Methods Prospective data analysis of all babies born between 25th April and 31st July 2020 with confirmed or suspected EONS who were referred to the *Hospital at Home* service. Data collected included demographic information such as gestation and birth weight, C-reactive protein measurements, blood and cerebrospinal fluid culture results, timing of discharge and the total number of intravenous antibiotic doses given at home. A post-treatment questionnaire was undertaken to assess parental feedback.

Results In total, 41 neonatal patients were referred to the *Hospital at Home* service over the study period. On average, babies received four doses of intravenous cefotaxime at home, resulting in a reduction of two inpatient treatment days per patient, and 85 inpatient treatment days across the study period. One patient required a trip to hospital for repeat cannulation. No patients required re-admission to hospital during the study period. A post-treatment questionnaire was universally positive with parents evaluating the service as 'efficient, professional and so much easier being comfortable at home.' There were no negative comments.

Conclusions A neonatal *Hospital at Home* service is effective in reducing the length of inpatient stay for babies undergoing treatment of EONS. With an average reduction of two inpatient days per patient, the service not only provides an improved maternal and family experience, but also reduces the inpatient workload on postnatal wards and is a significant cost-saving initiative. More research is required to formalise the referral criteria and assess whether additional neonatal services such as phototherapy could also be provided in the home setting.

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OUTCOMES AND RISK FACTORS FOR PULMONARY HYPERTENSION IN INFANTS WITH BRONCHOPULMONARY DYSPLASIA

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Background Premature infants are at risk of developing bronchopulmonary dysplasia (BPD). Pulmonary hypertension (PH) is a recognised complication of BPD.

Objectives To identify the risk factors and outcomes of pulmonary hypertension in infants with BPD in a tertiary neonatal intensive care unit.

Methods An electronic data recording system (Badgernet) was used to identify all infants born at or prior to 32 weeks of gestation with a birth weight equal to or less than 1500 g between January 2017 to December 2020. Those who subsequently developed BPD (oxygen dependency at 28 days after birth) were noted. Echocardiograms were reviewed to identify infants who developed early PH $\leq$ 28 days, late PH $>$ 28 days or had PH at death or discharge from neonatal care.

Results Two hundred and eleven of the 428 premature infants in the study period (49.3%) developed BPD. One hundred and eighty-two infants were included in the study and 29

infants were excluded as they did not have echocardiography report, were admitted for surgical procedures or had major respiratory or cardiac congenital anomalies. The included infants had a median (IQR) gestational age of 25.9 (24.9–27.7) weeks and birthweight of 796 (667–930) grams. Nineteen (10.4%) infants had early PH and 22 (12.1%) had late PH. Amongst the 22 infants with late PH, the PH resolved in ten before discharge, five continued to have PH at discharge and seven died before discharge.

Compared to BPD infants without late PH, the infants with late PH had a greater median duration of mechanical ventilation (53.5 versus 27.5 days, $p=0.02$ after adjusting for gestational age and Apgar score at 10 minutes). The risk of mortality was higher in infants with late PH (odds ratio, OR: 13.5, $p=0.03$) as was the risk for prolonged mechanical ventilation (OR: 1.04, $p=0.001$). Similarly, infants with PH who died before discharge or had PH at discharge had a higher incidence of early PH (OR: 4.4; $p=0.04$) and a longer median duration of mechanical ventilation (60.5 versus 30.5 days, $p<0.001$ after adjusting for gestational age and Apgar score at 10 minutes).

There were no significant differences in the incidence of patent ductus arteriosus requiring treatment, retinopathy of prematurity requiring treatment, surgically treated necrotising enterocolitis, Grade 3 or 4 intraventricular haemorrhage, periventricular leukomalacia or total length of stay between infants with or without late PH. The incidences of oxygen dependency at 36 weeks and requirement for home oxygen were not significantly different between infants with late PH and infants without late PH.

Conclusions Late PH in infants with BPD was associated with increased mortality. Infants with late PH had a longer duration of invasive ventilation compared to infants without late PH. Early occurrence of PH in infants who subsequently developed BPD was associated with an increased risk of pulmonary hypertension at death or discharge home.

Association of Paediatric Emergency Medicine

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PAEDIATRIC EMERGENCY DEPARTMENT USAGE DURING THE APRIL 2020 COVID19 LOCKDOWN

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Background On March 23, 2020, the UK prime minister declared a public lockdown to decrease the spread of the SARS CoV 2 virus. This led to a change in health care organization and utilization, with GP surgeries and outpatient clinics changing to predominantly telephone or online consultations, and altered presentations to emergency departments.

Objectives We aimed to understand the impact of the lockdown on the presentation of medical conditions in children presenting to our paediatric emergency department (PED).

Methods We retrospectively analysed the Electronic Patient Records (EPR) for all children (aged 0 to 16 years) presenting to our PED in the first month of lockdown (April 2020) and looked at the number of discharge diagnoses within clinical groups (surgical, medical, trauma, mental health, other) and specific subgroups. We then compared the attendance in each

of these groups with the average attendance in the previous 4 years (2016–2019), looking at the same month (April) to control for seasonal fluctuation in medical and trauma PED presentations.

Results 624 patients were seen in our PED in April 2020, compared to between 1620–1710 patients in previous years. All clinical groups showed reduced numbers, with medical, surgical, trauma, mental health and ‘other’ presentations reduced by respectively 67%, 46%, 66%, 20% and 43% compared with the average in preceding years. There was a significant decrease in children presenting with respiratory tract infections (63%), febrile seizures (41%), afebrile seizures (27%), urinary tract infections (67%), fractures (65%), and head injuries (44%). There was a decrease in head injuries (56%) and fractures in children less than 18 months (44%), the group most at risk for non-accidental injury. The number of children presenting with appendicitis, testicular torsion, overdoses, and children aged less than 3 months with presumed sepsis, were within the expected range. In April 2020 there were three cases of severe diabetic ketoacidosis (compared to only two in 2016 and none in 2017, 2018 and 2019).

Conclusions The lockdown significantly decreased PED attendance, and our data highlights several potential reasons, including a reduced burden of respiratory disease, changes in parental health seeking behaviour and possible barriers to attendance. The reduction in attendance was mainly in medical and trauma presentations. This could be explained by a decreased burden of infectious respiratory disease, and a reduction in injuries due to less road traffic and sport. Interestingly, non communicable medical conditions (urinary tract infection/pyelonephritis) and afebrile seizures also demonstrated a decreased rate, pointing to potential changes in parental health seeking behaviour. The increase in severe DKA presentations could indicate barriers (logistical or psychological) to attending primary/secondary health care. Overall, though the surgical attendances were decreased, presentations for surgical emergencies remained the same. Intriguingly, there was no increased attendance for mental health reasons. We found no evidence of increased domestic violence involving children in our population. Our data highlights that the lockdown was effective in decreasing the burden of both respiratory infections, and trauma patients presenting to ED. Our study will support workforce planning and resource allocation in paediatric ED, especially during staff redeployment.

British Academy of Childhood Disability

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HOW EFFECTIVE IS MAKATON IN ENCOURAGING COMMUNICATION, THE FORMATION OF SPEECH, AND ENHANCING POSITIVE SOCIAL INTERACTION IN CHILDREN AND YOUNG PEOPLE?

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Background Augmentative and alternative communication (AAC) forms are used by people of all ages with special educational needs as a way of facilitating communication. One of the most popular AACs is Makaton, a system that incorporates sign language, graphic symbols, and speech. Makaton has been used for a number of years in various settings, however its efficacy is unknown and not backed by empirical evidence.

Objectives To perform a literature review of published articles assessing the effectiveness of Makaton in aiding communication and social interactions with children and young people. Evidence will be analysed in order to suggest the validity of its use, with a view to expand its integration in clinical environments.

Methods Fourteen databases were methodically searched from inception to 20th January 2020. Inclusion criteria included studies assessing the efficacy of Makaton with children and young people, in comparison to speech or another AACs, that were published in the English language.

Results Six studies met inclusion criteria and were critically appraised. Five studies showed Makaton increased basic communication, four found it initiated spoken language, and all six observed an increase in positive social interaction and behaviour. There were a total of 73 combined participants, ranging from the ages 2–16 years old. Most studies analysed participants with a certain disorder (Autism Spectrum Disorder, Down Syndrome, Cerebral Palsy, severe learning difficulties), with one evaluating Makaton use when teaching English as an additional language. It was also found that the majority of professionals support its application and find it subjectively effective, however it is seldom utilised beyond parents and teachers, and there is little homogeneity in frequency of use between participants. Each study was of a small sample size limited to population and disorder demographic, and may not be generalisable to external populations.

Conclusions Despite current literature lacking high quality methodologies and the need for caution when interpreting or extrapolating results, there is a clear general consensus that Makaton is effective in facilitating communication and social interaction in children and young people. It allows children flexibility in communicating in ways that suit them, increasing feelings of inclusivity, and leading to a better quality of life. Regardless of a lack of empirical data, many people and schools around the country and world are adopting the use of Makaton and there is an attitude shift towards one of inclusion and acceptance for children who sign. Makaton gives a voice, be it literal or not, to children who may otherwise not have been able to express themselves. More effort should be made to integrate signs and symbols into mainstream society, and in particular to educate medical students and health care professionals, to allow for more autonomy and patient-centred care for these individuals.

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GENETIC VARIATIONS CAUSING NEONATAL DIABETES MELLITUS

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Background Neonatal Diabetes Mellitus (NDM) is rare with an approximate incidence of 1:100,000. More than 80% of cases have a genetic origin. We present 4 patients with NDM occurring within one health board.

Objectives Our aims were to compare and contrast the characteristics of our cases and to discuss the genetic variations