Background Croup is a common presentation in early childhood. In 2019, following anecdotal reports of high numbers of croup admissions receiving adrenaline, we carried out a quality improvement project of acute croup management. Whilst the use of single dose nebulised adrenaline is not associated with clinically significant adverse effects, superfluous use may be associated with patient distress and lengthier hospital stays.

Objectives This QI project aimed to evaluate and improve management of croup at a major children's teaching hospital through use of multiple PDSA cycles. Specifically, it aimed to improve patient safety by reducing unnecessary use of medications.

Methods Retrospective data in electronic patient records for children presenting to ED or children's clinical decision unit (CDU) with croup over a 3-month period was assessed. There was significant variation in croup management which was not consistent with national recommendations or Trust guidelines. A key finding was that overall use of adrenaline was higher than predicted and often without clear indication.

Interventions were developed to (1) improve clinical knowledge of croup management and (2) enhance support structures for staff treating croup patients. This involved improving clinical knowledge among multi-professional staff through increasing awareness of guidelines with posters and educational sessions. There was also a focus on ensuring a structure of senior support to promote sustainability of the intervention.

Following intervention, data collection was repeated in autumn 2020 to review the sustainability of the project.

Results In September – November 2019, 394 patients were seen with croup. 31 (7.8%) received nebulised adrenaline. In September only 56% (9/16) met the criteria for use of adrenaline, while it was 43% (6/14) in October. A total of 128 patients (32%) were admitted.

Limitations of the study include the effects of national lockdowns during the second data collection, which likely resulted in lower transmission of parainfluenza and fewer croup presentations. Education was also paused due to staff redeployment.

In October – December 2020, 32 patients were seen. None of them received adrenaline and only 2 were admitted (6.3%). 97% of children were treated appropriately with dexamethasone.

Trust policy is to admit children for an 8-hour observation period following adrenaline treatment. This equated to an additional 11 bed days over 3 months in 2019. This waste of resource has been eliminated since the implementation of our project.

2019	Total croup	Nebulised adrenaline	Steroid therapy	Admission
September	44	1	31	18
October	149	16	110	56
November	201	14	140	54
Total	394	31	281	128
2020				
October	15	0	15	1
November	7	0	7	1
December	10	0	9	0
Total	32	0	31	2

Conclusions All children received appropriate care in line with guidelines since implementing the QI programme. Following intervention, there were no cases where children received unwarranted adrenaline, showing that increased clinical knowledge can improve patient safety and reduce unnecessary admissions. It is reassuring that the sustainability of our intervention was not affected by the effects of COVID-19 and improvements were sustained over the next year.

Quality Improvement and Patient Safety

1010

DIAGNOSIS AND MANAGEMENT OF URINARY TRACT INFECTION (UTI) IN UNDER 16S ACCORDANCE WITH NICE CG54: CLINICAL AUDIT AND LESSONS LEARNT

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Background Urinary tract infections (UTI) are a common and potentially serious bacterial infection in children. Signs and symptoms are often non-specific, and hence easily missed. The mainstay for diagnosis is urinalysis and culture, however, urine collection can be challenging in children. NICE CG54 outlines the diagnosis and management of UTI in under 16s, including the indications for urine testing, duration of antibiotics therapy and indications for imaging.

Objectives To audit the compliance of UTI diagnosis and management to the standards in CG54. Our target was 100% compliance with NICE guidelines.

We aimed to identify if there were areas for improvement, implement change if required and re-audit thereafter.

Methods In the first audit cycle, we conducted a retrospective audit on patients presenting with signs and symptoms of a UTI between April and May 2019.

We identified areas for improvement and presented our findings at our local audit meeting. We then provided teaching sessions to two cohorts of trainees in July and September 2020. Additionally, we developed a quick reference card as an aide-memoire, which was added to our junior doctor card deck given out during induction. The card included a UTI checklist and the NICE imaging schedule.

To close the audit cycle, a second retrospective audit was undertaken to identify children with UTI between October and November 2020.

Results In the first audit cycle, 92% (23/25) of children with unexplained fever, and 95% (21/22) of children with signs and symptoms suggestive of UTI, had a urine sample within 24 hours. 71% (5/7) of those under 3-months-old had a urine culture performed. 95% (21/22) of those above 3-years-old had a urine dip performed as first-stage strategy for urine testing.

Of the children diagnosed with UTI, 56% (9/16) were prescribed antibiotics appropriately.

92% (11/12) had ultrasonography in accordance with guidelines, but none (0/6) of the children who required a DMSA were scanned according to schedule. 50% (1/2) of children who required an MCUG were prescribed prophylactic antibiotics.

Results from the second audit cycle in demonstrated an improvement in criteria compliance. We identified 12 children with a UTI. 100% (4/4) of those under 3-months-old had a

urine culture performed. 91% (10/11) of children were prescribed antibiotics appropriately.

100% (7/7) had ultrasonography and DMSA in accordance with the schedule. There was one child who required an MCUG, and was prescribed prophylactic antibiotics.

Conclusions NICE CG54 comprehensively outlines the diagnosis and management of UTIs, but can be challenging to navigate. Results from our first audit cycle revealed a number of learning points. Firstly, there was a lack of clarity regarding the definition of upper and lower UTIs, and hence, antibiotic regimes and duration did not conform to NICE standards. Secondly, it was often not recognised that those under 3-months-old should have a urine culture performed. Lastly, there was poor compliance in undertaking imaging when warranted.

We addressed these areas for improvement through introducing teaching sessions and aide-memoires, and demonstrated improvement in compliance to NICE CG54 in our re-audit.

British Paediatric Respiratory Society

1011

SHARED CARE, SHARED RESPONSIBILITY BY NETWORK APPROACH: IMPROVING CARE FOR CHILDREN WITH SEVERE ASTHMA

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Background Children with severe asthma (SA) suffer from significant morbidity and healthcare utilisation (Bush: 2017). Children with SA benefit from early multidisciplinary assessment of disease severity, access to novel therapies and management of comorbidities in partnership with a specialist severe asthma service. However, the threshold for primary/secondary care referral to such services in the UK is high (Carroll:2019). Unlike for adult severe asthma, a paediatric service is yet to be commissioned by NHS England (NHSE) which may contribute to variation in practice and availability of resources for management of children with SA. In 2019, health professionals from 11 hospitals in a UK geographical region and the multidisciplinary severe asthma service at their tertiary Paediatric Severe Asthma Service set up a network to improve care in their region.

Objectives To describe the process of setting up a paediatric severe asthma network. To evaluate the experience of professionals participating within the network

Methods Referral pathways, proformas for home visits, an investigation pathway, and adherence assessments were designed by designated professional groups. Input from patients and NHSE representatives was sought. Regular meetings between shared care centres were planned to improve communication, provide feedback, share good practices and empower local services in managing comorbidities and asthma education closer to the child's home. A transition pathway is in place where young people with severe asthma and significant comorbidities, some of whom are on biological therapies, are discussed at the regional adult severe asthma multidisciplinary meeting, ensuring safe transition and care at an

appropriate adult asthma centre. Eighteen months after the network for children with SA was set up, a survey was conducted of the network members to investigate the impact of being part of the network.

Results 22 members of the network gave feedback including doctors (n=16), nurses (n=5) and a support worker (n=1). Members were asked to rate on a 10 point Likert scale whether they strongly disagreed (1) or strongly agreed (10) with several statements. Members rated the statements as follows:

Statement	Median (range) rating - 10-point Likert scale
Being part of the network has enabled me to share and/or receive best practice ideas	8 (4,10)
Participating in the network has made me more confident in the care and treatment of patients with severe asthma	7 (4,10)
There have been useful networking opportunities	9 (4,10)
Being part of the network WhatsApp group has made it easier for me to ask questions and raise queries	8 (4,10)
I have found the topics discussed relevant to my practice	8 (4,10)
I have gained new knowledge or skills participating in the network	7 (4,10)
The change to a remote meeting format has been positive	8 (6,10)

Conclusions Being part of the SA network was very positive for members' own professional development and improving the care they provided to children with SA. The network remained valuable despite restrictions enforced by the Covid-19 pandemic. This is a model of shared working and learning that can and should be replicated elsewhere.

British Association of General Paediatrics

1013

DELIBERATE SELF-HARM AMONG CHILDREN AND YOUNG PEOPLE AT A LARGE SECONDARY CARE CENTRE

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Background A recent global meta-analysis (2018) of children and adolescents showed that the lifetime aggregate and 12 months prevalence of deliberate self-harm was 13.7% and 14.2% respectively. Given the high prevalence of this problem and the frequent cases we see in our local population, it is useful to understand the demographics and associations with deliberate self-harm in our local population, identifying those at risk and identify any delays in care for those that need to be admitted to a psychiatric institution to facilitate appropriate care.

Objectives We designed a descriptive study to look at the self-harm associations in our population, to help identify the population at risk and to identify any delays in care to those