(high score indicating wound complications, maximum 41). Mean satisfaction score amongst parents was 4.3 (out of 5).

Conclusion RWC's are desirable amongst our patient cohort. Parents engaged well with the remote service and satisfaction was high. Following this pilot we propose expansion of this service to empower families in the COVID-era and beyond.

10 RESEARCHING SARS-COV-2 FROM HOME: MAXIMISING THE BENEFIT OF THE GOSH DIGITAL RESEARCH ENVIRONMENT DURING NATIONAL LOCKDOWN

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The 2019 novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID-19, characterised by potentially severe respiratory and gastrointestinal symptoms. As of early October 2020, there were around 34 million confirmed cases of COVID-19 and more than 1,000,000 associated deaths globally. Initial data indicated that COVID-19 affected children with fewer symptoms and less severe disease compared with adults, however more recently some have developed an unusual associated systemic inflammatory condition: paediatric inflammatory multisystem syndrome temporally related to SARS-CoV-2 infection (PIMS-TS).

In the UK, Public Health England outlined a shielding strategy designed to protect those extremely vulnerable to SARS-CoV-2 infection, such as individuals who are immunocompromised. At the same time, the UK Government enforced a National Lockdown for all except key workers. As such, researchers were unable to continue working on site at hospitals and Universities. The web-based Digital Research Environment platform at GOSH made it possible for research on GOSH patients to continue despite those limitations. Even more, the efficient data integration processes that the DRE have implemented enabled a rapid extraction of COVID-19 related data from the GOSH EPR system to support initial research results.

We were able to examine a cohort of paediatric patients, presenting to GOSH, with suspected COVID-19 or PIMS-TS to document their clinical characteristics and outcomes with regard to the presence of underlying medical conditions associated with vulnerability and to establish whether underlying conditions such as vitamin D deficiency were prominent in these patients. By analysing this data during the first wave, we were able to identify that apparently 'vulnerable' groups were not overrepresented in patients hospitalised with COVID-19 or PIMS-TS.

11 TOWARDS INTERNATIONAL FEDERATED HEALTH DATA ANALYSIS: EXPERIENCE WITH THE 4CE CONSORTIUM FOR CHARACTERISATION OF COVID-19

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The Covid-19 pandemic necessitated collaborations from hospitals around the world to improve knowledge and find suitable treatments. Responding to the quick spread of the virus, an international consortium was formed (4CE, <https://covidclinical.net/>) to rapidly collect data from the Electronic Patient Records (EPRs) of participating hospitals and publish results. The Digital Research Environment (DRE) enabled GOSH to join the consortium as one of the lead contributors of paediatric Covid-19 data in Europe and the only hospital in the U.K. The objective was to develop methods that ensure quick data collection and analysis using a mixed model of federated and centralised data analysis, and publish results on the clinical characterisation of Covid-19 in both children and adults to inform care and research.

Building on the DRE's automated data integration processes and flows from the GOSH EPR system, we developed methods to semi-automate our Covid-19 cohort identification, restructure and harmonise our data to the internationally agreed specification and standards, perform quality control collaboratively, produce aggregate-level data using summary statistics, validate severity, and incorporate appropriate obfuscation of results. GOSH IG approval was obtained before sharing summary data with 4CE for further analysis.

We were able to rapidly develop suitable technical and governance solutions as a first step towards federated health data analysis in an international collaborative of hospitals. The consortium analysis results, currently being submitted for publication, clinically characterise Covid-19 at an international level informing care and research. 4CE offers a new model of collaborative health data analysis based on the use of EPRs and federated analysis to respond quickly to pandemics like Covid-19.

The use of GOSH DRE enabled our participation in the 4CE consortium and quick generation of collaborative data analysis results on Covid-19 paving the way for further development of advanced international federated health data analytics using EPRs.

12 COVID-19; A REFLECTION OF PHYSIOTHERAPY INTERVENTION IN THE PICU

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10.1136/archdischild-2020-gosh.12

The novel COVID-19 poses challenges in the paediatric physiotherapy community. In March 2020 there were not, and still are not, any clinical guidelines on the management of the physiotherapy needs in this cohort of children.

Links between national adult and paediatric services were formed to utilise and adapt adult national intensive care guidelines to plan paediatric COVID-19 respiratory physiotherapy assessment and treatments. With support of medical colleagues, protocols on the use of humidifiers, ventilators and bagging circuit filters and the necessity of closed suction were created.

To determine a suggested management, we utilised knowledge of viral/ARDS conditions and devised an algorithm to identify which patients required physiotherapy intervention.

Proning of patients was identified as a key treatment. Together with our clinical simulation centre, a skills lab was

set up to teach a large population of the multi-disciplinary team on the safest technique to prone patients. From discussion with other centres training on the use of ventilator hyperinflation was delivered, a skill that was not previously used as a first line intervention.

33 patients were admitted between 26 March and 26 May 2020. All had respiratory physiotherapy treatments during their ICU journey, daily input was not always indicated. 5/33 had non-bronchoscopic bronchoalveolar lavages, 7/33 had chest x-ray changes, 6/33 had altered neurology.

4/33 patients had respiratory phenotype COVID-19; 1 had NBBAL, 2 had CXR changes and 1 had altered neurology.

Our PIMS-TS cohort had intensive rehabilitation requirements during their ICU admission and on discharge.

To conclude, respiratory physiotherapy was rarely indicated for paediatric COVID-19 patients. Rehabilitation requirements were significantly higher than expected. Many adult guidelines suggested minimal contact with these patients. Should we have followed this approach, our patients would not have been highlighted to have early and intensive rehabilitation requirements.

Digital poster presentations

13 INNOVATION FEED: THE DEVELOPMENT OF A WEB TOOL TO SUPPORT INNOVATION AT GOSH

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Innovation is incredibly important in the growth and development of any organisation. In healthcare, the sharing of best practice and innovative ideas has the capacity to bring about significant patient benefit. However, it can be difficult to share ideas and develop collaborations in busy, multi-disciplinary organisations. The aim of this project was to build a website to allow staff from across the organisation to share concepts and ideas for innovative projects.

As part of a joint collaboration between GOSH, GOSH Children's Charity, and UCL computer science (CS), through the industry exchange network programme, a prototype website was developed using NodeJS with a MySQL database.

The platform allows ideas to be proposed, commented on, and voted for by users. Calls for innovative ideas can be launched to address specific issues within the organisation. The prototype website was developed to support the GOSH Charity and Trust to encourage staff to share their innovation ideas as well as the achievements and barriers associated with existing, or previous, innovation and improvement projects. The website also aims to connect staff from across the organisation who are working on similar projects, to facilitate sharing of experiences, ideas and expand cross-departmental collaborations.

14 CENANI-LENZ SYNDACTYLY IN SIBLINGS WITH A NOVEL HOMOZYGOUS LRP4 MUTATION AND RECURRENT HYPOGLYCAEMIA

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10.1136/archdischild-2020-gosh.14

Cenani-Lenz syndactyly (CLS) is a rare autosomal recessive syndrome characterized by disorganized oligosyndactyly of upper and lower limbs as well as radioulnar synostosis. Structural renal abnormalities are also common. We report two affected brothers, born to orthodox Jewish parents, in whom we found a novel homozygous missense variant c.4910G>A; p.(Cys1637Tyr) in LRP4 situated in an EGF-like domain between the fourth beta-propeller and transmembrane domains. Both brothers have had recurrent ketotic hypoglycaemia which has not been associated previously. We present 3D computed tomographic imaging illustrating the limb abnormalities in detail.

15 OVERNIGHT NASOGASTRIC TUBE (NGT) FEEDING IN CHILDREN ON NON-INVASIVE VENTILATION (NIV): PREVALENCE, FEEDING STRATEGIES AND ASPIRATION RISK

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10.1136/archdischild-2020-gosh.15

Overnight NGT feeding is regarded as high risk for aspiration in children on NIV, despite lack of evidence to support this. Local strategies mitigate aspiration risk by using bolus rather than continuous feeds overnight.

Aim To identify the prevalence of overnight NGT feeding in children on NIV, changes to feeding routes at 1 year follow up and aspiration related respiratory exacerbations.

Method A retrospective (Aug 2017-Aug 2019) review of all patients on NIV, focusing on those fed via NGT overnight.

Results 286 patients were managed by the NIV service at Great Ormond Street Hospital from August 2017 to August 2019.

Sixty-three patients were reliant on EN at NIV initiation, of whom 21 children were via NGT. 15/21 were fed overnight via NGT.

At 1 year follow up, 4/15 children continuing to feed overnight via NGT despite a long-term feeding route being recommended. 3/4 children this was not possible as they were unfit for surgery. 1/4 children parents declined.

Twelve of 15 children in this cohort had respiratory exacerbations in the 1 year follow up period.

One of 15 total respiratory exacerbations was linked to aspiration in a child who was bolus fed overnight via NGT and remained so at 1 year follow up.

Conclusion The majority of this cohort experienced respiratory exacerbations by 1 year follow up. However, only 1 event was linked to aspiration. Whilst age, diagnosis and clinical condition are potential contributory factors, overnight NGT feeding does not appear to increase aspiration risk in children on NIV.