Infants with a history of neonatal chronic respiratory problems may demonstrate hypoxaemia when at in-flight oxygen levels, despite normal sea-level oxygen requirements. The British Thoracic Society recommend these infants have hypoxic challenge testing (HCT) before air travel, SpO2<85% is recommended as a threshold below which in-flight oxygen is required and ‘paediatric discretion should be used when SpO2 between 85–90% and, where there is doubt, the doctor should err on the side of caution.’

**Aim** To establish how many infants fell into each of the threshold categories during HCT; SpO2 <85%, >90%, 85–90% and which of these patients were recommended to fly ± supplemental oxygen (suppO2).

**Methods** Our HCT protocol for infants is 20 minutes in 15% FiO2 within a body plethysmograph. SpO2 is monitored throughout and suppO2 administered via nasal cannula if SpO2 < 85%. If after 20 minutes SpO2 has remained >85% but <90% then suppO2 is titrated for 5 minutes. We reviewed data collected from infants (aged < 1 year) whom had HCT between March 2017 to January 2020.

**Results** Data collected from 65 infants, median age 27.6 weeks (range 5 to 51.6), 37 were male. None were receiving suppO2 in room air prior to testing; all had baseline SpO2 ≥96%. In 40 infants, SpO2 did not dip to <90%. SpO2 dropped to <85% in 16 infants, requiring administration of suppO2. 9 infants required extended protocol due to SpO2<85–90%. SuppO2 corrected SpO2 in all to baseline levels.

In the 85–90% category, all 9 infants were advised by their clinician to use suppO2 for air travel. The flight times in this subgroup ranged from 90 to 450 minutes.

**Conclusion** Infants with baseline SpO2 ≥96% may still exhibit SpO2 desaturation during HCT. We found all paediatricians recommended in-flight oxygen for infants with HCT SpO2 <90% regardless of flight duration.
A QUALITATIVE EVALUATION OF A 1 YEAR PILOT STUDY OF YOUNG PEOPLE AND PARENTS ACCESSING A MENTAL HEALTH DROP-IN CENTRE IN A PAEDIATRIC HOSPITAL SETTING

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Background Children and young people with long term physical health conditions (LTC) are known to have higher levels of co-morbid mental health problems than medically healthy children. Evidence-based treatments for mental health problems are effective in children who also have an LTC. A drop-in centre in a paediatric hospital, delivering a range of interventions including onward referral, signposting and guided self-help, may be one way to complement existing mental health services as part of a stepped-care approach. The aim of this study was to understand patients’ perspectives of the centre.

Methods 128 patients attending a drop-in centre at Great Ormond Street Hospital were invited to participate. Overall, 35 participated in semi-structured interviews (either in person or by phone) exploring their experience of the drop-in centre. Interviews were audio-recorded, transcribed, and analysed using Framework analysis.

Results Overall, participants found the drop-in centre highly acceptable and reported a positive experience. Reasons for this varied, but broadly focused around four areas: (1) Choice in how to access the intervention and feeling empowered afterwards; (2) Having someone to talk to who could provide them with practical support; (3) Integration and parity of physical and mental health care; (4) The intervention being sufficient to meet their needs and quick to access.

Discussion Participants found the intervention feasible and acceptable. A drop-in centre in a paediatric hospital appears to be a positive and valued adjunct to supplement existing mental health services at GOSH.

AUGMENTED REALITY CLIPBOARD: A SMART, SECURE AND INTERACTIVE ALTERNATIVE FOR PATIENT OBSERVATION CHARTING

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Introduction In a hospital, a patient may traditionally have observations and personal data displayed on a paper clipboard next to their bed. Not only does this raise privacy concerns, as data can be viewed by anyone approaching the bed, but it also needs to be manually updated when there is a change. A handheld mobile Augmented Reality (AR) application allows the clinician to view data as superimposed on a real-life clipboard, fetching and updating this information in real time. The AR application draws the clinician away from the screen and back into the ‘real world’, human interaction with the patient, providing a seamless, unobtrusive way for them to interact with patient data.

Method As part of a collaboration between GOSH and UCL computer science through the industry exchange network (IXN), we developed a prototype mobile AR application for viewing patient data on an AR clipboard. The application was developed using Unity game engine and the AR foundation package for cross platform development with iOS and Android. The application pulled synthetic patient data for display, in the FHIR standard format, from the FHIR API. The viewer and Intel NUC application allows for achieving an Augmented Reality clinical education experience.

Results This new version has 3 main editions: the Cloud Holorepository 2020 (CH20), Intel NUC optimized Holorepository 2020 (NH20), and Holorepository 2020 Viewer (H20V). These facilitate new components such as an organ segmentation library, enhanced augmented reality experiences through cameras and multi-monitor displays, and a synthetic medical imaging data platform. CT and MRI DICOM scans of the brain, lungs, chest, abdomen and kidneys are rendered as a 3D view using a pre-trained model and the latest techniques for organ segmentation. A step-by-step guide on how to carry out the implementation procedure from research to deployment is laid out, enabling easy integration of newly available segmentation algorithms and methods. Holoregistration enables simplified over-the-body tracking of the holographic views, achieving an Augmented Reality clinical education experience.