

HCP being contacted and tested, with very low yield, thus leading to increased health care resource utilization and HCP anxiety. Based on CDC criteria, Mayo Clinic, Rochester is a medium risk facility. Given that the only transmission we have seen in the last decade is from smear positive, symptomatic patients, we present an alternative, risk-based approach to defining exposure risk to guide followup testing for health care personnel exposed to TB patients. Our goal was to account for the most common exposure follow up (EFU) scenarios and not the rarest situations, which would require case by case discussion. We present a novel risk stratification definition for EFU testing at Mayo Clinic, Rochester and present 12 months' worth data pre and post initiative. **Methods:** Prior to July 2023, case exposure definition for screening was broad without clarity on duration of exposure or risk for acquisition of the disease. After the new definition was proposed in collaboration with Infection prevention and control (IPAC), Occupational safety and health, and Minnesota department of health, each case was reviewed to determine appropriateness of HCP exposure testing **Results:** In the time frame from July 2022 through June 2023, total of 5 EFUs were conducted, and 70 healthcare personnel were exposed (14 per EFU), and none developed TB infection [MS1] After implementation of new protocol, during July 2023 through June 2024, there were 11 EFUs, 102 healthcare personnel were identified as exposed (9 per EFU), and none developed TB. Of note, the low number of exposure investigations prior to July 2023 coincides with the universal [MS2] masking policy related to the COVID-19 pandemic. **Conclusion:** Existing public health guidelines do not establish minimum exposure time warranting follow up testing for tuberculosis amongst HCP. However, not all cases need extensive case management as this may lead to excessive costs and resources for testing, conducting EFUs and anxiety amongst HCP. With our proposed exposure risk stratification, we aim to not only reduce resources and time needed to conduct EFUs, but also decrease incorrectly identified HCP to assure the correct ones are being tested. We will continue to audit and review our data at regular intervals with continued feedback and discussion with stakeholders to adopt a more data driven approach to TB exposure followup.

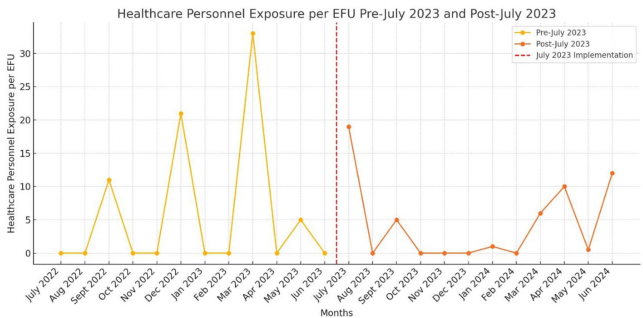
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Table 1: Risk-stratification criteria for healthcare worker tuberculosis exposure follow up

Risk Group	Exposure risk factors (to be identified by IPAC)	Recommended threshold of unprotected <sup>1</sup> exposure <sup>2</sup> to unmasked source patient that would trigger mandatory postexposure testing
1	<div>Patient contact<ul style="list-style-type: none"><li>Aerosol generating procedure (AGP)</li><li>laryngeal TB</li><li>pulmonary cavity TB</li><li>lung abscess</li><li>AFB smear positive with cough</li><li>Any MDR<sup>3</sup> TB</li></ul></div> <div>Lab specimen contact<ul style="list-style-type: none"><li>Manipulation of TB culture outside biosafety cabinet</li><li>Splash of infectious clinical specimen (e.g., sputum) to mucous membrane</li><li>Microtoming frozen section TB specimens outside biosafety cabinet</li></ul></div>	Any duration
2	<div>Patient contact:<ul style="list-style-type: none"><li>AFB smear positive without cough</li></ul></div>	15 minutes
3	AFB smear negative	4 hours

<sup>1</sup>Unprotected means not using respirator.  
<sup>2</sup>Exposure proximity = in same room with patient.  
<sup>3</sup>Susceptibilities for Multi-Drug Resistant (MDR) TB can take time to result and if MDR TB is identified then IPAC will reach out again.

Figure 2  
Number of healthcare personnel impacted per exposure incident necessitating follow up testing during July 2022-June 2024



**Presentation Type:** Poster Presentation  
**Subject Category:** Occupational Health  
**Interview Findings with International Healthcare Providers on Cultural and Environmental Factors in Personal Protective Equipment Use**  
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**Background:** The influence of variations in healthcare environments and cultural factors on the appropriate use and effectiveness of personal protective equipment (PPE) remains insufficiently explored. This study aimed to investigate complex PPE-related challenges and identify potential solutions through in-depth interviews with international healthcare providers. **Methods:** Study participants were recruited through invitation emails sent to international conference attendees who showed interest to the researcher, contacts from the researcher's international networks, and authors of publications on PPE. After obtaining study consent and permission for recording, online interviews were scheduled for one hour per participant, except for one in-person interview. Participants were asked to complete an online pre-survey and, if possible, provide PPE pictures. An \$80 incentive was offered unless declined by the participant. Narrative responses were transcribed, reviewed, and analyzed. **Results:** From October 17, 2024, to January 9, 2025, interviews were conducted with 13 participants representing 12 countries (Bangladesh, Brazil, Ethiopia, Ghana, Japan, Malaysia, Mongolia, Saudi Arabia, Singapore, South Korea, United States, and Vietnam). The participants were predominantly doctors (69.2%) and male (61.5%), with an average age of 47 years and an average of 21 years of clinical experience. In beard-growing countries (Bangladesh, Ghana, Malaysia, and Saudi Arabia), men with long beards faced challenges in properly covering them with masks and had to use beard covers. Tropical countries (Bangladesh, Brazil, Ghana, and Ethiopia) often lack air conditioning in most healthcare settings, and healthcare personnel (HCP) frequently experience heat-related issues when wearing PPE. Singapore and Japan showed good PPE compliance due to their collective cultures. In Singapore, it stemmed from shared agreement and rule-following, while in Japan, it was driven by group conformity and avoiding inconvenience to others. In Vietnam, PPE compliance was high as bosses evaluated HCP' compliance, which could influence bonuses. Political issues impacted COVID-19 responses: in

Brazil, parties debated masks; in the U.S., masks were seen as personal freedom; in South Korea, unions resisted lowering PPE standards later in the pandemic. In Saudi Arabia, HCP must complete training with PPE tests, including N95 fit testing, to receive a two-year national certification. **Conclusion:** This study identified PPE use characteristics and challenges across countries, influenced by factors such as emerging infectious diseases response capacity, PPE availability, religion, ethnicity, climate, and social context. Future research needs to include a larger-scale study involving more countries, with adequate samples across healthcare systems and hospitals of various sizes, to further investigate issues related to PPE use.

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## Presentation Type:

Poster Presentation

**Subject Category:** Outbreaks

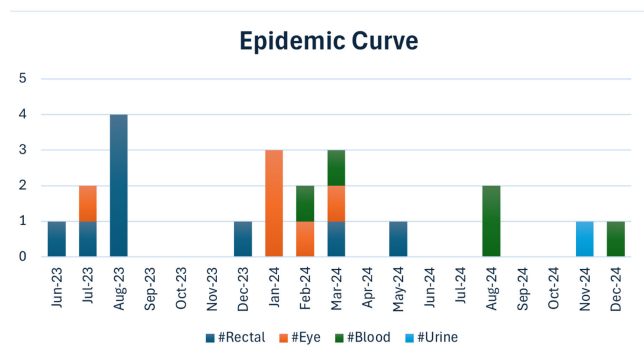
### **Serratia Outbreak in the (Neonatal Intensive Care Unit (NICU) – Sinking a Stubborn Adversary**

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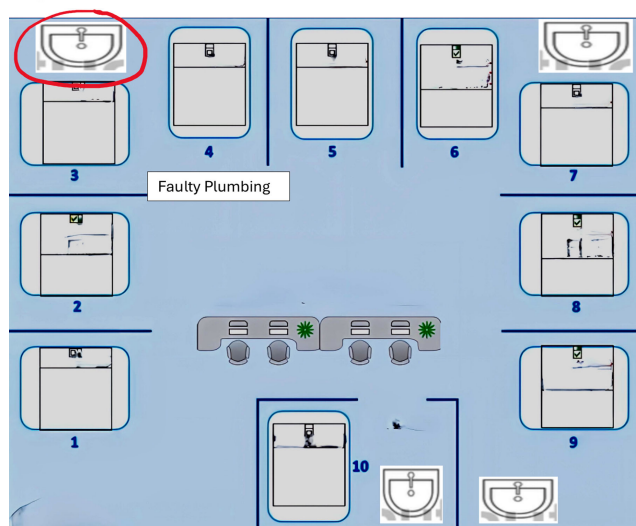
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**Background:** *Serratia marcescens*, a recognized environmental pathogen, often contaminates hospital water systems. Infections are typically exogenous, with occasional human reservoirs. NICU outbreaks can result in serious nosocomial infections, including meningitis, bacteremia, and conjunctivitis. Sources include contaminated medical devices, solutions, and hospital water systems, specifically sink traps and outlets, with transmission occurring directly or indirectly via aerosolization. **Outbreak Description:** Between June 2023 and December 2024, an outbreak of *S. marcescens* occurred in our hospital's neonatal facility (Figure 1). The facility has 3 main halls - the NICU, intermediate, and "cradle" rooms, along with a breastfeeding, medication, and incubator cleaning room, containing 17 sinks in total (Figures 2 and 3). The outbreak was identified following two *Serratia* bacteremia cases in early 2024 and a retrospective review revealing 8 positive ocular cultures since mid-2023. After initiating the outbreak investigation, enhancing infection control measures, and conducting engineering repairs, the case rate decreased significantly. However, three additional bacteremia cases, and a urine culture, were subsequently identified. **Infection Control Measures:** Control efforts targeted two reservoirs: patients (via healthcare worker transmission) and the environment. Key measures included reinforcement of hand hygiene, aseptic

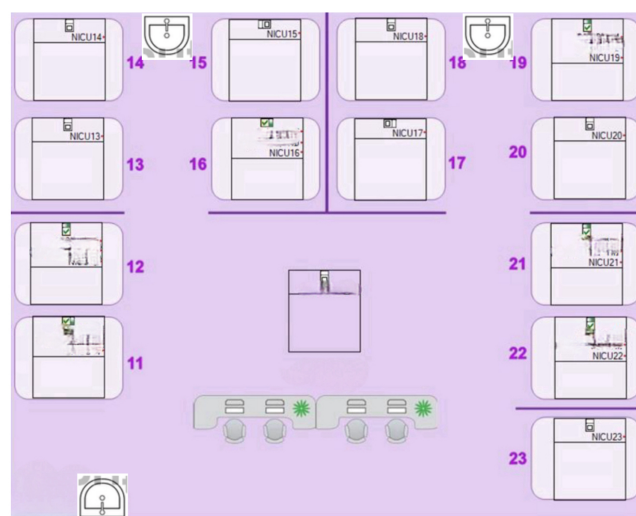
**Figure 1 – Epidemic Curve**



**Figure 2 – NICU Floor Plan**



**Figure 3 – Intermediate Room Floor Plan**



breastfeeding techniques, contact precautions, and environmental disinfection protocols. Bathing was standardized using sterile water. Environmental Sampling and Investigation: Given *Serratia*'s known association with waterborne contamination, environmental sampling focused on sink traps and outlets across all areas, revealing persistent contamination despite repeated treatment with concentrated chlorine (Table 1). Epidemiological data identified temporal and spatial correlations between contaminated sinks and clinical cases, notably involving faulty plumbing adjacent to NICU sink 3/4 (Table 2). Water leakage and back pressure from a blocked pipe were hypothesized to cause aerosolization from the connected sink causing infections. Microbiological biotyping clustered clinical and environmental isolates, further implicating aerosolized contamination, including from a sink in the incubator cleaning room used to dispose of hospital wastewater (Figure 4). Outbreak Control: Despite pipe repairs and decontamination, sink contamination recurred due to *Serratia*'s ability to colonize biofilms in water pipes. Expert consultation emphasized "sink hygiene," including minimizing equipment storage near sinks, distancing neonates and incubators, and avoiding procedures adjacent to sinks.