Paediatric Matters

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Recognising Deterioration: Children's Early Warning Tool (CEWT)

Patient Story*

4-year-old Jon presented to the Emergency Department (ED) with a runny nose, painful right-sided limp and no history of trauma. Ibuprofen was given and on review he was running around, with full range of movement. No observations were recorded. Jon was discharged home with GP follow up advised.

Jon re-presented 7.30pm next evening, crying, with a painful right leg, red tympanic membranes and refusing to weight-bear. He had delayed capillary refill with cool peripheries. Vital signs were:

8:30pm: Temp 38.7º, HR 170/min, RR 30/min, O2 Sats 94%. Jon's CEWT was incorrectly calculated at 4 instead of 5. He was not screened on the sepsis pathway. Osteomyelitis was considered.

9:00pm: Temp 38.8º, HR 180/min, RR 36/min, Sats 94%, BP 80/50 with a CEWT score of 6 (whilst awaiting specialist review). At 9:30pm, an IV cannula was inserted, and bloods sent. Antibiotics were prescribed but not given until 11:30pm due to workload.

9:00pm – 4:30am – no observations recorded.

4:30am: Temp 39.5º, HR190/min, RR 36/min, Sats 93%, BP 76/40, with a CEWT of 9. An emergency call was activated resulting in diagnosis and treatment for septic shock and retrieval to a PICU. Jon's blood culture returned positive for *S. aureus*. Femoral osteomyelitis was diagnosed after MRI.

Findings

The QPQC reviewed 17 paediatric SAC1 clinical incidents (2017 - June 22) where issues were reported with the use of CEWT.

Common themes across the 17 cases included:

- 94% reported in an ED setting (including mixed EDs, small rural health facilities, major hospitals)
- 77% child deaths/23% likely permanent harm
- 76% sepsis diagnosis
- 59% re-presentations
- 41% first presented to rural and remote health facilities

Main concerns identified:

- Inadequate calculation/documentation of CEWT (65%) – insufficient frequency; not scored; vital signs not fully completed when required (absence of BP).
- Clinical response to CEWT score inadequate (88%) – no/delayed/inadequate escalation, Medical Emergency Team (MET) call not activated.
- Contributing factors included policy/guideline failures (65%), workforce issues (53%), out of hours care (53%).

A full set of observations (including BP, capillary refill, respiratory effort and conscious state) should be done:

- As soon after arrival as possible/practical
- Whenever the patient is showing signs of deterioration
- Whenever clinician/parent is concerned about the child
- Frequently for patients with a CEWT score ≥4 (in line with the CEWT Escalation and Observation Plan)

** Fictional story to illustrate key learnings*

Lessons Learnt

1. **Absent, incomplete or delayed CEWT scores can lead to missed opportunities to detect deterioration early.** Vulnerable times include high activity shifts, after hours care and rostering/skill mix challenges. Always follow the CEWT Escalation and Observation Plan. If concerned escalate for Medical Officer or MET review.

2. **Be aware of vulnerable cohorts including children with a CEWT score ≥4, those who have re-presented to EDs within a few days, and those with persistent tachycardia or tachypnoea.** CEWT scores ≥4 are not common. A full set of vital signs (including BP) should be completed for these children and a senior review considered as per local guidelines.

3. **Parents/caregivers are a vital source of information about their child's health.** When completing a CEWT score, consider asking, "Are you worried your child is getting sicker?" If yes, listen to their concerns, review the child and escalate if required.

4. **Consider "Could this be sepsis?' in the differential diagnosis for all children with suspected infection using the Sepsis Pathway screening tool.** A full set of observations (including BP) should be completed for those that screen for an early set of full observations on the pathway. Provide paediatric sepsis parent information to children presenting to ED with a fever as a safety netting tool.

Questions to Consider

- Are you aware of local guidelines for undertaking, documenting, and escalating vital signs using the CEWT?
- Do you know how to measure vital signs in children and use the CEWT? If not, where can you go to for help?
- When it is busy, how do you prioritise and escalate to ensure vital signs are recorded and actioned using the CEWT?
- To whom do you escalate clinical concern and/or elevated CEWT scores?
- What are your further escalation processes if medical review is not available in a timely manner?

Useful links and resources

1. Paediatric Early Warning & Response System Tools, Patient Safety & Quality, Clinical Excellence Qld,2024
2. Observations in Infants and Children-Tips (CHQ-NSS-51035) Statewide Emergency Care of Children Working Group, 2022
3. Paediatric-Sepsis-Signs-Checklist (SW1205b), Childrens Health Queensland, 2023
4. College of Emergency Nursing Australia/Australasian College for Emergency Medicine, Joint Position Statement on Vital Signs Monitoring in Emergency Departments, 2023

For further information **email QPQC@health.qld.gov.au** or visit **www.childrens.health.qld.gov.au/chq/health-professionals/qpqc**

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