Our Lady’s Children’s Hospital Crumlin, Dublin, Ireland
May 19th 2017

7th Annual OLCHC Research & Audit Conference

Book of Abstracts

Kindly sponsored by:
National Children’s Research Centre
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Foreword

Welcome to the 7th Annual OLCHC Research & Audit Day, Friday 19th May 2017. The success of this Day is assured through the participation of those whose work is presented as a poster or by presentation and by those who attend the event.

Our Lady’s Children’s Hospital Crumlin (OLCHC) is the largest children’s hospital in the Republic of Ireland. It provides secondary care for our local population and is a tertiary referral centre for numerous national specialties and subspecialties. The hospital is committed to the delivery of the highest standard of children’s healthcare and its mission is underpinned by the premise that the delivery of quality care is supported by excellence in knowledge, education and research.

OLCHC recognises that research can enhance the outcomes, lives and experiences of children and their families by identifying the causes of illness, developing treatments and cures and also by improving the ways in which the service is delivered and experienced by children. The hospital supports research in all areas of children’s healthcare, and promotes and fosters partnerships among clinicians, nurses, allied health professionals, scientists and support staff to maximise the impact of research on the health and wellbeing of children.

The Annual Research & Audit Day is a wonderful opportunity to showcase the quality and extent of research activity in the hospital. The 11 oral presentations from medicine, nursing and allied health professionals reflect the diverse and important role research and audit plays in the delivery of care to children here in OLCHC. There are over 100 posters representing all disciplines and these showcase the variety of research and audit activity undertaken by staff in OLCHC.

I would like to take this opportunity to thank the organising committee of Dr. Declan Cody, Professor Eleanor Molloy, Carol Hilliard and Sinead Cassidy, whose hard work is essential to the success of the day.

The 8th Annual Research & Audit Day will be held in May 2018 and I would encourage you all to consider submitting your research and audit projects and activities.

Helen Shortt,
Chief Executive
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Programme:

09.15-10.00  Tea/Coffee and Registration – Board Room on First Floor Atrium, Medical Tower

10.00 -11.00  Poster Walkabout – First Floor Atrium, Medical Tower

11.05 - 11.15  Opening of meeting - Helen Shortt, CEO, OLCHC

11.15 - 12.15  Oral presentations – Moderator: Dr Declan Cody (6 x 10 minute Presentations)

11.15-11.25  SKULL FRACTURES AND SAFEGUARDING IN THE UNDER 2’S: A THREE YEAR RETROSPECTIVE STUDY

Ailbhe McGrath\textsuperscript{1}, Ruth Howard\textsuperscript{1}, Sean Walsh\textsuperscript{1}, Carol Blackburn\textsuperscript{1}, Michael J Barrett \textsuperscript{1,2,3}

\textsuperscript{1}Department of Emergency Medicine, OLCHC, Dublin 12, \textsuperscript{2}National Children’s Research Centre, Dublin 12, \textsuperscript{3}Paediatric Emergency Research United Kingdom and Ireland (PERUKI) group.

11.25-11.35  EXCLUSIVE FORMULA FEEDING INCREASED THE RISK OF EARLY RAPID GROWTH IN `INFANCY

Hazel A Smith\textsuperscript{1}, Jonathan O’B Hourihane\textsuperscript{12}, Mairead Kiely\textsuperscript{2,3}, Louise C Kenny\textsuperscript{2,4}, Patricia Leahy-Warren\textsuperscript{1}, Deirdre M Murray\textsuperscript{12}

\textsuperscript{1}PICU, OLCHC (Formerly Paediatrics & Child Health, University College Cork, Cork), \textsuperscript{2}Irish Centre for Fetal and Neonatal Translational Research (INFANT), University College Cork, Cork, \textsuperscript{3}School of Food and Nutritional Sciences, University College Cork, Cork, \textsuperscript{4}Department of Obstetrics and Gynaecology, University College Cork, Cork, \textsuperscript{5}School of Nursing & Midwifery, University College, Cork.

11.35-11.45  AUDITING OUTCOMES OF HAEMATOPOIETIC STEM CELL TRANSPLANTATION IN OLCHC

John Fitzgerald, Quality Manager, Haematology Laboratory, Tissue Establishment & JACIE, OLCHC, Dublin 12.

11.45-11.55  THE IMPACT OF ELECTRONIC PRESCRIBING AND STANDARD CONCENTRATION INFUSIONS FACILITATED BY SMART-PUMP TECHNOLOGY ON MEDICATION ERRORS IN A PAEDIATRIC INTENSIVE CARE UNIT

Moninne M. Howlett \textsuperscript{1,2,3}, Eileen Butler \textsuperscript{1}, Karen Lavelle \textsuperscript{1}, Brian J. Cleary \textsuperscript{2,4}, Cormac V. Breatnach \textsuperscript{1}

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11.55-12.05  A DESCRIPTIVE SURVEY OF CHILDREN’S TRUST IN THE NURSE

Rosemarie Sheehan, National Children’s Hospital, Tallaght, Dublin 24 (formerly OLCHC)

12.05-12.15  SCOPING MINORS ATTITUDES TO SAFETY HELMETS

Ruth Howard\textsuperscript{1}, Elaine O’Rourke\textsuperscript{2}, Christian Micallef\textsuperscript{3}, Suja Somanadhan\textsuperscript{4} Stan Koe\textsuperscript{3}, Ike Ikechukwu\textsuperscript{2}, Michael J Barrett\textsuperscript{1}

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12.15-13.00  Guest Lecture:

“Feeding For The Future – A 40 Year Adventure”

Professor Alan Lucas, Director, MRC, Childhood Nutrition Centre, University College London (UCL)

13.00 -13.55  Lunch - Board Room on First Floor Atrium, Medical Tower
13.55 -14.45 Oral Presentations – Moderator: Prof. Eleanor Molloy (5 x 10 Minute Presentations)

13.55-14.05 PEWS – A SYSTEM NOT A SCORE
Paula Mc Grath1, Sean Walsh2
1Quality Department, OLCHC, Dublin 12, 2Clinical Director and Department of Emergency Medicine, OLCHC, Dublin 12.

14.05-14.15 ORAL STIMULATION FOR PROMOTING ORAL FEEDING IN PRETERM INFANTS: A COCHRANE SYSTEMATIC REVIEW – NEXT STEPS FOR IRISH NICUS?
Zelda Greene1, Colm O’Donnell2, Margaret Walsh3
1Speech and Language Therapy Department, OLCHC, Dublin 12, 2Department of Neonatology, National Maternity Hospital Dublin 2, 3Department of Clinical Speech and Language Studies, Trinity College Dublin, Dublin 2.

14.15-14.25 PAEDIATRIC CONSULTATION LIAISON PSYCHIATRY SERVICES - WHAT ARE THEY ACTUALLY DOING?
Fionn Lynch1, Dr Claire Kehoe23, Sarah MacMahon2, Edel McCarra2, Rachel McKenna2, Dr Antoinette D’Alton2, Prof Fiona McNicholas234
1Royal College of Surgeons in Ireland, Dublin 2, 2Department of Child and Adolescent Psychiatry, OLCHC, Dublin 12, 3CAP, University College Dublin, Dublin 4, 4Lucena Clinic, Rathfarnham, Dublin.

14.25-14.35 THE NATIONAL CENTRE FOR PAEDIATRIC RHEUMATOLOGY (NCPR) EXPERIENCE OF THE USE OF TOCILIZUMAB (Ro-Actemra) IN THE TREATMENT OF JUVENILE IDIOPATHIC ARTHRITIS (JIA): A 7-YEAR STORY
Wafa Madan1, Charlene Foley1, Ciara Lang1, Orla Killeen1, Emma MacDermott1
1National Centre For Paediatric Rheumatology (NCPR), OLCHC, Dublin 12.

14.35-14.45 ADOLESCENT HYDROCOELES – WHAT’S THE BEST OPERATIVE APPROACH?
Melania Matcovici1, Brendan R. O’Connor1, Farhan K. Tareen1, John Gillick1
1Department of Paediatric Surgery, OLCHC, Dublin 12 and Temple Street Children’s University Hospital, Temple Street, Dublin 1.

14.45-15.00 Moderator: Carol Hilliard
“The Children’s Clinical Research Unit at OLCHC”
Dr Jacinta Kelly and Mary Costello

15.00-15.30 Presentations & Awards
The following awards will also be presented:

 “Professor Edward Tempany OLCHC Junior Doctor Research Award 2017”
UCD Colman Saunders Medal – Ciara Malone
RCSI Paediatric Medal Winner – Emma Louise Rogers
TCD “Professors Prize – O’Donohoe Medal” – Winner for the Academic Year 2014/2015 – Gillian Genevieve Crowe
UCD Nursing Medal BSc (Nursing) Children’s and General – Ms Mollie Bruton

15.30 Close of Study Day
Professor Alan Lucas Founded the Child Nutrition research Centre at the Institute of Child Health in London, where he is now professor of Paediatric nutrition. This is the largest centre of its type in Europe devoted to the impact of infant and child nutrition on health. Professor Lucas’ work on nutrition spans the period from fetal life to adolescence though he has a particular interest in the concept of “programming” (a term he coined); he initiated the first intervention trials to test the programming effects of early nutrition on long term health and development. He has over 400 publications in the field of paediatric nutrition and has received a number of awards for his work, including the James Spence medal awarded in recognition of life-time achievement in British paediatrics. He is currently Chair of Paediatric Nutrition at University College London, Fellow of Clare College, Cambridge where he was Director of Medical studies and Fellow of the Academy of Medical Sciences.
SKULL FRACTURES AND SAFEGUARDING IN THE UNDER 2’S: A THREE YEAR RETROSPECTIVE STUDY

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1. Department of Emergency Medicine, OLCHC
2. National Children’s Research Centre, Dublin
3. Paediatric Emergency Research United Kingdom and Ireland (PERUKI) group

Aim: Our aim was to evaluate the presentations, management with safeguarding assessment of head injuries in the under 2 population presenting to the Department of Emergency Medicine (PED).

Methods: A 3 year retrospective chart review from 1/1/2012 – 31/12/2014 was conducted of patients under 2 years who presented to the PED with a head injury where head imaging was undertaken for a suspected skull fracture.

Results: Ninety three children were identified. Eighty four (84/93, 90%) incidents occurred at home and 53/93 (57%) were witnessed. Patients were symptomatic of head injury (e.g. vomiting, irritable, seizure, LOC, etc.) in 44/93 (47.3%) cases with 4/44 (9%) diagnosed with a skull fracture. Clinically, 43/93 (46.2%) had a scalp haematoma or bruise with 20/43 (46.5%) with a skull fracture. Imaging of heads included 65/93 (69.1%) skull radiographs and 42/93 (45.1%) CT scans. Fourteen (14/93, 15%) with an initial radiograph subsequently had a CT. In total, 26/93 (28%) had skull fractures. Skull fractures were parietal in 23/26 (88%). Two (2/42, 4.8%) children had significant intracranial pathology; one extra axial haemorrhage and one arachnoid haemorrhage with parietal fracture. Sixty four (64/93, 68.8%) patients were admitted to a hospital (3 transferred to a neurosurgical unit). Twenty four (24/93, 25.8%) had skeletal surveys with 8/24 (33%) having abnormal findings. Interestingly, none of this 8/8 (100%) had concurrent skull fracture. All ophthalmology assessments (18/93, 19.4%) were normal. Sixty five (65/93, 69.9%) were linked with a social worker or public health nurse. A safeguarding strategy meeting occurred in 11/93 (11.8%) cases.

Conclusions: Application of initial PED radiological investigations and safeguarding meeting was not uniform. Skull fracture alone was not an absolute indication for skeletal survey. This data will be benchmarked against PERUKI members for the same period with a view to a consensus approach for this patient cohort.

EXCLUSIVE FORMULA FEEDING INCREASED THE RISK OF EARLY RAPID GROWTH IN INFANCY

Hazel A Smith\textsuperscript{1}, Jonathan O’B Hourihane\textsuperscript{1,2}, Mairead Kiely\textsuperscript{1,3}, Louise C Kenny\textsuperscript{1,4}, Patricia Leahy-Warren\textsuperscript{1}, Deirdre M Murray\textsuperscript{1,2}

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4) Department of Food Science, University College Cork, Cork, Ireland
5) School of Nursing & Midwifery, University College Cork, Cork, Ireland

Background: Nutritional intake is one of the major determinants of growth during the first two years of life and growth during this period, in particular the first few months, appears to be critical in predetermining our long-term health. We investigated the effect an infant’s milk diet at 2 months by comparing exclusively formula fed (eFF) to breastfed (BF) infants and examining their growth in the first two years of life.

Method: Data was collected at birth and 2, 6, 12 and 24 months from the Cork BASELINE Birth Cohort Study. Feeding history and anthropometric measurements were captured at each assessment. Body composition was assessed on day 1-3 and 2 months of age using air displacement plethysmography. Feeding group was based on feeding history at 2 months. We defined early rapid growth as an increase of 0.67 in weight-for-length z-score between birth and 2 months of age.

Results: Data was available for 644 term singleton infants, (344 BF, 300 eFF). There were no differences in weight, length or weight-for-length z-score at birth. At 2 months, the eFF group had a significantly higher median weight-for-length z-score 0.10 ((IQR: 0.53, 0.62) vs -0.31(IQR: -0.98, 0.33), p=<0.001). Nearly twice as many eFF underwent early rapid growth (30% vs 16.9%, p<0.001). By 24 months there was no difference in weight, length or weight-for-length z-scores between the feeding groups. The occurrence of ERG increased weight-for-length z-score at 24 months by 0.39 (95% CI 0.19, 0.54, p=<0.001) when adjusted for maternal smoking in pregnancy, weight-for-length z-score at birth and age(weeks) when first introduced to solid food.

Conclusion: Exclusive early formula feeding increases the risk of early rapid growth, which is a known risk factor for childhood obesity. This may present a modifiable risk factor for obesity prevention.
AUDITING OUTCOMES OF HAEMATOPOIETIC STEM CELL TRANSPLANTATION IN OLCHC
John Fitzgerald, Quality Manager, Haematology Laboratory, Tissue Establishment & JACIE

Background/Method/Results: Our Lady’s Children’s Hospital, Crumlin (OLCHC) provides the only paediatric Haematopoietic Stem Cell Transplant (HSCT) Service for the Republic of Ireland. A full range of autologous and allogeneic HSCT is provided in a modern, purpose-built collection, processing and in-patient Bone Marrow Unit.

All activities for collection, processing and infusion are provided on site. HPC-Apheresis collection and infusion takes place for the autologous programme and HPC-Apheresis (allogeneic), HPC-Marrow and HPC-Cord products are routinely infused. A system for Key Performance Indicator (KPI) management is well established on site. Collection KPI’s have been set for donor mobilisation, collection target dose, and collection target efficiency.

KPIs for processing of harvest products include post-thaw viability, % recovery post-product depletion and sterility of processed products. Post infusion KPIs include time to neutrophil and platelet engraftment, chimerism, D+100 and D+ 1 year outcomes, acute GvHD and health-related morbidity for healthy donors. An annual audit of KPI data is completed and a report is produced, broken down by disease type and is presented to a multi-disciplinary team. Trending of KPIs outcomes form part of this report. On a monthly basis, KPIs for recent transplants are reviewed.

Presentation to the audit day will provide insight to the methodology of the system in place in OLCHC and feedback from users on the KPI data presented.

THE IMPACT OF ELECTRONIC PRESCRIBING AND STANDARD CONCENTRATION INFUSIONS FACILITATED BY SMART-PUMP TECHNOLOGY ON MEDICATION ERRORS IN A PAEDIATRIC INTENSIVE CARE UNIT
Moninne M. Howlett 1, 2, 3, Eileen Butler 1, Karen Lavelle 1, Brian J. Cleary 2, 4, Cormac V. Breatnach 1
1Our Lady’s Children’s Hospital, Crumlin, Dublin 12
2School of Pharmacy, Royal College of Surgeons in Ireland, 3National Children’s Research Centre, Crumlin, 4The Rotunda Hospital, Dublin

BACKGROUND: Increased use of health information technology (HIT) has been advocated as a medication error reduction strategy. Evidence on its benefits in the paediatric setting remains limited. In 2012, the paediatric intensive care unit (PICU) in Our Lady’s Children’s Hospital, Crumlin implemented both electronic-prescribing and a smart-pump library of standard concentration infusions (SCIs).

OBJECTIVE: This study aims to assess the impact of the new technology on PICU medication errors.

METHOD: A retrospective, observational study based on an interrupted time series design was conducted in a 23-bed PICU of a tertiary children’s hospital. 3,400 medication orders were reviewed over 4 time periods: pre-implementation (Epoch 1); post-implementation of SCIs (Epoch 2); immediate post-implementation of electronic-prescribing (Epoch 3); and 1 year post-implementation (Epoch 4). Using pre-determined definitions, medication error rates were calculated as no. of errors per orders screened by clinical pharmacist review. A multi-disciplinary consensus process was utilised. Novel error types were identified. Errors were graded for severity using a combination of two validated grading tools. Data were analysed in Stata Version 13.1 using ANOVA and Chi-squared tests.

RESULTS: Overall medication error rates were similar in Epoch 1 and 4 (10.2% v 9.8%; p>0.05). Altered error distribution was evident. Incomplete and wrong unit errors were eradicated; duplicate orders increased. Dosing errors remained most common. 27% of post-implementation errors were novel technology-generated errors. The implementation of SCIs pre-electronic-prescribing significantly reduced infusion-related prescribing errors (29.0% to 14.6%; p<0.01). A further reduction to 8.4% (p>0.05) was reported after implementation of electronically-generated infusion orders.

CONCLUSION: Introduction of SCIs and smart-pump technology significantly reduced errors associated with the prescribing of infusions in PICU. The impact of electronic prescribing on overall medication error rates was considerably lower. Novel errors were common, highlighting the need for further studies with increasing use of HIT in paediatric settings.
A DESCRIPTIVE SURVEY OF CHILDREN’S TRUST IN THE NURSE
Rosemarie Sheehan, Our Lady’s Children’s Hospital, Crumlin

Background:
Trust is a relational phenomenon and a dynamic process, without it nurses face difficulty in being effective in meeting the needs of patients. In nursing sick children, trust is particularly important as it in some ways counterbalances the patient’s vulnerability; however, there can be no trust with the child unless there is parental trust.

Method:
Trust was examined using The Children’s Trust in Nurse Scale, child self-reported trust and parental reports of the child’s trust, fear, adherence and interaction with the nurse. This self-complete survey has twelve questions, four specifically designed to assess each of the three elements of trust; emotion, honesty and reliability. Participants were asked to indicate their beliefs on a five point Likert scale on a series of statements. The target population in the study was hospitalised children age 9-12 admitted to the four day units within the hospital. The sampling method was convenience.

Results:
The results yielded high levels of self-reported and child and parent reported trust beliefs in the nurse. The child’s and parents’ trust beliefs in the nurse were found to be correlated. Gender did not affect trust beliefs; however, younger children had higher levels of trust beliefs than older children particularly in relation to the perceived honesty of the nurse. This study identified some evidence that trust beliefs in the nurse lessen with more exposure to the hospital setting. This study did not demonstrate a relationship between fear and trust beliefs in the nurse however, a significant proportion (17.6%) of children reported fear of the nurse. Adherence to care and trust beliefs in the nurse were shown to be only marginally related; however, positive interaction with the nurse was shown to be positively related to adherence to care. This study also found the Children’s Trust in Nurse’s Scale was reliable for use in the paediatric hospital setting.

SCOPING MINORS ATTITUDES TO SAFETY HELMETS
Ruth Howard1, Elaine O’Rourke1, Christian Micalef3, Suja Somanadhan1 Stan Koe2, Ike Ikechukwu2, Michael J Barrett1
1Emergency Department, Our Lady’s Children’s Hospital, Crumlin, 2Emergency Department, Children’s University Hospital, Temple Street, 3Paediatric Emergency Department, Tallaght Hospital, 4Department of Clinical Audit, Temple Street Children’s University Hospital

Background: The use of wheeled recreational devices (WRD) is common amongst children (e.g. skateboards, bikes, heelies etc.). Evidence on safety helmet usage suggest that they reduce the risk of head, brain and facial injuries to cyclists. The aim of this study was to examine the relationship of WRD related injuries to safety equipment usage and the prevalence of safety equipment usage in a population presenting to Paediatric Emergency Department (PED).

Method: A prospective study of patients presenting to the 3 PED’s in Dublin. Children included were those presenting with WRD associated injuries from June to November 2016. Ethics approval was obtained.

Results: A total of 455 patients across the 3 PED’s were recruited. There was a male predominance with 305 boys (67%) and 150 (33%) girls. The largest age group was 5-10 years old with 227 (50%) of children sustaining injuries from a WRD. Most WRD related injuries were from bicycles. Despite the fact that 65.5% (295) of children owned a helmet, 84% (383) did not wear it. The majority of children 193(42%) children sustained head injuries. Upper limb injuries accounted for 182 (40%) of presentations, while 76 (17%) children were diagnosed with soft tissue injuries. In terms of disposition, 62 (13.6%) children were admitted to hospital, while 201(44%) were referred for OPD follow up. Lack of availability of a safety helmet, physical appearance, peer pressure and lack of knowledge were the main themes which emerged as the reasons given for not wearing a helmet.

Conclusion: This study has identified that the utilisation of safety helmets was low in children who presented to the PED with a significant spectrum of injury that may have been preventable.
**PEWS – A SYSTEM NOT A SCORE**
Paula Mc Grath, CNMII Quality, PEWS Lead, Sean Walsh, Clinical Director, PEWS Lead, OLCHC, Dublin

**Background**
Paediatric Early Warning Score (PEWS) was developed in collaboration with the National Clinical Programme for Paediatrics and Neonatology and the Quality Improvement Division of the HSE. The objective of this project was to implement PEWS into the largest tertiary paediatric hospital in Ireland. This project proved to be the biggest change management Quality Improvement Initiative across both medical and nursing disciplines. The aim of the project was to implement PEWS to relevant clinical areas within a 9 month timeframe, commencing June 2015.

**Method**
A hospital working group was established chaired by Dr. Sean Walsh, Clinical Director. An implementation plan was devised, the primary focus was of patient safety. An education plan commenced, with the ambitious remit of 100% of nursing staff trained before PEWS “going live” into a clinical area. This proved extremely challenging to release staff to attend the 3.5hr training programme. The NCHD Education Programme also proved challenging, as no protected mandatory training time was allocated as part of the National Initiative and this process required further training with each six monthly NCHD intake.

In collaboration with the intensive care team an Urgent Response system was devised, consisting of a designated bleep.

**Results**
OLCHC now have a full year’s data in relation to 3 areas of audit; compliance, nursing and medical response to PEWS reviews and urgent PEWS reviews figures.

**Conclusion**
OLCHC achieved successful implementation of PEWS. The system operates by recording vital signs and secondly by escalation and response to escalation. The hospital would feel we have made great progress with the embedding of the PEWS tool but continue to be challenged with responding to the escalation, in particular to an urgent response from the PICU team due to lack of staff resources in this area as part of this quality and safety initiative.

**ORAL STIMULATION FOR PROMOTING ORAL FEEDING IN PRETERM INFANTS: A COCHRANE SYSTEMATIC REVIEW – NEXT STEPS FOR IRISH NICUS?**
Zelda Greene*, Colm O’Donnell**, Margaret Walsh***
*S*Speech and Language Therapy Department, OLCHC
**Department of Neonatology, National Maternity Hospital Dublin
***Department of Clinical Speech and Language Studies, Trinity College Dublin

**Background:** Preterm infants are often delayed in attaining oral feeding which is an important hospital discharge criteria. Oral stimulation interventions may help infants develop sucking skills, promoting earlier oral feeding and hospital discharge. Irish NICUs have sporadic SLT input and multidisciplinary approaches to managing feeding problems are lacking. This review was required to determine the effectiveness of these stimulation interventions for oral feeding in preterm infants.

**Methods:** We used the standard search strategy of the Cochrane Neonatal Review Group. Randomised controlled trials were included. The GRADE system was used to rate quality of evidence. We performed meta-analysis using a fixed-effect model.

**Results:** 19 RCTs were included, total 823 participants. Methodological weaknesses were evident across trials. Meta-analysis showed that oral stimulation reduced:

- time to transition to oral feeding compared with standard care (mean difference (MD) -4.81, 95% confidence interval (CI) -5.56 to -4.06 days; compared with another non-oral intervention (MD -9.01, 95% CI -10.30 to -7.71 days)
- duration of hospitalisation compared with standard care (MD -5.26, 95% CI -7.34 to -3.19 days); compared with another non-oral intervention (MD -9.01, 95% CI -10.30 to -7.71 days).
- duration of parenteral nutrition for infants compared with standard care (MD -5.30, 95% CI -7.71 to -3.19 days); compared with another non-oral intervention (MD -9.01, 95% CI -10.30 to -7.71 days).
- duration of parenteral nutrition for infants compared with standard care (MD -5.30, 95% CI -7.71 to -3.19 days); compared with another non-oral intervention (MD -9.01, 95% CI -10.30 to -7.71 days).

**Conclusions:** Despite poor methodological quality, the review suggests that early intervention in this group shortens hospital stay, days to exclusive oral feeding and duration of parenteral nutrition. The cost of NICU care is high. Reducing bed days and parenteral nutritional costs, should lead to cost savings for Irish NICUS and for tertiary and local hospitals, including OLCHC. These will be discussed.
PAEDIATRIC CONSULTATION LIAISON PSYCHIATRY SERVICES - WHAT ARE THEY ACTUALLY DOING?

Fionn Lynch, Medical student, RCSI, Dr Claire Kehoe, Senior Registrar in Child and Adolescent Psychiatry, Our Lady's Hospital for sick Children Crumlin and Clinical lecturer CAP UCD, Sarah MacMahon, Clinical Nurse specialist in Liaison Child and Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin, Rachel McKenna, Assistant Psychologist, Our Lady’s Hospital for sick Children Crumlin, Dr Antoinette D’Alton, consultant Child and Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin, Rachel McKenna, Assistant Psychologist, Our Lady’s Hospital for sick Children Crumlin, Lucena Clinic & CAP UCD,

Aim: To examine clinical type and complexity in a Paediatric Consultation Liaison Psychiatry Services (PCLS).

Background: Children with medical problems having a two-fold increase in mental health (MH) disorders, and under-recognition of treatment can lead to prolonged and more expensive hospital care, poorer outcomes and overall poorer functioning. PCLS are specialised services designed to address these co-morbidities. However, in the absence of Child and Adolescent Mental Health Services (CAMHS) ‘out of hours’ services, PCLS are directed to increasing numbers of children with acute MH problems presenting to the emergency department (ED) then at the expense of psycho-somatic illnesses.

Method: Clinical data from all cases (N=68) who presented to the hospital during the audit period (Jan-May 2016) was retrieved, using a study specific questionnaire and the Paddington Complexity Scale.

Results: The majority of children presenting were female (65%), of white ethnic origin (92%), with a mean age of 13.2 years (range 5-16). Presentation was typically via the ED (79%), and ‘out of hours’ (56%) with only 14 being referred from OPD or ward. About half (45%) were previously known to CAMHS. Reasons for presentation were most often linked with DSH (57%). Following assessment, 67 (98%) had an Axis I diagnosis, most often a mood disorder (56%). Only 7 (10%) had a psychosomatic presentation and 2 had an eating disorder. 3 children had moderate/severe Learning Disability. Nearly half of the sample had a complexity score in the severe or extreme range (28%), with a mean CGAS on admission of 46 (20-68). The average duration of stay was 11 days (1-138), with 17 requiring an average of 22 days one-to-one nursing. Clinician’s estimate of therapeutic intensity was of ‘moderate’ or ‘intensive’ degree in the majority (84%). Discharge CGAS was 51 (22-71) with most being discharged back to CAMHS (83%).

Conclusions: The results indicated that the majority of work conducted by the PCLS involved children with acute or deteriorating psychiatry disorders, often previously known to CAMHS, with a much smaller focus on psycho-somatic presentations. Adequate resourcing of both hospital based PCLS and ‘out of hours’ CAMHS are necessary to allow PCLS provide a specialist service to children with combined medical and MH problems. Given the development of the National Paediatric Hospital, and the growing number of OPD referrals made to the PCLS that are not being seen, addressing these resourcing deficits is of vital importance.

THE NATIONAL CENTRE FOR PAEDIATRIC RHEUMATOLOGY (NCPR) EXPERIENCE OF THE USE OF TOCILIZUMAB (Ro-Actemra) IN THE TREATMENT OF JUVENILE IDIOPATHIC ARTHRITIS (JIA): A 7-YEAR STORY

Madan W, Foley C, Lang C, Killeen O, MacDermott EJ. National Centre For Paediatric Rheumatology (NCPR) Our Lady’s Children’s Hospital Crumlin (OLCHC), Dublin

Background
Tocilizumab is a recombinant-humanised-monomoclonal-antibody that acts as an Interleukin-6-receptor-antagonist. Approved for the treatment of children over 2 years with Systemic-onset JIA (SoJIA) and Polyarticular JIA (pJIA), Tocilizumab has been used in the NCPR for these indications since 2010.

Aim: To perform a retrospective review of all children with JIA attending the NCPR treated with Tocilizumab, and report on outcomes, tolerability and efficacy.

Methods: A retrospective review of all JIA patients receiving Tocilizumab was performed and baseline demographics recorded. Active disease was defined by active joint count (AJC), and/or presence of raised Acute Phase Reactants (APR). Pre-Tocilizumab biologic workup, infusion frequency and prior and adjunctive treatments were reviewed. Outcome measures included clinical remission (0 AJC) and time to remission.

Results: Thirty-two children with JIA (81% Female, median age at diagnosis 5.1yr, 1.8-12.8yrs) have received Tocilizumab, 41% SoJIA, 34% pJIA (3/11 RF-positive), 25% Other.

Median time to commencing Tocilizumab was 3.1yrs (0.9-10.4yrs). Prior to Tocilizumab, 97% of children received Methotrexate monotherapy. Following this, 91% received at least two Biologics, 6% received four.
Pre-Tocilizumab 97% were Varicella immune, all TB negative. The average AJC was 17 (3-23 joints) and APR were raised in 53%.

All received Tocilizumab fortnightly at the outset. Escalation to weekly infusions was required in 28% (56% SoJIA). Adjuvant steroids were required in 56% at commencement of Tocilizumab. Complete steroid wean was achieved in 83%.

Seventy-four percent of the cohort has achieved remission on Tocilizumab. Average time to remission, 5 mths (0.5-15 mths). APR normalised in 76% after one infusion, 100% after three. Tocilizumab was discontinued in 22% (7/32). Of the remaining twenty-five, 32% achieved reduced infusion frequency (3-8 weekly).

**Conclusion:** NCPR experience with Tocilizumab has been positive, with high rates of remission (74%) and tolerability, 78% remaining on the drug. Rather than using multiple biologics, this encourages consideration of the drug earlier.

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**ADOLESCENT HYDROCOELES – WHAT’S THE BEST OPERATIVE APPROACH?**

**Melania Matcovici, Brendan R. O’Connor, Farhan K. Tareen, John Gillick.**

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**Background:**

There is a paucity of evidence in the literature to describe the optimal surgical approach for de-novo hydrocoeles presenting in adolescents and requiring operative management. Limited evidence suggests that a patent processus vaginalis (PPV) is not likely to be identified at exploration if a hydrocoele presents after twelve years of age. We aim to investigate the best approach for the treatment of hydrocoeles in adolescents.

**Methods:**

A retrospective chart review of all adolescents (10-16 years old) diagnosed with a de-novo hydrocele in our institutions over a 10 year period (2007-2016), was performed.

**Results:**

53 boys with a median age of 11 years (range 11 to 16 years) were diagnosed with hydrocele at our institutions during the study periods. Thirty four (64%) of the patients had an inguinal approach for treatment of their hydrocoele. In 59% (n=20) a PPV ligation was performed. For another 32% (n=11) PPV was closed/partially closed and a further drainage of the hydrocoele through the same incision was performed. The recurrence rate was 29% (n=10). A primary Jaboulay procedure was performed in 19 (36%) patients. The recurrence rate was 16% (n=3). Age of presentation less than 12 years was found to be associated with the presence of a patent processus vaginalis (p <0.0001).

**Conclusions:**

A scrotal approach should be considered first in adolescents when the history is not suggestive of a communicating hydrocele. Children less than 12 years are more likely to have a PPV and an inguinal approach may be more appropriate.
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ALLERGY EMERGENCY READINESS TRAINING: HOW ARE WE DOING?
Afrah Alkhedir1, Eva Corbet1, Aideen Byrne1
1Allergy Department, Our Lady’s Children’s Hospital Crumlin

BACKGROUND: Anaphylaxis is rapid in onset and potentially fatal. Immediate delivery of intramuscular adrenaline via an adrenaline autoinjector (AAI) can be lifesaving. In our department, parents and patients receive standardised training in adrenaline delivery using a training tool that we have developed. Development of the training tool was prompted by an audit showing almost 10% of AAI prescriptions had not been filled. The purpose of this audit was to evaluate the effectiveness of the training tool.

METHOD: 50 families, on regular follow up at OPD were interviewed using standardised questionnaire.

RESULTS: 35/50 were carrying at least 1 and 32/50 were carrying 2 AAIs in clinic. 56.5% of those trained more than 2yr ago, 66% of those trained over 1yr ago and 83% trained within the last year were carrying devices. Of those without devices, 7 were at home and 8 in the car but this was unconfirmed. Thus, all patients claimed to have purchased AAI devices. 48(96%) could demonstrate the correct site of injection. 44(88%) could correctly demonstrate how to administer. 42(84%) reported confidence in recognising the indications for adrenaline delivery. Only 35(70%) knew the name of their device but 45(90%) could identify their device when shown a variety of simulators. Only 31(62%) knew the expiry date on their device and 3 were carrying expired devices.

CONCLUSION: The training tool is effective in teaching parents how and when to deliver AAIs. Lack of awareness of expiry dates is a major concern. Similarly, too few families are always carrying AAIs, increasing the risk of them not being available in an emergency. Although not statistically significant the data indicated an association between length of time since training and poor emergency readiness. A retraining tool will need to be considered along with other techniques to reinforce good practices.

PEER SUPPORT FOR NEWLY REGISTERED CHILDREN’S NURSES
Naomi Bartley & Aisling Mulligan, A/Nurse Tutors, Centre for Children’s Nurse Education.

BACKGROUND: The transition from nursing student to registered children’s nurse is acknowledged as challenging (Hollywood 2011). The Centre for Children’s Nurse Education (CCNE) have developed a transition programme to support newly registered children’s nurses, which includes structured peer support. Thalluri et al. (2014) describe peer support as the socialisation of similar social groupings. Peer support can reduce isolation, increase confidence and enhance preparation for clinical practice (Christiansen & Bell 2010).

METHOD: Three peer support sessions were facilitated in 2016 with 34 newly registered children’s nurses. The concept of peer support was explained at the initial session and expectations included:
- Active engagement
- Respect
- Confidentiality

The sessions incorporated small group workshops, guided by a reflective practice cycle (Gibbs 1988). Interactive discussion, reflection and sharing of experiences facilitated the identification of specific challenges experienced within the first year as a registered children’s nurse.

RESULTS: Peer support created opportunities for newly registered children’s nurses to share experiences, identify challenges and support each other. Specific challenges experienced by newly registered children’s nurses were presented within three themes:

Personal
- Feeling overwhelmed
- Confidence and competent practice
- Personal expectations v. organisational expectations
- Visual impact of registered nurse’s uniform (on parents/multi-disciplinary team)
- Impact of undergraduate nursing registration programmes

Education
- Education of parents
- Preceptorship of students

Clinical Expectations
- Increased workload/acuity
- Increased responsibility
- Interactions with parents
- Medication Management: IV administration

Identifying the challenges for newly registered children’s nurses has assisted the ongoing development of the CCNE transition programme,
distinguished support needs and increased awareness of the transition of new children’s nurses. 

**CONCLUSION:** Peer support proved a valuable tool to engage with and increase support for newly registered children’s nurses. Identifying specific challenges associated with the transition from nursing student to registered nurse has increased awareness and understanding, ensuring the provision of appropriate support for all newly registered children’s nurses.

**References:**

**NURSING MENTORSHIP: A NEW DIRECTION**
Naomi Bartley, A/Nurse Tutor, Centre for Children’s Nurse Education.

**BACKGROUND:** A mentorship programme for newly registered children’s nurses will be introduced by the Centre for Children’s Nurse Education (CCNE) in 2017. Nursing mentorship is a developmental relationship between an experienced nurse, a more junior nurse and their organisation (Weese *et al.* 2015). The aim of this long-term relationship is the professional development of the less experienced nurse. To explore the views of nursing staff and assist the development of a mentorship programme, a survey was undertaken. Robust support for the introduction of a mentorship programme within Our Lady’s Children’s Hospital (OLCHC) was demonstrated.

**METHOD:** Nursing staff within all clinical areas were invited to participate in an anonymous survey. The survey was available as both online and paper survey, to ensure all staff had an opportunity to participate.

**RESULTS:** 75 nurses of all grades participated, with staff nurses representing the majority (30%). Several themes emerged:

**Perceptions of Mentorship:**
- 90% acknowledged mentorship as beneficial for newly registered staff.
- 94% were willing to be mentors.
- Mentorship was associated with increased workload.
- Mentorship needs to be differentiated from preceptorship.

**Potential Benefits:**
- Staff Retention (77%)
- Enhanced Practice and Knowledge (75%)
- Increased Self-Confidence (74%)
- Enhanced Working Relationships (72%)
- Enhanced Nursing Care (69%)
- Job Satisfaction (68%)
- Career Progression (62%)

**Education:**
- 60% requested specific mentorship training.

**Mentor Role:**
Staff nurses were considered most appropriate for the mentorship role (91%).

**CONCLUSION:** Positive support for the introduction of a mentorship programme was evident. Nurses were motivated and willing to undertake a mentorship role. The CCNE aims to develop and support a high quality mentorship programme for newly registered children’s nurses and specific education and support will be required. The views of nursing staff are valued and will contribute towards the development of a mentorship programme.

MONITORING DEFIBROTIDE USAGE IN PATIENTS UNDERGOING HSCT WITH KNOWN RISK FACTORS FOR DEVELOPING VOD/ SOS
Michelle Beirne1, Mairead O’Brien2, Elaine Smith2, Eileen Butler1, Dr. Michael Capra2, Dr. Andrea Malone2, Prof Aengus O’Marcaigh2, Dr Cormac Owens2, Dr. Jane Pears2, Prof Owen Smith2, Michael Fitzpatrick1.
Departments: 1. Pharmacy Department, OLCHC 2. Haematology/ Oncology Department, OLCHC.

Background: Defibrotide is licensed for the treatment of venous occlusive disease (VOD) of the liver following haematopoietic stem cell transplant (HSCT). VOD is characterized by endothelial injury and non-thrombotic obstruction of small intra-hepatic venules leading to liver damage. Up to April 2015 defibrotide was used as prophylaxis against VOD in patients who were considered high risk. OLCHC decided to discontinue using defibrotide as prophylaxis in this patient cohort due to the lack of evidence of efficacy and increasing costs of the drug. The aim of this audit was to identify patients transplanted in OLCHC who had one or more risk factors for the development of VOD, monitor them for signs of VOD and calculate the cost savings associated with the discontinuation of defibrotide as prophylaxis.

Methods: All patients receiving a HSCT in OLCH between Oct 2015 and Dec 2016 were included. All patients were reviewed and their risk factors for VOD were identified. The theoretical dose of defibrotide for patients with known risk factors was calculated based on their weight at start of conditioning and the duration of treatment was based on the number of days conditioning the patient received plus 30 days following the date of transplant. The cost of a potential prophylactic course of defibrotide for these patients was calculated to determine cost savings.

Results: The total number of patients included was 27. 70% of patients had one or more risk factors for developing VOD. Two patients had multiple risk factors for developing VOD. The most common risk factor identified was conditioning with busulfan with 44% of patients transplanted receiving busulfan. Other risk factors identified were second transplants, patients heavily pre-treated, treatment with gemtuzumab and conditioning with treosulphan. There were substantial cost savings following the discontinuation of prophylactic defibrotide. At present no patient post HSCT has developed VOD requiring treatment. One patient developed sub-clinical VOD which required no treatment and resolved. One patient received defibrotide as prophylaxis for VOD due to severe liver dysfunction prior to HSCT.

Conclusion: Considering the serious consequences of developing VOD post-transplant and the lack of strong evidence for use of defibrotide as prophylaxis it is important that this patient cohort and the use of defibrotide is continually monitored.

ADOLESCENTS AND ADULTS IN A TERTIARY PAEDIATRIC EMERGENCY DEPARTMENT
Dr. Michael Bennett1, Dr. James Foley1, Dr. Carol Blackburn1, Dr. Sinead O’Donnell1,2, Dr. Sean Walsh1, Dr. Michael J Barrett1,2
1. Department of Emergency Medicine, Our Lady’s Children’s Hospital, Crumlin, Dublin, Ireland
2. National Children’s Research Centre, Our Lady’s Children’s Hospital, Crumlin, Dublin, Ireland

Background: The paediatric emergency department (PED) is primarily tasked with acute health care provision to children and adolescents under 16 years of age. In Ireland, the population ≥16 years attending the PED remains undescribed.

Objective: This study aimed to describe the presentations of patients ≥16 years to the PED of a tertiary hospital.

Methods: This was a retrospective review of electronic records identifying all patients (≥ 16 years) presenting to a PED from January 2014 to December 2015. Patient demographics, presenting complaint, diagnosis, treatment and disposition were recorded.

Results: A total of 71,082 patients attended during the study period, of whom 433 (0.6%) patients were aged 16 to 61 years. A total of 165/433 (38%) patients were admitted locally, all of whom were under 21 years and had chronic/complex underlying conditions. The proportion of patients who presented with de novo issues was 68/433 (16%). This included 12/68 (18%) collapse episodes, 8/68 (12%) chest pain, 3/68 (4%) respiratory complaints, 6/68 (9%) surgical complaints, 2/68 (3%) allergic reactions and 38/68 (56%) injuries. Under half, 33/68 (48%), were discharged to an adult ED for further care and 16/68 (24%) patients did not wait to be seen by a clinician. A further 8/68 (12%) were referred to an adult outpatient clinic, 5/68 (7%) were referred to a paediatric fracture clinic, and transfer or follow-up data was unknown for 6/68 (9%) patients. There were no recorded deaths during the study period.

Conclusions: Patients ≥16 years represent 1 in 166 presentations to our PED and they are frequently admitted locally. This study demonstrates a significant population with complex or chronic conditions who are in an interim transition period to adult services or receiving the entirety of their care in a paediatric hospital. A further study will consider the hypothesis that this population with complex and chronic care needs have a disproportionate demand on local resources.
HOW WE USE REMIFENTANIL IN THE OPERATING THEATRE: FINDING CONSENSUS
Dr. Colin S. Black, Dr. Pierce Geoghegan, Dr. Matthew Coghlan, Department of Anaesthesia, Our Lady’s Children’s Hospital, Crumlin

Background: Remifentanil is an ultra-short acting, potent synthetic opioid that has revolutionised anaesthesia practice since its introduction. It is used as an adjunct to both intravenous and vapour based anaesthesia. It is presented in powder form and reconstituted by the anaesthetist to the desired concentration. Traditionally, remifentanil is delivered via a syringe driver infusion. More recently, there has been a vogue for mixing remifentanil with propofol for delivery in the same syringe to provide total intravenous anaesthesia. This practice has wide variability and potential for drug error, particularly amongst trainees unfamiliar with the technique. We aimed to establish what the current practice is in OLCHC and to reach a departmental consensus for the use of remifentanil.

Methods: An online survey was sent to all consultant anaesthetists.

Results: 58% have mixed propofol and remifentanil.
Concentrations of remifentanil for use in a separate syringe ranged from 10-100mcg/ml
Concentrations of remifentanil for use in a syringe with propofol ranged from 2.5-10mcg/ml
There were multiple examples of methods used to achieve the desired concentrations with no 2 answers the same.
50% reported a near miss/error related to remifentanil concentrations
84% were in favour of a departmental consensus guideline

Conclusion: There is mixed practice in terms of using remifentanil separately and mixed with propofol, therefore both practices should be encouraged and taught to trainees. However, there is a significant risk of drug error that needs to be addressed. A proposed guideline will be presented, including considerations for pharmacy and medical engineering requirements to facilitate this.

AN AUDIT OF OUTCOME OF BLEEDING DISORDER INVESTIGATIONS IN GIRLS PRESENTING TO A PAEDIATRIC HAEMOSTASIS CLINIC.
R Bradley, B Nolan, OLCHC, Dublin

Introduction: In studies of girls with heavy menstrual bleeding, approximately 50% are found to have an underlying bleeding disorder.

Aim: To audit of the outcome of bleeding disorder investigations in girls referred to the Haemostasis Clinic between 01/01/2011 to 31/12/2017 with heavy menstrual bleeding.

Methods: The health care records of girls referred with heavy menstrual bleeding were examined. We collected data on age at menarche, menstrual bleeding, and bleeding history, family history of bleeding, haemoglobin, ferritin, and coagulation investigations.

Results: 37 girls were referred, age 9.5 years to 17 years old. Investigations are ongoing in 8 girls. 14 have been diagnosed with a bleeding disorder. 15 have been discharged.

Conclusions: The findings of our audit are similar to published data on heavy menstrual bleeding in this age group.
LOW PREVALENCE OF SUBCLINICAL PROTEIN LOSING ENTEROPATHY IN CHILDREN WITH UNIVENTRICULAR CIRCULATION FOLLOWING TOTAL CAVOPULMONARY CONNECTION
Colm R. Breathnach, Aoife Cleary, Terence Prendiville, Kathleen Crumlish, Helene Murchan, Colin J. McMahon, OLCHC, Crumlin, Dublin

Introduction: Protein Losing Enteropathy post Fontan palliation is associated with significant morbidity and mortality. To date, very little research has been carried out to improve early identification of this condition in patients. We hypothesised that by testing certain biochemical markers we could identify the condition before symptoms develop.

Methods: A prospective observational study was performed on 43 patients post Fontan surgery. We collected specimens of stool and blood from well patients, with no symptoms of protein losing enteropathy, at non-specific time points post Fontan. Stool samples were assessed for alpha one antitrypsin. The stool samples of two patients were discarded, leaving 41 stool samples. Blood samples were also collected to review albumin, C-reactive protein, liver and renal function.

Results: Twenty eight (65 percent) of those enrolled were male. The mean age between Fontan and collection of study specimens was 4.6 years. Two (5 percent) patients had elevated levels of alpha-1-antitrypsin and are being followed up for other evidence of evolving protein losing enteropathy. There was no correlation between blood biochemistry and elevated stool alpha-1-antitrypsin.

Conclusion: Subclinical protein losing enteropathy is rare in asymptomatic children after Fontan procedure with only 5 percent of patients having elevated stool alpha-1-antitrypsin but no other symptoms. Prospective ongoing evaluation of these patients may allow earlier detection of protein losing enteropathy. Given the serious prognosis of protein losing enteropathy in this patient group further work in this area is warranted.

NURSING CONSIDERATIONS IN THE NEONATE WITH NECROTISING ENTEROCOLITIS
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Background: Necrotising Enterocolitis (NEC), neonatal condition, is when tissue in the intestines become inflamed and necrotic. This can result in bowel perforation, a surgical emergency. NEC most commonly affects preterm infants under 1500g, however it can also occur in term and near term infants. Mortality is high, with 20-50% mortality rate depending on the severity of the NEC and gestational age. The mortality rate has remained largely unchanged in the past 30 years, highlighting the challenges posed for healthcare professionals in prevention, recognition and treatment.

Method: A neonatal case study of NEC was completed as part of PICU Foundation course. A review of the literature, using CINahl, Pubmed & Science Direct, was undertaken to identify risk factors and preventative strategies for NEC.

Results: The aetiology of NEC remains largely unknown however contributing factors include prematurity, bacterial colonisation, gut immaturity and early formula feeding. Early recognition and treatment of NEC improves morbidity and mortality. The most pertinent nursing priorities found through examining the case study was ‘management of nutrition’, ‘reducing risk of infection’ and ‘nursing management of Pain’.
There are many promising studies in relation to the prevention of NEC which include the use of expressed breast milk, the use of probiotics and the use of quality improvement plans in neonatal/paediatric intensive care units. This case study demonstrated a need for Multi-Disciplinary Team intervention for the neonate from Day 1 of life. The importance of family centred care was also found to be significant.

Conclusion: NEC is a serious condition posing many challenges for healthcare professionals. Potential preventative measures, early recognition and knowledge among nurses can help to reduce morbidity and mortality in these infants.
AN AUDIT OF A NATIONAL PAEDIATRIC CARDIOLOGY WARFARIN CLINIC

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Background: The National Cardiology Heart Centre manages the most complex cardiology conditions in Ireland leading to a large cohort of patients requiring anticoagulation following procedures. The warfarin clinic is a telephone clinic managed by the Cardiology NCHD’s and all results are recorded on a patient specific computerized system. There has been no recent audit of the service.

Method: The computerized data collection of all warfarin patients was reviewed over a three months period. This revealed 54 patients on warfarin with a total of 495 INRs. Data recorded from the telephone clinic was audited under the heading of key safety indicators as outlined by the NPSA. The method of monitoring the INR was also audited by telephone when contacting parents with doses. The results were compared to the NPSA (National Patient Safety Authority), safety standards established by the NHS for warfarin dosing. A standard of 90% was set for each standard.

Results: 54 patients were included in the audit. 100% of patients had a documented target INR, clinical diagnosis and most recent doses recorded. No patient had a documented stop date. 69% of INR’s were in target range. 7% (N=4) had an INR of greater than 5 and no patients had an INR greater than 8. No patients had an adverse outcome. There was no process for identifying patients lost to follow up. 33% of patients audited are using home ‘coagucheck’ kits with the remaining audited patients using their local hospital phlebotomy services.

Discussion: This audit shows that there is a need to implement a computerized system of following up patients. An online calendar has been set up which documents what date patients are booked in for INR review. All new patients will now have a stop date documented. There will be a re-audit in three months’ time with the aim of improving compliance to the safety standards.

DESIGNING VACCINES FOR THE PAEDIATRIC POPULATION; POTENTIAL FOR CYTOSOLIC NUCLEIC ACIDS AS VACCINE ADJUVANTS

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Background: Two million infants die each year from infectious diseases before they reach 12 months. Pattern Recognition Receptors (PRRs) represent the critical front-line defence against pathogens, with PRR agonists also utilised as vaccine adjuvants. Evidence suggests that the innate immune system does not fully develop until puberty, contributing to impaired vaccine responses. The activity of the PRR family of cytosolic nucleic acid (CNA) sensors in the developing immune system has not been reported.

Methods: Neonatal cord and adult/child peripheral blood mononuclear cells (PBMCs) were cultured and challenged with various CNA formulations and Toll-Like Receptor (TLR) agonists. Type I Interferons, Interferon stimulated genes (ISGs), TNFα, IFNγ and IL-12p70 were measured. IFN-regulatory transcription factor (IRF) activation and Rab11+ve-endosome formation were assayed by DNA-binding assay and confocal analysis respectively. Ontogeny of CNA-induced cytokine responses was demonstrated in PBMCs drawn from children from 4months-11 years of age.

Results: We show that in contrast to weak TLR-induced type I Interferon (IFN) in cord blood mononuclear cells (CBMCs), CBMCs are capable of initiating a potent response to CNA, inducing both anti-viral type I IFN and pro-inflammatory TNFα. A deficiency in Rab11-GTPase endosome formation in cord blood monocytes is at least in part responsible for the marked disparity in TLR-induced IFN production between CBMCs & adult PBMCs. CNA receptors do not rely on endosome formation, therefore, these responses remain intact in neonates. Heightened neonatal responses to CNA challenge are maintained in PBMCs isolated from healthy children up to 2 years of age, and in marked contrast to TLR4/9 agonists, result in IL-12p70 and IFNγ generation.

Conclusions: CNAs induce anti-viral and pro-inflammatory pathways in neonates and children and possess great potential for use as immunostimulants or adjuvants for targeted neonatal and paediatric populations to promote cell-mediated immunity against invasive infectious disease.
AN EXAMINATION OF THE EFFECT OF DEEP ULCERATION ON CLINICAL OUTCOMES FOR CROHN’S DISEASE PATIENTS IN THE NATIONAL CENTRE FOR PAEDIATRIC GASTROENTEROLOGY

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Background: Crohn’s disease (CD) is an inflammatory bowel disease (IBD) of unknown aetiology causing ulceration throughout the length of the gastrointestinal tract. As inflammation worsens, ulcers become deeper which can lead to severe disease progression. This may have adverse effects on clinical outcomes for paediatric patients. The aims of this study were to examine the incidence of severe ulceration in a paediatric population and to better understand the impact of this disease behaviour on clinical outcomes.

Methods: Determinants and Outcomes in Children and Adolescents with IBD (DOCHAS) is a prospective study following all Irish children newly diagnosed with IBD since 2012. Patients were recruited between January 2012 and July 2016 and their clinical data was recorded on case report forms. Patients, diagnosed according to the Porto criteria, were rigorously phenotyped using the Paris classification. Information obtained was uploaded to an online database where data pertaining to CD and severe ulceration were exported and statistically analysed using SPSS.

Results: 174 CD patients were enrolled in the study, of which 127 (73%) were male. 67 (39%) children presented with or subsequently developed severe ulceration. Males (n = 55) were found to have a significantly (p = 0.023) higher incidence of severe ulceration compared to females. Mean age of diagnosis of CD was 11.5±3.4 years. First relapse occurred 3.84 months quicker among patients with severe ulceration. A significantly higher proportion of patients with severe ulceration were treated with exclusive enteral nutrition and biological therapy (p = 0.003 and 0.002 respectively) than those without severe ulceration.

Conclusion: There has been an increased rate of CD diagnosis in children from 2012-2016. Significantly more males than females were diagnosed with CD with more children presenting with severe ulceration. These results suggest that children diagnosed with CD and severe ulceration have faster rates to relapse thus, more aggressive therapeutic intervention is required.

FEELING VALUED: “IT’S THE WIND IN YOUR SAILS”

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2 Radiography Services Manager, Our Lady’s Children’s Hospital Crumlin
3 Neuro-physiologist, Temple Street Children’s University Hospital
4 Occupational Therapist Manager, Our Lady’s Children’s Hospital Crumlin

BACKGROUND: “Evidence shows that happy, well motivated staff deliver better care and . . their patients have better outcomes.” (HSE Corporate Plan 2015-2017). The HSE Staff Survey “Your Opinion Counts 2016” reported that not all staff feel valued and recognised, or that the organisation gets the best out of them. Many do not receive feedback from or have meetings with line managers. Objectives were to assess within an acute hospital:

• factors that make HSCP staff feel valued and undervalued.
• staff’s perception of the impact of being valued on their performance

and to collate staff’s recommendations into a report for communication to

• hospital corporate management (CMT)
• the HSE (via Libby Kinneen, HR Lead - Employee Engagement and Jackie Reed, General Manager, HSCP Education & Development Unit)

METHOD: Two HSCP focus groups were ran, one with staff and one with managers. Data was gathered via questionnaires and discussion. A further focus group was conducted, emphasising achievable solutions. These were the basis of recommendations subsequently collated. Participant feedback was also gathered.

RESULTS: It was evident that

• people want to be listened to and have things actioned
• engagement of this nature can be a powerful motivator for individuals
• participants were solution-focused. It was important to ask for their recommendations since they had many of the answers and it allowed them to be part of the solution.
Key interventions proposed by participants included:

- Annual reviews and Personal Development Plans (PDPs)
- Formal supervision structure and supervision training
- Coaching & mentoring for managers/senior staff
- Increased autonomy to departmental managers
- CPD support for career development

**CONCLUSION**

Workshops for HSCP managers, which include some of the above interventions, would be of value. A commitment has been given by the HSE to pilot such workshops.

**INTRODUCING AN ALTERNATIVE TO VIDEOFLUOROSCOPY IN BREASTFEEDING BABIES IN OLCHC USING FLEXIBLE ENDOSCOPY DURING FEEDING: A SINGLE CASE STUDY**

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**Background:** FEES (Fibreoptic Endoscopic Evaluation of Swallowing) is a recognised tool for the assessment and management of swallowing disorders involving the trans-nasal insertion of a fibreoptic nasendoscope to the level of the oropharynx/hypopharynx to evaluate laryngopharyngeal physiology, management of secretions and the ability to swallow food and fluids. It has good validity when compared with Videofluoroscopy (VFSS). The only instrumental swallow assessment in OLCHC is VFSS. In breastfed babies, the delivery of oral milk feeds for VFSS does not replicate the experience of breastfeeding.

This case involves a normal 9 week old male breastfed baby. ALTE unknown cause requiring resuscitation, right upper lobe consolidation query aspiration pneumonia. PICU admission, some pontine changes on MRI. SLT clinical feeding evaluation of breastfeeding NAD. Medical team requested VFSS. One incidence of silent aspiration occurred on regular fluids. Baby was seated semi-upright in tumble-form chair, fed with a bottle – not the same experience as breastfeeding. ENT agreed to do a breastfeeding endoscopy for comparison.

**Method:** The procedure was done in the ENT OPD clinic. The flexible nasendoscope was placed and the baby was put to the breast, settled well. A good view was obtained of the oropharynx and airway allowing ENT to assess airway status and SLT to assess oropharyngeal swallow parameters during the feed. The procedure was recorded.

**Results:** Normal swallow function was observed during the endoscopy and no signs of aspiration were detectable in the airway.

**Conclusion**

This procedure could offer more options for assessing swallow function in breastfed babies in their natural position compared with videofluoroscopy. It was tolerated well by the baby, gave confidence to the ENT, Medical and SLT teams that breastfeeding was safe despite the VFSS results on bottle feeding. Challenges will be addressed.
AUDIT OF OXYGEN THERAPY USE DURING AIRWAY CLEARANCE BY PHYSIOTHERAPISTS FOR INVASIVELY VENTILATED CHILDREN AT OLCHC
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Description:
Physiotherapists in OLCHC perform chest physiotherapy (CPT) as indicated for intubated patients on ICU when working on the respiratory team, or as weekend/on-call cover. Manual hyperinflation (MHI) is an effective treatment option for airway clearance among intubated patients and involves provision of oxygen (FiO2) which can be titrated as indicated. Both hypoxaemia and hyperoxemia can have detrimental effects. OLCHC physiotherapy department have guidelines on oxygen provision in specific patient groups. Anecdotal reports suggest that current practice differs between physiotherapists with regards the starting point of FiO2 used during MHI.

Method:
Anonymous survey of physiotherapy staff and retrospective audit of the chest physiotherapy notes from 4 randomly selected patients each Saturday for the 6 months prior to December 2016 and Tuesday and Friday of the week beginning 11th of July 2016. Patients were categorised as having normal cardiovascular anatomy and/or physiology, those with cyanotic conditions (communication between oxygenated and de-oxygenated blood) and premature infants (<37 weeks GA).

Results
Survey showed an absence of uniformity in the starting point of FiO2 used during MHI among physiotherapists at OLCHC, however the majority of physiotherapists report they titrate FiO2 to achieve an appropriate SpO2.
The FiO2 used during MHI was documented for 93% of CPT episodes (n=56). Physiotherapists used 100% FiO2 during MHI, and provided FiO2 >30% above the ventilated settings less frequently among children with cyanotic conditions.
One CPT intervention involved a premature infant in which OLCHC guidelines were followed.

Conclusions
Physiotherapists are adhering to current guidelines on oxygen provision during CPT for specific patient groups, and titrate the FiO2 based on clinical reasoning. Clear guidelines relating to broader patient groups may help to standardise the approach to oxygen therapy provision.

THE EFFECTIVENESS OF A STRENGTH AND WELLNESS GROUP IN THE DEVELOPMENT OF SELF MANAGEMENT SKILLS IN A PAEDIATRIC RHEUMATOLOGY POPULATION
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Background: This is a physiotherapy and occupational therapy pilot group run at Our Lady’s Children’s Hospital, Crumlin. The group aims to cultivate a self-management approach among patients with non-inflammatory and inflammatory rheumatology conditions. The objectives are to improve active participation in daily life, promote adherence to therapy programmes, and enhance social interaction. The parent education session aims to reinforce these objectives to support the patient in making lifestyle changes. By building self-management skills, the aim is to reduce the need for 1:1 therapy led management.

Method: The groups will consist of 6-8 participants, with a ratio of 4 participants to 1 therapist. The group will run for 6-weeks lasting approximately one hour and 15-minutes. Each session will start with stretching and strengthening exercises, followed by lifestyle education. The session will end with 10-minutes of relaxation techniques.
Each participant will receive a home exercise programme and educational leaflets from the group sessions. Participants will be instructed to complete their programme at least 5-times a week.

Parents will not attend group sessions. They will be invited to a once off educational session to become more informed of self-management skills for their children including exercise prescription, pain management and lifestyle changes.

The Childhood Health Assessment Questionnaire (CHAQ) and the Activity Scales for Kids (ASK) will be used as pre and post outcome measures. The Goal Attainment Scale (GAS), a parental feedback survey and patient attendance will also be used to measure the effectiveness of the group.

Results: To date there has been an average of 90 percent attendance at the group. The results of these outcome measures are currently being analysed pending completion of the final group next week.

Conclusion: There is a high level of uptake and participation in the group. Further conclusions will be drawn up pending results of outcome measures.
AN AUDIT OF SUPRACONDYLAR FRACTURES IN A TERTIARY PAEDIATRIC TRAUMA AND ORTHOPAEDIC SURGERY UNIVERSITY HOSPITAL

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Background: Supracondylar fractures are the most common fractures about the elbow seen in children. They may be difficult to manage and can be associated with significant complications including nerve injury, vascular compromise, mal-union and compartment syndrome. Recent guidelines published by the British Orthopaedic Association Standards for Trauma (BOAST 11) have recommended surgery for displaced supracondylar fractures of the distal humerus.

Method: We audited the practice of the trauma and orthopaedic surgical department for displaced supracondylar fractures in 2016 at Our Lady’s Children’s Hospital, Crumlin (OLCHC). Electronic theatre records, x-rays and patient charts were used for data collection. We compared the management in OLCHC to the BOAST 11 guidelines.

Results: 104 patients were brought to the operating theatre due to a displaced supracondylar fracture in 2016 at OLCHC. The majority (n=71) were between 5 and 10 years of age. 10 were managed with closed reduction and casting, 86 with closed reduction and percutaneous k-wire fixation and 8 with open reduction and internal fixation (ORIF).

Conclusion: We have audited the management of displaced supracondylar fractures in a tertiary paediatric trauma and orthopaedic university hospital. Our management is in line with the BOAST 11 guidelines. Our results are comparable to international best practice.

RESEARCH AND AUDIT IN THEATRE

Rosemary Clerkin, Our Lady’s Children’s Hospital Crumlin.

Background

The Theatre Department is a busy, high risk environment. Delivering a high standard of care to each of our patients is paramount. In the paediatric setting the turnover of patients is high and this can lead to increased risk and challenges.

Audit and research of our practice is crucial to ensure the delivery of high quality care continues within our department.

Method

This Poster is an outline of audit and research activity in our Theatre Department. The audit tool that is used is based on the Risk and Quality Management System from the National Association of Theatre Nurses.

Results

Results have varied over the years. All audits are ongoing and will continue at three to six monthly intervals. This ensures compliance of documentation, practice and some audits for example; the Fasting Time Audit may lead to a change of practice.

Conclusion

It is imperative that audit and research within the working clinical environment continues as this is pivotal in recognising our level of compliance and adherence to standards of practice both locally and internationally. Audit can also highlight a knowledge gap that requires re-education. All audit and research initiatives and results are communicated to all staff in theatre.
A COMPARATIVE STUDY OF CLINICAL INCIDENT AND NEAR MISS REPORTS BETWEEN OUR LADY’S CHILDREN’S HOSPITAL CRUMLIN AND BIRMINGHAM CHILDREN’S HOSPITAL IN THE UK
Natasha Coen, Mary Traynor, Karolina Guzek, Anne Marie Kiernan
Department of Clinical Risk, Our Lady’s Children’s Hospital Crumlin

Background:
OLCHC provides secondary and tertiary care to patients from all over Ireland. Patients attend with complex conditions and associated co-morbidities including cardiac, haematology/oncology, and surgical disorders. Birmingham Children’s Hospital is a specialist paediatric centre, offering care to young patients from Birmingham, the West Midlands and beyond, and has similar beds capacity as OLCHC. A Clinical Incident is an event or circumstance which could have, or did lead to unintended and/or unexpected harm, to a patient arising as a consequence of provision of or failure to provide. Clinical incidents can be reviewed in the context of the actual or potential harm to those involved in the incident and to the organisation, as well as the type of category appropriate for a specific incident e.g. medicine safety. Research has shown that higher reporting rates correlate with a better safety culture and risk management ratings. This comparative study aims to show that reporting of clinical incidents within OLCHC is similar to Birmingham Children’s Hospital in the UK.

Method:
For the purpose of this study clinical incident data was collated from OLCHC’s RESPOND data base for the year 2016. This data was broken down into categories and calculated as number of incidents per 1000 hospital bed days. This data was compared to Birmingham Children’s hospital using figures available on the England NRLS website. The breakdown pattern of impact and harm and reports by category between OLCHC and Birmingham was analysed to establish if there are similar to patterns in reporting.

Results and Conclusion:
The finding of this comparative study show similar rates of clinical incident reports, between OLCHC and Birmingham Children’s Hospital, for the year 2016. The breakdown pattern of impact and harm and reports by category between OLCHC and Birmingham Children’s Hospital are also similar, therefore OLCHC’s clinical incident reporting comparative to that seen in the UK.

FACTORS INFLUENCING DISCONTINUATION OF CONTINUOUS SUBCUTANEOUS INSULIN (CSII) THERAPY IN CHILDREN WITH TYPE 1 DIABETES. A POPULATION BASED COHORT STUDY
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Background: Continuous subcutaneous insulin infusion (CSII) is a safe and effective mode of insulin delivery in paediatric patients with Type 1 diabetes. Several pump studies have demonstrated improved or equivalent glycemic control without increased hypoglycemia and with improved quality of life. Although there are several advantages of pump therapy in the paediatric population, barriers to success remain. Furthermore, pump discontinuation rates and reasons for discontinuation have not been well described in the pediatric literature.

Aims:
1. To calculate the rate of CSII discontinuation in a cohort of children attending Our Lady’s Children’s Hospital Crumlin, a tertiary paediatric referral centre, over a 10 year period
2. To identify any predictors of pump discontinuation
3. To study the factors that influence the decision to discontinue CSII therapy
4. To use this data to improve selection and management of patients on CSII therapy in the future

Methods: Eligible patients identified through analysis of electronic database “DIAMOND”. All patients who transitioned from CSII to subcutaneous insulin during the study period (January 2007 to January 2017) were identified and included. Subsequent electronic “DIAMOND” and medical paper chart review was performed to identify factors contributing to pump discontinuation.

Results: The number of patients attending on CSII therapy annually ranged from 73-254. 337 patients were newly commenced on CSII therapy. 14 patients in total terminated CSII therapy. Rate of pump discontinuation over the ten year period was calculated at 0.87%. Rate of diabetic complications was higher in the studied cohort. All patients discontinuing pump therapy were in the adolescent age group. (12.5 – 16.8 years). Missing boluses (85.7%), stress (78.5%) and rising hba1c on pump (71.4%) were the most common reasons for pump discontinuation.

Conclusions: Pump discontinuation is uncommon in our centre compared to published data. The factors contributing to pump failure are complex and rate of pump failure may be higher around the complex adolescent years. Awareness of factors leading to pump discontinuation may lead to earlier identification of at risk patients and improve outcomes in patients treated with CSII.
DEVELOPMENT OF THE CHILDREN’S CLINICAL RESEARCH UNIT
Mary Costello, Colm O’Donnell, Jacinta Kelly, Children’s Clinical Research Unit, National Children’s Research Centre (NCRC)

Background: Clinical trials are necessary to provide an evidence base for improved medicines and treatments. Due to the challenges of performing clinical research in children, there has historically been a lack of paediatric trials to test new medicines and advance treatment options.

Recent regulatory changes have transformed this and have led to a dramatic increase in the number of paediatric studies being conducted at a European and Global level. As Ireland’s largest paediatric hospital, Our Lady’s Children’s Hospital Crumlin (OLCHC) should be at the forefront of attracting innovative global multi-centre trials to Ireland. The existence of clinical research infrastructure at the hospital is a key requirement to attract these trials.

Methods: The National Children’s Research Centre (NCRC) established the Children’s Clinical Research Unit (CCRU) in 2010 to provide the necessary supports to Investigators for both academic Investigator-led and Pharma-sponsored studies. Since then, the Children’s Medical Research Foundation (CMRF) and NCRC have committed additional funding year-on-year to allow the CCRU to grow in expertise and capacity to meet the needs of Investigators at OLCHC now and towards the New Children’s Hospital. The CCRU has also been working to bring together a national paediatric clinical research network. In parallel it has been building relationships with International networks to advocate for Irish paediatric research.

Results: The number of studies supported by the CCRU has increased to 83 with support extended to 13 departments (not including Haematology/Oncology); with 47% (39) Industry-sponsored and 53% (44) Investigator-led; 53% (44) Clinical Trials of Investigational Medicinal Product (IMP), 47% Observational studies. Interest from pharmaceutical companies to include Irish sites in global trials has risen.

Conclusion: Provision of additional infrastructure has improved the position of OLCHC as a competent and competitive centre for clinical trials. However sustained growth of this investment into the future will be critical to maintain and continue this momentum.

IMPACT OF COLORECTAL SPECIALIST NURSE SERVICE ON THE CLINICAL COURSE OF HIRSCHSPRUNG’S DISEASE – A DECADE OF CHANGE
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Introduction:
Recurrent enterocolitis and anastomotic stricture are common sources of morbidity in Hirschsprung’s disease (HSCR) which can be prevented with good quality rectal irrigations and anal dilatations. We aimed to evaluate if the introduction of a colorectal clinical nurse specialist service has led to improvement in pre- and post-operative clinical outcomes.

Methods:
A retrospective study was performed comparing outcomes (hospital admission for enterocolitis, levelling/diverting stoma formation due to enterocolitis or failure of washouts, anastomotic stricture requiring dilatation under general anaesthetic) in patients who underwent pull-through operation for HSCR in the year prior to the establishment of the colorectal specialist nursing service (Group A, 2006) and 9 years following its introduction (Group B, 2015).

Results:
We evaluated data pertaining to 24 patients (Group A n=12; Group B n=12). Eighteen patients (75%) were male. The median age at pull-through was 5.2 months (1 month - 12.2 months). There was no difference between the 2 groups regarding the level of the histological transition zone (p=0.147) or the incidence of trisomy 21 (p=0.64). Fewer levelling/diverting stomas were performed in Group B (30.8%) compared to Group A (69.2%, p=0.041). The total number of unplanned inpatient bed days prior to pull-through surgery fell substantially from 70 in Group A to 32 in Group B. There was no difference in the number of admissions for post-operative enterocolitis (p=0.56) or the incidence of anastomotic stricture requiring dilatation under general anaesthesia (p=1).

Conclusion:
The significant reduction in unplanned hospital bed days and stoma formation procedures observed since the introduction of a colorectal clinical nurse specialist service represents a considerable reduction in resource utilization and is likely attributable to better parental education and follow-up resulting in improved bowel management prior to pull-through surgery for Hirschsprung’s disease.
**Clinical Handover Between Medical Teams in OLCHC – A Quality Improvement Project.**
Dunne E, Kelleher S, Coyne S., OLCHC, Crumlin

**Background:** Clinical handover is defined as the transfer of professional responsibility and accountability for some or all aspects of a patient or group of patients' care to another person or professional group on a temporary or permanent basis. Clinical handover is recognised as a major preventable cause of patient harm and is recognised as a risk prevention activity. This quality improvement project aims to quantitatively assess the evening clinical handover between medical teams and on-call medics in OLCHC.

**Methods:** Education regarding ISBAR handover was included as part of induction for NCHD's at the start of the six month rotation. A laminated ISBAR proforma was introduced and available for use by NCHD's in the ED department. Handover Data was obtained over a 4 week period from the 17.00 medical handover in the emergency department. Parameters recorded were; Start time of handover, finishing time of handover, attendees, designation of attendees and number of patients handed over. The information was recorded on a handover sheet and kept in the handover room in the Emergency Department in OLCHC. Successive PDSA cycles will be used to measure progress and plan intervention. The National Clinical Guideline “Communication (Clinical Handover) in Acute and Children’s Hospital Services” will be used to direct intervention for change.

**Results:** Data was collected on 20 consecutive weekdays between March and April 2017. Bank holidays were not included. The handover process was conducted face to face and the ISBAR was used. Evening handover did not happen on 5 occasions (25%). The mean number of patients handed over was 2.9 with a median of 3. Attendance was recorded as follows; Consultant on call (20%), Paediatric Registrar on call, in house cover (45%), Paediatric registrar on call, ED cover (75%), Representative from medical team on call (70%), Admission SHO (70%), SHO1 on call (5%), SHO2 on call (0%), Representatives from other teams (20%). The mean time for handover was 14 minutes.

**Conclusion:** The quantitative data collected to date suggests that the handover process in OLCHC is currently suboptimal. Areas for improvement have been identified by the quality improvement group. Communication and further education are recommended to reinforce the importance of handover as a significant patient safety activity. The data will be re-evaluated following these interventions with efficacy measures.

**DNA Sequencing of the ‘a’ Isoform of ROBO2 in Vesicoureteric Reflux Patients Suggests Different Regulation to that of the ‘b’ Isoform.**
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**Background:** Roundabout guidance receptor 2, ROBO2, is involved in cell migration, including the emergence of the ureteric bud, the first step in the development of the urinary tract in the embryo. Disruption of the gene can cause vesicoureteric reflux (VUR) amongst other congenital anomalies. The ubiquitous transcript of the ROBO2 gene, ROBO2b, has 26 exons while ROBO2a has an alternative promoter and two first exons, over 1 Mb from the rest of the gene, which replace the first exon of ROBO2b. Several cohorts of VUR patients have been screened for variants in the exons of ROBO2b but, though ROBO2b protein is found in most adult tissues, ROBO2a expression is confined to the embryo and might be more relevant to a developmental disorder such as VUR. We have therefore screened our VUR families for variants in the promoter and exons specific to ROBO2a.

**Method:** 252 VUR probands were screened by Sanger sequencing, followed by screening of probands’ families and controls for the novel variants identified in the sequencing, using PCR, high-resolution melting analysis and further sequencing.

**Results:** The most striking finding is that the promoter and 5' untranslated region of ROBO2a is rich in variants that affect methylatable CpG dinucleotides, and this is in marked contrast to the same region of ROBO2b. One of these variants that is novel, segregates with VUR and was not present in 592 samples from healthy Irish controls.

**Conclusions:** In a study of methylation changes during induction of human fibroblasts to pluripotent stem cells, 7-6% of CpG islands at the start of genes were found to contain many CpG sites with intermediate levels of methylation due to variants affecting methylation. We have found that ROBO2a but not ROBO2b is one of those, and our new variant adds to this variability and could be a contributor to VUR aetiology.
NURSING CONSIDERATIONS IN SUBGLOTTIC STENOSIS: A NEONATAL CASE STUDY
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Background: Subglottic stenosis is the narrowing of the airway below the vocal cords, and above the trachea. In infants and children the cricoid cartilage in the subglottic area is the narrowest section of the airway and is the portion of the larynx that is most commonly affected by stenosis. Subglottic stenosis can be congenital or acquired, the latter being most common. Risk factors for acquired subglottic stenosis include prolonged intubation, low birth weight, reflux, and sepsis.

Method: Neonatal case study was carried out on a preterm neonate (born at 24+6 weeks) who developed subglottic stenosis following prolonged intubation and multiple reintubations. Information regarding the neonate’s stay in PICU was pulled from their medical records. In order to provide rationale to the nursing care provided, a literature search was carried out using the following databases: CINAHL, Science Direct, PubMed, UpToDate.

Results: Specific nursing care problems identified for this neonate included: management of airway due to the risk of accidental/unplanned extubation, thermoregulation and nursing care of a neonate at risk of infection. Nursing research identifies that neonates pose many challenges, particularly airway management in intensive care settings. Nursing interventions were discussed using evidence based practice particularly in relation to airway management and measures nurses can take to reduce the risk of subglottic stenosis and reduce the risk of accidental extubation. Prognosis and treatment for subglottic stenosis is dependent on the grade of stenosis. Treatments include cricoid split, graft insertion, and insertion of tracheostomy if required.

Conclusion: Endotracheal intubation is relatively safe and effective in maintaining airways of neonates. Prolonged and multiple intubations have been recognised as risk factors for acquired subglottic stenosis. Accurate knowledge of nursing interventions to reduce the risk of subglottic stenosis is relevant in PICU settings as our population of neonates are often intubated.

AMRYT’S OLEOGEL-S10 AND THE FIRST PAEDIATRIC EPIDERMOLYSIS BULLOSA CLINICAL TRIAL IN IRELAND.
Ann-Marie Day, Fiona Browne and Mary Costello, OLCHC, Dublin

Background: Epidermolysis Bullosa (EB) is an incurable, rare genodermatosis characterised by skin fragility and blistering of the skin and mucosal surfaces. Present management is focused on protective dressings, wound-care, analgesia and other supportive measures. With a paediatric population numbering almost 60 in Ireland, EB, though a life-threatening condition, remains under-researched, from both treatment and curative perspectives.

Method: Following encouraging results in the treatment of burns pharmaceutical company Amryt, engaged with the EB patient advocacy organisation Debra, OLCHC and the NCRC to establish a double-blind, randomised, vehicle-controlled, phase III efficacy and safety study with 24-month open label follow-up of Oleogel-S10 in EB patients aged four and over.

This poster details, the feasibility process in delivering this, the first paediatric EB trial in Ireland. This is a hugely significant development in the care provision for patients as the product promotes differentiation of keratinocytes which have been shown to help wound healing, marking it as a distinct new direction in the treatment of EB.

In addition, the poster addresses the attractiveness of this study for participants and their principal carers in that, other than applying Oleogel-S10, their wound care regime remains unaltered. From an ethical standpoint, this minimises distress to participants and creates a condition on which clinical trials too often falter – the willingness of participants to expose themselves to potentially painful procedures. However, this, in turn, can create the complication of unrealistic participant expectations, and this poster integrates into the feasibility stage an enhanced role for the research nurse in patient and carer education in managing these expectations.

Conclusion: Due to the paucity of research into EB this is a highly significant study. A coordinated approach between the PI, clinical team, research nurse, coordinator and pharmacy, is needed keeping the patient at the centre of the research process.
EVALUATION OF 3D CELL CULTURE MODEL OF DRUG RESISTANT NEUROBLASTOMA USING COLLAGEN-BASED SCAFFOLDS

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INTRODUCTION: The high frequency and mortality associated with neuroblastoma metastasis to bone and the acquisition of multidrug resistance has directed our research into elucidation of tumour-stroma interactions in the bone microenvironment that contribute to invasion and proliferation of metastatic cells. The aim of the proposed work is to evaluate a 3D scaffold-based cell culture model of drug resistant neuroblastoma and to assess the potential of the model to evaluate cell sensitivity to chemotherapeutics both in monolayer and orthotopic neuroblastoma murine models.

METHODS: Cisplatin resistant and sensitive neuroblastoma cells were co-cultured with human mesenchymal stromal cells (hMSC, 1:10 ratio) in 2D standard culture and compared to 3D cell growth on two different collagen-based scaffolds containing either glycosaminoglycan or nanohydroxyapatite. The 3D model was characterised for cell proliferation (CgA, DNA content) and metastatic activity (a panel of MMPs). Chemosensitivity to cisplatin treatment was assessed in all models and compared to a murine orthotopic xenograft.

RESULTS: Cell viability and proliferation was increased by day 7 and stayed the same till day 14 indicating that cells reached growth capacity in both scaffolds. An enhanced level of Chromogranin A (CgA) was secreted into the media demonstrating the correlation between cell numbers and concentration of CgA. CgA levels correlated with increased vascularisation in murine orthotopic xenograft. Immunohistochemical staining indicated that 3D in vitro tumours resembled tumour typology similar to in vivo models. Cell lines grown in 3D displayed an 85-100 fold resistance to cisplatin treatment when compared with their resistance in 2D culture.

CONCLUSIONS: These results show the first successful 3D model system of human neuroblastoma bone metastasis. This novel platform can be employed in further exploration of the bone tumour microenvironment and metastasis. This model has the potential to accelerate the design of effective therapies that have higher capacity to target neuroblastoma bone metastasis.

NUTRITION SUPPORT IN A PAEDIATRIC BONE STEM CELL TRANSPLANT UNIT

1. Lauren N Devereux, Dublin Institute of Technology and Trinity College Dublin, 2. Catherine Carroll, Dept. of Clinical Nutrition & Dietetics, OLCHC, Dublin, 3. Aileen Kennedy, School of Biological Sciences, Dublin Institute of Technology, Dublin, 4. Michael Capra, National Paediatric Haematology & Oncology Centre, OLCHC, Dublin

BACKGROUND: Bone marrow transplantation is a well-recognized form of treatment in the areas of paediatric haematology and oncology. Intensive conditioning treatments lead to profound gastrointestinal side effects thus compromising nutritional status. Many sites use nutrition support (NS) to counteract this. Consensus has yet to be reached on the optimum type and timing of NS in this setting.

METHODS: A retrospective review of paediatric stem cell transplant patients treated on site between the 1st June 2014 and 31st December 2016. Ethical approval was obtained. Data was collected from medical and dietetic records and entered anonymously into Excel. Statistical analysis was undertaken using Excel/SPSS.

RESULTS: 52 patients received treatment between 1st June 2014 and 31st December 2016 of which 50 patients were eligible for inclusion (23 male, 27 female). 35 patients had an allogeneic transplant and 15 had an autologous one. Median age at transplant was 60.5 months (range 2-207 months). Median number of days in transplant was 37 days. There was a negative median weight-for-age (WFA) z-score change of -0.3 from admission to discharge.

30% were admitted on NS (n=13 EN, n=2 PN). 92% required NS during their admission (54% EN, 8% PN, 30% combined EN and PN). Of PN users, 74% had an autologous transplant versus 26% autologous transplant recipients. Median number of days on EN was 28 and 14 for PN. Hydrolysed enteral feeds were the most commonly used feed type. 50% of patients were discharged on EN.

CONCLUSION: NS plays a significant role in this patient setting, both in terms of use during and upon discharge from transplant. Earlier initiation of NS may help to minimise changes in WFA z-scores. A larger sample size is required to establish if a statistical difference can be found between transplant type and type and duration of NS.
BODY IMAGE, SELF-CONCEPT AND SELF-ESTEEM: A COMPARISION BETWEEN ADOLESCENTS WITH TYPE 1 DIABETES (T1DM) AND THEIR PEERS

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BACKGROUND: Due to the physical implications associated with chronic illness, many individuals report feeling and looking different to their healthy peers, and are more likely to report dissatisfaction with their physical appearance. To this end, research has shown that chronic illness is associated with poorer self-reported body image, self-concept and self-esteem, particularly among adolescent populations. However, these concepts have not been examined in relation to adolescents with T1DM. The present research aimed to compare standardised self-report measures of body image, self-concept and self-esteem in adolescents with T1DM with age-matched peers. The research also aimed to examine whether these concepts were associated with glycaemic control.

METHOD: 119 adolescents with T1DM (mean age 14.9 years; 51% male) completed the Body-Esteem Scale, the Piers-Harris Self-Concept Scale and Rosenberg Self-Esteem scale during their the standard diabetes clinic visit. Glycaemic control, as measured by HbA1c, was also recorded during this visit. 112 aged matched peers (mean age 14.8; 46% male) from a local school completed the same questionnaires.

RESULTS: There were no statistically significant differences between adolescents with T1DM and their age matched peers on body image (p=.79) self-concept (p=.95) and self-esteem (p=.49). In addition, among adolescents with T1DM poorer glycaemic control was not found to be associated with body image, self-concept or self-esteem. However, males scored significantly higher than females on body image (p<.01) self-concept (p=.05) and self-esteem (p=.04), which is consistent with previous research.

CONCLUSION: The results of this study suggest that, unlike research in other chronic illnesses, adolescents with T1DM do not perceives themselves as looking and feeling different to their peers without T1DM with regard to body image, self-concept or self-esteem. This has significant implications for treatment approaches to diabetes distress in adolescents, which have historically assumed an association between T1DM and these concepts.

EVALUATING THE IMPACT OF TRANSITION EDUCATION GROUPS FOR ADOLESCENTS WITH SICKLE CELL DISEASE

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BACKGROUND: The transition of adolescents with Sickle Cell Disease (SCD) from paediatric to adult haematology services is an important priority. A formal transitional care programme between OLCHC and St. James’s Hospital (SJH) was established in 2015. The first step of this programme for adolescents is attendance at a group education programme.

The group education programme has several components:

- Measures of SCD knowledge and transition readiness (pre and post group)
- Welcome, introduction and warm ups
- SCD educational presentation
- Topics covered: Inheritance/ type of SCD/ Hb level/ medications/ pain management/keeping well
- Group work and discussion
- Feedback (evaluation of session)
- Written information on SCD and transition given to each participant

The aims of the programme are to increase participants understanding and knowledge of SCD and to assess transition readiness. To determine if the programme is addressing these aims we evaluated disease knowledge and transition readiness pre and post attendance at the group. All participants were invited to complete confidential feedback forms at the end of the session.

METHOD: The programme was devised and facilitated by the core team members. Patients aged 13 to 16 years old were invited to groups. Group sessions lasted two hours. Participants completed SCD quizzes and transition checklists pre and post group.

RESULTS: 24 young people with SCD between 13 to 16 years attended the education groups.

- SCD knowledge Quiz the average score pre group was 85% (range 56-100%) and post group was 92% (range 72-100%)- 7% increase
- SCD knowledge self assessment the average score pre group 51.5% (range 18.2-77.3%) and post group was 81% (range 50-100%)-29.5% increase
• Transition readiness: the average score pre-group was 50.7% (range 25-78.6%) and post-group was 55.3% (range 32-89%) – increase of 4.6%.
• Feedback comments were positive.

CONCLUSION:
This evaluation has demonstrated an increase in adolescent’s condition knowledge and transition readiness following attendance at an education group. In addition, feedback indicated that participants found the group useful and worthwhile. This information provides a baseline of individuals’ knowledge and transition readiness which feeds into individualised transitional care plans as these adolescents begin their transition journey.

A VEIN TRAINING PROGRAMME FOR CHILDREN AND ADOLESCENTS WITH HAEMOPHILIA – MOVING TOWARDS GUIDELINES
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BACKGROUND: While factor replacement treatments allow children with haemophilia to lead near normal lives, these treatments can be difficult to administer and learning to access one’s own veins is necessary. Accessing veins can be painful and result in children attempting to avoid treatment, and refusing to begin the process of learning self-venepuncture. These types of compliance problems are prevalent during adolescence and it is important to train for self-venepuncture before difficulties begin to emerge.

METHOD: Draft guidelines on vein training for young people and their families were developed by core members of the haemophilia team. The aim was to create a standard pathway of care for those beginning their vein training journey. These guidelines are being used as part of the vein training programme for young people with haemophilia.

RESULTS: The guidelines recommend that vein training should be a flexible and individualized collaborative process which has 3 broad stages:
• Stage 1 Assessment/Planning - assess readiness/explore possible barriers
• Stage 2 Active training - begin vein training programme
• Stage 3 Fine tuning skills - build confidence/trouble shooting

Vein training is a process rather than a static, “before and after” event. Planning for vein training should begin when the child is a pre-adolescent either before secondary school or in the early stages (aged 8-13 years). A young person, their parents and professionals should work together as a team. The young person should work with the same trainer. The process should be regularly reviewed and evaluated by the team with the young person and their parents.

CONCLUSION:
These guidelines provide a standard framework for the process of moving towards independent self-venepuncture. The experience of vein training from the child’s perspective is anecdotal. Our next step is to determine the views and concerns of children and adolescents with haemophilia in relation to their experience of vein training. The objective is to use this information to further advance our guidelines and practice.
INTER-PROFESSIONAL EDUCATION APPROACH TO OPEN DISCLOSURE TRAINING: AN EVALUATION
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BACKGROUND:
A National Open Disclosure policy was launched by the HSE Quality and Patient Safety Directorate and the State Claims Agency on the 12th November 2013. Open Disclosure is an open and consistent approach to communicating with service users and their families following adverse events in healthcare. As part of the overall National Open Disclosure Implementation Programme, OLCHC implemented half day workshops for all managers/heads of departments, clinicians and staff who may have to engage in the open disclosure process.

METHOD:
Following completion of the half day workshop attendees completed an evaluation form. The evaluation was anonymous with job title as optional. Open ended questions were asked and resulting data analysed using thematic analysis.

RESULTS:
A 100% evaluation response rate was received from the multiple disciplinary team members. All attendees agreed the workshop was extremely to very relevant with 100% of attendees stating learning objectives were met and, their practice regarding open disclosure would be influenced following completion of the workshop. Open ended questions resulted in the identification of the following themes: 1. Hearing and Learning from other disciplines, 2. Sharing of experiences among other disciplines.

CONCLUSION:
Recommend that future Open Disclosure half day workshops are based on an interprofessional education approach that facilitates the ability to share expertise, and knowledge among professionals.

THE UTILITY OF KETONES AT TRIAGE
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Background: The role of point-of-care (POC) ketones in relation to dehydration with ketosis in the paediatric emergency department (PED) has yet to be established. This study aimed to establish the relationship between triage POC ketones with clinical dehydration based on the validated Gorelick Score. Secondary outcomes were the relationship between patient disposition with triage POC ketones and the rate of change of ketones in response to treatment.

Method: A prospective cohort study from April 2016 to February 2017 recruited patients, aged one month to less than 5 years old, with vomiting and/or diarrhoea and/or decreased intake with signs of dehydration or clinician concern for hypoglycaemia. Ethics approval was attained. POC ketones were analysed at triage and 4 hours later or upon discharge if sooner.

Results: 198 patients were recruited with 201 presentations; median age of 1.83 years (range 2 months - 4.99 years); 100 (50.5%) female. Median (interquartile range (IQR)) modified Gorelick dehydration score of 2 (IQR 2-3) consistent with moderate dehydration. The median triage ketones were 4.4 (IQR 2.8–5.6)mmol/L and the median triage glucose was 3.6 (range 1.6–7.9)mmol/L. No correlation existed between triage ketones and clinical dehydration score (Pearson’s r=0.117, p=0.098).

Those admitted to hospital (31.8%), had a mean triage ketone of 4.7(SD 1.72) mmol/L compared to 3.86(SD 1.78) mmol/L in those discharged home (p=0.001). The mean ketones after treatment was 4.41(SD 1.58) mmol/L amongst patients admitted compared to 2.91(SD 1.69) mmol/L those who were discharged (p=0.000). There was a mean reduction of 0.82(range +2.3 to -6.2) mmol/L in ketones after rehydration.

Conclusion: This study reveals no correlation between triage ketones and level of clinical dehydration. A significant relationship was established between initial ketones and disposition. This study provides evidence of the potential
AN AUDIT OF PNEUMOCOCCAL PROPHYLAXIS IN A PAEDIATRIC POPULATION AFTER ALLOGENEIC BONE MARROW TRANSPLANTATION

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Background: There is a significant long-term risk of pneumococcal infection in patients who have undergone allogeneic bone marrow transplantation (Allo-BMT), particularly those with chronic graft-vs-host disease. This is attributed to functional hyposplenism & suboptimal vaccine response.

In hyposplenism, the standard practice is to treat infections early and to administer antibiotic prophylaxis to protect against Pneumococcal infections. Penicillin is well recognized as being highly effective in preventing pneumococcal infection in children with hyposplenism secondary to sickle cell disease. This practice is extended to other causes of hyposplenism.

For 12 months after Allo-BMT, Co-Tirimoxazole is used to prevent opportunistic infection with Pneumocystis jiroveci pneumonia. Although it does also provide some protection against Pneumococcal infection, there is little data supporting the long-term use of Co-Tirimoxazole alone. Thus, from 12 months post Allo-BMT, Penicillin is the recommended pneumococcal prophylaxis agent, and is commenced in place of Co-Tirimoxazole.

We have noted that many patients remain on Co-Tirimoxazole, but not Penicillin prophylaxis, long after this 12 month period. By performing this audit, we sought to identify these patients, and implement a system to ensure these patients receive appropriate prophylaxis going forward.

Method: In our institution, a total of 46 patients who had previously undergone Allo-BMT attended haematology follow-up clinics in 2016. We retrospectively reviewed medical notes and laboratory results for each of these patients to determine the rate of adherence to pneumococcal prophylaxis guidelines.

Results: We found that the medications being taken by these patients are inconsistently documented. Preliminary results from data collected suggests that >50% of patients remain on single agent Co-Tirimoxazole as pneumococcal prophylaxis for >1 year post-transplant.

Conclusion: We are implementing a policy of staff education and mandated medication review one year post-Allo BMT in order to standardise our practice and improve adherence to local and international standards. We plan to re-audit annually.

A REVIEW OF THE IMPACT OF A NON-INVASIVE VENTILATION CNSp ON NIV THERAPY COMPLIANCE

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Background
NIV is a form of positive pressure ventilation delivered via a non-invasive interface, the use of NIV has dramatically increased over the last decade. NIV initiation is a very challenging time for parents with a significant failure rate. In January 2016, the respiratory team introduced an NIV CNSp. The aim of this audit is to explore the compliance of patients who commenced treatment since the introduction of a nurse specialist.

Method
Data was collected from ventilator downloads from 30 patients on NIV in 2015 and compared with data from 30 patients in 2016 when a CNSp was in place. Data on overall hours of usage and compliance with treatment were collected from memory cards installed in CPAP devices.

Results
We found that patients initiated with the support of a CNSp consistently used their devices for longer periods and with a higher compliance rate. In 2015, 12/30 (40%) were over 80% compliant compared with 27/30 (90%) in 2016.

Conclusion
Parental support from a CNSp significantly improves compliance with NIV therapy.
REACH OUT: Referrals from External sources: an Audit based at the Children’s Heart Center
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Objectives: This was a quality improvement initiative to audit external referrals from pediatric and general practice departments to the cardiac department in OLCH, Crumlin.

Background: At present referrals are received by email, fax and by letter. There is no standardized proforma for referral.

Method: Cardiologists were surveyed for information they considered essential to safely triage referrals. Referrals received over a one week period in November 2016 were assessed using a scoring system (0-10) which included patient contact details (1 points), indication for referral (1 point), history (3 points), pertinent exam findings (3 points), ECG findings (1 point) and differentials considered (1 point). A standard referral form was then prepared based on our findings.

Results: Many problems arising at referral were identified. Thirty-seven referrals were received by email during a one week period. The median score for essential information was 6 (range 0-10). Eighty percent of referrals had patient contact details, 70% exam findings, and 10% had considered a differential. From these, recommendations were made for improvements. A proforma for referral was designed and is in the process of being approved for all referrals by email. We will reaudit referrals with the same scoring system once the proforma has been introduced.

Conclusions: Referral is an important skill for many doctors. We have implemented a new referral proforma in our department which we hope will lead to more efficient and safer triaging of patient referrals.

HYBRID PROCEDURE FOR FIRST STAGE PALLIATION IN UNIVENTRICULAR HEARTS: A SINGLE CENTRE EXPERIENCE
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Background: The hybrid procedure consists of surgical pulmonary artery (PA) banding and percutaneous pulmonary duct artery (PDA) stenting, with, or without balloon atrial septostomy. It was developed to lessen the first stage palliation operative risk in infants with univentricular left hearts. Within our center it is considered for high-risk infants.

Aim: To assess the indications and outcomes of hybrid procedures in infants with univentricular hearts in our center.

Methods: We searched our cardiac database for all infants who underwent PDA stenting/hybrid procedures. A retrospective chart review was then performed. Data was collected on patient demographics, initial presentation, indication for hybrid procedure and outcomes, including interstage mortality and morbidity.

Results: Over a five-year period (January 2010 – December 2014) 17 infants were identified by our database. 6 infants had PDA stenting without PA banding as palliation and were excluded from our analysis. Of the 11 infants who had hybrid procedures 3 were diagnosed postnatally and 8 antenatally. Low birth weight was the most common reason for hybrid procedures (n=5), followed by poor right ventricular function (n=2), tricuspid regurgitation (n=2), and genetic abnormalities (n=2). Eight infants had balloon atrial septostomies as part of their initial intervention. All infants survived the procedure, 4 infants (36%) died during interstage 1, 3 of which died within 30 days of the procedure. 2 infants died due to retrograde coarctations and 1 other infant developed a coarctation at the site of PDA stent insertion. Median (range) intensive care days prior to discharge for stage 1 were 12 (2-61), ward days 14.5 (0-53), inotropic support days 13 (2-65), and ventilation days 8.5 (2-61). 7 infants proceeded to bidirectional Glens and 1 has had a Fontan procedure. 1 infant has developed arrhythmias and 3 have moderate developmental delay.

Conclusion: The hybrid procedure is applied to a high-risk group and has high morbidity and mortality. Screening for retrograde coarctation is important. Resource utilization remains extensive.
MYOCARDIAL FISTULISATION AND CORONARY ARTERIAL ECTASIA IN CHILDREN WITH UNIVENTRICULAR CIRCULATION – AN UNDER-RECOGNISED PROBLEM
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We describe three children, each with a univentricular circulation, who had evidence of diffuse fistulisation of the myocardium at cardiac catheterisation. One of the children had documented normal coronary arteries and myocardium at catheterisation prior to development of the fistulisation process. The same child also developed extensive veno-venous collaterals. All children had evidence of elevated pulmonary arterial pressures and were treated with either or a combination of sildenafil and bosentan pulmonary vasodilators. The presence of chronic hypoxaemia, elevated filling pressures and the use of pulmonary vasodilators may contribute to coronary endothelial dysfunction, which may result in coronary vasculopathy. This may necessitate early referral for orthotopic cardiac transplantation. Diffuse fistulisation of the myocardium in children and young adults with univentricular circulation may be an under-recognised event and coronary angiography should be considered in this patient cohort.

TRANSCATHETER CLOSURE OF MEMBRANOUS AND MUSCULAR OUTFLOW VSD’S USING A RETROGRADE ARTERIAL APPROACH

Background: Classically, transcatheter closure of membranous and muscular outflow ventricular septal defects (VSD’s) has involved device deployment from the venous side following creation of an arteriovenous (AV) loop. This may be time-consuming and lead to hemodynamic instability particularly in small infants. We report our recent experience with transcatheter VSD device delivery via a direct retrograde left ventricular approach.

Methods: Peri-procedural and follow-up analysis of patients undergoing retrograde VSD closure between November 2014 and October 2016 from two tertiary referral centres was carried out.

Results: 22 patients (16 paediatric, 9 female) with a median age 7.5 years (range 6 months to 59 years), median weight 24.3kg (range 6kg to 80kg) underwent retrograde transcatheter VSD closure. Nineteen VSDs were perimembranous, two were muscular and one case involved an LV to RA shunt. The median VSD diameter was 6mm (range 3.5mm to 11mm). Indications for closure included left ventricular volume overload (n=13), failure to thrive (n=2), previous bacterial endocarditis infection (n=2), haemodynamically significant (n=2), symptomatic (n=2) and left ventricular dysfunction (n=1). A variety of closure devices were used including Lifetech Symmetric Membranous (n=12), Amplatzer Ductal Occluder II (n=5), Lifetech Asymmetric Membranous (n=3), Amplatzer muscular (n=1), Lifetech Muscular (n=1) and Lifetech Eccentric Membranous (n=1). Mean fluoroscopy time was 15.6mins (range 5.6 to 33.2 minutes). Device delivery was successful in all cases. In one patient, the device prolapsed through the VSD during an antegrade AV loop approach. The retrograde approach was then successfully used to close the defect with a larger occluder. Immediate complete closure was seen in 15 cases with trivial to mild leak seen in the remaining 7 patients. There was no increase in the pre-procedural grading of aortic incompetence. One patient developed intermittent junctional rhythm within 24 hours however this resolved spontaneously. At median follow-up of 2.1 months (range 1.25 to 7 months), all patients were well. There were no rhythm abnormalities seen at follow-up. Trivial to mild residual leaks remained in four patients.

Conclusions: Retrograde transcatheter VSD closure is safe and effective and may avoid some of the technical challenges associated with creation of an arteriovenous loop.
Background: The aim of this audit was to look at the types of referrals received over a set period of time and for the social worker to identify the theory that informed their practice, the interventions used and what assessment tool was completed.

Method: All members of the social work team (20 people = 17 WTE posts) were asked to complete a questionnaire over a set 2 week period (9th January 2017 to 20th January 2017) for each referral (new or re-referral) received during that period.

Results: 16 social work staff returned the questionnaires, which equated to approximately 14 WTE posts. A total of 123 questionnaires were completed. From these, 69% of referrals requested support for a family, 17% were child protection cases and 10.5% were for Bereavement support. The main theories influencing the intervention of these referrals were Strengths Based Approach (21.7%) and Task Centred Approach (17.5%). The intervention most used during this period was parental support (22%). The information gathered also showed most social workers saw a practical role within their intervention with families. While providing information was also part of interventions used, it was rarely used in isolation (3%) and was more often used as part of a more cohesive intervention i.e. alongside parental support, counselling or community liaison (77%). Social Workers were using the assessment tools developed by the social work department in the main (45%).

Conclusion: Limited research has been undertaken with regard to social work practice within a medical setting in Ireland. This audit identifies medical social workers are providing a high level of parental support during periods of stress and upset. In addition, the respondents tended to favour strengths perspective and task centred model when working with families. A case example, in a separate but joined abstract, outlines social work theory into practise, using data from this audit study (See Social Work in Action: Theory into Practise).

SOCIAL WORK IN ACTION 2
TRANSITIONING THEORY TO PRACTICE
Mary Whelan, Carol Carr, Jennifer Beirnes and Fiona Lyons, OLCHC, Dublin

BACKGROUND: Evidence based practice has generated enormous attention within the social work community over the last decade. Educators and social work agencies are attempting to evaluate the effectiveness of their programmes. In line with this thinking, the medical social work department OLCHC carried out research between January and February 2017. This came in the form of quantitative research with the use of questionnaires. The purpose of this study was to identify social work theories and interventions used in the social work medical setting. Following findings from this questionnaire, we undertook a more in-depth qualitative analysis, identifying the main theories used in this social work setting.

METHOD: Qualitative analysis of a case example using data gathered from questionnaires. A literature review was completed, specific to the theories of task centred and strengths based approaches.

RESULTS: The most frequently used theories emerging from the social work audit were: 1) strengths based theory and 2) Task centred theory. A strengths based practice is a social work practice theory that emphasises people’s self-determination and unique set of strengths. It is seen as an alternative to pathology-oriented approaches to help families, which focused on problems and deficits. A Strengths Based approach views children and families as resourceful and resilient in the face of adversity. Formal and informal services and supports are used to create plans, based on specific needs and strengths (Saleeby, 2006. Glicken, 2004. Evaluation Centre for Systems of Care, 2008). A task centred approach is a progressive and goal orientated practice based approach that is used widely in contemporary social work interventions. Children and families are assisted in carrying out problem reducing tasks and goals within a specific time frame. A value base that is inherent in this approach is a commitment to partnership and empowerment (Teater, 2014. Payne, 1991. Aquilera, 1998.).

CONCLUSION: There has been limited research carried out in an Irish context around theory to practice in a medical setting. From the research carried out, we identified the two most commonly used theories when working directly with children and their families. Medical social workers in OLCHC are using practice methods and strategies that are the hallmark of the strengths perspective and task centred approach. This is in line with the current practise in this setting. This poster identifies the use of the two named theories in practice, by illustration of a case example.
THE WNT/β-CATENIN PATHWAY ALTERS ADHESION AND PROLIFERATION OF CISPLATIN RESISTANT NEUROBLASTOMA IN VITRO AND IN VIVO

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Introduction: Neuroblastoma (NB) is the most common solid extra cranial tumour in infants contributing to 15% cancer related childhood deaths. The development of drug resistance is the major impediment in the successful treatment of the disease. The aim of this study is to identify a cellular signalling pathway that alters adhesion and proliferation of cisplatin resistant neuroblastoma in vitro and in vivo. We hypothesised that these cell characteristics can be regulated by the Wnt/β-catenin pathway.

Methods: Six mice xenograft neuroblastomas derived from cisplatin sensitive Kelly and resistant KellyCis83 cell lines, along with their corresponding tissue engineered 3D models were analysed by western blot, IHC and ELISA using multiple markers from the wnt/β-catenin pathway (c-jun, TCF1, LEF1, Met, CyclinD1, MMP-7 and CD44) and specific matrix metalloproteinases (MMP-3, MMP-7, MMP-9 and TIMP-2).

Results and discussion: Growth patterns of Kelly and KellyCis83 cells were both scaffold- and cell type-dependent suggesting altered adhesion and migration potential of the cells. Three activators of the wnt/β-catenin signalling pathway c-jun, TCF1 and LEF1 were detected at significantly higher levels in KellyCis83 tumours when compared to Kelly tumours. Increased expression of c-jun can be potentially caused by chromosomal gains in 1p locus detected in KellyCis83 genomic DNA. Higher levels of c-jun may be responsible for a 2 fold increase in proliferation rates of this cell line. Among ECM alternating proteinases, MMP-3 demonstrated elevated levels in sensitive Kelly cells, while TIMP-2 – in cisplatin resistant KellyCis83 cells

Conclusion: We identified elevated levels of c-jun, TCF1 and LEF1 in cisplatin resistant neuroblastoma cells suggesting that the development of cisplatin resistance in neuroblastoma may be accompanied by activation of the wnt/b-catenin pathway both in vitro 3D cell models and in vivo. The results also demonstrated the successful development of the reproducible and controllable tissue engineered model system recapitulating native neuroblastoma tissue microenvironment.

NURSING CARE OF A NEONATE WITH OESOPHAGEAL ATRESIA AND TRACHEO-OESOPHAGEAL FISTULA IN PICU

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Background: Oesophageal atresia (OA) is a congenital defect of the digestive system. It is characterised by an interruption in the oesophagus with or without the presence of a Trachea Oesophageal Fistula (TOF) connecting the oesophagus to the trachea. The condition necessitates that the neonate has immediate medical/surgical and nursing intervention in a specialist centre from the first day of life. Nursing care is highly specialised and unique to the condition.

Methods: A neonatal case study of OA/TOF was undertaken as part of PICU Foundation course. In order to identify research to support the care given in PICU, a literature search was conducted using the following databases: Cochrane Library, CINAHL Plus, PubMed, Science Direct. Key words used included “oesophageal atresia” tracheo-oesophageal fistula” “paediatric nursing” “paediatric intensive care”.

Results: The most pertinent nursing priority found through examining the case study was ‘management of airway’. Research recognises that airway management poses unique challenges specifically in relation to secretion management for atresia which cannot be repaired immediately. Replogle tubes are central to airway management. Distinctive risks also exist with mechanical ventilation of neonates with TOF especially in pre-op period. The outcomes for neonates with OA/TOF greatly depends on birth weight and the presence of associated anomalies. The case study demonstrated a need for Multi-Disciplinary Team (MDT) intervention for the neonate from Day 1 of life. The importance of family centred care was also found to be significant.

Conclusion: Nursing management of neonate with OA and TOF is highly specialised in PICU. Airway and ventilation management are significant nursing priorities. MDT approach in a specialist centre is crucial.
THE RED APRON INITIATIVE: A CREATIVE QUALITY IMPROVEMENT MEDICATION STRATEGY TO IMPROVE MEDICATION ADMINISTRATION.
Sandra H. Geraghty, OLCHC, Dublin, Julie McDermott, OLCHC, Dublin

BACKGROUND: Medications are the most commonly used treatment in the healthcare with significant risks to the patient. International practice suggests medication errors are contributed to organisational systems, not solely individual’s mistakes. Nurses experience numerous interruptions and distractions during medication administration. An audit was conducted in two specialised wards. One ward cared for nephrology/urology, complex medical and surgical patients with high daily turnover of patients. Ward two cared for long term patients with complex medical needs. Both wards age profile cared for neonates to sixteen years and had seven beds.

METHOD: A retrospective review of medication incidents and near misses were collected between January 2016- October 2016. Data was also collected on staffing skill mix, type of medication administered, devices accessed for medication, level of sterile technique required to administer medication, length of time to calculate and check formulary, number of interruption’s and staff education on medication safety.

RESULTS: The data identified medication times were difficult to maintain as medication administration was continuous throughout the day. 45 interruptions were recorded from medical teams, nursing staff, parents and allied health professionals. This has a dramatic impact on patient care. Following the introduction of parent information leaflets and staff education, interruption’s reduced from 0 – 20. Parents were cooperative and supportive of the Red Apron initiative. Medication incidents reduced significantly. The reporting of medication errors and near misses incidents increased, creating awareness of medication safety.

CONCLUSION: The introduction of the Red Apron approach complimented education of best practice in administering medication in a safe environment enhancing knowledge and skill development. Medication administration must have a sense of responsibility and priority for medical teams and nurses. Improving efficiency, reducing errors and near misses is fundamental to the safety and quality of medication administration. Quality is seen as the achievement of expectation therefore quality service improvements must be seen as the actions of belief.

THE INCIDENCE AND THERAPEUTIC BURDEN OF CLINICALLY SIGNIFICANT IATROGENIC SUBGLOTTIC STENOSIS IN A TERTIARY PICU USING MICROCUFT™ ENDOTRACHEAL TUBE POLICY – A 5 YEAR RETROSPECTIVE REVIEW
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BACKGROUND: The incidence of ETT related subglottic stenosis (SGS) is unknown and ranges from 0.3% to over 11% based on the series and diagnostic criteria used. The introduction of cuffed ETTS and, more recently, Microcuff™ ETTS may be associated with less ulceration, chondritis, and fibrosis in the subglottic space than standard uncuffed ETTS.

METHODS: We defined clinically significant subglottic stenosis as a positive ETT related pathology on a microlaryngoscopy (MLB) within 6 months of invasive ventilation. All patients admitted through our PICU from January 10th 2012 – January 25th 2017 were matched against our theatre management system MLB database for the same period. For newly diagnosed matching patients, we reviewed baseline demographics, comorbidities, intubation/ETT history, and surgical management.

RESULTS: Of 5310 PICU admissions (63.3% ventilated) and 1251 MLBs, 297 patients matched both databases. 274 patients were excluded for negative or unsuitable studies (eg. preexisting SGS, congenital SGS, tracheomalacia) leaving 23 children. Of these, 8 had clinically significant SGS (Cotton 53-100%), and 5 required major further surgical procedures (2 cricoid splits, 5 tracheostomies, and 2 airway reconstructions). Of the remainder, 12 had ETT related granulomas, 2 had ulcers, and 1 had cysts. All with SGS requiring major surgical correction were ex-premature neonates (range 24 – 35 weeks gestation) and received invasive ventilation in a NICU outside of our institution prior to their diagnostic MLB.

DISCUSSION: We report an extremely low incidence but high associated morbidity of acquired SGS. Our departmental policy is to use Microcuff™ ETTS as a default for all patients needing a 3.0 to 5.5 cuffed ETT. There was no single case of de-novo clinically significant acquired SGS with the use of cuffed endotracheal tubes in our institution over the last 5 years.

CONCLUSION: The above data support the position that acquired clinically significant SGS may be avoided with appropriate Microcuff™ ETT tube selection and maintenance.
THE LEARNING FROM EXCELLENCE PILOT PROJECT – IRELAND’S FIRST MULTIDISCIPLINARY PICU/THEATRE POSITIVE EVENT REPORTING SYSTEM.

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2. Theatre Department. Our Lady’s Children’s Hospital, Crumlin

Background: We recently introduced Ireland’s first multidisciplinary positive event reporting system in our theatre department. Traditional event reporting systems focus on negative events (e.g. incident reports, morbidity and mortality). A similar programme in the UK proved highly popular and showed evidence of quality improvement; however, our institution lacks the IT infrastructure utilized in that programme.

Objectives: To focus on exemplary care for learning and understanding complex systems and improve staff morale.

Methods: A large A0 graphic display with a postbox was placed in the main stairwell used to access the PICU and theatre complex. Forms were anonymously and voluntarily completed by staff and asked a. “who did something excellent,” b. “what did they do,” c. “how can we learn from this?” All forms were logged into a spreadsheet for appreciative enquiry analysis, and cards were returned to the reported employees with the text submitted. A monthly update was posted on the A0 poster, theatre notice board, and outside the tea room.

Results: Users filled out 15, 14, 12, and 9 forms in the first four reporting months. Reported employees were generally evenly distributed across all disciplines, with doctors receiving 13, nurses 17, health care attendants 8, and porters 12. Appreciative enquiry systematic analysis revealed that qualities recognised focused on compassionate care, consistency of excellent care, teamwork, and attainment of additional professional qualifications.

Conclusion: Our pilot programme was positively received and staff have universally expressed interest in its continuation. The above qualities were repeatedly identified as positive traits across all healthcare professions. Based on our success, we hope to share our experience so that similar programmes may be introduced elsewhere.

SIBLING SEXUAL ABUSE: AN EXPLORATORY STUDY

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BACKGROUND: Sibling sexual abuse (SSA) constitutes a largely neglected area of research. Despite this lack, there is ubiquitous acceptance that SSA is the most frequent type of intra-familial CSA. The extant literature highlights difficulties in defining SSA as well as the presence of myths about the meaning or impact of SSA. Family dynamics are continually emphasised as being important when understanding SSA. This study aimed to contribute to SSA research by presenting an exploratory epidemiological study regarding victims of SSA, including abuse and family characteristics, in an Irish and child context.

METHOD: Descriptive data was gathered via retrospective file review on all SSA cases referred to a specialist CSA assessment and therapy unit with between 2012 and 2016. All data was then analysed using PSPP.

RESULTS: 87 children were referred (65 were harmed; 22 inflicted the harm). SSA was usually inflicted by brothers on sisters (57%), but brother to brother (31%) was not uncommon. Genital touching was the most common abusive behaviour, followed by exposure of genitals and oral to genital contact. Sibling relationships were often affectionate (35%) or controlling (31%). Attachment difficulties were suspected in most cases and family history of CSA, mental health concerns, and substance misuse were common. 80 per cent experienced other forms of maltreatment and indicators of distress and dysfunction were typical.

CONCLUSION: In terms of the abuse characteristics, SSA was found to be diverse and significant in terms of impact, and thus can be viewed as comparable to other forms of CSA. Families where SSA occurs are often high need and present with multiple social and clinical risks. Indeed, in the current study, there was no single case which did not have some form of adversity present. As such, it is argued that this population compels multiagency services to respond with eclectic multisystemic, multilevel interventions.
ESTIMATING THE NUMBER OF PATIENTS WITH A PAEDIATRIC ONSET RARE DISEASE SEEN BY A SINGLE NATIONAL GENETICS CENTRE BORN IN A SINGLE YEAR.

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Definition: Rare Diseases (RDs) are conditions where the incidence is less than 5 per 10000. Whilst individually rare, collectively they are considered common. Lack of recognition in health systems means service planning is poor despite their wide prevalence.

Objective: To derive a proxy estimate the number of childhood onset RDs through referrals to the country’s only Genetics centre, as the Republic of Ireland does not have a centralized rare disease registry.

Methods: A retrospective review of referrals to cytogenetics and clinical genetics for the years 2000-2016, for patients born in the year 2000, was undertaken. Anonymized data was catalogued into rare, common, normal, likely rare & unclassifiable diagnoses by review of records, and assigned Orphacodes based on diagnosis. Census livebirth data was used as the denominator.

Results: 54,789 livebirths, census 2000. 1872 referrals to Genetics (1749 individuals) were retrieved for review. 1007 had cytogenetics testing only, of which 51 had rare chromosomal anomalies. Review of 742 referrals to clinical genetics yielded 581 with an RD (78%), 7 with a likely RD, 56 with a common disorder, 8 normal & 15 unclassified. Of the 53/1749 who had died (3%), 51 had an RD, with congenital malformations (24) the most common cause. Categorising proved challenging, eg. Trisomy 21, which is not rare in Ireland, is rare internationally. Out of 581 clinical genetics cases with an RD, 211 RD codes were used confirming the breadth of diagnoses seen by clinical genetics.

Conclusion: A total of at least 590 RD patients presented by age 16 in this cohort, giving a minimum incidence of 1.1% for paediatric RDs. Including the Trisomy 21 and likely RDs, the incidence of 1.3% is still less than international estimates, but represents a first estimate of Irish RD patients.

CHARACTERISATION OF BORDETELLA PERTUSSIS ISOLATES IN IRELAND 2003-2016

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Background
Pertussis (whooping cough) remains a challenging disease to control despite the availability of pertussis vaccines for more than 60 years. In Ireland, pertussis continues circulating in the community with epidemics occurring typically every 3–4 years. There are a number of factors thought to contribute to this persistence. Two of these are waning immunity to Pertussis following the introduction of the acellular pertussis vaccine in 1996, and vaccine induced evolution of circulating Bordetella pertussis isolates. Recently, B. pertussis isolates have emerged worldwide that are deficient in one or more of the vaccine antigens. The vaccine used in Ireland contains pertactin, filamentous haemagglutinin, and pertussis toxin.

Method
A total of 110 Irish B. pertussis isolates collected between 2003 and 2016 were characterised using the molecular typing methods MLVA and MAST. Pertactin expression was measured in all B. pertussis isolates using ELISA, and the pertactin gene sequenced in any isolates determined to be pertactin deficient.

Results
MLVA analysis of B. pertussis isolates identified that 75% were MLVA type 27. MAST analysis of six alleles identified that 89% of isolates had the same profile for 5/6 of the alleles sequenced. The final MAST allele, fim3, showed a change in dominance from type 2 to type 1 during the time period examined. A total of 15 pertactin deficient isolates were identified from the isolates examined (13.6%), with 11 of these isolated between 2013 and 2016. Sequence analysis of the prn gene for the 15 isolates not expressing pertactin showed sequence disruption consistent with the lack of pertactin expression in 12/15 isolates.

Conclusion
Analysis of 110 B. pertussis isolates in the culture collection at OLCHC revealed the dominance of isolates with similar molecular profiles to other European countries using the acellular vaccine. In addition, Ireland is also experiencing an increase in the proportion of isolates not expressing the vaccine component Pertactin.
IMPROVING THE PREPARATION AND DOCUMENTATION PROCESS FOR RAPID INDUCTION KITS (RIKs) IN OUR LADY’S CHILDREN’S HOSPITAL, CRUMLIN

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BACKGROUND: To maintain an airway, immediate access to a specific set of drugs is critical for rapid sequence induction/intubation. The pharmacy department in OLCHC prepare these drugs as ‘Rapid Induction Kits’ (RIKs). In 2014, a RIK database was set up to record all RIK issues and returns. In 2016, we undertook a review of existing processes.

OBJECTIVE:
1. To audit existing RIK records, identify areas for improvement prior to re-auditing to complete the audit cycle.
2. To improve the RIK preparation and dispensing process.

METHOD: A baseline audit of existing records was undertaken in July 2016. Current processes for the preparation, dispensing, packaging, charging and recording of RIKs were reviewed. Changes were implemented at various points of the process. A re-audit was undertaken in March 2017.

RESULTS: September 2014 - July 2016 baseline audit indicated missing data was common. 15 (7.1%) of 209 RIKs issued had no record of clinical area of issue. 31 (19%) of 163 RIKs returned had no record for reason of return. Implemented changes included: creation of a new recording database; tamperproof, sealable outer packaging; custom-designed single label; and creation of an RIK-specific cost centre. Re-auditing in March 2017 indicated significant improvements in accuracy and completeness of records. There were no missing records for clinical area issues or patient names. Only 2 of 39 (5%) RIKs issued had missing record of return. An increase in RIK usage and returned ‘opened but unused’ RIKs was identified.

CONCLUSION: The complete audit cycle demonstrated significant improvements in RIK records and stock valuation in OLCHC. The preparation process benefited from improved packaging and use of a RIK-specific cost centre. The observed increases in RIK usage and return of ‘opened but unused’ kits may be attributable to the improved packaging visibility and tamper-proof seal, increasing patient safety during critical events.

THE INTRODUCTION OF A NEW STANDARD LETTER PRO-FORMA FOR THE NEPHROLOGY DEPT.

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Background: The discharge letter is a key communication tool for dissemination of clinical information. On review, it was felt that some letters do not emphasise enough the pertinent facts. Therefore, we wanted to devise and implement a new standard pro-forma letter, highlighting the most important information. Furthermore, we wanted to audit some of our current clinic letters and see if they currently contain all of the relevant details compared to our new standard.

Methods: A list of the most important information to be highlighted in the letter was made:

Background, Medications (& dose), Weight, Height, BP, and Urinalysis. Next there was text updating on patients’ current issues, and finishing with a separate paragraph with a clearly demarcated impression & plan. We then reviewed 40 discharge letters at random, and ascertained how many contained the key pieces of information as above. The word count of the text was also calculated for each letter.

Results: Of the 40 letters reviewed we found that 98% had a “problem list” or background, 98% referred to investigations, 100% referred to medications, with 95% listing the correct doses, 90% had a weight listed, with 83% referencing a height, 93% mentioned the patients’ blood pressure, 70% had urinalysis results, 100%/ all letters had addressed current issues and also had an impression & plan. The word count of the text varied from person to person.

Conclusion: Overall we found that our current letters do contain most of the important information. However we felt that for the most part the key details were not highlighted and separated out from the text. Consequently, we have now adapted and implemented a standardised letter pro-forma which underlines and emphasises our key components, while also trying to ensure letters are focused and succinct. We plan to re-audit our letters 6/12 after introduction of the new formatting.
INITIAL ACUTE PAIN MANAGEMENT IN A TERTIARY EMERGENCY DEPARTMENT
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3. Consultant, Paediatric Emergency Medicine, OLCHC.

BACKGROUND: Acute pain is the most common presenting feature of injury in the Paediatric Emergency Department (ED). We assessed current analgesic practices for acute traumatic pain in our department.

METHODS: Data was prospectively collected over a continuous 7 days in December 2016. Inclusion criteria included children (0-17 years) presenting to the ED with minor trauma. Major trauma was excluded. Initial analgesic appropriateness was established using the current OLCHC guideline for acute pain management. Ethical approval was granted.

RESULTS: A total of 124 patients were include; 72 (58%) male and 52 (42%) female. Seven (5%) patients were under 1 year. The remaining 117 (95%) having a mean age of 7 (SD 4.5) years. No triage pain score was documented in 79 (64%) cases. The remaining 45 (36%) cases had pain assessed as ‘no pain’ (16), ‘mild’ (18), ‘moderate’ (6) or ‘severe’ pain (5). In those reporting mild pain, thirteen (72%) were offered appropriate analgesia. In patients with moderate pain, four (66%) were offered dual analgesic agents with appropriate intervention. Two (34%) were offered a single analgesic with no additional therapeutic interventions documented. In those reporting severe pain, three (60%), were managed with appropriate analgesia. The remaining two (40%) received insufficient analgesia to significantly relieve reported pain score.

CONCLUSIONS: This study reveals management of pain is in accordance with current guidelines at 80% of encounters when pain is scored at triage. Identified areas of improvement include initial assessment of pain and analgesic interventions in those reporting moderate/severe pain. The causes of inadequate analgesic practice are multifactorial and may include clinician or nursing confidence with opioids or knowledge of guidance, non-mandatory pain scores at triage and paper based ED information system. The authors are undertaking a quality initiative which includes a review of the current OLCHC clinical practice guideline for acute pain.

INVESTIGATION INTO HIDDEN COSTS IN YOUNG PEOPLE’S PSYCHIATRIC CARE.
Dr Claire Kehoe, Senior Registrar in Child and Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin and Clinical lecturer CAP UCD.
Prof Fiona McNicholas. Consultant Child & Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin, Lucena Clinic & CAP UCD.

(i) objectives/aims, (ii) background, (iii) methods (including ethical considerations), (iv) results & (v) conclusions.

Words (391):

Aim: To examine the hidden costs of a Paediatric Consultation Liaison Psychiatry Services (PCLS).

Background: In the absence of dedicated psychiatry beds in paediatric hospitals, resources are often used for mental health (MH) management. The cost of MH admissions in paediatric beds is not recorded in the HSE Annual Child and Adolescent Mental Health Report, and as such is hidden. This audit examines the costs associated with a cohort of admitted patients reviewed by PCLS.

Method: The clinical and sociodemographic data of a cohort of admitted young patients reviewed by PCLS was collected for a year, focusing on length of stay (LOS), use of additional special observation (Special), Axis 1 diagnosis, severity of illness and intensity of PCLS work. The HSE Annual Report and Financial Statements (2010) provided a daily cost for one hospital bed of €889, including pay and non-pay expenses. The average daily cost for one agency staff was €354 which covered 40% of Special. Specific and overall costs were estimated.

Results: The 151 admitted patients reviewed by PCLS showed a median LOS and Special of 5 days (range 1-155 N=151, range 0-135 N=99). There was no correlation between LOS and age, gender, duration of condition less/more than 6 months, in or out-of-hours presentation and previous MH contact. However, a fair correlation existed between LOS and diagnostic groups (Pearson’s r=0.304 p<0.001 CI 0.001). The No Axis 1 Diagnosis group stayed the shortest (median 3 days, 1-35), followed by Mood/Anxiety, Externalising disorders and Psychosomatic (median 4 days), psychosis (median 15.5, 12-35) and Eating Disorders (median 35 days, 1-155). Good correlations were seen between LOS, severity of illness (Pearson’s r=0.408 p<0.001 CI 0.01) and intensity of PCLS input (Pearson’s r=0.404 p<0.001 CI 0.001). Patients identified as mild had a much shorter stay than the extremely ill patients (median 2 days vs 63 days).
With a median LOS and Special of 5 days, the average cost per patient was €5,463 (5 x €889 + 5 x €509 x 0.40). The 151 admitted patients incurred a total cost of €824,913.

**Conclusion:** In 2016, 151 patients reviewed by PCLS were admitted. Although most were of mild severity with short admissions, the more extreme stayed much longer. The total cost generated by MH interventions was calculated, highlighting an additional charge to paediatric hospitals that is not currently recorded or resourced in the HSE MH budget.

**WHY IS LIFE SO HARD? ACUTE PSYCHIATRIC PRESENTATIONS IN A CHILDREN’S HOSPITAL**

Dr Claire Kehoe, Senior Registrar in Child and Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin and Clinical lecturer CAP UCD.

Prof Fiona McNicholas. Consultant Child & Adolescent Psychiatry, Our Lady’s Hospital for sick Children Crumlin, Lucena Clinic & CAP UCD.

**Aim:**
To examine psychosocial stressors described by young people presenting acutely to a paediatric hospital with psychiatric complaints and reviewed by the Paediatric Consultation Liaison Psychiatry Services (PCLS).

**Background:**
Although 70% of children in the Irish Health Behaviour in School-aged Children reported high life satisfaction, young people presenting acutely to the Emergency Department (ED) with psychiatry complaints often described psychosocial stressors (PS) which could originate from home, school, relationships or the individual. This audit examines the psychosocial problems reported by young patients reviewed by PCLS.

**Method:**
The clinical and sociodemographic data of a cohort of 75 young patients presenting through ED, with psychiatric complaints was collected from July to December 2016, focusing on the DSMV Axis IV psychosocial information. Data relating to home, school, interpersonal and individual issues, self-harm and suicidal ideation was analysed following admission, management, and discharge criteria.

**Results:**
Four in five patients reviewed by PCLS had at least one psychosocial stressor (59/75), more so girls (83% vs 73%) and more presenting to ED “in-hours” (58%, 34/59). Patients with stressors were younger (mean 13 vs 14 years, N=59) and had a lower rate of mental health DSMV axis 1 diagnoses (78% vs 83%). Fewer were admitted (76%, 41/54 vs 86%, 18/21) but more were already known to mental health services (84% vs 68%). Young patients with stressors were much more likely to be discharged without a psychiatric referral (17% vs 0%) but less likely to be discharged to CAMHS or an inpatient unit (8% vs 12%). More children with stressors had suicidal ideation (51%, 30/59 vs 44%, 7/16) although similar deliberate-self-harm levels were observed for all. Stressors categories included home, school, interpersonal, and individual issues. Eight out of ten children had stressors at home (47/59), five out of ten at school (27/59), and about two out of ten interpersonal or individual issues. Both home and school stressors were seen in 60% of children. Most children with home or school issues did not have interpersonal or individual stressors (about 80%).

**Conclusion:**
In the second part of 2016, most patients presenting through ED and reviewed by PCLS had psychosocial stressors. Children with stressors had less DSMV axis 1 diagnoses, fewer admissions or discharges to mental health services. They had more suicidal ideation but similar deliberate-self-harm rates. Stressors were mostly at home, with fewer at school and few interpersonal or individual issues. This study indicated that young patients presenting to ED have a significant level of stressors, which might influence their management plan.
THE USE OF PEDIPACKS IN THE NEONATAL POPULATION ON EXTRACORPOREAL LIFE SUPPORT
Kelly, C. Byrne, M. Thompson, A. Williams. M.

What Is ECLS? Extra Corporeal Life Support (ECLS) or Extracorporeal Membrane Oxygenation (ECMO) is an advanced technology which is used to treat infants, children and adults in respiratory and/or cardiac failure

How does it Work? Deoxygenated blood is siphoned from venous system via a cannula to a heparinised circuit containing an artificial lung. Gas exchange occurs and the blood is then returned to the patient’s arterial system with the aid of a pump.

Types of ECLS
VV ECLS - Provides respiratory support only
VA ECLS - Provides respiratory and cardiac support

Background: 2005 Programme commenced-perfusion run 2007 1st ECLS Specialists trained currently have 18.wte who provide 24/7 cover Remains cardiac programme with emergency respiratory care initiated prior to transfer

As we are primarily a cardiothoracic programme all our patients are considered to be at significant risk of bleeding. After each ECLS run blood product usage is calculated and costed.

Our patient population includes a high number of neonatal congenital heart defects. We run a very successful univentricular heart programme with infants and children often requiring three staged surgeries.

Two units of red blood cells are always available and stored close to the CICU in a satellite fridge when an infant/child is on ECLS. One unit is for ECLS prime and 1 for ECLS standby, used in case of emergency.

In the event of bleeding or circuit issues and blood is required, the standby or prime may be used. Fresh blood less than 5 days old is always used. If these units are not utilised they are returned to stock and recrossmatched for another patient.

Our neonatal population often require red cell top ups every 1-2 days. This is usually volumes of 10-20mls/kg. In these cases a full unit is split into 5 parts, this is called a pedipack, and 1-2 parts of the same unit are administered to the infant at a time. This means that a neonate can potentially have up to 5 transfusions from the same unit. This decreases donor exposure to the infant, many of whom will face further surgery in the future. In addition a pedipack, including all 5 parts, costs €278 while a full unit of red cells costs €312 leading to significant savings to the hospital. Any parts of a pedipack not used while the patient is on ECLS are retained in the laboratory and may be used for that patient during their continued treatment once they come off ECLS. This further reduces donor exposure. The use of pedipacks maximises blood stock management and ensures that the stocks of blood, which is a very precious commodity, are not depleted unnecessarily.

USING QUALITY IMPROVEMENT STRATEGIES TO INCREASE ACCESS TO MATERNAL BREASTMILK AMONG PRETERM AND TERM INFANTS IN A CHILDREN’S HOSPITAL IN IRELAND
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Eimear Ryan, Senior Dietician
Pamela O’Connor, Consultant Neonatologist
Elaine Harris, Clinical Practice Co-Ordinator
Mairead Thompson, Staff Nurse
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Background: Research supports human milk feeding as the optimal choice for infants. It is of particular benefit to our sickest and most vulnerable infants. Ireland has one of the lowest rates of breastfeeding in the world, presenting us with a cultural challenge when driving change, even within the hospital setting. The aim of our QIP was that all eligible infants less than 2 weeks of age admitted to OLCHC, would have access to their own mothers’ milk for the duration of their hospital stay.

Method: Parental satisfaction and staff knowledge was surveyed pre and post initiation of our QIP. The number of infants with access to their mothers’ milk was then audited pre and post implementation of a number of QI initiatives.

The QI initiatives included
1. The introduction of a breastfeeding assessment tool
2. The introduction of an expressing assessment tool
3. Standardisation of the information and resources on breastfeeding made available to staff and parents
4. Access to resources was made available via the inter and intranet.

Results: Our QIP did not show an increase in the numbers of eligible infants < 2weeks of age with access to their own mothers’ milk. Our numbers are comparable with national averages for the initiation of breastfeeding. However we were able to demonstrate an improvement in MDT knowledge with an increased number of staff attending formal breastfeeding education. Our parental satisfaction
rate was high with 88% of parents surveyed reporting feeling supported with breastfeeding by staff.

**Conclusion:** The aim of 100% of eligible infants < 2 weeks of age having access to their own mothers’ milk for the duration of their stay in OLCHC will continue to be our goal. Change within an institution and culturally can be slow but we believe that the use of QI strategies, with engagement from the MDT and parents, will continue to drive the changes needed to achieve our goal.

**SINGLE INSTITUTIONAL EXPERIENCE OF INTERRUPTED AORTIC ARCH REPAIR**

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**Background:**
Interrupted aortic arch (IAA) is a rare congenital heart disease and is often associated with other cardiovascular anomalies, including ventricular septal defect (VSD), truncus arteriosus, aorto-pulmonary window and various types of single ventricle. One staged repair of interrupted aortic arch (IAA) was first described by Barratt-Boyes et al. in 1972. Arch continuity was established using a synthetic conduit. One-stage repair incorporating direct arch anastomosis was first described by Trusler in 1975. As outcomes of neonatal cardiac surgery have been improved, primary complete repair of IAA and concomitant congenital heart disease in neonatal period has been gradually applied in many institutions.

**Methods:**
Retrospective chart review and data base of patients operated for interrupted aortic arch from 2007 to 2016 has been reviewed.

**Results:**
22 patients underwent interrupted aortic arch repair between 2007 to 2016. Mean Age at the one stage repair was 5 day. Mean age at the second stage repair was 8 months. 15 patients (68.1%) were female and 7 patients (31.8%) were male. Di George syndrome was associated in 9 patients (40.9%). Type B (81.9%) was the most common. Mean weight at one stage repair was 3.15 kg at one stage repair. A variety of concomitant procedures were performed same time including VSD repair in 19 patients (86.3%), AP window repair in one patient (4.5%), Left pulmonary artery reimplantation in one patient (4.5%) and truncus arteriosus repair in one patient (4.5%). Mean total bypass time and cross clamp time was 174 minutes and 89 minutes respectively. The mean circulatory arrest time was 28 minutes. Postoperative mean ventilatory support was 6 days. The overall mortality was one patient (4.5%).

**Conclusion:**
Surgical outcomes for Interrupted aortic arch has significantly improved in last decade. One stage repair with concomitant procedures can be undertaken with good results.
VARIATION IN AFFILIATING ORGANISATION AND FUNDING ORGANISATION INFORMATION IN BIOMEDICAL DATABASE RECORDS: IMPLICATIONS FOR ORGANISATIONAL VISIBILITY

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Background: Our Lady’s Children’s Hospital Library uses literature searches to track published articles affiliated with Our Lady’s Children’s Hospital (OLCHC) and National Children’s Research Centre (NCRC). Affiliation and funding organisation data representation in citation databases varies depending on publisher preference, database indexing methods and author description. Numbers of name variants needed to track organisation-affiliated outputs were investigated.

Methods: Sensitive search strategies based on OLCHC, NCRC, NCMG and Crumlin were developed for Pubmed, CINAHL, Web of Science, Embase and Scopus. The numbers of name variants needed to capture organisational research output using these databases for all years were compared. Variants of Crumlin-based funding organisation names were evaluated for 2012-2016 using Web of Science.

Results: All database searches required use of multiple name variants. The number of affiliation name variants found to be useful in Pubmed, CINAHL, Web of Science, Embase and Scopus searches were 19, 21, 31 20 and 31, respectively. ‘All Field’ search options were preferred to use of Affiliation search only. Affiliation-ID (Scopus) and Organisation-Enhanced (Web of Science) searches were not adequate to capture all affiliated articles. Information on OLCHC, NCRC and CMRF as funding agencies was included in 205 of the 857 records captured by the Web of Science Crumlin search strategy for 2012-2016. 48 variations of the names of these three organisations were used.

Conclusion: The use of multiple name variants, field tags and databases is necessary when using biomedical database searches to track organisational output. Variation in author submission, publisher inclusion and database indexing and presentation of organisational affiliation data may reduce ‘discoverability’ of organisational outputs. Use of author and organisational identifiers (such as ORCID) and standardisation of existing organisational ID records may aid in tracking publications and increasing organisational visibility.

CF:INK, AN IRISH NETWORK FOR CLINICAL TRIALS IN CHILDREN WITH CYSTIC FIBROSIS


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Background: Cystic Fibrosis is an area with increasing clinical trials activity. As children are a unique population with distinct developmental and physiological differences, specific paediatric clinical trials are necessary to evaluate age-specific, empirically-verified therapies. Often pharmaceutical companies struggle to find suitable sites and adequate participants. Similarly difficulties arise for sites in the setting up of a trial as there are substantial administrative and regulatory challenges to overcome. CF:INK aims to overcome these challenges by mobilising the strengths of each participating centres to build a sustainable national network to coordinate, support and promote cystic fibrosis clinical research and clinical trials in Ireland.

Method: CF:INK is an integrated national clinical research network encompassing all six paediatric cystic fibrosis centres in Ireland. It is housed in The National Children’s Research Centre. CF:INK will will provide overarching support to each of the member sites and the necessary infrastructure to run cystic fibrosis clinical research studies and trials at each of the member sites. Each centre has nominated a lead investigator while study coordinators based in each hospital will run the day to day trial activities. The National Study Coordinator will be responsible for the overall coordination of all clinical trials at each of the six sites.
The network aims to:

- provide a consistent provision of clinical research resources to each participating site
- streamline the processes and systems, from site feasibility to study close out, encompassing contract and budget negotiations, site approval, start-up and enrolment.
- support the development of SOPs and regulatory documents
- assist in the preparation for regulatory inspections.

**Conclusion**

**Future goals:**

- Bring international multi-centre studies to Ireland.
- Improve each sites relationship with international pharma.
- Reduce the reliance on individual contracts and provide a unified approach.
- Make Ireland a more attractive country to run clinical trials in.

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**IL-36 CYTOKINES MODULATE THE DIFFERENTIATION OF T CELL RESPONSES IMPLICATED IN THE PATHOGENESIS OF PAEDIATRIC IBD**

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**Background:**

The IL-1 superfamily of cytokines is composed of 11 key mediators of the immune response. Among them exists the IL-36 family, comprised of 4 members, three agonistic ligands IL-36α, IL-36β and IL-36γ, and the receptor antagonist IL-36Ra. IL-36 cytokines signal through the IL-36 receptor (IL-36R) in combination with the shared AcP co-receptor, and are known to induce NFκB and MAPK pathways. However, IL-36Ra binding to IL-36R fails to induce the recruitment of the AcP co-receptor, and so inhibits IL-36 signalling. We have recently identified a role for IL-36 in promoting intestinal inflammation in paediatric IBD (Mucosal Immunology 2016, 5:1193). We are now exploring the mechanistic basis for these observations by examining the influence of IL-36 cytokines as modulators of colitogenic T cell responses.

**Methods:** Investigated the influence of IL-36 cytokines in altering the generation murine T cell responses including Th1, Th17, Th2, Th9 and iTreg responses in vitro. Differentiation towards effector subsets determined through signature cytokine/transcription factor expression by ELISA and Flow cytometry.

**Results:**

In this study we show that IL-36 cytokines directly enhance murine naïve CD4+ T cell, and Th1, iTreg and Th17 effector lineage responses, in addition to CD8+ T cell cytokine responses. These effects occur as a consequence to the potent co stimulatory effects of IL-36 during early T cell activation. Furthermore, this study reports for the first time that IL-36 cytokines promote the polarisation and enhancement of murine Th2 and Th9 responses as well as the inhibition of iTreg differentiation in an IL-2 independent manner. These data suggest a central role for IL-36 family members in modulating T cell responses established as playing critical roles in the pathogenesis of paediatric IBD and further these cytokines potential novel targets for therapeutic intervention.
TOWARDS DEVELOPMENT OF AN IRISH TRAVELLER GENETIC DATABASE

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Irish Travellers are an endogamous ethnically Irish population of ~40,000. Consanguinity is common, increasing the risk of autosomal recessive disorders. Many of the Traveller disorders and mutations are published but as their ethnicity is rarely explicitly stated, this can hamper diagnoses.

Aim: To catalogue all known genetic disorders and mutations found amongst Irish Travellers, together with development of a mutation database to facilitate diagnoses.

Methods: A literature review was undertaken. Key national and international Clinicians and scientists were contacted to identify disorders and publications relating to Traveller disorders. Searches were performed on laboratory and clinical genetic databases. Annotations were updated as required. An Excel database was established listing each disorder and its associated mutation and publications.

Results: 76 distinct genetic disorders resulting in 65 phenotypes were identified; 68/76 were autosomal recessive with 4, previously associated with dominant disorders but identified in the recessive state. A further six were autosomal dominant. One common 17q12 duplication was identified in 5 individuals in two likely unrelated families suggesting that the genomic architecture is susceptible to copy number variation at this locus. All of the autosomal recessive disorders (except Alpers) were due to homozygous mutations. The genetic basis of 72/76 is established. A further 2/76 have common haplotypes (merosin negative myopathy & microcephaly). The genetic basis of two other disorders remains unclear.

Genetic heterogeneity was observed for several disorders including Leighs syndrome, primary ciliary dyskinesia, Fanconi’s anaemia, long QT, cardiomyopathy & 46,XY female phenotype. We observed disorders in linkage disequilibrium; McArdles disease co-exists with microcephaly whilst Friedreich’s ataxia can co-exist with galactosemia.

Conclusion: Our work is the first step towards cataloguing the genetic basis of Genetic disorders seen amongst the Traveller population. Future challenges include development of an NGS panel and moving towards offering a carrier screening option to this population.

MENTAL HEALTH ISSUES: VIEWS AND CONCERNS OF PARENTS CARING FOR A CHILD OR YOUNG ADULT DIAGNOSED WITH 22q11DS

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Background: 22q11.2 Deletion Syndrome (22q11DS) is the most frequently occurring chromosomal micro-deletion in the global population. The syndrome is described as a complex, multi-system disorder that presents a risk of psychiatric disorders such as generalized anxiety, depression, psychosis and ADHD (Attention deficit hyperactivity disorder). Aim of this study was to investigate parents’ experiences of caring for children or adolescents with 22q11DS in Ireland and to identify parents’ perceptions of mental health issues and to evaluate the need for the development of a psycho-educational programme.

Method: Parents were recruited from the 22q11 Ireland support group (101) and the cleft palate database (41) at Our Lady’s Children’s Hospital, Crumlin, Dublin. Six focus groups were conducted using an interview guide. Relevant ethics committee approval was obtained. Content thematic analysis was used.

Results: Twenty-two parents (20 Mothers and two Fathers) participated (15% Response rate). Age range of the total group of children/adolescents with 22q11DS (13 girls, 8 boys) was 3 to 33 years with a mean age of 15 years. (45%) of the children exhibited obsessive behaviour. (41%) suffered anxiety. (14%) suffered depression and one child had suicidal tendency. The majority of parents were aware of: the increased risk of mental health issues, felt they had to self-source information, believed their treating clinicians were unaware of the mental health risks, and did not inform them in a timely manner. Parents expressed concern regarding mental health especially as the child advanced in age, but felt an inadequate level of available support. They believed that a psycho- educational programme would be beneficial and empowering to them as parents.

Conclusion: There was overwhelming support for a targeted psycho-educational programme covering mental health development and risks, specific for different developmental levels of the child and delivered in a paediatric setting.
SCHOOL ATTENDANCE OF CHILDREN UNDERGOING SYSTEMIC ANTI-CANCER TREATMENT OUR LADY’S CHILDREN’S HOSPITAL, CRULIN (OLCHC)
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Background/Objectives: OLCHC, Dublin treats approximately 170 new children with cancer/year. Treatment impacts on the social, emotional and educational development of patients. Attending school is vital for overall development.

Current practice at OLCHC is to advise parents that their child can attend school whenever they feel well, regardless of their neutrophil count. Internationally there is little consensus and scarce data on how parents decide.

Methods: We conducted a parental questionnaire regarding school attendance. Demographics, disease-related data and questions regarding factors which influence school attendance were collected. The 22 Children’s Cancer and Leukaemia Group (CCLG) centres were asked about their institutional guidelines.

Results: 54% of parents responded that their children attended school almost all of the time (<4 weeks missed during previous 6 months). 29% of parents said that their children attended sometimes/rarely and 17% of parents said their children did not attend at all.

Parents identified educational needs/mixing with friends as the primary determining factors when deciding whether to send their children to school or not. The perceived higher risk of infection and need to attend hospital appointments were stated as the primary factors when not sending a child to school. 19/22 CCLG centres responded. 10/19 provide similar advice as OLCHC. 9/19 recommend avoiding school during intensive treatment. These 9 centres consider neutrophil count, time of year and presence of a central venous access device before making a recommendation during less intensive periods.

Febrile neutropenia and community acquired infection rates at OLCHC are consistent with international reported figures.

Conclusion: Despite clear advice many children do not attend school during treatment. There is no consensus with the CCLG institutions. There is no evidence that sending children to school during treatment is harmful. Further study to delineate the positive benefits of school attendance could be considered.

“ON-CALL” TASKS IN THE PAEDIATRIC CARDIOLOGY UNIT - A QUALITY IMPROVEMENT PROJECT
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BACKGROUND:
The cardiology inpatient unit cares for some of the most complex and acutely unwell children in Our Lady’s Children’s Hospital, Crumlin. Such patients have frequent alterations in clinical state necessitating frequent review and often have complex care plans and early warning score amendments in place. Oftentimes medical input to these patients on-call cannot be anticipated, however it was hypothesised that much of the task burden for senior house officers could be dealt with during, and is more appropriate to, routine hours and familiar team input to achieve improved quality patient care. Reducing time spent on routine tasks on-call also increases time available for direct patient care.

AIMS: To examine the variation, content and quantity of tasks requested of the on-call SHOs on the cardiology unit and to seek to improve the number of tasks which would be better served, and could be anticipated by medical input during routine hours.

METHODS: The house officer on-call tasks were recorded on a specifically designed project sheet from a sample period in March and April 2017 and were analysed using Excel. The results were presented to the cardiology team in chart format and discussed as a continuous measure.

RESULTS:
The most frequent tasks involved charting and altering medications, in particular analgesia and amending early warning scores. A smaller proportion of these tasks necessitated medical reviews. As the study period progressed the number of routine tasks on-call declined as these areas were brought to the attention to the primary team. Medical reviews remained stable throughout the period.

CONCLUSION:
Awareness of the on-call tasks by the responsible team lead to an improvement in the number of avoidable routine tasks passing forward to on call doctors while unanticipated review remained appropriately stable. This has favourable impact on time management and improving quality of patient care.
**RADIOLOGY TRIPLE ID PATIENT CHECK: HOW DO WE FARE? A LOCAL AUDIT**
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**BACKGROUND:** The Medical Exposure Radiation Unit (MERU) requires Radiology departments to formulate and implement a Patient Radiation Protection Manual. The purpose of the manual is to support the practical application of the safe and optimal use of medical ionising radiation for patients. Section 5 of the manual specifies: “Each department should have a protocol in place to correctly identify patients who are undergoing a medical ionising procedure. An exposure must not be undertaken if the patient identification cannot be verified” (MERU, 2013).

In Radiology, a three point ID check is required where the patient is asked to give their full name, date of birth and address. These details should be checked against the request card for the examination. If the patient is unable to respond to the ID check because of illness, language or learning difficulties, a relative/guardian or nurse must be able to verify the patient’s identity. For children under 16 years, the responsible parent or guardian should verify their identity.

The Triple ID Check is an important protocol in Radiology as most adverse radiation incidents reported to the Environmental Protection Agency (EPA) relate to irradiation of the wrong patient. To ensure and promote best practice standards regarding patient identification in Radiology, a monthly audit of the Triple ID check is performed.

**METHOD:** Each month a random sample of completed Patient ID forms are analysed. Each form is checked to ensure that the appropriate checks have been recorded and signed by the radiographer for each examination performed.

**RESULTS:** Initially the audit results showed that there was relatively poor compliance with recording the Triple ID check. Following the Audit Cycle, and feeding back the results to staff helped to improve the results significantly.

**CONCLUSION**
Implementation of the Audit Cycle helped to greatly improve the practice of recording the Patient Triple ID check in Radiology. The results of the monthly audits form part of the overall Clinical Audit Plan in the department. As well as providing evidence of best practice standards when the department is inspected by the EPA and MERU, the audit also helps to promote a safer environment for patients.

**NEONATAL CASE STUDY: NURSING CARE OF A NEONATE WITH CLOACAL ANOMALY**
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**Background:** Cloacal anomaly presents in 1 in 20,000 live births and is the third most common anorectal malformation which occurs exclusively in females. It is a rare complex malformation. The goals of treatment are surgical anatomic reconstruction and achieving bowel and urinary control along with normal sexual function. Regular check-ups and further reconstruction is needed after new-born period. Nursing care of this complex condition needs to be tailored to the unique needs of the neonate and family.

**Method:** A case study was carried out as part of the PICU Foundation Programme on a neonate who was born prematurely with a diagnosis of Cloacal anomaly. Surgery included stoma formation, mucous fistula formation, Vaginoplasty, Cystostomy with supra-pubic catheter insertion and uterine drain insertion.

A review of the literature was undertaken to identify rationale for the multiple nursing interventions required for this neonate. The following databases were reviewed: Cinahl, Pubmed and Science Direct.

**Results:** Pain, thermoregulation, fluid management and family centred care of the neonate and family throughout the PICU admission were the pertinent issues identified in the nursing care of this neonate. The case study highlighted the need for Multi-Disciplinary Team intervention from an early stage and open communication and advocacy within the team as an imperative role of the PICU nurse as well as the expert knowledge required to provide evidence based care for a neonate post complex surgery. The importance of family centred care is significant for all admissions to PICU but magnified in a condition that has the potential to have adverse social and psychological sequelae.

**Conclusion:** Cloacal anomaly is a serious condition which poses many challenges both for the child and family as well as the healthcare professionals providing care. Expert knowledge is required in PICU nursing to care for neonates post complex surgery. A multi-disciplinary approach in a specialist centre is a central component of care.
CARDIAC WARD NURSES ROTATION INTO CARDIAC PICU.
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Background.
Surgical and medical advancements in recent years has altered the treatment of children with congenital heart defects, thus increasing the complexity and acuity of these patients, within the PICU and cardiology ward. The children’s nurse therefore requires increased competencies in observation, assessment and a broader set of clinical skills including technology familiarity. Through the undertaking of a Personal Professional Development Plan with the ward nurses, this area was identified as a learning need. Currently PICU has a robust structured education developmental pathway to take the nurse from novice to proficient/expert within the PICU. This has facilitated the nurse in acquiring a broad set of clinical skills and competencies in caring for the critically ill child. Historically this has only been available to the nurses who wish to undertake a career in PICU.

Method.
Discussion with the stake holders involved, ADON, CNM’S, CNF’S and senior ward nurses the a nine month rotation programme to PICU for the senior cardiac ward nurse’s was introduced. This involved partaking in a six week orientation programme with sixteen week preceptorship, whilst remaining in Cardiac PICU for seven months. The final two months was spent in the General PICU unit to consolidate the experience and broaden their exposure to a different patient cohort.

Result.
Evaluation of the two completed programmes has demonstrated advancement in the nurse’s knowledge base, skills, confidence and capability, within their own practice and also in their supporting of junior nurses. Two staff (50% of cohort), have gained promotion to CNM1 level. This has proven monumental in developing a firm relationship and improved flow of patients within the two areas.

Conclusion.
This is an ongoing rotation programme which we endeavour to continue and incorporate as part of the education development pathway of the senior cardiac ward nurse.

THE ROLE OF CHAPLAINCY IN THE PAEDIATRIC MDT, AN OBSERVATIONAL CROSS SECTIONAL STUDY
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2. Milford Care Centre, Limerick.
3. Our Lady’s Children’s Hospital Crumlin and Coombe Women and Infants University Hospital

Background: Care of children with life-limiting illnesses integrates both psychological and spiritual aspects of care. Despite this, chaplains may not be included as an integral member of the MDT resulting in failure to recognise the spiritual needs of children and their families.

Aim(s): To explore staff knowledge of and attitudes to the role of chaplaincy in a tertiary children’s hospital; chaplaincy participation in the MDT; and timing and method of referral to chaplaincy.

Method(s): A cross sectional survey of staff using both a written survey (made available in all clinical areas) and an online survey.

Results: 96 respondents (56% nurses; 37% doctors; 5% allied healthcare professional; 2% other). 91% agreed that spiritual care is an important part of patient care. Most were confident that they understood the role of chaplaincy (78%). There was strong agreement that the role of chaplaincy includes bereavement support (96%); the spiritual needs of terminally ill children and their families (98%), and providing education to the MDT on spiritual issues (86%). However only 42% felt that chaplaincy should attend MDT meetings.

48% agreed that chaplaincy should receive a formal referral however 26% disagreed, with 26% remaining neutral.

88% agreed that is important that chaplaincy be made aware of the patient’s medical condition and likely prognosis.

93% disagreed with the statement that “There is no need to involve chaplaincy unless a patient is imminently dying or has died”.

Conclusions: A majority agree spiritual care is important and that they understand the role of chaplaincy. However a minority agree chaplaincy should attend MDT meetings. Most agree that early chaplaincy involvement is beneficial.

No funding obtained.
APPENDICITIS - PASSING THE EYEBALL TEST
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Background:
Appendicitis is a common condition and it’s widely acknowledged that the severity of the condition varies considerably.
The more advanced the condition the higher the risk of complications. Consequently antibiotic guidance exists to address this increased risk, with those at higher risk administered wider spectrum antibiotics for a longer period of time post operatively.
Unfortunately histopathological analysis of the excised specimen is usually only available after the patient has been discharged. This means that treatment plans made by the operating surgeon are based purely on macroscopic findings at the time of the surgery.

Methods:
A search the theatre management system “Sapphire” for codes including ‘appendix’ or its relations from January 2014 to December 2015 was performed. Demographics were collected and operation notes, and histopathology reports were reviewed and compared by a single assessor. Analysis of the data was performed.

Results:
During the 2-year period 280 procedures to remove the appendix were performed. 19 of these were incidental at the time of a different operation and these were excluded from further analysis.

261 appendicetomies were performed from January 2014 to December 2015. 29 of these were interval appendicetomies. Overall there were 188 open appendicetomies, 85 laparoscopic appendicetomies and 7 requiring laparotomy. 2 patients during this time period had a carcinoid tumour present on histopathology, which was not appreciated macroscopically at the time of surgery. 10 patients had pinworms present on pathology. Correlation between macroscopic and microscopic findings was compared. There was a concordance of intra-operative and microscopic findings in 77% of cases.

Conclusions:
Clinical diagnosis in OLCHC is accurate. There is a high correlation between macroscopic and microscopic findings and usually an appropriate management pathway is initiated at the time of writing the operation note.

IMPLEMENTATION OF A REAL TIME PCR SERVICE FOR THE DETECTION OF GASTROINTESTINAL VIRUSES
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Background
Acute gastroenteritis is a common illness among children and the majority of cases are caused by viruses. Viral gastroenteritis is highly contagious and spreads through close contact with people who are infected or through contaminated food or water. The most prevalent viruses which cause paediatric illness are human rotaviruses, enteric adenovirus, caliciviruses and astroviruses. Real time PCR detection of gastrointestinal viruses is a sensitive method that allows early detection of infection. OLCHC patient samples were previously tested by real time PCR in the Virus Reference Laboratory (NVRL). An in-house method was investigated in order to improve sample turnaround times.

Method
Method validation was performed on 360 patient stool samples and results were compared to those obtained by NVRL. Viral RNA and DNA was extracted from stool specimens by automated extraction followed by reverse transcriptase real-time PCR analysis for rotavirus A, adenovirus, norovirus genogroup I, norovirus genogroup II, sapovirus and astrovirus targets.

Results
The in-house OLCHC method is comparable to the method used by NVRL with an overall sensitivity of 97.4%. Increased assay sensitivity for the detection of rotavirus, adenovirus, sapovirus and norovirus genogroups I and II was demonstrated.

Conclusion
In-house testing for gastrointestinal viruses was introduced in November 2016. The majority of samples are now reported within 24 hours. This significant improvement of sample turnaround times has an impact on patient care and infection control.
AN EPIDEMIOLOGICAL, CROSS-SECTIONAL STUDY ON RESPIRATORY SYNCYTIAL VIRUS (RSV) PATIENTS WHO ARE ADMITTED TO THE PAEDIATRIC INTENSIVE CARE UNIT (PICU) AT OUR LADYS CHILDREN’S HOSPITAL CRUMLIN (OLCHC) FROM 2013-2016,
Samantha. M. Meenaghan, Department of Physiotherapy, OLCHC, Dublin

Background:
Respiratory Syncytial Virus (RSV) Bronchiolitis is the leading cause of lower respiratory tract infections in infants with over 60% infected within the first year of life. Research has established that severe disease can requiring admission to a Paediatric Intensive Care Unit (PICU). To date there has been no research in Ireland to analyse patients admitted to PICU due to RSV. This study aims to review the current research available and investigate the risk factors associated with requiring PICU admission due to RSV.

Method:
This is a retrospective, observational, cross-sectional study. Patient data was collected from medical charts and microbiological samples from the OLCHC laboratories. Patients admitted between November and February of each winter season 2013-2016 with positive RSV samples were included in the study.

Objective:
1.) Analyse the number of positive RSV patients admitted to OLCHC and PICU to establish RSV trends 2013-2016
2.) Investigate length of stay
3.) Explore the categories of patients requiring PICU treatment and any associated pre-disposing risk factors for RSV

Results:
655 patients were admitted to OLCHC with positive RSV samples, 67 of whom were admitted to PICU. 166 admitted in 2013/2014 increasing to 254 in 2015/2016.

Average length of PICU stay was 6.08 days. Patients with pre-existing diseases stayed on average 7.61 days while patients with no pre-existing diseases stayed 4.91 days

Pre-disposing risk factors included; Prematurity: 61%, Under 6 weeks old: 54%, 1 Pre-existing disease: 54%, 2 or more Pre-existing disease: 66% and Older sibling sick: 46%.

Conclusion:
The number of RSV patients being admitted to OLCHC continues to rise each year however the number requiring PICU admission changes from season to season. Results show patients with pre-existing conditions have longer lengths of stay averaging 2.7 days longer in PICU. All patients admitted to PICU had one or more pre-disposing risk factors for RSV. The above data reflects current research however further analysis is required to established RSV trends and correlations between lengths of stay and pre-disposing risk factors at OLCHC.

AN OBSERVATIONAL STUDY ON PATIENTS PRESENTING WITH RESPIRATORY SYNCYTIAL VIRUS (RSV) AND WHO REQUIRE CHEST PHYSIOTHERAPY FOLLOWING ADMISSION TO THE PAEDIATRIC INTENSIVE CARE UNIT (PICU) AT OUR LADIES CHILDRESS HOSPITAL CRUMLIN (OLCHC) 2013-2016,
Samantha. M. Meenaghan, Department of Physiotherapy, OLCHC

Background: Respiratory Syncytial virus (RSV) positive bronchiolitis is highly contagious with over 80% of young children being infected by age 2. The National Institute for Health and Care Excellence (NICE) published Guidelines on Bronchiolitis in June 2015. It recommends that chest physiotherapy (CPT) is important in patients who have relevant co-morbidities that affect chest clearance or patients who have respiratory complications as a result of RSV. This study aims to review the current CPT practices and treatment techniques used for patients with RSV in Paediatrics Intensive Care Unit (PICU).

Method: This is a retrospective, observational study collecting patient data from medical charts and OLCHC laboratories. Patients admitted between November and February of each winter season with positive RSV samples were included in the final results.

Objective:
1.) Explore the categories of patients requiring CPT between 2013-2016 winter seasons
2.) Review if referrals for CPT were appropriate and in line with NICE Guidelines
3.) Analyse CPT treatment techniques

Results: 67 patients were admitted to PICU of which 37 were referred for CPT. 20 patients had pre-existing diseases requiring 152 treatment sessions (average 7.6) with an average length of stay 8.55 days.

17 had no pre-existing conditions requiring 111 treatment session (average 6.53) with an average length of stay 7.41 days.

All 37 patients had chest x-ray changes or had more than 2 pre-existing conditions when referred for CPT.

Treatment techniques included suctioning, manual hyperinflation/bagging, manual techniques and positioning.

Discussion: The results demonstrate that patients who had a positive RSV sample and required CPT were referred correctly and in accordance with the NICE Guidelines. Patients who had pre-existing diseases required more CPT input and had longer lengths of stay in PICU. At present there are no similar published studies to compare these results to. The study demonstrates that PICU are adhering to the NICE Guidelines and current evidence based practices.
ASSESSING COMPLIANCE WITH NICE GUIDANCE FOR TIME TO CT IN HEAD TRAUMA

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**Background:** NICE paediatric head injury (HI) guidance (2014) recommends that CT be performed within 60 minutes of the identification of specific head injury (HI) risk factors. This is a key performance indicator (KPI) within the Trauma Audit and Research Network database (UK & Ireland) to which OLCHC contributes. All decisions to request CT head are prospectively determined by the consultants in paediatric emergency medicine and as such were deemed to meet NICE criteria.

**Aim:** To quantify the number of CT heads performed in 2016 and to evaluate time to CT for children with HI in OLCHC.

**Methods:** A retrospective analysis of time to CT in children receiving CT head for trauma in 2016. Examination by comparison of time of request with time of performance of scan.

**Results:** There were 100 CT heads performed in 2016 for trauma indications. Seventy seven were male. The age ranged from 5 days to 15 years old.

- The average time to CT was 100 minutes (Range 16 to 874 mins)
- In 37% CT was performed within 60 minutes. 82% were performed within 120 minutes. The time to CT for the remainder varied from 125 to 874 minutes.
- The majority (56%) of CTs were performed during 0800-1800 hours.
- The average time to CT for scans requested during working hours was 74 mins (range 16 mins to 313 mins) versus 92 mins (range 15 mins to 874 mins) during out of hours

**Conclusions:** Timely access to CT in trauma is topical. Meeting the KPI for time to CT was found to be challenging both during and outside of normal hours. The barriers locally could be multifactorial and may include insufficient in-house manpower, unique infrastructure, logistics, ED efficiency, ED overcrowding and hospital efficiency. This data may be of assistance when planning paediatric trauma services as we move towards the NCH.

EARLY MOBILISATION OF CRITICALLY UNWELL CHILDREN IN PICU: AN EXPLORATION OF THE EVIDENCE

Wesley Mulcahy, Senior Occupational Therapist, Our Ladys Childrens Hospital

**Background:** The paediatric intensive care unit (PICU) setting provides a unique practice opportunity for occupational therapists working with patients who are acutely ill and have complex care needs. Children admitted to PICU can experience significant morbidity as a consequence of mechanical ventilation, sedative medications and prolonged immobility. Adult studies have received considerable attention in clinical and scientific literature in recent years. These studies demonstrate reduced mobility is associated with prolonged ICU and overall hospital stay, increased days of ventilation, poorer overall functioning and quality of life post discharge. The objective of this review was to explore the current evidence for mobilisation in a critically ill paediatric population.

**Method:** The electronic databases were searched: Academic Search Complete, Allied and Complementary Medicine Database (ACMD), Cinhall Plus and Medline, using a combination of controlled terms and key words, with inclusion and exclusion criteria set. Abstracts were identified for full text review. Reference lists of review articles and original publications were manually reviewed to ensure the database searches were comprehensive. Records were screened and 194 were excluded. Seven were identified for inclusion in this review.

**Results:** Results indicate that early mobility can result in decreased costs, decreased ICU and hospital related morbidity, increased functional outcomes, is safe and feasible and improves quality of life outcomes. Several potential barriers are also highlighted and discussed. Recommendations to increase therapy engagement in PICU are considered.

**Conclusion:** A synthesis of the included studies suggest that early mobilisation in the PICU is likely safe and feasible, with no adverse events reported. Early mobilisation demonstrates potential long and short term benefits. This review establishes objective evidence in the paediatric population is limited but an area of emerging consideration. There is a vital need for prospective intervention trials in critically ill children to inform occupational therapy and rehabilitative guidelines.
EVIDENCE BASED PRACTICE - DOES EARLY MOBILISATION REDUCE THE LENGTH OF STAY IN PICU FOR CRITICALLY UNWELL CHILDREN?
Wesley Mulcahy, Senior Occupational Therapist, Our Ladys Childrens Hospital

Background: The paediatric intensive care unit (PICU) setting provides a unique practice opportunity for occupational therapists working with patients who are acutely ill and have complex care needs. Children admitted to PICU can experience significant morbidity as a consequence of mechanical ventilation, sedative medications and prolonged immobility. Adult studies have received considerable attention in clinical and scientific literature in recent years. There is a paucity of scientific literature in paediatric studies. The objective of this review was to explore the current evidence for mobilisation in a critically ill paediatric population considering broader characteristics of evidence based practice and not limited to scientific papers.

Method: Rycroft-Malone et al., (2004) describe the characteristics of knowledge generated from four different types of evidence for use in clinical practice. Evidence bases are named according to their source: Research, Clinical experience, Patients, clients and carers and local context and government. A self directed question using these characteristics were explored to reflect on current clinical practice, identify barriers and make recommendations for future clinical development.

Results: Results indicate that early mobility can result in decreased costs, decreased ICU and hospital related morbidity, increased functional outcomes, is safe and feasible and improves quality of life outcomes. Patient experience and expert advice was sought and considered. Several potential barriers are highlighted and discussed. Recommendations to increase therapy engagement in PICU are considered, along with broader evidence based practice strategies at answering clinical questions.

Conclusion: This exploration of evidence from a variety of sources to answer a self determined question has highlighted several long and short term benefits, and real and perceived barriers to exercise and mobility based rehabilitation in the paediatric ICU. Considering expert advice and patient experience, early mobility had a variety of benefits but is difficult to determine impact on hospital length of stay in a paediatric population.

A RANDOMISED TRIAL OF NEEDLE ASPIRATION OR CHEST DRAIN INSERTION FOR SYMPTOMATIC PNEUMOTHORAX IN NEWBORN INFANTS: THE NORD TRIAL (ISRCTN65161530)
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3Department of Women’s and Children’s Health, Azienda Ospedaliera di Padova, University of Padova, Padova, Italy, 4Department of Neonatology, Karolinska Institutet and University Hospital, Stockholm, Sweden, 5Ospedale dei Bambini Vittore Buzzi, Milano, Italy, 6National Children’s Research Centre, Our Lady’s Children’s Hospital, Crumlin, Dublin, Ireland

Background: Treatment options for symptomatic pneumothorax in newborns include needle aspiration and chest drain insertion. There is little consensus among clinicians as to the preferred treatment, reflecting a lack of evidence from clinical trials.

Objective: To determine whether treating a pneumothorax diagnosed on chest X-ray (CXR) in newborns receiving respiratory support with needle aspiration compared to immediate chest drain insertion results in fewer infants having drains inserted within 6 hours of diagnosis.

Methods: In this international multicentre randomised controlled trial, infants receiving respiratory support [endotracheal (ET) ventilation, continuous positive airways pressure (CPAP) or supplemental O2 >40%] who had a pneumothorax on CXR that treating clinicians deemed needed treatment, were randomly assigned to drainage using needle aspiration or chest drain insertion. Randomisation was stratified by centre and gestation (<32, ≥32 weeks). Participants were randomised once only. Infants assigned to ‘needle aspiration’ had needle aspiration initially; if treating clinicians deemed that the response was inadequate, a drain was inserted. Infants assigned to ‘chest drain insertion’ had a drain inserted. Our primary outcome was whether a drain was inserted for treatment of the pneumothorax within 6 hours of diagnosis. We recorded whether infants subsequently had drains inserted and whether they died before discharge from hospital.
Results: We enrolled 70 infants and the groups were well matched at study entry. Fewer infants randomly assigned to needle aspiration had a chest drain inserted within 6 hours [OR (95% CI) 0.55 (0.40-0.75)]; and during hospitalisation [OR (95% CI) 0.7 (0.56-0.87)]. Among infants <32 weeks, fewer infants assigned to needle aspiration had a drain inserted within 6 hours [needle 12/17 (71%) vs. 22/22 (100%), p=0.01].

Conclusions: Needle aspiration significantly reduced the rate of chest drain insertion in symptomatic newborns with pneumothorax on CXR. Needle aspiration should be used for the initial management of pneumothorax in symptomatic newborns.

THE EXISTENCE OF BURNOUT AMONG PAEDIATRIC INTENSIVE CARE NURSES IN AN IRISH PAEDIATRIC HOSPITAL

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BACKGROUND: Due to the nature of their role and work environment nurses are at high risk of developing burnout, especially in intensive care unit (ICU) settings. Burnout has been identified as a major factor affecting nurse retention. Given the global concern with nursing attrition rates and the development of the new National Children’s Hospital it is important that factors affecting nurse retention are examined in order to correctly identify where and what action is required to reduce burnout among nurses. Therefore, the aim of this study was to examine the prevalence of burnout among paediatric intensive care nurses in an Irish Paediatric Hospital.

METHOD: Nurses in the Paediatric ICU completed the Maslach Burnout Inventory-Human Services Survey (MBI-HSS). Continuous variables are presented as median (IQR) and examined using Mann-Whitney U Test. Categorical variables are shown as number (percentage) and investigated using chi-square test.

RESULTS: The response rate was 63.4% (74/116). The median (IQR) score for Emotional Exhaustion was 21.5(14.0, 29.3), with 62.2% of nurses feeling emotionally drained from their work. Nurses with moderate or high levels of Emotional Exhaustion had higher total Depersonalisation scores compared to nurses without Emotional Exhaustion, 6.50(3.75, 9.25) versus 2.00(2.00, 6.00), p=0.001. This difference was driven by nurses with Emotional Exhaustion reporting that they worried that their job was hardening them emotional once a week or more compared to nurses without Emotional Exhaustion, 39.1% versus 14.3%, p=0.04. Personal Accomplishment levels did not significantly differ between those with Emotional Exhaustion or experiences of Depersonalisation. Significant negative correlation was seen between age, years of experience and depersonalisation score.

CONCLUSION: Nurses experienced a moderate level of burnout and this was associated with experiences of depersonalisation. Including training on how to deal with stress, in orientation programmes and increasing opportunities for staff to attend mindfulness workshops are two ways which could reduce nurses experiencing burnout.
**Background:** Neuroblastoma is a challenging childhood malignancy accounting for 15% of paediatric cancer deaths. Acquired chemoresistance is a major impediment to successful therapy, with ~60% of high risk patients experiencing relapse. High cellular heterogeneity is a hallmark of neuroblastoma, which may explain the variation in clinical presentation and outcome. A transition from neuroblastic (N-type) to substrate adherent (S-type) morphology coincided with acquired chemoresistance in a relapse model of neuroblastoma, SK-N-AScis24. We aimed to investigate this process and identify a miRNA with therapeutic potential.

**Methods:** LC-MS/MS profiling of SK-N-AS and resistant SK-N-AScis24 lines. Ingenuity pathway analysis identified resistance associated proteomic alterations. Cells were characterised for morphology, proliferative rate and invasive capability by phase contrast microscopy, IHC and Matrigel® assay. MiRNA clinical significance was assessed using R2. Direct targeting was confirmed by luciferase reporter assay. MiRNA-target interaction, effect on viability/apoptosis induction and morphology was investigated by ectopically overexpressing our miRNA in vitro followed by WB/qPCR, acid phosphatase assay/FACS and phase contrast microscopy.

**Results:** S-type morphological markers VIM (4.8 fold) and ACTN4 (2 fold) were significantly up-regulated in SK-N-AScis24, coinciding with conversion from rapidly proliferating, rounded N-type cells to more invasive (2.5 fold), slower proliferating, elongated S-type cells. MiR-124-3p was significantly associated with poor survival in high risk neuroblastoma when expressed at low levels and targets increased S-type genes VIM and ACTN4. MiR-124-3p also targets other up-regulated genes associated with cellular plasticity and cytoskeletal rearrangement; ITGB1, PLEC and MYH9. Overexpression of miR-124-3p significantly decreased cell viability in SK-N-AS (80%) and SK-N-AScis24 (~25%) in vitro. Finally, miR-124-3p induced a dramatic reversion in SK-N-AScis24 from elongated S-type to N-type morphology of SK-N-AS.

**Conclusions:** Acquired resistance induces a dramatic shift in cellular morphology through dysregulation of cytoskeletal genes in a non-MNA neuroblastoma. We conclude that the neuron specific miR-124-3p can reverse this morphological transition through targeting key molecular determinants of cellular phenotype.

**CORRELATION BETWEEN ANTE MORTEM AND POST MORTEM DIAGNOSES IN A TERTIARY PAEDIATRIC INTENSIVE CARE UNIT, AN UPDATE.**

G. Nolan, S. O'Donnell, M. McDermott, M. Healy

**Background:** The post mortem (PM) is an important tool in confirming suspected, and identifying unexpected, diagnoses in patients who die while in paediatric intensive care units (PICU). Despite advances in diagnostic techniques, there remains a significant number of diagnoses made at autopsy.

**Aim:** To update a previous study that examined the correlation between ante mortem and post mortem diagnoses in patients who died in a tertiary PICU, with a desire to elucidate the evolution of diagnostic concordance.

**Methods:** The PICAnet database identified patients who underwent post mortem following their PICU discharge, July 2012 to December 2016 (adding to existing data from 2009 to 2012); with ante mortem diagnoses for each patient attained. Correlation was then made between this diagnosis and the final PM findings, with results recorded per the Goldman autopsy classification system. The rates of post mortem, both elective and Coroner-directed, were also noted.

**Results:** The dataset was updated with the assessment of a further seventy-eight PM reports, bringing the total to 126 patients. More recent figures demonstrated fewer new type I findings, 5.1 vs. 15.2% (accum. 8.7%, n=11). Type II findings accounted for 19.8% of results, while type III and IV findings were 24.6% (n=14 and n=17, respectively). There was complete concordance in diagnosis in 38.1% (n=48) of cases, and 8.7% (n=11) of results were inconclusive. The rate of post mortem has been consistent over the past eight years at 35.6% (p.a., mean).

**Conclusion:** This study demonstrates a reduction in new major diagnoses that may have impacted patient survival, while maintaining a similar overall ante to post mortem rate of diagnostic discrepancy. It highlights the ongoing importance of the PM as a diagnostic tool in the PICU.
A QUALITY IMPROVEMENT INITIATIVE FOR PHYSIOTHERAPY ON-CALL TRAINING IN OLCHC: 2016-2017
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Background: The Physiotherapy Department in OLCHC provides a 24/7 respiratory service to the hospital but largely the PICU’s. Traditionally, as part of ongoing competency and training, all Physiotherapy staff members who partake in the on-call rota complete:

- Mandatory yearly ‘On-call Competency Self-evaluation Questionnaire’
- Optional on-call training weeks throughout the year
- Optional attendance in PICU prior to their rostered weekend on-call
- Optional invitation to attend PICU with a Respiratory Physiotherapist if there is a particularly unstable patient on treatment

In 2016, due to the increasing complexity of PICU patients and the planned introduction of CORU, state registration for Chartered Physiotherapists, the Respiratory Physiotherapy team reviewed the on-call training process. In collaboration with the Physiotherapy Manager the decision was made to introduce regular mandatory assessments for on-call staff to replace the optional on-call training weeks.

Method: The Respiratory Physiotherapy team designed a toolkit for mandatory on-call competency assessments which included:

- an introductory information sheet
- a patient assessment form
- a reflective practice form
- a sample question sheet

From August 2016 to February 2017, each member of the Physiotherapy Department involved in on-call training completed mandatory training with a Respiratory Physiotherapist using the toolkit, on the week prior to their rostered weekend. Having completed training with all available staff members 13 anonymous ‘Mandatory On-call Training Feedback Questionnaires’ were sent to each member using Survey Monkey.

Results: There was a 100% response rate to questionnaires. Overall 85% of staff members were satisfied with the new on-call training method, with 85% feeling more confident and competent.

Conclusion: As a result of the feedback from the questionnaires, a new program for mandatory on-call training has been implemented in the Physiotherapy Department, with mandatory staff assessments using the toolkit prior to a rostered weekend.

ALLERGIC CONTACT DERMATITIS TO ALUMINIUM SALTS IN ROUTINE CHILDHOOD VACCINATIONS
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Background: Childhood immunisations are an essential component of an effective public health strategy. Local side effects such as redness and induration are common, due to local inflammation or haematoma formation. Aluminium phosphate or aluminium hydroxide are adjuvants frequently added to vaccines that potentiate the immune responses to an antigen and modulate it towards the desired immune responses. Aluminium sensitisation and contact allergy can occur after routine immunisation. The cases of five patients who developed varying reactions to the aluminium components of routine childhood vaccines are presented.

Methods: Patient 1 developed an erythematous nodule at the site of Bacille Calmette Guerin inoculation which resolved over months with some residual hyperpigmentation.
Patient 2 developed pruritus in the days following vaccination with the Measles Mumps Rubella (MMR) and Haemophilus influenza type B (HiB) immunisations at 13 months of age.
Patient 3 developed a sterile abscess with subsequent induration and hyperpigmentation following the 6 in 1 (DTaP, IPV, HiB, Hep B) and Pneumococcal conjugate vaccine (PCV) at four months of age.
Patient 4 developed a nodule on her thigh subsequent to her MMR and PCV vaccinations, with delayed itch and hyperpigmentation several months after the vaccine.
Patient 5 developed 3 sterile abscesses on her thighs following the 6 in 1 vaccination at six months, which resolved with indurated scarring.

Results: Patients were referred to various medical specialties including general practice, immunology, infectious diseases, dermatology, and general surgery. All patient received differing treatment regimens, including topical steroids. These patients are being followed up in light of the risk of antiperspirant allergy.

Conclusion: Allergy contact dermatitis to aluminium is uncommon as a complication of routine immunisation but must be considered in the differential diagnosis of post vaccination local reactions.
TOPICAL CIDOFOVIR FOR RECALCITRANT VIRAL SKIN LESIONS IN JACOBSEN SYNDROME
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Introduction Two cases of Jacobsen syndrome are presented to highlight the association with intractable cutaneous skin infections. Jacobsen syndrome is a rare congenital disorder caused by a deletion in 11q24.1. It is characterised by intellectual difficulties, a distinctive facies, and various medical problems including cardiac defects, bleeding diathesis (Paris Trouseau syndrome), and short stature. Combined immunodeficiency has recently been described in the syndrome. Diffuse cutaneous viral infections have not been widely reported.

Methods: Patient 1 was diagnosed with Jacobsen syndrome at the age of 4 years, with a history of ventricular septal defect, bilateral duplex kidneys, recurrent epistaxis, and developmental delay. She was referred to our immunology colleagues with a history of recurrent ear, chest, and skin infections, including a breast abscess. Extensive molluscum contagiosum was noted on initial assessment. She had a history of recurrent herpes labialis and viral warts.

Patient 2 was diagnosed with Jacobsen syndrome at the age of 18 months with a history of ventricular septal defect, thrombocytopaenia, and developmental delay. He was referred to our immunology colleagues with a history of recurrent ear, chest, and skin infections, including a breast abscess. Extensive molluscum contagiosum was noted on initial assessment. He had a history of recurrent viral warts on his hands but no other recurrent infections.

Results Patient 1 was prescribed valaciclovir and cotrimoxazole prophylaxis. Topical cantharone was applied to the molluscoid lesions, with a very slow response. Treatment with topical cidofovir was initiated with excellent effect.

Patient 2 was prescribed topical imiquimod 5%, with very poor response. Treatment with topical cidofovir has been initiated, with response awaited.

Conclusions Jacobsen syndrome is a rare chromosomal abnormality associated with dysmorphic features and variable degrees of immunodeficiency. Topical cantharone and imiquimod may not be useful in treating viral cutaneous infections in these patients. Cidofovir inhibits viral replication by selectively inhibiting viral DNA polymerases. Topical cidofovir, although extremely expensive, may be required for recalcitrant lesions.

OROFACIAL AND NAPKIN DERMATITIS AS MANIFESTATION OF ZINC DEFICIENCY IN A PREMATURE NEONATE
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Background: Zinc is an essential trace element involved in optimising immune function, wound healing and neurological development. It is transferred via the placenta in the last trimester of pregnancy, is carried by albumin, and is poorly stored, requiring regular intake. Signs of zinc deficiency in infancy include periorofacial and acral dermatitis, diarrhoea, behavioural change, and neurological disturbance.

Methods: A 19 week old infant (five weeks corrected) presented to the emergency department with an orofacial and perineal rash of one week duration.

He had a background of extreme prematurity, (25 weeks gestation). He had no history of total parenteral nutrition, no family history of zinc deficiency, and no family history of cystic fibrosis. He was exclusively breastfed since birth.

He had red crusted papules on his chin, cheeks, perinasal area, and suprapinnar fissures. Simultaneously, he had developed a symmetrical erosive dermatitis in his napkin area. There was associated ‘peeling paint’ desquamation and scrotal oedema. There was a sharp demarcation to the abnormal areas of the skin, with the neck, trunk, and limbs markedly spared.

He had a history of diarrhoea since meconium had been passed. A topical barrier ointment containing zinc oxide was used on the napkin area but not the face, and was associated with a significant improvement in that area. Zinc supplementation at 2mg/kg/day was empirically initiated. A dramatic and rapid improvement was noted within 48 hours.

Results: The serum zinc level was 0.8µmol/l (6.6-13.9), Alkaline Phosphatase 200 U/l (60-580). Skin biopsy demonstrated a striking confluent parakeratosis, absent granular layer, and mild epidermal hyperplasia, consistent with zinc deficiency.

Conclusion: Our patient was a premature, exclusively breastfed, male infant with chronic diarrhoea and acute orofacial and napkin dermatitis who had a remarkable recovery following zinc supplementation. Causes of hypozincaemia include acrodermatitis enteropathica, prematurity, hypoalbuminaemia, diarrhoea, and maternal mutations in mammary zinc transporters.
**IS LADD’S PROCEDURE NECESSARY AT THE TIME OF CONGENITAL DIAPHRAGMATIC HERNIA REPAIR?**

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**Background:** Bochdalek congenital diaphragmatic hernia (CDH) is thought to predispose to mesenteric rotational abnormalities. In 1990, Rescorla et al. reported a 2.9% risk of midgut volvulus (MGV) following CDH repair. The practice of assessing for rotational abnormalities and performing Ladd’s procedure at the time of CDH repair varies between surgeons. Our aim is to assess the risk of midgut volvulus in children after repair of CDH to determine if they would benefit from undergoing a concurrent Ladd’s procedure.

**Methods:** A retrospective review of the medical records of all children born with CDH between January 2006 and December 2015 and treated at two tertiary referral paediatric surgical centers was performed. Assessment of midgut rotation or concurrent Ladd’s procedure at the time of CDH repair was recorded. Patient charts were reviewed through January 2017 for the occurrence of MGV.

**Results:** Records were available for 135 patients at our institutions who survived to CDH repair during the study period. The orientation of the mesentery at time of initial CDH repair was documented in 65/135 (48.1%) patients; 23 with normal rotation and 42 with a rotational abnormality. 20/135 (14.8%) patients underwent Ladd’s procedure at the time of initial CDH repair. Of 115 patients who did not have initial Ladd’s procedure, 5 (4.3%) underwent Ladd’s procedure at a later date – 1 with suspected volvulus on contrast study but no volvulus at laparotomy, 3 at the time of CDH recurrence repair and 1 at the time of adhesiolysis for small bowel obstruction. No patient developed MGV during the study period. No patient who underwent initial Ladd’s procedure developed MGV or required subsequent adhesiolysis.

**Conclusions:** No patient developed MGV following CDH repair in our series. Concurrent Ladd’s procedure may not be necessary, regardless of the orientation of the mesentery.

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**ULCERATED HAEMANGIOMA IN THE PERINEUM - THE DUBLIN EXPERIENCE**

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**BACKGROUND**
Fifteen percent of infantile haemangiomas, which affect 1 in 10 newborns, will develop ulceration. This is a most challenging complication because of associated pain, bleeding, infection, scarring and severe parental distress. Perineal ulcerations pose a particular challenge because of their location.

**Method**
Patients were evaluated by regular out patient visits and frequent telephone contact. A retrospective review of ulcerated haemangioma in the perineum seen over a 5 year period was carried out and assessment of wound management was reflected in 3 representative cases. We compared our findings where possible with a previous department audit of ulcerated haemangioma from 2001-2008.

**Results**
Over 100 infants with ulcerated haemangioma were treated in the past 5 years. Meticulous wound care with pain management waterproof dressings, barrier creams and topical antibiotic when required was the mainstay of ulcer therapy. Mean healing time in our 3 cases was 9 weeks. There were no hospital admissions for ulcerated haemangioma in the period 2011-2016 compared with 15 admissions (205 hospital days) in the 2008 audit.

**Conclusion**
We have developed a wound management plan based on best practice and individual need. Optimal wound management of ulcerated haemangioma in the perineal area with dedicated Nursing care has lead to the elimination of hospital admissions for this most challenging cohort of patients.
RAPID DETECTION OF INFLUENZA A, INFLUENZA B AND RSV FROM NASOPHARYNGEAL ASPIRATES USING FOCUS SIMPLEXA FLU A/B & RSV DIRECT IN THE MICROBIOLOGY LABORATORY OF OLCHC.
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Background: Influenza and RSV are seasonal infections which predominate in the winter months. Children <2 years and those with comorbidities are at higher risk for hospitalization. Frequency of test requests for RSV and Influenza A & B increases at OLCHC at this time of year. These requests are referred from the Microbiology Laboratory at OLCHC to the National Virus Reference Laboratory (NVRL) for testing.

In December 2015, the Microbiology laboratory at OLCHC validated the real time RT-PCR Simplexa Flu A/B & RSV Direct assay system for the direct amplification, detection and differentiation of human influenza A (Flu A), human influenza B (Flu B) and RSV from nasopharyngeal aspirates. This assay is CE marked for the testing of nasopharyngeal swabs in Universal Transport Medium (UTM).

Method: For the 2015/2016 RSV Influenza A&B season we tested all nasopharyngeal aspirates from the Emergency Department, PICU and the Children’s Heart Center (CHC) which requested Influenza A & B and RSV. Samples were tested by Simplexa in the Microbiology laboratory of OLCHC and were also referred for testing by IFA and/or PCR to the NVRL. NVRL and Simplexa results were compared to evaluate Simplexa FluA/B & RSV performance in the detection of FluA/B & RSV from nasopharyngeal aspirates.

Results: 470/493 samples had the same result at both OLCHC and the NVRL. Of the remaining 23 samples, 3 samples tested negative by Simplexa RSV Flu A/B at OLCHC but were PCR positive for RSV, FluB and FluA respectively at the NVRL. The remaining 20 samples tested positive using the Simplexa RSV Flu A/B assay at OLCHC but tested negative at the NVRL for RSV, FluB and FluA. Discrepant results were found to be due to a number of reasons including delays in transport to the NVRL and the limitation of the Simplexa assay in the detection of dual infections. These discrepancies were addressed by OLCHC and the Simplexa assay was then deemed a suitable method of testing nasopharyngeal aspirates for FluA/B & RSV.

Conclusion: The Simplexa Flu A/B & RSV direct assay is suitable for the rapid detection of RSV, Influenza A and Influenza B in nasopharyngeal aspirates.

‘BESPOKE IT SKILLS FOR NURSING ON THE FRONTLINE’
Deborah O’ Grady and Fionnuala O’ Neill, Nursing Informatics Co-ordinator

Background
The purpose of this initiative is to focus a single resource on the frontline capability and capacity in the use of IT and develop this in the frontline nursing staff, whose role is to develop education/training packages which could include class room/workshop sessions and bespoke on the ground training in addition to a comprehensive suite of on-line learning tools for nursing staff within OLCHC.

Aims / Objectives:
1. Educate/train nursing staff in the use of technology and systems to support and monitor care delivery.
2. Assist in the use of technology around audit, metrics and research.
3. Facilitate staff in the use of IT applications - Test your Care, Report writing, database use, data collection and data analysis.
4. Facilitate front line staff in the use of technology to assist in the paperwork/administrative part of their role, duty rosters, and poster presentations. The capability and capacity of nursing staff’s IT skills will ensure nursing at the front line can be placed at the ‘bed space’ to carry out care needs.
5. Support and upskill nursing staff to transition to the NPH a digital hospital.

Methods:
1. Coordinator identifies the needs and requirements of staff in clinical areas
2. A database was created to capture the clinical area, staff grade, and specific IT skills training required-detailing dates of training, evaluation of training.
3. Access to instruction manuals, how to guides and troubleshooting guides to assist staff following training.

Outcome / Results:
- 25% of nurses have been trained in their clinical areas in IT skills
- Ability to create patient databases, posters for wards, audits, statistics, analyse data in a confident manner.
• Enables the nurse to keep track of and organise their files, documents, schedules and deadlines, which leads to better time management and productivity at the bedside.
• The ability to store large amounts of data on a computer is convenient and inexpensive, and saves space.
• Elimination of repetitive tasks.

Plan for sustainability/future plans:
It is expected based on the speed of new IT innovation that his process will be ongoing.

PATTERN OF BONY INVOLVEMENT IN AN IRISH COHORT WITH CHRONIC RECURRENT MULTIFOCAL OSTEOMYELITIS
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2. School of Medicine, UCD
3. National Centre for Paediatric Rheumatology, OLCHC

Background:
Chronic recurrent multifocal osteomyelitis (CRMO) is an auto-inflammatory condition primarily affecting children with an estimated prevalence of 1 per 10\(^6\) (OMIM 259680). It is characterized by relapsing episodes of localized bone inflammation. Since 2006, 43 patients have been diagnosed with CRMO at the National Centre for Paediatric Rheumatology (NCPR).

Aim: To describe the pattern of bone involvement in this cohort.

Methods: Retrospective chart review.

Results: The median age at diagnosis was 10.5 years (range 6.8-15.4 years) with a male-to-female ratio of 1:2.6. All patients underwent MRI imaging of the symptomatic region and 86% had whole body MRI performed. Bone biopsy was performed in 79% of patients with 17% requiring a repeat. Biopsy was indicated when one or more of the following circumstances occurred; diagnostic uncertainty following regional or whole body MRI, patient unable to receive contrast agent for MRI, or whole body MRI unavailable. The mean follow-up period was 5.05 years.

The distribution of 264 documented lesions was as follows: lower limb bones 46.2% (23.1% tibia, 10.6% femur), 23.1% axial skeleton primarily the vertebrae (17.8%), pelvic girdle 16%, shoulder girdle 6.8% (predominantly clavicular lesions), and upper limb lesions accounted for only 8%. Most patients (86%) had multifocal disease.

Conclusion: Long bones of the lower limb were most frequently affected which is in keeping with previous reports. The relatively high incidence of vertebral lesions is significant as these carry a risk of morbidity from vertebral collapse or fracture.

A RETROSPECTIVE AUDIT OF DIETETIC INTERVENTION FOR EATING DISORDER PATIENTS DURING 2015-2016.
Aoife O’Neill\(^1\) and Fiona Ward\(^2\)
University College Dublin\(^1\) & Department of Clinical Nutrition & Dietetics OLCHC\(^2\)

Background: The Junior Marsipan Guidelines provide guidance for the management of paediatric eating disorder patients. The guidelines recommend energy intakes 30-40kcal/kg and weight gain 0.5-1kg/week during the refeeding period. This audit evaluated whether patients who had dietetic intervention achieved the guideline’s recommendations.

Methods: The project was a retrospective audit of eating disorder patients referred for dietetic input in 2015 & 2016. The dietetics notes were reviewed to determine the prescribed and actual intakes for patients during the first 14 days of refeeding. Anthropometric data was collected to assess the effect of refeeding on patients’ weight change and BMI. An Excel database was created and analysed using descriptive statistics.

Results: Overall there was an upward trend for the prescribed and actual intakes but the actual intake remained persistently lower than prescribed intake. A paired T-test showed there was a statistically significant difference in intakes from Day1 to Day14 (p=0.001). At D1 56% of patients were meeting 20kcal/kg, this increased to 86% at D14. 25% of patients met 40kcal/kg at D1 and this increased to 40% at D14.

The mean weight change for the sample was 1.31kg (median 4.1kg). 29.41% met the recommended 1-2kg weight gain however 29.4% patients lost weight during the first 14 days. 3 patients were reported to be at high risk with %BMI <70% at D1, but only 1 patient was still <70% at D14.

Conclusions: There was a positive trend for intake and weight gain during the refeeding period however, less than half of the patients achieved the recommendations. It should be noted that there were 14 different dietitians managing 17 patients. The new MDT cross hospital guidelines will provide some consistency in achieving recommended intakes and weight gain, but without a dedicated dietitian as part of the core MDT it is difficult to be more aggressive in providing nutritional support.
‘CHILDREN’S NURSING GUIDELINES ON THE WEB’
Fionnuala O’Neill, Nurse Practice Development Coordinator
Our Lady’s Children’s Hospital, Crumlin, Dublin 12

Background ‘Children’s Nursing Guidelines on the web’
Nursing sick children has become more complex in the last number of years. Nursing Care is more specialised, with sicker children being nursed at ward level who would previously have been cared for in the Paediatric Intensive Care Units. Infants and Children are discharged with complex health needs that require significant nursing care interventions in the home. The Nurse Practice Committee in Our Lady’s Children’s Hospital has been in existence since the 1980s. It supports the nursing care delivered to infants and children by providing evidence based nursing guidelines, algorithms and parent education plans and parent information leaflets which assist with the standardisation of the nursing care infants and children receive both in hospital and when they are discharged home.

Aims/Objectives:
Nursing in OLCHC have shared nursing guidelines, careplans, and parent information on request from outside organisations for many years. With the improvements in technology and the ease of access to internet having Nursing Guidelines, Parent Information Leaflets and Nursing careplans available for parents and healthcare professionals to download seemed an appropriate next step.

In April 2015 Nursing placed all patient care related nursing documentation on the hospital website for parents and healthcare professionals to access, to extend the standardisation of nursing care.

Methods:
• Permission was sourced from the Director of Nursing and the Corporate Management Team to place all Nursing documents on the internet.
• Documents were placed on the internet in May 2015
• Survey monkey was utilised to audit the users opinions and views of the documents and their availability

Outcome/Results:
• OLCHC have circa 300 document on the hospital website with many more in the later stages of development
• Feedback from users using Survey Monkey is positive and used to make changes as appropriate

Plan for sustainability/future plans:
• Document management will continue into the future with revisions, updates, new and replacement documents determined by renewed evidence based practice.
• Monitoring of the site will continue to capture the needs of the children, families and healthcare professionals sourcing information
• Analysis of the ‘hits’ to the website shows at least 105 hits to the Nursing guidelines page per week highlighting the interest locally, nationally and internationally.
PICU FOUNDATION PROGRAMME: 10 YEARS OF LEARNING
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1Paediatric Intensive Care Unit (PICU), OLCHC, Dublin
2Centre of Children’s Nurse Education (CCNE), OLCHC, Dublin

Background: The PICU Foundation Programme, level 8 qualification on the National Framework of Qualifications (NFQ), began as a 6-month Continuous Professional Development (CPD) programme. It was developed in collaboration with the Centre of Children’s Nurse Education, PICU Education Team, Clinical Nurse Managers and staff from PICU and the Nurse Practice Development Unit based on a clinical need to advance nursing skills of novice nurses in PICU. The Foundation Programme evolved in 2013 with accreditation through UCD, awarding students 7.5 CPD credits and providing 5 credits towards the Level 9 Graduate Diploma in Paediatric Critical Care. The programme’s primary focus is the development of the participant’s critical thinking, problem-solving and decision-making skills through a combination of clinical support shifts, academic teaching, assessment and reflection in order to progress from novice to advanced beginner level in PICU.

Method: Demographic data and course evaluations were analysed from the PICU Foundation Programme commencement in 2007.

Results: 112 nurses from OLCHC, TSCUH and UCHG have completed the PICU Foundation Programme and 14 are on the current 2016-2017 programme. Of the 106 nurses who completed the programme in OLCHC, 54 nurses continue to work in PICU and 20% are working in promoted roles. 35.8% progressed onto the Graduate Diploma Paediatric Critical Care and a number of graduates have continued to further their education through Masters qualifications and undertaken research and audit projects. Many graduates have pursued specialist roles in CVVH, IPATS and ECMO. Throughout the 10 years the course continues to be positively evaluated.

Conclusion: The PICU Foundation Programme enables participants to develop a therapeutic and holistic approach to care of the critically ill child and their families. Over half of graduates have stayed in PICU and a third have undertaken Level 9 Graduate Diploma in Critical Care Nursing (Children’s) and many are in promoted and specialist roles in PICU.

AN AUDIT OF THE DIETETIC CARE OF PATIENT WITH TYPE 1 DIABETES COMPARED TO THE INTERNATIONAL SOCIETY FOR PAEDIATRIC AND ADOLESCENT DIABETES (ISPAD) GUIDELINES
Siobhán M. O’ Sullivan, Senior Dietitian, Our Lady’s Children’s Hospital, Crumlin.

Background: Optimal glycaemic control in children with Type 1 Diabetes is associated with reduced risk of complications and improved quality of life. Nutrition plays a key role in optimising glycaemic control with research showing that targeted dietetic care using evidence based guidelines can improve HbA1c levels. The International Society for Paediatric and Adolescent Diabetes (ISPAD) have identified 8 key areas necessary for the initial dietetic education and monitoring of children with Type 1 Diabetes. The aim of this audit was to compare the service provided in our centre to these guidelines.

Method: A retrospective review was completed on all patients who were newly diagnosed with Type 1 Diabetes in Crumlin Hospital in 2014. Patients were included if they received their initial education and follow up care exclusively in Crumlin Hospital. A review of dietetic notes was completed to collect data on initial dietetic education and follow up care and this was compared to the ISPAD recommendations. Data was input into an Excel spreadsheet and analysed to assess the percentage adherence to each recommendation.

Results: 18 patients met the inclusion criteria for the audit. Of these patients 100% received initial education from a paediatric dietitian; 69% were then reviewed within 1 month of diagnosis and 92% of these patients received more detailed education on this first review. Only 47% of patients were reviewed 2-4 times in the first year post diagnosis, with 67% receiving an annual assessment with the dietitian. An incidental finding was that a small number of patients had not received any dietetic follow up since diagnosis. 53% of patients required more frequent dietetic review for change in clinical condition and 94% of patients received individualised dietetic advice.

Conclusion: Initial education and follow up is largely compliant with ISPAD guidelines and most patients were found to receive individualised dietetic education. The main gap in our service identified by this audit is the lack of a structured follow up programme. More frequent dietetic follow up in the first year post diagnosis and a formal annual assessment with the dietitian for all patients with Type 1 Diabetes may help improve dietetic knowledge and, thereby, glycaemic control.
A REVIEW OF CHILDREN WHO HAVE ATTENDED THE HAEMATOLOGY/ONCOLOGY UNIT FOR A 10 YEAR PERIOD: 2006-2016
G.O’Toole, S Broderick, J Garland, P Lannon, M Mannion, C McCall, F McKenna, O. Quigley, A Ryan, Dr Capra, Dr Malone, Dr Owens, Dr Pears, Prof O’Marcaigh, Prof Smith
Our Lady’s Children’s Hospital, Crumlin

Background/Objectives:

Cancer is the leading cause of deaths amongst children worldwide, (National Cancer Institute, 2017). OLCHC, Dublin treats approximately 170 new children with cancer per year. This includes haematology and oncology malignancies. The review of the data highlights that whilst cancer in children is rare, improvements in treatments and the introduction of clinical trials have led to increased overall survival rates and event free survival.

Methods

The aim is to review the ten year incidence, type and survival rates of childhood malignancies in our attending population. All new, relapsed and deceased patients are documented within a haematology/oncology database. This database is compiled by haematology/oncology CNSp, and in conjunction with the data management department

Results

The number of children diagnosed with a primary cancer averages at 166.7 over a ten year period. Patient deaths over the past decade have been divided into Leukaemias and Oncology & other malignant Haematology. The average amount of deaths from Leukaemias is 7.7 per year. The average amount of deaths per year in Oncology and other malignant Haematology is 22 per year.

More clinical trials have been incorporated into the care of children with cancer. These are invaluable in ensuring gold standard treatment for our cohort of patients. It allows us to link internationally to ensure our children receive the best treatment available to improve cure and outcomes

Conclusion

The benefit of annual review of the number of children attending for treatment allows us to streamline services and identify trends in cancer diagnosis and treatments.

A REVIEW OF TYPE 1 DIABETES STRUCTURED EDUCATION PROGRAMME FOR SCHOOL TEACHERS AND SNA’S
Pebredo M., Cody D., Andrews L., Egan A., Corrigan L., Diabetes unit, OLCHC.

Background:

• The aim of this audit is to evaluate the effectiveness of a structured school education programme designed for teachers and special needs assistants (SNA) who look after children with Type 1 diabetes.
• It’s aim is to educate and empower teachers and SNA’s in a group setting to have confidence in managing the child’s diabetes.
• Previously school visits were conducted on the school premises which resulted in significant diabetes nurse specialist (DNS) time away from the unit. Each visit would take approximately 2.5 hours including travel time and education. This resulted in a programme of 2 hourly sessions being developed on site which started in September 2016.

Method:

• All participants completed an evaluation form on the effectiveness of the new programme and a retrospective analysis of the Diamond IT diabetes data base was also performed.
• A time comparison was made of the total number of school visits and hours spent off site from January 2015 - August 2016 and this was compared to hours spent and number of schools educated on site from Sept 2016- March 2017.

Results:

• From the evaluation results showed that 95% of attendees from 40 schools found the programme to be well organised, informative and relevant to their practice.
• Limitations identified were lack of dietetic and psychology input in the new programme.
• 42.5% more schools educated with new programme.
• DNS time spent away from unit was reduced by 84.1%.
• 40 schools educated on site in 7months compared to 42 in previous 20 months off site.

Conclusion:

The evaluation has been very positive. Delivering school education on site has significantly reduced DNS hours away from the unit and therefore utilising time more appropriately. Dietetic and psychology input will be included in the next school programme.
THE IMPACT OF SUPERVISED POLYSOMNOGRAPHY STUDIES ON PARENT SATISFACTION AND STUDY FAILURE RATE
Michelle Phelan, Mairead Ryan, Fiona Phelan, Rosie Doran, Laura Devlin, Prof Paul Mc Nally, Dr Sheila Javadvour, Dr Des Cox. Respiratory and Sleep department, OLCHC

Background: Sleep related breathing disorders are common in children and polysomnography is the gold standard test. Polysomnography is time consuming & labour intensive which requires supervision and analysis by a respiratory physiologist. We began to perform supervised polysomnography (PSG) studies on the surgical day unit (SDU) in November 2015. Prior to this we were performing unsupervised studies on in-patient wards and often we failed to get sufficient data for analysis. The primary aim of this study was to examine the satisfaction levels of the parents whose children are admitted on the SDU for supervised PSG studies. The secondary aim of the audit was to examine the failure rate of our PSG studies before and after we introduced supervised PSGs.

Method: A total of 40 parents filled out a parent/patient satisfaction survey. We examined 988 PSGs performed between 2014 and 2016 and analysed the number the failed studies.

Results: Out of 40 questionnaires completed, 92.5% rated their satisfaction with the sleep service as excellent. 97.5 % were very satisfied with the quality of care their child received. The most common way of improving the service was to alter the very early discharge time of 6 am.

In 2014 and 2015 when PSGs were performed unsupervised, the failure rate was 9.2% and 9.1% respectively. The failure rate decreased to 1.8% in 2016 when supervised PSGs were performed.

Conclusion: Overall, parents were very satisfied with the current model of our sleep service here at OLCHC. We noted a dramatic decrease in the number of failed studies as a result of performing supervised PSGs in the SDU.

We conclude that the ability to offer a supervised PSG leads to patient/parent satisfaction and provides superior quality data obviating the need for repeat studies to be performed.

INCIDENCE AND CLINICAL OUTCOMES FOR ULCERATIVE COLITIS PATIENTS WITH MUCOSAL ATROPHY IN THE NATIONAL CENTRE FOR PAEDIATRIC GASTROENTEROLOGY
Abigail M. Pilkington1, 2, Aoife M. Browne1, 2, Sheila Sugrue2, Alison O’Sullivan3, 4, 5, Sadhbh O’Neill3, 4, 5, Siobhain Kiernan3, 4, Mary Hamzawi3, 4, Karen O’Driscoll3, 4, Maureen O’Sullivan4, Michael McDermott5, Shaona Quinn3, 4, 6, Annemarie Broderick3, 4, 5, 6, Billy Bourke3, 4, 5, 7, Seamus Hussey3, 4, 5, 7, 8.

1Dublin Institute of Technology; 2Trinity College Dublin; 3National Centre For Paediatric Gastroenterology; 4Our Lady’s Children’s Hospital Crumlin; 5National Children’s Research Centre; 6Adelaide and Meath Hospital, inc National Children’s Hospital, Dublin; 7University College Dublin; 8Department of Paediatrics, Royal College of Surgeons in Ireland.

Background: Ulcerative colitis (UC) is a chronic inflammatory bowel disease (IBD) characterised by inflammation extending contiguously from the rectum proximally. Mucosal atrophy describes the destruction of crypts in the colonic mucosa. The aims of this study were to investigate the prevalence of mucosal atrophy in new-onset UC patients and its impact on clinical outcomes.

Methods: Determinants and Outcomes in Children and Adolescents with IBD (DOCHAS) is a prospective study into trends in incidence and outcomes for all Irish children newly diagnosed with IBD since 2012. Patients were diagnosed according to the Porto criteria. Mucosal atrophy was identified from histopathological reports accessed using the hospital patient information system. Patients were meticulously phenotyped using the Paris classification. Data was collected into case report forms and information was uploaded onto an electronic database. It was then analysed using SPSS.

Results: Of the 432 children recruited to the study a total of 158 were diagnosed with UC, of which 75 (47%) were male. The mean age at diagnosis was 11.94 with 23% being diagnosed before the age of 10. The median age of onset was 12 years for girls and 13.25 years for boys. 16 (10%) cases of mucosal atrophy were identified, of which 10 (63%) were male. 50% of atrophy cases had severe UC and by 5-year follow-up, one patient had a colectomy. On relapse, significantly (p=0.003) more atrophy cases (37%) were treated with immunomodulating therapy, compared to non-atrophy cases (8.9%). Similarly, significantly (p=0.03) more atrophy cases (18%) were treated with biologics, compared to non-atrophy (5%).

Conclusion: The gender distribution of paediatric UC patients in Ireland is even, however age of onset is earlier in females, and males showed a greater preponderance towards developing mucosal atrophy. Immunomodulators and biologics are more frequently used in atrophy cases. Further investigation into disease severity and outcomes are necessary to better understand the clinical significance of mucosal atrophy.
EVIDENCE BASED PRACTICE FOR CRITICAL CARE; HOW TO STRENGTHEN POSTOPERATIVE CARDIAC HANOVER
Denise Power, OLCHC, Crumlin

BACKGROUND:
It is the aim of this poster to examine ways in which to improve communication when receiving care of child post cardiac surgery. The post-operative cardiac patient has the most unstable physiology, effective communication is essential between various disciplines to provide optimal patient care. The transfer of a cardiac patient from the operating theatre to the intensive care unit is a highly complex process during which the patient continues to require complex treatment.

Method:
The following data bases were searched for the review of the literature: CINAHL Plus, Medline, Medscape Nurses, Med and Science Direct. The keywords used included PICU handover/handoff post cardiac surgery, paediatric intensive care and nursing handover.

Results:
Communication breakdown is a concern; following this ways to improve handover of the post-operative cardiac patient are identified. The handover process can be enhanced by using communication tools such as Formula 1 Pit-stop Handover protocol, Isbar3 Inter-departmental Handover to provide the patient with quality care from all disciplines. Incorporating techniques such as Isbar3 and checklists would provide standardised communication ensuring accurate information is handed over.

CONCLUSION:
In conclusion patient handover is a critical phase in the care of the post-operative cardiac patient. The use of standardised communication tools and checklists increase the quantity and quality of transmitted information.

SUCCESSFUL RESECTION OF A RAPIDLY DEVELOPING RIGHT ATRIAL MYXOMA IN A PATIENT WITH FAMILIAL CARNEY COMPLEX
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Background
Carney syndrome is a rare autosomal dominant inherited neoplastic condition characterised by atrial myxomas, buccal and cutaneous lentigines and non-cardiac neoplasia. The condition arises secondary to a mutation in the PRKAR1A gene. Successful surgical resection has been reported in several cases.

Objective
This case highlights successful surgical resection of a rapidly growing tumour including the atrial septum, where the tumour was anchored.

Methods
We report a case of a rapidly growing atrial myxoma in a patient with Carney Complex and review contemporary literature.

Results
A 14 year old young man with Carney syndrome initially presented to the clinic for screening for atrial myxoma. Three generations of family members were affected including the patients’ mother and grandmother who previously underwent surgical resection of a left atrial myxoma. Annual screening failed to detect any intracardiac lesion until the patient presented at 17 years of age with a massive right atrial myxoma (Image 1). The tumour measured 30 x 50mm. Surgical resection was undertaken via a median sternotomy (Image 2). Despite the rapid growth of the tumour the patient recovered well and is now asymptomatic.

Conclusion
In conclusion patients with Carney complex have the potential for rapid growth of an atrial myxoma. Coexistent tumours, and a high risk of recurrence. Close serial surveillance of patients with this condition is warranted.
THE USE OF MAGNETICALLY CONTROLLED GROWTH RODS (MGCR) AND TRADITIONAL GROWTH RODS (TGR) IN A PAEDIATRIC POPULATION
Mak H, Quidwai S, Redmond A; School of Medicine, Trinity College Dublin, Carroll P, McManus R, Hession K, Horton A, MacDonald K, Noel J, Kiely P; Our Lady’s Children’s Hospital Crumlin

BACKGROUND: We conducted a single-centre prospective study comparing patient experiences and clinical outcomes for MGCR and TGR in a paediatric scoliosis population.

METHOD: The MGCR sample comprised patients who had MAGEC rod insertion between 2014 and 2016. The TGR group comprised patients who had insertion of VEPTR, Shilla or Legacy rods between 2012 and 2013. We reviewed length of hospital stay, number of surgeries, number of distractions and surgical complication rates. We used questionnaires to determine patient-reported outcomes. We reviewed radiographs to measure curve correction using Cobb measurement, thoracic spine height (T1-T12), and T1-S1 height. A single independent observer measured all radiographs for standardization purposes.

RESULTS: We reviewed 47 patients, of whom 23 (48.9%) had MAGEC rods inserted, 7 (14.9%) were converted from TGR to MAGEC rods and 17 (36.2%) had TGR inserted. 28 (59.6%) of subjects were male and 19 (40.4%) were female. A significant proportion (51.06%) were children with complex medical needs. The mean number of open surgical procedures for the MAGEC rod cohort was 1.56, compared with 4.53 for the TGR group and 6.80 for those who converted from TGR to MAGEC rods. The average number of days spent in hospital was 10.69 for patients in the MAGEC rod cohort, 20 days for TGR group and 27.2 for the conversion group.

Of the MAGEC rod patients, 5 (21.7%) developed wound-related complications and 4 (17.4%) had respiratory complications. The TGR cohort showed 5 (29.4%) and 2 (11.8%) respectively. 10 (43.5%) MAGEC rod patients did not show any postoperative complications, compared to only 5 (19.4%) in TGR patients. 4 MAGEC patients underwent rod revision (17.4%) whereas only 9 (52.9%) of the TGR patients did. 2 TGR patients (11.8%) experienced postoperative rod fracture and breakage, while no rod failures were observed in the MAGEC group. We found that the sample size of the conversion cohort (7) too small for analysis of complications.

CONCLUSION: The use of MGCR reduces hospital stay and number of open surgical procedures. MGCR patients were less likely to develop postoperative complications or experience rod failure, demonstrating its potential to be an efficacious and patient friendly treatment.

HALO TRACTION; AN EDUCATION RESOURCE
Sinead Reilly, Orthopaedic Unit, OLCHC, Dublin

BACKGROUND: Halo Traction is an effective treatment used for both correction of spinal deformity and for immobilization of the spine. Halo traction can remain in situ for several weeks, during which the patient is able to be in a seated position, hence avoiding long term bedrest and the associated complications. Anecdotally healthcare professional who are in experienced with Halo traction have expressed concerns about caring for these children.

OBJECTIVES:

The objective of this project is threefold:

- To identify the nursing care priorities for children on halo traction
- To develop an educational tool for healthcare professionals and families
- To identify the experiences of the children in their own words.

METHOD: A literature review was conducted to identify the care priorities for this cohort. The care priorities identified in the literature were implemented for a cohort of three patients undergoing Halo Traction in summer 2016. They were asked to describe their feelings about Halo traction in writing.

RESULTS: Three categories were identified: care of the device, patient safety, and patient movement. These were collated and presented on poster format, along with a photographic sequence of moving a patient. This has since become an invaluable teaching and educational tool within the clinical environment for the healthcare professionals, patients and parents.

CONCLUSION: The project has promoted discussion about the needs of the children in Halo Traction and has streamlined the approaches to care to ensure children receive safe and consistent care. Children preparing to undergo Halo Traction, and their parents, have been able to access the poster to gain an understanding of what their experience is likely to be.
AN AUDIT TO DETERMINE THE IMPACT OF USING THE SURGICAL DAY UNIT (SDU) AT NIGHT WITH TWO EXTRA SLEEP PHYSIOLOGISTS TO PERFORM POLYSOMNOGRAPHY AT OLCHC BETWEEN 2015 AND 2016

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BACKGROUND: Sleep related breathing disorders (SRBD) are common and present in about 2-3% of children. They are associated with children who have chronic medical needs and are often associated with significant morbidity. In Ireland, it is estimated that there are approximately 10-30,000 children with OSA.

Awareness of SRBDs has been increasing and as a result, the number of referrals and demand for sleep studies has increased significantly over the last few years. The gold standard for diagnosing SRBD is polysomnography (PSG) performed and supervised by a respiratory physiologist.

At the end of 2015 the appointment of 2 WTE Respiratory / Sleep Physiologists enabled the Sleep Department to use the SDU at night to perform supervised polysomnography on patients to assess for SRBD. Previously we performed unsupervised studies on inpatient wards which was dependant on bed availability.

AIM: The aim of the audit was to determine the impact of using the Surgical Day Unit at night with two extra full time physiologists on Sleep Study waiting times and to review any increase in the number of patients being tested between the years 2015 and 2016.

METHOD: The number of polysomnography studies performed between January and December 2015 was compared with the number of polysomnography studies performed between January and December 2016.

RESULTS: In 2016, a total of 396 polysomnography studies were performed compared with 309 studies the previous year, representing a 28% increase in the number of studies performed. The waiting times for polysomnography studies has also decreased between 2015 and 2016.

CONCLUSION: The Sleep Service in OLCHC has evolved over the last few years with fully supervised PSG studies now performed on the SDU. The result has been an overwhelming success and there has been a significant decrease in the number of children waiting for polysomnography over the past year.

FAMILY RESILIENCE AND ADAPTIVE COPING IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS: A PROSPECTIVE STUDY.

Sophia Saetes & Prof. Brian McGuire, NUIG, Galway Dr. Line Caes, University of Stirling Elisabetta Palombella, Dr. Gillian Fortune, & Dr. Orla Killeen OLCHC, Dublin

Background: This study will investigate the resilience resources and mechanisms in families of children with chronic pain due to Juvenile Idiopathic Arthritis (JIA). The experience of chronic pain can add to the functional disability associated with JIA.

Methods: This is a two part study. The study population is a cohort of children with JIA aged 8-16 years, attending the paediatric rheumatology department in OLCHC.

The specific aim of this proposal (Part One) is to explore the role of family resilience processes in families of a child with JIA. Focusing on children diagnosed with JIA, we will conduct a qualitative study to identify particular resilience resources and mechanisms that are of importance for adaptive family adjustment to JIA.

The specific aim of this proposal (Part Two) is to explore the development of family resilience processes in families of a child with JIA over the period of one year. To explore how family resilience develops over time and during treatment, participants will be followed over a one year period. This will allow a comparison of family resiliency processes depending on time since diagnosis. Children with JIA and each member of their immediate family (i.e. parents and siblings) will be asked to complete online questionnaires three times a year (i.e. every four months) about optimism, benefit finding, and hope.

Results: It is anticipated that this study will help explain how resilience resources and mechanisms determine if the family unit experiences post-traumatic stress or post-traumatic growth. Preliminary research evidence suggests that these constructs may be related to good adjustment in various paediatric chronic illnesses.

Conclusion: Research has found that resilience has relevance to all areas of paediatric psychology, and targeted attention to child, sibling, and family strengths within the context of paediatric chronic pain and JIA will augment the field on numerous levels.
COMPLIANCE WITH OLCHC INSTITUTIONAL GUIDELINE FOR TREATMENT OF BRONCHIOLITIS IN 2015/2016
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BACKGROUND: Recent conclusive evidence has suggested that, contrary to previous limited evidence, there is no benefit to the use of 3% hypertonic saline in the treatment of bronchiolitis in infants. This led to a change in the OLCHC clinical guideline during the 2015/2016 bronchiolitis season. We hypothesised that the use of hypertonic saline in OLCH was preventing the use of other un-necessary treatments and that inappropriate prescribing would increase following the advice not to give hypertonic saline.

METHOD: Data on medical treatments and hospital outcomes were prospectively collected on all infants in the 2015/2016 season both before and after the change in guideline. Details of all medicines prescribed on the patients Medication Record particularly bronchodilators, antimicrobials and inhaled agents were collected. Patient demographics were collected from medical notes. Results were analysed using chi square and Mann Whitney in Excel® and Stata®.

RESULTS: 128 children (86 before, 42 after the change in guideline) were recruited to the study. Baseline demographics were similar except for a higher proportion of children with RSV in the pre-group. Overall guideline compliance was achieved by 2 infants pre, and 3 infants post guideline change (4%). The use of hypertonic saline decreased significantly after the change in guideline but did not cease (90% pre, 71% post p<0.01). Bronchodilators were used in one in 4 infants and antibiotics in one in 3 infants, and there was no significant difference in these rates before or after the change in guidelines.

CONCLUSION: Overall guideline compliance in children with bronchiolitis is poor. Hypertonic saline use decreased when the guideline changed but a significant portion of children before and after the guideline change received bronchodilators and antibiotics. It appears that it remains difficult to ‘do nothing’ for bronchiolitis, however poor clinical practice remains and education of clinical staff is necessary in this regard.

GROWTH AND NUTRITIONAL SUPPORT IN INFANTS WITH HYPOPLASTIC LEFT HEART SYNDROME (HLHS)
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BACKGROUND: Growth impairment in infants with HLHS is well documented. Meeting the nutritional requirements of neonates with HLHS can be particularly challenging as they undergo complex surgical palliation within the first few days of life. This audit is a retrospective study aiming to evaluate the nutritional status of infants with HLHS.

METHOD: Seventeen infants with single ventricle physiology were included. All underwent a surgical procedure (stage 1 Norwood procedure or other) as a neonate in OLCHC in 2016. Subject data collected included demographics, anthropometry, mode of feeding, nutritional intake and nutrition related complications. Weight for Age z scores (WAZ) were calculated using the World Health Organisation Standards.

RESULTS: WAZ <2 is a screening criterion for undernutrition. Mean birth WAZ was 0.06. Mean WAZ on discharge was -0.105 and prior to stage 2 surgery Bidirectional Glenn was -1.09. On discharge (median length of stay 31.5 days) post Norwood 25% of infants had a mean WAZ < -2. A paired sample T test demonstrated that the drop in mean WAZ from birth to discharge is statistically significant p value <0.001 (significance <0.05). The median number of days to any form of nutrition support (ANFS) was 5 and to first Enteral feed (EN) was 7. The median number of days to achieve basic energy requirements from EN was 18. Preoperative trophic feeds and parenteral nutrition were provided to 17.6% (3/17) and 29.4% (5/17) of infants respectively. The incidence of nutrition related complications, Vocal Chord Palsy and Chylothorax were 29% and 12% respectively. Tube feeding was required for 43.7% of infants on discharge.

CONCLUSIONS: Reaching nutrition goals is often complicated and delayed in the pre and post operative period. This is evident here with delays in time to ANFS and EN. Also time to achieve basic energy requirements from EN was 18 days.

Our results concur with the literature with the greatest decline in WAZ occurring in the neonatal period. A quarter of this group had a WAZ < -2 on discharge, whereas 2.3% of the normal healthy population would be expected to fall into this category. Nutrition guidelines should aim to minimise early nutritional defects which in turn may improve the nutritional status of this vulnerable group.
AN EXPLORATION OF THE RELATIONSHIP BETWEEN BMI AND PATIENT & TREATMENT-RELATED VARIABLES AMONG PAEDIATRIC DIABETES PATIENTS

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BACKGROUND: In Ireland, 1 in 4 children are now being classified as overweight or obese. Studies suggest that children with type 1 diabetes may be more likely to be overweight than their peers without the condition. As both type 1 diabetes and excess weight are associated with cardiovascular risk factors, the combination can significantly increase patient risk. The aim of this study was to compare rates of overweight and obesity from a sample of our clinic population with national averages; and to investigate the relationship between BMI and several patient and treatment-related variables.

METHOD: Data previously collected from patients attending Crumlin Hospital and participating in the SWEET study was reviewed. The most recent set of clinic data was selected for each patient (N=314); BMI was plotted using Child Growth Foundation BMI Charts and patients were categorised as “Healthy”, “Overweight” or “Obese”. Descriptive statistics were used to investigate the relationship between BMI and several patient and treatment-related variables.

RESULTS: Of the total study population, 73.25% of patients were classified as healthy weight, 16.25% as overweight and 10.5% as obese. Statistical analyses found no significant differences between “Healthy”, “Overweight”, or “Obese” patients in terms of age, sex, HbA1c, insulin treatment regimen, daily insulin units (per kg), or duration of diabetes. However, it was noted that there were higher rates of obesity in boys aged 6-12 years compared to girls and higher rates of overweight and obesity in girls aged 13-18 years compared to boys.

CONCLUSION: Overall rates of overweight and obesity among children with type 1 diabetes attending Crumlin hospital (26.75%) are comparable with national averages of ~25%. Although not significant, a higher BMI was noted in girls aged 13-18 years. This correlates with national data which identifies girls as having higher BMI than age matched boys. Intensive insulin therapy was not associated with increased rates of weight gain in our population. This data highlights the need to ensure that prevention of excess weight gain is part of overall diabetes management.

PERSPECTIVES OF NURSING STAFF ON THE ‘READINESS, ORAL SKILLS, SAFETY, EFFICIENCY’ (ROSE) FEEDING CHECKLIST: TOWARDS ESTABLISHING VALIDITY

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Introduction: Two speech and language therapists, in consultation with a Nurse Practice Development Unit, in an acute Irish paediatric hospital devised the ROSE Feeding Checklist; a screening tool for nurses to use with infants to determine readiness for feeding, feeding skill, and need for onward referral to speech and language therapy (Figure 1). The aims of this research are to 1) establish face, content and ecological validity of the ROSE Feeding Checklist from the perspective of nurses, 2) finalise the form prior to ward-based trials, 3) determine the format for training nurses in its use.

Materials & Methods: A qualitative survey method was adopted in this descriptive, prospective, single-centre research design. Nine nurses were recruited. Structured interviews were conducted individually. Sessions were audio recorded and transcribed verbatim. Content analysis was used to analyse the interview data.

Results: The majority of nurses welcomed the ROSE Feeding Checklist and commented on its potential for ease of use. They approved the form’s visual appearance. Most were satisfied with the content, but some noted concern that too much information was included, while others had suggestions for additional content. All nurses stated that the tool would be suitable on infant-specific wards and across paediatric hospital settings, but there was disagreement on its suitability on children-specific wards. In terms of training, there was a preference for a formal training programme, delivered through brief, ward-based sessions by a clinical nurse facilitator.

Conclusion: The ROSE Feeding Checklist represents a key development in the screening and overall management of feeding and swallowing problems in infants. Obtaining user feedback is critical to the validation process of test instruments. This is complete. Further validation, piloting, and design of training are required before it is publically available to nurses working in acute paediatric hospitals.
Objective and aims. Neonatal encephalopathy (NE) the leading cause of neurodevelopmental delay, epilepsy and cerebral palsy with a prevalence of 1·8-7·7 per 1000 live births. Epidemiological and experimental evidence suggests that pre-existing intrauterine infection and inflammation, involving for neutrophils and monocytes, are implicated in brain injury and subsequent cerebral palsy. Innate T lymphocytes are central to the initiation of inflammation and immunity, being able to respond and to promote the activation and regulation of neutrophils and monocytes. Innate T cells are rapid-acting T cells that recognize non-protein antigens without the need for major histocompatibility complex presentation. In this preliminary study, we compared the numbers and phenotypes of circulating CD4+, CD8+ and CD4 CD8- T cells, γδ T cells (Vδ1, Vδ2 and Vδ3 subsets), invariant natural killer T (iNKT) cells and mucosal-associated invariant T (MAIT) cells in 5 children aged 2-5 years who had NE requiring therapeutic hypothermia and 5 healthy age-matched control children and 5 neonates who had NE their age-matched controls.

Methods Whole blood was stained with monoclonal antibodies specific for CD3, CD4, CD8, CD56, CD19, CD161, the Va7.2 and Va24/α18 T cell receptors found on iNKT and MAIT cells, respectively, and the Vδ1, Vδ2 and Vδ3 T cell receptors and analysed by flow cytometry.

Results. The frequencies of T cells lacking CD4 and CD8 were significantly reduced in children who had NE, accounting for 7.6% of total T cells compared with 26.2% in control subjects (P=0.03), suggesting that innate or other unconventional T cells may be depleted in these patients. γδ T cell subsets and iNKT cells were found in similar numbers in patients and control subjects. However, MAIT cells were slightly depleted in patients, accounting for 1.1% of T cells compared to 3.0% in control subjects (P=0.06).

Conclusion. These data provide the first evidence that innate T cells may contribute to and/or protect against NE. Future analysis of larger numbers of children are required to understand the role of innate T cell immunity in persistent immune dysregulation in children who had NE.

PREVALENCE AND CLINICAL IMPACT OF LOW BODY MASS INDEX ON OUTCOMES IN PATIENTS WITH ADOLESCENT IDIOPATHIC SCOLIOSIS – A SYSTEMATIC REVIEW OF THE LITERATURE

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Background: Comparatively lower Body Mass Index (BMI) has been reported in patients with Adolescent Idiopathic Scoliosis (AIS) - a feature which may be an unrecognised symptom, or an organic consequence of the condition. Recent evidence points towards low BMI being a risk factor for scoliosis development. The primary aim of this systematic review is to investigate the relationship between low BMI and AIS. A secondary aim is to investigate the effect of low BMI on outcomes postsurgical correction in this patient group.

Methods: The Cochrane Library, PubMed, SCOPUS, Web of Science, and Ovid MEDLINE databases were searched up to December 2016 for relevant studies that reported prevalence of low preoperative BMI in patients with AIS and/or compared BMI between patients with AIS and healthy controls, as well as those that examined the relationship between low BMI and AIS. A secondary aim is to investigate the effect of low BMI on outcomes postsurgical correction in this patient group.

Results: Forty five eligible studies were identified from the search strategy. Mean differences (MDs) were used with 95% confidence intervals (CI) in a random effects model to compare BMI in patients with AIS and controls in a pooled analysis of data from 9 eligible studies (n = 3,747 patients). In the meta-analysis, BMI of patients in the AIS group was significantly lower than those in the control group (MD -1.19, 95% CI -1.78 to -0.60). This review demonstrates that low BMI in AIS can impact postoperative outcomes, including increased risks for gastro-intestinal conditions (e.g. ileus and pancreatitis), as well as being associated with reduced patient satisfaction with self-image.

Conclusion: This systematic review and meta-analysis – the first to examine the relationship between low BMI in AIS, demonstrates that patients with AIS are significantly more likely to have a low BMI compared to the general population. We advocate that closer attention be paid to AIS patients with low BMI both pre- and postsurgical correction.
APHERESIS VERSUS POOLED PLATELETS?
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Introduction:
This audit was undertaken to identify and compare the number of transfusion reactions caused by Pooled and Apheresis platelets in 2013, 2014 and 2015. This audit is a follow up on a previous audit comparing pooled versus apheresis platelets in the years 2005-2009. Since the introduction of Platelet Additive Solution (P.A.S) by the IBTS in July 2007, all pooled platelets are suspended in P.A.S. Apheresis platelets are single donor units suspended in donor plasma.

Objective:
- To determine if there is a significant difference in the incidence of platelet transfusion reactions as a result of either Pooled or Apheresis Platelets.
- To compare these results to the previous platelet audit and highlight if trends exist with platelet reactions and also the symptoms experienced by the patient.
- Feedback these results to clinicians to assist with best product choice for the individual patient.

Method: A retrospective audit was undertaken of the reported platelet transfusion reactions in 2013, 2014 and 2015 in OLCHC. The Blood Transfusion Laboratory database was accessed to verify the component details and platelet product type.

Results: In total, 3534 units of platelets were transfused over the three year period
  - 3043 units were Apheresis Platelets
  - 491 were Pooled Platelets.
  - 1.83% (n9) of pooled platelets, used during this period, caused reactions
  - 1.97 % (n60) of Apheresis Platelets used during this period, caused reactions
  - Of these reactions 27.5% were deemed reportable to the NHO: 95% (Apheresis platelets), 5% (pooled platelets)
  - National Haemovigilance Office Classification
    17 Anaphylaxis/Hypersensitivity
    2 Unclassified SAR.

Conclusion:
The results show that reactions to Pooled and Apheresis platelets group per % of product used were nearly equal. In comparison to data from previous audit for the years 2005-2009 which demonstrated that 0.75% of Apheresis platelets caused reactions, and 0.85% of pooled platelets suspended in PAS caused reactions. The results of this recent audit demonstrate an increase in the incidence of reactions to both pooled and Apheresis platelets. However, based on total amount of product used, Apheresis platelet reactions have resulted in three times as many reports to the National Haemovigilance Office in this period of time.

THE DEVELOPMENT OF A PROTOCOL FOR THE PROVISION OF AN INFANT MASSAGE PROGRAMME FOR INFANT-PARENT DYADS OF INFANTS WITH CONGENITAL HEART DISEASE
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Background: As surgical treatment for Congenital Heart Disease (CHD) is advancing, children born with CHD are experiencing longer life spans and for the most part, a better quality of life (QOL). However, research is now focusing on the neurodevelopmental implications of invasive medical procedures and noxious sensory stimulations, long term hospitalisations, recurrent handling, and constant interruptions to sleep patterns for this infant-population. Notably, early intervention is widely recognised as enhancing long term developmental outcomes in medically fragile infants, thus it is suggested that early access to developmentally supportive programmes for infants with CHD and their parents, may impact on longer-term neurodevelopmental outcomes. This study therefore aims to look at one potential developmentally supportive programme for infants with CHD and their parents, namely “Infant Massage” (IM), and to develop a protocol for its use with this infant population.

Method: Emphasis is placed on the analysis of the existing evidence base for the benefits, risk factors and/or contraindications for the use of infant massage with other infant-populations (e.g. preterm infants), and an exploration as to how this knowledge can be transferred to infants with CHD. Recommendations regarding specific limitations, precautions, and/or risk factors specifically related to the CHD infant population are outlined, together with appropriate adaptations/modifications that may be required to ensure infant safety.

Results: Based on best available evidence, a protocol is proposed for the provision of an infant massage programme for infants-parent dyads of infants with CHD.

Conclusion: It is hypothesised that the promotion of positive touch via the implementation of an Occupational Therapy led infant massage programme within the speciality of infant CHD will empower parents to handle their infant with confidence, encourage interaction and communication between infant-parent dyads, de-medicalise caregiving for a period of time, and promote closeness and father participation.
BLOOD GAS UTILISATION AT THE POINT-OF-CARE
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Background: The ability to decentralise blood sample testing from the laboratory, and move it to the point-of-care of patient has been available for quite some time. This allows for non-laboratory trained staff to perform analysis on a sample, with as little as 45µl of blood. Faster results, can potentially lead to earlier result driven clinical decisions, improved patient turnaround times and improved department efficiency. This is a national standard of care in Irish emergency medicine provision.

Objective: To quantify the utilization of blood gas investigations, and the resultant diversion of resources required by the ED, to attain gas results to best describe the improvement of service provided by the ED.

Method: At the initiation of this study no gas machine was available at the point of care in OLCHC emergency department. An initial prospective study was conducted with staff members, who logged when a blood gas required processing, along with the time and date taken. Upon returning the time was logged again. This provided accurate blood gas processing times. Which, could then be expressed in how much time was being spent away from the ED. Time that could be spent more resourcefully.

Results: 112.6 minutes was spent out of the ED in a 24hr period, processing samples prior to this report. Equating to 685 hours per annum. Once the sample is inserted in the ABL90 a result is produced in 35 seconds. Returning a total of 17 critical parameters from as little as 45µl. The maximum hours spent post implementation is 145.6 hours per annum. Adding a total of 539.4 hours per annum contributing to ED care.

Conclusion: The results made it clear that staff time was not being used efficiently, in relation to blood gas analysis. Bringing the blood gas analysis process to the ED has resulted in improved efficiency, as well as achieving a core standard of emergency care.

DOES A REMINDER LETTER IMPROVE COMPLIANCE IN CARRYING ADRENALINE AUTOINJECTORS?
CLOSING THE AUDIT LOOP
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Background
We recently audited quality of allergy emergency readiness amongst those previously trained in our clinic. Unacceptable numbers of patients were found not to be carrying adrenaline autoinjector devices (AAIs) when attending clinic. There was an association noted between length of time since receiving training and carrying AAIs. Lack of awareness of AAI expiry date and brand name was also noted. Based on these results, we hypothesised that a reminder letter, reinforcing the importance of carrying AAIs, would improve compliance. We assessed the effect of the letter in this audit to close the audit loop.

Method
114 reminder letters were sent to patients previously prescribed AAIs. On return to clinic, the doctor completed an amended version of the questionnaire used in the first audit.

Results
72 patients completed the questionnaire. 5 had not received the letter. The remainder did not attend clinic (n=12), clinic appointment cancelled (n=13), did not complete the questionnaire (n=10). 80.5% stated that receiving the letter reinforced the importance of carrying AAIs. 55/72 were carrying at least 1 device in clinic with 52/72 carrying 2 AAIs. This compares with 35/50 and 32/50 respectively in the first audit cycle (p=0.43). 50% reported the letter motivated them to check their devices expiry date. 63/72 correctly reported the expiry date of their device compared with 31/50 in the first audit cycle p<0.1. A significantly higher number of parents could name their device (69/72 v 35/50 p<0.01).

Conclusion
A reminder letter has limited effect on improving anaphylaxis readiness by prompting increased familiarity with the device. Despite many claims that receipt of a letter reinforced the importance of carrying at all times, this did not translate into practice for all patients. Further strategies are needed to improve the compliance of patients carrying AAIs at all times as per international guidelines.
AUDIT OF 22Q11.2 DELETION SYNDROME PATIENTS TO FACILITATE FUTURE MULTIDISCIPLINARY MANAGEMENT
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Background: 22q11.2 deletion syndrome (22q11DS) is the most common autosomal microdeletion syndrome with an estimated birth incidence of 1 in 3000. Given the multisystem nature of the disorder a multidisciplinary approach is recommended. To facilitate plans for a multidisciplinary input we collated data on 22q11.2DS patients known to Clinical Genetics services.

Method: 22q11DS patients were identified by searching the OLCHC Genetics databases. Cytogenetic reports were reviewed to confirm diagnosis by FISH or microarray. Clinical genetics records were reviewed to collate clinical information.

Results: 189 22q11DS patients were identified. 15% had inherited the deletion from an affected parent. The male:female ratio was equal. Age at diagnosis ranged from antenatal to adulthood. Over 50% had a congenital heart defect (CHD), including right sided aortic arch, interrupted aortic arch, tetralogy of fallot, truncus arteriosis and pulmonary atresia. CHD represented the main reason for referral in the neonatal period. Palatal issues such as cleft palate, submucosal cleft, velopharyngeal insufficiency were common indicators for testing in early childhood. Developmental delay and speech delay were common in childhood diagnoses. Immune issues such as absent thymus, thymic aplasia and recurrent infections were noted for a significant number of patients. Approximately 1 in 3 patients had not been referred to Genetic services.

Conclusions: We aimed to set up a database of 22q11DS patients in Ireland to support plans for a multidisciplinary approach to patient management. Further collaboration with cleft services is planned to expand the database further. Referral to Genetic services is recommended to facilitate parental testing, recurrence risk assessment and cascade testing within families where appropriate.

ECMO – HOME OR AWAY?
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Background
Despite over ten years of proven excellence in extra-corporeal life support (ECLS) to support our cardiac surgical programme, OLCHC does not currently receive any funding to provide ECLS to children with respiratory failure. As a consequence, an average of 7 critically unwell Irish children a year are expatriated overseas for a therapy that could be provided here. Most of these children are commenced on ECLS in Crumlin and may wait up to 3 days prior to retrieval and expatriation, meaning that significant financial expense is already being incurred by this institution, especially as the first few hours of ECLS support account for a disproportionate fraction of the overall cost. In addition to the financial cost, there are significant human, emotional and potential safety implications of the current situation.

Methods & Results
Interrogation of routinely collected computerised critical care data, and freedom of information requests to the department of health. This audit of ICU admissions was combined with a prospective real-time audit of one such case. Information collected on costs accrued in a 24 hour period showed that the cost for consumables alone amounts to nearly 1000 euro per day.

Extrapolating from the trends here over the last five years, and by comparing with equivalent international populations, we robustly estimate the additional PICU bed capacity needed to deliver a fully resourced respiratory ECMO programme. We provide a detailed costing for this in terms of capital expenditure, additional staffing requirements, pharmacy and blood products, and ongoing maintenance and training commitments.

Conclusion
We project the cost to the state of purchasing respiratory ECLS for children abroad at 10 million euro over the next five years. By comparison, investment of 7 million euro over the same period would expand the current ECMO service in Crumlin to care for critically ill children in this country.
DEVELOPING A GUIDELINE FOR MEDICINES AND ENTERAL FEEDING TUBES FOR OUR LADY’S CHILDREN’S HOSPITAL CRUMLIN
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Background: The use of enteral feeding tubes (EFTs) as a means of drug administration is becoming increasingly common. To date there has been no formal guidance document relating to administration of medicine via EFTs in OLCHC. A need for clear information and for the institution to have a guidance policy that supports the safe practice of using medicines off-label/unlicensed, underpins the rationale for this project. Administration of drugs via EFTs is generally outside the marketing authorisation for the product i.e. unlicensed.

Aim:
1. To establish clear guidance on:
   a. How to administer medicines via an enteral feeding tube.
   b. Which medicines can be administered via trans-pyloric feeding tube.
2. To ensure that adequate and unambiguous information is available to healthcare professionals with respect to administering medicines via EFTs and that patients when fed enterally receive medicines correctly and safely.

Method: A literature review, on PubMed was conducted. Information and guidance was sought from other healthcare institutions, informing current practise around medicines and EFTs. Flow charts were designed to assist with preparation of dosage forms and administration of medicines, and a comprehensive guidance document was developed. Consultation and feedback from other health care professionals was sought and included in the guideline.

Results: This is the first guidance document dealing with medicines and enteral feeding tubes in OLCHC. The document represents a qualitative improvement in that it provides clear directions regarding medicines and EFTs. The inclusion of flow charts provides a visual aid and a tool to improve the process of medicines preparation and administration.

Conclusion: This guideline has been submitted for approval and authorisation, and following this will be made available on the intranet. Adherence to the guideline should be monitored and audited.

AUDIT OF OUT OF HOURS PHARMACY FORMS OVER THE CHRISTMAS HOLIDAY PERIOD AT OUR LADY’S CHILDREN’S HOSPITAL CRUMLIN
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Background: Medicines required by wards and clinical areas outside Pharmacy Department working hours 08:30 to 17:00 are sourced and dispensed by nursing administration staff. An ‘Out of Hours Pharmacy Form’ is completed by ward staff and medicines issued from the Pharmacy Department. To assess if this system is working satisfactorily for stakeholders an audit of ‘Out of Hours Pharmacy Forms’ was undertaken.

Aim: The aim of this project was to establish:
1. The out of hours requirements for medicines in OLCHC during a holiday period
2. If the ‘Out of Hours Pharmacy Form’ was fit for purpose or requires improvement

Method: ‘Out of Hours Pharmacy Forms’ were collected and audited from 31/12/2016 to 09/01/2017. Information extracted from forms included: date, time, ward/clinical area, patient status, class of medicine required, need for medicine and any additional comments by ward pharmacist. Data was collated and analysed on Excel and Prism Graphpad.

Results: During the audit period a total of 49 ‘Out of Hours Pharmacy Forms’ were submitted. From the medications requested 49% were for existing patients and 51% were for new patients. The class of drug most frequently requested was Antibiotics/Anti-infectives (41%). The areas that required most medicines were PICU1 (20%) and PICU2 (14%). 26% were stock items and 73% were non-stock items.

Most request forms were dispensed between 17:00-23:59 (43%). 92% of forms were dispensed on the weekend or on a holiday. Of the 10 day period examined 6 days were holidays or weekend days.

Conclusion: ‘Out of Hours Pharmacy Forms’ require regular auditing to assess medicine usage and traffic to the Pharmacy Department. Recommendations have been made to redesign the ‘Out of Hours Pharmacy Form’, to provide clear instruction to staff for the use of the new form, in order to save resources for staff.
FETAL VALPROATE SYNDROME: THE IRISH EXPERIENCE
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Background: Fetal Valproate Syndrome was first described in 1984. Valproic acid crosses the placenta and can potentially lead to major congenital malformation, dysmorphism and neurodevelopmental disorder.

Objective: The aim of this study is to publish the outcome of the VPA exposure in utero in the Irish population.

Methods: A retrospective study of 29 cases of FVS diagnosed by geneticists from 1995-2016. The cases were diagnosed and selected based on fetal anticonvulsant syndrome criteria.

Results: A total of 29 cases reported in the last 21 years. Typical features commonly described are prominent metopic ridge, midface hypoplasia, epicanthic folds, micrognathia, broad and flat nasal bridge. 13.7% had cleft palate, 10% had neural tube defect, 13.7% with cardiac malformation, 52% experienced developmental delay (in which 40% had speech delay), 38% with limb defects, 13.7% reported with neurodevelopmental disorder and 7% had hypospadias.

Conclusion: FVS is still seen in the Irish population despite the knowledge of VPA teratogenicity established over 30 years ago. There is a collective responsibility to create the public and professional awareness regarding the teratogenic effects of VPA. VPA not only cause congenital malformation but it does affect the cognitive function of the child and caused neurodevelopmental disorder. With emergence of new anticonvulsant drugs that are less teratogenic and more effective, we hope not to diagnose FVS in the future.

Typical features of FVS: midface hypoplasia,long philtrum,broad and flat nasal bridge,thin upper lip and round face (picture used with permission)
NOTES:
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