Implementing a Diagnostic Error Trigger Tool in Pediatric Emergency Departments and Urgent Care Sites

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Background

- Diagnostic error is a significant source of morbidity and mortality.
- Identifying sources of diagnostic error and opportunities for healthcare improvement requires continuous case review.
- However, no systematic approach to screening large volumes of patients for diagnostic error has been described in the pediatric acute care setting.

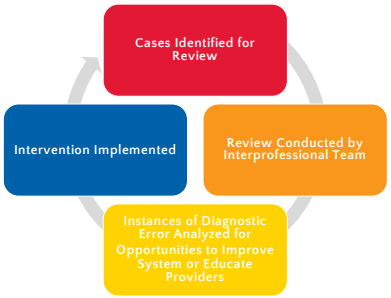

Figure 1. Cycle of quality improvement utilizing team-based review.

This project sought to use the Safer Dx Instrument to identify cases of diagnostic error and subsequently design and implement a trigger tool for diagnostic error in the pediatric acute care setting based on common characteristics between cases.

Methodology

- Cases for review were identified from the medical records of EDs and UC centers across the Children's Hospital Colorado (CHCO) health system.
- All patients who were seen at any CHCO ED/UC site between April 2018 and September 2018, discharged home, subsequently returned to care within seven days of initial visit, and were ultimately admitted to the hospital were included in the dataset.
- Each case was reviewed by an interprofessional review team which included ED providers and registered nurses.

Results

	Total (n=165)	Error (n=21)	No Error (n=144)	p-value
Patient Age in Years, median (IQR)	6.8 (3.0-13.8)	7.9 (4.3-14.0)	6.5 (3.0-13.8)	0.44
Location of Initial Visit				0.43
Briargate Urgent Care	2 (1.2%)	0 (0%)	2 (1.4%)	
CHCO Emergency	91 (55.2%)	9 (42.9%)	82 (59.9%)	
North Urgent Care	23 (13.9%)	2 (9.5%)	21 (14.6%)	
Parker Emergency	15 (9.1%)	3 (14.3%)	12 (8.3%)	
Urgent Care Wheatridge	3 (1.8%)	1 (4.8%)	2 (1.4%)	
Urgent/Emer Care-South	20 (12.1%)	4 (19.1%)	16 (11.1%)	
Urgent/Emer Care-Uptown	11 (6.7%)	2 (9.5%)	9 (6.3%)	
Number of Visits				0.57
2	122 (73.9%)	17 (81.0%)	105 (72.9%)	
3	37 (22.4%)	3 (14.3%)	34 (23.6%)	
4	6 (3.6%)	1 (4.8%)	5 (3.5%)	
Time of Arrival, Visit 1				0.11
Day (6am – 6pm)	82 (49.7%)	7 (33.3%)	75 (52.1%)	
Night (6pm – 6am)	83 (50.3%)	14 (66.7%)	69 (47.9%)	
Time of Arrival, Visit 2				0.25
Day (6am – 6pm)	90 (54.6%)	9 (42.9%)	81 (56.3%)	
Night (6pm – 6am)	75 (45.5%)	12 (57.1%)	63 (43.8%)	
Time of Arrival, Visit 3				0.56
Day (6am – 6pm)	32 (74.4%)	4 (100%)	28 (71.8%)	
Night (6pm – 6am)	11 (25.6%)	0 (0%)	11 (28.2%)	
Time of Arrival, Visit 4				NA
Day (6am – 6pm)	4 (66.7%)	1 (100%)	3 (60.0%)	
Night (6pm – 6am)	2 (33.3%)	0 (0%)	2 (40.0%)	
Days Between Visit 1 and Final Visit, median (IQR)	2.3 (1.1-3.8)	1.8 (0.8-2.8)	2.5 (1.1-4.1)	0.09
Days Between Each Visit, median (IQR)	1.8 (0.9-2.9)	1.3 (0.8-2.0)	1.8 (0.9-3.0)	0.13

Table 1. Case characteristics by error status.
Error defined as 50% or more of the reviewers marking question 13 as a 1, 2, or 3 on the Safer Dx Instrument.

By continuing to iterate and increasing the efficiency of the case review process, we hope to maximize the rate at which we improve the safety of healthcare delivery to decrease the risk of morbidity and mortality to our future patients.