

Treatment Starts at Triage; Management of Febrile Children in the Emergency Department During the SARS-CoV-2 Pandemic

Background

Overcrowding of Emergency Departments is a major challenge in UK Emergency Medicine. As the SARS-CoV-2 pandemic emerged in the UK during Spring 2020, managing overcrowding became a paramount safety concern for both patients and staff. This sentiment was echoed by RCEM Resetting Emergency Care statement; 'Emergency Departments must not become crowded ever again'¹

Our department rapidly reconfigured to risk assess patients at the front door with streaming to 'Red Zone' (COVID-19 more likely) or 'Green Zone' (less likely). Space constraints meant we do not have a dedicated 'Red Zone' Paediatric assessment area and often, stable children wait in a centralised waiting area.

Defining the Problem

The resurgence of SARS-CoV-2 during Winter 2020, coupled with lack of widespread and accessible antigen testing lead to difficulty differentiating between Covid19 infection and other 'typical' viral pathogens. This lead to increased numbers streaming to the 'Red Zone' and risk of overcrowding posing a significant patient safety issue with the potential of SARS-CoV-2 exposure to patients and staff.

Most children presenting to ED with fever are diagnosed with self-limiting viral infection; suitable for symptomatic home management after full clinical assessment. Obtaining a urine specimen and oral fluid challenge can be time consuming and much of the patient journey is spent in the waiting room. We aim to use this time to initiate treatment and expedite decision making for clinically stable children.

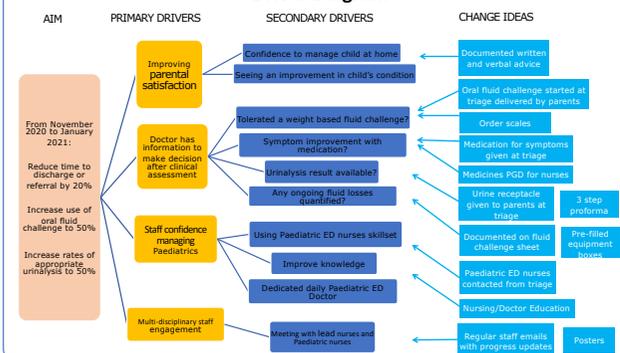
Aims

Among stable patients aged 3 months to 16 years with fever or viral symptoms attending Ulster Hospital Emergency Department November 2020-January 2021:

1. Reduce time from triage to discharge or referral by 20%
2. Increase use of oral fluid challenge to 50% in mild to moderate dehydration
3. Increase rates of appropriate urinalysis testing to 50%

Excluded: Manchester Triage System category 1 or 2, presence of any 'red' signs (NICE Traffic Light System), asthma/reactive airways disease, febrile seizure, surgical pathology, septic arthritis/osteomyelitis, bacterial infection or sepsis

Driver Diagram



Evidence and Standards

- Relevant treatments/investigations/fluid challenge should be initiated at triage^{2,3,4}
- Analgesia requirements should be assessed at triage²
- Test urine in children with unexplained fever²
- Consider paracetamol/ibuprofen in children with fever who appear distressed²
- Oral fluid challenge indicated for mild/moderate dehydration^{5,6,7}

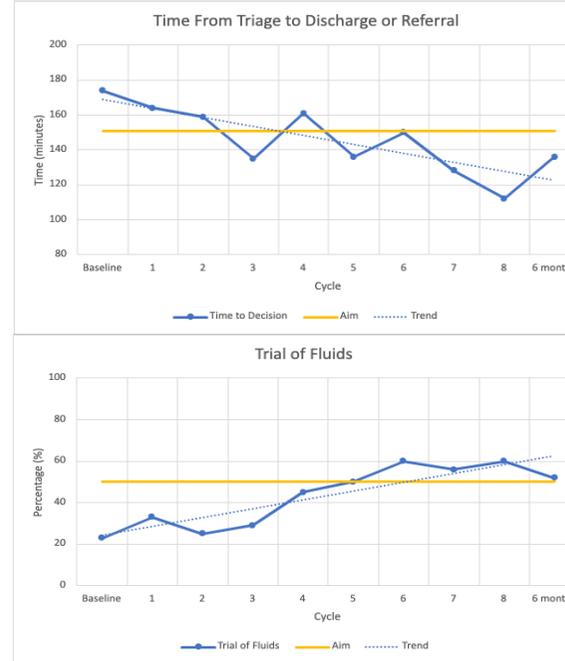
Methodology

Identification of patients through physical and computerised records, laboratory systems and NI Electronic Care Record. Weekly data collection over 8 weeks and then again at 6 months to ensure sustained improvement.

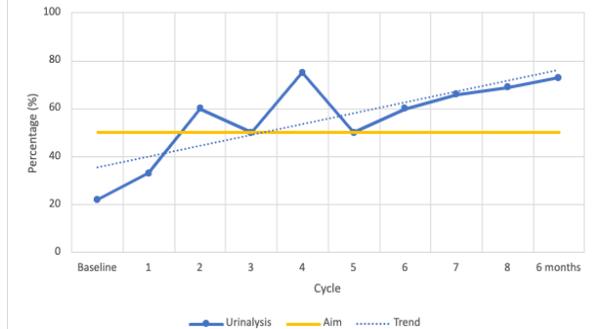
Interventions:

- Protocol created (implemented at point of triage):
 - 1) Analgesia/anti-emetic/analgesia given where appropriate
 - 2) Urine sample requested
 - 3) Weight based trial of oral fluids started. Recorded by parent
- Medical and Nursing staff education sessions
- Regular staff emails to remind and update on progress, posters within department
- Paediatric ED nurses called at triage who assisted with interventions
- Ordering equipment, pre-filled boxes with equipment, nurse initiated PGD

Results



Appropriate Urinalysis Testing



	B	1	2	3	4	5	6	7	8	6M
Time (min)	174	164	159	135	161	136	150	128	112	136
Trial of Fluids (%)	23	33	25	29	45	50	60	56	60	52
Urinalysis (%)	22	33	60	50	75	50	60	66	69	73

Discussion and Conclusion

- Despite the challenge of the pandemic on a highly pressured system, this multidisciplinary QIP demonstrates small interventions leading to measurable improvements
- By targeting a common presentation with high discharge rate and involving parents in treatment provision, we improved standard of care and reduced wait times to improve overcrowding
- There was no increase in the number of unscheduled representations as a result
- We are not aware of any significant adverse events occurring in this population during study period
- Unexpectedly low numbers of children presented to UK ED's over this period compared to previous winters
- Appropriate urinalysis use increased, however this may have lead to over testing
- More data points and runs needed to confirm non-random variation of results
- All patient data was anonymised in line with data protection regulations. Ethical permission was not deemed necessary. The authors declare no conflict of interest

Moving Forward

- Continue to assess performance focusing on improving parental satisfaction
- Reducing representation rates (take home Ondansetron, parental education)
- Present QIP and liaise with Paediatric Emergency Medicine colleagues at tertiary centre and local Paediatric Rapid Response Unit

References

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5. RCEM CEM732. Gastroenteritis in Hospital Pathways <https://www.rcem.ac.uk/docs/Paediatric/20EM/20Guidance/CEM732-Gastroenteritis--In-Hospital-Pathway--Luton.pdf>.
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7. Colletti JE, Brown KM, Shariff GG, et al. The management of children with gastroenteritis and dehydration in the emergency department. *J Emerg Med.* 2010;38(5):686-698