nationwide lockdown beginning on the 23rd of March 2020. Due to limited services and increased isolation, it was difficult to identify this abuse and intervene through the traditional channels. This study used a proxy measure, that is to see if there was an increase in referrals to Paediatricians for child protection medicals.

Objectives This study intends to assess the impact of lockdown on child abuse during school closure.

Methods We performed a retrospective observational study of all child protection medical examinations undertaken at the Pinderfields General Hospital, England during April and May 2019, in comparison to the same period of 2020. The outcome measurements included the number and sources of referrals, previous contact with social services, risk factors for abuse, and the outcome at discharge.

Results The difference in age and gender referrals was insignificant. The highest numbers of referrals were for physical abuse in both years. Although neglect remained the second highest cause for referral in 2020, this could be due to the reasons previously stated.

Table showing the results with differences in referrals in 2019 and 2020.

	April and May 2019	April and May 2020	Change
Children referred for child protection medicals	37	44	18% ↑
School as a source of referrals	32%	4%	28% ↓
Children referred by social services who already have a child protection plan	5%	36%	31% ↑
Referrals with underlying medical problems	13%	34%	21% ↑
≥2 risk factors for abuse	13%	27%	14% ↑

Domestic violence, mental health, and drug abuse in parents have remained the predominant causes of risk factors for abuse in children in both years.

The majority of children in 2020 went home with social services' input rather than the support of family members like grandparents (due to isolation or shielding). This caused a high financial impact on the Government.

Conclusions COVID-19 has led to a demonstrable increase in child abuse, with the possibility of gross underestimation due to school closures. The results show fewer children are being referred by schools and there are fewer referrals from children who are not under the radar of social services with child protection plans. This may reflect an increase in hidden abuse. The direct impact of the increased presence of children within the home and the indirect impact of the virus on unemployment, mental health, domestic violence and substance abuse may offer some explanation to rising levels of child abuse.

All Paediatric referrals should be treated with a higher degree of suspicion during this pandemic. School closure risks rising levels of hidden abuse in the UK, this needs to be considered by policymakers.

British Association for Community Child Health

605

VALIDATION OF A NEW DIGITAL TOOL, THE PIRATES AUTISM ASSESSMENT APP, AS AN ADJUNCT TO ASSESSMENT OF PRIMARY SCHOOL CHILDREN REFERRED WITH POSSIBLE AUTISM

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Background With increasing demand and waiting times for autism diagnostic assessment, we need to improve the timeliness of diagnostic assessment (NHSE Long Term Plan 2019). Digital tools which are task-specific and adapted for inclusive use can engage children across the neuro-diverse spectrum positively; and have potential to deliver more efficient diagnostic pathways. We present the results of a validation study of a novel autism assessment app (Pirates). This includes tests of Theory of Mind, Affect Recognition, Fantastic Stories and Understanding of Idiom presented in a pirate adventure game format. This can be played with the child, alongside history taking and school information, at initial clinical assessment of a child referred for possible autism.

Objectives

- Determine if children diagnosed with autism perform differently to Neurotypical (NT) children using the Pirates app.
- Establish sensitivity and specificity.

Methods Following statistical advice, and NHS ethical approval, we aimed to recruit 120 children (60 autism, 60 NT) attending mainstream primary school (age 4 to 11). With written informed consent children played on the app with a researcher, and responses to each question were recorded. From this a score was calculated based on number of errors (if no errors, score 28, each error adds +1 to total, so max score 56 (28 errors). Statistical significance was tested by unpaired T-test.

Results Children with autism (N=51, study closed early as unable to assess children during Covid) made a larger number of errors (mean score 35) than NT (n=59) (score 31 p<0.000001). Number of errors decreased in both groups with age, reflecting that developmental skills such as Theory of Mind improve with the age of the child: NT key stage one (KS1) (<90 months) mean score 32, key stage two (KS2) (over 90 months) 31, and in autism group KS1: score 37, KS2: 34. Using Receiver Operating Curves, cut-offs between likely autism and likely NT were determined, according to age. Using these cut-offs overall sensitivity was 75%, specificity 86%, improving to 77% and 94% for KS1 age group. It was also observed that playing with the child using the app gave additional helpful information about their social interaction, e.g. whether they responded socially to shared humour during some scenarios, or needed reminders to listen to the question before pressing buttons 'impulsively'.

Previous pilot work has shown high acceptability with parents and children, and suggests digital-clinical interaction typically takes 10–15 minutes to complete, fitting well into a standard 60–90 minute initial paediatric developmental assessment.

Conclusions The Pirates app shows promise as a tool that can be used alongside initial clinical assessment including history taking and information from school, to determine whether full, detailed, diagnostic assessment is required. In some cases, it may support an early and shortened diagnostic pathway of the child at the initial stage of the diagnostic process. By improving early decision making, including increasing confidence in deciding whether or not a child needs to proceed to full diagnostic assessment, this could help improve the timeliness of diagnostic assessment, and reduce service delivery costs.

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606

HOW CAN WE DELIVER TIMELY AND HIGH QUALITY DIAGNOSIS FOR CHILDREN WITH POSSIBLE AUTISM IN THE UK: A RAPID REALIST REVIEW OF AUTISM SERVICE DELIVERY LITERATURE

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Background Referrals and waiting times for diagnostic assessment of possible autism in children have increased substantially within UK NHS recently, delaying opportunities for intervention and frustrating families. Research exploring which service models could improve quality and timeliness of autism assessment is a key NHSE priority.

Objectives

- Explore evidence from research and grey literature about which autism assessment pathways work well, for whom and under what circumstances, to deliver high quality and timely diagnosis.
- Inform subsequent stages of our Realist Evaluation/study.

Methods We performed a Rapid Realist Review (RRR), a well-established approach to synthesising evidence to identify service delivery models achieving desired outcomes. RRRs seek to develop programme theories (PTs), or explanations, of how, why and in what contexts an intervention works. The focus was a clearly defined intervention (diagnostic pathway), specific outcomes (high quality and timely) within particular parameters (Autism diagnostic services in UK). This was carried out in five iterative stages. We collected 129 grey literature and policy/guidelines from the background search, and 220 articles from primary search (Jan 2011-Dec 2019; seven databases, terms: autism, diagnostic pathway, model of service provision, assessment process). Following duplicate removal and screening of abstracts, two researchers carried out data extraction by hybrid approach: basic details from each included article (n=79) were recorded in an Excel data

extraction form; highly relevant articles (n=45) were coded in NVivo. PTs were developed by cross comparison and synthesis of evidence from the articles and findings were discussed with expert stakeholders.

Results 7 PTs were identified, the first 4 informing stages contributing to effective diagnostic pathways, the remaining 3, overarching principles. Potential facilitative service models were identified.

1. If frontline health/education professionals are confident in recognizing symptoms of autism, understand referral pathways and take parents' concerns seriously, then children and young people (CYP) will be referred appropriately, in a timely manner.
2. If services provide clear guidelines for referrers on what information is needed, time will be saved and fewer CYP will be assessed unnecessarily.
3. If a structured and consistent approach to service delivery is adopted, making best use of available staff and expertise then the number of assessments per individual may be reduced.
4. If feedback takes an assets-based approach and management plans are individualized, then parental expectations will be moderated.
5. If parents have a single point of contact, are provided explanations throughout and included in decision-making then diagnostic pathway may be less stressful.
6. If 'experts' including CYP and parents work together and knowledge generated is embedded into local services, this will build capacity and support service planning.
7. If professionals have access to tailored training appropriate to their role, and services engage in development and evaluation, then there will be a higher degree of consistency.

Conclusions This first theory informed review of childhood autism diagnostic pathways has identified important aspects that may contribute to more efficient, high quality and family friendly service delivery. We will test whether the resulting PTs are met, and how service design could be further enhanced through a national survey of current practice and in depth case study of exemplar services.

Association of Paediatric Emergency Medicine

608

'TO GIVE OR NOT TO GIVE – THAT IS THE QUESTION' – THE USE OF STEROIDS FOR ACUTE PRE-SCHOOL WHEEZE

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Background There is ongoing uncertainty amongst clinicians on the use of prednisolone in acute pre-school wheeze. Some studies report that there is no positive effect by prescribing steroids for this cohort of children whilst others have shown a reduction in illness severity and duration of hospitalisation.

Objectives In our emergency department a wheeze pathway with clinical proforma helps clinicians assess the severity of presentation (mild, moderate, severe, life-threatening) and directs them to an appropriate treatment course. For pre-school children (2–4 years) presenting with moderate severity