acquired pneumonia (CAP) was created following its national audit in 2016. Improvement areas include reducing the number of unnecessary investigations and the use of oral over intravenous (IV) antibiotics. Local data collected between January–October 2020, followed a similar over-investigation and treatment pattern. We describe a project carried out between October and December 2020 to identify areas for improvement, implement and test changes using improvement methodology.

Objectives To improve care for children presenting to the Children’s Emergency Department (CED) with CAP over a 3 month period by following the BTS guidelines: Measured by a reduction in:

- Blood tests from 37% to 27%
- CXR from 45% to 35%
- Use of IV antibiotics from 20% to 15%
- Children seen for follow-up from 9% to 3%

Methods The project was divided into two parts.

(Part 1) Baseline data was collected retrospectively from January 2020 to October 2020 using the e-audit feature on the Symphony program. Children over 1 year of age with a primary diagnosis of CAP or Lower respiratory tract infection (LRTI) who presented to CED were included. This data was used to determine the frequency of blood tests, CXR, IV antibiotics and follow-up being done at our hospital.

(Part 2) The improvement project utilized the Institute for Healthcare Improvement (IHI) model for improvement methodology. We initially presented baseline data to staff working in CED. This raised awareness around BTS guidelines and resulted in suggestions for first tests of change: teaching sessions with junior doctors around CAP and its management, a survey to judge current knowledge of CAP and BTS guidelines. Throughout the project we measured data to track the impact of interventions. We continued to engage the team with weekly updates regarding the project in CED bulletin, including sharing the data and celebrating successes. During the course of the project, a local guideline was also made for the assessment, investigation and management of CAP. This is now being adopted regionally.

Results Data was plotted on run charts but has yet to show any change. However given the timing of interventions there has not yet been adequate time see any signals of non-random variation. Additionally coronavirus has had an impact on number and type of patient admissions.

Conclusions The Covid-19 pandemic and the lockdown has greatly reduced the number of CED admissions with CAP/LRTI. This might be why we have not been able to demonstrate significant change in the approach to managing patients with CAP. However, this QI project successfully involved and educated various staff in the approach to management of patients with CAP. The interest shown by clinical staff has led to the development of a local guideline around management of CAP, which will soon be disseminated deanery wide.

The pandemic has also affected the daily working of CED which led to initial difficulties in staff engagement and teaching. Now, with a gradual return to usual activities it might be worthwhile to extend the project and look for further improvement particularly following implementation of new guideline.

### Paediatric Critical Care Society

**1435 RAPID EXOME SEQUENCING IN ACUTELY UNWELL CHILDREN – PROVIDING NEW DIAGNOSTIC OPTIONS IN INTENSIVE CARE SETTINGS**

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**Background** Rapid exome and genome sequencing in acutely unwell children has become increasing available worldwide over the last five years. The diagnostic rate is variable; however most relevant literature highlights the importance of the effect of a genetic diagnosis on the management in acute neonatal (NICU) and paediatric intensive care (PICU) settings.

NHS England published the National Genomic Test Directory (NTD) to integrate and embed genomic testing into mainstream medicine. The test directory lists genetic testing for different disorders and ‘R14’ was allocated to the rapid exome sequencing service for acutely unwell babies and children with a potentially monogenic disorder. R14 service was launched by NHS England on 1st October 2019.

The service is delivered by the Exeter Genomics Laboratory, South West Genomic Laboratory Hub, running in collaboration with clinical genetics units. The main aims are to provide rapid genetic diagnosis to influence acute management and provide equity of access.

**Objectives** This study is a retrospective service evaluation and analysis of all cases recruited during the first year of the R14 service in England from 1st October 2019 until 30th September 2020. The primary and secondary outcomes focus on assessing turn-around-time (TAT), diagnostic rate and management impact of a rapid genetic diagnosis.

**Methods** A standardised proforma was created and eligible patients were identified through the electronic database at the Exeter Genomic Laboratory. The proformas were pre-populated with the molecular findings, circulated to the 17 regional clinical genetics centres and completed using patient notes. Anonymised data were collated and analysed using Microsoft Excel.

**Results** 361 acutely unwell children were included, 53% (192/361) were male. Patient age groups were neonates 40% (144), infants 40% (143), children 20% (72), two unknown. 50% (182) were recruited from NICU, 26% (93) PICU, 24% (86) ward or home. 91% (329/361) were trio samples.

The median TAT was 11 days from receipt of the DNA samples in the Exeter laboratory to the final report. The majority (331/361, 92%) received a final report within the 21-day TAT standard. 14/30 were delayed to allow additional testing where preliminary results were re-classified to diagnoses.

The diagnostic rate was 38% (141/361). The result influenced management in 94% (133/141) of these patients.

**Impact of diagnosis on management**

In 75% (100/133), the diagnosis directly influenced management for the proband or family members. In a further 25% (33/133), diagnosis was helpful solely for discussing.
British Association of Perinatal Medicine and Neonatal Society

1437 REDUCTION OF PERINATAL BRAIN INJURY -AUDITING COMPLIANCE OF THE 2030 NATIONAL TARGET IN A DISTRICT GENERAL HOSPITAL IN THE UK

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Background Hypoxic-ischaemic encephalopathy (HIE) is the largest contributing factor to brain injury in term neonates. In 2015, the Department of Health in England announced an ambition to reduce 'brain injuries occurring during or soon after birth' by 20% by 2020 and halve them by 2030. In 2015, the incidence of HIE in England was 2.6 (2.5 to 2.8) per 1000.

Objectives We studied the profile of HIE cases in a District General Hospital in the South East of England, the UK looking into the trends and for any opportunity for improvement.

Methods We collected information using the Badgernet neonatal database and the patient notes.

In 2019, we studied the profiles of babies diagnosed with hypoxic-ischaemic encephalopathy from January 2018 to June 2019 in our hospital. We audited the HIE assessment against South East Coast UK neonatal care pathway; Time=Brain. Several recommendations were put in place for optimising perinatal care. These included increased senior consultant midwife presence on labour wards for longer hours, expediting caesarean section decisions once CTG abnormalities detected without waiting for fetal blood sampling results. There were also regular structured multidisciplinary simulations; an intraosseous access kit was introduced in the neonatal resuscitation trolley and usage of a structured resuscitation proforma was put into place.

In 2020 we reassessed the HIE profile and the compliance with SBLCB2 (Saving Babies Lives Care Bundle) and NHS LTP (Long Term Plan) goals in the reduction of neonatal brain injury. The characteristics of babies admitted to the neonatal unit with HIE over 16 months period (July 2019 to Oct 2020) were studied.

Results The incidence of cases of HIE needing therapeutic hypothermia was 2.3 per 1000 in the audit 2019 (15 HIE/6732 live births) and 1 per 1000 in audit 2020 (6 HIE/5972 live births). There has been a 56% reduction in the incidence.

Conclusions This is the first NHS-based diagnostic service which provides rapid genetic diagnoses in acutely unwell children and the largest reported cohort of patients undergoing rapid exome sequencing. It demonstrates that this innovative and transformational national service has successfully provided rapid results while maintaining a high diagnostic rate. Most importantly, diagnoses have influenced both acute management in intensive care settings and long term management for children and their immediate and extended family members.

Quality Improvement and Patient Safety

1438 SURVEY OF IMG PAEDIATRIC TRAINEES’ EXPERIENCES IN WEST MIDLANDS


Background International medical graduates (IMG) face unique sociocultural and educational challenges during their training in the UK. Identifying and working on these challenges would help in addressing the differential attainment of IMGs in postgraduate medical education in the UK.

Objectives We aimed to capture the challenges faced by IMGs in paediatric specialty training and identify possible solutions to enable them to reach their full potential.

Methods A semi-structured online questionnaire consisting of multiple-choice and free text questions was designed to collect data on the demographics, challenges, self-reported performances, and potential solutions. The survey was anonymously filled by 45 IMG paediatric trainees in the West Midlands.

Results Demographics

- 24 (53%) IMG trainees started their training at ST1.
- 36 (80%) completed their foundation training outside the UK/EEA.
- 41 (91%) had prior experience in the NHS, with an average duration of 19 months.

Challenges

- Commonly reported challenges in paediatric training were work-life balance (69%), portfolio and assessments (62%), placements (60%), meeting specialty (GRID) training requirements (60%) and socio-cultural issues (60%).