CHT 2025

child health technology CONFERENCE

ONLINE 11-12 JUNE 2025

IMPROVING CHILD HEALTH ACROSS THE WORLD THROUGH INNOVATION

ABSTRACT BOOKLET

NIHR | Children and Young People MedTech Co-operative

Marketing Sheffield

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STUDENT POSTERS

This year we are delighted to present two poster submissions from Sixth Form students. Please visit the Posters page on the conference platform to view.

01

THE CO-PRODUCED EPID TOOL: EARLY PARENT INTERACTION WITH DEAF CHILDREN

Martina Curtin[1], Alison Miles[2]

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BACKGROUND

Ninety percent of deaf children are born to hearing parents with very little experience of deafness. One of the largest predictors for how well a deaf child develops language is the quantity and quality of parental interactions. Most parents need support with adapting their communication and such support is often prioritised by professionals such as Speech and Language Therapists and Teachers of the Deaf (the first professionals to visit the home following diagnosis). Despite the strong associations between parent-child interaction and deaf children's developmental outcomes, there is no assessment, framework or tool available to evaluate parents' skills.

METHODS

A range of mixed-methods research, funded by the National Institute for Health Research (UK), has been conducted to address the aforementioned gap in research and practice. This includes: 1) A systematic review; 2) A national survey (and follow-up focus groups) to understand how practitioners observe parent-child interaction with deaf children; 3) An international consensus study using results from (1) and (2) to gain consensus on the core content of the EPID tool; and 4) Extensive coproduction between parents of deaf children and hearing and deaf practitioners.

RESULTS

Each research phase has contributed to the content and process of a new, codesigned, evidence-based and practice-based tool that uses video and a strengths-based approach to identify parent behaviours within everyday interactions in the home. Rather than parents having their interaction skills 'clinically assessed' or judged, the EPID will instead identify their existing intuitive parenting skills, their well-being, their learning, and their connection with their DHH child. Coproduction partners want the EPID Tool to be an app, where they have more ownership of their videos and their learning.

02

ADVANCING DIGITAL SOLUTIONS FOR HEALTHCARE TRANSITION: TRANSITION WORKSHOP INSIGHTS FROM THE NIHR HRC IN PAEDIATRICS AND CHILD HEALTH

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BACKGROUND

Young people with long-term or complex health conditions face significant challenges when transitioning from paediatric to adult healthcare services. A poorly managed transition can lead to disengagement, worsened health outcomes, and increased reliance on emergency care. The NIHR HealthTech Research Centre (HRC) in Paediatrics and Child Health hosted a workshop to explore digital solutions for improving healthcare transition.

AIMS

This workshop aimed to highlight key unmet needs in healthcare transition and identify innovative technology-driven solutions with healthcare professionals (HCP), industry partners and academia.

METHODS

A workshop was conducted, bringing together stakeholders from multiple disciplines across the UK through an open call for expressions of interest (EOI), utilising the HRC's partners and national networks. 27 completed EOI's were received, with representation from transition professionals from across the UK. Participants engaged in keynote presentations, and intervention-focused interactive sessions structured around three themes: (1) Health Inequalities & Engagement, (2) Education & Self-Management, and (3) Health Records & Data Sharing. Key challenges and potential technological interventions were identified through facilitated discussions.

RESULTS

Key findings included the need for:

- Inclusive technologies, such as Augmentative and Alternative Communication (AAC) tools, to support young people with special educational needs and disabilities.
- Digital health tools to support self-management, including mobile apps with educational resources, peer forums, and communication features.
- Improving health records & data sharing, enabling young people to securely manage and share medical information across healthcare settings.
- Cross-sector collaboration between health, education, and social care systems for improved transition.

DISCUSSION

The workshop underscored the importance of patient-centred, developmentally appropriate digital solutions in transition care. Digital health interventions can empower young people to self-manage their condition, reduce health inequalities, and facilitate better communication between paediatric and adult services. Future research should focus on co-designing and developing technologies that can achieve real-world impact.

03

PROOF OF CONCEPT FOR AN AI-POWERED PIPELINE IN PAEDIATRIC RADIOLOGY

Louise Rigny[1], Pavithra Rajendran[1], Sebin Sabu[1], Susan Shelmerdine[1], Owen Arthurs[1]

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BACKGROUND

The evolution of AI in adult radiology has significantly improved clinical workflows, but paediatric radiology remains relatively underdeveloped. Picture Archiving and Communication Systems (PACS) enable imaging data management, allowing radiologists to document findings. We propose an AI-driven, automated pipeline for paediatric radiology, focusing initially on image classification tasks. This approach aims to predict routine information and automate processes, reducing manual input. Our objectives are to develop a modular pipeline using post-mortem skeletal images from Great Ormond Street Hospital (GOSH) to (1) predict image orientation and (2) detect clinical abnormalities, providing a foundation for AI integration in paediatric imaging.

AIMS

This approach aims to predict routine information and automate processes, reducing manual input. Our objectives are to develop a modular pipeline using post-mortem skeletal images from Great Ormond Street Hospital (GOSH) to (1) predict image orientation and (2) detect clinical abnormalities, providing a foundation for AI integration in paediatric imaging.

METHODS

We conducted an evaluation of a dataset consisting of 200 post-mortem skeletal images sourced from Great Ormond Street Hospital (GOSH). Each image was labelled according to two criteria: (1) anatomical orientation—either "frontal" or "lateral"—and (2) condition—classified as “Normal” or “Abnormal,” based on PACS radiology reports. For model training, we implemented a baseline custom convolutional neural network (CNN) architecture comprising four layers, alongside a modified version of the ResNet50 architecture to leverage transfer learning capabilities. The performance of the models were evaluated using key metrics; precision, recall, F1 score, and accuracy.

RESULTS

Resnet50 architecture demonstrated strong performance, achieving an overall accuracy of 89% and 90% for skeletal abnormality and anatomical orientations predictions, respectively, indicating effective identification for both classification tasks. This shows potential to reduce manual input significantly by automating the collection and reporting of routinely gathered information.

DISCUSSION

This proof of concept underscores the promise of modular, reproducible pipelines in advancing AI applications in paediatric radiology at GOSH and highlights the potential for broader operationalization.

04

CO-CREATING A NOVEL DIGITAL STORYBOOK FOR CHILDREN WITH AN ULTRA-RARE DISEASE: EMPOWERING YOUNG PATIENTS WITH ATYPICAL HAEMOLYTIC URAEMIC SYNDROME (aHUS)

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BACKGROUND

Atypical haemolytic uraemic syndrome (aHUS) affects around 0.5 per million people per year in the UK. Families navigating aHUS often struggle to find clear, reliable, and age-appropriate information about the disease, prognosis, and necessary medical procedures. Whilst improving information is a global focus, there is limited information available in formats understandable, and enticing, to children.

AIMS

This project describes the co-production of a digital, interactive storybook designed to help children with aHUS and their families better understand the condition in an engaging, meaningful way.

METHODS

An iterative ‘double diamond’ approach was used, encouraging divergent and convergent thinking through four stages; Discover, Define, Develop and Deliver. Through online workshops and surveys, children affected by aHUS, their families, healthcare professionals and charities, including Kidney Care UK, defined information needs, ideated solutions and co-created the digital storybook.

RESULTS

‘Revealing the Secrets of aHUS: A journey through a magical land’ is a narrated storybook that enables children to undertake a fantasy journey to learn about aHUS, its effects on the body, coping strategies and reducing anxiety. Readers complete quests and solve puzzles to learn about aHUS in an engaging and meaningful way. Families can print the storybook for offline viewing. Since launch in August 2024, 74 unique users engaged with the storybook 123 times, with an average session of 9 minutes 44 seconds. Anecdotal evidence suggests the storybook helps children understand aHUS. The digital storybook can be accessed online, via the weblink: https://www.healthinote.com/ahus.

DISCUSSION

Results to date indicate the storybook helps children understand aHUS and cope with challenges arising from being diagnosed with a rare condition. This project highlights the importance of co-creation with the patient and caregiver community to develop meaningful, accessible educational tools. Investing in innovative approaches improves how complex health information is communicated to young patients and their families.

05 PATIENT ENGAGEMENT IN EVALUATION OF 3D-DESIGNED CUSTOM-MADE INTEGRATED MASK/HEADGEAR FOR CHILDREN USING NON-INVASIVE VENTILATION

Heather Elphick[1], Sarah Shortland[1], Matt Willox[2], Peter Metherall[3], Jacob Branchflower[4]. Mollie Broadbent[1]

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BACKGROUND

Non-invasive assisted ventilation (NIV) delivered via facemask has been shown to significantly improve quality of life and life expectancy. Children with craniofacial and neuromuscular diseases frequently require NIV due to a compromised airway and/or respiratory failure. Because of their unique anatomy, finding appropriate fitting facemasks is challenging.

AIMS

The aim of these patient engagement sessions was to gather quantitative and qualitative feedback about 3D printed material samples to inform the development of customised 3D printed non-invasive ventilation mask.

METHODS

Participants were asked to review eight material samples of a mix of material types and hardnesses created using different 3D printing processes.
Participants were asked for feedback on material properties using a Likert scale and a target graphic. A score was generated to indicate overall preference.

RESULTS

Feedback was collected during two clinic sessions from five families and 3 Clinical Nurse Specialists and from 22 healthcare professionals attending the British Sleep Society 2023 conference.

The overall average score showed a clear participant preference for material samples C (FDM TPU frame) [=2.42] and G (SLA Flexible 80A) [=2.32]. This was even more clearly expressed for the clinician participants (C=2.10, G=1.60).

Rigid samples were confirmed as unlikely to be comfortably tolerated by wearers. Too soft a material raised concerns around unwanted deformation or collapse under load. Durability was a key concern for long-term use. Some participants expressed a strong preference for lighter weight materials. A large mask edge radius is preferable for patient comfort and to avoid marking the skin. Lattice structures are viewed as aesthetically pleasing, but difficult to clean.

DISCUSSION

The two preferred designs represent different additive manufacturing approaches. Materials and processes are in evolution and investigations into certification of materials and products for use for NIV in children is ongoing.

06

PILOT EVALUATION OF 3D-DESIGNED CUSTOM-MADE INTEGRATED MASK/HEADGEAR FOR CHILDREN USING NON-INVASIVE VENTILATION

Mollie Broadbent[1], Sarah Shortland[2], Matt Willox[3], Peter Metherall[4], Jacob Branchflower[5], Heather Elphick[2]

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BACKGROUND

The growing prevalence of non-invasive ventilation (NIV) amongst children means the adverse effects of ill-fitting interfaces are becoming more widespread. A proposed solution is 3D-designed customised masks and headgears, though the benefits and feasibility of this remain unclear.

AIMS

The first aim was to compare the comfort and efficacy of customised masks and headgears with standard ones. The second aim was to inform the feasibility of conducting a multicentre clinical trial to investigate this comparison on a larger scale.

METHODS

Participants underwent study nights using a standard mask and headgear, followed by a customised mask and headgear. Data collection included oximetry for 4% oxygen desaturation index (ODI4), actigraphy for sleep fragmentation index (SFI), and 7-point Likert scales for subjective discomfort and sleep disturbance.
Following this, telephone semi-structured interviews with participants' parents were conducted to obtain feedback on the customised equipment and the study design.

RESULTS

Participants (N=4) were all male, aged 2-15 years old, and used either a nasal or oronasal mask. Comparison of customised versus standard equipment showed increased SFI (+28.90 disturbances/hour) and sleep disturbance (+1.25 Likert points) but decreased ODI4 (-0.63 desaturations/hour) and discomfort (-0.62 Likert points).

Semi-structured interviews revealed a general dislike for the headgear adjusters, with parents describing them as "temperamental" and "fiddly." Although participants experienced nasal bridge soreness, parents reported this was less prominent than with the standard mask. Overall, parents expressed that the study was a good length and convenient to partake in.

DISCUSSION

Customised masks and headgears may improve the comfort and clinical efficacy of NIV. Though sleep quality worsened, this may be partly due to the unfamiliar sleep unit environment (known as the first-night effect). Learning points from this study will help guide a multicentre trial, hopefully facilitating expansion of 3D customisation for NIV.

Table 1. *Summary of Combined Mean Results for Participants.*

Outcome Measure	**Standard Setup**	**Custom Setup**	**Mean Difference [SD]**
ODI4 (desaturations/hour)	1.62	0.99	-0.63 [1.27]
SFI (disturbances/hour)	9.03	37.93	28.90 [14.87]
Subjective Discomfort* (Likert points)	4.50	3.88	-0.62 [1.89]
Subjective Sleep Disturbance** (Likert points)	2.25	3.50	1.25 [1.76]

SD = Standard Deviation
ODI4 = 4% Oxygen Desaturation Index
SFI = Sleep Fragmentation Index
*Scored 1 (very comfortable) to 7 (very uncomfortable)
**Scored 1 (slept very well) to 7 (slept very poorly)

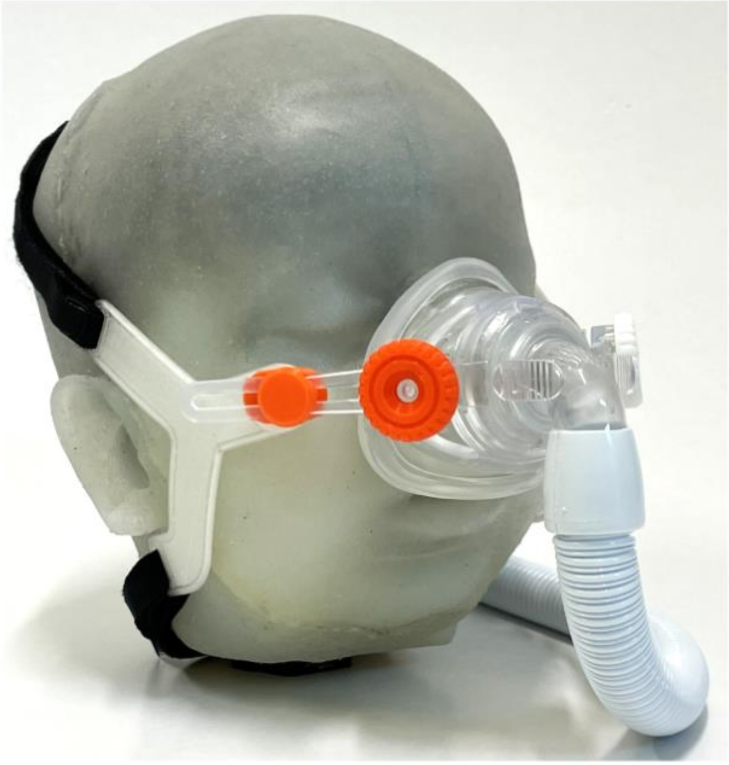

Figure 1. *Prototypical Custom-Made Mask and Headgear on a Paediatric Dummy Head.*

07

EMPOWERING FAMILIES OF AUSTISTIC CHILDREN: EVALUATING THE IMPACT OF HEBA, A DIGITAL PLATFORM SUPPORTING PAEDIATRIC CARE MANAGEMENT, COORDINATION AND NAVIGATION

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BACKGROUND

Families of autistic children face challenges in managing, coordinating, and navigating care. Many report a lack of sufficient resources and tools to support care-related tasks, which impacts their ability to support their child and increases stress levels. Digital platforms like Heba aim to address these challenges by providing families with tools to improve care management.

AIMS

This study evaluated the impact of Heba, a digital platform supporting paediatric care management, on the parents/carers of autistic children. Specific objectives included assessing improvements in care management, coordination and navigation through access to bespoke tools, information and resources.

METHODS

A 12-week feasibility study was conducted with 20 families, including parents/carers of autistic children aged <13 with no prior experience using Heba. Data collection included three surveys (baseline, midpoint, and endpoint), three focus groups, and ten interviews. Quantitative metrics and thematic analyses were used to assess changes in confidence, stress levels, care management, and information access.

RESULTS

By week 12, families reported a 37% increase in confidence in coordinating care (from 65% to 89%), with significant gains in access to information about support (from 40% to 72%) and care communication (from 60% to 78%). Stress levels reduced from 45% to 28%. Feedback highlighted Heba's value for families new to diagnosis, particularly for centralised information storage and personalised support articles. However, barriers such as lack of integration with care providers were noted. Satisfaction levels were high, with 89% of parents reporting they were satisfied or very satisfied with Heba.

DISCUSSION

These findings demonstrate Heba's potential to empower families of autistic children by improving care management, coordination, and navigation while reducing stress. The study identified areas for improvement, including integration with care systems and guidance for new users. Heba represents a promising tool in paediatric care support, particularly for families navigating new diagnoses.

08

THE WEARABLE STUDY: MIXED METHODS INSIGHTS ON MULTI-SENSOR WEARABLES FOR INFANTS AND YOUNG CHILDREN (4-36 MONTHS)

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BACKGROUND

Sleep and physical activity are essential for infant and young children's health and development, but existing tools to measure these behaviours in real-world settings are limited. This study combines multi-modal wearable sensors with ethnographic methods to explore the usability and acceptability of wearables for monitoring young child health behaviours across everyday contexts.

AIMS

1. Assess the feasibility of selected wearable technologies to collect high-quality data on infant and toddler heart rate, sleep, and movement.
2. Explore child and parent experience of wearables, including how different practical and social factors influence acceptability.
3. Examine the use of wearables across different contexts, at home and outside, throughout the 24-hour activity cycle.

METHODS

Using a mixed-methods, within-case design, children aged 4-36 months were recruited through playgroups and social networks in North-East England. Parents and children used two wearables: the Bittium Faros 180 Heart Rate Monitor (HRM) and the NAPPA sleep monitoring system for one week. Data on sleep, movement, and heart rate were collected during structured play and at home. Wear time, heart rate variability, and ultradian respiration cycles during sleep were calculated. Ethnographic methods were used to understand wearable experience, everyday workability, and social contexts.

RESULTS

Seven children and nine parents participated and completed the study. Parents were initially enthusiastic but faced diverse practical and social challenges regarding wearability. Difficulties arose with the HRM, where its size hindered movement, and frequent detachment led to data loss. The NAPPA was comfortable and discreet, which facilitated wear time, but disrupted sleep routines. Both wearables faced challenges in non-parent and day care, leading to non-wear or data loss.

DISCUSSION

Wearable technologies show promise for monitoring infant and young children's health but face significant design and adoption challenges for longitudinal, everyday use. Co-designing child and parent-friendly, practical solutions is essential for large-scale health monitoring.

09

IMPACT AND COST-EFFECTIVENESS OF NEOTREE, A TOOL DESIGNED TO IMPROVE NEONATAL SURVIVAL IN ZIMBABWE: INTERRUPTED TIME SERIES AND ECONOMIC EVALUATION

Karlos Madziva[1], Tom Palmer[2], Simbarashe Chimhuya[3], Nushrat Khan[4], Mario Borja[2], Emma Wilson[2], Tim Hull-Bailey[2], Hannah Ganon[2], Tarisai Chiyaka[1], Aditi Rao[4], Felicity Fitzgerald[4], Sophie Goodman[5], Yali Sassoon[6], Hassan Haghparast-Bidgoli[2], Michelle Heys[2]

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BACKGROUND

Many neonatal deaths are avoidable using existing low-cost evidence-based interventions. This study evaluated the effectiveness and cost-effectiveness of Neotree, a digital quality improvement tool combining data capture with education and clinical decision support, implemented in a Zimbabwean tertiary hospital.

AIMS

The study aims to assess the impact of Neotree implementation on neonatal mortality, and evaluate the cost effectiveness of Neotree.

METHODS

Neotree was implemented in Chinhoyi Provincial Hospital (CPH) in December 2020. Using data collected for all neonates admitted to CPH from March 2020-October 2023, a single group interrupted time series analysis was conducted to estimate the impact of Neotree implementation. Subgroup analyses explored impact in low birthweight (1.5- 2.5kg) neonates, a key group targeted by the intervention. Activity-based costing and expenditure approaches estimated costs of developing and implementing Neotree in CPH from a provider perspective. Both total within-study costs and total costs at scale were estimated and used to derive cost per life saved, cost per life year saved and cost per healthy life year (HLY) gained.

RESULTS

Analysis suggests a possible reduction in overall mortality [RR: 0.877, 95% CI:0.541- 1.423, p=0.596], primarily driven by reduced mortality amongst the low birthweight subgroup [RR: 0.356, 95% CI:0.127-1.002, p=0.051]. Cost-effectiveness analysis based on an assumed mortality impact in this subgroup suggests a within-study cost of around $28.44 per HLY gained, reducing to $6.35 per HLY gained at scale, substantially below cost-effectiveness thresholds in Zimbabwe.

DISCUSSION

Neotree is a potentially low-cost and highly cost-effective digital quality improvement tool to improve newborn care, morbidity and survival, whilst also providing quality data. This study contributes to limited economic evidence of mHealth tools in low- and middle-income settings

10

CHARACTERIZING A NOVEL, ENVIRONMENTALLY SUSTAINABLE SPACER DESIGN FOR IMPROVED ASTHMA DRUG DELIVERY: A COMBINED CFD-MRI APPROACH

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BACKGROUND

Asthma is a common chronic disease in children. Existing treatments involve aerosolised drugs targeted at the lower airways where the disease process takes place. Plastic spacer devices are currently used to improve drug delivery to the lower airways and reduce deposition in the upper airways where they can cause systemic side effects. However, spacers are expensive, require regular cleaning, have an associated stigma, especially for children and contribute to plastic waste. Therefore, a low-cost, disposable and environmentally friendly spacer could address these limitations.

AIMS

To assess a novel disposable, low-impact visibility spacer design ("Ergofit") and compare its airflow and particle delivery and deposition characteristics with current spacer designs using computational fluid dynamics (CFD) approaches.

METHODS

Three spacer geometries (Existing designs: "Volumatic" and "Aerochamber"; New design: "Ergofit") were combined with an airway model acquired using ultrashort echo time (UTE)-MRI. An Euler-Lagrange CFD model simulated multiphase (air and particles) flow in each geometry. Volunteer breathing flow rate measurements were used as air velocity inlet boundary conditions, while particle properties were derived from literature. Spacer performance was evaluated based on the wall shear stress (WSS) distribution, particle deposition mass, proportion of particles reaching the lower airways, etc.

RESULTS

Drug particles with diameter < 10 Qm effectively reached the lower airways, while larger particles (≥ 10 Qm) deposited on the airway walls. Notably, the Ergofit exhibited a substantially lower deposition of aerosol particles (approximately 50% reduction) within the airways. Concurrently, the Ergofit exhibited a 13% increase in the proportion of aerosol particles reaching the lower airways.

DISCUSSION

These preliminary results indicate that the Ergofit shows a better drug deposition profile compared to the other two spacers. These findings, combined with the Ergofit's improved portability and disposability, suggest its potential as an alternative for asthma management.

11 COPING WITH DIABETES: A NEW APPROACH FOR SCALING PSYCHOLOGY SUPPORT ACROSS 256 DIABETES CENTRES IN THE UK

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BACKGROUND

The DigiBete App is available through the NHS to all 35,000 children and young people (CYP) under the age of 25 years with type 1 diabetes (T1D) in the UK.

AIMS

The 2020/2021 National Paediatric Audit, highlighted that 46.5% of CYP were assessed as requiring additional psychological support. Recognising this pressing need, Breakthrough T1D UK funded DigiBete to develop an early intervention tool, initially to support 10-14 year-olds, then later to all ages up to 25 and parents following a successful phase 1 testing and evaluation.

METHODS

A 9-month co-design period took place comprising:

- 6 workshops with young people aged 10-14 living with T1D
- 6 workshops with paediatric clinical psychologists, in diabetes teams from across the country
- 4 expert user sessions with CYA living with T1D under 30

RESULTS

The 'Coping with Diabetes' tool was created and tested on the DigiBete app. Peer to peer films, animated explainers and activities based on Narrative Therapy and Acceptance and Commitment principles were produced to reduce diabetes distress and burnout for young people aged 10-14. Testing occurred at Leeds Children's Hospital with online surveys completed in the clinic by CYPs (N=16 respondents) 80% rated the resources high quality and 81% felt access to the tool was helpful. In the first 3 months of the tool going live, there were 46,258 events by 717 active users, completing 745 activities over an average of 25 sessions each.
Within the DigiBete app young people rated the tool 4.5/5.

DISCUSSION

'Coping with Diabetes' is now available to all CYP with type 1 diabetes aged 10-14 in the UK and Ireland, marrying lived experience with nationally agreed psychology expertise. A further phase, funded by Breakthrough T1D UK has now concluded the development resources for all age profiles up to 25 ready for launch and independent evaluation.

12

THE NON-STOP APP: DEVELOPING A DIGITAL SELF-MANAGEMENT INTERVENTION FOR CHILDREN WITH PERTHES' DISEASE

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BACKGROUND

Perthes' Disease is a rare childhood condition that damages the hip joint and severely affects quality of life. Recently published clinical consensus recommendations emphasize self-management as a cornerstone of care. The NON-STOP app was developed using these guidelines and input from children, families, and clinicians to empower users to manage the condition. The app integrates Self-Determination Theory (SDT) and the Socio-Ecological Model (SEM) to motivate users and promote sustainable behaviour change.

METHODS

Development followed Medical Research Council guidance for complex interventions and the Person-Based Approach. Theoretical frameworks supported intrinsic motivation (SDT) and enhanced social and environmental support (SEM). Children with Perthes' Disease, their families, and clinicians participated in iterative design sessions and a qualitative study to refine app features. Key features included avatar customisation, instructional exercise videos with cartoon characters, and rewards for engagement. Usability and acceptability were assessed in a mixed-methods feasibility study involving 31 children across three NHS hospitals, followed by focus groups at each site.

RESULTS

App data showed moderate engagement during the six-week testing period. Pain levels remained stable, suggesting exercises were manageable. Focus group feedback highlighted rewards and avatar customisation as significant motivators for engagement. Children and families reported that the instructional videos and educational content empowered them to self-manage. The app's self-management components align well with behaviour change principles, fostering sustained engagement.

DISCUSSION

The NON-STOP app demonstrates how behaviour change theories can be integrated into digital health interventions. Study findings indicate the app is usable and acceptable. It has since been embedded into the first randomised clinical trial to determine the optimal management for children with Perthes' Disease which is being carried out by this team in the UK.

13 EXPLORING STAKEHOLDER EXPERIENCES OF CLINICAL GAIT ANALYSIS AND CO-DESIGNING HEALTH ASSESSMENT RESULTS TO PROMOTE SHARED DECISION MAKING AND HEALTH LITERACY

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BACKGROUND

Three-dimensional gait analysis is a tech-enabled clinical assessment that provides vital but often complex information to inform treatment decisions for children and young people with disability and impaired walking function. Shared decision-making is a fundamental principle of modern health care that pivots on the ability to meaningfully inform patients and proactively involve them in making clinical choices. There is evidence to suggest that the complexity of gait analysis outcomes and a lack of familiarity with the data are barriers to their utility, and that patients experience often suboptimal access to the clinical implications of such assessments.

AIMS

To investigate the experiences of children and young people and their caregivers with clinical gait analysis outcomes and collaboratively develop solutions to improve this experience through a process of co-design, promoting health literacy and shared decision-making.

METHODS

Three co-design workshops with twelve people (five young people aged 11-15, seven caregivers) employed creative activities to facilitate reflections on daily routines, challenges and mitigations, and define personal priorities. Participants considered their experiences with gait analysis within this context and collaboratively proposed enhancements.

RESULTS & DISCUSSION

Participants identified barriers to daily activities, including health, environmental, psychological, and financial factors, and stressed the importance of effective communication and family support. Participants expressed dissatisfaction with current reporting processes, citing technical jargon and inconsistent follow-up and information sharing. While some CYP rejected the idea of 'child-friendly' reports (otherwise favoured by caregivers), all participants valued actionable insights. This input informed a preliminary design for a customisable digital solution (e.g., an app) to deliver gait analysis results. Participants favoured interactive elements, such as progress tracking, peer support, and Q&A options, all supported by varied media.
Future work will consider the unmet needs of clinical stakeholders and pave the way for further prototype development and refinement with all key stakeholders.

14

ADVANCING GLOBAL CHILD HEARING CARE – LEARNINGS FROM REMOTE EAR AND HEARING CLINICS PILOTED IN MALAWI

Natalia Glibbery[1], Tamsin Holland Brown[2], Isobel Fitzgerald O'Connor[1], Rebecca Silkstone[1], Charlotte Skipper[1], Rachael Collins[1], Alice Holmes[1], Ali Parkes[3], Mwanaisha Phiri[4]

[1]Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK. [2]Cambridgeshire Community Services NHS Trust, Cambridge, UK. [3]South Cambridge Physio, Cambridge, UK. [4]Queen Elizabeth Central Hospital, Blantyre, Malawi.

BACKGROUND

Hearing loss disproportionately affects low-income countries, where 80% of people lack access to hearing support. Children with hearing loss face challenges in education, communication, and employment, perpetuating cycles of poverty. Ear and hearing health disparities are pronounced in rural communities, including South Malawi.

AIMS

This project aimed to pilot remote ear and hearing clinics in rural South Malawi, providing hearing care to underserved communities and evaluating innovative, cost-effective solutions like bone conduction headsets.

METHODS

Collaborating with healthcare professionals, universities, and charities, four ear camps were held in South Malawi, reaching communities as far as Mua. Teams included audiologists, ENT surgeons, and local organizations such as Anzathu charity. Clinics offered ear exams, hearing tests, and management strategies: antibiotics, wax removal, hearing aids, bone conduction headsets, and educational or employment support. Community engagement was key, with advance site visits fostering awareness and participation.

RESULTS

801 children were formally seen. Bone conduction headsets, powered via solar chargers, supported children with middle ear disease. Behind-the-ear hearing aids with rechargeable batteries from Solar Ear addressed sensorineural hearing loss. Innovations such as ear-shaped microphone coverings enhanced acceptability among children. Community stories highlighted the impact, including a teacher cycling 35 miles with 11 students and a boy returning with his grandmother to receive support.

DISCUSSION

Remote ear clinics addressed critical gaps in hearing care for rural Malawian communities. Bone conduction headsets proved effective and affordable support for middle ear disease, while solar-powered devices overcame barriers like electricity or battery access. Collaborative community engagement, stigma reduction, and sustainability planning were pivotal. Ongoing care by local teams ensures long-term impact, demonstrating the potential for scalable, global solutions in hearing health

15

ENHANCING ASTHMA MANAGEMENT IN YOUNG PEOPLE: INSIGHTS FROM THE DIGITAL HEALTH PASSPORT EVALUATION

Zehra Azim

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BACKGROUND

Asthma is a significant health issue affecting many children and young people. The Digital Health Passport (DHP) is an app designed to support asthma self-management among this demographic. Effective engagement with the DHP can lead to improved health outcomes.

AIMS

This evaluation aimed to assess the effectiveness of the DHP in improving asthma management and to understand the role of clinician training in promoting its adoption among young patients.

METHODS

We conducted a mixed-methods evaluation involving surveys, interviews, and focus groups with users and healthcare providers. Data were collected on user experiences, asthma management practices, and the impact of clinician training on the DHP's usage.

RESULTS

Our findings revealed that the majority of young people using the DHP reported better asthma control and adherence to medication. Clinicians who underwent training felt more confident in recommending the app, leading to increased patient engagement. Feedback indicated that the DHP facilitated better communication between patients and healthcare teams, enabling personalised asthma management.

DISCUSSION

The evaluation highlights the potential of the DHP to enhance asthma care for young individuals through improved self-management tools and effective clinician support. The importance of targeted clinician training cannot be understated; it is crucial for bridging the gap between digital tools and patient care. By fostering stronger partnerships between clinicians and patients, the DHP has the potential to significantly improve asthma management outcomes. Our findings contribute to ongoing discussions on the integration of digital health technologies in paediatric care.

16

EARLY FINDINGS FROM AN ONGOING FEASIBILITY STUDY EXPLORING IMPACTS OF CO-DESIGNED DEVICES FOR CHILREN AND YOUNG PEOPLE (CYP) WITH JIA

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BACKGROUND

Juvenile Idiopathic Arthritis (JIA) is the most frequently occurring rheumatic disease of childhood, leading to chronic joint inflammation, stiffness and pain and daily self-management. Several studies and first-hand accounts have highlighted both the lack of, and need for, appropriate technologies, specifically designed for Children and Young People (CYP) with JIA. This feasibility study builds off an earlier successful proof-of-concept study testing three co-designed assistive devices, collectively named JIA Toolbox, that aim to assist with self-management. This submission will reflect on early study findings, both the impacts of the devices and the study process itself including hurdles encountered.

AIMS

To test the effectiveness and viability of JIA Toolbox to help improve independence and functional ability for CYP with JIA.

METHODS

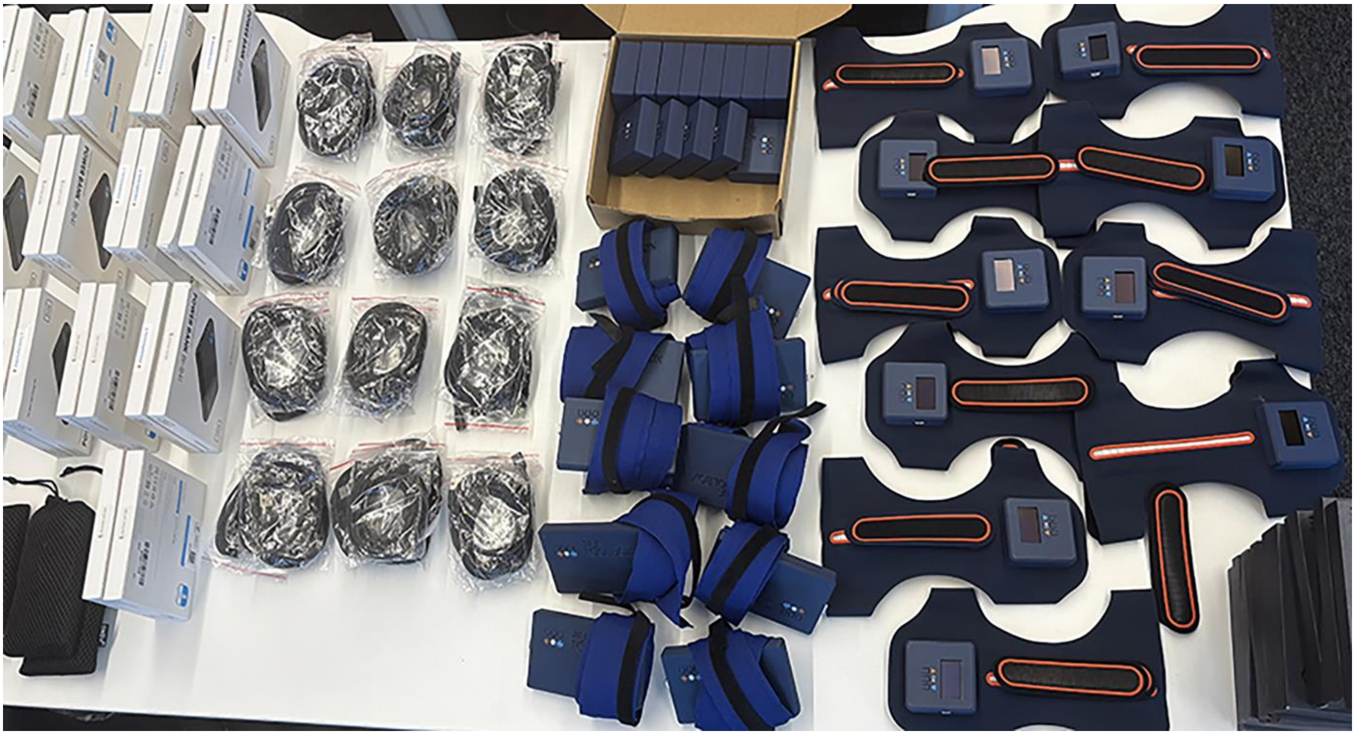
JIA Toolbox consists of three co-designed prototypes:
P1: A wearable pain management device
P2: A motivational physiotherapy tool
P3: A communication aid for use in school
CYP with JIA (7-16yrs), their parents and teachers use JIA Toolbox over a 16-week period, collecting baseline, intervention and post-intervention data sets through self-reported diaries, interviews and prototype usage data.

RESULTS

Highlighted benefits include improved communication with teachers, improved pain management, improved motivation and feeling more in control of their condition. Findings from the overall process include manufacturer difficulties, the need to shift recruitment approaches and check-in methods, and ethical issues around end of study policies and device legacy.

DISCUSSION

Engagement with the prototypes largely depend on participant need and individual invisible factors of where they struggle emphasising the benefit of adaptable devices that can be tailored. The findings also highlight the challenging environment of child health technology specific innovation, leading to lessons learned to enable an easier crossing of the oft referred to ‘Valley of Death’, to progress an idea into the hands of the people it was designed for.



17

THE CO-CREATION OF DIGITAL RESOURCES TO ADVANCE OCD PSYCHOEDUCATION FOR SCHOOL STAFF

Elizabeth Colbert

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BACKGROUND

Obsessive-compulsive disorder (OCD) is a prevalent mental health condition, commonly impacting children and young people (CAYP). Without recognition and appropriate support, CAYP with OCD are more likely to experience co-occurring mental health conditions, negative academic and social impacts, and reduced self-confidence. Education staff are uniquely situated to identify early indicators of mental health and neurodevelopmental conditions, to support relevant classroom accommodations and timely treatment access. However, there is currently a lack of available evidence-based information to support education staff's knowledge and understanding of OCD. Further, there is a lack of research involving those with lived-experience of the condition, including CAYP and their families.

AIMS

The current project aims to bridge this gap, highlighting the perspectives of those with lived experience in the co-creation of psychoeducational resources to improve school staff knowledge of OCD.

METHODS

The current project adopts digital participatory methods to amalgamate the perspectives of key stakeholders (CAYP with OCD, their parents/caregivers, clinicians) and end-users (school staff). The initial phase of the project utilises interviews to explore participants' experiences of OCD, and establish what they believe important for school staff to know about the condition. The second phase involves co-creation workshops to underpin what information will be included in the resource, and how this will look.

RESULTS

Preliminary data through discussions with key stakeholders and end-users suggests a demand for a brief information resource, to be used alongside an engaging and explanative video.

DISCUSSION

The use of co-creation in the development of digital technology to advance OCD psychoeducation may improve its ability to be relevant, engaging and suitable for education staff in light of time and workload limits. Further, utilising technology to present OCD psychoeducation which is representative and adaptable to the experiences of CAYP offers an empowering and insightful method of communicating information surrounding the condition.

18

IMPLEMENTING AUTOMATION AND ARTIFICIAL INTELLIGENCE IN EYE SCREENING FOR CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS (JIA) – INSIGHTS FROM A PPIE GROUP

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BACKGROUND

Current diagnosis of uveitis (potentially blinding eye inflammation) involves subjective Slit Lamp Examination (SLE) by highly specialised, hospital-based staff. Optical Coherence Tomography of the Anterior Segment (AS-OCT) imaging, a potentially sensitive, objective diagnostic tool, can be done in community settings.

AIMS

To develop topic guides for a mixed-methods study on parental and child perceptions on the implementation of imaging tools and automation in screening / surveillance programmes for at risk populations. The study will be nested within a feasibility RCT of AS-OCT versus SLE to deliver uveitis screening for at risk children.

METHODS

Co-design activity with contributions from lived experience experts via a virtual meeting with a representative group: one teenager and four parents of children with or at risk of uveitis. After a foundational discussion informed by previous patient involvement work, we invited group input on topic guides to capture child / parent perceptions on the implementation of AS-OCT, the use of automation in paediatric healthcare, and other potential areas of concern.

RESULTS

The group suggested questions able to capture concerns on the communication of results, communication of process quality and safety factors (ie ‘trust’), and concerns around the absence or delay in seeing a specialist (particularly following ‘positive’ results). Regarding the use of automated analyses and use of artificial intelligence (A.I.) in their child’s eye care, parents suggested questions able to capture concerns about data protection, and positive perceptions on avoiding delays in identifying concerns and informing on clinical state.

DISCUSSION

The co-development group provided unique insight into the parent and child views of AS-OCT, automated image analysis and A.I., an under-researched area in paediatric eye care, despite recent advances in adult eye care. As well as helping to design the mixed methods study, the group identified wider issues about trust, data and communication that require further work.

19

PROJECT DOSOLOGIC: DEVELOPING THE BEST-IN-CLASS TOOL FOR MODEL-INFORMED PRECISION DOSING IN PAEDIATRIC ONCOLOGY PATIENTS

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BACKGROUND

Current paediatric oncology dosing strategies (e.g., body surface area calculations) often lead to suboptimal outcomes, increasing the risk of treatment failure (underdosing) or toxicity (overdosing). Model-Informed Precision Dosing (MIPD), incorporates patient demographics, organ function, and drug pharmacokinetics, offering personalised dose determination. Wider clinical implementation requires more accessible tools, quality models and actionable insights, to maximise impact in this population.

AIMS

1. Develop user-friendly software to integrate MIPD into clinical workflows.
2. Explore advanced techniques for more inclusive and usable models.
3. Apply the software and models to real-world data for dose optimisation of off-patent paediatric oncology drugs (e.g., Vincristine).

METHODS

DosoLogic assembles software engineers, pharmacologists, clinicians, methodologists and patient advocates to deliver a digital tool addressing suboptimal outcomes. End-users have informed software design to ensure interpretability and usability. Newcastle University generates drug monitoring data, feeding predictive models developed using non-linear mixed effects approaches. The software platform and models are presented to end-users for feedback, with assistance from Sheffield HealthTech Research Centre. Development was guided by KOLs Professors Kearns and Veal, following a Digital Health Technology framework.

RESULTS

We developed three paediatric oncology MIPD models. Modelling efforts demonstrate superior predictive performance of project models compared to previously published models. Models will be deployed on the DosoLogic platform, a prototype of which was developed and reviewed by end-users from 17 healthcare providers. To encourage contributions from pharmacology data owners, we propose a marketplace business model, providing a revenue share to promote data sharing.

DISCUSSION

User interviews demonstrated good software usability. The platform democratises access to MIPD. Modelling results indicate improved predictive accuracy across a broader patient population, including neonates and adolescents. By optimising chemotherapy dosing, Dosologic aims to reduce health inequities and improve paediatric cancer patient outcomes. Future work in additional therapeutic areas will support personalised dosing of more paediatric medications.

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“THEY TALK OVER HER, TO HER, THROUGH HER AND THEY DON’T ACTUALLY DIRECT THE QUESTIONS TO HER”: DISCUSSING THE NEED FOR A PATIENT PORTAL APPLICATION IN PAEDIATRIC REHABILITATIVE CARE

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BACKGROUND

Children and young people’s (CYP) perspectives are overlooked within rehabilitation (N-ABLES, 2021). Children are unique individuals, deserving products and services designed for their distinct needs. Kompass is an application designed for clinicians to organise and track rehabilitation data and outcomes.

AIMS

This project aimed to develop a patient portal application, co-designed with paediatric rehabilitation patients to access data in order to track rehabilitation.

METHODS

Funding secured through a Innovate Biomedical Catalyst Grant supported the design of a patient portal. Virtual focus group discussions were held with young people who had previously undergone rehabilitation for brain injury, their parents and their clinicians, to gather insights. Feedback was utilised in creation of wireframe designs, displayed during design refinement focus groups. A second phase of focus groups was held to review patient portal design and gather feedback for future versions.

RESULTS

Focus group discussions illuminated the importance of accessibility, accountability and co-design within healthcare technology development. Within one participant’s rehabilitation the reflection that professionals talked ‘over her’ and ‘through her’, rather than directing the questions ‘to her’ was raised, demonstrating the need for co-design in this application, to highlight patient voice where it is otherwise overlooked. Following discussion, key features were added to the design, including the ability to create meaningful goals, specify opinions surrounding rehabilitation, and colour-code appointment details.

DISCUSSION

The development of this software encourages meaningful, patient led goal setting ensuring that rehabilitation remains value driven. This addresses the growing need for resources to guide CYP through the rehabilitation journey and equip them with information to comprehend their rapidly changing circumstance. The use of co-design throughout focus groups aided understanding into users needs and helped establish key features for the development of the application. This principle should be extrapolated to the development of other healthcare technologies.

21

CHILDREN’S SCREEN HABITS AND THEIR EFFECTS ON SLEEP

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BACKGROUND

On average, school-age children require 9-12 hrs of sleep daily to promote healthy development. Digital screen use can disrupt the body's circadian rhythm, making it harder for children to fall asleep at the right time and get restorative rest. This may have implications for children’s long-term health as they progress through the stages of development.

AIMS

To explore how children’s habits in the use of digital screens relate to general sleep quality and insomnia severity.

METHODS

We adapted two commonly used surveys for sleep research in adults, to make them child friendly. Additional questions were included to provide insights into screen behaviour. Input from parents and eye professionals was incorporated. Children, with the help of parents, completed the online adapted survey providing us with information about their screentime habits and sleep routines.

RESULTS

The average age was 8.9 years with 69 (out of 83) participants reporting owning their own mobile phone or tablet. Daily screentime averaged 2.6 hrs with most of this occurring after 4pm. Most frequent screentime activities were entertainment (TikTok, videoclips) and gaming, with the least frequent being video calls and homework. A higher screentime was linked with increased insomnia symptoms (trouble falling asleep, staying asleep) and daytime disruption. Furthermore, children who reported using screens within 1 hr of bedtime tended to have more difficulty falling asleep.

DISCUSSION

The key findings from this study show that increased screen time for children, particularly before bedtime, is negatively linked to sleep quality. Whilst this is also true for adults, the consequence on children’s health is more critical due to their increased sleep needs. These findings highlight an urgent need for further investigation into the long-term effects on developmental outcomes and the potential benefits of targeted interventions, such as screen-free routines and parental guidance, to mitigate these effects.

22

USE OF THE NOVEL MOBILE-BASED PARENT MANAGEMENT TRAINING hiTOCO® FOR PARENTS OF CHILDREN WITH ADHD – THE CHILDREN’S PERSPECTIVE

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BACKGROUND

Self-directed digital parent management trainings as a treatment option for children with attention-deficit/hyperactivity disorder(ADHD) and oppositional defiant disorder(ODD) offer promise for improving care of affected children.

AIMS

We have developed the novel mobile-based parent management training hiToco®. It represents a class I CE-marked medical device based on a well-established treatment manual. The content that users work on in the form of an individual training plan will be compiled based on an initial onboarding questionnaire.

METHODS

In a first RCT (DRKS00030086) we investigated the efficacy of hiToco® with respect to several parent-rated outcomes and observed consistent statistically significant between-group differences in favour of hiToco®. During the final visit, children were asked, if they noticed changes in their parents´ behaviour. In addition, the participating parent could opt-in for tracking the user behaviour.

RESULTS

Here, we present the user data together with the children’s reports. Mean(3SD) age of the children and participating parents were 8.431.7 years and 39.334.6 years, respectively. The majority(69.2%) of the children were boys, 92.3% of the participants were women. Quantitative (e.g. number of logins) and qualitative (e.g. training plan completion) user data were finally available for N=21/34, and N=29/34, participants, respectively. Participants used hiToco® on average over the course of 120 days with a total average usage time of 8 hours. Median training plan completion rate was 85%. Of note, approximately 50% of the children reported that they noticed changes in their parents´ behaviour. Of these children, more than 70% felt good about this.

DISCUSSION

This data suggests hiToco® is well accepted by parents and that its usage is associated with behavioural changes that can be noted by the affected children. As such, hiToco® represents a promising self-directed treatment option to improve clinical care of children with ADHD and/or ODD.

23 OPERATIONALISING AI PIPELINES FOR PATIENT EXPERIENCE AND QUALITY IMPROVEMENT TEXT-BASED MONITORING

Pavithra Rajendran, Sebin Sabu, Caroline Baumgartner, Lucy Turriff, Nuwanthi Yapa Mahathanthila, Alexander Chesover, Shiren Patel, Ewart Jonny Sheldon, Jaskaran Singh Kawatra, Taraben Kapadia, Mark Harris, Suzanne Collin

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The following two abstracts were submitted separately and have been combined into one poster submission: "Operationalising AI Pipelines for Patient Experience and Quality Improvement Text-based Monitoring".

GENERATE-THEN-CLASSIFY: CAN LARGE LANGUAGE MODELS GENERATE BETTER SUMMARIES OF RADIOLOGY REPORTS FOR AUTOMATED CLASSIFICATION?

BACKGROUND

Radiology reports contain pertinent information that is not present within the structured data in the EPR systems. The Quality Improvement (QI) team are working on a manual process of identifying pathological fractures present within such reports, to help improve quality of treatment in the hospital. We are helping the team to reduce the time-consuming manual process by operationalizing a Natural Language Processing (NLP) pipeline to automatically classify radiology reports based on whether the patient has "pathological fractures" or not.

METHODS

Detecting whether a patient has a "fracture" based on radiology reports is a complex process, requiring a complex understanding of the text within the report. Our experimental findings found that using the reports to train NLP models, did not help the model to understand the complex contextual meaning of the reports. By using efficient, "smaller" Large Language Models (LLMs) to rephrase and summarise the fracture findings from reports, we saw significant performance improvements of a GOSH-specific Small Language Model (SLM) trained to perform the classification task - detect whether the patient had a fracture or not.

RESULTS

Our GOSH-specific model was tested on a validated dataset provided by the QI team. The model has shown performance accuracy of 91% when training the models using the AI-generated summaries; significantly higher than the 52% accuracy when using the original reports.

DISCUSSION

Our findings show that the 'Generate-then-Classify' approach significantly improves performances for complex data with lots of pertinent information written in non-grammatical style; and classical AI-based classification approaches are not providing good results. This work also demonstrates the potential of using LLMs in automating quality analysis in texts in clinical context.

CONTEXT BEYOND SIMPLE RULES: ENHANCING THE NLP PIPELINE FOR SENTIMENT AND THEME PREDICTION IN FAMILY AND FRIENDS TEST FEEDBACK

BACKGROUND

In this work, we present our outcomes on operationalising a Natural Language Processing (NLP) pipeline which helps the Patient Experience team by reducing their efforts towards a time-consuming manual approach. Our pipeline automates and provides an accurate summary of NHS Friends and Family Test (FFT) feedback closer to a human prediction by using the contextual information within the feedback. Our approach also differs from the current pipeline, which uses a traditional AI technique known as Bag-of-Words (BoW) approach and fails to capture the nuances of patient sentiment and the specific themes outlined in the NHS Patient Experience Framework. Addressing these issues, our implemented NLP pipeline is used, and we have trained GOSH-specific Small Language Models (SLM) using our in-house data validated by the Patient Experience team.

METHODS

Our implemented pipeline is used for training AI models, specifically SLMs known for its ability to understand complex and context-rich language for capturing the contextual meaning of the feedback. Further, these models are designed to categorise patient feedback according to two target variables: Sentiment (Positive, Neutral, Negative) and Theme (10 categories based on the NHS Patient Experience Framework, including Respect for Patient-Centred values, Physical Comfort, amongst others). To build these models, a validated dataset of 11,360 patient feedback was collected and anonymised.

RESULTS

Our GOSH-specific AI model performs 92% accurately in comparison with the currently used AI model that performs only 40% accurately using a traditional BoW approach, and thus can effectively process the nuanced language found in patient feedback.

DISCUSSION

This study underscores the advantages of advanced NLP techniques for automating tasks in healthcare settings, particularly for analysing complex patient feedback. Our results also suggests that this approach can lead to more actionable insights, supporting better patient care and more reactive service improvements across the NHS.

24

INTEGRATION OF TECHNOLOGY ENABLED CARE INTO UK CHILD HEALTH

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BACKGROUND

The provision of Technology Enabled Care (TEC) to support the management of patients in health services has been driven by various legislation and policies over the last decade. Children and young people (CYP) are proficient users of all things digital and technology-related. Therefore, it would appear logical for TEC to be offered to support CYP in developing self-management skills and to support their care decisions. However, difficulties remain in the uptake and adoption of TEC.

AIMS

To investigate innovative technologies being developed for Children and Young People's healthcare to support TEC across the UK.

METHODS

An e-survey is currently underway via 'Online Surveys' to: industry partners, child healthcare professionals ('Med-Tech' champions), academics, and researchers, who support the development of TEC with CYP. E-survey distribution is via NIHR Healthtech Research Centres, NHS Trust Innovation departments, and social media. Descriptive statistics will be performed to describe the sample and content analysis for free text responses.

RESULTS

The e-survey is underway and is being distributed according to the protocol. Recruitment is on track at 68%. Most participants are industry partners working with tertiary care centres, developing applications, medical devices or communication technologies. Most areas for project development are: mental health, ophthalmology, or cross-cut child health. The majority of projects are Technology Readiness Level 9. Free text responses offer insights into challenges faced, with some solutions offered.

DISCUSSION

Early e-survey responses indicate the challenges of TEC adoption into child health. Successful integration of technologies appears problematic. Findings will assist in understanding the current landscape of developing TEC that may be generalisable to the global population. The main strengths of the study are sustained PPI engagement, willingness of industry partners to share experiences with a clinical academic, and participants indicating their support for future project involvement in subsequent PhD work packages.

25

INTRODUCTION TO CHILD-CENTRED HEALTH JUSTICE PRINCIPLES IN ASSISTIVE TECHNOLOGY INNOVATION

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BACKGROUND

Assistive technologies hold the potential to shape the identities, relationships, and daily experiences of children and young people (CYP) with disabilities. However, it is easy for traditional design processes to overlook the voices and lived experience insights of the very users they mean to serve, resulting in designed outcomes that may not fully meet users' functional requirements, let alone their desires and aspirations. Child-centred health justice calls for an inclusive, equitable approach to designing assistive technology that prioritises the participation of CYP.

AIMS

This presentation aims to introduce foundational principles and practices of child-centred health justice in design and explores why, when, where and how these can be embedded into the development of assistive technologies to deliver more innovative, inclusive, and impactful outcomes.

METHODS

Drawing on interdisciplinary empirical research, theoretical frameworks and best practices in participatory design, co-design, and child-centred innovation, this presentation outlines key strategies for engaging CYP in design processes. Particular attention is given to the principles of inclusivity, creativity, accessibility, responsibility, and equity, with explanations around how each of these plays a critical role in facilitating meaningful engagement with CYP.

RESULTS

Incorporating child-centred health justice principles into the design of assistive technologies leads to more effective, desirable, and equitable user-centred products, whilst empowering CYP to actively shape assistive technologies that reflect their identities and aspirations. Real-world examples are presented which demonstrate more effective and inclusive solutions, opportunities for innovation, and alternative child-centred collaborations.

DISCUSSION

By integrating Child-centred Health Justice principles and practices in Assistive Technology innovation we can deliver designs that better empower CYP, honour their identities, and ultimately promote health justice. A call to action is presented for researchers, designers, and policymakers to champion children's rights and reimagine assistive technology as a platform for inclusion, equity, and meaningful change in the child health technology sector.

26

HOW TEENAGERS ARE NAVIGATING DIGITAL HEALTH IN 2025

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BACKGROUND

As healthcare systems become increasingly digital, children and young people (CYP) must navigate a ‘digital front door’ to access services, manage health information, and transition into adult care. Health applications (apps) offer an opportunity for CYP to engage with health education, promote healthy lifestyles, and adopt preventative health measures in a personalised and accessible way.

AIMS

To understand teenagers’ choice, access, and use of digital health solutions in 2025.

METHODS

A survey was conducted among 16–17 year-olds attending one state school in Cambridge, assessing their use of digital health solutions.

RESULTS

Teenagers primarily download health apps based on recommendations from friends (50%), social media (50%), the App Store (40%), or family (33%), with only one respondent having received a recommendation from a healthcare professional. On average, participants had downloaded two health apps, including fitness (60%), period tracking (53%), mental health (40%), sleep (40%), and mindfulness (40%) apps. Notably, 60% had downloaded apps intended for users over 18.

Young people assessed apps based on ease of use, accessibility, cost, goal-tracking features, aesthetics, and star ratings. Although “accuracy” and “personalised statistics” were mentioned, respondents did not specify how they verified reliability. While 100% expressed interest in learning more about health apps, 80% were unsure how to book a healthcare appointment, and 50% had not downloaded the NHS app. Additionally, 40% had helped an older family member navigate digital health solutions.

DISCUSSION

Despite widespread use of digital health tools, teenagers lack trusted sources of information and guidance. There is a risk that they are downloading inappropriate or suboptimal apps. Digital health education in schools could equip CYP with the skills to access healthcare, use of the NHS app, and identify reliable health apps. Healthcare professionals should play a greater role in recommending evidence-based digital health solutions.

27

GREENER NHS INITIATIVES CAN BE PROMOTED IN SCHOOLS: SIMPLE POSTERS AT SCHOOL IMPROVE TEENAGERS RECYCLING ASTHMA INHALERS

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BACKGROUND

Recycling asthma inhalers is essential for reducing the environmental impact of hydrofluorocarbon (HFC) propellant gases, which are potent greenhouse gases contributing to climate change. Proper disposal through pharmacies prevents the release of these gases and allows for safe recycling of plastic and metal components. Encouraging young people to recycle inhalers aligns with their growing awareness of environmental sustainability, reinforcing the link between individual actions, planetary health, and personal well-being.

AIMS

As part of a school environmental project, this study explored teenagers' understanding of asthma inhaler recycling and assessed whether a simple poster could improve awareness and intention to recycle.

METHODS

Ten students aged 14–15 from a state school answered four questions before and after viewing an educational poster for one minute. Two knowledge-based questions were scored from 0 (incorrect) to 2 (fully correct). Two behaviour-based questions used a sliding scale (1–10) to measure willingness to recycle inhalers and to inform others.

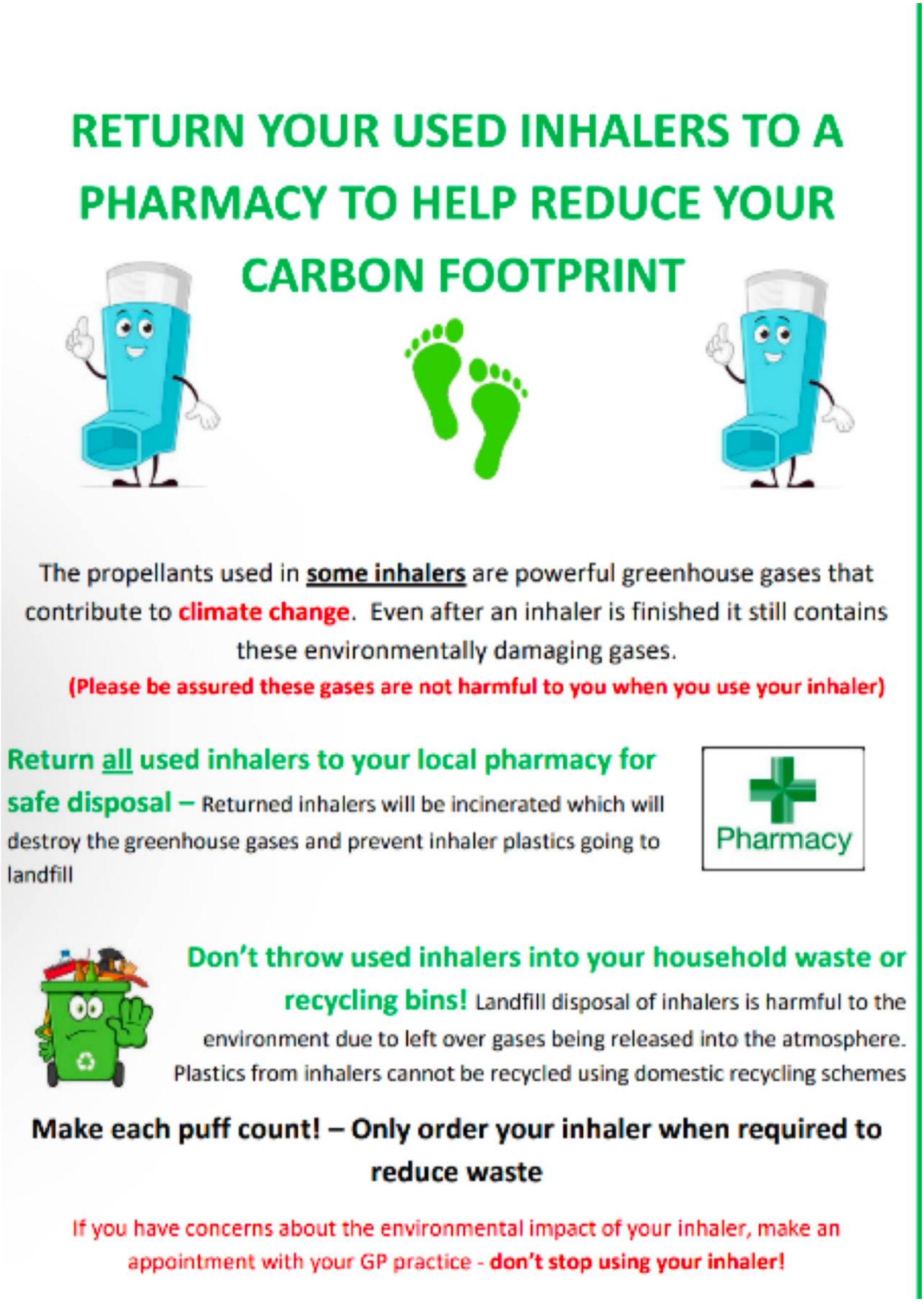
RESULTS

Before seeing the poster, students had limited awareness of inhaler recycling, mostly focusing on plastic waste or suggesting inhalers could be "reused." None recognized the impact of inhaler gases. After viewing the poster, 100% correctly identified why inhalers should be recycled and where to return them.

Initially, the average likelihood of recycling an inhaler was 5/10, increasing to 8/10 post-poster. The likelihood of informing others rose from 2/10 to 9/10.

DISCUSSION

A short, well-placed poster can significantly improve teenagers' knowledge and willingness to recycle inhalers and spread awareness. Displaying posters in high-visibility areas, could support greener NHS initiatives and enhance environmental responsibility among young people.



RETURN YOUR USED INHALERS TO A PHARMACY TO HELP REDUCE YOUR CARBON FOOTPRINT

The propellants used in **some inhalers** are powerful greenhouse gases that contribute to **climate change**. Even after an inhaler is finished it still contains these environmentally damaging gases.

(Please be assured these gases are not harmful to you when you use your inhaler)

Return all used inhalers to your local pharmacy for safe disposal – Returned inhalers will be incinerated which will destroy the greenhouse gases and prevent inhaler plastics going to landfill

Don't throw used inhalers into your household waste or recycling bins! Landfill disposal of inhalers is harmful to the environment due to left over gases being released into the atmosphere. Plastics from inhalers cannot be recycled using domestic recycling schemes

Make each puff count! – Only order your inhaler when required to reduce waste

If you have concerns about the environmental impact of your inhaler, make an appointment with your GP practice - **don't stop using your inhaler!**

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