The aim was for all families to be updated at least once daily and offered the option of using video links to speak to their relatives.

Methods A proposal was agreed with the ICU matrons. With their approval a team of acute and community paediatricians was assembled.

QI methodology was used and 4 PDSA cycles recorded.

Results PDSA cycle 1:

3 paediatricians immersed themselves into 3 different clinical subsections of ICU.

Ward rounds were attended following which families were phoned with updates. Difficulties for the team included a lack of understanding about a new disease, unfamiliarity in looking after adult patients. Communication with families whilst wearing full PPE was challenging. The team undertook a daily debrief.

PDSA cycle 2:

4–5 paediatricians attended daily, in blocks of at least 3 days in a row, which allowed for continuity and comprehensive cover of the ICU patients. A proforma was designed to standardise what information was helpful to record on the ward round based on common recurring questions.

PDSA cycle 3:

A trial of a video-link virtual visit was conducted in 1 patient per clinical area. Patient feedback was recorded.

PDSA cycle 4:

The use of video links was expanded. Medical students were trained to facilitate video calls.

Numbers of incoming family calls to ICU were monitored.

Records were kept as part of a communication daily sheet within the ICU notes.

Conclusions Paediatricians and other health professionals have transferable skills which enable them to work in ICU settings

The project was successful due to a combination of clinical need, the feeling of 'all being in it together' and building joint resilience when faced with working in unfamiliar environments. Lasting collaborations between colleagues remain.

Keeping the team small at the start of the project enabled us to develop proformas, anticipate components of successful phone calls and standardise them accordingly.

Medical students were invaluable in setting up and facilitating video calls to families. They were able to schedule shift timings so that calls could be undertaken at a wider range of points in the day.

As Covid subsides, the regular calls, video links and holistic thinking about families has been spotlighted within ICU and plans to maintain the service are being developed.

It is possible to set up a Family Liaison Team in a short space of time, and would be replicable should a further COVID surge arise.

British Association of Paediatricians in Audiology

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THE IMPACT OF COVID-19 ON THE ENGLISH NEWBORN HEARING SCREENING PROGRAMME – MINIMISING DELAYS IN THE IDENTIFICATION OF PERMANENT CHILDHOOD HEARING IMPAIRMENT

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Background The newborn hearing screening programme (NHSP) in England was impacted by the COVID-19 pandemic as screening and audiology services initially stopped outpatients, some parents declined or delayed screening and services struggled to manage capacity with reduced staffing.

To monitor the impact Public Health England (PHE) produced weekly data reports. A modelling tool was developed for providers to identify babies still awaiting screening or audiological assessment using the national IT system, SMAR-T4Hearing (S4H) and audiology data. This information was used to track screening completion and to support restoration of hearing screening prioritising babies with the greatest chance of permanent childhood hearing impairment (PCHI).

Objectives Development of a modelling tool to

- provide assurance of screening pathway completion,
- map additional audiology capacity required for babies deferred from screening and
- prioritise babies that need to be seen first on the basis of risk to minimise delays in the diagnosis of PCHI

Methods Weekly data reports extracted from S4H highlighting services with less than 90% coverage and more than 40% of screen referrals awaiting audiology to support commissioner assurance of screening and audiological capacity.

Development of a modelling tool for use by screening providers and audiology services

Results The programme saw a significant reduction in the number of babies with a completed screen outcome, a slight rise in the number referred to audiology and an increasing number of babies awaiting diagnostic assessment.

1. Coverage

Week on week coverage for April 2020 – end of March 2021 compared to April 2019 – March 2020 These data describe an initial drop in coverage at the start of the pandemic from 98.8% to 76.1% with return to near expected levels of coverage over time. There remain more babies that did not have hearing screening compared to the year before.

2. Providers with <90% coverage, >40% screening referrals awaiting audiology

Tracking of progress by highlighting services meeting these criteria in a national summary report for screening commissioners supported by detailed metrics for each provider.

3. Comparison of diagnosis of permanent childhood hearing impairment

The number of unilateral and bilateral cases of permanent childhood hearing impairment diagnosed within the screening programme in 2020/21 is compared to 2019/20 tracking babies deferred for behavioural testing in audiology at the age 7–9 months.

Conclusions The COVID-19 pandemic initially impacted the coverage for the newborn screening programme. Coverage has improved over time but there remains a proportion of babies that were not offered initial screening or deferred screening until audiological assessment at 7–9 months of age. These babies are now reaching the age to be seen in audiology. Weekly reporting and use of the modelling tool to support screening and audiology capacity mapping has provided assurance to screening commissioners that the babies at greatest risk have been prioritised. Final full year figures will estimate the potential number of delayed diagnoses of permanent childhood hearing impairment in 2020/21. Paediatric services need to be aware of the impact of COVID-19

on newborn hearing screening and should check if screening has been completed or that babies are referred for audiological assessment.

Child Protection Special Interest Group

717 EXPLORING THE RADIOLOGICAL COMPLEXITY OF ABUSE IN CHILDREN UNDERGOING SKELETAL SURVEYS – A PICTORIAL REVIEW

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Background Studies have reported an increased incidence of physical abuse in children during the COVID-19 pandemic, likely a result of an interplay of factors, including social isolation, lack of support systems and financial uncertainty, emphasising the importance of this complex issue.

When abuse is suspected, a cascade of investigations is triggered, including radiological imaging, performed in accordance with national guidelines. For children under two, this includes skeletal survey (and computed tomography (CT) head scan if under one or in the presence of clinical evidence of head trauma). Skeletal survey is performed on a case-by-case basis for older children.

Interpretation of findings requires an understanding of typical patterns of skeletal injury caused by physical abuse, as well as recognition of skeletal indicators of neglect and radiographic mimics of abuse.

Objectives The objective of this review is to describe the spectrum of radiological findings in the investigation of suspected physical abuse. Findings on skeletal survey are presented for a group of children, chosen to include:

1. Typical patterns of skeletal injury
2. Manifestations of neglect
3. Mimics of abuse

For each case, presenting circumstances and outcome are also described, in order to tell a series of important stories.

Methods Skeletal surveys, performed for the investigation of suspected abuse, over a five-year period were reviewed. Of those with confirmed skeletal abnormality, several were selected for presentation.

Results Over a five-year period, eighty-nine skeletal surveys were performed for the investigation of suspected abuse. Skeletal abnormality was identified in thirty-one cases.

Cases chosen to present include children aged between 4 weeks and 2 years, from various social backgrounds. Investigations were prompted by various presenting circumstances, including poor feeding/vomiting, limb injury with suspicious mechanism, unresponsive episodes and direct allegations of physical abuse. In one case, suspicion of abuse was raised when rib fractures were found incidentally on a chest radiograph.

Cases are described in which there are typical patterns of inflicted fractures, including cases of multiple fractures.

Cases in which there are skeletal manifestations of neglect are described, including severe metabolic bone disease.

Cases of skeletal abnormality, concluded to be non-pathological (e.g. normal variants and physiological changes) are described

The role of follow-up imaging is described.

In terms of outcome, some children were returned to the custody of their parents or family, with comprehensive Child Protection Plans in place while, for others, emergency adoption or Foster care placement was required.

Conclusions While it is difficult to confidently describe a 'typical' case of physical abuse, there are recognised clinical presentations, as well as patterns of skeletal abnormality and associated imaging findings to support a diagnosis of abuse in children. Follow-up imaging is important, particularly when findings are inconclusive or there is suspicion of occult injury. Fundamental to comprehensive assessment of imaging is a detailed understanding of recognised radiographic mimics of abuse.

While focusing on radiological findings, this review also serves to highlight the profound consequences of abuse in children, which extend beyond the physical. In addition, it emphasises the complexity of child abuse which can present in children of any age, from any social background.

British Paediatric Neurology Association

718 A *DYNC1H1* MUTATION ASSOCIATED WITH SPINAL MUSCULAR ATROPHY WITH LOWER EXTREMITY PREDOMINANCE (SMA-LED) AND MIXED UPPER AND LOWER MOTOR NEURONE FEATURES

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Background Spinal muscular atrophy with lower extremity predominance (or SMA-LED) is a group of rare, autosomal dominant disorders affecting lower motor neurones and characterised by weakness and atrophy of the lower limb muscles. Variants in two genes have been linked with SMA-LED: *DYNC1H1* and *BICD2*.

Objectives To present the first familial case series of a mixed upper and lower motor neurone clinical phenotype of SMA-LED, associated with a mutation in *DYNC1H1*.

Methods Case series of three family members (father and two sons) across two generations.

Results We describe a family with a unique, mixed upper and lower motor neurone clinical phenotype of early onset SMA-LED, inherited in an autosomal dominant manner, caused by a missense variant c.1808A>T (p.Glu603Val) in the cytoplasmic dynein 1 heavy chain 1 gene (*DYNC1H1*). The father had been believed to have a purely orthopaedic pathology (talipes), and the eldest son was not diagnosed until his second year of life.

Conclusions Based on ACMG variant classification guidelines, we suggest that this variant in *DYNC1H1* be reclassified as 'Likely Pathogenic'.