changes included massive increase in telephone and video consultation to limit direct clinician contacts. Only about a third of clinicians were aware of pandemic-specific guidelines.

Quality Improvement and Patient Safety

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SYSTEMIC ADVERSE EVENTS AND SIDE EFFECTS FOLLOWING INTRAMUSCULAR BOTULINUM TOXIN A (BONT-A) INJECTIONS IN CHILDREN WITH CEREBRAL PALSY AND MOVEMENT DISORDERS

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Background Botulinum toxin A injections are recommended for use by NICE¹ to treat spasticity in children with cerebral palsy and movement disorders.

Objectives To explore the frequency of adverse events and side effects within a Paediatric Botulinum Toxin Service.

Methods This was a retrospective review of children (aged 2 to 17 years) attending the Botulinum Toxin Service between 2016–2019. We investigated systemic adverse events (generalized weakness, lower respiratory tract infection, dysphagia and death) and side effects occurring at time of injection and at follow-up with physiotherapy, occupational therapy or medical teams.

Results 50 children underwent 93 toxin episodes. 45 children had a diagnosis of cerebral palsy (GMFCS I (9), II (12), III (6), IV (14), V (5)) and 5 had other movement disorders. 5 were excluded from analysis (1 child did not attend follow up and, 4 were excluded as follow up was not yet complete). In total, 88 toxin episodes were included.

No children were reported to have systemic adverse events.

Side effects were reported in 27% (24/88) of toxin episodes. Only 2 children (2/88, 2.2%) experienced side effects at time of the injection (pain 1/88 (1.1%), distress 1/88 (1.1%)).

The most common side effects experienced at follow-up was bruising (12/88, 13.6% GMFCS I(1), II(3), III(5), IV(3)). Other reported side effects included pain (11/88, 12.5% GMFCS I(2), II(2), III(4), IV(3)), flu-like symptoms (6/88, 6.8% GMFCS I(1), II(1), III(1), IV(2), V(1)), localised weakness (4/88, 4.5% (all GMFCS I-III), and skin problems (2/88, 2.27% (GMFCS I-II). There were no reported urinary or bowel problems and no increase in seizure frequency in children with epilepsy.

Conclusions No systemic adverse events were noted in our local Botulinum Toxin Service over a three-year period. Most of the side effects reported were minor and self-limiting. This data is in line with recent national and international studies. These results support that botulinum toxin injections are a safe intervention for tone management in children with cerebral palsy/movement disorders.

REFERENCE

1. NICE Clinical guideline CG145. Spasticity in under 19s: management. 25th July 2012.

British Association for Paediatric Nephrology

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AWARENESS AND UTILISATION OF THE DENTAL OUTPATIENT DEPARTMENT BY RENAL PATIENTS AT ALDER HEY CHILDREN'S HOSPITAL

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Background Children with kidney disease can experience systemic effects that are of relevance to the provision of dentistry. These children rely on tertiary specialist care for many aspects of their management and may develop oral symptoms that may not be prioritised over medical health care needs. In children with severe kidney disease, dependent on dialysis or a kidney transplant, managing oral disease becomes more complex and more important to treat as the mouth may represent a potential source of infection for the immunocompromised patient.

Despite this, in most paediatric centres, no formal relationship currently exists between renal and dental departments. This evaluation aimed to assess the clinical need for a specific pathway for these children.

Objectives

- Establish the demand for dental assessment from children attending renal outpatient clinics
- Establish the need for specialist dental care within this group of patients
- Assess the knowledge of families regarding the presence of the dental outpatient department
- Evaluate demand for the development of oral health resources for children with renal disease

Methods A questionnaire was piloted locally prior to distribution to patients attending renal outpatient clinics. Questions evaluated children's registration status with General Dentist (GDP), parental awareness of the dental outpatient clinic at Alder Hey and interest in attending this clinic, and demand for oral health information. Questionnaires were completed by parents and carers and returned to the renal outpatient department.

Results Approval for the project was granted in November 2019 (project no. 5935). Data collection was from December 2019 to November 2020. 12 questionnaires were returned (with some missing data). Seven patients were male. The mean age was 10 years old (range 3–18). Five patients had previously received a renal transplant. Three had chronic kidney disease (CKD) stage 4 or 5, and three had less severe CKD.

Abstract 1791 Table 1

	Q1 Registered with GDP	Q2 Knowledge of OPD	Q3 Requested check-up	Q4 Requested further oral health information	Seen in dental dept previously
Number of responses	9/12 (75%)	4/12 (33%)	8/12 (67%)	6/10 (60%)	3/12 (25%)

78% (n=7) of patients who had a GDP requested a specialist dental check-up at Alder Hey. Three patients already under the dental department, were no longer registered with a GDP. Only one patient (11%) who hadn't been seen in the dental department previously knew of its existence. 67% (n=2) of patients who had been seen within the dental department previously, requested a dental review. Dental review was arranged for all the patients who requested it.

Conclusions

- There was generalised high demand for specialist dental review and oral health information
- Most patients were post-transplant or CKD 4 & 5, who require specialist dental management
- Few patients had been seen within the department previously, and few were aware that there was a dental department at Alder Hey
- Data collection was disrupted due to the COVID-19 pandemic but highlighted the need for formal renal-dental pathways

Recommendations

- Specialist dental assessment for all haemodialysis patients
- Dental assessment of pre-transplant patients during work up
- Annual or semi-annual specialist dental review post-transplant

Development of an oral health leaflet for renal patients

British Association of Child and Adolescent Public Health

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PREDICTORS OF HEALTHCARE UTILISATION IN CHILDREN: A POPULATION SEGMENTATION APPROACH IN NORTH WEST LONDON

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Background There is a growing role for health services in managing population health. Segmentation approaches are widely used in the adult population to identify individuals with similar healthcare needs, based either on demographics and long-term conditions (LTCs), or on healthcare utilisation. Although the two approaches are closely linked in adults, the link between demographics and LTCs with healthcare utilisation in children at a population level is unclear.

Objectives To segment the child population of North West London based on healthcare utilisation, and to identify the predictors of utilisation based on age, sex, ethnicity, long-term conditions, and socio-economic deprivation.

Methods Data for this study used the Discover platform to access routinely collected primary and secondary healthcare data in North West (NW) London. A retrospective cohort was constructed of children aged 0–15 years currently registered to a general practice (GP) in NW London with one full year of follow-up up to the end of February 2020. For children who had died during this period, one year of follow-up was

included up until the date of death. A k-means clustering method was performed to segment the population based on seven healthcare utilisation variables (GP, A&E and outpatient attendances; elective and emergency admissions; elective and emergency total length of stay in days over the year). Adjusted multinomial logistic regression was used to identify the predictors of segment membership, including age, sex, ethnicity, deprivation (using quintiles of the Index of Multiple Deprivation score) and presence of one or more LTCs as covariates.

Results 378,309 currently registered children aged 0–15 years were included in the cohort, of whom 43 (0.01%) had died. Six segments were defined with differing healthcare utilisation patterns: three segments predominantly using primary care, one predominantly using emergency care services, one predominantly using elective care services, and another, representing 4.4% of the population with the highest activity across all service types. Younger children, males, those with one or more LTCs, and those living in areas with higher deprivation were more likely to be in higher utilisation segments. However, the pseudo-R² for the model was 0.052, suggesting significant unexplained variation in utilisation.

Conclusions Using a data-driven method, we segmented the child population of NW London into six distinct groups based on healthcare utilisation. Although demographics and co-morbidities were strong predictors of utilisation segment, a significant amount of variation remained unexplained, suggesting a less well-defined trajectory of utilisation in children than in adults. Further research is needed to understand whether additional factors available in electronic health records can explain variation in utilisation, and can enable early identification and intervention.

Association of Paediatric Emergency Medicine

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COMPARISON OF THREE PAEDIATRIC EARLY WARNING SCORES FOR CHILDREN REQUIRING UNPLANNED PICU ADMISSIONS RETROSPECTIVE OBSERVATIONAL STUDY

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Background Paediatric early warning system (PEWS) is a well-recognised multi-faceted structure used to detect and manage clinical deterioration in children. There are multiple systems used in various clinical settings with limited evidence despite its widespread implementation in healthcare. However, it has been identified that there is a need for standardisation to help improve patient safety. The three tertiary children's hospitals in the 'South Thames Paediatric Network' in London (Evelina children's hospital, Kings College Hospital and St Georges hospital) use three different types of PEWS.

Objectives The overall aim of this study was to compare the three different PEWS to identify clinical deterioration in children requiring unplanned PICU admissions. The primary hypothesis was that there were differences in the time for escalation based on the type of PEWS tools used for a sample of population requiring unplanned PICU admission.

Methods This was a single centred retrospective observational study of 35 patients with unplanned PICU admissions from