Presentation Type:
Poster Presentation
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Silent Gaps: Pathogen-Specific Non-Response Patterns in Occupational Exposure Management‡

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Background Timely healthcare personnel (HCP) response during occupational exposure investigations is crucial for risk stratification, prophylaxis, and preventing secondary transmission. Non-response delays interventions, creates blind spots, and increases patient and workforce safety risks. Understanding pathogen-specific response patterns can inform targeted strategies to improve engagement and mitigate these risks. Objective To quantify pathogen-specific response and non-response rates among potentially exposed HCP and assess timeliness of engagement during occupational exposure investigations. Methods We conducted a retrospective review of occupational exposure investigations tracked in REDCap between November 2024 and October 2025 at an academic health system. Incidents involving Mycobacterium tuberculosis (TB), Neisseria meningitidis, Bordetella pertussis, and varicella-zoster virus (VZV) were included. HCP response was defined as reviewing exposure details and submitting required attestation online; non-response was failure to complete these steps. Data were extracted October 29, 2025. Descriptive statistics summarized response patterns. Comparisons and calculations of odds ratios (ORs) with 95% confidence intervals (CIs) were performed using chi-square analysis. Results Among 1,442 HCP notified of a potential occupational exposure, overall response was 90.5% (n=1,305) and non-response was 9.5% (n=137). Response within 5 days was 70% (n=1,003). Pathogen-specific response rates varied. HCP with a TB exposure (n=803) had 60% response within 5 days and 90% total response. Pertussis exposures (n=331) had 87% response within 5 days and 97.6% total response. VZV exposures (n=298) had the lowest engagement, with 77% response within 5 days and 83.6% total response. Meningitis exposures (n=10) demonstrated 90% response within 5 days and achieved 100% total response. When comparing response rates by pathogen, pertussis had significantly higher response rates compared to TB (OR 0.22, 95% CI 0.11–0.47, $p < 0.001$) and VZV (OR 7.95, 95% CI 3.70–17.08, $p < 0.001$). TB responses were significantly lower than VZV (OR 1.78, 95% CI 1.21–2.61, $p = 0.004$). Similar trends were observed for 5-day response rates. Conclusion Statistical comparisons underscore disproportionate engagement challenges concentrated in TB and VZV exposures. TB required significant additional outreach to achieve overall response, reflected in the gap between the 5-day response (60%) and final response (90%) values. VZV had the highest non-response rate (16.4%), though clinical impact may be mitigated by workforce immunity. HCP potentially exposed to pertussis and meningitis demonstrated outstanding response, 97.6% and 100% respectively, perhaps due to urgency for post-exposure prophylaxis when indicated. Pathogen-specific engagement strategies are warranted where delayed or absent responses pose safety risks.

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Challenges and Outcomes of Tuberculosis Exposure Investigations Among Healthcare Workers in a Safety-Net Hospital‡

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Background: After three decades of declining tuberculosis (TB) incidence in the United States, case counts have increased annually since 2020, including an 8% rise in 2024. Undiagnosed TB poses a risk in healthcare settings because its clinical overlap with other respiratory illnesses can delay diagnosis and expose unprotected healthcare workers (HCWs) to active TB during routine job duties. Despite this risk, there is no standardized CDC definition of TB exposure for HCWs, resulting in variability in exposure investigations, notification, and follow-up. Safety-net hospitals such as Cambridge Health Alliance (CHA), a 300-bed health system, are increasingly affected by complex exposure events. Over the past year, seven patients with active pulmonary TB potentially exposed nearly 250 staff across six clinical areas, requiring multiple notification rounds despite prompt protocols, highlighting gaps in follow-up and uncertainty about actionable exposure definitions. Objective: Using the definition of employee exposure as ?15 minutes within 6 feet of a source case without mask/respirator, this study aimed to evaluate the effectiveness of post-exposure investigation protocols, determine TB screening test conversion rates among exposed employees, and assess the incidence of active TB disease during the study period. **Methods:** We reviewed email outreach to HCWs, employee communications, and TB testing records, and compared institutional practices with CDC and National Tuberculosis Controllers Association (NTCA) guidance. Analysis focused on accurate identification of exposed employees and completion of recommended follow-up testing using IGRA or TST. **Results:** Key barriers included incomplete exposure lists, fragmented interdepartmental communication, and inconsistent documentation of TB history,necessitating additional outreach efforts

Table One: Response Counts for Each Phase of TB Exposure Investigation

Case Number	1	2	3	4	5	6	7	Summary (7 cases)	Percentage of prior group
Initial list (Epic audit)	21	56	100	13	25	16	12	243	N/A
Identifiable individuals	21	55	97	13	25	16	12	239	98.4 (239/243)
Notified via initial email	20	55	97	13	25	16	12	238	99.6 (238/239)
Responded to notification	18	39	86	9	16	12	9	189	79.4 (189/238)
Reported exposed or unsure	10	13	31	4	13	12	4	87	46.0 (87/189)
Reported not exposed	8	26	55	5	3	0	5	102	54.0 (102/89)
With prior positive TB test (no retest needed)	3	2	15	0	4	1	0	25	28.7 (25/87)
Eligible for repeat TB test	7	11	16	4	9	11	4	62	78.4 (62/87)
Completed repeat TB test	6	9	12	3	5	9	4	48	77.4 (48/62)
TB conversions (positive or active TB)	0	0	0	0	0	0	0	0	0 (0/48)

Table Two: Source Patient Tuberculosis Risk Stratification

3 High Risk Features: Smear +, NAAT +, Cavitary +

Source Patient Characteristics							
Feature	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**
AFB Smear	Negative	Negative	Positive	Negative	Positive	Negative	Positive
NAAT (TB PCR)	Not detected	Positive	Positive	Positive	Positive	Not performed	Not Detected
Cavitary Disease	No	No	Present	No	Present	Present	No
Miliary Disease	Yes	Yes	No	No	No	No	No
Rifampin Resistance	No	No	No	No	No	Not performed	Pending
Risk Level 0–3 (Min → High)	Minimal 0/3	Low 1/3	High 3/3	Low 1/3	High 3/3	Low 1/3	Low 1/3

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