and teaching from this was also included in the teaching programme.

Results Since December 2020, it took six months for the number of incidents due to prescribing errors to reduce from 14 in six months (December 2020-May 2021) to 10 in six months (June-November 2021). Audit results showed that since December 2020 we were scoring >90% in 3 out of the 10 domains. Three months into the teaching programme this improved to 4 out of 10 of the domains and at six months, 6 out of 10 domains. When re-audited with our revised audit tool, we achieved >90% initially in 10 out of 16 domains and then consistently maintained our standards across 11–12 out of 16 domains over a four-month period (October 2021-January 2022).

Conclusions This project has shown that despite a global pandemic, a combination of innovation, education, technology, multidisciplinary skills and MDT working can implement and embed change to improve patient safety. When considering the bigger picture, we recognise this is a small part of the larger systemic processes that can influence medication errors and that with perseverance, we can aim to reduce the risk of adverse events due to medication errors and therefore provide the best care for our patients.

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P03 LEFLUNOMIDE TREATMENT FOR INFLAMMATORY BOWEL DISEASE AND INTESTINAL FAILURE CAUSED BY TTC7A DEFICIENCY

Emma Williams. *Cambridge University Hospitals NHS Foundation Trust*

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TTC7A deficiency Ultra-rare autosomal-recessive variants in tetratricopeptide repeat domain 7A gene (TTC7A) have been discovered in patients presenting with severe intestinal disease. Mutations in the TTC7A gene cause intestinal epithelial and immune defects resulting in apoptotic enterocolitis, multiple intestinal atresia, and recurrent intestinal stenosis. Patients face high mortality rates with palliation as the current standard of care.[1]

Leflunomide In 2020 a high throughput screen identified drugs that increased cell viability in patients with TTC7A; leflunomide reduced caspase 3 and 7 (responsible for cell death) activity in cells by 96%. In zebrafish with disruption of TTC7A, leflunomide restored gut motility, reduced intestinal tract narrowing, and increased intestinal cell survival.[1] From a literature review, only 3 patients in the world have been prescribed leflunomide for TTC7A deficiency with 'encouraging results'.[2] however no case reports have been completed on treatment safety or effectiveness.

A common adverse effect of leflunomide is liver toxicity due to production of a toxic intermediate; however, the reaction appears to be idiosyncratic and unpredictable.[3] Full blood count and liver function tests must be checked before initiation of leflunomide, every two weeks during the first six months of treatment, and every 8 weeks thereafter.[4]

The patient A 7-year-old male on home parenteral nutrition with TTC7A deficiency was admitted to hospital with high ileostomy output and persistent vomiting with a background of mucosal gastrointestinal inflammation and pyloric stenosis. On behalf of the gastroenterology team, the paediatric gastroenterology pharmacist applied for urgent internal funding and clinical governance approval for leflunomide treatment with the aim to ameliorate intestinal disease. Leflunomide 10 mg daily costs £3.11/month. Treatment was approved, the patient and his family were counselled by the pharmacist and the patient began treatment of leflunomide 10 mg via PEG tube daily.

Adverse event After two weeks of treatment the patient's alkaline phosphate (ALP) and Gamma GT (GGT) had doubled and their alanine transaminase (ALT) had increased 10-fold. Advice from the pharmacist was sought. On review of the leflunomide summary of product characteristics[4]: 'Rare cases of severe liver injury, including cases with fatal outcome, have been reported during treatment with leflunomide//If ALT elevations of more than 3-fold the upper limit of normal are present, leflunomide must be discontinued and wash-out procedures initiated.' A decision was made to stop treatment, however a washout procedure with cholestyramine or activated charcoal was not possible as the patient had minimal oral intake due to vomiting. The pharmacist filed a yellow card report.

Follow up The patient's ALT normalised after 3 weeks and GGT after 2 months of treatment cessation. It took 8 months for the patient's ALP to normalise.

Lessons learnt Unfortunately, it was impossible to assess the potential gastrointestinal benefits of leflunomide in this patient due to the rapid onset of significant liver toxicity. Liver toxicity may have been identified sooner if a blood test was taken 1 week after treatment initiation. Monitoring liver function earlier following initiation of leflunomide treatment may be helpful to minimise liver toxicity in patients with TTC7A deficiency.

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P04 CLINICAL PHARMACISTS' PERCEPTIONS OF THE BARRIERS AND FACILITATORS TO THE IMPLEMENTATION OF PAEDIATRIC CLINICAL PHARMACY SERVICES IN HONG KONG

Conor Sin, Chi Huynh*, Ian Maidment. *Aston University*

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Aim To identify barriers and facilitators that influenced the implementation of paediatric clinical pharmacy service (CPS)

in Hong Kong's public hospitals from clinical pharmacists' perspective.

Methods A qualitative study based on semi-structured interviews (SSIs) of clinical pharmacists who practiced in paediatrics in four public hospitals situated in east and central Kowloon of Hong Kong. The questions in the interview schedules were based on previously determined themes identified in paediatric CPSs and were developed through consultations with all researchers.[1 2 4] Pilot testing was performed with three study participants to confirm the coverage and relevance. Participants were given the choice to select either telephone or video conferencing for their SSIs. The interviews were conducted by the principal investigator (PI) in spoken Cantonese. The transcripts were translated into English by the PI, and a sample of the translated transcripts was subsequently checked by the research team for accuracy and to minimise transcriptional error. The transcripts were entered in QSR NVivo v.12 to support data analysis. Two researchers were responsible for the coding process. The resulting topics were organised by thematic analysis. Consensus was reached amongst the researchers for the identification of themes that emerged during the interviews. The Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines were used.[3] Ethical approval for this study was obtained from the research ethics committees of the relevant institutions.

Results Of the 32 clinical pharmacists from across the study sites, 12 were interviewed by telephone that allowed for theoretical data saturation to be reached. Five barriers and three facilitators were identified as main themes. The barriers that were identified which hindered service implementation include the service penetration into the healthcare system, practice environment constraints, lack of affirmation from the administrative stakeholders, governance of the profession, and partnership with universities. The facilitators that were identified which enabled service implementation include other healthcare professionals' trust and confidence in the service, the support from the pharmacy management team, and clinical pharmacists' self-efficacy.

Conclusion The clinical pharmacists interviewed in this study reported that the successful implementation of paediatric CPS in public hospitals in Hong Kong is an area of continued development with several key barriers. The major implementation barriers identified include the availability and coverage of clinical pharmacists for service provision. Nevertheless, clinical pharmacists and healthcare professionals were found to have not only positive attitudes towards CPS but also support from clinical and pharmacy management teams. An enhanced internal and external governance infrastructure within the pharmacy profession would allow for the standardisation of practice and training, which would ultimately help drive the implementation of CPS forward as a whole.

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P05 TREATING CHILDREN WITH HCV CLOSE TO HOME THROUGH A VIRTUAL NATIONAL MULTIDISCIPLINARY NETWORK

[1]Kinza Ahmed, [2]Joanne Crook*, [1]Alison Tennant, [3]Penny North-Lewis, [1]Tayebah Abbasi, [1]Carla Lloyd, [1]Maxine Brown, [4]Deirdre Kelly. *[1]Birmingham Women and Children's NHS Foundation Trust; [2]King's College NHS Foundation Trust; [3]Leeds General Infirmary; [4]Liver Unit, Birmingham Women and Children's NHS Foundation Trust*

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Aim Hepatitis C Virus (HCV) infection is a major global health problem. Direct Acting Anti-viral therapy (DAA) has cure rates of 99% in adults and adolescents.[1] DAAs were licensed for children 3 – 12 years during the recent coronavirus pandemic. In order to ensure equitable access and a safe, effective and convenient supply of these medications during lockdown, we established a virtual national treatment pathway for children with HCV in England and evaluated its feasibility, efficacy and treatment outcomes.

Method A paediatric Multidisciplinary Team Operational Delivery Network (pMDT ODN), supported by NHS England (NHSE), was established with relevant paediatric specialists, including pharmacists, to provide a single point of contact for referrals and information. Referral, treatment protocols and family friendly patient information were developed for all HCV therapy. On referral the pMDT ODN discussed and agreed the most appropriate DAA therapy based on clinical presentation and patient preferences, including ability to swallow tablets. Treatment was then prescribed and supplied in association with the local paediatrician and pharmacist, without the need for families to travel to national centres. All children were eligible for NHS funded therapy, each referring centre was approved by the pMDT ODN, prior to approval to dispense medication and funds were reclaimed via Blueteq authorisation. Demographic, clinical and social data was collected, and treatment outcomes were recorded. Feedback on feasibility and satisfaction on the pathway and supply of medication was sought from referrers.

Results 34 children were referred during the first six months; median (range) age 10 (3.9 – 14.5) years; 15M; 19F: Majority of referrals are HCV genotype type 1 (n=17) and 2 (n=12). DAA treatments prescribed: Sofosbuvir/Ledipasvir (n=21); Sofosbuvir/Velpatisvir (n=11) Glecaprevir/Pibrentasvir (n=2).

27/34 confirmed as able to swallow tablets; 3/7 have received training and are now able to successfully swallow tablets; 4/7 are awaiting release of granules. All children who have completed treatment to date (11/27) have cleared virus at the end of treatment. Once the network was established, referrers found the virtual process easy to access. They valued being able to discuss their patients with the MDT providing a single point of contact with national specialists to discuss therapy. Specialist pharmacists within the pMDT were able to provide pharmaceutical information and support local Trusts to ensure safe, timely and funded supply of medication to children. There were three reported dispensing errors, where adult strength tablets were dispensed in error locally, however no doses were taken as parents noticed the error prior to giving a dose. A delay in availability of the granule or pellet formulations due to manufacturing delays during COVID, has meant a delay in referring and treating those children unable to swallow tablets.

Conclusion Pharmacists were a valuable resource within the National HCV Paediatric MDT Operational Delivery Network.