate on the computer different therapeutic scenarios and to predict the most successful treatment.

In this study, we describe the potential of a computational tool for MV modelling based on the integration of state-of-the-art patient medical imaging with fluid-structure interaction (FSI) computer simulations. A patient referred to our centre for MV regurgitation underwent both cardiac magnetic resonance (CMR) and 3D transoesophageal-echocardiogram (TOE). An automatic method was used to segment the MV from TOE and the LH from CMR and to compute patient-specific boundary conditions, which were used as input for the FSI simulation. Our simulation was able to reproduce realistic MV kinematic and flow velocity within the LH (figure 027-a).
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Incomplete leaflet coaptation (figure 027-b) confirmed the presence of regurgitant flow, as per patient pathological condition. The maximum, non-symmetrical stress distribution on the leaflets was found at the systolic peak.

Our study showed that a patient’s image information can be successfully integrated into computer simulations to accurately simulate LH and MV mechanics in a patient-specific case. Benefiting from a customisable and automatic implementation, such tool has the potential to simulate several surgical or interventional scenarios helping to identify the most suitable treatment, as well as to provide the ideal setting for the design of personalised MV device.

028 AUDIT OF UNEXPLAINED FRACTURES IN CHILDREN WHILST IN HOSPITAL CARE
Bethan Davies, Andrew Pearson, Melanie Hoans. Department of Radiology, Great Ormond Street Hospital
10.1136/goshabs.28

An empirical observation was made by the nursing staff of four children having unexplained fractures whilst inpatients in a specialist tertiary level paediatric hospital of 389 inpatient beds. These individual cases were each investigated using root cause analysis methodology. Consequently, an audit was undertaken to establish the true incidence of unexplained fractures occurring during inpatient care and to identify any trends and learning. A retrospective search of the radiology information system (RIS) for the period November 2014 to November 2017 was performed using the terms ‘fracture’, ‘fractures’ and ‘fractured’. This yielded 6760 radiology reports relating to 2476 unique patients. Each report was reviewed by a senior radiologist to exclude patients with the following: known/explained fractures, adequate history of trauma, specific bone conditions (e.g. osteogenesis imperfecta), vertebral collapse fractures, fractures occurring out of the hospital.

Twenty four individual patients were identified with potentially unexplained fractures related to an inpatient admission. Electronic patient records for the 24 patients were reviewed by a senior radiologist in conjunction with the hospital clinical audit manager. None of the 24 identified patients had fractures raising the concern of undetected non-accidental injury or maltreatment. The most common underlying causes for fractures were extreme prematurity, severe osteopenia, metabolic bone disease, intensive care spell. All four index cases were captured through this methodology providing assurance that similar cases would have been captured. No fractures occurred in the hospital due to excessive handling or maltreatment, and patients with fractures all had strong underlying predisposing factors. Learning points: staff should be aware of the increased risk of fractures in patients with the conditions above. Consideration should be given to a policy of reporting all fractures within an electronic patient record to highlight trends or specific high-risk situations.

029 FACILITATING WITHDRAWAL OF LIFE-SUSTAINING THERAPIES OUTSIDE THE PAEDIATRIC INTENSIVE CARE UNIT – A GUIDELINE FOR PRACTICE
Catherine Howes. Cardiac Intensive Care Unit, Great Ormond Street Hospital for Children
10.1136/goshabs.29

Introduction and aims PICU is the most common location for childhood hospital death. There are reports of withdrawal of life-sustaining therapies outside the PICU but minimal guidance exists.1 The aim was to create a multi-disciplinary guideline facilitating the withdrawal of life-sustaining therapies outside the Paediatric Intensive Care Unit.

Methods A systematic literature review was undertaken. Literature published between 2008 and 2018 was obtained from a range of sources and Cormack’s framework for systematic literature review was utilized to critically review the literature before analysis and synthesis were undertaken within the qualitative approach. A comprehensive review of existing guidelines was then completed. With the results of the literature and guideline review, a discussion was held with members of the multi-disciplinary team prior to guideline production.

Results Most UK PICU’s retrievals suggest they can offer the withdrawal of life-sustaining therapies outside the PICU, but few have formal guidelines. A guideline was produced which provides a structured multi-disciplinary, family-centred approach towards facilitating the withdrawal of life-sustaining therapies outside the PICU.

Discussion and conclusion Within this area of clinical practice it is impossible for care to be standardised.2 As a result this must remain ‘guidance’ – however evidence-based, it cannot see the context of individual situations. The evidence highlights the importance of offering families choices and allow them to have some control with regards to the care (and location) provided at the end of a child’s life.3

REFERENCES

030 TAKING CHARGE OF THE SITUATION: A WALK OUT BRIEF TO PREPARE STAFF FOR NON-CLINICAL EMERGENCIES ON TRANSFER
C. Roberts. Children’s Acute Transport Service, Great Ormond Street Hospital
10.1136/goshabs.30

Introduction The Children’s Acute Transport Service (CATS) is a stand-alone paediatric critical care transport service that performs approximately 1200 transfers each year in the North Thames region. Transfers are primarily by road in a dedicated ambulance, with approximately 25 flights per year (fixed wing and rotary). We perform international transfers and repatriations.

All CATS rotational staff undertake annual updates to ensure continuing professional and educational objectives are achieved. Training previously focused on clinical situations and emergencies, with limited time allocated for non-clinical incidents including tyre blow out or ambulance evacuation. To address this, annual update days were redesigned to accommodate these situations.

Methods Continuing our collaboration Survival Wisdom (a company owned by ex-military personnel) we redesigned the study day to include, psychological response to danger, threat analysis in differing scenarios (inner city, motorway, rural), knowledge of CATS major incident plan, aeromedical, trapped in a lift, and ambulance evacuation.
The format was a mix of lectures, table top exercises, and scenarios. Training was multidisciplinary and attended by all members of the transfer team. Scenarios have been developed from reported critical incidents.

**Results** A total of 85 people have attended the course since 2013, including doctors, advanced nurse practitioners, nurses, ambulance technicians and administrators. One day from each year was chosen to compare evaluation scores. All evaluations are anonymous.

All categories scored good to excellent, with sim scenarios consistently scoring the highest. Comments from attendees reflect this: ‘Scenarios challenging and thought-provoking….good to build on scenarios from last year, good to do sim in unusual circumstances’ Evacuation times were compared from year 1 to year 3 reducing from 3 min to 30 s or less. Discussion and

**Conclusion** The course has been running for three years. Staff are more familiar with the major incident plan The course has been evaluated well and continues to be developed following feedback and staff demonstrate quicker decision making and are able to evacuate ambulance in 30 s or less compared to an average of 3 mins in the first year.

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**PROVISION OF AN EDUCATION AND TRAINING PROGRAMME BY THE CATS TEAM**

C Roberts, Children’s Acute Transport Service, Great Ormond Street Hospital

10.1136/goshabs.31

**Introduction** The Children’s Acute Transport Service (CATS) is a stand-alone paediatric critical care transport service for the North Thames region performing approximately 1200 intensive care transfers a year. There are 32 district general hospitals (DGHs) in this region; to foster a collaborative approach and maintain good relationships, each hospital is supported by a CATS consultant and core nurse. To ensure the continued provision of high-quality care for critically ill children the link consultant and nurse provide outreach training and education to all hospitals in our region; in 2016–2017 we provided outreach for approximately 1200 people.

**Method** The format of outreach days varies depending on local preference but generally consists of presentations of referral and transport activity, case-based discussions, challenging cases, and simulation. We encourage multi-disciplinary attendance.

In addition to outreach, we provide lectures for the HDU, PICU, and ANP modules, study days held by DGHs, and we contribute to the intensive care modular training programme at Great Ormond Street Hospital.

We also run two external courses one is a full day of immersive sim attended by anaesthetists, paediatricians, nurses and ODP’s, and the other, also a multi-disciplinary study day that is a combination of interactive lectures and workshops.

**Results** All education and outreach evaluates well with comments such as ‘Really helpful day’ ‘Interesting understanding of what CATS do, interesting to practice and discuss’ ‘Please come back and do some more sim with us’.

**Conclusion** DGH’s request more frequent sessions and we are exploring alternatives such as teleconferencing which is currently mostly used for ‘hot’ debriefs. We are keen to use social media to increase our presence within the region and to provide short training videos that teams could access easily.
Infection with catalase-positive organisms resulting in deep-seated abscesses, particularly of the liver, is a common initial presentation. CGD is genotypically heterogeneous with X-linked defects in CYBB (encoding gp91) as well as autosomal recessive defects in CYBA (p22phox), NCF1 (p47phox), NCF2 (p67phox) and NCF4 (p40phox) described. Great Ormond Street Hospital immunology laboratory uses the nitroblue tetrazolium and dihydrodihydrorhodamine assays to assess neutrophil function. Lack of neutrophil respiratory burst triggers molecular CGD screening which covers all known genetic causes of CGD. The results of these molecular tests may be further verified by gene sequencing approaches.

We present the data from 1168 patients investigated for CGD between January 2013 and January 2018. We identified: 13 patients with CYBB mutations from 9 families; 8 patients with NCF4 mutations from 2 families; 7 patients with NCF1 mutations from 5 families; a single patient with an NCF2 mutation and 3 patients with CYBA mutations from a single family. The review of this data revealed a unique characteristic of p40phox deficient patients; a normal NBT in the context of a reduced ability to undergo respiratory burst in response to Escherichia coli. This information will aid in the rapid diagnosis of subsequent patients with this condition.

The development and implementation of the rapid molecular CGD testing, often as a proxy for genetic testing which takes significantly more time, has been essential in the early diagnosis and prompt treatment of these patients. Life expectancy for CGD patients has increased more than three-fold over the last few decades in part due to the development of rapid molecular CGD screening.

Due to advances in surgery and medicine, more children are surviving with complex heart disease and they are frequently supported with anticoagulation. Children with heart disease receiving anticoagulation with warfarin require close monitoring of their INR levels. Children may require warfarin from a period of months, to lifelong. To meet the long-term needs of these children and continue their care in the community, a nurse practitioner warfarin service was created. This provides warfarin management through telephone clinics, over a large geographical area. The service encompasses warfarin education and training on home INR monitors. In an aim to maintain quality, it is important to be continually monitoring the service provided and adapting it to meet the needs of the families using it.

An evaluation using a mixed method, the methodological approach was undertaken. A questionnaire was designed compromising of closed and open questions. Parents of children using the nurse practitioner-led warfarin service completed the postal questionnaire.

The quantitative results revealed a high level of satisfaction with the delivery of care from the warfarin service. This was further confirmed within the qualitative results. Themes reflected the open questionnaire design, however, an unanticipated sub-theme and main theme were also identified.

The results revealed that parents are satisfied with the nurse practitioner- parent relationship. This therapeutic relationship facilitates effective teaching and enables shared decision making. The results highlight that the service is committed to providing care according to a family centred care model. Collaboration with other health care professionals was an area identified for further improvement and different methods to improve this are currently being developed. Further education on administering subcutaneous low molecular weight heparin was identified as a need from some families, which requires further exploration.

## Abstracts

### 034 HOW CAN A NURSE PRACTITIONER-LED, PAEDIATRIC WARFARIN SERVICE BE IMPROVED FOR PARENTS?

E Constantinou. Department of Cardiology, Great Ormond Street Hospital

**Abstract**

due to advances in surgery and medicine, more children are surviving with complex heart disease and they are frequently supported with anticoagulation. children with heart disease receiving anticoagulation with warfarin require close monitoring of their INR levels. children may require warfarin from a period of months, to lifelong. to meet the long-term needs of these children and continue their care in the community, a nurse practitioner warfarin service was created. this provides warfarin management through telephone clinics, over a large geographical area. the service encompasses warfarin education and training on home INR monitors. in an aim to maintain quality, it is important to be continually monitoring the service provided and adapting it to meet the needs of the families using it.

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### 035 USING SIMULATION TO ENHANCE THE SKILLS OF PAEDIATRIC CARDIORESPIRATORY PHYSIOTHERAPISTS: A COLLABORATIVE APPROACH

E Broughton, E Aken, H Mercer, S Wright, J Balls, S Griffin. Nursing and Non-Medical Education Team, Great Ormond Street Hospital; Department of Physiotherapy, Lady Cilento Hospital, Brisbane; Department of Physiotherapy, Royal Brompton Hospital

**Abstract**

Background Simulation based education (SBE) is an effective means of enhancing the clinical skills of physiotherapists. However, there are currently no simulation courses catering for paediatric physiotherapists within our region. Using International peer-review with the Lady Cilento Hospital, Brisbane and in collaboration with the Royal Brompton Hospital, a cardiorespiratory course was developed. This was aimed at paediatric physiotherapists working within the acute setting.

Methods The one day course linked the successful Australian model of Simulated Learning in Paediatric Allied Healthcare (SLiPAH) to UK working practices. Technical aspects of acute care were layered with cases requiring clinical reasoning. Pause discuss and immersive scenarios were blended with focused lectures and innovative manikin verbal responses were utilised. The course ran twice at GOSH, reaching 23 candidates from Healthcare trusts across London.

Results

- 100% of candidates agreed that the course increased their confidence in managing the paediatric patient with acute cardiorespiratory compromise
- 100% of candidates found the day useful in providing an overview of current issues in paediatric cardiorespiratory physiotherapy care

The following themes emerged from the feedback:

- Confidence in clinical reasoning
- Enhancing technical skills
- Familiarisation with current practices
- Updating knowledge.

Conclusion A simulated learning course model proved an effective vehicle for enhancing the confidence in practice of Paediatric Physiotherapists. This collaborative approach to course facilitation promoted a culture of shared expertise and experience amongst candidates and facilitators, encouraging fruitful discussion around best practices in acute paediatric physiotherapy.
Next steps Mapping the UK need, 2 courses are proposed: ICU/High dependency and DGH/Community; accommodating candidates from both acute and community settings. The collaborative model of facilitation is proposed for other regional Allied Health courses, supporting shared expertise across London clinical education networks.

REFERENCES

037 SUCCESSFUL ABO AND HLA INCOMPATIBLE RENAL TRANSPLANTATION IN CHILDREN IN THE UNITED KINGDOM OVER THE LAST DECADE

EY Hew, N Mamode, N Kessaris, M Christian, J Dudley, D Milford, Y Tse, NJA Webb, J Stojanovic, SD Marks. Department of Nephrology, Great Ormond Street Hospital

Introduction There is increasing evidence of good short and medium term outcomes for ABO incompatible (ABOi) and HLA incompatible (HLAi) with pre-transplant positive cross-matches in paediatric practice. However, there are concerns regarding the higher risks of infective complications and antibody-mediated rejections. The aim of this paper is to show that the short-term outcomes for ABOi and HLAi renal transplantation are comparable to (ABOc/HLAc) compatible renal transplants in children in the UK.

Methods Data were obtained from the UK Transplant Registry (NHS Blood and Transplant) on all children (aged <18 years) who received a first living paediatric kidney only transplant between 1 January 2006 and 31 December 2016 from 10 paediatric transplant centres. Baseline demographic data were collected of 709 first living paediatric kidney only transplants, of which 23 were ABOi and 4 were HLAi. Estimated glomerular filtration rate (eGFR) was calculated using plasma creatinine at three months post-transplant. Comparisons of graft function following transplantation were made between ABOi, HLAi, and ABOc/HLAc compatible groups.

Results Pre-emptive transplantation occurred in 35% and 25% of ABOi and HLAi recipients with delayed graft function in 3%, 6% and 0% of ABOc/HLAc, ABOi and HLAi respectively with no cases of primary non-function. Renal allograft survival was 100% in each group although there was one death of ABOi pRTR with a functioning graft. For ABOi transplants (n=16), the median and inter-quartile range (IQR) eGFR was 88 (63 – 130) mls/min/1.73 m². The eGFR in ABOc/HLAc group had a median (IQR) of 101 (74 – 144) mls/min/1.73 m². No statistically significant difference was found between these transplant groups due to the small number of patients.

Conclusion The short term outcomes from this follow-up have shown that ABOi and HLAi renal transplantation are possible for paediatric renal transplant recipients in situations where no compatible donors are available.

038 EXPERIENCE OF ETHICAL ISSUES AMONG PROFESSIONALS WORKING IN PAEDIATRIC TRANSPLANTATION – AN INTERNATIONAL SURVEY AND MULTI-PROFESSIONAL FOCUS GROUP

M Hennessy. University College London

Background Professionals working in paediatric transplantation commonly encounter complex ethical dilemmas, which they are tasked with solving. If these dilemmas are not approached correctly both donors and recipients can be exposed to significant risks. Most ethical research in transplantation is focused on adult cases whilst paediatric ethical issues have not been systematically researched and discussed by the multi-professional community. This study is the first to identify the areas of practice in which ethical dilemmas may be encountered by paediatric transplant professionals and the types of issues most commonly experienced.

Methods This project consisted of two studies; the first being a questionnaire of 190 (80%) members of the International Pediatric Transplant Association (IPTA) from over 30 different countries. This survey identified ethical issues encountered by professionals within different areas of paediatric
transplantation. The second study was a multidisciplinary focus group that explored the preliminary data from the survey.

**Results** 56 (38%) respondents from the international questionnaire had experienced an ethical dilemma between 2016–2018. Between 2016–2018, surgeons were more likely to have encountered an ethical issue compared to Physicians (60% vs 35.7%, p=0.035). Clinicians from Europe were more likely to have experienced an ethical issue in living organ donation compared to those from North America (78.9% vs 52.5%, p=0.005), with common themes of ethical concern relating to psychosocial evaluation, follow up care of donors and registering non-adherent patients on the waiting list. 100 respondents (69%) requested the development of ethical guidelines for specific issues whilst the focus group highlighted the importance of a shared approach.

**Conclusion** The results of this study will help direct future research into paediatric transplantation ethics with the aim of producing educational resources, policies and ethical guidelines.

**039 CREATING A NEONATAL EDUCATION ENVIRONMENT TO IMPROVE NEONATAL CARE**

J Burgering. Nursing and Non-Medical Education, Great Ormond Street Hospital

10.1136/goshabs.39

**Introduction** Inconsistencies in neonatal care across the trust were identified and a Quality Improvement project was initiated. As part of this the need for a dedicated Neonatal Practice Educator was identified and this post was funded. An education programme was developed and implemented to address concerns and promote neonatal care.

**Aim** To improve and standardise neonatal care education to facilitate safe, quality evidence-based care for neonates and their families.

**Methods** A Quality Improvement team developed interventions including Education folders, Neonatal Pathway and reports on statistics on Blood Spot Screening, Jaundice and Fluids. Visibility of neonatal team was promoted; inclusion in Trust Induc­tions and Ward team days introduced, highlighting neonatal concerns and education available. Weekly teaching sessions implemented for all staff, theory and practical neonatal simulation sessions introduced focusing on identified concerns. Neonatal Link Nurses were assigned to help with neonatal care and education in ward areas. Trust learning resources developed including a Pan trust Neonatal Poster for Neonatal November! Raising awareness pan trust on Neonatal Care for staff and Service Users Academic Module Essential Neonatal Care Challenges.

**Change management** Engaging stakeholders and gaining support.

**Outcome** Quality Improvement statistics identified sustained improvement with Blood Spot Screening, Jaundice and Fluids with the continuation of teaching. Avoidable repeats decreased from 31% to 13% from July 2107 to present. Records of attendance, evaluations, and follow up identified learning gained and improvement. More knowledge and skills implemented on caring for a neonate within the ward environment Future Maintain high standards of Neonatal care continuing established education and motivation Develop learning packages for HCAs, Student Nurses and Medical Staff to increase quality of care Educate Neonatal Link Nurses to be Train the Trainers Work towards GOSH gaining UNICEF Baby Friendly Initiative, and BLISS accreditation.

**040 AUTISM SPECTRUM DISORDERS IN GIRLS AND WOMEN WITH TURNER SYNDROME**

J Wolstencroft, W Mandy, D Skuse. Great Ormond Street Institute of Child Health, University College London

10.1136/goshabs.40

**Background** Turner Syndrome (45,X; TS) is one of the most common sex chromosome aneuploidies. The physical morbidities in TS are well documented, but the research into the psychological wellbeing of girls with TS is scarce. Girls with TS experience social skills difficulties but the previously reported association between TS and Autism Spectrum Disorders (ASD) is controversial.

This study aims to determine the prevalence of ASD in girls and women with TS using structured psychiatric assessments and examine the profile of the autistic symptomatology.

**Methods** Participants (n=98) were recruited through the IMAGINE ID (national UK study of behavioural adjustment) and SOAR (Social skills and relationships in Turner Syndrome) research studies. Assessments were administered online to the caregivers of girls and women with TS aged 4–25. A structured psychiatric interview called the Development and Wellbeing Assessment (DAWBA) was completed by 73 families and the Social Responsiveness Scale (SRS) was completed by 70 families. The DAWBA responses are reviewed by a psychiatrist to generate clinical diagnoses and the SRS measures autistic traits. Both instruments are widely used and validated.

**Results** 21% of the girls with TS met criteria for a diagnosis of an ASD. On the SRS standardised total score 14% scored in the ‘normal range’, 24% scored in the ‘mild’ range, 49% scored in the ‘moderate’ range and 13% scored in the ‘severe’ range. This suggests that 86% of participants experience difficulties with social interaction, which are likely to interfere with their everyday functioning.

**Conclusion** The rates of autism in TS are substantially higher than the UK national rates of ASD in females (0.3%). The majority of participants are likely to experience difficulties with social interaction. Taken together this supports an association between TS and ASD.
Exploring Congenital Heart Disease with Paediatric and Adult Patients: An Interdisciplinary Approach Using Art, Medical Imaging and 3D Printing

1 Wray, G Biglino, S Hall, S Layton. 'Centre for Outcomes and Experience Research in Children’s Health, Illness and Disability (ORCHID) at Great Ormond Street Hospital; 2GOSH Arts, Great Ormond Street Hospital

Background Patients with congenital heart disease (CHD) require follow-up across the life-span. In common with other life-long conditions, responsibility for management of their condition shifts from parents to the patients themselves as they transition from paediatric to adult services, requiring young people to engage and understand their condition and the lifestyle implications of their CHD.

Methods Using an interdisciplinary approach merging medical imaging, 3D printing technology and artistic methodologies, we worked with young people and adults with CHD from three CHD centres. Patients (n=23; 14–48 years) participated in two-part creative workshops facilitated by an artist, health psychologist and bioengineer. A range of creative exercises to facilitate the development of imagery and language to explore individual uniqueness included blindfolded drawing and sculpting self-portraits, creative writing, body mapping and metal embossing. Patient-specific heart images were derived from participants’ MRI data. MRI-derived patient-specific heart models were manufactured by 3D printing. Heart-related imagery and narratives were explored through discussion of the models and artistic re-interpretation of the heart images. All patients engaged well with the interdisciplinary process.

Results Heart narratives were powerful and unique and included eloquent metaphors of survival, resilience, strength, fragility and structural complexity. Use of 3D models facilitated conversation and understanding of cardiac anatomy. Feedback indicated that they found the workshops a positive experience and valued the opportunities to understand their condition and themselves as individuals living with CHD, working with peers and the privilege of reflecting on uniqueness.

As one adult participant stated, ‘I also truly understood for the first time that this was something that would be with me for the whole of my life...that it is a story which will continue to be written for the rest of our lives, for good or bad it’ll never reach its conclusion for as long as we are alive.’
Asparaginase is an important component of therapy for acute lymphoblastic leukaemia (ALL) due to the antineoplastic effect in patients. Allergic reaction to the foreign protein may lead to inactivation. Enzyme neutralization in the absence of apparent symptoms, termed silent inactivation, represents a significant threat to patient well-being. There is a need to monitor activity in patients to optimise dosage and prevent relapse. Our aims were to establish a monitoring assay and assess utility by measuring serial activity in patient serum.

**Methods** In the Department of Chemical Pathology, Great Ormond Street Hospital (GOSH), a colorimetric assay based on the method described by Lanvers et al (2002) was established and verified. Twenty children newly diagnosed with ALL and commencing the ALL2011 UK treatment protocols were recruited by the Department of Haematology and Oncology, GOSH. Serum samples were collected at various time points after enzyme administration and assayed.

**Results** Asparaginase activity in 13 patients remained above the therapeutic threshold (>100 U/L) up to 14 days after treatments, without apparent allergic reaction. Two patients exhibited severe immune reaction: serum activity was consistent with the clinical picture in one patient. Four patients displayed undetectable activity less than 14 days after treatment delivery, possibly suggesting silent inactivation. One patient showed activity considerably below therapeutic threshold 12 days after treatment and may benefit from increased dose.

**Conclusion** In conclusion, the patient study demonstrated the clinical utility of the assay in children with ALL. Findings suggested 20% of patients may exhibit silent inactivation of the enzyme, a potentially high incidence that warrants a larger scale trial to further investigate and correlate activity with clinical outcomes. This study also demonstrates the value of inter-departmental collaboration within GOSH to potentially improve the quality of continuous care for patients.

**Background** Children and young people with learning disabilities are frequent users of healthcare services, often receiving care in multiple settings, by many different teams, sometimes far from the family home. Hospitals, in particular, can be a challenging place for these children: they enter what may be unfamiliar environment in which they are often exposed to complex information; painful and/or novel procedures; a loss of routine; confined spaces; excessive noise; excessive waiting; unfamiliar people; and a lack of appropriate communication channels.

Parents play an important role in supporting their child through this experience. Whilst there is some evidence of...
parents describing being under-utilised or over-burdened by hospital staff, we know little of what it is like for them to be in hospital with their child and what their own needs are during this time.

**Methods** As part of a 12 month ethnographic study, we conducted multiple interviews with 12 parents of 9 children with learning disabilities and observed their journey as they accompanied their child to outpatient appointments and during in-patient stays. Key themes that emerged from the data, highlighted the importance parents placed on building a genuine partnership with professionals, as reflected by the acronym PARTNER:

1. Preparation,
2. Accessibility,
3. Respect,
4. Trust,
5. Negotiation,
6. Expertise,
7. Reliability.

**Results** Researcher-voiced poems are used here to illustrate these findings, highlighting a consistent thread running through these poems of the need for good communication. Involving parents as partners in care helps them feel informed, involved, reassured and valued.

Without this, parents can experience uncertainty, anxiety, frustration and anger, with the feeling of being expected to provide care rather than being a true partner.

**Background** Research ethics committees (RECs) are identified as one of the biggest barriers to research with vulnerable populations, such as children and young people with life-limiting conditions and life-threatening illnesses (CYP with LLC/LTIs). Despite this, REC concerns for research with this population and their correspondence with principle investigators during the research approval process remains unknown. The aim is to explore the challenges in receiving REC approval for studies involving CYP with LLC/LTIs, focusing on the primary concerns of the REC and the ways these are addressed by the research team.

**Methods** Analysis of REC meeting minutes, REC decision letters, and researcher response letters were conducted for all studies involving CYP with LLC/LTIs reviewed in the United Kingdom between March 2011–2016.

**Results** REC meeting minutes and decision letters were received for 77 studies, with 27 researcher response letters provided. Though most REC concerns were general, relating to participant information sheets, methodological issues, or formatting errors, a number of concerns specific to CYP with LLC/LTIs were also identified, such as the age of consent/assent or the need to involve clinical teams in recruitment. Overall, RECs raised 279 concerns in their correspondence with investigators, most of which resulted in changes to research methods or documentation.

**Conclusions** Research protocols involving CYP with LLC/LTIs usually require multiple changes before REC approval is given. Many of the main REC concerns, such as formatting issues or insufficient detail, can be easily resolved with attention to detail or peer review prior to submission. Others, such as recruitment methods or consent procedures, require more detailed consideration of study methods to ensure they appropriately consider the needs of CYP with LLC/LTIs. Understanding REC concerns may help researchers consider potential issues more thoroughly before submission, reducing the impact of RECs as a barrier and improving research quality overall.

**FLYING BLIND: INVESTIGATING THE VALIDITY OF THE REVISED CHILD ANXIETY AND DEPRESSION SCALE IN THE MEDICALLY UNEXPLAINED SYMPTOMS POPULATION**

K Jassal, C Taylor, M Hadji-Michael, I Heyman, D Stark. Department of Child and Adolescent Psychiatry, Great Ormond Street Hospital

**Background** Medically Unexplained Symptoms (MUS) refer to physical symptoms for which there is no known physical cause. In paediatric MUS populations, high-rates of both neurodevelopmental and mental-health difficulties (50%–66%, Rawat, 2015) have been identified. However, such studies also suggest that individuals with MUS under-report emotional difficulties. Whilst many explanations for this phenomenon are possible, one long-standing hypothesis relates to inherent difficulties in individual’s ability to both identify and describe their emotional state (Erkic, 2017). This is a pertinent clinical issue as there are high rates of mental difficulties in this population; however routine clinical instruments have not yet been validated in this group of children. This study investigated the validity of The Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2005); a measure routinely used to screen for anxiety disorders in children, with parallel parent and child versions.

**Methods** The current study aimed to investigate the validity of the RCADS in an MUS population. This study included children with MUS who attended a specialist multidisciplinary clinic for a comprehensive mental-health assessment between February 2011 and January 2018. All children who attended the clinic with MUS who completed either a parent-rated and/or self-rated RCADS were included in the study.

**Results** Thirty-eight children were included in the analysis. Sensitivity and specificity of both parent and child reports on the RCADS were analysed and compared to the sensitivity and specificity of previously validated populations (Becker et al., 2017). This study found that the RCADS correctly captured ~80% of cases with no clinical symptoms of anxiety but only correctly identified those children with a clinical diagnosis of anxiety around 50% of the time.

**Conclusion** The RCADS does not consistently identify anxiety disorders within the paediatric MUS population. Clinical implications and considerations for future research are discussed.
POST-MORTEM TRANSLOCATION ANALYSIS USING 16S SEQUENCING

L Gates, N Sebire, N Klein, D Abber. Department of Infection, Inflammation and Rheumatology, UCL Great Ormond Street Institute of Child Health

Background The diagnostic potential of post-mortem bacteriology has been a topic of debate since its introduction to clinical pathology due to false-positive results. A possible source of false-positive results is post-mortem translocation which is the migration of microbial species from sites such as the gastrointestinal (GI) tract to the blood or other tissues. This phenomenon makes it difficult for pathologists to identify cases of true ante-mortem infection leading to possible misdiagnosis.

Methods A mouse model was used to assess the microbiome in the blood, heart, lung, spleen, liver and GI tract over a 14 day period. Fifteen surplus mice were acclimatised in three separate cages for seven days prior to sacrifice. One mouse from each cage was sampled at each time point (0, 3, 7, 10 and 14 days post-death). The microbiome was characterised through next-generation sequencing of the v3/v4 region of the bacterial 16S rRNA gene.

Results All 45 GI samples could be amplified by 16S rRNA gene sequencing compared to only 12/75 of remaining tissue samples. Following sequencing, 13/57 samples were removed from analysis due to low sequencing reads, with all remaining samples from the GI tract. There was an increase in alpha and beta diversity from day 0 to 10 with a decrease in diversity at day 14. In terms of phyla abundance, as time post-death increased there was an increase in the abundance of Actinobacteria, Deferribacteraceae and Tenericutes.

Conclusion Although this study found changes in the gut microbiome, the inability to sequence bacteria in other tissues suggests little translocation occurred over the time period. To assess whether this is model-specific, this study is to be repeated in a model more closely related to humans. With the development of molecular techniques and interest in this method for post-mortem diagnostics, it is imperative to understand the significance of bacterial translocation.

VALIDATION AND APPLICATION OF NEW RAPID LABORATORY DIAGNOSTIC TECHNIQUES TO ALLOW FOR THE PREVENTION, SPREAD AND TRANSMISSION OF CARBAPENEM-RESISTANT ENTEROBACTERIAEAE (CRE) WITHIN A SPECIALIST PAEDIATRIC HOSPITAL

M Nakrani, E Cloutman-Green, F Yongblut, F Asadi. 1Department of Microbiology, Great Ormond Street Hospital; 2Department of Infection Control, Great Ormond Street Hospital

Background The Enterobacteriaceae are a genus of Gram-negative bacteria that have been implicated in human infections, such as pneumonia, septicemia and urinary tract infections. Severe infections with this group of organisms are frequently treated with the Carbapenem class of antimicrobials. The increasingly frequent detection of Carbapenem-resistant Enterobacteriaceae (CRE) has impacted on the treatment of these infections and on patient outcomes. Management of patients with Enterobacteriaceae infections within the healthcare setting requires rapid, sensitive and specific detection of CRE as a laboratory diagnosis is the key component in determining clinical outcome. This is because detection leads to improved patient management and facilitates effective infection control interventions; which are key in the challenge to reduce the spread of CRE.

Methods The current methods used to identify CRE are complex and only available at reference laboratories as they are usually based on molecular techniques. This leads to prolonged turnaround times and only permit provide retrospective confirmation of cross-transmission events. A range of rapid phenotypic methods were studied to evaluate their use to decrease time to confirmation of CRE and thus improve patient management. The principle methods of which were: Bruker STAR-BL IMI kit in the identification of CPE, Multi-plexed immunochromatography Lateral Flow assay versus the selective Carbasmart screening agar and ROSCO synergy confirmatory tests.

Results The evaluation was undertaken with 103 enterobacterial isolates and 89 stool samples. The purpose of the study was to establish a simple, rapid and cost-effective test that provides specific and sensitive identification of CRE and the carbapenemase present in paediatric samples. Thus addressing the UK 5 year AMR strategy and GOSH Infection Prevention and Control (IPC) guideline for CRE.

‘MASS HYSTERIA’: A CASE OF HISTORY REPEATING? ASSESSMENT AND TREATMENT FOR A GROUP OF CHILDREN AFFECTED BY MEDICALLY UNEXPLAINED SYMPTOMS

1M Hadji-Michael, 1E McAllister, 1T Murphy, 1P Madell, 1D Heyman. Psychological Medicine Team, Great Ormond Street Hospital; 2UCL Great Ormond Street Institute of Child Health; 3School of Sport, Exercise and Health Sciences, University of Loughborough

Background Four classmates in the same school developed Non-Epileptic Seizures (NES) and were referred to a specialist service for treatment. We report the impact of treatment of the index case which incorporated psychological therapy and seizure management.

Methods The 14 year old girl who first developed NES was the first child referred, and following assessment and formulation, underwent treatment. Treatment incorporated identification and alleviation of any predisposing/precipitating factors, followed by rehabilitation and behavioural management strategies. Education about NES and management advice to the school was a key intervention. Treatment goals include reduction in the frequency of NES at home and at school and return to age appropriate activities. Achievement of individual goals were monitored via weekly Goal Based Outcome measures (GBO’s) as well as monitoring of severity and impairment weekly on a Likert scale.

Results Following 15 sessions of individual and systemic cognitive behaviour therapy, including 6 school contacts, her NES were almost fully resolved. Outcome data for NES frequency, GBO’s and quality of life will be presented. NES frequency also reduced significantly from 40 a day to 1 a month. Even before individual treatment was commenced in the other 3 children, there were marked reductions in the numbers of NES reported by the school. It was clear that the other girls affected by NES had a range of presenting concerns and or/ history of medically unexplained symptoms (e.g. ADHD; Intellectual Disability; systemic issues) which subsequently required assessment and intervention.
Conclusion Groups of children presenting with medically unexplained physical symptoms have been described – often previously called ‘mass hysteria’, and we propose that these 4 cases represent a small example of a similar phenomenon. Encouragingly, effective treatment of the index case was effective in significantly reducing the severity of the additional cases.

Abstract 051 USING QUALITY IMPROVEMENT METHODOLOGY TO IMPLEMENT AN ELECTRONIC PEDIATRIC EARLY WARNING SYSTEM (PEWS) ACROSS GREAT ORMOND STREET CHILDREN’S HOSPITAL (GOSH)

M Peters, P Moore. 1Department of Paediatric Intensive Care, Great Ormond Street Hospital; 2Quality Improvement, Great Ormond Street Hospital

Background PEWS is a score based system designed to identify potential deterioration in children and young people. Nationally, wide variation exists within the predictive performance of PEWS, but it could be argued the implementation of the score is more important than the score itself. GOSH records and monitors its patients’ vital signs electronically, via the digital platforms Nervecentre and CareVue. This allows clinicians to identify, escalate and respond to patients at risk of deterioration at an individual, ward and Trust level.

However, replacing an Early Warning System (EWS) electronically adds a level of complexity and risk. Slight adjustments can impact the whole system, with issues such as alert fatigue and device availability threatening success.

Methods The decision to initiate a Quality Improvement project to replace the locally developed and unvalidated Children’s Early Warning Score (CEWS) with PEWS was supported by national research and data modelling of over 1.7 million GOSH clinical observations.

Project phases
1. Diagnostics to assess readiness for implementation e.g. driver diagrams
2. Test systems built to simulate and agree technical changes
3. Additional changes e.g. Sepsis alerts/triggers, to support implementation
4. Nursing and Medical training packages

Abstract 051 Figure 1 GOSH PEWS iPad/iPhone interface

5. Communications e.g. Twitter and SnapComms,
6. Post-implementation changes based on staff feedback
7. Sustainability e.g. EPR integration

Results Clinical Emergency Team measures for cardiac/respiratory arrests, 2222 calls and unplanned ICU transfers – Percentage of complete observations over time, based on an early warning score being produced – Number and type of observations over time (Nervecentre and CareVue)

Conclusion Electronic EWS can give greater visibility to patients at risk of deterioration. However, overlaying a rigorous process is essential to enhance multi-disciplinary team working, communication and confidence in recognising, reporting and making decisions about a child at risk of deterioration.

Abstract 052 EVALUATION OF A MENTAL HEALTH AND PSYCHOLOGICAL WELLBEING DROP-IN CENTRE IN A PEDIATRIC HOSPITAL SETTING

M Catanzano, R Souray, M Tibber, R Kothari, S Bennett, H Liang, I Heyman, R Shafran. Department of Population, Policy and Practice, UCL Great Ormond Street Institute of Child Health

Background Young people with a physical illness are at significantly greater risk of developing emotional and behavioural difficulties. Such problems may also have negative consequences on the management and course of the physical illness itself. This study was part of a broader project to examine the acceptability, feasibility and impact of a Mental Health and Psychological Wellbeing Drop-in Centre in a hospital setting. The aims of this particular pilot investigation were: (i) to establish whether there is a need for such a resource amongst the hospital’s patient population, (ii) to characterise the nature and severity of symptoms amongst patients presenting to the centre, and (iii) to establish the types of support that are requested and/or most needed.

Methods A drop-in ‘booth’ located in the reception of Great Ormond Street Hospital (GOSH) was run by clinicians and researchers over the course of one week (Monday to Saturday), serving as a focus for recruitment and space for treatment, with a Clinical Psychologist or Psychiatrist on-call throughout. Basic demographic data were gathered and symptom severity measured using standardised emotional and behavioural difficulties questionnaires (SDQ, GAD-7 and PHQ-9).

Results 31 participants were recruited from 28 families. The median age of young people presenting was 9 years (IQR: 6.5–11); 47% identified as White British and 55% were male. Primary problems identified included: anxiety (45%), challenging behaviour (31%) and low mood (21%). Whilst 75% of young people recruited were in the clinical range with respect to scores on the SDQ, 50% and 30% of parents scored in the clinical range for anxiety and depression, respectively. 32% of families reported never having received mental health input for their child.

Conclusion A considerable proportion of patients and family members attending GOSH met the clinical threshold for common mental health problems, indicating a potential, as yet unmet, need.
MANAGEMENT OF CHILDREN REQUIRING PERITONEAL DIALYSIS (PD) AT GREAT ORMOND STREET HOSPITAL: INTRODUCTION OF A REMOTE PATIENT MANAGEMENT (RPM) PLATFORM

M Blaauw, A Barber. Department of Nephrology, Great Ormond Street Hospital

Background Prior to the introduction of an RPM platform, PD patients were reviewed at least monthly in outpatient clinics, with regular telephone support from the PD nurses. PD programme changes were mostly made in the clinic onto the patient’s PRO card – a small memory card that uploaded the new PD programme onto their PD machine at home. The default drain alarm settings were used for all PD patients. To investigate the impact of the introduction of a web-based, RPM platform (SharesourceTM) on delivery of home PD services at Great Ormond Street Hospital, London.

Methods A retrospective review of medical records of children receiving automated PD for ≥1 day was conducted over two 6 month time periods, pre and post-implementation of RPM. Data were collected on the number and type of programme changes made to individual patient’s dialysis programmes and whether these changes occurred at the time of clinic or remotely to the patient at home.

Results Following the implementation of RPM, the number of PD programme changes increased by 34%. A substantial proportion of these were related to adjusting the default drain alarm settings within the PD machine – the daily drain data now visible with RPM, enabled patient drain volumes to be optimised with confidence. Programme changes made at home increased by 73% per patient per month (0.11 to 0.19). A nurse-led telemedicine clinic was launched for specific patients using RPM, resulting in the number of PD hospital-based consultations falling by 20% per patient per month (1.2 to 1.0), with no adverse effect of patient safety.

Conclusion Clinicians were able to execute a more personalised dialysis programme to patients with more timely adjustments; there was a shift towards greater virtual and remote care.

THE ACCEPTABILITY, FEASIBILITY AND USABILITY OF THE NEOTREE APPLICATION IN MALAWI: AN INTEGRATED M-HEALTH SOLUTION TO IMPROVE QUALITY OF NEWBORN CARE AND SURVIVAL IN HEALTH FACILITIES IN RESOURCE-POOR SETTINGS

M Heys, C Crehan, E Kesler, B Nambiar, Q Dube, N Lufesi, M Giaccone, C Normand, K Azad. Department of Population, Policy and Practice, UCL Great Ormond Street Institute of Child Health

Background More than two-thirds of newborn lives could be saved worldwide if evidence-based interventions were successfully implemented. We developed the NeoTree application to improve quality newborn care in resource-poor settings. It provides an integrated electronic platform for immediate digital data capture on admission, evidence-based clinical decision support, and newborn care education. Here, we tested the acceptability, feasibility and usability of the NeoTree prototype.

Methods This was a mixed method intervention development and acceptability, feasibility and usability study. Co-development and testing with healthcare workers (HCW) was conducted in a district hospital, Malawi. Focus groups explored the acceptability and feasibility of digital health solutions before and after implementation in the clinical setting. One-to-one theoretical usability workshops and a one-month clinical usability study gathered process and clinical data, systems
usability scores (SUS) and qualitative data around usability and perceived improvements in quality of care.

**Results**

Digital aids including the NeoTree were considered acceptable, feasible and a potential facilitator to quality newborn care (table 1). Identified factors predicted to aid the success of the NeoTree included positive staff attitude, training, strong leadership and staff engagement. Mean SUS before and after the clinical usability study was high at 80.4 and 86.1 respectively (above average is >68). HCWs reported high perceived improvements in quality of newborn care after using the NeoTree. They described improved confidence in clinical decision-making, clinical skills, critical thinking, and standardisation of care.

**Conclusion**

The NeoTree is an agile, acceptable, feasible and highly usable tool with the potential to improve the quality of newborn care in resource-poor settings. Co-production, mixed methods approaches, and user-focused iterative development has been key to its success thus far. Next steps will focus on data linkage and evaluation within national systems.

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**MEDIDRAW: DEVELOPMENT OF A MOBILE APPLICATION (APP) TO CAPTURE AND QUANTIFY FREEHAND MEDICAL DRAWING**

M Egawa, G Abdulraze, K Choi, D Mohamedally, M Cross, NJ Sebire. GOSH Digital Research, Informatics and Virtual Environments (DRIVE), Great Ormond Street Hospital
10.1136/goshabs.55

**Background**

Medical drawings form an important part of the patient record, but currently, most are paper-based freehand drawings with associated problems with storage and subjective assessment. The aim of this study was to create a cross-platform medical drawing application (app) that represents data in a standardised, quantifiable, digital format with efficient storage and retrieval.

**Methods**

We developed a cross-platform web-based application using node.js, Heroku, JSON and AJAX backend combined with an HTML, HTML Canvas, javascript and CSS front end.

**Results**

We demonstrate a working prototype of the Medidraw web app which allows freehand capture and drawing on standard templates of features such as lacerations and bruising, with automated quantification and separation of body areas. The app provides additional functionality compared to existing medical digital drawing apps such as the provision of quantitative information and further customisation will enable rapid, real-time quantification and linkage to individual records.

**Conclusion**

Further work is required to extend the functionality to all body sites, to increase the range of templates available and to develop a SMART on FHIR interface for seamless integration with an electronic patient record system.

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**AUDIT OF THE USE OF ACYCLOVIR ON A PAEDIATRIC NEUROSCIENCES WARD**

O Abdel-Mannan, P Prabhakar. Department of Neurology, Great Ormond Street Hospital
10.1136/goshabs.56

**Background**

In the absence of any other identifiable cause, Herpes Simplex Viral Encephalitis (HSVE) is considered with a high degree of suspicion in children presenting to hospital with encephalopathy. Acyclovir is the treatment of choice for HSVE and has relatively few serious adverse effects.

**Method**

We identified all patients treated with acyclovir on a paediatric neurosciences ward at Great Ormond Street Hospital between October 2017 and December 2017, and collected information on patient demographics, clinical and prescription data including missed doses.

**Results**

For the 17 patients (3 neurosurgical, 13 neurology, 1 both) who received acyclovir, 11 were male (65%) and mean age was presentation was 3.1 years. In the majority of patients, acyclovir was first prescribed at the referring hospital prior to transfer to our tertiary neurosciences ward (n=13, 76%). The mean length of admission was 7.9 days. Six patients (35%) had significant neurological co-morbidities prior to presentation. Cerebrospinal fluid (CSF) HSV PCR was positive in only one out of 12 patients (8%) who had CSF sampled. In two patients the final diagnosis was Guillain-Barre Syndrome. The mean number of prescribed acyclovir doses was 10.3 and the mean number of missed doses was 1.3. Lack of intravenous access was responsible for 43% of missed doses. In the seven patients who missed doses due to lack of IV access, mean child early warning score (CEWS) prior to missed dose was 0.38 and mean CEWS after the missed dose was 0.31.

**Conclusions**

All patients were prescribed acyclovir due to viral encephalitis being part of the presenting differential diagnosis and the decision to stop the medication was mainly reliant on negative CSF cultures. Patients who missed acyclovir doses due to lack of IV access did not show any clinical deterioration in vital observations before and after missed doses.
GOSH-WIDE REVIEW OF PANCREATITIS AS A COMPLICATION IN METHYLMALONIC ACIDURIA

Background Methylenic aciduria (MMA) is an autosomal recessive disorder of propionate metabolism characterized by the accumulation of methylmalonic acid and other metabolites in tissues and body fluids. The disease often manifests with an acute decompensation early on in life, presenting with lethargy, vomiting, hypotonia, metabolic acidosis and hyperammonemia. Patients who survive the initial presentation are at risk of long-term complications, including acute and chronic basal ganglia injury, white matter disease and optic neuropathy, as well as tubulointerstitial nephritis, leading to progressive renal failure. Pancreatitis is another reported severe complication, but only limited data are available with regards to epidemiology, diagnostics and best management of this complication. This study aimed to review the epidemiology of pancreatitis in a large single-centre cohort of patients with MMA.

Methods Retrospective review of 37 MMA patients’ records (n=22 classical MMA and n=15 vitamin B12-responsive MMA) identified 10 (27%) who had at least one episode of pancreatitis adjudged by the Atlanta Criteria (2/3 of: clinical symptoms, elevated amylase or lipase (>3 times upper limit of normal), radiological signs). 7 had recurrent or chronic pancreatitis. Pancreatitis was more prevalent in those with vitamin B12 non-responsive MMA, and in those with neonatal onset MMA. Review of 22 distinct episodes of pancreatitis showed that lipase was more sensitive than amylase in detecting pancreatitis and that amylase was more useful in detecting pancreatitis. 4/10 had ultrasound imaging abnormalities of pancreas at first episode. 3 had significant chronic imaging abnormalities.

Results This review emphasises the importance of pancreatitis in MMA. The higher incidence reported here may reflect previous under-recognition. All acutely ill MMA patients should be assessed for pancreatitis, particularly when symptoms including abdominal pain or vomiting are present. Further research is required to determine the aetiology, optimum medical and nutritional management strategies and potential preventative measures.

EVALUATING THE SUCCESS OF A MANAGEMENT PATHWAY FOR NEONATAL REFERRALS WITH BILIous VOMITING

Background This retrospective service evaluation was undertaken to evaluate the success of a management pathway introduced for neonatal referrals with bilious vomit into Great Ormond Street Hospital. In the literature, between 26%–70% of neonates who present with bilious vomit have a surgical diagnosis, and of these, 9%–17% had a diagnosis of malrotation. (Drewett et al, 2016; Verma et al, 2016). It is deemed by surgeons to be a time critical emergency with delays in management having the potential to lead to catastrophic consequences.

Methods With local trust audit approval, all neonatal admissions referred with bilious vomit over a 20 month period (February 2015 – September 2016) were included in a retrospective service evaluation. Quantitative data were collected from Intensive Care admission logs and electronic patient records. Time from referral to admission, admission to contrast and contrast to theatre was collated, as well as patient and transport demographics, diagnosis and outcomes.

Results 92 neonates meet the inclusion criteria. 98% followed the pathway with 28% being diagnosed with a surgical condition and 13% diagnosed with malrotation. 85% were admitted within 4 hours of referral. 14 neonates had alternative diagnoses on admission and left the pathway. Of the 74 neonates who underwent an upper gastrointestinal contrast study, 60.8% had their study done within 2 hours of arrival. Time to theatre from diagnosis ranged 74–397 min (with a mean of 181.8 min). There were no deaths and only one patient required resection and subsequent diagnosis of short gut.

Conclusion Neonates with bilious vomit should be considered a surgical emergency with 28% of our referrals requiring surgical intervention and half of that number having a time critical diagnosis. The data analysis showed no significant failures in the management of these neonates and the implementation of a specific pathway has resulted in impressive referral to treatment times.

PHARMACODYNAMICS OF RITUXIMAB ON B CELLS IN PAEDIATRIC PATIENTS WITH IMMUNE DISORDERS

Background Rituximab is a chimeric IgG-1 monoclonal antibody that depletes B cells, aiding in the treatment of several conditions including autoimmune and immunodeficiency diseases. It is not licensed for use in children but administered off-label. The current study aimed to identify the pharmacodynamics of rituximab in children with immune disorders in order to optimise the dosing regimen.

Methods Electronic data of children prescribed with rituximab at Great Ormond Street Hospital, London, United Kingdom were collected from a retrospective and anonymised study. Two intravenous infusions of rituximab, each at a dose of 750 mg/m2 with a maximum dose of 1000 mg, were given at day 0 and 15 within 6 months. Plasma concentrations of rituximab were not available. CD19 +B cell counts were measured before and after rituximab treatment.

A turnover model was constructed in NONMEM (version 7.3) to describe the life cycle of CD19 +B cells considering the effect of rituximab on increasing the death rate of CD19 +B cells. Rituximab was assumed to be eliminated by first-order kinetics.

Results 296 measurements of CD19 +B cell counts were collected from 46 children with 13 different immune diseases. The 2-compartment model well described the time course of CD19 +B cells following rituximab administration. The elimination half-life of rituximab and CD19 +B cells were estimated to be 18 and 40 days, respectively; these findings
were consistent with that reported from the literature. Methotrexate and cyclophosphamide were found to increase the killing effect by 62% and 33%, respectively. Other covariates such as age and gender were not found significant.

Conclusions The findings from the current study will be used to establish dosing regimens of rituximab for treating children with immune diseases.

060 A RANDOMISED STUDY OF AUTOLOGOUS BONE MARROW-DERIVED STEM CELLS IN PEDIATRIC CARDIOMYOPATHY

ES Pincott, D Ridout, M Brocklesby, A McEwan, V Muthurangu, M Burch. Department of Cardiology, Great Ormond Street Hospital

Introduction Bone marrow mononuclear cell fraction has been used as therapy for dilated cardiomyopathy in adults. Although case series are reported, there are no randomised controlled studies in children.

Methods We designed a randomised, crossover, controlled pilot study to determine safety and feasibility of intracoronary stem cell therapy in children. The primary safety end-point was freedom from death and transplantation or any complication that could be considered related to bone marrow injection or anaesthesia (e.g., infection, malignancy, anaphylaxis, renal deterioration). Other end-points were magnetic resonance imaging measurements and N-terminal prohormone brain natriuretic peptide. Participants with cardiomyopathy (New York Heart Association/Ross Classification II-IV) were identified, the study included 10 children (6 M; 4 F), with a mean age of 7.2 years (range, 2.2–14.1 years). Patients were crossed over at 6 months.

Results The original protocol was completed by 9 patients. The safety end-point was achieved in all. Ratio of the geometric means for treatment effect, adjusting for baseline, was assessed for end-diastolic and end-systolic volumes (EDV, ESV). The ratio for EDV was 0.93 (95% confidence interval 0.88–0.99, p=0.01), this indicated that EDV was on average 7% lower in patients after stem cell treatment compared with placebo. The ratio for ESV was 0.90 (95% confidence interval 0.82–1.00, p=0.05), this indicated that ESV was on average 10% lower after stem cell treatment compared with placebo. The primary efficacy end-point ejection fraction was not met.

Discussion User testing found that the app was intuitive and user friendly, although it still required added functionality and lacked data validation. Nevertheless it successfully automated a task that the perfusionists manually perform regularly.

The study concluded that there is a large opportunity for clinical decision support systems to be used in the area of perfusion and that contextual inquiries and participatory design can be used as effective tools to gather accurate requirements for such systems.

061 AN EXPLORATION OF A CLINICAL DECISION SUPPORT SYSTEM FOR PERFUSIONISTS

1T Adekoya, 1Y Rogers, 2R Isilts, 3N Sebire. 1Interaction Centre, University College London; 2Department of Perfusion, Great Ormond Street Hospital, Digital Research; 3Innovation and Virtual Environments, Great Ormond Street Hospital

Introduction Studies on clinical decision support systems have largely concentrated on drug prescribing, however, there are additional use cases which the systems could be used for, such as the area of perfusion where little research currently exists and is mainly focused on image interpretation. Therefore, this study aimed to investigate how clinical decision support systems could support perfusionists and the requirements needed in order to build a prototype through participatory design.

Methods The investigation took a grounded theory approach, using a mixed method of contextual inquiries and semi-structured interviews with senior perfusionists, to develop theories based on the context of their work. A thematic analysis was then used to analyse the findings and 4 use cases were discovered.

One of the use cases was then investigated further and participatory design was used to gather the requirements, this involved interviews and the review of a paper prototype to validate and further refine the requirements.

Results The findings resulted in the development of a RShiny application which predicts which heart-lung machine equipment will be required for an operation based on a patient’s body surface area. The app achieves this by calculating the patient’s body surface area from the height and weight inputted by the user and querying a table for the corresponding equipment, which was based on a clinical guideline table provided by the perfusionists.

062 A NOVEL SCORING SYSTEM FOR THE RESPIRATORY HEALTH OF CHILDREN WITH SPINAL MUSCULAR ATROPHY TYPE 1

V Robinson, L Edel, C Grime, E Chan. Department of Respiratory, Great Ormond Street Hospital

Background Spinal muscular atrophy type 1 (SMA 1) typically presents before 6 months of age with progressive muscle...
QUALITY IMPROVEMENT PROJECT ON REDUCING LABORATORY SAMPLE REJECTION DUE TO PRE-ANALYTICAL ERRORS – IMPROVING PATIENT EXPERIENCE, QUALITY AND EFFICIENCY

W Musabaike, Y Wu, C Morris, S Heales. Department of Laboratory Medicine, Great Ormond Street Hospital
10.1136/goshabs.63

Introduction
It is estimated that 70% of diagnostic clinical decisions are based upon information derived from laboratory test results. While laboratories have strived to minimise errors in analytical processes, evidence suggests that over 60% of laboratory errors happen during the pre-analytical stages, e.g., during sample collection and transport.

At the Great Ormond Street Hospital for Children, an audit revealed over 4500 (1.0%) patient samples were rejected in 2017 due to pre-analytical errors. There is evidence that some laboratories are under-reporting incidents which implies the scale of the problem is significantly higher. Sample re-collection and re-testing not only cause delayed diagnosis and treatment, but also result in a wastage of staff time and hospital resources. Most importantly of all, patients are subject to unnecessary collection procedures (e.g., needle poke) that are often associated with negative feelings.

Methods
A quality improvement project that aims at developing the organisations capabilities to reduce the number of pre-analytical patient sample rejections started in April 2018. Several audits on rejected and delayed laboratory samples have been performed, e.g., delayed blood cultures, leaking nasopharyngeal aspirates (NPA) during transit and reasons for rejection of blood coagulation samples.

Results
The findings of these audits were communicated to different clinical and management teams to raise concerns, which resulted in collective efforts in putting remedial actions into effect. The improvement that followed was underpinned by the use of tools such as driver diagram and stakeholder map.

Discussion
A Trust-wide steering group has been formed to monitor and ensure sustainability of this improvement project, the latest findings from the project will be presented at the conference.

CLINICAL IMPROVEMENT IN SCLEROSING CHOLANGITIS AFTER SUCCESSFUL HAEMATOPOIETIC STEM CELL TRANSPLANTATION IN PRIMARY IMMUNODEFICIENCIES

1Z Nademi, 2N Hadzic, 3Y Zen, 1K Rao, 1P Vey, 2,3G Meli-Vergani, 1EG Davies.
1Immunology and Bone Marrow Transplant Unit, Great Ormond Street Hospital; 2Paediatric Liver Centre for Hepatology, Gastroenterology and Nutrition, King’s College Hospital; 3Institute of Liver Studies, King’s College Hospital
10.1136/goshabs.64

Introduction
Sclerosing Cholangitis (SC) which can progress to Biliary Cirrhosis and Cholangiocarcinoma, can occur in patients with combined Immunodeficiencies and is often associated with Chronic Cryptosporidium infection. HSCT to correct the underlying disorder in the presence of advanced liver disease is associated with increased mortality, however, the outcome of liver disease in those who are not transplanted is not good. We describe here clinical improvement and resolution of SC following successful HSCT.

Method
Patients with SC receiving HSCT between 1998 and 2014 were identified from databases of the Paediatric Liver
Digital posters

**065** EXPOSURE WITH RESPONSE PREVENTION FOR TOURETTE’S SYNDROME: A CASE STUDY OF A 6 YEAR-OLD
A Mateu, F McFarlane, C Taylor, I Heyman. Department of Child and Adolescent Mental Health (DCAMH), Great Ormond Street Hospital

10.1136/goshabs.65

**Background** Exposure with Response Prevention (ERP) is an effective treatment for reducing tic frequency and has been recommended as first line treatment for children with Tourette’s syndrome (TS) and other tic disorders (Verdellen, Van De Griendt, Hartmann, et al., 2011). However, the application of ERP in children under the age of 7 has not been systematically studied and both case studies and randomized controlled trials (RCT) have only included children over 7 years old. The aim of this case study is to evaluate ERP to treat tics in a 6 year old child.

**Materials and methods** One child diagnosed with TS was treated at a specialist outpatient clinic using 12 1 hour sessions of ERP. Sessions were attended by the child and parents. Treatment followed a standard-protocol specifically designed for children (Verdellen, Van De Griendt, Kriens, & van Oostrom, 2011). Primary outcome was tic severity assessed with the Yale Global Tic Severity Scale (YGTSS) (Leckman et al., 1989). Secondary outcomes included Children’s Global Assessment Scale (CGAS), Pediatric Quality of Life Inventory (Peds-QL™), parent strengths and difficulties questionnaire (SDQ) and goal-based outcome measures (GBO).

**Results and conclusions** After 12 sessions, frequency of tics was reduced and quality of life improved. There was a clinically significant change in the YGTSS and clinician-rated CGAS. There was also an improvement in all parent and child-rated Peds-QL dimensions, in parents and child GBOs and a reduction (fewer symptoms) in parent-rated SDQ. Improvement was maintained at 2 months follow-up. It is feasible and potentially effective to use ERP for tics in children as young as 6 years old. Parents support may play an important role in treatment success.
Abstracts

certificate in line with 15 standards set by Health Education England (2015). These standards equip the non-registered workforce with the knowledge and skills required to provide safe and compassionate care. The Shape of Caring Review (2015) highlighted the need for the healthcare assistant (HCA) role to be valued and developed.

Method At GOSH we have adapted the care certificate, ensuring that we provide high quality paediatric focused training. The educational material is delivered during the first week of employment, through a range of interactive and peer reviewed teaching sessions. The 15 standards have been broken down into three workbooks; Knowledge standards, Clinical standards and Core skills. These are assessed during a 12 week period. The knowledge workbook is completed in class, through group activities which challenge the participants to break down the barriers that inhibit patient experience and care. The clinical standards workbook encourages HCAs to reflect upon the care they are giving. The clinical skills workbook equips the HCA with the skills they require to ensure competency, accuracy and evidence based care. We provide simulation sessions to cover skills which are not practiced in some ward areas. Each HCA is assigned to a mentor to provide consistent supervision and clinical training. We have developed a group of Care Certificate Champions; registered nurses who are involved in the delivery of the education material as well as being strong advocates for the HCAs.

Conclusion In Conclusion, the care certificate continues to be a successful training programme for the un-registered workforce at GOSH, proving them with the foundation of their future careers with us. All patient facing Bands 2–4 are required to complete the certificate.

THE ‘GLOVES ARE OFF’ – CAN WE REDUCE INAPPROPRIATE GLOVE USAGE THROUGH AN EDUCATIONAL BASED INTERVENTION AND RISK ASSESSMENT

1A Leonard, 1H Dunn, 1N Wilson. 1Department of Nursing and Non-Medical Education, Great Ormond Street Hospital; 2Department of Infection Prevention Control, Great Ormond Street Hospital

Background Non-sterile examination gloves are required to protect healthcare workers against blood and bodily fluids. Audits completed at Great Ormond Street Hospital (GOSH) demonstrated that the overuse of non-sterile gloves was a key reason for lack of adherence with the 5 moments of hand hygiene. Gloves were also being worn for the preparation of all intravenous medications. Gloves being worn when not indicated is also a waste of resources and does not aid to a reduction of cross transmission.

Methods A team within GOSH worked together to create an educational awareness programme for staff. This included an updated educational package as to when gloves should be worn in general practice as well as providing a risk assessment strategy for when to use gloves for preparing IV medication. Data has been collected for hand hygiene audits, infection rates, soap and hand sanitiser usage, glove usage, dermatitis levels in staff, qualitative data from patients and families surrounding glove usage and financial and environmental measurements at baseline and is on-going.

Results Early results show a substantial reduction in glove usage since the introduction of the programme. We will continue to measure our data and present the findings of the key measures within the poster presentation.

Conclusions Glove usage is often inappropriate and leads to hand hygiene not being performed which increases the risk of healthcare associated infection occurring. In addition, overuse of gloves for tasks such as routine preparation of IV medication means that healthcare staff are at an increased risk of occupational dermatitis. We believe that through evidence based education and supporting risk assessment, staff can be more informed about when they need to wear gloves.

DEVELOPING A HIGH DEPENDENCY EDUCATION PROGRAMME FOR NURSES IN LONDON

A Lanwame. Department of Nursing and Non-Medical Education, Great Ormond Street Hospital

Background The quality of High Dependency Care (HDC) has shown to be inconsistent across the UK and factors that contribute to this are the differences in: staffing resources, staff training, competence and bed capacity. The need for improved delivery of safe high quality critical care outside of the Paediatric Intensive care environment has been highlighted in The Royal College of Paediatrics and Child Health 2014 ‘High Dependency Care for Children – Time to move on’ document. (RCPCH, 2014).

Objectives The HDC Module course is mapped to the ‘Time to Move On’ (RCPCH 2014) document to encourage standardisation of High Dependency Units not only at Great Ormond Street Hospital (GOSH) but across London.

Methods The HDC Module is franchised through London South Bank University and is offered at Level 6 and 7 to internal and external candidates. As the module is franchised, we are able to fund a larger number of nurses at GOSH to complete the course and up skill our nurses. The course also accepts external candidates which generates an income for the Trust. The course aims to provide students with an opportunity to develop their knowledge, skill and competence in relation to Children and Young People being cared for within a High Dependency setting. The course is taught by clinical experts from a variety of backgrounds and includes, clinical simulation, application of theory to practice and advanced critical analysis skills.

Results The course has recently increased the amount of times it is running a year from two to four due to the large amount of applications. The course has consistently good feedback and the candidate’s comments on how applicable the course is to clinical practice.

DEVELOPMENT, VALIDATION AND IMPLEMENTATION OF THE BRIEF DEVELOPMENTAL ASSESSMENT IN PRE-SCHOOL CHILDREN WITH HEART DISEASE

AU Hoskote, DA Ridout, C Pagel, S Kakat, V Banks, R Franklin, T Witter, R Lakhani, M Lakhapaul, V Tsang, KL Brown, J Wray. Department of Critical care and Cardiorespiratory, Great Ormond Street Hospital

Background Despite awareness of neurodevelopmental abnormalities in children with Congenital Heart Disease (CHD), there
is no routine developmental monitoring of children with CHD in the United Kingdom.

**Method** An early recognition tool (Brief Developmental Assessment – BDA) was therefore developed using quality improvement methodology involving several iterations and rounds of pilot testing. An expert group of community paediatricians were then engaged to refine the tool and a scoring system developed which enabled categorisation as green (appropriate for age), red (delayed) or amber (equivocal).

A convenience sample of 960 pre-school children with CHD from each of five age bands (0–4 months, 5–8 months, 9–14 months, 15 months – 2.9 years, 3–4.9 years) were recruited from three UK tertiary cardiac centres as part of an NIHR-funded mixed-methods study. The BDA was prospectively validated using Mullen Scales of Early Learning (MSEL). Construct validity was based on BDA detection of children with known neurodevelopmental abnormalities, and sensitivity and specificity of BDA was evaluated against MSEL. The BDA was successfully validated in the older four age bands (not those <4 months) as pre-set validation thresholds were met (lower 95% confidence limit for the correlation coefficient >0.75) between two raters and with MSEL. Based on American Association of Paediatrics Guidelines, which state that the sensitivity and specificity of a developmental screening tool should fall between 70%–80%, the BDA outcome of ‘red’ met threshold for detection of MSEL scores >2 SD below the mean. A Delphi survey detailing two scenarios (a child identified with red BDA and a child identified with amber BDA) was sent to 80 professionals and stakeholders and agreement was obtained about a clear referral pathway.

**Conclusion** The BDA, along with a user-training package and an action guide, may be used to improve the quality of neurodevelopmental assessment of children with CHD, facilitating early detection and increased access to services.

**071 EVALUATION OF PARTICIPANT RECRUITMENT STRATEGIES FOR A RESEARCH PROJECT INTO A MENTAL HEALTH AND PSYCHOLOGICAL WELLBEING DROP-IN CENTRE WITHIN GREAT ORMOND STREET HOSPITAL (GOSH)**

BCF Ching, M5 Tibber, M Catanzano, S Bennett, H Liang, J Heyman, R Shafran. Population, Policy and Practice Programme, Institute of Child Health, Great Ormond Street Hospital

**Background** Many children with physical illness also have emotional or behavioural difficulties. These may impact significantly on the individual and family and may have consequences on the management and course of the physical illness. Psychological assessments and interventions have the potential to improve both mental and physical health outcomes in young people in a hospital setting.

**Aims** This study is part of a broader project evaluating the provision of early intervention for mental health difficulties in the form of a Mental Health and Psychological Wellbeing Drop-in Centre situated in GOSH reception. As GOSH is a research hospital, understanding optimal recruitment strategies is of critical importance. In this study, we aimed to evaluate such strategies.

**Methods** Researchers and trained GOSH volunteers recruited participants in reception and outpatient clinics over the course of a month. Additionally, a public information talk was given as a means of promoting mental health. Researchers used a recruitment log to measure perceived interest in the project and explored the effects of varying the method, time, day and location of recruitment on the volume of participants consented.

**Results** Twenty six participants have been consented to date. Preliminary analyses suggest that there was no significant difference in volume of participants consented as a function of time or day, but indicate a potential benefit of recruiting from across multiple locations in parallel. Child friendly activities, such as colouring and stickers, promoted the research to younger children and allowed parents space to talk whilst their child was occupied.

**Conclusion** As an ongoing study, further analyses will be conducted with a larger sample. The findings will inform recruitment strategies employed throughout the broader research project, and a result, increase patient access to psychological support within the hospital. Additionally, the findings are of broader relevance to other research projects recruiting within the hospital.

**072 UNDERGRADUATE NURSING TEAM; ENHANCING THE LEARNING ENVIRONMENT FOR STUDENTS**

B Low, J Byrne, N Growers, T Hawells, L Porter, S Robertson, G Simpson. Department of Nursing and Non-Medical Education

**Context** Student Nurses spend 2,300 hours in practice placements gaining invaluable exposure to the intricate roles and responsibilities of a registered nurse. The need for all elements of practice to be conducive to learning is paramount. Assessment and guidance of students in practice is based on the availability of qualified staff but with ever increasing demands on nursing time often means less time dedicated to student learning.

**Description** The undergraduate nursing team consists of five band 6 nurses who cover the Trust. They are impartial from the students’ assessment and are therefore excellently skilled resources to work with students who may be struggling or those students who may benefit from time dedicated to that next step. They support both students and assessors in practice and also act as a link to the students’ higher education institute ensuring all support, information, and progress is transparent. The team is able to provide protected time for mentors to help create positive learning environments where critical analysis of clinical practice between student and assessor can take place.

**Observation** The team is a consistent source of support for the students and staff enabling the development of mutually professional relationships. Development of robust relationship between the undergraduate team and ward areas also provides a strong, positive network to improve student placement outcomes where necessary. Professional role modelling from the team helps to ensure students are exposed to safe practice, enhancing the care delivered to patients.

**Discussion** The presence of a dedicated education team for student nurses is greatly valued within the hospital and has a significant role in supporting both students and nurses to ensure the delivery of high-quality placement experiences. Literature indicates that positive placement experiences for all involved result in fair assessments of students.
Background Every year, 2.7 million neonatal deaths occur worldwide. The Millennium development goals have seen significant gains made in under five mortality, but neonatal mortality remains persistently high, particularly in low-resource countries such as Malawi. Frameworks and standards for quality improvement in newborn care have been drawn up by the World Health Organisation (WHO) to be delivered by health care workers (HCW). However, very little is known about HCWs perceptions of the barriers and facilitators to the delivery of quality newborn care, in settings such as Malawi.

Method Focus group discussions were conducted with 13 newborn health workers from a central health facility by a Chichewa/English speaking facilitator. Thematic analysis was carried out.

Findings HCWs identified their perceived barriers to the delivery of quality newborn care to include; lack of resources and knowledge, issues with staffing (including low numbers of HCWs, frequent staff rotation and lack of ability to specialise), poor staff attitude and integration of the health care system (figure 1). Their identified facilitators to quality of newborn care included the provision of greater resources and staffing, the organisation of work load, improvement in staff attitude, strengthening of the health care system; and improved training, environment, data systems and communication.

Interpretation Our findings add to the relative paucity of qualitative data from frontline newborn HCWs, which may be vital in understanding quality improvement in low-resource neonatal units. Most themes, although inductive, can be mapped to the WHO quality of care framework. Our data emphasise the complexities of human resource retention and motivation, issues around incentivising training, and the value of mortality audits and data systems. Suggested next steps for quality improvement include developing death audit into perinatal mortality meetings and empowering HCWs to take responsibility for data collection through user friendly health information systems.
Introduction Dexmedetomidine has been proven to provide safe and reliable sedation in children and is a viable option for radiological imaging studies. No previous studies describe the use of Dexmedetomidine for CT coronary angiography, to provide safe sedation in combination with a relatively reduced heart rate in children who are at high risk of complications from general anaesthesia. Historically, in order to achieve ideal imaging conditions, heart rate control may have been achieved by pre-loading with oral long-acting beta-blockers over a few days or intravenous short-acting beta-blockade at the time of anaesthesia.

This case series details our institution’s novel use of Dexmedetomidine sedation in high risk cardiac children, requiring CT angiograms for surgical assessment.

Methods A literature search (publication dates up to 26th March 2018) was performed using PubMed, Medline, and the Cochrane Library, using the MESH search terms: ‘Dexmedetomidine’, ‘CT’, ‘CT Angiogram’ and ‘paediatric’. All non-human, pre-clinical studies were excluded. The cardiothoracic surgeons and cardiologists at Great Ormond Street Hospital identified patients. Children received a loading dose of 2–3 mcg/kg Dexmedetomidine over 10 min. Once sedated with an appropriate heart rate for the CT coronary imaging, they were scanned.

Results A total of 10 children (range 2 to 15 years of age) received Dexmedetomidine sedation for CT coronary angiography. All children attained a heart rate conducive to imaging (70–80 bpm), whilst maintaining haemodynamic stability. The mean decrease in heart rate from baseline was 28.64% (range: 0–41.67) and mean arterial pressure of 11.86% (range: 23.53–21.25).

Discussion In this case-series, Dexmedetomidine was a safe and effective sedative and had favourable side effects for children undergoing CT coronary angiogram.
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- Note-keeper and Facilitator

At the start of each meeting, participants volunteer to undertake a role. The meeting starts by setting the agenda. Times are then agreed to discuss each item so that the meeting ends on time. The chair guides the meeting through the agenda. The timekeeper warns the chair and/or participants when each item is drawing to a close. The record-keeper takes notes for feedback or adds notes to a flipchart to keep a visual record of progress during the meeting for the team. This allows action points to be tracked. The facilitator ensures that everyone has a chance to speak, including prompting those who normally remain silent.

Five minutes before the end of the meeting, an evaluation takes place. Each participant is asked to score the meeting out of 10. Each participant is asked for one comment on what went well and/or one comment of how the meeting could be improved. Effective meetings have been used in the Great Ormond Street ‘Big Room’ improvement projects and have been adopted for many of the Rheumatology team meetings. Over the course of 4 months, meetings have become measurably more productive and more enjoyable as shown below. Meeting in April 2018 Evaluation average 3.83/10. Meeting in July 2018 Evaluation average 8.31/10.

079 DEVELOPING AN ALEXA SKILL TO AID CLINICIANS

C Johnstone, C Razavi. Department of Anaesthesia, Great Ormond Street Hospital

There is a large amount of information which theatre clinicians need to be able to access on a daily basis, be it logistical (such as the location/phone number of a particular ward or person), knowledge-based (such as the Trust guideline for specific antibiotic surgical prophylaxis) or technical (such as how to perform a specific procedure). It can be difficult to access this information, particularly for members new to the Trust.

There has been a rapid increase in the number of voice-activated devices available, including Alexa enabled devices such as the Echo Dot and Echo View. We have coded a Skill to help clinicians, particularly new starters new to the Trust, to help with some of these aspects mentioned.

Alexa Skills can be developed using a variety of computer languages (JavaScript, on this occasion) within the Amazon Web Service development environment using an integrated node.js platform, ensuring that the data contained is safe and secure within Amazon’s cloud computing service.

We will demonstrate the Skill, which has been coded to include ward locations, bleep numbers and antibiotic prophylaxis guidelines as a proof of concept as to the usefulness that this technology could add to our working environment. There is also the option to have a visual display on the Echo View device, which, again we will demonstrate. The aim is to develop a fully functional Alexa Skill for those based in the theatre environment in the first instance.

We believe this technology represents an opportunity to improve our access to guidelines, clinical information, improve our efficiency and improve delivery of care to our patients.
the attendee’s views and the impact of the summer school on their career aspirations.

Results 55 medical students and foundation doctors attended the summer school. 23 participants completed a 9-question study survey taken after the summer school. Attendees were asked to score their likelihood of a career in paediatrics on a 5-point Likert scale. The mean score before and after the summer school showed a significant increase – 3.87 vs 4.65. Most respondents felt the summer school sessions hearing about subspecialties and the careers talks made them feel more likely to apply for a career in paediatrics. 39% felt that long working hours were the biggest factor putting them off the specialty.

Discussion There is a need to engage with medical students and foundation doctors in order to foster a positive attitude towards a career in paediatrics, especially in the current climate surrounding paediatrics with many negative perceptions of the specialty. Our summer school has shown this approach appears to have a positive impact on medical students and foundation doctor’s wishes to pursue a career in paediatrics.

Background Across recent and emerging redevelopment projects, Great Ormond Street Hospital (GOSH) has learned the value of integrating art into clinical design briefs and early design development, to ensure the delivery of the best possible environment that enhances the experience of the hospital for the child and their family. This poster will highlight specific case studies from the GOSH redevelopment masterplan to demonstrate how we have attempted to ensure that art is an early consideration in all projects.

Methods The necessity of integrating requirements for art into the clinical brief will be presented. This approach ensures that the required infrastructure and engineering are incorporated into the design at the earliest opportunity to support proposed art installations and ensure that changes and additional cost are avoided. The development of an art strategy and the benefits of its alignment with the clinical design brief will be explored. Consideration will be given to the importance of the Arts and Healthcare Planning teams working closely together and sharing a vision of how the finished building will look and feel.

Conclusion There will be a discussion of strategies for engaging with children, young people, and their families in order to consult on art installations and their relevance to the overarching facility design. Funding for art in the hospital will be briefly explored as well as strategies for ensuring that this funding is protected for the specific function of delivering the arts programme. Specific GOSH projects will be used as case studies, including the Mittal Children’s Medical Centre and the Sight and Sound Centre.

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082 TAILORED LEARNING FOR UNDERGRADUATE STUDENT NURSES USING SIMULATION TO EASE THE TRANSITION FROM STUDENT TO STAFF NURSE

E Adair, E Akers, B Low, A Bull, Department of Clinical Simulation, Great Ormond Street Hospital
10.1136/goshabs.82

The Great Ormond Street Clinical Simulation Centre (CSC) has introduced a bespoke programme of enhanced teaching via high and low fidelity simulation for undergraduate nurses. Anecdotal evidence suggests student nurses are struggling with a number of transitions from secondary school to student nurse and from student nurse to staff nurse. This programme directly addresses student anxiety, teaching fundamental nursing skills throughout the three-year nursing course. Through immersive simulation, skills are taught through tailored scenarios, which enable the students to acquire the physical, psychological and technical skills to provide nursing care.

Scenarios covered
- Anaphylaxis
- Sepsis
- Post-operative haemorrhage
- Aspiration pneumonia
- Fibrile neutropenia
- Epilepsy
- Asthma
- Difficult parent

These provide realistic and controlled environments to rehearse practical skills, time and medicine management alongside key aspects of care including such as escalation, communication and conflict resolution. The scenarios are tailored with specific learning objectives for each year. First-year students need to recognise the sick child. Second years need to recognise and respond. Third years on the cusp of qualifying need to recognise, respond and manage the sick child within their scope of practice. Feedback indicates that this simulation programme has given nursing students more preparation for clinical placements and the transition to staff nurse. Following this faculty support is essential in preparing students for their professional role (Thomas, 2015). Analysis of the results has shown that students have found simulation invaluable in establishing fundamental nursing skills while building confidence and competence. A common theme emerged that simulation has allowed for peer review and discussion through debriefing, enabling enhanced clinical communication skills and escalating concerns. Simulation has equipped students with transferrable skills that can be utilised throughout their training. Furthermore, students suggested scenarios that they would benefit from, drawing on clinical practice placement experience. The work undertaken has shown that simulation is key in preparing students for managing challenging clinical situations but also developing their resilience and retention.
DISCHARGED FROM PAEDIATRIC INTENSIVE CARE UNIT (PICU): A MIXED – METHODS STUDY OF YOUNG PEOPLE’S (YP) ANXIETY LEVELS AND EXPERIENCES AFTER PICU DISCHARGE

E Richards, J Wray, J Cooper, L Aitken. Department of Paediatric Intensive Care, Great Ormond Street Hospital

Introduction Young People (YP) aged 13–18 years admitted to Paediatric Intensive Care (PICU), experience physical and psychological challenges during their recovery. YP likely have different experiences than children or adults (Manning et al., 2017). Anxiety as a characteristic of illness recovery is largely under-reported, as are the experiences of YP of this age range. This study measured the levels of anxiety that YP experience and explored the experiences of YP after PICU discharge. Design mixed methods: explanatory sequential design. Demographic data in addition to the Paediatric Index of Mortality Score (PIMS 2) will be collected. Quantitative component: Hospital Anxiety and Depression Score, anxiety subscale only (HADS-A) will be collected at 48–96 hours and at 4 weeks after PICU discharge. Qualitative component: Semi-structured interviews based on a cross-section of participants with a range of HADS-A scores.

Results Preliminary results demonstrate that HADS-A scores are generally low in contrast to descriptions of anxiety-provoking events and experiences on PICU, elicited during interviews. HADS-A scores were mean=8.4 (n=18) 48 hours post PICU discharge. Mean score of 8.9 is classified as mild anxiety using the HADS-A subscale. On average these scores had reduced to Mean=5.5 (n=9) 4 weeks later which suggests that no anxiety is present (Zigmund and Snaith 1983). The Qualitative themes emerging relate to staff and family presence and the YP’s experiences of pharmaceuticals, medical and nursing interventions.

Conclusion The anxiety scores do not reflect the experiences described by YP during interview; this raises questions about the context of experiences and the multifactorial psychological impact of a PICU admission.

ANTICIPATING THE UNEXPECTED; A WELL-DESIGNED CHECKLIST WILL SAVE LIVES, PREVENT COMPLICATIONS AND IMPROVE SAFETY

E Lock, C Roberts. Children’s Acute Transport Service, Great Ormond Street Hospital

Methods Through the implementation of a PDSA cycle, the original checklist was reviewed, and objectives were made based on service needs. The plan was implemented. The results obtained were analysed and improvements were implemented. The new checklist was implemented and audited further, providing an opportunity for all users to comment.

Conclusion The checklist was made in a more logical order, improving the relevance and ease of use. The non-clinical emergency tool was added to encourage departure team briefing. Safety reminders were added.

REFERENCE


ENABLING EFFECTIVE ESCALATION OF CLINICAL CONCERNS: A SIMULATION-BASED STUDY DAY TO ENHANCE THE SKILLS OF HEALTH CARE SUPPORT WORKERS

E Broughton, H Boyd, J Manget. 1Department of Nursing Non-Medical Education, Great Ormond Street Hospital; 2Department of Postgraduate Medical Education, Great Ormond Street Hospital

Background Across the UK Healthcare Support Workers (HCSWs) makeup 40% of the healthcare workforce, provide 60% of patient care and receive less than 3% of the training budget. The expectation of this workforce is that they will deliver high-quality care that is compassionate and clinically sound. Hierarchy is a recognised barrier to the escalation of deterioration; combined with critically ill patients, a challenging context is created in which to escalate concerns.

Methods A one-day blended programme was developed for HCSWs to provide an overview of clinical systems and escalation: focussing on ‘taking obs’ and effective escalation of concerns. The clinical assessment process was broken down and taught through didactic sessions, following the A (airway) to E (exposure) assessment structure. Escalation was explored in a workshop lead by a middle-grade medical trainee. Candidates participated in simulated scenarios as the first responder. Each candidate was required to undertake a full A to E assessment, accurately identify abnormalities and escalate concerns to a senior nurse and middle-grade doctor.

Results Qualitative data was collected via a formal candidate survey. The day rated 5/5 for usefulness, however, through comparative analysis of candidate performance against intended learning outcomes, we have identified that escalation across the hierarchy gradient was not the greatest challenge for HCSWs. The difficulty in application of a structured approach to assessment was the prominent barrier to recognition and consequently prompt escalation.
Conclusion The course demonstrated that fundamental principles behind patient observation to be understood and applied in a structured manner before challenges in escalation can be addressed. Moving forward, we will provide more time for candidates to practice structured assessment on a manikin prior to applying this within simulated patient scenarios. Only once this is achieved, can we expect to address escalation over the hierarchy gradient.

086 THE BIG MEET UP – FINDING WHAT IS IMPORTANT TO YOUNG HEALTHCARE USERS IN ENGLAND

E Jarres, A Sutton. Patient Experience Team, Great Ormond Street Hospital

10.1136/goshabs.86

We would like to share the story of the Big Meet Up 2018 which was the first ever event organised by young people from Great Ormond Street Hospital, for young people at other paediatric hospitals and units. The event identified the biggest issues facing young healthcare users across England, something that has never been achieved before.

More than 80 young people came together on Saturday 14 October 2017. The morning kicked off with laughter at a Q and A session with comedian and former GOSH patient Alex Brooker. Alex shared positive memories of his time at GOSH and told young people that they play an important part in their healthcare and if they stay quiet, they will not be able to have an impact.

At the next session, young people were divided into groups, which mixed up ages and youth forums, for a ‘share and steal’ activity. Patients shared their thoughts on the rights of children and young people in healthcare, as well as practical issues and emotions of children and young people in hospital.

At the end of the day, attendees chose a workshop to participate in. They could choose from a tour of GOSH, first aid and CPR training, a course on advocating for themselves, public speaking skills and more.

To close the day, everyone voted on the issue to be taken forward by the NHS Youth Forum (which works with the Department of Health on national issues). The winning topics were: Everyday mental wellbeing should be everyone’s responsibility and that Communication should be a two-way conversation amongst equals.

Excitingly, the Nottingham University Hospitals Youth Service and Derby Teaching Hospitals Kite Team have agreed to co-host the next Big Youth Forum Meet Up in 2018.

A video of the Big Meet Up is available at goo.gl/fzVpkj

087 COMMUNICATING IN CHALLENGING SITUATIONS: ENHANCING PROFESSIONAL CONVERSATIONS IN A TERTIARY PAEDIATRIC CENTRE

E Parish, G Wykurz, S Sharma. Department of Postgraduate Medical Education, Great Ormond Street Hospital

10.1136/goshabs.87

Background Great Ormond Street Hospital has a high turnover of staff, including those temporarily in the organisation alongside established international experts. This environment, while stimulating, is potentially intimidating. Evidence supports good teamwork and inter-professional skills contribute to better patient outcomes and improved staff morale. We wanted to develop free-to-user training to enhance communication and teamwork between colleagues in clinical settings, breaking down silo working and hierarchies.

The Post-Graduate Medical Education (PGME) department invited an external facilitator to support a course on ‘Professional Conversations’. Utilising the experience of clinical staff, educators, managers, and a group of specialist actors we co-created content. The course runs over two days, a month apart. Participant’s complete pre-course questionnaires identifying situations they find challenging. On Day 1 each participant is supported to craft a personalised scenario based on their experience. Communication simulation is followed by structured debrief and reflection. Day 2 offers time to reflect on the use of skills in practice through collaborative learning groups.

Results The course has run 3 times with 52 participants and excellent delegate feedback. 83% provided feedback: all agree or strongly agree, the course was relevant. 100% stated it would change their practice. It is not possible to directly correlate improvements in staff retention and patient experience. In qualitative feedback, participants identified the value of a ‘safe’ space to discuss challenges in inter-professional communication that hinder care.

Discussion and conclusions We are impressed by uptake in department’s not initially targeted (social work, play specialists and research-based specialities). We spent time developing a faculty that spans professions, including actors, whose observations and insights have developed unexpected elements of the course (breathing and co-ordination exercises to enhance self-awareness, highlight body language, peripheral awareness and anticipation). Mixed-method teaching provides a safe space for colleagues to develop trust and prepare themselves before potentially difficult encounters with colleagues.

088 GOSH TEENS CAREER FESTIVAL

E Parish, D Hothi, S Simpson. Department of Postgraduate Medical Education, Great Ormond Street Hospital

10.1136/goshabs.88

Background Adolescence is a time of great change and opportunity as young people develop their personal identity and cultivate future career ideas. Often the Young People we care for at GOSH miss some key educational opportunities while receiving treatment, including career planning and advice. We wanted to run a co-created programme, which met the needs of this group of Young People to help their transition.

Project summary (Work in progress) During June–July 2017, we ran a pilot scheme to deliver life skills experience days for Young People at GOSH. Feedback from these sessions was a request for more events, with varied professions and career opportunities to be represented. There was also a theme of specialist advice needed for those who have long-term health conditions, in particular how to address health needs in the workplace and at the interview. We formed a working group of GOSH staff, young people representatives, GOSH Charity and Education. We liaised with the transition working group team and developed a Careers Festival for current and past
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Patients (https://www.gosh.org/gosh-careers-festival-0). The day event is open to 14–18 year-olds and consists of drop-in sessions with a range of external companies coming to support attendees in CV writing, interview practice and talks from former patients and employees about working with long-term conditions and disability in the workplace.

Results This is a work in progress with our main event being held on 3 August 2018. We expect to be able to report on the event outcome (attendees and results of feedback) ahead of the GOSH conference. We are utilising quality improvement methodology to assess the success of this project and if felt to be worthwhile to anticipate this to be an annual event.

Acknowledgments Special thanks to GOSH Charity and GOSH Working Group for GOSH Teens Career Festival: (Jacqui Segal, Oliver Field, Daljit Hothi, Amy Sutton, Emma Parish, Nigel Mills, Jayne Franklin, Prisha Bathia, Laura Walsh, Tanya Whitehead, Emma Ninnis, Kelechi Gideon).

089 READINESS FOR THE FUTURE: YOUNG PERSON EXPERIENCE AND LIFE SKILLS PILOT PROJECT

Background There are over 4500 young people between the ages of 16–24 at GOSH transitioning to adult services. Young people with long-term conditions often miss out on opportunities to develop skills to aid their readiness for future work due to missed days in education while receiving treatment. In response, GOSH and Morgan Stanley devised a series of life skills days.

Project summary During June-July 2017 we ran a pilot scheme at the London Morgan Stanley offices. The half-day sessions included a networking icebreaker, CV writing exercise, mock interviews and Q and A with staff. Those attending were encouraged to come independently without parents. In case of any medical needs, attendees were accompanied by clinical staff from GOSH. Briefing documents about the experience of young people attending were shared in advance.

Results 3 events were held over a 2 month period. 28 young people attended (aged 15–24 years). All attendees agreed the day was useful to them and all said they would recommend it to others. Attendees rated the experience an average of 9.5 out of 10. The most popular sessions were interview practice and CV writing. Qualitative data was collected on the day. Most young people attending lived in, or close to, London but some young people travelled considerable distances to attend (Newcastle, St Albans, Buckinghamshire, Essex).

Discussion Part of the continuous care of young people is supporting their development to fulfil their potential. Young people enjoyed the events and some have benefitted from subsequent mentoring and work experience. We are conscious that travel costs could prove to be prohibitive, especially for those outside London, and are working with GOSH Charity to improve the accessibility and sustainability of the model. We are in the process of co-creating future events with the Young People’s Forum.

090 USING QUALITY IMPROVEMENT METHODOLOGY TO IMPROVE FUNDAMENTAL NEONATAL CARE AT GOSH

Context Following serious incidents around mismanagement of jaundice and missing bloodspot samples, a clinical audit of neonatal care was carried out. This highlighted areas for improvement and a quality improvement project was initiated by the Neonatal Nurse Advisor, Consultant Neonatologist and QI Team. QI methodology and PDCA cycles were used to identify, test and implement change, using measurement to understand variation and monitor the impact of interventions to ensure sustained improvement.

Aim To improve the quality and safety of neonatal care by January 2018, broken down into sub-aims:

- All cases of neonatal jaundice are managed in line with NICE guidelines.
- All eligible neonates have a successful bloodspot screening test within the required timescale.
- All neonates are managed in line with fluid management guidelines.

Method

- Diagnostic work identifying appropriate improvement approaches (aim setting, driver diagrams, process mapping, and staff survey).

Abstract 090 Figure 1 SPC charts outlining sustained improvement in all three outcome measures.
A developed real-time report highlighting in-patient neonates to improve oversight of where vulnerable patients situated.

Streamlined admission processes to improve the availability of information required for screening.

Developed automated email prompt system highlighting babies eligible for screening.

Developed a comprehensive programme of neonatal education.

Improved access to resources via ward folders and intranet hub.

New neonatal care pathway documentation.

Awareness raising of fundamental neonatal care.

Measures and results SPC demonstrates sustained improvements for outcome measures:

- The increase from an average of 62% of neonates managed in line with NICE guidelines to 80%.
- Decreased from average of 31% of neonates requiring avoidable repeat to 11%.
- Increased from average of 93% of bloodspots within required timeframe to 98%.

Challenges and learning Embedding sustainable change and engagement in light of staff turnover and junior doctor rotation. A clear sustainability plan was developed, outlining responsibilities and accountability for sustaining the quality of practice.

**091 DOES ANTENATAL DIAGNOSIS INFLUENCE OUTCOME IN VEIN OF GALEN MALFORMATION?**

E Sturgess, E Randle. Children’s Acute Transport Service, Great Ormond Street Hospital

10.1136/goshabs.91

Introduction Vein of Galen anomalous malformation (VGAM) is a rare congenital vascular malformation. The Children’s Acute Transports Service (CATS) transport neonates with VGAM into the national treatment centre. Antenatal diagnosis may be suggestive of a larger malformation however it permits prompt intervention and may reduce the incidence of high output cardiac failure.

Aim To investigate any difference in survival rates for neonates diagnosed antenatally (AN) or postnatally (PN) with VGAM.

Methods Case note review from March 2009 to July 2015 (76 months). All VGAM cases in the neonatal period requiring the first admission to the neurovascular centre.

Results 38 cases were identified, 12 AN and 26 PN diagnosis. Median age at referral differed between groups (AN 0.5 days, PN 2.5 days). The PN group predominantly presented with heart failure (10, 38%) or cardiomegaly (7, 27%).

AN diagnosed neonates were more likely to be transported intubated (42% vs 31%) and less likely to require inotropes (33% vs 54%). 42% PN children were transferred twice before admission to the neurovascular centre.

Overall, survival was 15/36, 42% (AN,50% PN,37%). Those requiring inotropes at transfer demonstrated 28% survival; those without an inotrope requirement had a 36% survival. These survival rates are summarised in figure 1.

Conclusions Antenatal diagnosis of VGAM appears to increase the chance of survival with a decreased incidence of high output cardiac failure. Neonates not requiring inotropic support during transfer are twice as likely to survive than those who do. The small sample size is acknowledged, however, we believe this is the largest recent case series of neonates with VGAM requiring their first admission to the UK national neurovascular centre.

**092 MENTAL HEALTH INTERVENTION FOR CHILDREN WITH EPILEPSY (MICE): INTERVENTION DEVELOPMENT**

F Walji, A Welch, J Smith, S Bennett, H Cross, C Herderson, I Heyman, R Moss-Morris, J Ross, A Evans, R Shafman. Department of Child and Adolescent Mental Health, Great Ormond Street Hospital

10.1136/goshabs.92

Background At least half of young people with epilepsy also have mental health problems such as depression, anxiety and behavioural difficulties. However, many children with epilepsy do not access the mental health treatments they need, in part because epilepsy services are separate from mental health services.

Aims To take an existing evidence-based mental health treatment (Modular Approach to Therapy in Children – MATCH) with established efficacy in children and young people and make changes to ensure it is relevant to children and young people with epilepsy. The aim is for the psychological therapy to be fully integrated with physical healthcare, delivered within epilepsy services over the telephone in a way that is sustainable for the NHS.

Method Advisory groups of young people with epilepsy and their families and epilepsy professionals discussed ways to ensure that the intervention was suitable for the specific needs of children with epilepsy and their families. We used the feedback from these groups and from previous patients, together with previous research to make small changes to the intervention in an iterative process using Plan-Do-Study-Act (PDSA) cycles. Normalisation Process Theory (NPT) was used as a framework to guide discussion and intervention development.

Results An epilepsy-specific module was added to the intervention. We also integrated some epilepsy-specific examples of difficulties throughout the remainder of the manual. Few changes were needed to the existing intervention, as families’ main priority was that it was delivered flexibly with a focus on their own individual goals for treatment.

Conclusion Feedback from families and professionals is key in ensuring that therapies meet the needs of those they are designed to support and this study demonstrates that it complements knowledge of theory and the evidence-base. PDSA cycles together with NPT can be used as a framework to support the development of such interventions.
**SURFACE CLEANING – THE REALITY IN A CLINICAL ENVIRONMENT**

F Asadi, S Harbot, H Dunn, JC Hartley, E Cloutman-Green. Department of Microbiology, Great Ormond Street Hospital; University College London, Great Ormond Street Institute of Child Health (ICH)

Introduction Studies have shown direct transfer of pathogens between patient and the environment, with patients in intensive treatment units (ITUs) at highest risk to healthcare associated infections (HCAIs). Therefore, frequent and effective cleaning is important in reducing the incidence of HCAIs. While some guidance exists on cleaning, how and when cleaning should occur is not defined.

**Aim** To audit surface cleaning practices undertaken by healthcare staff within patient bed spaces in ITU.

**Methods** Observations were undertaken for 500 hours to audit how non-organic surfaces were cleaned by staff. Observations included different bed spaces, shifts, healthcare staff and routine and post discharge cleaning. Staffs were classified into groups: doctors, nurses, healthcare assistants, housekeepers, cleaners and others. Surfaces were categorised by height as level 0 (<0.6 m), level 1 (0.6 m–1.2 m) or level 2 (>1.2 m). Observations included the numbers of staff entering a patient bed space, surfaces touched before and after patient contact and cleaning agent and technique used to clean any surface. Findings 17% of staff entering bed spaces undertake some form of surface cleaning. On average, a cleaner would clean 8 surfaces of a possible 56 when entering a bed space, while nurses and doctors on average clean 0.2 and 0 surfaces respectively. Nurses most commonly cleaned the intravenous tray with a wipe, with technique varying significantly.

**Conclusion** Cleaning methods were inconsistent between staff groups. Confusion between cleaning roles was observed, showing a need for a clear division of cleaning responsibilities between staff groups. Wide variabilities in cleaning technique among all staff groups highlights clear gaps in training and a need for a comprehensive training package with defined cleaning roles.

**MANAGING MYCOBACTERIA CHIMAERA RISK LINKED TO HEATER COOLER UNITS**

FG Yongblath, M Nakrani, F Asadi, EA Cloutman-Green, JC Hartley. Department of Microbiology, Great Ormond Street Hospital

In Zurich in 2012, 2 cases of Mycobacterium chimaera endocarditis/vascular graft infection were identified. This led to an investigation where six patients (in total) were found to have M. chimaera infection, detected up to 3.6 years post-surgery. M. chimaera was cultured from both the air surrounding and the water from the heater-cooler units used during surgery and therefore was thought to be the source. Aim To investigate levels of heater-cooler unit colonisation and aerosolisation risk over time within a single UK centre.

**Methods** In 2015, guidance was released that required the surveillance of both waters from heater cooler unit’s post-use and air samples taken from during use. Mycobacterial culture of the water samples was undertaken using a modified BacT/Alert TB protocol (BioMerieux). Air sampling was undertaken as per the guidelines using Middlebrook 7 H11 agar, as well as standard microbiological culture.

**Results** 66 water samples from three heater cooler units (cardioplegia and patient circuits) were taken between September 2015 and February 2017. 12 samples were positive for M. chimaera across all three units, no single unit, however, has been continuously detected as positive. Air samples were taken for monitoring both within the theatre environment and within the setup environment isolated M.mucogenicum. This then grew in a theatre mock-up when the machine was covered. All other air samples remained negative. Other Mycobacteria were isolated from 10 water samples and sequencing was required for identification.

**Conclusions** Despite sporadic detection of M. chimaera within all three-heater cooler units utilised no M. chimaera has been detected within the air surrounding the units, thus indicating a low risk of transmission to patients undergoing surgery. Air was sampled in rooms that had between 10 and 25 air changes per hour and this may be the source of the decreased detection levels.

Mindfulness is a form of awareness training that helps people relate more effectively to their experiences. It involves paying attention to thoughts, feelings and body sensations in a way that increases awareness, acceptance and self-compassion to help manage difficult experiences, and create space to make wise choices.

Some families demonstrate resilience in the face of their child having a condition that is treated at GOSH. But others experience the demanding treatment regimes, the shift in roles, and responsibilities as stressful. Studies have found associations between parenting stress and adverse caregiver and child psychological sequelae (e.g. Mullins et al. 2004). Parenting stress may also affect child health-related outcomes as it can interfere with the management of a child’s chronic condition (e.g. Barakat et al, 2007a). Mindfulness is associated with self-reported positive affect (Brown and Ryan, 2003), less anxiety and depression (Brown and Ryan 2003), greater relationship satisfaction and less relationship stress (Barnes et al. 2007).

**Conclusion** Mindfulness develops and enhances skills such as emotional intelligence, decision-making, communication, collaboration and teamwork, which are all skills important for the workplace. According to the Health and Safety Executive, UK businesses lose approximately £530 million a year due to stress-related illnesses. Given the elevated risks of burnout when working in healthcare, it would seem logical to bring Mindfulness to the healthcare workplace.

As part of my Mindfulness Teacher training, I ran 8 week MBCT courses for staff and for parents. The intervention helped parents with clinical levels of stress and depression to reduce to below clinical thresholds. Although staff members were not scoring so highly on the same measure and so demonstrated less change, they did positively evaluate the course.

**Conclusion** Mindfulness is a useful intervention to offer in this setting; to parents to reduce levels of stress and depression, and to support staff well-being.
Background Septicaemia is a serious clinical condition with ~1 23 000 cases of sepsis a year in England.

One of the key methods of diagnosis is the Bruker Sepsityper kit and MALDI ToF. Although this method has improved diagnosis, the extraction technique is complicated and time-consuming.

This investigation looks at a new rapid and shortened extraction procedure for identification of isolates from blood cultures bottles as well as direct detection of Carbapenemase Resistant Enterobacteriaceae (CRE).

Material/methods 80 blood cultures were tested. 60 were spiked blood cultures with 6 known control organisms. 10 of the 60 spiked blood cultures were known CRE isolates which were then forwarded for direct CRE testing using the Bruker MALDI MBT STAR-Carba IVD Kit. 20 blood cultures were from patient specimens. All blood cultures were tested using the full extraction method and a shortened method. Isolates were identified on the Bruker MALDI ToF Biotyper and were analysed using the Bruker MBT Compass and the Bruker MBT Compass IVD.

Results 6 species of bacteria were identified. The Compass correctly identified 70/80 samples for both the shortened and standard Sepsityper extraction. The Compass IVD correctly identified 76/80. 3 out of 10 CRE were detected by the Bruker MALDI MBT STAR-Carba IVD Kit. 20 blood cultures were from patient specimens. All blood cultures were tested using the full extraction method and a shortened method. Isolates were identified on the Bruker MALDI ToF Biotyper and were analysed using the Bruker MBT Compass and the Bruker MBT Compass IVD.

Conclusion The results demonstrate that the shortened Sepsityper extraction method was able to correctly identify all isolates, apart from 10/4 respectively. This investigation also showed that it is now possible to identify CRE directly from Blood Cultures using the MBT STAR-Carba IVD.
Serial cranial ultrasound revealed ongoing severe ventriculitis and cerebral abscess formation with increasing head circumference and ventricular indices. Neurosurgical intervention could not be offered due to ongoing hemodynamic instability and septic shock from which the baby could not be revived. Cranial USS showing grossly dilated ventricles filled with debris and clot.

**Conclusion** Anaerobic cultures are not routinely performed in neonates and hence infections can be missed, as seen in our case with negative blood cultures. With rising resistance patterns, the routine antibiotics used on the neonatal units would not provide the necessary protection. Placental cultures and histology could aid in the early identification of an organism. Due to high mortality (up to 34%), we recommend that routine anaerobic cultures should be considered.

**Background** Marfan syndrome is a multi-systemic disorder characterized by progressive aortic dilation. Follow-up imaging is performed to monitor aortic dimensions, traditionally assessed by 2D diameter measurements, which cannot capture complex aortic shape variations. Statistical shape analysis is a novel technique that allows for a more comprehensive characterisation of the aortic morphology by analysing the overall 3D shape.

**Aims** The aim of the study was to create a 3D average (template) aorta for Marfan patients using statistical shape analysis and to study population shape variations that could be more indicative than traditional 2D measurements in patient follow-up.

3D reconstructions from cardiovascular magnetic resonance imaging of 46 Marfan patients were included in the study. Eleven shape components (shape modes) described the shape variations in the population and were compared with traditional morphometric and clinical data.

**Results** The first shape mode (mode 1) correlated with the vessel centreline length, thus representing mainly aortic size. Mode 1 dimensions increased with the increase of the aortic z-score derived from traditional image modalities. Good correlation was found between the aortic template and traditional dimensions.

**Conclusion** Prospective studies are required to assess the role of 3D aortic morphology in predicting clinical outcomes in this population.

**Background** Children and families attending a specialist headache clinic were invited to attend an interactive headache day. The day aimed to offer the opportunity to meet other children and families, engage in discussion about their experiences and attend sessions delivered by a Consultant Neurologist, Clinical Psychologist, Clinical Nurse Specialists and a young adult recently transitioned to adult services. Patient centred outcome measures were used to understand the aims of those attending and assess whether they were achieved.

**Methods** Two interactive headache service days took place one year apart. The first day was split into separate sessions for younger children and adolescents. In response to feedback, the second day consisted of one session for all families. However, the content remained similar.

Attendees were asked to complete a goal based outcome form, identifying up to three goals for attending and rating their progress towards each before the event started from 0–10 (10=goal reached). Progress was rated again at the end of the event.

In 2017 9 parents and 9 children/young people returned the forms. In 2018 they were returned by 6 parents and 5 children/young people. The goals were categorised according to themes with average ratings pre and post event and change in ratings calculated.

**Results** There was an average increase in goal rating of 4.32 across 31 goals for parents and 3.45 across 31 goals for children/young people. Seven themes were identified; meeting others/shared experiences, education/general functioning, coping strategies, information on treatment/research/next steps, understanding of the condition, ways to support the child (parents only) and reduced migraines.

**Conclusions** Parents and children/young people attending an interactive headache day reported progress towards their goals. The goals largely corresponded with the aims of the team. Events such as this can form a beneficial part of the service offered to children and young people with headache conditions.

**Background** Infliximab has been associated with infusion-related reactions. In adults, infliximab can be administered at a shortened rate (over one hour). However, this practice has not been widely studied in the paediatric population. There is a change of practice at GOS whereby all patients on the rheumatology ambulatory ward who had tolerated at least four infliximab infusions given over two hours with no adverse effects were offered to have their infusions administered over one hour.

**Aims** To undertake a service evaluation to assess the tolerability of paediatric rheumatology patients receiving intravenous infliximab over 1 hour. The clinical records of all patients who were offered the shortened rate of infliximab infusion between June 2016 and March 2017 were reviewed retrospectively. Any acute adverse effects and delayed hyper-sensitivities reported up to May 2017 were documented.
Results 33 patients (aged between 6 to 15 years) received 159 infliximab infusions over one hour at 6 mg/kg every four to eight weeks. The number of infusions each patient received ranged from one to nine infusions (median=five). Of the 33 patients, six patients (18%) had infusion-related reactions, and when compared to the 15% in adult this is not statistically significant (Chi-squared test). Of the six patients, three patients (9%) had a cough/bronchospasms, one patient (3%) had facial rash and blister to arms, one patient (3%) had vomiting and flushing and one patient (3%) reported to have chest pain and headache. All symptoms resolved with or without pharmaceutical intervention. These six patients continued receiving the remainder of their doses over a total infusion time of two hours and received further doses over two hours thereafter without adverse effects.

Conclusion Paediatric patients with rheumatology conditions can tolerate intravenous infliximab over one hour. Repeat infusions were well tolerated and no delayed hypersensitivity-like reaction was reported post infusions.

102 THE CREATION OF A 2-YEAR EDUCATION PATHWAY FOR NEWLY REGISTERED NURSES
I Burt. Department of Nursing and Non-Medical Education, Great Ormond Street Hospital

Background The two-year education pathway is a development programme that Great Ormond Street Hospital offers to all newly or recently registered nurses, with the aim of improving the retention of Newly Registered Nurses (NRN) beyond these first 2 years.

In 2014 a Professional Development Programme was developed for NRNs during their first year in the trust. The programme consists of 4 development days over a seven month period, which allows the NRNs to share and reflect on their experiences, understand different tools to manage potential future challenges and build on their resilience. Following the implementation of this programme, our retention rates were boosted from 68% to 96% after 1 year. There was a clear benefit that this programme was positively affecting our retention of these nurses. However, it was evident that improvements could be made to the second year to retain the same nurses the following year.

Aims A band 5 development programme was developed for the NRN’s entering their second year in the trust following a consultation with Practice Educators from throughout the trust. The programme consists of 5 development days which includes topics such as trust initiatives, preceptor training, clinical simulation, courageous conversations and specialist foundation courses.

Conclusion Following the pilot of the programme, the projected retention rate for NRN’s after 2 years is 80%, in line with our one of our key performance indicators.

Evaluations demonstrate that there is scope for the development of the programme to tailor the content to the needs of the workforce. Feedback indicates that the continuation of peer support has been beneficial for their development where all candidates have found the programme useful in consolidating their learning from the previous two years and understanding their future development opportunities.

103 INTRODUCTION OF ASSISTANT THEATRE PRACTITIONERS (ATPS) TO POST-ANAESTHETIC CARE UNIT (PACU)
I Ojo. Department of Theatres, Great Ormond Street Hospital

Background With the opening of a new PACU, the idea of incorporating a new workforce of ATPs to aid the patient experience and trust values presented itself. The proposal was that the ATPs would be trained to admit, recover and discharge patients creating a link between the ward and theatre and hopefully increasing positive patient experience and reducing patient/parent anxiety by having the same staff member follow the patient through their surgical journey and be able to explain what happens in theatre/recovery.

Aims After a thorough research into ATPs and the availability of university modules appropriate for this role, it was clear that a new training pack would need to be developed to comply with the academic requirement for Band 4s and to ensure patient safety. With the overall senior management, HR, Education department and Nursing workforce support, the training period was agreed to twelve months. Six months as supernumerary to allow for placements and study days, with six months of consolidation. A carefully designed training programme was developed by the Theatre Practice Educators to incorporate anaesthetic, recovery and ward placements and six full study days. Once the Education department signed off the training package, the recruitment commenced. It was decided that a training contract with additional terms and conditions was the most appropriate to allow for some flexibility and options.

Results/conclusion Three ATP trainees were selected and since successfully completed the training, including the consolidation period. They have incorporated into the recovery and ward team with no problems and although some change to the initial plan had to be made, the feedback from both staff and patients has been positive and encouraging. In order to continue and expand the service, and to provide this workforce in future to other Trust, it would be helpful if the training could be provided centrally via Universities.

104 ASSESSING VISION IN NON-VERBAL CHILDREN WITH SEVERE DISABILITY: OUTCOMES OF ASSESSMENTS IN DIFFERENT SETTINGS
I Sargent. Department of Neurodisability, Great Ormond Street Hospital

Background Children with disability are at increased risk of visual problems, often arising directly from underlying cerebral pathology. The use of the term ‘cerebral visual impairment’ (CVI) is increasing although a clear definition is lacking. Visual difficulties may include reduced acuity, oculomotor impairment and poor visual attention. However non-visual factors such as cognitive or social impairment may also impact on responsiveness to visual materials, creating assessment challenges.

Aims A retrospective review was conducted of 26 children with severe disability (severe movement limitation and no/minimal speech) and possible severe visual impairment who were
all seen within Ophthalmology and Neurodisability, over a 4 year period Apr 2013 – Mar 2017). Data was extracted on the reason for referral, vision history details, type of assessment conducted, interpretation of findings, and consequent practical advice.

Results An ophthalmological assessment was usually preceded by Orthoptic assessment and always included refraction, fundoscopy and basic fixing/following responses as well as history taking. Acuity measures, where obtained, sometimes lacked interpretation. The term CVI was used without precise specification and practical advice was not always given. Regular reviews over long time periods were noted for some children. A longer multidisciplinary Neurodisability assessment included more extensive history taking and considered a wider range of influences on poor visual responses; some children diagnosed with CVI by Ophthalmology were found during Neurodisability assessment to have alternative reasons for poor visual responses.

Conclusion Ophthalmology assessment is an essential part of vision evaluation in children with severe neurodisability, however, conclusions from vision assessment are sometimes not clearly drawn and opportunities to ensure appropriate functional adaptation of visual materials may be missed. In addition, non-visual influences on visual responses may not be identified. A detailed multidisciplinary neurodevelopmental assessment can provide more precise explanations of poor visual responses plus detailed practical advice relevant to overall neurodevelopmental status.

Introduction Adapting interventions developed in low-income countries (LICs) to the UK could offer an alternative to current NHS services. The women’s group, Participatory Learning and Action Cycle (PLAC), has successfully reduced neonatal mortality in LICs. It guides participants through a process involving problem identification, planning strategies and post-implementation evaluation.

Child health can be influenced by the health of the mother and affected also by factors such as infant nutrition. Sub-optimal nutrition in infancy could be creating high rates of nutrition-related ill-health in British Bangladeshi communities. Tower Hamlets boasts a large and concentrated population of British Bangladeshis, which presents a receptive environment for participation of the community. The aim of this study is to utilise existing population knowledge, to adapt the PLAC to encourage optimal infant feeding practices in the Bangladeshi population of Tower Hamlets.

Aims Using Braun and Clarke (2006) guidelines, we thematically analysed three focus group discussions with men and women of Bangladeshi origin, in Tower Hamlets.

Results The participants perceived British Bangladeshi practices to be distinct from those living in Bangladesh, particularly regarding family dynamics, health professional influence and health priorities. This indicates that the PLAC needs to be available to all family members, be embedded in the NHS and focus on child growth and development. The content of the intervention will include resources such as picture cards, which will include traditional Bangladeshi foods as well as British recipes.

Conclusions British Bangladeshi communities identify in terms of their heritage and their environment. This has implications for interventions such as the PLAC that are being adapted from LICs. Minority groups living in the UK may be accustomed to British culture, particularly where food and family ties are concerned. Utilising existing population knowledge is an effective way to adapt for assimilation or acculturation in such populations.
107  IMAGING FEATURES OF PREOPERATIVE WILMS TUMOUR RUPTURE ON CT AND MRI WITH HISTOPATHOLOGICAL CONFIRMATION

J Adu, T Watson. Department of Radiology, Great Ormond Street Hospital

10.1136/goshabs.107

**Background** Preoperative Wilms tumour rupture is an uncommon, but potentially significant phenomenon owing to its adverse effect on prognosis because of tumour dissemination. The International Society of Paediatric Oncology (SIOP) recommends that ruptured tumours are upstaged to IIIC, necessitating intensive chemotherapy and whole abdomen radiotherapy.

As yet, there are no radiological features to diagnose Wilms tumour rupture unequivocally. However, there are some imaging findings that may indicate that rupture has occurred. The aim of this study is to illustrate the radiological features suggestive of Wilms tumour rupture.

**Aims** We retrospectively searched the histopathology database at our tertiary referral centre over a 10 year period using the search terms ‘Wilms resection’ to identify patients. Cases of histologically proven ruptured were then cross-checked with their associated imaging on our PACS, and selected for presentation.

**Results** 187 patients with Wilms tumour were identified. Of these, 4 had ruptured. Common imaging features were the presence of ascites, irregularity of tumour margin and perinephric fat stranding.

**Conclusion** Radiological detection of preoperative Wilms tumour rupture is challenging. Radiologists must be alert to the imaging features which may indicate tumour rupture in order to guide appropriate subsequent management.

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108  BILATERAL WILMS TUMOURS: A PICTORIAL REVIEW

J Adu, T Watson. Department of Radiology, Great Ormond Street Hospital

10.1136/goshabs.108

**Background** Wilms tumour is the most common renal tumour in children. Synchronous bilateral disease is a rare phenomenon, manifesting in only approximately 5% of cases. Bilateral Wilms tumour (BWT) differs from Unilateral Wilms’s tumour (UWT) in that it is more commonly associated with genetic syndromes which often include intrinsic renal disease, and tends to present earlier.

The aim of this study is to familiarise the reader with the imaging appearances of BWT, discern how a discrete tumour can be identified in the context of nephroblastomatosis and explore the imaging features that may preclude nephron sparing surgery (NSS).

**Aims** We retrospectively searched the imaging archives of our tertiary referral centre and selected appropriate cases.

**Results** 187 patients with Wilms tumours were identified. Of these, 36 patients had BWTs.

**Conclusion** Although BWT is rare, it is an important phenomenon to diagnose owing to the increased risk of renal insufficiency and poorer survival rates compared to unilateral Wilms tumour. NSS is critical if renal function is to be preserved. Therefore, it is crucial that radiologists recognise the key imaging features in order to facilitate prompt further management.
Results Expected post-operative imaging features of oesophageal atresia/trachea-oesophageal fistula, reflux disease, duodenal atresia/stenosis/web, malrotation and Hirschsprung’s disease are presented, together with examples of associated possible complications.

Conclusion Whenever possible, the radiologist should be aware of the precise indication for the study, the specific type of surgery that was performed, what anastomoses were created and if any bowel has been removed. This knowledge — including an awareness of the fluoroscopic appearances of the possible postoperative complications — is vital for prompt diagnosis and appropriate management of these complications. Crucially, however, the radiologist is better equipped to confidently differentiate complications from normal findings.

110 PARTNERING WITH INDUSTRY TO DEVELOP FUTURE CLINICAL LEADERS
1 Poisson, 2 D Hothi, 3 S Sharma, 4 E Parish, 5 S Skellett. Department of PGME, Great Ormond Street Hospital; 2Department of Nephrology, Great Ormond Street Hospital; 3Department of PICU, Great Ormond Street Hospital

Background Morgan Stanley’s relationship with Great Ormond Street Hospital (GOSH) began in 2007. As a corporate sponsor, they have donated much needed facilities for staff and patients. In addition, Morgan Stanley employees volunteer their time to work with young people and staff, providing support and mentoring.

Methods A Professional Development Programme PDP was designed to address the professional development needs of doctors, nurses, allied health professionals (AHPs) and admin staff at various bands in the hospital structure. The programme was structured on three levels, catering to varied experience. Level 1 for junior members of staff, Level 2 middle grade and Level 3 for the senior members of the organisation.

Level 1 introduced professionalism in the National Health Service (NHS). More advanced levels focused on building NHS wisdom, covering areas such as leadership, self-awareness, quality improvement and finances.

The Morgan Stanley team offered their expertise delivering sessions on topics including financial administration techniques, business case writing and team management.

Results On average, 16 delegates attended each course. All professional areas were represented, from various clinical specialities. The face-to-face sessions were a mixture of lectures, learning games, flipped classrooms, action learning sets and reflective practice. 100% provided feedback and all agreed, or strongly agree, the course was relevant, well facilitated and it would influence their future practice.

Conclusion Leadership and professional development are important in upskilling the workforce and staff retention. Having a multi-professional audience provided a great dynamic to the sessions; participants gained a respect for the work their colleagues do on the front line or the back office. There is much benefit in working with other industries. The private sector has a focus on resource efficiencies, something the public sector needs. Setting the sessions off-site gave participants an opportunity to remove themselves from the clinical setting, allowing them to immerse themselves into the educational offering.

111 CREATING A SAFE ENVIRONMENT FOR YOUNG ADULTS TO ACHIEVE INDEPENDENT HOME HAEMODIALYSIS
K Sinnott, D Hothi. Department of Nephrology, Great Ormond Street Hospital

Background Some young adults may be suitable for home haemodialysis (HD) but lack of supervision or support may prevent this becoming a reality.

Aims We describe our enhanced safety approach which enabled a 17 year old with an arterio-venous fistula to transition from in-centre HD to home HD, independently.

Results When planning the possibility of a young adult dialysing independently at home a number of unique safety issues need to be considered and mitigated against in addition to addressing common concerns such as non-adherence to treatment. We individualised the training programme, modifying the standard teaching to incorporate additional safety measures focusing on a heightened awareness and earlier recognition of potential complications. Technology such as medical alarm necklaces and watches, alarm amplifiers and blood leak detectors alerted the young adult or the local medical emergency teams of impending risks or complications. The speed and clarity by which the young adult communicated with the community medical support teams was improved utilising WhatsApp® and smartphones. After a stable and adverse incident free six months of treatment, the young adult transitioned to a nocturnal home programme.

Conclusion A young adult can haemodialyse at home independently provided strategies are put in place to ensure the safety of the patient in the community.

112 CREATING A REGIONAL NETWORK FOR PAEDIATRIC HOME HAEMODIALYSIS
K Sinnott, D Hothi. Department of Nephrology, Great Ormond Street Hospital

Background In 2012 we established a Paediatric Home Haemodialysis (HHD) programme in London. Nationally in the UK paediatric HHD facilities are extremely limited or non-existent and thus there is gross inequity for accessing such care.

Aims Our goal was to establish Great Ormond Street Hospital (GOSH) as a regional training centre for HHD. This provided patients from outside of our hospital access to HHD. This pathway would reduce or eliminate waiting times for HHD training and offer more children the potential benefits of HHD.

Results Collaborating with 2 other regions we developed a ‘home: training’ centre care pathway for Paediatric HHD. Using a standardised assessment the ‘home’ centre refers a suitable patient to us for HHD training. The training period is typically 4–6 weeks. The training of two carers will take place at GOSH. After discharge, these patients are monitored...
SLEEP DISORDERED BREATHING (SDB) AND INTRACRANIAL PRESSURE (ICP) MONITORING IN CHILDREN WITH CRANIOSYNOSTOSIS

K Russo, M Samuels, M Davies, S Stagg, A Laverty, F Abel, O Jeelani, D Duruway, R Hayward, G James. Department of Craniofacial surgery, Great Ormond Street Hospital

Methods

We reviewed a new clinical service combining ICP measurement with respiratory polygraphy (RP). Patients with relevant symptoms were selected by the neurosurgery team and underwent placement of subdural ICP bolt under general anaesthetic followed by placement of respiratory polygraphy (RP) sensors in the late afternoon on the 1st or 2nd night of a 48 hour ICP recording.

Results

A total of 27 patients (19 M: 8 F) were identified, with a mean age of 5.7 years (range 1.3 years to 18.2 years). The indications for ICP insertion and the clinical syndrome are shown in table 1(a) and 1(b) respectively. All studies were performed in the late afternoon on the 1st or 2nd night of a 48-hour ICP recording.

Abstract 114 Table 1

<table>
<thead>
<tr>
<th>(a): Indication for ICP insertion</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmological changes e.g. papillodema</td>
<td>13</td>
<td>48.1%</td>
</tr>
<tr>
<td>Clinical (predominantly headache)</td>
<td>11</td>
<td>40.7%</td>
</tr>
<tr>
<td>Visual electrophysiological deterioration</td>
<td>7</td>
<td>25.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b): Type of synostosis</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apert Syndrome</td>
<td>8</td>
<td>29.6%</td>
</tr>
<tr>
<td>Isolated synostosis</td>
<td>6</td>
<td>22.2%</td>
</tr>
<tr>
<td>Multisutural non-syndromic synostosis</td>
<td>5</td>
<td>18.5%</td>
</tr>
<tr>
<td>Crouzon Syndrome</td>
<td>5</td>
<td>18.5%</td>
</tr>
<tr>
<td>Muenke Syndrome</td>
<td>2</td>
<td>7.4%</td>
</tr>
<tr>
<td>Pfeiffer Syndrome</td>
<td>1</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(c): ICP result, SS results and Neurosurgical management</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICP Results</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Normal (10)</td>
</tr>
<tr>
<td>Borderline high (1)</td>
</tr>
<tr>
<td>High (14)</td>
</tr>
<tr>
<td>Low (2)</td>
</tr>
</tbody>
</table>

Discussion

Some studies showed important relationships between ICP and SDB, although the severity of OSA did not predict those who had high ICP or required surgery. Importantly, ICP in these patients may be significantly affected by sleep stage and in operated patients, by transient physiological rises in CO2.
This paper examines the therapeutic potential of promoting play as an ‘ethos’ or way of being as opposed to an activity carried out in discreet locations within a hospital environment.

In a specialist children’s hospital, the children attending have the most complex conditions and it is posited here that in a system which pathologises children due to physical illnesses, that Play and the fundamental importance of it may be lost to the dominant pathological narrative. Staff perceptions of play and the value of it should be interrogated therefore to uncover assumptions and to ensure that rich environments can be created to offer the best conditions in which play can happen. Great Ormond Street Hospital is the leading children’s hospital in the UK and play is a fundamental part of every-day life. It is acknowledged that play in its many forms enhances whole child (cognitive creative, emotional, physical, social) development (Patte, 2015), yet there is still a lack of clarity around what play is and its potential value.

This paper analyses events around an outbreak of an infectious illness within the hospital. Different interpretations and understanding of infection control directives led to the most extreme interpretations of the rules being enforced and play spaces co-created by children and staff were cleared and materials destroyed. This led to an unpicking of the assumptions and value positions held by actors in the incident. Using theories of place relationship, affordances (Kytta), Production of Space (Lefebvre) as well as notions of social and cultural determination, the narrative is presented using lively, playful story-telling methods appropriate to play theory, interweaving stories from staff and children with theory.

Method

From previous outreach programmes I have learnt that relating my work and area of expertise to something relating my work and area of expertise to something that people already understand is the simplest method. From using the underground system, both when it is working and when it is not, I saw the similarities to metabolic pathways. There are lots of interconnecting lines/pathways that take people/metabolites to their final stations/products. When there are problems with the lines people get stuck at stations, are delayed or find themselves having to take an alternative route. In the body, toxic substances build up, essential products are not made, and the body may compensate using an alternative pathway.

Results

The education tool was trialled at a public open day in January 2017, hosted by GOSH laboratories. The event was attended by over 150 people of diverse backgrounds including NHS staff, university and sixth form students. The event highlighted the contribution of laboratory medicine to the diagnosis and management of rare diseases. Feedback from the event was very positive with comments including ‘very helpful updates’ and ‘Insightful’.

Conclusion

I believe this project has the potential to become a great educational tool to not only those studying metabolism for the first time, but also to patients and parents. By increasing education of clinicians, you are increasing the quality of care and thus outcomes. Patients (and/or parents) with better knowledge of their condition are more compliant with treatment and care and have a better experience.

Background

The metabolic pathways within the body are complex and difficult to understand, both by members of the public and healthcare professionals. By developing an innovative educational tool to explain how these pathways interact and work, the concept of inborn errors of metabolism can be explained to audiences across disciplines and backgrounds.

Methods

From previous outreach programmes I have learnt that relating my work and area of expertise to something that people already understand is the simplest method. From using the underground system, both when it is working and when it is not, I saw the similarities to metabolic pathways. There are lots of interconnecting lines/pathways that take people/metabolites to their final stations/products. When there are problems with the lines people get stuck at stations, are delayed or find themselves having to take an alternative route. In the body, toxic substances build up, essential products are not made, and the body may compensate using an alternative pathway.

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significant community support and support of multiple AR platforms which make the integration of AR components notably easier and smoother.

Results We demonstrate a working prototype of an AR app in which the game displays the image received by the back-facing camera on the device. Using the device, the user will then seek the image targets (QR Codes). Upon recognition of a valid image target, the Vuforia API will make the corresponding game object appear. Once the object is located, the user can tap on it, which will trigger music and animation as information about the area the object was found appears on a screen, which makes the experience an immersive and engaging one.

Conclusion The lack of multiple forms of interaction with Game Objects and the environment made gameplay stale quickly and future work should focus on the significant expansion of content and AR objects, including custom animations. More modes of interaction could be introduced in order to make the game more engaging, such as the inclusion of actions or simulations in order to get each treasure. The creation of more achievements as well as online scores would increase the social and competitive element to the game, making it more engaging for our target audience.

Abstract 117 Figure 1 Example of application interface

Utilising quality improvement and PDSA methodology has allowed the team to leverage pilot site testing to refine the tool and supporting documentation.

Objectives The VHP aims to standardise the approach to vein assessment and support appropriate escalation at GOSH, increasing awareness of the impact of an individual’s decisions in vascular access on patient experience and outcomes.

Patient/parent involvement Patients and families have been involved throughout the project; filming their experiences, using case studies to educate and raise awareness, collating feedback through surveys, a parent representative on the project team, and regular communications with our Young Peoples’ Forum.

Results Staff report that the tool has ‘given me the confidence to escalate’, ‘helps prevent distress in children with excess attempts of cannulation’, and that ‘it is an easy to use intuitive tool...that helps guide your management of a patient and tries to minimise the harm in the circumstance where they are known difficult access.’ (Staff Survey, GOSH, April 2017).

Data shows that the implementation of the tool has not had a negative impact on supporting services;

- Venous Access Facilitators data shows that since the tool was introduced all referrals have been appropriate
- No increase in demand for central line insertion
- Reduction in extravasation injuries referred to the Plastics Team sustained since January 2017
- Reduction in number of patients with more than two unsuccessful cannulation attempts before referral to the vascular access team since November 2017.

Abstracts

119 BARRIERS TO KIDNEY TRANSPLANTATION IN CHILDREN – A PROSPECTIVE NATIONAL STUDY

M Marllis, R Balasubramanian, MD Sinha, SD Marks. Department of Nephrology, Great Ormond Street Hospital

10.1136/goshabs.119

Introduction Pre-emptive living donor renal transplantation is the gold standard treatment for children with end-stage kidney disease (ESKD). Despite this, many children spend years on dialysis before proceeding to transplantation. The aim of this study was to investigate access to paediatric renal transplantation and barriers within the process.

Methods This was a prospective multi-centre observational study, paediatric nephrology centres in the United Kingdom (UK) were asked to provide data on all children (aged<18 years) with ESKD (defined as estimated glomerular filtration rate ≤15 mls/min/1.73 m²). In those where transplantation was not planned or delayed, barriers to transplantation and estimated timescales were documented.

Results 308 children with ESKD were included in this study from 12 out of 13 paediatric nephrology centres in the UK. 180 (58%) children were on dialysis, 37 (12%) were transplanted and 91 (29%) children had ESKD but were currently pre-dialysis. 139 (45%) were currently being worked up for a living donor transplant, 82 (27%) children were listed for a deceased donor transplant. The mean estimated time to transplant in those with active
plans was 13.6 months. 226 (73%) children were not being planned for a pre-emptive transplant or were already on dialysis. Commonest reasons for children not having a pre-emptive transplant were that the child presented in ESKD (31%), lack of a suitable donor (27%) or being too young for transplant at the time of needing renal replacement therapy (24%). The commonest cited factors preventing transplantation from occurring in children were disease factors (36%), donor availability (27%) and size of the child (20%).

Conclusions Many barriers to renal transplantation in children are potentially modifiable through local or national intervention, such as donor type and patient psycho-social factors. A further study is planned to assess these modifiable barriers to transplant in detail to determine how best to ameliorate them.

**Abstracts**

**Improving renal allograft survival for pre-emptive paediatric renal transplant recipients in the United Kingdom**

M Marlaia, K Martin, SD Marks. Department of Nephrology, Great Ormond Street Hospital

Objectives The aim of this study was to investigate whether being on dialysis at the time of renal transplantation affected renal allograft survival in paediatric renal transplant recipients (pRTR).

Methods Data were obtained from the UK Transplant Registry (NHS Blood and Transplant) on all children (aged <18 years) who received a kidney only transplant between 1 January 2000 and 31 December 2015. Baseline demographic data were collected, including dialysis modality at the time of renal transplantation (none vs peritoneal dialysis vs haemodialysis). Kaplan-Meier estimates of 5 year renal allograft survival were calculated, as well as Cox regression modelling accounting for donor type. The relationship between time on dialysis and renal allograft survival was also examined.

Results 2038 pRTR were analysed: 607 (30%) were pre-emptively transplanted, 789 (39%) and 642 (32%) were on peritoneal dialysis and haemodialysis, respectively at the time of transplantation. 5 year renal allograft survival was significantly better in the pre-emptively transplanted group (90.6%) compared to those on peritoneal dialysis and haemodialysis (86.4% and 85.7% respectively; p=0.02), figure 1. After accounting for donor type, we found a significantly lower hazard of 5 year renal allograft failure in pre-emptively transplanted children (HR 0.742, p=0.05). Time spent on dialysis pre-transplant was negatively correlated with renal allograft survival (p=0.002). There was no significant difference in 5 year renal allograft survival between children who were on dialysis for <6 months and children transplanted pre-emptively (87.5% vs. 90.5%, p=0.25).

Conclusions Children who are pre-emptively transplanted have improved 5 year renal allograft survival, compared to children on haemodialysis or peritoneal dialysis at the time of transplantation. Although increased time spent on dialysis was correlated with poorer renal allograft survival, we found no evidence that short periods of dialysis (<6 months) pre-transplant affected renal allograft survival in children.

**Assessing nutritional and educational inclusion status of Nepali children screening positive for disability and variation of prevalence at different thresholds of disability screening definition**

M Cupp, Ed Haworth, A Costello, I Manikam, D Manandhar, H Kuper, M Heys. Department of Population, Policy and Practice, Institute of Child Health, Great Ormond Street Hospital

Background Assessment of prevalence and associated outcomes for childhood disability is vital for quantification of global impact and addressing the sustainable development goals. This study assesses the prevalence of disability in children aged 9 to 13 years in rural Nepal’s Makwanpur District, including sensitivity analysis of disability prevalence at different thresholds through the Module on Child Functioning and Disability (MCFD). We also assess the nutritional and education inclusion characteristics of those screening positive for disability.

Methods The 4098 participants in this study represent the individuals available for a household interview between 2014 and 2015, from an original cohort of 6,436 Nepali infants recruited into a Randomised Control Trial between 2001 and 2003 (ISRCTN31137309). Characteristics of children with and without a disability are compared through an assessment of significance of Odds Ratios.

Results At a mean age of 11.4 years, the prevalence of disability is estimated at 7.4% when the least stringent criteria are applied, indicating that participants reported at least some difficulty in one or more of the core domains of the MCFD (table 1). The prevalence of disability using more stringent cut offs provided lower prevalence estimates, with 1.0% of participants reporting a lot of difficulty in at least one domain and 0.3% reporting cannot do at all in at least one domain. Children with disability were more likely to be severely underweight (Weight/Height Z-
scores ≤3: 8% versus 15%, p-value < 0.001) and stunted (Height/Age Z-score ≤3: 8% versus 15%, p-value ≤ 0.001) themselves. Furthermore, children with disability were significantly less likely to be attending school (96% vs 92%, p-value < 0.001).

Conclusion Results indicate that prevalence figures for disability should be interpreted with caution according to the criteria utilised. Furthermore, Nepali children with disability appear to be at a greater risk of both underweight, stunting and exclusion from education compared to children without disability.

Abstract 121 Table 1 Difficulties reported in core domains of the MCFD

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeing*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>No difficulty</td>
<td>2027</td>
<td>2146</td>
<td>4173</td>
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<td>24</td>
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<td>53</td>
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<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Cannot do at all</td>
<td>2</td>
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<td>5</td>
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<tr>
<td>Walking (500 m)*</td>
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<td></td>
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<tr>
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<td>2023</td>
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<td>4165</td>
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<td>Some difficulty</td>
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<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Self Care</td>
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<td></td>
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<tr>
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<td>7</td>
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<td>4</td>
<td>8</td>
<td>12</td>
</tr>
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<td>Cannot do at all</td>
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<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Learning (Remembering)*</td>
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<td></td>
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</tr>
<tr>
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Background Community-based women’s groups practising participatory learning and action (PLA) can reduce maternal and neonatal mortality in low-income countries. However, it is not clear whether these reductions are associated with subsequent increased or decreased rates of disability. We assessed their impact on maternal and child mortality and childhood disability among participants in the earliest trial in Nepal (2001–2003).

Methods Household interviews were conducted with mothers or household heads. Survival data were additionally collected from relatives or neighbours where the index mother and/or child were not contactable. We analysed mortality and disability outcomes at cluster and individual level using pairwise log relative risks and multilevel logistic models respectively.

Findings From 6075 children and 6117 mothers alive at 4 weeks postpartum, we collected survival data on 5990 mothers and 3915 children. Of these, 4419 children (73%) and 4521 (74%) mothers were available for interview an average of 11.5 years later. Accounting only for deaths reported by interview after trial completion, rates of child mortality, maternal mortality and child disability per 1000 participants were 36.6, 3.2 and 62.7 in the intervention arm and 52.3, 4.7 and 85.5 in the control arm. Individual level analysis, including random effects for cluster pairing and adjusted for baseline maternal literacy and socio-economic status, showed lower, statistically non-significant, rates of child mortality (Odds Ratio (OR) 0.70 (95% Confidence Interval (CI) 0.42, 1.16) and disability (OR 0.65 (0.40, 1.07)) in the intervention arm.

Interpretation Reductions in newborn mortality following communitary level exposure to women’s groups practising PLA were not associated with later childhood disability. Furthermore, our data could not exclude additional long-term survival and disability benefits. Our findings highlight the importance of the perinatal period as a critical time to set the path for a healthier childhood.
large pool of Junior Doctors to recruit from is no longer tenable so SNAPS has looked at Physician Associate’s (PA) to provide this care.

A PA is a professional that works within the medical/surgical team adding to the diverse skill mix to help underpin healthcare delivery. They work within the team to assess, examine and manage care alongside doctors. But what makes PAs unique is their ability to provide continuous care. They are a vital link to all other healthcare personnel providing continuity and ensuring seamless, high quality care. They provide a familiar face in a daunting hospital environment and help support the families. Currently, within SNAPS, there are two PAs embedded into the team. They are involved in ward rounds, clerking emergency and elective patients for theatre and developing clinical surgical skills through regular observed assessment. They currently work weekdays facilitating continuous care for inpatients and their families.

The role is unique to the organisation but experience across many other major hospitals is increasing year on year. Thanks to a generous grant from the hospital charity there will be 3 newly qualified PA’s joining the surgical teams, thus, by the end of 2018, there will be more PAs involved in surgical specialities at GOSH than any other paediatric surgical unit in the UK. They are a vital key to the continued provision of a world-class surgical service and GOSH remains at the cutting edge of healthcare innovation.

GOSH DRIVE PORTAL CONTENT MANAGEMENT SYSTEM: DEVELOPMENT OF A MOBILE HOSPITAL INFORMATION PORTAL CONTENT MANAGEMENT SYSTEM

A Frangos, J Wang, K Lrance, D Mohamadally, S Conner, NJ Sebire, W Priestman. GOSH Digital Research, Informatics and Virtual Environments (DRIVE), Great Ormond Street Hospital

10.1136/goshabs.124

Background Managing content for internal communication purposes remains suboptimal, particularly regarding ease of users’ ability to rapidly upload and publish new content. The aim of this study was to create a portal content management system to allow rapid, easy content deployment for use initially in the digital research and informatics unit (DRIVE) at GOSH as a proof of principle.

Methods We developed an interactive events website and ‘kiosk’ app to allow rapidly updated information to be displayed both on the website and on check-in kiosks deployed across the hospital. For the kiosk app, we used Ruby on Rails, for the events website we used PHP (and related technologies such as HTML, CSS) with MySQL hosted on Azure.

Results We demonstrate a working prototype of the events website and content delivery ‘kiosk’ app. We included stripe API functionality that allows users to pay for events, informing them if the transaction was successful. The email address of people that successfully booked for an event is stored in the database and can be seen from the Administrator Page, so that the admin knows how many have booked. For the kiosk an administrator has control over which posts are displayed. They can create, edit or delete posts and can create other users and departments. A live social media feed displaying tweets from the official Great Ormond Street twitter account was added by embedding HTML.

Conclusion Further work is required to add functionality such as when a user books for an event, an email with QR codes is sent. The kiosk app and website should share the same database, so that each time an event was added from the website, it would be displayed on the kiosk app simultaneously without having the need to modify it on both systems. Testing is required to determine high volume data flow.

REWARD RUSH’ FOR GOSH: DEVELOPMENT OF A MOBILE AUGMENTED REALITY APPLICATION (APP) TO IMPROVE PATIENT EXPERIENCE AT GOSH

1G Dula, 1A Seth, 1M Jononis, 1D Mohamadally, 2S Conner, 1W Priestman, 2NJ Sebire. 1Department of Computer Sciences, University College London; 2Digital Research, Informatics and Virtual Environments, Great Ormond Street Hospital

10.1136/goshabs.125

Background Attendance at the hospital may be associated with anxiety for children and siblings, especially when waiting and moving around the hospital. Augmented reality (AR) apps are immersive experiences which may reduce anxiety in such scenarios.

Aim The aim of this study was to create a mobile interactive ‘Pokemon-go-like’ augmented reality app that would improve the patient experience when children and families visit GOSH.

Methods We developed a cross-platform mobile AR game, ‘Reward Rush’, using a range of tools including Vuforia and...
Unity for front-end object recognition and AR interface, in addition to the use of web service APIs and dreamlo database for leader board scores.

**Results**

We demonstrate a working prototype of the Reward Rush AR app with object identification working in the live environment of the GOSH hospital reception and common areas. In addition to object recognition and AR animation, we demonstrate timer and scoring functions in addition to leader board functionality. Additional work is required to extend the number of objects, add high-quality AR graphical objects and add the ability for easy extensibility for future areas and objects.

**Conclusion**

AR apps have significant potential to transform healthcare organisations, particularly those focused on the care of children. We demonstrate feasibility of rapidly building a customised app which can be extended across other areas and easily adapted for other organisations. Further qualitative work is required to determine the extent to which AR apps can reduce patient anxiety.

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**GROWING UP, GAINING INDEPENDENCE: TRANSITION IMPROVEMENT**

N Mills, Department of Quality Improvement, Great Ormond Street Hospital

10.1136/goshabs.126

The preparation needs of young people for the move into adult health services (‘transition’), has received extensive focus. The move from paediatric to adult healthcare is recognised as a challenging time for young people and their families: poor transition is associated with poor engagement with, or even complete disengagement from, adult health services, resulting in increased mortality and morbidity (DH, 2006). The way in which healthcare providers facilitate transition has come under increasing scrutiny with the publication of From the Pond into the Sea (CQC, 2104) and NICE Transition Guidelines (NICE, 2016); the inclusion of transition in CQC inspections; and the imposing of Commissioning for Quality and Innovation (CQUIN) targets on Trusts.

Great Ormond Street Hospital for Children (GOSH) has initiated a Transition Improvement Project, facilitated by the Quality Improvement Team, which has resulted in the development of the ‘Growing Up, Gaining Independence’ (GUGI) programme.

This strategy, unique to GOSH, will:

- Provide clinicians with a framework enabling them to provide developmentally appropriate care to all young people.
- Focus on helping all young people to develop the skills, knowledge and understanding associated with emerging adulthood.
- Ensure that, when necessary, young people and their families are adequately prepared for life after GOSH in adolescent or adult services.
- Empower all young people to become as independent of their healthcare as they can be irrespective of:
  - whether they will transfer to specialist adolescent or adult services from GOSH
  - illness, disability or prognosis
  - the presence of a Learning Disability or Additional Need
- Will inform, support and involve parents and carers and enable them to be active participants in helping with the preparation for the changes to come.

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**MULTIDISCIPLINARY MANAGEMENT OF A COMPLEX COURSE OF METHYLMALONIC ACIDURIA**


1Metabolic Department, Great Ormond Street Hospital for Children NHS Foundation Trust, Institute of Child Health, UCL, London; 2Department of Paediatric Nephrology, Great Ormond Street Hospital for Children NHS Foundation Trust, London; 3Department of Child Health, King’s College Hospital, London; 4Paediatric Oncology Department, Great Ormond Street Hospital for Children NHS Foundation Trust, Institute of Child Health, UCL, London; 5Department of Inherited Metabolic Disease, Evelina London Children’s Hospital, London

10.1136/goshabs.127

We present a particularly complex case of a patient with the underlying condition methylmalonic aciduria (MMA) – an inborn error of protein metabolism, which is characterized by the accumulation of methylmalonic acid in tissues and body fluids.

The index case of the family (elder sibling) is also affected by mut1 MMA (homozygous mutation in the MUT gene c.692dup). At 5 years he has a stable course, had only minor metabolic decompensations, but is autistic and has learning difficulties.

The younger sibling turned out to be a rather complex case, only diagnosed postnatally as parents declined prenatal genetic testing. However, on antenatal organ scan he was diagnosed with multicystic dysplastic kidneys which caused problematic fluid losses soon after birth. He was...
prospectively treated as possible MMA and the diagnosis was confirmed genetically soon after birth. He also had raised methylmalonic acid in urine and plasma and hyperammonaemia.

During routine monitoring, high gamma-glutamyl transferase levels up to 1212 U/L (reference 30–177) triggered a detailed investigation of the liver, which revealed a heterogenous, hydropochoic lesion on ultrasound and significantly increased alpha-fetoprotein levels at 19.653 ng/mL (0–10), whereupon hepatoblastoma was confirmed on liver biopsy.

Liver transplantation is considered in severe MMA cases to avoid frequent decompensations and non-neurological long-term complications. After a multidisciplinary assessment, liver transplant was performed, serving the dual purpose of removal of the tumour as well as supportive treatment for the underlying MMA. Perioperatively and following post-transplant chemotherapy, the patient showed good metabolic control throughout.

This report shows two siblings with the same genetic metabolic disease but completely different courses, as unexpected symptoms, such as hepatoblastoma and dysplastic kidneys in this case, are present, leading to different treatment strategies. To which extent the development of the liver tumour might be fostered by the underlying MMA disease, needs to be further studied in the future.

**128 GEL2MDT – A NOVEL SOFTWARE SOLUTION TO MANAGE PATIENT RESULTS FROM THE 100,000 GENOMES PROJECT**

Patrick Lombard, Theo Cole, Edward Stone, Sam Clackie, Helena Athlors. Department of Regional Genetics, Great Ormond Street Hospital

10.1136/goshabs.128

GEL2MDT is a unique software solution that helps clinicians and clinical scientists manage patient results generated by Genomics England (GEL) for the 100,000 Genomes Project. This interactive software combines a backend database that communicates directly with GEL to download patient, phenotype and genetic variant data, and a frontend web interface, that presents this data to healthcare professionals to interact with this information. GEL2MDT not only safely retrieves all relevant data programmatically from GEL, but also provides means for scientists to track, manage, review and audit cases from the Genomic Medicine Centre (GMC), communicate the results with clinicians, set up and invite participants to MDT meetings, record conversations and actions during MDT and return statistics to NHS England.

GEL2MDT significantly improves patient safety by streamlining the reporting and validation workflow of samples returned from the 100,000 Genomes Project. It has made the processes fully traceable, resulting in a greatly reduced risk of data loss, accidental change, or corruption. The streamlining of processes means there is a decreased risk of patients being sent incorrect results, thereby representing a direct increase in clinical safety and improved turn-around times for delivering results to the patients. GEL2MDT has already set a precedent of how GMCs manage results from the 100,000 Genomes Project and communicate with GEL. No similar application is available either commercially or open-source to our knowledge.

**129 INVESTIGATING THE OUTCOMES OF ADULT PATIENTS WHO UNDERWENT HAEMATOPOIETIC STEM CELL TRANSPLANT FOR PRIMARY IMMUNODEFICIENCY DURING CHILDHOOD**

P Titman, B Nicholson, M Buckland, S Burns, R Chakraverty, E Morris, S Morris, D Ridout, A Worth, M Campbell. Department of Psychology, Great Ormond Street Hospital

10.1136/goshabs.129

Primary immunodeﬁciency (PID) describes a number of disorders arising from genetic defects that impair the function of the immune system. PID presenting in childhood is often severe, resulting in recurrent serious and life threatening infections. Haematopoietic stem cell transplant (HSCT) is the treatment of choice for many paediatric-onset PIDs and is curative in the majority. Despite considerable improvements in survival, HSCT remains a high-risk procedure, and is associated with acute and chronic medical complications following treatment.

Due to improved techniques, more transplants are undertaken and patients are living longer. Previous research has shown that children are at risk of increased psychological and cognitive difficulties but little is known about the long-term health and psychosocial outcomes in adulthood. This study aims to evaluate a range of outcomes including physical health, quality of life and psychosocial outcome for the cohort of children treated at GOSH who have now transitioned to adult immunology services. Most young people transition to the Royal Free Hospital, but some choose to transition to adult immunology centres closer to their home. Patients and their families, professionals and patient support groups were involved in the design of the study and will remain involved throughout.

All patients aged 16 and over who have had an HSCT at Great Ormond Street Hospital five years or more previously have been approached to participate in the project. Patients who agree to participate are asked to nominate a sibling or close friend as a healthy control. Data on holistic outcomes including physical health, and cognitive, social and psychological functioning are gathered through questionnaires, cognitive assessment, and medical records. Patient outcomes will be compared to those of healthy controls or population norms.

Recruitment for the study will be completed in October 2018 and preliminary descriptive results for the cohort will be presented.

**130 GOING DIGITAL – THE IMPLEMENTATION OF EPIC ELECTRONIC PATIENT RECORDS (EPR) IN A PAEDIATRIC TERTIARY HOSPITAL: UNDERSTANDING THE BENEFITS AND CHALLENGES FOR PATIENTS, PARENTS AND STAFF AND THE PRACTICAL, ETHICAL AND LEGAL IMPLICATIONS**

P Sipanoun. Department of Electronic Patient Records, Great Ormond Street Hospital

10.1136/goshabs.130

EPR deployment is critical and core to GOSH being a digital hospital. It is expected that, following implementation in April 2019, there will be improved access for patients, improved communication between staff, patients and families, operational efficiencies, development of new models of care and treatments, in addition to enhanced innovative research
analytics. Although this transition ought to bring many benefits, as described, it may also pose challenges for all stakeholders, particularly those associated with children and young people and their parents accessing medical and nursing notes for the first time through MyGOSH patient portal.

The aim of this presentation is to:

a. Highlight the potential issues associated with the transition of GOSH to becoming a digital hospital;

b. How these will be explored through a concurrent mixed methods study comparing patient, staff and parental views about EPR pre and post–implementation.

The use of creative methodology ‘World Café’ workshops with each stakeholder group to understand their expectations and perceptions about EPR will be described, followed by a discussion of how data generated from these workshops will inform the development of a survey that will be sent Trust-wide at distinct time points pre and post ‘Go-Live’. The use of interviews to gain a deeper insight into the benefits and challenges of GOSH becoming a digital hospital will be presented, alongside the implications of using ethnographic methods (participant observation) to understand the impact EPR has on interactions during in-patient and out-patient consultations, with a particular focus on patient experience. Ethical and legal considerations and practicalities of EPR implementation will be raised throughout the presentation with important issues such as Gillick competence, patients with fluctuating capacity, and patients who are unaware of their diagnosis being discussed in relation to the use of MyGOSH patient portal, raising awareness pre Go-Live.

### ME FIRST: HELPING CHILDREN AND YOUNG PEOPLE TO REACH AN AGREEMENT WITH PROFESSIONALS AND PARENTS IN HEALTH AND SOCIAL CARE USING CHILDREN AND YOUNG PEOPLE CENTRED COMMUNICATION TRAINING

R. Nanton, J. McCulloch. Department of Me first (Nursing and Non-medical Education), Great Ormond Street Hospital

10.1136/goshabs.131

**Introduction**

A common cause of conflict in paediatric healthcare is disagreement about treatment (Forbat et al., 2015). Improving communication skills of healthcare professionals improves treatment adherence, patient safety and health outcomes for Children and Young People (CYPs) (Zolnierek and Dimatteo, 2009). There are significant challenges to putting CYP centred communication into practice, and young people report that they often feel left out of conversations. Me first has been developed to improve the knowledge, skills and confidence of Health and Social Care Professionals (HSCPs) in shared decision making, incorporating communication training and resources.

**Aims**

Me first builds on existing communication skills to support HSCPs to help improve CYP experience and outcomes of care. In training, professionals often highlight challenges that arise when disagreements occur between CYPs, their parents and HSCPs. The aim of the half-day module is to support HSCPs to minimise conflict and encourage shared decision making.

**Methodology**

Me first co-designed and piloted a half-day module with a focus on reaching agreements in triadic communication scenarios. A participatory appraisal approach was taken to evaluate the course. Me first training programmes facilitate peer-to-peer learning and provide practical advice, resources, and quality improvement techniques. The website (www.mefirst.org.uk) contains evidence-based learning materials to support Me first training. A communication champions network provides ongoing peer support and training.

**Results/outcomes**

The course was over-subscribed with twenty-two attendees. Positive feedback included reports that it was ‘helpful to have time to discuss the underlying feelings of those involved’ and they ‘learned new resources such as traffic light system to help discuss disagreements’. One attendee said they appreciated learning ‘specific phrases to encourage collaboration’ and 10/22 people commented positively on using role plays to develop skills. This module is now included in the Me first training programme.

### IMPROVED SURVIVAL AND OUTCOME OF HLA-MISMATCHED DONOR HEMATOPOIETIC STEM CELL TRANSPLANTATION IN CHILDREN WITH PRIMARY IMMUNODEFICIENCIES USING NEW GRAFT MANIPULATION STRATEGIES IN THE UK

R. Efeky, RM Shah, IINM Unni, K. Rao, R. Chiesa, P Amrolia, A Worth, T Flood, M Abiruni, T Nadeni, S Hambleton, A Cant, K Gilmour, S Adams, G Alhams, D Brange, A Ghemery, W Qasim, M Slater, P Vey. Blood and Bone Marrow Transplant Unit, Great Ormond Street Hospital, Host Defence Unit, The Great North Children’s Hospital, Newcastle Upon Tyne

10.1136/goshabs.132

**Background**

Mismatched related and unrelated donor stem cell transplantation is considered a high risk transplant associated with high risk of graft loss, graft versus host disease (GvHD) and transplant related mortality (TRM). Alternative graft manipulation strategies have been employed over the last 10 years to reduce these risks, and here we present an analysis of these strategies in primary immunodeficiency (PIDs).

**Methods**

Between 2006–2017, 147 PID patients received 155 mismatched grafts; 30 TCRab/CD19 depleted, 43 Cord (72% with no serotherapy), 17 CD34+ with selection T cell add-back and 65 unmanipulated bone marrow or peripheral blood stem cell grafts.

**Results**

The estimated 8 year survival of the entire cohort was 79%, TRM was 21.7% and graft failure rate was 6%. Comparable rates of survival were recorded among different graft manipulation strategies. Post-transplant viral reactivation, aGvHD grades II-IV and chronic GvHD complicated 49.6%, 35% and 15% of the transplants, respectively. The use of TCR ab/CD19 depletion in this study has reduced the occurrence of grade II-IV aGvHD among mismatched transplants: 40% among CD34+/T cell add-back to 11.5% with TCR ab/CD19 depleted grafts. The same pattern was seen in terms of cGvHD where none of the recipients of TCR ab/CD19 depleted grafts had cGvHD compared to 38.4% amongst CD34+/T cell add-back. However, one drawback of TCR ab/CD19 depleted HSCT was the increased incidence of post-transplant viraeemia reaching 70% versus 37%–49% among other graft manipulations. T cell immune reconstitution was robust among cord transplants however with a high incidence of aGvHD grade II-IV 56.7%. Stable full donor engraftment was significantly higher at 80% among TCRab+/CD19+ depleted and cord transplants versus 40%–60% among the other groups.
Conclusions Rapidly accessible cord and haploidentical grafts are suitable alternatives for patients with no HLA matched donor. Cord transplantation without serotherapy and TCRαβ +/CD19 + depleted grafts produced comparable survival rates of around 80% and exhibited higher donor chimerism compared to other strategies of graft manipulation.

133 EVALUATING THE SUCCESS OF A MANAGEMENT PATHWAY FOR NEONATAL REFERRALS WITH BILIOUS VOMITING

R Jones, Simon Hannam. Department of Neonatal Intensive Care Unit, Great Ormond Street Hospital

10.1136/goshabs.133

This retrospective service evaluation was undertaken to evaluate the success of a management pathway introduced for neonatal referrals with bilious vomit into Great Ormond Street Hospital. In the literature, between 26%–70% of neonates who present with bilious vomit have a surgical diagnosis, and of these, 9%–17% had a diagnosis of malrotation, (Drewett et al, 2016; Verma et al, 2016). It is deemed by surgeons to be a time-critical emergency with delays in management having the potential to lead to catastrophic consequences.

With local trust audit approval, all neonatal admissions referred with bilious vomit over a 20 month period (February 2015 – September 2016) were included in a retrospective service evaluation. Quantitative data were collected from Intensive Care admission logs and electronic patient records. Time from referral to admission, admission to contrast and to theatre was collated, as well as patient and transport demographics, diagnosis and outcomes. 92 neonates meet the inclusion criteria. 98% followed the pathway with 28% being diagnosed with a surgical condition and 13% diagnosed with malrotation. 85% were admitted within 4 hours of referral. 14 neonates had alternative diagnoses on admission and left the pathway. Of the 74 neonates who underwent an upper gastrointestinal contrast study, 60.8% had their study done within 2 hours of arrival. Time to theatre from diagnosis ranged 74–397 min (with a mean of 181.8 min). There were no deaths and only one patient required resection and subsequent diagnosis of short gut.

In conclusion, neonates with bilious vomit should be considered a surgical emergency with 28% of our referrals requiring surgical intervention and half of that number having a time critical diagnosis. The data analysis showed no significant failures in the management of these neonates and the implementation of a specific pathway has resulted in an impressive referral to treatment times.

135 BAND 7 LEADERSHIP DEVELOPMENT PROGRAMME

S Robertson, E Sutton. Department of Nursing and Non-medical Education, Great Ormond Street Hospital

10.1136/goshabs.135

Within previous research, to examine the role of ward managers, it was acknowledged that these positions were pivotal, vital, and extremely influential within the trust.

Therefore recommendations were made to implement a development programme to enhance clinical leadership skills and to enable Band 7 nurses within their role.

Listening events with Band 7 nurses were held to understand the role and the challenges, matron engagement was sought to provide a further understanding of their
requirements and the programme was designed to meet the learning outcomes outlined within this process.

The programme aimed to enable band 7 nurses to understand themselves and the impact they have on others; to explore their role as a leader of people and the relationships they build in doing so. Explore their role in staff retention; staff motivation, creating the right climate for learning and development. Deal with stress to develop resilience in themselves and their team. Develop relationships in the wider team and across the hospital and feel less isolated and better supported. At the time of writing this abstract, a total of 62 clinical, band 7 nurses have completed the programme. 100% of participants who had completed the evaluation so far would recommend this programme to colleagues and stated that it has been an extremely valuable investment of time and money. Benefits include: feeling more competent in their role as a leader, articulating clearer expectations, demonstrating greater confidence in handling difficult conversations and situations, being more proactive and feeling less isolated.

The continued aim would be to formulate a sustained approach to the programme, enabling all band 7 nurses to have access to clinical leadership and development. One consideration is to implement this programme for all clinical band 7 clinical practitioners, from all disciplines across the trust, to widen participation focusing on multi-professional education.

136 INTERNATIONALLY EDUCATED HEALTHCARE PROFESSIONALS: SUPPORTING TRANSITIONS TO NEW HEALTHCARE ENVIRONMENTS

S Sharma, Department of Postgraduate Medical Education, Great Ormond Street

10.1136/goshabs.136

Background ‘Internationally Educated Healthcare Professionals’ (IEHP) describes multi-professional healthcare workers who cross international borders in order to work within different healthcare environments. UK healthcare relies heavily on IEHPs, but in the wake of the BREXIT referendum, institutional reports highlight falling numbers of employment applications from abroad.

Summary of work We report a descriptive review of empirical research literature about IEHP transitions. Analysis of these publications identified a wide range of approaches to examining this topic with most reports focusing on professional experiences. Other papers reported IEHP learning resources, patient mortality, organisational experiences, licensure requirements, examination performance and success at appointments to training positions. From these, we propose a model with 3 areas of focus that could inform future IEHP curriculum development programs.

Summary of Results Our review identified key 28 papers. These varied greatly in their contribution to the discourse of IEHP transition so a 3-level traffic light classification was developed through which papers were assessed for quality: Papers were classified into ‘green’ high-value studies, ‘amber’ intermediary value studies or ‘red’ low-value studies. This was a subjective judgment based on the content of these papers (context, methodological approach and what they add). The discussions from these papers varied greatly but most explored the importance of setting-specific approaches to assisting IEHP transition. Conclusions directed towards the development of site-specific curricula for IEHP transition with a focus on 3 important areas: organisational support, supported training and individual attributes.

Discussion and conclusion Identified literature was used as a basis to form a traffic light system for informing three areas when considering future IEHP curricula to support transitions across international healthcare systems. Empirical research examining the transition of IEHP into destination healthcare environments is heterogeneous and high-quality studies examining this area are lacking despite the high levels of scrutiny recently.

Take home message Published literature relating to IEHP varies greatly. Results from this approach signpost to site-specific curricula supporting the transition.

137 COMPARISON OF PARENT AND TEACHER RATINGS OF COMMUNICATION AND SOCIAL INTERACTION IN YOUNG PEOPLE

S Love, Department of Neurodisability, Great Ormond Street Hospital

10.1136/goshabs.137

Background Questionnaires are commonly used in multi-disciplinary, neurodevelopmental assessments to gather information about young people from a variety of sources. They can contribute to the formulation of diagnoses including Autism Spectrum Disorder and Language Disorder. The aim of this audit was to consider how an individual was rated by their parent, in comparison to how they were rated by their teacher, on a standardized screen of communication and pragmatic/social interaction deficits; the Children’s Communication Checklist 2nd Edition (CCC-2; Bishop, 2003).

Method Retrospective data was used to compare parent and teacher ratings of communicative competence and social interaction on thirty-eight CCC-2 questionnaires, corresponding to nineteen individuals (n=19). Statistical analyses measured correlations. Gender was included as a variable. Qualitative analysis considered whether scores from a parent suggested a different diagnostic profile than scores from a teacher.

Results There were statistically significant differences between how parents and teachers rated twelve males within the sample. The communicative competence of males was rated statistically higher by teachers, than their parents. The social interaction competence of males was rated marginally statistically lower by teachers, than their parents. There were no statistically significant differences between parent and teacher ratings when gender was not included as a variable, although there were trends. Qualitatively, for just under half of the entire sample, a different diagnostic profile was indicated depending on whether a parent or teacher had completed the questionnaire about a particular individual.

Conclusion The findings from screens such as the CCC-2 can vary depending on who completes them and the gender of the person they refer to. Screening questionnaires need careful interpretation when used as part of a neurodevelopmental assessment. There are likely to be variables contributing to discrepancies in ratings and implicated diagnostic profiles. Such questionnaires can be beneficial when considered alongside additional information.
Abstracts

138 CLINICAL DIAGNOSIS AND MANAGEMENT OF PHAEOCHROMOCYTOMA (PCC) AND PARAGANGLIOMA (PGL) IN CHILDREN AND YOUNG PEOPLE (CYP): A NATIONAL GUIDELINE. ON BEHALF OF THE UK PAEDIATRIC PHAEOCHROMOCYTOMA AND PARAGANGLIOMA GUIDELINE DEVELOPMENT GROUP (GDG)

Background PCC/PGL are rare in children with an annual incidence of 0.2 and 0.3 per million in the 5–9 and 10–14 year age groups respectively. Most result from a genetic predisposition and represent a significant management challenge.

Aims To provide the first interdisciplinary national management guidelines using the AGREEII framework for CYP with confirmed or suspected PCC/PGL, endorsed by the RCPCH, UKCCLG and BSPED.

Methods 113 PICO clinical questions were formulated by a specialist GDG. Literature searches conducted via Ovid MEDLINE and Cochrane Library identified 526 articles. Post filtering, 397 were reviewed using GRADE. Where evidence was lacking/conflicting, a two-stage Delphi consensus process was conducted.

Results 39 recommendations were made; 21 were sent to consensus and achieved agreement. The GDG recommended cases be managed in a specialist endocrine centre with tertiary paediatric oncology. The team should be specific, age-appropriate, multidisciplinary, and led by an experienced lead clinician. Clinical assessment and a three-generation family history should be used to identify genetically determined and familial cases, along with genetic testing. Peri-operative steroid replacement should be led by a nominated endocrinologist post bilateral adrenalectomy or cortical sparing surgery. A Critical Care setting will rapidly identify and treat hypocortisolism/adrenal crisis with stress-doses of steroid. Patients who have undergone adrenocortical sparing surgery should continue maintenance steroid replacement until adrenocortical reserve is tested postoperatively. Patients with SDHB mutations and VHL have a higher risk of recurrent disease and malignancy; however, all cases of PCC/PGL should have life-long follow up.

Conclusions These guidelines provide the first evidence and consensus-based national recommendations for management of PCC/PGL in CYP and highlight a need for further audit and research. Implementation should improve the management and survival of CYP with PCC/PGL.

139 GOSH – A CULTURAL SPACE

S Hall, V Reiss, C Moore, H Copsey. Department of Development and Property Services, Great Ormond Street Hospital

A hospital is obviously a clinical place. But it can also be a cultural space. A community of potential audiences and artists. Patients, families and staff are not only consumers but also creators, of culture.

This is an exciting time for arts in hospitals and arts in health generally. The recent publication of the report by the All Party Parliamentary Group on Arts, Health and Wellbeing (APGAHW), ‘Creative Health: The Arts for Health and Wellbeing’, shone a spotlight on the multitude of positive benefits, impacts and effects of creativity in healthcare settings.

This presentation will give an overview of the GOSH Arts programme and the evidence base for arts in hospitals. Why bother having an art team and what is the impact?

GOSH Arts is the arts programme at Great Ormond Street Hospital. Our wide-ranging work is designed to encourage creativity and improve the hospital environment of everyone. We deliver workshops, performances, exhibitions and art commissions that inspire creativity, create welcoming environments, and offer meaningful cultural opportunities for patients, families and staff.

140 CARE DOESN’T END AT DEATH

T Kerr-Elliott. Department of Palliative Care, Great Ormond Street Hospital

This presentation will describe the following study which I have started in April 2018 and will include the views of bereaved parents who were consulted as part of the design and proposal phases.

The death of a child is widely recognised to be one of the most difficult, intense and traumatic events one can experience and bereaved families require support from a range of professionals including nurses who are often present when a child dies. There are considerable variations in current post-death practices, and despite evidence demonstrating the importance of continuing to care ‘for’ or ‘be with’ their child after death, the opportunities for families to do so are often limited.

Nurses and other clinical staff who provide care after a child has died frequently report they are anxious about knowing what to do and say but a lack of research and understanding about parent’s experiences makes it challenging to know how best to teach and support staff in this regard. The study will focus on the care of the deceased child’s body in between the time of death and their funeral, looking at the needs of both parents and nursing staff during this time. I am collaborating with Martin House Hospice/York University.

The study aims to answer the following questions:

1. What services are currently offered to parents in England immediately after the (expected) death of their child?
2. What are the experiences of bereaved parents in the post-death care of their child?
3. How much do nursing staff understand, about their role, in supporting bereaved parents in the care of their child after death?
4. How can the experience of parents inform service provision, clinical practice and education of staff?

141 TREACHER COLLINS SYNDROME – RETROSPECTIVE REVIEW OF AIRWAY MANAGEMENT TECHNIQUES

V Ratnamma, J Navaratnarajah. Department of Anaesthetics, Great Ormond Street Hospital

Introduction Treacher Collins Syndrome is a rare disorder of craniofacial development characterised by maxillary, zygomatic, and mandibular dysplasia. Anaesthesia in patients with
Treacher Collins Syndrome is a challenge, in view of difficult mask ventilation and difficult intubation.

**Aim**
- To review different airway management techniques in children with Treacher Collins Syndrome.
- To determine the difficulty of intubation with increasing age.

**Methods**
A retrospective review of airway management in children with Treacher Collins Syndrome reported in the difficult airway database from 2010 to 2017. There were 435 difficult airway cases reported, out of these, 26 were Treacher Collins Syndrome. The information collected included age, predicted difficult airway, intubation technique, ease of bag mask ventilation, grade of intubation, time taken for intubation and number of attempts.

**Results**
There were 26 cases of Treacher Collins Syndrome reported in the difficult airway database during the period 2010 to 2017. Out of these, 30% were difficult mask ventilation. We specifically looked into different intubation techniques used. Fibreoptic intubation was used in 8 (30.7%) cases, Airtraq used in 9 (34.6%), GlideScope in 4 (15.38%), fibreoptic intubation via LMA and GlideScope was used in 2 (7.69%) cases each.

**Discussion and conclusion**
All the children we analysed had undergone previous anaesthetics with documented previous difficult intubation. Specialised intubation techniques were the preferred option for airway management in these children. We found it difficult to conclude whether the difficulty of intubation increases with age. We acknowledge that our study was very limited. To get more accurate data, we are conducting a prospective study.

**REFERENCE**

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**LEAKING NASOPHARYNGEAL ASPIRATE (NPA) DURING TRANSPORT: THE IMPACT OF A SAFETY ALERT AND IMPORTANCE OF PROPER LABORATORY SPECIMEN TRANSPORTATION**

W Musabek, Y Wu, C Morris, T Rockenbach, S Heales. Department of Laboratory Medicine, Great Ormond Street Hospital

10.1136/goshabs.142

**Background**
Nasopharyngeal aspirates (NPA) are commonly collected for prompt diagnosis of viral respiratory infections which is crucial for positive patient outcomes and implementation of infection control measures. At the Great Ormond Street Hospital for Children, NPA samples were either hand-delivered to the laboratory or transported via the chute. In 2016, there was a high number of leaking NPA in the chute system due to the use of containers unapproved for the chute. In 2016, there was a high number of leaking NPA in the chute system due to the use of containers unapproved for the chute. This not only caused safety issues but also delays in the transportation of other laboratory samples as the entire chute system had to be shut down for decontamination. On 24 March 2017, a safety alert was issued which stated that all NPA samples must be delivered by hand only. This study examined the impact of the safety alert, which was part of the Quality Improvement project tackling laboratory pre-analytical errors.

**Methods**
Data for NPA samples received between 01/03/2016 – 30/04/2018 were extracted from the Laboratory Information System. The number of leaking NPA samples and the sample transport time before and after the release of the safety alert were compared.

**Results**
There was a 65% drop in the number of leaking NPA samples after the issue of the safety alert. The transport time has increased with higher impact observed on the samples collected in the late evening.

**Conclusion**
The safety alert was effective in reducing the number of leaking NPA samples received in the laboratory but has increased the sample transport time. Until a new sample container that is approved to be used in the chute system can be found, the safety alert will remain in effect. This study illustrates the importance of proper sample transport as failings can affect not only patient outcomes but also the healthcare and portering teams that are involved in the sample processing pathway.

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**GOSH PATIENT SAFETY TOOLKIT: DEVELOPMENT OF A MOBILE APPLICATION (APP) TO IMPROVE COMPLIANCE WITH STAFF MANDATORY TRAINING**

1Y Krashia, 1C Rios, 1S Odufuwa-Bölger, 1D Mohamedally, 2S Conner, 2N Sebire, 1R Fallett, 2M Banaghan.
1Department of Computer Sciences, University College London, 2Digital Research, Innovation and Virtual Environments, Great Ormond Street Hospital, 2Department of Quality and Safety, Great Ormond Street Hospital

10.1136/goshabs.143

**Background**
The mandatory training of new staff includes the awareness of clinical guidelines to improve patient safety but compliance using traditional online methods may be poor due to the inability to access and complete training on mobile devices at a convenient time.

**Aim**
The aim of this study was to create a mobile training app that would encourage staff participation in mandatory training using the ‘Sepsis 6’ guidelines in recognition of the increasing importance of early detection of sepsis to ensure a good patient outcome.

**Methods**
We developed a cross-platform mobile application using the Ionic platform, HTML, CSS, and angular.

**Results**
We demonstrate a working prototype of the ‘Patient Safety Toolkit’ app which displays interactive, menu-driven content, a video library and the ability to generate personal learning notes which can be stored and emailed. Initial testing demonstrated an acceptable user interface with a good usability of the entire functionality of linking personalised notes and information. The familiar mobile user interface design, with hierarchical menus and clean design, resulted in minimal instructional requirements and intuitive use by testers.

**Conclusion**
It has been recognised that this app can be used widely across clinical specialties and further work is required to extend the functionality to include additional content, to track and record usage and progress and to develop quiz/gamification elements to generate leaderboards and departmental metrics.
Abstracts

144 GRANULOMATOUS LYMPHOCYTIC INTERSTITIAL LUNG DISEASE (GLILD) IN CHILDREN

Z. Nademi, G. Davies, L. Devlin, R. Chavasse, J. Maimaris, K. Gilmour, C. Wallis, N. Pavasovic, A. Worth. 1Department of Immunology, Great Ormond Street Hospital; 2Department of Respiratory Medicine, Great Ormond Street Hospital; 3Department of Haematology/Oncology Department, Great Ormond Street Hospital

Background GLILD is defined as lymphatic infiltrates and granulomata in the lung and is mostly described as a complication of Common Variable Immunodeficiency (CVID). About 58% of patients with CVID develop GLILD and it is associated with early mortality in adults.

Method We describe the clinical, pathological and radiological features of patients using our electronic database in Great Ormond Street Hospital.

Results Six patients were identified. Males and females were equally affected. The age ranged between 4–9 years when the first biopsy confirmed granulomata. They presented with cough (4/6), lymphadenopathy (4/6), hepatosplenomegaly (3/6), Iidiopathic Thrombocytopenic Purpura (ITP) (2/6) and recurrent fever (1/6). They all had ground glass reticular appearance with widespread nodules on chest CT scan. The biopsy confirmed non-caseating granuloma in the lung. Granulomatous lesions were also found in the liver in 2/6, spleen and lymph node in one patient. Bone marrow aspiration and trephine showed granuloma (2), hypocellularity (2) and were normal in 2 patients. Lymphocyte subsets showed a low profile in 4/6 with raised double negative T cells in 5/6. Immunoglobulin level was normal in all except two. No Molecular diagnosis was made despite extensive investigation. Viral and microbiological investigations were negative. 4/6 required pulsed methyprednisolone at 10 mg/kg to control the lung disease. Two patients underwent Haemopoietic stem cell treatment (HSCT) due to refractory granulomatous disease and both were alive with significant improvement in pulmonary function.

Conclusion Children with GLILD have a more severe disease in comparison to adults and the majority do not fit the CVID criteria. 67% required intensive treatment with steroids.

145 THE ASSOCIATION OF ACCULTURATION AND COMPLEMENTARY INFANT AND YOUNG CHILDREN FEEDING PRACTICES AMONGST NEW CHINESE IMMIGRANT MOTHER IN ENGLAND: A MIXED METHODS STUDY

X. Zhang, L. Benton, M. Lakhapauli. Department of Population, Policy and Practice, UCL; Great Ormond Street Institute of Child Health

Background Acculturation has an influence on the attitudes and perceived behaviour of mothers of different ethnicities. Little data exists on complementary infant and young child feeding practices in minorities in England, particularly in Chinese communities. This mixed research is to explore the association of acculturation and complementary infant and young children feeding practices amongst new Chinese immigrant mothers in England.

Methods Our study recruited 32 new Chinese immigrant mothers. All recruited Chinese immigrant mothers completed the IFSQ (Infant Feeding Style Questionnaire) and MIRIPS (Mutual Intercultural Relations In Plural Societies), a sub-set of 15 new Chinese immigrant mothers also participated in semi-structured interviews, which were used to understand the association of acculturation and complementary infant and young children feeding practices amongst new Chinese immigrant mothers. Pearson’s Correlation coefficients analysis and thematic analysis were performed separately, and triangulation was employed to integrate questionnaire and semi-structured interviews findings.

Results Each feeding practices subscales score was non-significantly correlated with assimilation (r<0.17); integration was positively correlated with responsive satiety (r=0.368, p<0.05), separation was positively correlated with restrictive diet quality (r=0.368, p<0.05); and marginalisation was positively correlated with Indulgence Coaxing (r=0.432, p<0.05). Ethnic identity and National identity were significantly correlated with laissez-faire diet quality (r=−0.399, r=−0.375, p<0.05); ethnic identity was positively correlated with restrictive amount and responsive attention (r=0.397, r=0.381, p<0.05). Multicultural ideology was negatively correlated with indulgence permissive and coaxing (r=−0.520, r=−0.567, p<0.01). Ethnic tolerance was significantly correlated with pressuring finishing, cereal, and indulgence coaxing (r=−0.551, p<0.01; r=−0.353, r=−0.397, p<0.05).

Conclusion This study suggests that New Chinese immigrant mothers are predisposed and concerned about responsive satiety behaviour, showed better assimilation and integration, provided influence and higher responsiveness to satiety and attention, supplied influence and higher scores on restrictive amount and diet quality, provided influence and lower indulgence to permissive, coaxing and pampering in this study. Some positive complementary infant and young child feeding practices are identified in this research, including feeding a variety of foods, keeping a healthy and balanced diet, eating more vegetables and fruits.

146 THE MULTIDISCIPLINARY EXPERIENCE OF MOVING FROM A TRAINEE NURSE PRACTITIONER ROLE TO ADVANCED NURSE PRACTITIONER ROLE ON PAEDIATRIC CARDIAC INTENSIVE CARE; THE STORY A YEAR ON...

G Banks. Cardiac Intensive Care Unit, Great Ormond Street Hospital

Introduction The success of advanced nurse practitioners is widely documented. A year ago, I undertook a multidisciplinary study with the aim to review and improve the Cardiac Intensive Care Units’ (CICU) trainee nurse practitioner role, as it moved into an advanced role. A year later, many of the changes suggested in the study have been implemented, the team has grown and feedback continues to be positive.

Findings The original work looking specifically at CICU identified five themes:

1. Positive impact on patient and staff experience
2. Provision of expert care
3. Recognition of blurring of boundaries and unclear role definition
4. Development suggestions for a more effective advanced nurse practitioner role and
5. Perceived impact of an advanced nurse practitioner programme on nursing.
Now, a year on, the CICU nurse practitioner team has developed and changed in recognition of these themes and the MDT needs of the role.

Development:

- Training program – university and hospital based with clear management structure – allowing mentorship, feedback, support, personal development.
- Ongoing recruitment planning for role expansion.
- Medical and nursing orientation/training.
- Structured advanced skills program in collaboration with anaesthetics.
- Working on the medical rota.
- National registration and involvement PICS/ESPNIC.

Conclusions: On CICU, the advanced nurse practitioner role has been embraced by the MDTs and integrated into the team. This is recognised to have a positive impact on staff, patient and families. Over the last year, we have taken the opportunity to expand, develop and grow the programme, including introducing advanced skills training and a recruitment and training structure. Both of these have been recognized as important within the MDT.
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POSTS IN
GREAT ORMOND STREET HOSPITAL FOR CHILDREN
NHS FOUNDATION TRUST

Clinical Fellows (Equivalent of ST6+) in Paediatric Gastroenterology

We are looking to appoint Clinical Fellows to join the Paediatric Gastroenterology team at Great Ormond Street Hospital (GOSH). This is an exciting opportunity to gain or extend your clinical experience in Paediatric Gastroenterology. The Gastroenterology department at GOSH is recognised as a leading centre of advanced paediatric gastrointestinal medicine, clinical research and teaching. It is the UK’s only gut tissue engineering facility and has the largest group of paediatric home parenteral nutrition patients in the UK.

The department offers a sub-specialist referral service to gastroenterologists throughout the UK and worldwide. Sub-specialty areas include, neurogastroenterology and motility, mucosal immunology and intestinal rehabilitation. These posts are not recognised for training, but the appointee/s will be treated equitably to trainees in recognised training posts. MRCPCH part II or equivalent is essential for these ST6 posts.

Please ensure that your GMC registration and other relevant documentation are in date and in place prior to your start date, to avoid causing delay in recruitment.

For further information, contact: vacancy@gosh.nhs.uk

Clinical Fellows (Equivalent of Specialist Trainee 5+) in Paediatric Respiratory Medicine

The GOSH Respiratory Service is one of the largest tertiary and quaternary referral units for complex lung disease in the UK. There is a busy inpatient and outpatient service with weekly clinics for asthma, cystic fibrosis and complex lung disease. There is also a 5-bedded Transitional Care Unit (TCU), for children who are on long term ventilation managed by the respiratory team.

These roles would suit trainees in paediatrics who wish to gain additional sub-speciality experience at GOSH or applicants who wish to subspecialise in paediatric respiratory medicine. Paediatricians who have completed training and who wish to gain additional experience prior to taking up a consultant post are also encouraged to apply.

Applicants must have MRCPCH or equivalent and be fully registered with the General Medical Council. Some experience or knowledge of paediatric respiratory medicine is helpful. The posts provide ample opportunity for training.

For further information, contact: vacancy@gosh.nhs.uk

Clinical Fellows (Equivalent of Specialist Trainee 6+) in Paediatric Endocrinology

These are exciting opportunities to gain or extend your clinical experience in Paediatric Endocrinology, in the unique and supportive environment of Great Ormond Street Hospital. MRCPCH or equivalent is essential for the ST6 posts. The post is not recognised for training, but appointees will be treated equitably to trainees in recognised training posts. The post holder/s will be expected to take an active role in the department’s on-going program of audit and clinical research.

For further information, contact: vacancy@gosh.nhs.uk

Clinical Fellows (Equivalent of Specialist Trainee 6+) in Paediatric Metabolic Medicine

These are exciting opportunities to gain or extend your clinical experience in Paediatric Metabolic Medicine, in the unique and supportive environment of Great Ormond Street Hospital. MRCPCH or equivalent is essential for the ST6 posts. The post is not recognised for training, but appointees will be treated equitably to trainees in recognised training posts. The post holder/s will be expected to take an active role in the department’s on-going program of audit and clinical research.

For further information, contact: vacancy@gosh.nhs.uk

Clinical Fellow (Equivalent of Specialist Trainee 4+) in Paediatric Rheumatology

There are exciting opportunities within the Rheumatology Department at Great Ormond Street Hospital for Children, offering candidates the chance to gain first-hand experience of this paediatric specialty working in an exciting and unique environment within a busy children’s hospital.

As a valued member of the multidisciplinary team you will be included as a middle grade in the educational and training activities of the department and the workload will be shared amongst 4 Specialist Registrars and 1 Clinical Fellow. These roles provide ideal experience for those wishing to further develop a special interest in Paediatric Rheumatology including those who wish to consolidate their previous experience/training in Rheumatology. MRCPCH (or equivalent) is essential.

For further information, contact: vacancy@gosh.nhs.uk
**POSTS IN GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS FOUNDATION TRUST**

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**Clinical Fellow (Equivalent of Specialist Trainee 4+) in Paediatric Dermatology**

These roles are an exciting opportunity to extend your clinical experience in Paediatric Dermatology in the unique and supportive environment of Great Ormond Street Hospital. The dermatology department provides an in-patient, day case, ambulatory and out-patient diagnostic and treatment service to children with very severe and/or rare disorders involving the skin.

As a Clinical Fellow in Paediatric Dermatology, you will be given the exciting opportunity to extend your clinical experience of dermatology within a unique hospital environment. As a valued member of the middle-grade team you will be included in the educational and training activities of the unit of the Hospital.

These posts will provide excellent experience for those training in Paediatrics, and is also very suitable for someone who wishes to consolidate previous experience in paediatric dermatology. MRCPCH (or equivalent) is essential. The post is not recognised for training.

For further information, contact: vacancy@gosh.nhs.uk

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**Great Ormond Street Bank Staff**

Why not join the GOSH family and be a part of our Bank where you will have the option to gain paediatric experience on an ad-hoc basis, whilst helping us deliver our services.

Opportunities are available for both Lower and Higher Level doctors across 8 clinical directorates in the following sub-specialties. For a full list of specialties, please see; https://www.gosh.nhs.uk/wards-and-departments/departments/clinical-specialties.

Posts would be suitable for doctors who wish to gain sub specialty experience in any of the advertised specialties or doctors wishing to become general paediatricians with a sub-specialty experience.

At higher level, you should be ST4+ equivalent and have completed your membership exams.

Your suitability to join the bank will be assessed via interview and successful candidates will be subject to completion of satisfactory pre-employment checks.

For further information, contact: bank@gosh.nhs.uk

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**Clinical Fellow (Equivalent of Specialist Trainee 6+) in Paediatric Intensive Care**

The paediatric critical care departments at Great Ormond Street Hospital, invite applications for a training fellowship in paediatric intensive care medicine. Great Ormond Street Hospital provides the largest critical care in Europe and is made up of three main areas: General Paediatric Intensive Care, Neonatal Intensive Care and Cardiac Intensive Care.

The role will involve time on the paediatric intensive care unit and the cardiac intensive care unit. Some fellows will have an opportunity to rotate to the transport service (CATS).

Our intensive care fellows are under the supervision of a team of consultants in each ICU area. All posts are accredited for training by the College of Intensive Care Medicine (CICM) of Australia and New Zealand.

Paediatric critical care training at GOSH is designed to prepare you for a career in PICM as an excellent clinician, leader and thinker. Each trainee will be allocated an educational supervisor who will provide guidance on quality improvement projects and completing publishable research.

For further information, contact: vacancy@gosh.nhs.uk

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**For our full range of job opportunities, please visit:** https://www.gosh.nhs.uk/working-here/current-jobs
DEVELOP YOUR CAREER WITH THE
GREAT ORMOND STREET LEARNING ACADEMY

The Great Ormond Street Learning Academy delivers highly regarded professional education and training.

Expertly designed by our multi-professional education team together with our subject matter experts, our courses can help you to achieve excellence in your career development, and keep patient safety and quality of care at the heart of all your learning.

Ultrasound Guided Venous Access

This course is a combination of theory and practice covering a basic venous anatomy refresher.

The course covers topics such as the optimisation of the ultrasound images, with reference to ultrasound machines, tips and tricks and the use of ultrasound to assess venous anatomy.

Learning outcomes:
• To be able to see your puncture needle better
• To use ultrasound to assess venous anatomy
• To practice ultrasound guided punctures on phantoms

Duration: ½ day

Let’s talk Global, Let’s talk Local

This two-day course will focus on improving communication skills in a healthcare setting where there are a diversity of communities and cultures.

Learning outcomes:
• Explore the challenges of communicating with patients, their parents and carers as well as colleagues from a range of professions, cultures and settings
• Share your experiences of learning and working in other countries
• Identify methods and strategies to enhance your communication skills in a diverse setting

Duration: 2 days

Candour for care

This interactive course explores the complexities of ‘duty of candour’ and how to manage a conversation following a mistake, harm or adverse event.

Learning outcomes:
• Learn about the philosophy and theory of AI and positive psychology
• Learn and practice some tools from both, including those that support strategic planning and review of services (SOAR)
• Explore and practice new ways of asking strength-based questions and conducting strength-focused conversations at all levels
• Consider the application for increasing safety

Duration: 1½ days
Our range of bespoke courses provide a supportive culture of learning where experts in the field will deliver the relevant knowledge and skills for your learning needs, and give you the opportunity to reflect and demonstrate the expectations of good medical and working practice.

Some of our more popular courses are outlined below. To see our full range of courses, symposia and conferences please visit [https://www.gosh.nhs.uk/pgme/courses](https://www.gosh.nhs.uk/pgme/courses)

**Train The Trainer**

Train the Trainer is a comprehensive, interactive, one day training course focusing on delegates gaining the knowledge and skills required to become confident facilitators of learning.

**Learning outcomes:**
- Understand and practice the facilitation of learning
- Understand the theoretical perspectives of facilitation
- Be able to plan for learning
- Design a learning event

**Duration:** ......................... 1 day

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**Talking To Families: When death becomes a likely outcome**

This simulation day is designed to help develop your technique for introducing concepts of death and dying, advanced care planning and parallel planning.

The day will be run in small groups, using actors with feedback from expert faculty.

**Learning outcomes:**
- To understand that many situations have no clear right answer
- To recognise that parents may wish to stop treatment when they feel the child has suffered enough
- To be able to give parents the options available to them so that they can make informed choices
- To understand that parents may not want to be the ones to suggest stopping treatment

**Duration:** ......................... 1 day

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**Me First: Children and Young Person-Centred Communication Masterclass**

The Me First Masterclass aims to improve health outcomes for children and young people by enhancing the knowledge, skills, and confidence of healthcare professionals in communicating with children and young people.

**Learning outcomes:**
- Understand the barriers and challenges to communicating with children and young people in health and social care and have techniques to overcome them
- Improve knowledge, skills, and confidence in having child and young person-centred conversations

**Duration:** ......................... 1 day