

## Strengthening Mpox laboratory surveillance and response mechanisms in Central and West Africa: A comprehensive scoping review

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### **Introduction**

Monkeypox (Mpox) is a growing public health concern in Africa, driven by its zoonotic origin and increasing human-to-human transmission. However, existing mechanisms face significant challenges that limit effective outbreak control. This scoping review maps the current landscape of Mpox surveillance in endemic African regions, evaluates the effectiveness of current strategies, and identifies key gaps needing urgent attention.

### **Methods**

A scoping review methodology was adopted, following the guidelines recommended by Arksey and O'Malley. We conducted a comprehensive search of peer-reviewed articles, grey literature, and policy reports from January 2010 to December 2022, utilising databases such as PubMed, Scopus, and Web of Science. Studies and reports that

focused on surveillance strategies, diagnostic technologies, outbreak response, and Mpox-related challenges in endemic African countries were included. In total, 25 relevant studies from six African nations, including the Democratic Republic of the Congo, Nigeria, and Cameroon, were analyzed.

### **Results**

Mpox surveillance systems in the region suffer from major limitations such as delayed outbreak reporting, limited laboratory capacity, and weak data management systems. While some countries employed active case finding and mobile health tools, most relied on passive surveillance, resulting in delayed outbreak detection. Diagnostic capacity—especially access to PCR testing—was particularly poor in rural areas. Additional barriers included logistical constraints, poor inter-agency

data sharing, and limited integration of community-based surveillance.

### **Conclusion**

Strengthening Mpox surveillance in endemic regions requires expanded diagnostic infrastructure, integration of digital surveillance tools, and stronger community involvement. Regional and international collaborations are critical for enhancing data sharing and coordinated responses. Addressing these gaps will improve preparedness and help prevent future public health emergencies.