Leveraging the 7-1-7 Framework to Evaluate Outbreak Response in a Retrospective Review of School Outbreaks in Pima County

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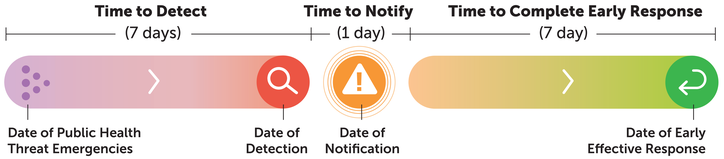
PIMA COUNTY HEALTH DEPARTMENT

INTRODUCTION

- Pima County is home to over 300 schools and experienced 17 infectious disease outbreaks reported across them in 2024.
- 7-1-7 Framework was utilized for evaluating outbreak performance through intentionally difficult but attainable targets to create actionable insights.
- In partnership with Resolve to Save Lives and the 7-1-7 Alliance, PCHD is adapting 7-1-7 tools for local settings.



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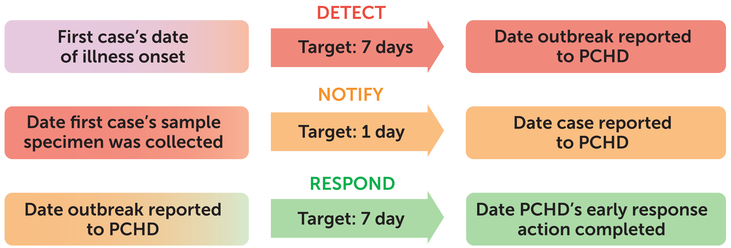
METHODS

- The retrospective review included all 2024 School Outbreaks n=17.
- 7-1-7 performance was calculated from state surveillance Pima County Data in Medical Electronic Disease Surveillance Intelligence System (MEDSIS), internal outbreak write-ups, and Environmental Assessments.

7-1-7 Data definitions (MEDSIS)



- Bottlenecks and Enablers were qualitatively coded manually through Outbreak Write-Ups, Environmental Assessments, and Notes in MEDSIS OBM. Modified 7-1-7 Alliance suggested bottlenecks to codify bottlenecks and similarly adapted list to create coded enablers for analysis.

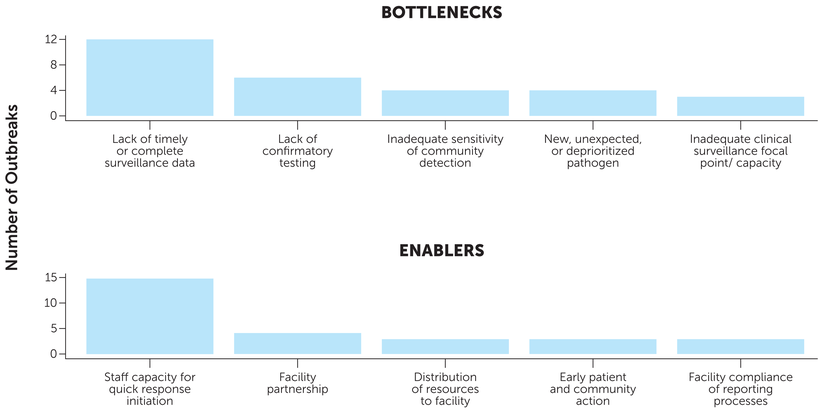
RESULTS

- Median days to detection, notification, and early response were 6, 3, and 0 with 64.7%, 11.8% and 100% of outbreaks meeting the respective targets. Both the detection and response medians were below the 7-1-7 target, but days to notification fell above the target, indicating future areas for process improvement.
- Time for detection, notification, and response varied across morbidities but not across outbreak classifications. Respiratory outbreaks had shorter periods of detection and response compared to GI outbreaks and longer windows of notification than other morbidities. GI outbreaks had significant amount of missing data due to lack of specimen collection resulting in ruled out outbreaks.
- Lack of timely or complete surveillance data was the most common bottleneck (n = 12) followed by lack of confirmatory lab testing (n = 6).
- Staff capacity for quick response initiation was by far the most common enabler (n = 15), highlighting ongoing efforts to streamline outbreak response and increase staff ability to manage outbreaks.

Category	Number of Outbreaks, n	Outbreaks Missing Data, n (%)	DETECTION Target: 7 days			NOTIFICATION Target: 1 day			RESPONSE Target: 7 days		
			Median Days (IQR)	Met Metric, n (%)	Missing Data, n (%)	Median Days (IQR)	Met Metric, n (%)	Missing Data, n (%)	Median Days (IQR)	Met Metric, n (%)	Missing Data, n (%)
Confirmed	8	5 (62.5%)	6 (2, 10)	5 (62.5%)	0 (0%)	3 (1, 5)	1 (12.5%)	5 (62.5%)	0 (0,0)	8 (100%)	0 (0%)
Ruled Out	9	5 (55.6%)	6 (4, 8)	6 (66.7%)	1 (11.1%)	3 (1, 5)	1 (11.1%)	5 (55.6%)	0 (0,0)	9 (100%)	0 (0%)
GI	3	3 (100%)	6 (6, 6)	2 (66.7%)	1 (33.3%)	NA	0 (0%)	3 (100%)	1 (1, 1)	3 (100%)	0 (0%)
Respiratory	6	2 (33.3%)	2 (1, 3)	5 (83.3%)	0 (0%)	4 (3, 5)	0 (0%)	2 (33.3%)	0 (0,0)	6 (100%)	0 (0%)
Other Morbidity*	8	5 (62.5%)	8 (3, 13)	4 (50%)	0 (0%)	1 (0, 3)	2 (25%)	5 (62.5%)	0 (0,0)	8 (100%)	0 (0%)
Total	**17**	**10 (58.8%)**	**6 (3, 9)**	**11 (64.7%)**	**1 (5.9%)**	**3 (1, 5)**	**2 (11.8%)**	**10 (58.8%)**	**0 (0, 0)**	**17 (100%)**	**0 (0%)**

*Other Morbidities: Non-Reportable, Conjunctivitis, Pertussis
Source: ADHS MEDSIS Data tor Pima County. Dates are rounded to the nearest day.
Data are provisional and subject to change.

TOP BOTTLENECKS AND ENABLERS AMONG 2024 SCHOOL OUTBREAKS (N = 17)



Source: ADHS MEDSIS Data for Pima County
Bottlenecks and enablers categorized from outbreak assessments, write-ups, and environmental assessments.

CONCLUSIONS

- 7-1-7 framework allowed us to pinpoint areas to improve outbreak response and highlight successes of past efforts. Excitingly, we're already moving to combat the major bottlenecks noted!
- In 2025, we developed an online school GI outbreak reporting portal to improve timeliness and completeness of data, and we began targeted stool sample collection kit distribution to combat lack of confirmatory testing particularly among GI outbreaks.

FUTURE DIRECTIONS

- Action tracking for outbreak staff.
- Operationalize system to track and code bottlenecks and enables.
- Re-map metrics to align with new version of surveillance system recently implemented.

ACKNOWLEDGEMENT

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7-1-7 Alliance