Background Pneumothoraces are common in the neonatal period, and can cause significant morbidity, at times requiring extended respiratory support, invasive interventions and prolonged neonatal unit (NNU) care. Established risk factors include prematurity, positive pressure ventilation (PPV) and meconium aspiration. Due to a perceived increase in the number of pneumothoraces seen at our NNU, investigating their prevalence and associations was important to identify any modifiable risk factors.

Objectives This service evaluation aimed to determine the prevalence, clinical presentation, outcomes, and risk factors for pneumothorax in a Level 2 NNU.

Methods A single-centre retrospective case note analysis was undertaken, evaluating the care of all neonates with radiologically confirmed pneumothorax, born over a one-year period from October 2019 and managed in a Level 2 NNU.

Results Thirty-two neonates were eligible for inclusion. The prevalence of pneumothorax was 6 per 1000 live births (0.64%), and 31 per 1000 NNU admissions (3.09%). Most neonates were male (23/32), born over 37 weeks gestation (29/32) and with a birthweight of more than 3000g (26/32). Of note, the majority of these neonates were born at ³ 40 weeks gestational age (17/32). Thick meconium was documented at the delivery of 7/32. Pneumothoraces were predominantly unilateral (27/32), with tension pneumothorax in 2/32, and bilateral pneumothorax in 3/32. Twenty-one neonates required respiratory support using PPV within the first ten minutes of life. Reviews of the maternity resuscitaires were conducted, and out of 19 resuscitaires checked, 6 showed inappropriate pressure settings. Prior to diagnosis, a total of 30/32 neonates showed signs of respiratory distress, and 24 of them required respiratory support, including low-flow oxygen, CPAP, BiPAP or mechanical ventilation. The remaining 6 improved without intervention. Five neonates required chest drain insertion, and the rest were managed conservatively. Eighteen cases were diagnosed within the first 24 hours of life, and two cases on day two of life. The remaining 12 were reported on the chest X-ray, but the diagnosis was not documented in the clinical notes or on the BadgerNet neonatal patient records. The single neonatal death (1/32) was not attributed to the pneumothorax, but to hypoxic ischaemic encephalopathy.

Conclusions Our analysis showed a higher prevalence of pneumothorax in this cohort compared to data from similar studies, especially considering the large proportion of term neonates. An association of pneumothorax with respiratory support at birth was observed, which is a known risk factor. However, the outcomes were generally good, with the majority of cases being managed conservatively and overall low mortality. Our findings highlight the importance of checking pressure settings on the resuscitaire prior to use, and the need for thorough interpretation of chest X-rays with documentation of all findings. We recommend introducing a formal check-list to record pressure settings when the resuscitaire is checked by maternity staff prior to each delivery. Documented consultant X-ray reviews should be formalised on the NNU, for instance by using log-sheets for each patient. In the future, the acute use of chest ultrasound for the diagnosis of pneumothorax should be considered, with appropriate training provided for neonatal doctors.

British Society of Paediatric Endocrinology and Diabetes

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NOT BEING IN DKA ON ADMISSION AND NORMALISING BLOOD GLUCOSE VALUES FROM ONSET ARE KEY TO EXCELLENT HbA1c VALUES ONE YEAR AFTER DIAGNOSIS OF TYPE 1 DIABETES

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Background NICE guidance recommends paediatric patients with Type 1 Diabetes Mellitus (T1DM) should achieve a HbA1c target level of 48mmol/mol (6.5%) or lower.

Objectives We therefore wanted to investigate potential factors that led to an optimal HbA1c one year after diagnosis in paediatric patients.

Methods We did a case review of paediatric patients newly diagnosed with T1DM from 01/01/17 to 31/12/20 who are managed by the paediatric diabetes team at Doncaster Royal Infirmary. Factors we looked at included initial presentation (DKA or no DKA), gender, index of multiple deprivation, family structure and average glucose control at week 1,2,3, and one month. We compared these factors with HbA1c at 1 one year to establish any patterns associated with better control, as dictated by HbA1c <48 mmol/mol (6.5%).

Results 49 newly diagnosed T1DM patient were identified. 37.5% (18 patients) presented with diabetic ketoacidosis (DKA) at diagnosis. 88.9% of children who presented with DKA at diagnosis had a HbA1C >48mmol/mol one year after diagnosis. There was also a positive correlation between lower average blood glucose values one week and two weeks after diagnosis with lower HbA1c values at one year. No associations with age at diagnosis, index of multiple deprivation decile, and two parent households were found.

Conclusions Evidence from this case review shows that identifying diabetes early (thereby preventing development of DKA) and achieving target bloods glucose values from the outset of diagnosis can lead to an optimal HbA1C (48mmol/mol or lower) one year after diagnosis. More awareness needs to be created among primary care and paediatric teams in recognising symptoms of diabetes and the importance of normalising blood glucose values early.

Quality Improvement and Patient Safety

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SATISFACTION IN TELEPHONE CONSULTATION IN THE HULL ROYAL INFIRMARY, PAEDIATRIC DEPARTMENT DURING COVID-19 LOCKDOWN; A SURVEY STUDY

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Background During the national lockdown due to COVID-19 pandemic, the majority of out-patient Paediatric face-to-face appointments in Hull Royal Infirmary had been cancelled. Telephone consultation was introduced as a replacement.