P274 DELIBERATE PRACTICE MAKES PERFECT: REGULAR 30 MIN LOW-FI SIMULATION-BASED RESUSCITATION PRACTICE IMPROVES NCHD CONFIDENCE, TECHNICAL AND NON-TECHNICAL SKILLS IN PAEDIATRIC EMERGENCIES

Heather Cary*, Irena Christol. *Sligo University Hospital, Sligo, Ireland*

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Introduction Simulation is a method of teaching and continuing education that is particularly well suited to fields that experience infrequent but high-stakes events, of which paediatric medicine is an excellent example. In this study, we created a simulation-based multidisciplinary continuing education intervention and measured its effect on paediatric NCHD's perceived performance in the areas of technical and nontechnical skills as well as confidence, self-efficacy and participant satisfaction.

Aims & objectives The aim of the project was to determine if frequent practice of paediatric emergency situations with low-fi mannequins and a tablet based 'monitor' improves staff knowledge, technical and nontechnical skills as well as confidence and self-efficacy.

Methodology The intervention took the form of weekly planned 30 min teaching sessions that rotated between the Paediatric ward, Emergency Department, and Maternity ward. The format of these teaching sessions was immersive simulation in the form of APLS or NRP moulages using simple plastic mannequins and a tablet monitor controlled by the examiner's phone.

The effects of the intervention were measured using a pre- and post-intervention questionnaires assessing paediatric NCHD's perceived performance in the areas of technical skills (e.g. intubation) and non-technical skills (e.g. situational awareness) as well as confidence and self-efficacy. The questionnaires also addressed attitudes to simulation in general and this intervention in particular (ie participant satisfaction). Pre-intervention n=5, post-intervention n=10; scores were compared using Wilcoxin Signed-Ranks.

Results There was no difference between pre and post intervention attitudes to the importance of knowledge, technical and non-technical skills, and the opportunity for practice however these were all very highly rated prior to the intervention. No significant difference was found between pre and post intervention self-rated confidence, technical, nontechnical skills, nor was there a difference in self-rated performance in the most recent resuscitation performed. 100% of participants either agreed or strongly agreed that the intervention improved their clinical knowledge, situation awareness, team working, communication and confidence. 89% of participants either agreed or strongly agreed that the intervention improved their technical and nontechnical skills, decision making and leadership. The most frequently occurring negative feedback in 89% of participants was that they would have liked more frequent simulation sessions.

Conclusion It is likely the small sample size and reliance on non-parametric tests contributed to the lack of significant results. The intervention was highly popular with participants who described a subjective improvement in clinical knowledge, confidence, situational awareness and technical and nontechnical skills following the simulation sessions.

P275 AN AUDIT OF DOCUMENTATION AND OUTCOMES IN PAEDIATRIC EMERGENCY DEPARTMENT PRESENTATIONS OF LOWER RESPIRATORY TRACT INFECTIONS

¹Allison Clark*, ²Turlough Bolger. ¹Trinity College Dublin, Dublin, Ireland; ²Paediatric Emergency Department, National Children's Hospital, Dublin, Ireland

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Introduction Lower respiratory infections are a common Paediatric ED presentation. It is important to use resources efficiently in the ED to ensure that those children requiring admission or discharge can be readily identified. We studied the documentation in the medical notes of history, examination and risk factors to assess whether this resulted in appropriate outcomes for patients.

Methods We performed a sequential audit of lower respiratory tract infection presentations to a Paediatric ED using our electronic patient record. We identified 333 presentations over a 6 month period. This includes 316 different patients, as 17 different patients had multiple presentations to the ED for similar symptoms and were subsequently diagnosed with LRTI. **Results** Symptoms were evident for an average of 7.48 days (0.5 to 120 days). Patients referred to ED by a doctor in 58% (194/333). Prior treatment, such as inhalers or antibiotic medications was given in 51% of cases (171/333). Risk factors identified for LRTI included history of asthma (55/333), previous admission for a respiratory infection (84/333), preterm birth less than 34 weeks gestation (8/333), previous invasive positive pressure ventilation (10/333), developmental delay/PEG feedings (8/333), and history of immunodeficiency disease (0/333).

Documentation of history of presenting symptoms consistent with LRTI were cough (315/333), fever (235/333), and sputum (98/333).

Documentation of the examination findings included respiratory rate only 79% (264/333), oxygen saturation only 49% (162/333), and evidence of work of breathing in 86% (296/333). 251 (75%) chest x-rays were completed while in the ED.

Overall, 126/333 patients (38%) were admitted. Looking at subgroups who should predict admission, 74/194 (38%) of GP referrals, those requiring x-ray 112/251 (44%), those who had both fever and sputum present 19/52 (37%), and short duration of symptoms 109/207 (40%) required admission.

Discussion Our documentation of history and examination was generally poor ranging from 49–95%. None of the examined admission risk factors predicted admission suggesting that the clinical formulation and utilisation of resources was haphazard.

P276 THREE CASES OF COMPLICATED BACTERIAL SINUSITIS IN OLDER CHILDREN

Laura Reaney*, Nandini Kandamany. *Temple Street Children's University Hospital, Dublin 1, Ireland*

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Aims The paranasal sinuses are a common site of infection in children and adolescents. While these are usually viral respiratory infections, a small percentage can be complicated by secondary bacterial infection which can give rise to potentially serious complications. Three cases of complicated bacterial

sinusitis presented to Temple Street Emergency Department in September 2018. We carried out a case series detailing their presentations, clinical courses and outcomes, and discussed the identification and management of complications of bacterial sinusitis.

Methods Three cases of complicated sinusitis from September 2018 were selected from the emergency department admissions record. Their medical records including lab results and imaging reports were reviewed and comparisons between the three cases were made.

Results The three cases, all male, were aged 14, 11 and 11. All three had had preceding symptoms of coryza, pyrexia and headache. One developed neck pain and vomiting and was initially thought to have meningitis. CT brain revealed left sided sinusitis with an extradural abscess. The other two patients were initially treated as orbital cellulitis. One was transferred from a peripheral hospital, where he had presented with eye swelling and pain, after he developed diplopia and frontal bone swelling. CT showed pansinusitis with a right sided frontal osteomyelitis and a subperiosteal collection in keeping with Pott's puffy tumour. The other presented with eye swelling and pain; CT showed pansinusitis with an extradural empyema. All three patients had markedly raised inflammatory markers on presentation. All required prolonged courses of IV antibiotics. All three had neurosurgery and ENT involvement, the cases of orbital cellulitis had daily ophthalmology reviews. Two had FESS procedures with drainage of their abscess.

Conclusion These three cases demonstrate the potential for bacterial sinusitis to cause serious complications. It is important for the clinician to bear these complications in mind when evaluating the child with rhinosinusitis and to consider imaging when there is a clinical suspicion. Speciality involvement is vital in the management of complicated sinusitis. There is a role for the development of a national clinical guideline pertaining to the management of bacterial sinusitis in the paediatric population.

P277 THE PREVALENCE OF BACTERIAL INFECTION IN RECENTLY VACCINATED FEBRILE INFANTS

Ali Raba, Ibraheem Krebit*. *Paediatric Emergency Department, Tallaght University Hospital, Dublin, Ireland*

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Background and aims Evidence is lacking regarding the best approach to evaluating recently vaccinated infants younger than 3 months who present to emergency department (ED) with fever. There have not been any recent published studies assessing the prevalence of bacterial infections in this population. The aim of the present study is to investigate the prevalence of bacterial infections in young infants presenting with fever within 72 hours after vaccination.

Methods We reviewed the electronic medical records of infants aged between 6–12 weeks who presented with a fever $>38^{\circ}\text{C}$ to paediatric ED, Tallaght University Hospital, Dublin, from January 2018 to December 2018. Febrile infants who recently vaccinated within 72 hours prior to ED presentation were compared with those who did not recently vaccinated. Bacterial infection was diagnosed based on culture results (urine or blood or CSF).

Results A total of 70 infants (age: 8.8 ± 1.9 weeks, male: 40 (57.1%)) were enrolled in this study. Among 70 infants, 19 (27.1%) had recently vaccinated, of whom 11 (57.9%) presented to ED within 24 hours of vaccination, 7 (36.8%) presented 24–48 hours after vaccination and 1 (5.3%) presented 48–72 hours after vaccination. The prevalence of bacterial infection in non-recently vaccinated infants was 17.6% compared to 10.5% in recently vaccinated infants. Interestingly, all vaccinated infants who had bacterial infections were presented to ED with fever within 24 hours of vaccination and all bacterial infections in this group were urinary tract infection (UTI).

Conclusion Fever should not be attributed only to the vaccinations in young Infants who present to paediatric ED with fever after recent vaccination. All febrile recently vaccinated infants should be carefully evaluated and at least urine testing should be done regardless of the time of vaccination after the presentation.

P278 IMPROVING THE QUALITY OF ACUTE AND INPATIENT MANAGEMENT OF PAEDIATRIC ANAPHYLAXIS THROUGH THE SIMULATION OF INTRAMUSCULAR ADRENALINE ADMINISTRATION

Nicholas Richens*, Benjamin Miguras, Fathima Zahir. *Sandwell and West Birmingham Hospitals NHS Trust, Birmingham, UK*

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Background The use of intramuscular adrenaline in the acute treatment of paediatric anaphylaxis is well-established and the effectiveness of adrenaline administration is time-dependent. The incidence of anaphylaxis presentations to paediatric emergency departments is increasing, as is the use of adrenaline autoinjectors in the pre-hospital setting. Cost and supply challenges have reduced UK inpatient adrenaline autoinjector usage without evidenced complication and this has resulted in alternative methods of intramuscular adrenaline administration in the acute setting.

Methods In this study we compare the time intervals between anaphylaxis diagnosis and IM adrenaline administration in a low-fidelity simulation of a biphasic type 1 hypersensitivity reaction, repeated across two UK paediatric centres. Time from diagnosis to administration were compared for existing adrenaline emergency kits and adrenaline autoinjectors placed in resuscitation trolleys, the method being alternated as a control for the second reaction phase. Performance was compared across locations stocking paediatric resuscitation equipment where paediatric anaphylaxis presentations were considered most likely. This included two paediatric emergency departments, two paediatric admission units, an allergy investigation unit, and a paediatric inpatient ward. Additional data was obtained on nursing staff satisfaction with these methods and their familiarity with the preparation of intramuscular adrenaline injections.

Results This study demonstrated significantly ($p < 0.05$, $n = 24$ trials) prolonged administration times using adrenaline emergency kits. Causes for this delay included time required to access controlled-drug storage units, time required to obtain injection equipment, and staff familiarity with the preparation of IM adrenaline syringes. In addition, autoinjector usage of adrenaline was universally favoured by clinical staff for use in the emergency setting.