

2024 Mpox outbreak response: Drawing a tailored roadmap for improving hospital preparedness and worker awareness in India

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Mpox, a zoonotic DNA virus with a long history of endemicity in Africa, is now spreading across the globe. Since the outbreak began in mid-2024, over 16000 cases have been reported worldwide, including in the USA, Canada, the EU, India, and Thailand. This resurgence of Mpox prompted the World Health Organisation (WHO) to classify it as a Public Health Emergency of International Concern (PHEIC) in August 2024. The current outbreak is primarily driven by a newly identified Clade Ib, which is more virulent and shows higher rates of human-to-human transmission, particularly affecting the paediatric population and men who have sex with men (MSM) populations.¹ As of now, India has recorded over 30 cases, mostly imported, including a case of drug-resistant Mpox. While the Indian government has strengthened laboratory diagnostics and control efforts, several vulnerabilities exist. For example, a recent Lancet study on environmental surveillance of used/discarded condoms found the highest Mpox positivity rates in India as compared to other countries.² It has the potential to cause Mpox resurgence through community transmission.

Contrary to the belief that Mpox is easily diagnosable based on common case presentations, evidence from past outbreaks complicates clinical decision-making. A study capturing data from registries across 13 countries highlighted variations in the clinical course and progression of morphologic lesions in past outbreaks.³ Certain non-specific symptoms such as myalgia, arthralgia, oropharyngitis, proctitis, and depression/anxiety have presented more frequently. Atypical skin manifestations resemble common skin diseases, particularly

sexually transmitted infections (STIs).⁴ Notably, individuals with immunosuppression often do not experience the prodromal stage, instead presenting with significantly more and larger mucocutaneous lesions that can coalesce into ulcers. Therefore, overreliance on classical symptomatology could be counterproductive, especially for HIV-positive patients, who are at higher risk of contracting Mpox. Given the burden of HIV and STIs in India, the risks are amplified.

Mpox is still contracted by healthcare workers in occupational settings, but very occasionally. Among them, the most common causes of such transmission are needle prick injuries and improper biosafety processes while handling contaminated subjects and surfaces. Furthermore, given the current understanding of virus-human cell interactions, the possibility of airborne transmission cannot be ruled out.⁵ Supporting this consideration is existing experimental data from a hospital-based finding that confirms the presence of active viruses and their DNA in air samples collected during bedding change.

Several global studies have indicated moderate to poor awareness of Mpox among healthcare workers, particularly in low- and middle-income countries (LMICs). Although similar studies are lacking in India, it is reasonable to predict that the outcomes would not differ significantly, especially considering that many clinicians have rarely encountered Mpox cases since it was eradicated in 1980. Furthermore, India's preparedness to handle emerging and virulent strains of Mpox remains limited. Despite the oversight of hospital infection control committees for safety, there is little evidence

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of tailored practices for Mpox or relevant guidelines similar to those in Western nations.

In light of this situation, we believe that the current Mpox outbreak poses a moderate to high risk to healthcare workers. The likelihood of occupational transmission is particularly intense for dermatology professionals, who will be at the frontline of the Mpox outbreak. Despite the concerns, we observed noticeable silos in discussions regarding hospital preparedness and empowering Indian healthcare workers to manage Mpox effectively. In view, here we advocate multifaceted and tailored initiatives focusing on four actionable pillars as confidence-building measures against Mpox:

- **Awareness:** Elevated understanding among healthcare providers, including medical students, through existing capacity-building initiatives is essential. It is crucial to foster a thorough awareness of the diverse clinical symptoms, novel lesion morphology, and disease progression, along with training in appropriate biosafety practices for safely managing patients and infectious specimens in laboratories.
- **Tailored policies:** Developing specific guidelines tailored to individual hospital settings is crucial. Empowering hospital infection control committees to promote vigilance and ensure compliance with these guidelines is essential. These tailored policies will ensure that each hospital is prepared to handle Mpox effectively.
- **Hospital preparedness:** Assessing overall preparedness to handle outpatient and inpatient loads, including capacities to handle surge admissions, is crucial. This assessment should consider the need for isolation wards, repurposing facilities for case management, and stockpiling adequate personal protective equipment (PPE). Additionally, implementing strategies to monitor airborne virus levels and employing non-pharmaceutical interventions such as improved ventilation, aerosol control measures, and the use of respirators may be crucial for effectively controlling the spread of Mpox.
- **Focused public health research:** Conducting research to address existing gaps in knowledge in the Indian context is crucial. This includes evaluating the current state of awareness and hospital preparedness, and creating a tailored benchmarking scheme to review preparedness levels and facilitate necessary adjustments through a feedback mechanism. Focused public health research will help us better understand and prepare for the Mpox outbreak.

We call for engagement from multiple stakeholders, including hospital infection control committees, relevant departments, local and national health authorities, and independent medical organisations or societies. The local players can improve ground-level situations, while others can help scale up initiatives. This collaboration may lead to faster responses and ensure that we save valuable time in preparing and building a resilient health system.

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