INTRODUCING A COOLING PATHWAY TO IMPROVE FIRST AID OF BURNS IN THE EMERGENCY DEPARTMENT

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Aims
Background Effective first aid for burns is proven to improve patient outcomes, including burn severity. (1) British Burn Association guidance defines effective first aid as ‘cooling’ with twenty minutes of cool running water, provided within three hours of injury. (2)

Objectives • To improve the clinical outcomes for patients presenting to a paediatric emergency department (PED) with burns through the design, implementation and evaluation of a cooling pathway.

Methods To obtain pre-intervention data, a retrospective review of the electronic records of patients who presented to our institution with burns between May – June 2020 was conducted.

• Inclusion criteria: triage time <3 hours from injury, clear documentation of time of injury and first aid provided.

• Key exclusion criteria: readmittance, transfer from another hospital, incomplete documentation.

A multidisciplinary stakeholder team designed a cooling pathway. Children deemed eligible for cooling were those presenting to PED <3 hours after their burn who had received either no first aid or <20 minutes of cool running water. Cooling was initiated after the patient was assessed by a member of the PED team, either at triage or when brought into a bedspace by an ambulance crew. Cooling was provided using a sink or shower.

The pathway was introduced in July 2020. Immediate post-intervention data for eligible patients who presented between July - September 2020 was collected. Finally, we collected follow-up data for eligible patients who presented in December 2021. All three datasets used the same inclusion and exclusion criteria.

Results See table 1.

Follow up dataset Electronic records for 58 patients were screened. Cooling was indicated for 15 patients. All eligible patients (15, 100%) received cooling in the PED.

Conclusion Before the project, first aid delivery was ad hoc and opportunities to improve burn outcomes were missed. We introduced a standardised cooling pathway to bring our burns first aid in line with national guidance. The intervention was acceptable to families, cost-neutral and evidence-based. Posters and staff provided consistent messaging to families about burns first aid, which may improve future provision of effective first aid at home. Cooling was largely initiated at triage, ensuring timely first-aid and a smooth patient journey through the department. Introducing the pathway has led to a sustained improvement in provision of effective first aid for patients presenting to our institution with burns.

REFERENCES

PAEDIATRIC CHEST DRAIN INSERTION: EMPOWERING CLINICIANS

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Aims Outside of tertiary centres, chest drain insertion in children is performed infrequently, with inevitable workforce des-killing over time. Furthermore, the timely process of locating all the necessary equipment may lead to delays managing the critically unwell or injured child.

Aims:
1. Improve knowledge and confidence of chest drain insertion in children amongst clinicians.
2. Create a local guideline.

Methods This quality improvement project was carried out over two acute hospital sites within a large NHS Trust in London.

Using the Model for Improvement, a baseline assessment of confidence and knowledge amongst clinicians in performing chest drain insertion in children was carried out using a Survey Monkey online questionnaire. The clinicians included paediatricians, anaesthetists, Emergency Department physicians and surgeons, of varying levels of experience, from consultants to junior trainees.

Results informed the 5 subsequent PDSA cycles which ran over a five month period:

PDSA Cycle 1: Creation and distribution of a paediatric chest drain guideline to relevant stakeholders. Feedback collected.

PDSA Cycle 2: Audit of chest drain equipment available in both Emergency Departments in the Trust.

PDSA Cycle 3: Creation of secure Seldinger and trauma chest drain equipment boxes.

PDSA Cycle 4: Modification of Seldinger chest drain equipment box to include neonatal equipment and neonatal guideline.

PDSA Cycle 5: Face-to-face teaching session for paediatric trainees, with completion of pre- and post-teaching questionnaires.
Results Across both hospital sites 102 clinicians completed the baseline assessment questionnaire (35 paediatricians, 26 ED physicians, 33 anaesthetists and 8 surgeons). 80/102 (78%) clinicians had not received teaching on paediatric chest drain insertion in the previous 2 years. 77/102 (75%) were not familiar with any paediatric chest drain guidelines. Only 18/102 (18%) knew where to locate trauma drains and 16/102 (16%) Seldinger drains in the Emergency Department. Baseline confidence of clinicians inserting a chest drain in children is represented in figure 1.

Feedback from the 1st PDSA cycle informed the embedding of a video link within the guideline and highlighted the difficulties some clinicians experienced locating equipment. The 3rd PDSA cycle used feedback from the 1st and 2nd PDSA cycles to devise scalable chest drain equipment boxes for trauma and Seldinger chest drains. This cycle exposed unforeseen procurement challenges and the difficulty obtaining Seldinger drains smaller than 12Ch. As a result, the 4th PDSA cycle added a neonatal pigtail drain alongside the Trust’s neonatal chest drain guideline in a separate compartment of the Seldinger equipment box. The 5th PDSA cycle showed improved confidence & knowledge following a teaching session (figure 2).

Abstract 768 Figure 1 A graph to show confidence inserting a chest drain when clinically essential

Abstract 768 Figure 2 A graph to show confidence inserting a chest drain pre and post intervention

Conclusion There is a lack of confidence and knowledge amongst those who might be expected to insert a chest drain in children. Upskilling included the use of focused feedback from stakeholders to design bespoke teaching sessions alongside the production of a local guideline. Creation of Seldinger and trauma drain equipment boxes, to be kept in the Emergency Department, provides enhanced accessibility to equipment under pressured circumstances.

Further PDSA cycles are planned, including a hands-on drain insertion session in our skills lab as well as a Trust locSSIP.

Aims The Omicron variant of SARS-CoV-2 variant has rapidly spread in the UK since December 2021. There was a significant increase in the number of children testing positive for SARS-CoV-2 in December 2021 in the population served by this DGHS. A clustering of cases of PIMS-TS was noted in the last week of December 2021 and the first week of January 2022.

The focus of this descriptive study of PIMS-TS patients from a single centre is to report the clustering of cases in the Omicron dominant period and to describe the dilemma of managing children who present with fever and pain abdomen.

Methods Children confirmed to have PIMS-TS and one child who presented mimicking PIMS -TS were identified, their investigations, treatment and outcomes were reviewed.

Results A cluster of 6 children diagnosed as PIMS-TS presented from the 29th of December 2021 to the 8th of January 2022. The mean age of patients was 9.3 years. There was ethnic variation with 3 Asian, 2 Afro Caribbean and one White child. Mean CRP was 226 (range 85-400). All children presented with fever of more than 3 days. 3 children presented with partial Kawasaki features, 2 children were treated for shock and 2 children presented with pain abdomen and fever.

A 15 year old presented with fever, pain abdomen and tenderness in the right iliac fossa. He was managed initially as appendicitis. Blood markers for PIMS-TS were significantly raised along with raised CRP of 204. CT abdomen showed ileitis. His NPA RT-PCR was positive for SARS-CoV-2. He continued to have high fever, a diagnosis of PIMS-TS was made. There was significant improvement in both clinical condition and biochemical markers following IV Methylprednisolone.

On the same day a 11 year old presented with fever, pain abdomen and increased irritability. He had global developmental delay and was PEG fed. He was initially managed as PIMS-TS then diagnosed to have appendicitis. CT abdomen showed a perforated appendix. He had a good outcome after surgery.

Conclusion The clustering of cases of PIMS- TS may be specific to this geographical area and multi-ethnic population following a period of high SARS-CoV-2 prevalence in the community with the Omicron variant. PIMS-TS can closely mimic appendicitis and distinguishing between both can be difficult. In the first child, CRP was unusually high (202) which helped in making a diagnosis avoiding unnecessary surgery.