August 2024

Mpox

Global strategic preparedness and response plan

World Health Organization

Mpox

Global strategic preparedness and response plan

Mpox global strategic preparedness and response plan

© World Health Organization 2024

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (http://www.wipo.int/amc/en/mediation/rules/).

Suggested citation. Mpox global strategic preparedness and response plan

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see http://www.who.int/about/licensing.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

About this document

The Global Mpox Strategic Preparedness and Response Plan (SPRP) is designed to guide public health preparedness and response efforts at the global, regional, and national levels.

The SPRP outlines key activities to support countries experiencing an acute crisis, active outbreak, or those at high risk of Mpox across all regions. Through this plan, WHO and its partners will assist Member States in strengthening surveillance, laboratory capacity, community protection, safe clinical care, and vaccination efforts.

These activities, centered on immediate emergency preparedness, readiness, and response, are intended to cover the period from September 2024 to February 2025.

This document has been drafted with input from colleagues involved in the mpox response across various partners, response pillars, and at the national, regional, and global levels.

Cover image: A health worker examines skin lesions that are characteristic of mpox on a child at an mpox treatment centre near Goma, DRC, on 14 August 2024.

© WHO / Guerchom Ndebo

Contents

1. Foreword

Mpox has been endemic in Africa for decades, with sporadic outbreaks that attracted little attention in the rest of the world, and little investment in research or development of vaccines, therapeutics and other medical tools. In 2022, the first global outbreak of mpox prompted me to declare a public health emergency of international concern (PHEIC). Thanks to the efforts of affected communities, public health authorities and partners, that outbreak was brought under control and I was able to declare an end to the PHEIC less than a year later, in May 2023.

In September 2023, a new offshoot of the virus called clade 1b was detected in the Democratic Republic of the Congo (DRC). The rapid spread of clade 1b in eastern DRC, and in four neighbouring countries that had not previously been affected by mpox prompted me to convene an Emergency Committee under the International Health Regulations and, on its advice, to declare a PHEIC on 14 August 2024.

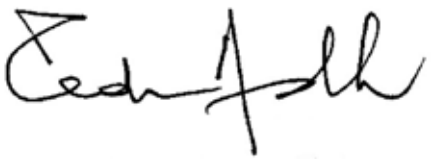
At the time of writing, more than 18 000 suspected mpox cases, with 615 deaths, have been reported in DRC alone, exceeding last year's record total, and more than 220 confirmed cases of clade 1b have been reported in Burundi, Kenya, Rwanda, and Uganda. Cases of clade 1b mpox have also been reported in Sweden and Thailand, among people with a history of travel from Africa. The situation is further complicated by outbreaks of other clades in western DRC, Cameroon, Central African Republic, Côte d'Ivoire, Liberia, Nigeria, the Republic of the Congo, and South Africa.

On 19 August I issued temporary recommendations under the International Health Regulations for affected and at-risk countries, and WHO is working closely with Member States, partners including the Africa CDC, NGOs, and civil society to prevent, prepare for and respond to mpox.

This Mpox Global Strategic Preparedness and Response Plan (SPRP), developed with partners, aims to provide a comprehensive approach to halt human-to-human transmission through coordinated global, regional, and national efforts. It emphasizes surveillance, research, equitable access to medical countermeasures, and community empowerment.

The new mpox outbreaks can be controlled. Success requires concerted action among international agencies, national and local partners, civil society, researchers, manufacturers, and Member States.

Our approach must uphold the principles of equity, global solidarity, community empowerment, human rights, and cross-sector coordination. I urge countries to use this SPRP to guide their efforts in stopping this outbreak and protecting the health and dignity of all.



Dr Tedros Adhanom Ghebreyesus
Director-General
World Health Organization

2. Executive summary

The global mpox outbreak, which began in 2022, has resulted in over 100 000 confirmed cases reported to the World Health Organization (WHO). The rapid spread of the new Clade 1b strain, particularly in eastern DRC and neighboring countries, and its recent detection in Sweden and Thailand, underscores the growing threat. Other clades, such as Clade 1a and Clade 2, are also spreading in various African countries, complicating the response. This escalating situation led to the declaration of a Public Health Emergency of International Concern on 14 August 2024.

The Mpox Global Strategic Preparedness and Response Plan (SPRP) provides a comprehensive framework for public health preparedness and response at global, regional, and national levels. Covering the period from September 2024 to February 2025, the plan outlines urgent actions to halt the spread of Clade 1b in eastern DRC and neighboring countries, as well as to control outbreaks of Clades 1 and 2 in endemic regions of the DRC, Nigeria, and other African countries.

The SPRP emphasizes the need for enhanced surveillance, timely detection, and rapid response, particularly in high-risk areas. Strategic vaccination efforts will focus on individuals at the highest risk, including close contacts of recent cases and healthcare workers, to interrupt transmission chains. The plan also calls for global cooperation to increase vaccine access, particularly in low- and middle-income countries, while advancing research and ensuring equitable access to diagnostics, therapeutics, and other essential health products.

The mpox response strategy prioritizes tailored public health and social measures that consider community dynamics and transmission patterns, emphasizes community empowerment through active participation, risk communication, and addressing stigma, and ensures safe and effective clinical care for patients and healthcare workers.

Guided by the principles of global solidarity, equity, and community empowerment, the SPRP highlights the importance of harmonized strategies, collaborative decision-making, and transparent information sharing. WHO, in partnership with international and regional organizations, will lead the global response through strategic leadership, coordinated access to medical countermeasures, and resource mobilization. Regionally, WHO and Africa CDC will spearhead efforts across Africa, aligning response strategies with the specific needs of each region.

Implementing the SPRP requires substantial resources, including coordination and technical assistance across all levels, and operational support to manage an estimated caseload of up to 2000 cases per week. The initial six-month operation will focus on controlling acute outbreaks of human-to-human transmission, with an estimated budget of US$ 135 million for international support to national mpox responses. This budget excludes the cost of procuring approximately 2 million vaccine doses, essential for targeting contacts of suspected cases and healthcare/frontline workers in areas with active transmission. Final budget and resource allocations will be determined through further planning to ensure sufficient funding for effective outbreak management and control.

3. Current situation

Epidemiological overview

The multi-country mpox outbreak, first detected in May 2022, has resulted in nearly 100 000 confirmed cases and over 200 deaths across 116 countries as of June 2024. The outbreak outside the African continent, caused by Clade 2b monkeypox virus (MPXV), has predominantly affected men who have sex with men and is primarily transmitted through human-to-human sexual contact. Low-level transmission of mpox continues in all WHO regions, and due to decreased and delayed reporting, global surveillance likely underestimates the true extent of the outbreak. Sporadic cases and localized outbreaks persist across all WHO regions, including in countries that had seemingly controlled mpox, underscoring the ongoing global threat.

While the number of cases in countries outside Africa appears to have stabilized, with sporadic outbreaks still being detected, an unprecedented increase in mpox cases and affected countries has been observed in Africa. This surge is mainly driven by the spread of Clade 1 MPXV in the Democratic Republic of the Congo (DRC), which accounts for around 90% of confirmed mpox cases in the region. Although the epidemiology is not fully understood, two distinct outbreaks are ongoing in the DRC: one involving Clade 1a, primarily in mpox-endemic provinces affecting children, and another involving Clade 1b in the eastern part of the country, affecting both children and adults. The latter has rapidly spread in South and North Kivu and, in recent weeks, has reached neighboring countries such as Burundi, Kenya, Rwanda, and Uganda, which had not previously reported mpox cases. The first cases of Clade 1b MPXV were also reported outside of Africa in August 2024 in Sweden and Thailand.

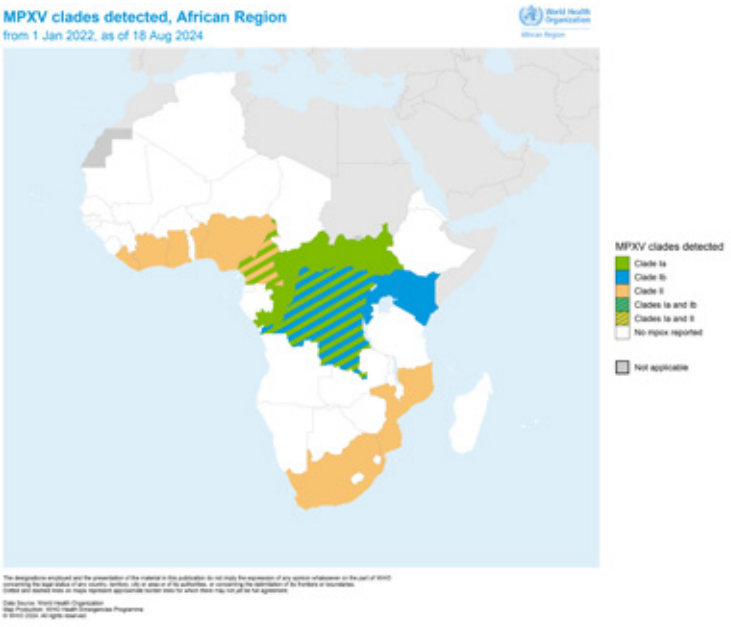
Clade 1b has been spreading rapidly among adults through close physical contact, including sexual contact within networks of sex workers and their clients. As the virus spreads, affected groups are shifting, with the virus also taking hold within households and other settings. Mpox can be particularly severe in children, immunocompromised individuals, and pregnant women.

Mpox cases in the DRC have been increasing since 2018, briefly interrupted by COVID-19 public health measures, and resuming in 2022 when these measures were lifted. In the first six months of 2024, the number of reported cases in the DRC exceeded the total count for 2023. The majority of cases and deaths in the DRC continue to be from endemic provinces, primarily among children under 15 years of age, who experience the highest burden of the disease, with mortality estimates as high as 8%.

Emerging epidemiological data remain incomplete, and available information suggests that multiple modes of transmission are ongoing. The relative importance of each mode will become clearer as surveillance, testing, and field investigations improve. The global outbreak of 2022-2023 and the upsurge caused by Clade 1b have highlighted sexual contact as an efficient transmission mode for both MPXV clades, allowing the virus to circulate in human populations without zoonotic exposure. New viral strains and the potential for further evolution pose significant challenges for mpox prevention and control.

Limited surveillance and diagnostic capacities, particularly in Africa, complicate understanding the outbreak's true extent and hinder effective response measures. The recent expansion of mpox to new countries in Africa, coupled with the high burden on children, pregnant women, and immunocompromised individuals, along with persistent circulation in other regions, underscores the need for continued vigilance and a strengthened global response to control and prevent further spread both regionally and globally.

Fig. 1. MPXV clades detected, African Region



Risk assessment

. This risk assessment, based on mpox disease spread, infection risk factors, and the tailored response strategies needed to control outbreaks, evaluates the risk for distinct geographic areas:

- **Eastern Democratic Republic of the Congo and neighboring countries:** High risk due to the rapid spread of Clade 1b MPXV, particularly through sexual contact, affecting vulnerable populations such as internally displaced people (IDPs) and sex workers.
- **Endemic areas of the DRC:** High risk due to the continued circulation of Clade 1a MPXV, primarily affecting children and spreading through multiple transmission modes.
- **Nigeria and other endemic countries in West, Central, and East Africa:** Moderate risk due to ongoing circulation of Clade 1 and 2 MPXV, affecting both children and adults through various transmission modes.
- **All other countries:** Moderate risk due to the potential for imported cases and ongoing community transmission of Clade 2b MPXV among MSM, despite efforts to eliminate human-to-human transmission.

While progress has been made in understanding human-to-human transmission during the global outbreak between 2022-2024, many knowledge gaps persist. The detailed epidemiology of the ongoing outbreaks in the DRC, including in endemic areas, remains poorly understood. Gaps in understanding immunity following infection, risk factors for severe disease, and the role of mild and asymptomatic infections limit WHO's risk analysis. The challenges in accessing diagnostics, therapeutics, and vaccines, particularly in Africa, exacerbate risks in most contexts, emphasizing the need to scale up access to countermeasures for a targeted, evidence-based response. Stigma, discrimination, and low-risk perception remain significant barriers, preventing individuals from seeking healthcare and participating in prevention efforts.

Before sending it to the national lab for testing, the nurse Luis, 48 takes a throat swab from Wesley, 35, who has monkeypox at STD Clinic, Department of Dermatology, Hospital de Santo António dos Capuchos in Lisbon, Portugal.

© WHO / Khaled Mostafa

Recommendations of the Emergency Committee

In response to the escalating mpox situation, the World Health Organization (WHO) convened the International Health Regulations (2005) Emergency Committee on 14 August 2024. After thoroughly assessing the latest epidemiological data, transmission patterns, and global response capacities, the committee unanimously determined that the ongoing mpox upsurge constitutes a Public Health Emergency of International Concern (PHEIC). This declaration underscores the severity of the current situation and highlights the urgent need for intensified international collaboration to control the outbreak.

The committee acknowledged the existing Standing Recommendations for mpox, issued in August 2023 and set to expire on 20 August 2024. These recommendations have provided comprehensive guidance to all States Parties on developing and implementing national mpox plans, covering areas such as surveillance, community protection, research, international traffic, clinical care, and access to countermeasures. However, recognizing the evolving nature of the outbreak and the necessity for targeted interventions, the committee proposed new Temporary Recommendations to supplement the existing ones:

- **Strengthened coordination:** Enhance national and local emergency response coordination mechanisms to ensure effective collaboration among all stakeholders. This includes streamlining communication channels and fostering partnerships to optimize resource allocation and response efforts.
- **Enhanced surveillance and laboratory diagnostics:** Expand access to diagnostic services, strengthen laboratory capacity, and improve case investigation, contact tracing, surveillance data collection, and timely reporting. These measures are critical to identifying all chains of transmission, detecting cases early, preventing further spread, and monitoring the virus in real-time.
- **Improved clinical care:** Provide comprehensive, age- and gender-appropriate support for mpox patients, including both isolation and home-based care. Focus on expanding access to optimized clinical care, particularly for vulnerable groups such as pediatric and maternal patients. Strengthen the capacity, knowledge, and skills of health and care workers in clinical management and infection prevention and ensure basic water and sanitation services in healthcare facilities, homes, congregate settings, and cross-border transit areas.
- **International traffic:** Establish or strengthen cross-border collaboration for the surveillance and management of mpox suspected cases and provide information to travelers and conveyance operators without imposing general travel and trade restrictions that could unnecessarily impact local, regional, or national economies.
- **Vaccination:** Prepare for the introduction of mpox vaccines as part of the emergency response, focusing on initiating vaccination activities in areas with incident cases. Prioritize high-risk populations to maximize the impact of vaccination and reduce virus spread.
- **Risk communication and community engagement:** Enhance risk communication and community engagement by addressing knowledge gaps, stigma, and low-risk perception. Collect community feedback and social data to inform the response. Build public trust and promote health measures through clear, evidence-based messaging tailored to local concerns and misinformation.
- **Governance and financing:** Mobilize national and international funding to support preparedness and response activities, ensuring resources are available to meet the demands of the outbreak. Invest in research to address critical knowledge gaps and integrate mpox prevention and response efforts into existing health programs for a more sustainable approach.
- **Reporting:** Implement a standardized reporting system for States Parties to report quarterly to WHO on the implementation of these Temporary Recommendations. This system will ensure accountability and provide a consistent framework for monitoring progress and adjusting strategies as needed.

The committee emphasized that these Temporary Recommendations should be specific, targeted, and complementary to the existing Standing Recommendations. They also highlighted the importance of monitoring the uptake, implementation, and impact of these recommendations to ensure a coordinated and effective global response to the mpox outbreak.

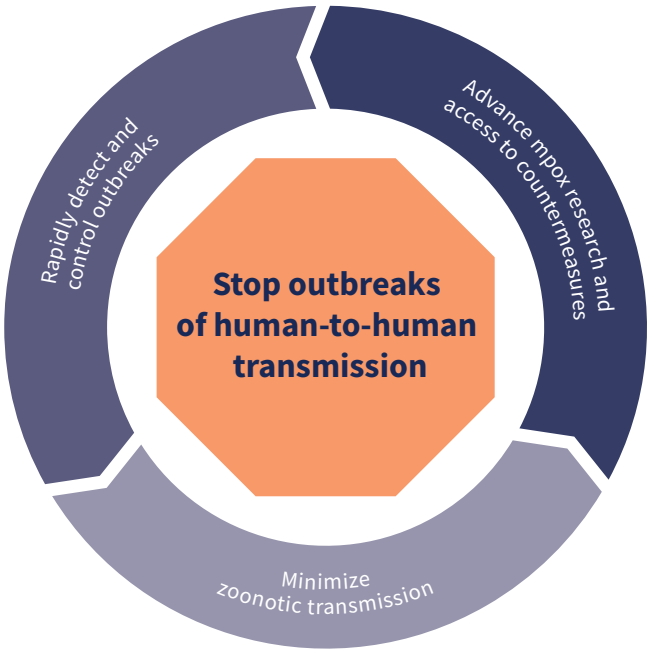
The First IHR Emergency Committee meeting regarding the upsurge in mpox was held virtually and in person at WHO Headquarters in Geneva, Switzerland on 14 August 2024.

© WHO / Lindsay Mackenzie

4. Strategic objectives

The primary goal of the Mpox SPRP is to stop outbreaks of human-to-human transmission of mpox and mitigate its impact on human health through coordinated global, regional, and national efforts. This will be achieved by implementing comprehensive surveillance and response strategies, advancing research, ensuring equitable access to medical countermeasures, minimizing zoonotic transmission, and empowering communities to actively participate in outbreak prevention and control.

Figure 2. Strategic objectives



Rapidly detect and control outbreaks

Implement effective surveillance, response, and community engagement strategies to rapidly detect, contain, and manage mpox outbreaks, with an immediate focus on Eastern Democratic Republic of the Congo and neighboring countries including:

- **Strengthened surveillance and rapid response:** Implement robust and timely surveillance systems and diagnostic capabilities to enable early detection and prompt response to mpox outbreaks in all settings. This includes strengthening and decentralizing laboratory capacity, enhancing case investigation and contact tracing, implementing event- and indicator-based surveillance, as well as community-based surveillance, and promoting the timely reporting of suspected, probable, and confirmed mpox cases.
- **Tailored interventions:** Taking community dynamics, behaviors, and concerns into account, implement precise and equitable public health and social measures (PHSM) tailored to the specific epidemiological context and transmission patterns in each affected area. This should consider factors such as predominant clades, modes of transmission, gender, equity, and the needs of vulnerable populations.
- **Community-centric response:** Empower communities to actively participate in outbreak response and prevention through risk communication, engagement, infodemic management, feedback collection, health education, and addressing stigma. Foster effective, tailored, and sustainable community-led initiatives to promote preventive behaviors and reduce transmission risks.
- **Safe and scalable care:** Ensure the provision of safe and effective clinical care for mpox patients, safeguarding both patients and healthcare workers while preventing further transmission. This involves establishing clear guidelines for case management, comprehensive care of suspected, probable, and confirmed cases, and infection prevention and control, as well as ensuring adequate resources and training for healthcare providers.

General view of Bushagara Internally Displaced Persons (IDP) Camp, north of Goma in the Democratic Republic of the Congo (DRC), on 15 August 2024.

The identification of mpox cases in IDP camps around Goma is concerning because the high population density can result in further spread, and population movements can hamper response efforts.

© WHO / Guerchom Ndebo

Advance research and ensure equitable access to medical countermeasures

Promote research and development to address knowledge gaps while ensuring equitable, risk-based access to and timely delivery of diagnostics, vaccines, therapeutics, and other essential health products adapted to different delivery contexts:

- **Knowledge generation:** Enhance research and development efforts to address critical knowledge gaps in mpox epidemiology, transmission dynamics, clinical presentation, and the effectiveness of interventions.
- **Medical countermeasures development and evaluation:** Accelerate the development, evaluation, and regulatory assessment of safe, effective, appropriate, and affordable mpox vaccines, therapeutics, diagnostics, and other essential health products.
- **Equitable, risk-based access:** Ensure equitable risk-based access to mpox medical countermeasures through transparent allocation mechanisms, prioritizing target populations and communities at the highest risk, particularly in low- and middle-income countries and humanitarian contexts.

Minimize transmission between humans and animals

Strengthen collaboration across human health, animal health, and environmental sectors to understand and reduce the risk of mpox transmission between animals and humans, including:

- **One Health collaboration:** Promote cooperation between human, animal, and environmental health sectors to investigate, understand, and address the zoonotic transmission of mpox.
- **Enhanced understanding of the human-animal interface:** Support collaborative research to fill critical knowledge gaps, including MPXV ecology, modes and proportions of zoonotic transmission, and the development of appropriate diagnostic tools.
- **Risk communication and community engagement:** Implement targeted risk communication and community engagement strategies to promote safe practices and reduce the risk of zoonotic spillover and spillback events.

Sifa, a health worker, fills out patient forms at the Nyiragongo General Referral Hospital north of Goma in the Democratic Republic of the Congo (DRC) on 14 August 2024.

The hospital includes a treatment centre where mpox patients from the local community and from nearby internally displaced persons (IDP) camps are being treated.

© WHO / Guerchom Ndebo

Guiding principles

Learning the lessons from the COVID-19 pandemic, the following guiding principles underpin the strategic objectives and actions outlined in this plan, ensuring a comprehensive, equitable, and collaborative approach to mpox prevention and control.

Coordination and coherence

Effective mpox prevention and control require harmonized strategies, clear roles, and collaborative efforts across all levels of governance and among all stakeholders, including:

- **Harmonized strategies:** Develop and implement mpox strategies, plans, and guidance that are aligned across global, regional, national, and subnational levels to ensure all stakeholders work toward common objectives.
- **Clear roles and responsibilities:** Define clear roles and responsibilities for all actors involved in the mpox response, leveraging the strengths, mandates, and expertise of stakeholders across different sectors to promote efficient resource allocation, effective intervention implementation, and enhanced coordination toward shared strategic goals.
- **Collaborative decision-making:** Foster collaborative decision-making processes that involve all relevant stakeholders, including affected communities, ensuring decisions are informed by diverse perspectives and responsive to the needs of those most affected.
- **Information sharing and communication:** Facilitate timely, transparent, consistent, and coordinated sharing of information and data across all levels of the response, enabling effective monitoring, evaluation, learning, decision-making, and accountability.
- **Joint action and timely resource mobilization:** Encourage joint action and prompt resource mobilization aligned with research and response priorities at all levels, leveraging existing resources efficiently and securing additional support from international partners.
- **Country-driven and country-engaged:** Ensure all stakeholders commit to supporting affected countries by coordinating engagements, aligning efforts under "one plan – one budget", and responding to nationally or sub-nationally identified needs.

Equity and solidarity

Ensuring equitable access to mpox-related services is essential for addressing health disparities and prioritizing the needs of the most vulnerable populations, including:

- **Equitable access to services:** Ensure all individuals have equal access to mpox prevention, testing, treatment, and care services, regardless of background or circumstances, by addressing barriers to access and promoting inclusivity.
- **Prioritizing vulnerable populations:** Recognize and prioritize the needs of populations at higher risk of exposure, severe mpox illness, and complications, such as people living with HIV, pregnant and breastfeeding women, children, and marginalized communities, in resource allocation and interventions.
- **Addressing disparities:** Actively work to understand, track, and reduce health disparities related to mpox, both within and between countries, through targeted interventions and strengthened health systems.
- **Maximizing public health benefits:** Ensure access to optimized public health and social measures (PHSM) to reduce transmission risks and enhance safety, particularly when vaccines and therapeutics are not yet available or equitably distributed.

Community-centric and rights-based approach

Empowering communities and upholding human rights are crucial to ensuring that mpox interventions are inclusive, effective, and responsive to the needs of those most affected, including:

- **Active community involvement:** Engage communities in the planning and decision-making processes for mpox prevention and control, ensuring interventions are designed with direct input from those affected.
- **Capacity building and support:** Strengthen the capacity of community-led organizations by providing resources, training, and support to enable effective local mpox prevention and response efforts.
- **Ensuring equity and non-discrimination:** Uphold human rights by guaranteeing that all individuals, regardless of background or circumstances, have equitable access to mpox-related services, while actively combating stigma and discrimination.
- **Community-led outreach and education:** Empower communities to lead outreach, education, and peer support initiatives, leveraging local knowledge and networks to effectively reach marginalized and underserved populations.

5. Response strategy

Strengthened surveillance and detection

An effective mpox response relies on robust surveillance and detection mechanisms that enable the early identification and swift containment of outbreaks. This strategy emphasizes a multi-faceted approach that integrates existing surveillance systems, enhances diagnostic capacity, and utilizes advanced technologies to monitor and respond to the evolving epidemiological landscape.

Key actions

- **Integration with existing surveillance systems:** Strengthen mpox surveillance by incorporating it into existing disease surveillance platforms, such as the Integrated Disease Surveillance and Response (IDSR) system in the African Region. Ensure that all countries include mpox in their list of notifiable diseases and implement event- and indicator-based surveillance systems. This approach optimizes resource utilization and ensures streamlined data collection, analysis, and reporting.
- **Cross-border collaboration and information sharing:** Enhance collaboration and information sharing across borders, including border communities, to facilitate the early detection and coordinated response to mpox outbreaks. This includes establishing cross-border surveillance mechanisms and regular data exchange protocols, particularly in regions with high cross-border population mobility and interactions.
- **Enhanced understanding of the human-animal interface:** Improve collaborative surveillance systems to better understand mpox transmission dynamics and risk factors, particularly in areas with significant human-animal interactions, such as regions with high levels of hunting, wildlife trade, and wildlife meat consumption. Coordinate with animal health partners to implement targeted surveillance programs in animals, understand mpox ecology in wildlife, and develop fit-for-purpose diagnostic tools.
- **Laboratory capacity enhancement:** Strengthen and expand laboratory infrastructure, particularly in underserved areas, by upgrading existing facilities and establishing new ones. Equip healthcare workers with essential PPE, sampling materials, and MPXV PCR testing supplies. Provide comprehensive training to laboratory personnel to ensure accurate diagnostics and maintain high standards of quality assurance and biosafety. Improve and streamline sample referral networks with WHO collaborating centers and reference laboratories, ensuring national staff are trained in proper sample transport and shipment in accordance with IATA Dangerous Goods Regulations (DGR).
- **Expansion of diagnostic testing:** Increase access to mpox diagnostic testing, particularly in remote and underserved areas, by deploying point-of-care diagnostics and establishing efficient sample referral networks. Evaluate and integrate newly developed rapid diagnostic tests (RDTs). Ensure that testing results are integrated into national surveillance systems to facilitate real-time monitoring of disease trends and guide timely interventions.
- **Integration of genomic sequencing:** Incorporate genomic sequencing into routine mpox surveillance, with specific national and subnational sequencing strategies, to enable the rapid identification of new viral strains and track the spread of the virus. Foster collaboration and data sharing among national and international laboratories to support global genomic surveillance efforts.
- **Epidemiological studies:** In addition to the evidence collected through enhanced surveillance, ensure that epidemiological studies are set up to better understand epidemiological risk, including transmission parameters, document transmission risk factors and quantify transmission risk from various types of contacts, and severity risk factors.
- **Public health intelligence and analytics:** Establish systems to integrate and analyze data from various sources, including event based and community based, epidemiological, laboratory, and clinical data, to generate actionable insights for decision-making and response. Utilize advanced analytics and modeling techniques to complement field studies, and forecast outbreaks, identify risk factors, explore the differential impact of intervention strategies, and evaluate the effectiveness of interventions. Encourage digitalization and used of electronic platforms for more efficient data collection.

A Ministry of Health Officer checks mpox samples in Maniema province, DRC, in June 2022.

© WHO / Eugene Kabambi

Enhanced community protection

Effective control and prevention of mpox are deeply rooted in the active engagement and protection of communities. This strategy focuses on empowering communities through tailored risk communication, effective participation, reducing stigma, and ensuring risk-based equitable access to vaccines and public health measures, including WASH services. By prioritizing community involvement and culturally sensitive, age- and gender-appropriate approaches, the strategy aims to build resilience and foster trust in response efforts.

Key actions

- **Community Engagement and Participation:** Actively involve affected communities, especially those with lived experiences of mpox or those at higher risk, in the design, implementation, and evaluation of mpox prevention and control interventions. Establish mechanisms for ongoing dialogue and feedback to ensure community perspectives are integrated into the response. Support and empower community-led initiatives that promote mpox prevention, including peer education, outreach, and support services, particularly for those requiring isolation.
- **Targeted Risk Communication:** Gather and utilize data on at-risk groups, knowledge gaps, risk perceptions, behaviors, social norms, and the prevalence of stigma and discrimination to guide the development of clear, accurate, and evidence-based communication strategies. Tailor information about mpox transmission, prevention, and care to the specific needs and contexts of different populations. Utilize various communication engagement channels, including social media, community networks, and traditional media, to ensure broad reach. Implement strategies to counter misinformation and disinformation, working closely with social media platforms, community organizations, and media outlets to provide credible information and dispel myths.
- **Community-Based Early Detection and Service Delivery:** Empower and train community volunteers and health workers to identify suspected cases early and report them promptly to the national mpox surveillance system, ensuring linkage to care. Develop a community-based surveillance strategy tailored to specific settings and populations, particularly those in vulnerable situations. Train the community health workforce on case definitions and home care practices to contain and control outbreaks at the earliest stage.
- **Addressing Stigma and Discrimination:** Implement comprehensive strategies to combat stigma and discrimination associated with mpox, particularly related to sexual orientation, gender identity, and HIV status. Train healthcare workers and community leaders on stigma reduction, promote positive messaging, and advocate for policies that protect the rights of affected individuals. Ensure the response is community-shaped and respects the dignity and rights of all individuals.
- **Vaccination of People at Risk of Infection:** Ensure the optimal deployment of mpox vaccines, prioritizing individuals at high risk of infection and healthcare/frontline workers in areas with incident cases. Strengthen vaccine delivery systems to reach remote and underserved areas through transparent communication and active community engagement.
- **Public Health and Social Measures (PHSM):** Implement PHSM to reduce transmission risks or make exposures safer. These measures, including personal protection, social adjustments, and international travel and trade measures, must be relevant, evidence-informed, equitable, and context-specific. Continuously monitor and adjust PHSM policies based on changes in epidemiological patterns, healthcare capacity, and community acceptance, while minimizing unintended negative consequences.
- **Health Education and Promotion:** Conduct comprehensive and participatory health education and promotion activities to increase knowledge and awareness about mpox, promote preventive behaviors, and encourage early healthcare-seeking. Tailor messages to different age groups, cultural contexts, and risk profiles, ensuring they are accessible and relevant to the target audience.
- **Community IPC and WASH Measures:** Implement IPC measures and ensure basic WASH services in high-risk settings, such as households with suspected cases, congregate settings, IDP camps, and refugee camps. Ensure continuity of school services by providing guidance and supporting compliance with IPC standards. Conduct assessments of WASH availability and develop improvement plans to strengthen hand hygiene, safe water access, sanitation, and safe waste disposal. Establish partnerships for coordinated assessment and implementation of WASH and IPC measures, with strategies for monitoring and evaluation to ensure effective practices.
- **Cross-Border and Mass Gathering Surveillance:** Strengthen cross-border surveillance and management of suspected cases in the context of international travel, including at points of entry and during mass gatherings. Apply a risk-based approach to travel and mass gatherings, providing targeted information and implementing appropriate public health measures to mitigate mpox transmission risks, while avoiding unnecessary restrictions on travel and trade.
- **Prevention of Animal to Human Transmission:** Implement comprehensive measures to prevent zoonotic transmission by educating communities on the risks of wildlife interactions, promoting safe practices such as proper cooking of bushmeat, and avoiding contact with potentially infected animals. Enforce preventive measures such as animal vaccination, wildlife monitoring, and environmental controls in high-risk areas. Support research to better understand transmission dynamics and identify effective interventions to disrupt the spillover cycle.

Maximizing the impact of vaccines to interrupt transmission.

In response to the mpox outbreak, enhancing control strategies through strategic vaccination is crucial. Implementing targeted vaccination approaches can help reduce the spread of the virus by focusing on those at the highest risk of infection, thereby reducing overall transmission.

This vaccination strategy prioritizes individuals at substantially higher risk of exposure, including close contacts—such as household members and sexual partners—of confirmed cases. A combination of strategies is recommended to optimize the effectiveness of vaccination efforts.

Key considerations

- **Access and delivery:** There is an urgent need to increase access to and delivery of mpox vaccines, especially in areas with active cases. Countries with vaccine stockpiles are encouraged to make doses available to affected regions, and manufacturers should review access and pricing policies to ensure vaccines are affordable and accessible in low- and middle-income countries.
- **Security and community engagement:** Effective vaccination strategies must consider the security challenges faced by vaccination teams and communities, particularly in regions with complex socio-political factors and ongoing conflicts. Strong community engagement and risk communication efforts are crucial for successful vaccination in these areas.

Phased vaccination strategy

- **Phase 1.** Stop outbreaks: This phase aims to interrupt known chains of transmission by targeting contacts of incident cases with onset in the previous 2-4 weeks, and healthcare workers/frontline workers (HCWs/FLWs) in areas with active cases. This targeted approach focuses on individuals most likely to transmit the disease, using fewer vaccine doses and resources to efficiently reduce transmission by breaking chains of infection.
- **Phase 2.** Expand protection: The second phase seeks to limit further spread in affected communities, provided additional doses are available. It targets individuals at high risk of severe disease—based on local epidemiology—in affected areas. This strategy aims to vaccinate a larger portion of the target population (aiming for >90% coverage) to provide broader community protection, though it requires additional doses, resources, and logistics.
- **Phase 3.** Protect for the future: The final phase focuses on increasing population immunity in areas at risk of outbreak expansion or future outbreaks. It targets all populations recommended by the Strategic Advisory Group of Experts on Immunization (SAGE) as doses become available. The goal is to achieve herd immunity by vaccinating >90% of the target population, providing community-wide protection. This phase is resource-intensive but effective in reducing overall transmission.

This phased approach ensures that vaccination efforts are prioritized and tailored to stopping the outbreak, guided by improved surveillance data, with the flexibility to scale up as vaccine availability increases. The strategy also emphasizes the importance of robust community engagement and security considerations, which are critical to the success of vaccination in challenging environments.

This SPRP will focus on Phase 1 of the vaccination strategy to stop outbreaks.

Safe and scalable care

Providing high-quality clinical care for all mpox patients is crucial for mitigating the outbreak's impact. This strategy focuses on enhancing healthcare infrastructure, ensuring the availability of essential medicines and supplies, protecting health and care workers, and integrating mental health and psychosocial support. By optimizing clinical care pathways and maintaining essential health services, the strategy aims to deliver comprehensive care that meets the diverse needs of affected populations.

Key actions

- **Development of Scalable Care Pathways:** Establish adaptable care pathways covering the entire patient journey from initial presentation to recovery. These pathways should be tailored to specific patient populations, care settings, and the unique challenges posed by mpox, ensuring timely and appropriate care, including HIV testing and comprehensive management of suspected cases. Additionally, strengthen the integrated management of childhood illnesses (IMCI) and integrate community case management (iCCM) programs. Ensure that healthcare workers are trained and equipped for mpox detection, case management, and appropriate referral, including for congenital mpox.
- **Ensuring Availability of Essential Medicines and Supplies:** Maintain and manage adequate stockpiles of essential medicines, supplies, and investigational products necessary for mpox treatment and supportive care. Optimize supply chain management to ensure equitable and timely distribution of these resources to all healthcare facilities, particularly in underserved areas.
- **Strengthening Healthcare Infrastructure:** Enhance the capacity and resilience of healthcare facilities to manage mpox cases by expanding isolation facilities and ensuring the availability of essential medical equipment. Ensure access to safe water, sanitation, hygiene (WASH) services, healthcare waste management, and electricity to support infection prevention and control measures. Strengthen mpox care as part of integrated healthcare services, including in IDP and refugee camps.
- **Protection of Health and Care Workers and Patients:** Implement robust infection prevention and control (IPC) measures in all healthcare settings to minimize the risk of mpox transmission. Establish screening, triage, and isolation processes in all care settings. Provide additional training for health and care workers on IPC measures and ensure the availability of necessary supplies, including PPE, WASH services, and safe healthcare waste disposal.
- **Integration of Mental Health and Psychosocial Support:** Incorporate mental health and psychosocial support services into mpox clinical care pathways to address the psychological and social impacts of the disease. Prioritize support for vulnerable populations and those experiencing stigma and discrimination, ensuring their mental health needs are met through comprehensive care packages and peer support networks.
- **Maintenance of Essential Health and Social Services:** Ensure the continuity of essential health and social services during mpox outbreaks by adapting service delivery models and mobilizing additional resources. This includes maintaining critical health programs such as HIV and STI prevention, maternal and child health, immunization, and chronic disease management while responding to the increased demand for mpox-related care. Additionally, support schools to continue operating while adhering to mpox IPC standards.

Toussaint gets some fresh air outside the hospital ward where his grandfather is ill with mpox at the Nyiragongo General Referral Hospital, north of Goma in the Democratic Republic of the Congo (DRC) on 14 August 2024.

"We've been here for a few days now," he said. "I'm not going home to avoid contaminating others. I'm trying to look after my grandfather while remaining as careful as possible so that I don't get sick too."

© WHO / Guerchom Ndebo

Equitable access to medical countermeasures

Ensuring equitable access to and delivery of medical countermeasures is critical for the effective control and mitigation of mpox outbreaks. This strategy emphasizes the importance of coordinated research, scalable manufacturing, innovative financing and market shaping and efficient distribution systems to guarantee that diagnostics, vaccines, and therapeutics and other health products are appropriate and accessible to populations at-risk, particularly in low-resource settings.

Research and development (R&D)

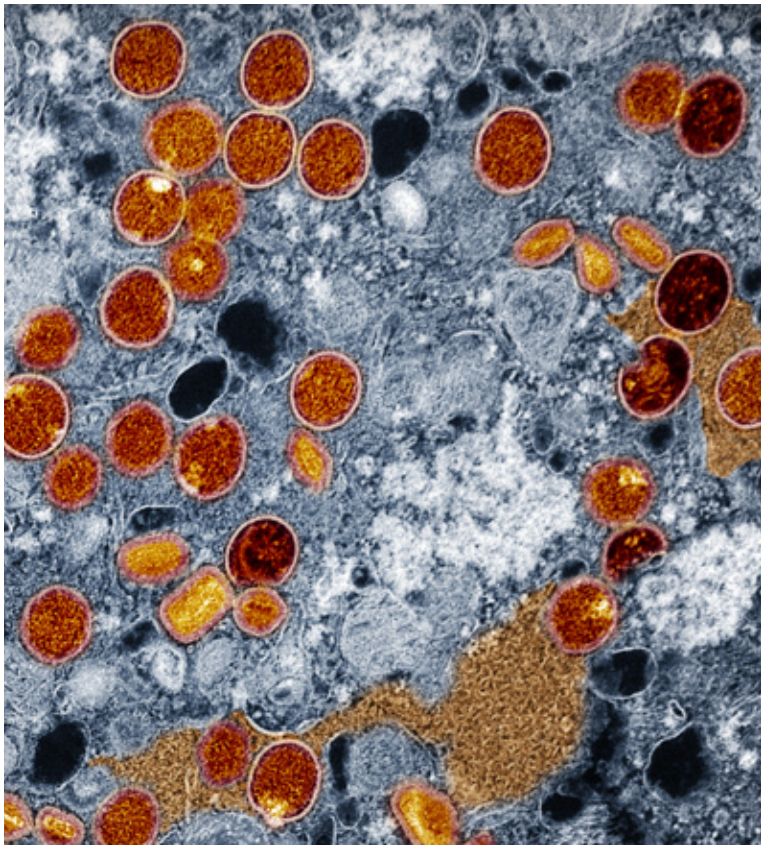
R&D is essential to advancing the global response to mpox by aligning research efforts with outbreak control goals. This approach is critical for reducing morbidity and mortality, halting transmission, and developing effective vaccines, diagnostics, and therapeutics. By fostering collaboration among researchers, public health officials, and stakeholders from affected regions, the R&D strategy aims to ensure that interventions are evidence-based, contextually relevant, informed by access and equity, and timely integrated into the outbreak response.

Key actions

- **Coordinated Research Prioritization:** Develop and maintain a dynamic mpox R&D agenda that aligns with outbreak response goals by prioritizing research on transmission, epidemiology, and medical countermeasures. Establish global coordination mechanisms to streamline efforts and prevent duplication, ensuring that research priorities are informed by insights from affected regions.
- **Enabling Research and Data Sharing:** Create a supportive environment for mpox R&D by standardizing research methods and establishing mechanisms for data sharing. Adapt global ethical standards to local contexts, secure funding for research initiatives, and implement protocols for the safe exchange of biological samples and pathogen data leveraging existing mechanisms such as the WHO BioHub System.
- **Use of CORE protocols for Clinical Trials:** Strengthen research capacity by ensuring that clinical trials for mpox use simple and robust designs are inclusive, efficient, and scalable. Develop simple trial designs and core protocols, provide technical and operational support, and ensure transparent sharing of trial results to inform global health efforts.
- **Streamlined Regulatory Frameworks:** Expedite the review and approval of mpox medical countermeasures by enhancing regulatory processes. Strengthen national regulatory capabilities, provide technical assistance, and establish agile regulatory requirements for emergencies. Collaborate with National Regulatory Authorities (NRAs) and advocate for and support National Immunization Technical Advisory Groups (NITAGs) in updating and developing existing policies to ensure timely access to critical medical products.
- **Operational Research:** Facilitate and fund operational research to evaluate the effectiveness and accessibility of mpox medical countermeasures in diverse settings. This research will generate critical insights into the practical application of these tools, identify barriers to access, and inform strategies for their optimal deployment in public health interventions.

Colorized transmission electron micrograph of mpox virus particles (red and yellow) found within infected VERO E6 cells (blue).

© NIAID



Diagnostics

Testing for the presence of the monkeypox virus (MPXV) should be conducted in appropriately equipped laboratories by staff trained in technical and safety procedures, following a risk-based approach and under proper biosafety conditions. The recommended specimen type for confirming MPXV infection in suspected cases is lesion material, which provides the highest sensitivity and reliability for detecting the virus. While alternative specimen types, such as oropharyngeal swabs, may be collected from individuals who are contacts of suspected or confirmed mpox cases, these may lack sensitivity, particularly in pre-symptomatic cases. If a rash or mucosal disease develops, testing should be repeated on lesion material. The following diagnostic options are available:

- **PCR testing:** PCR testing on skin lesion material is the gold standard for MPXV diagnosis. Validated, commercially available PCR test kits exist, with no current manufacturing capacity issues, ensuring sufficient supply. These PCR tests are critical for detecting MPXV by targeting conserved orthopoxvirus (OPXV) or MPXV genes, minimizing the risk of sequence variants or gene dropouts.
- **Point-of-Care (POC) testing:** POC PCR-based solutions, such as the GeneXpert system, are available and widely used. However, these tests face limitations, including limited manufacturing capacity and high costs (around USD 20 per test). Additionally, these tests cannot differentiate between clades, which is necessary for understanding clade-specific epidemiology, transmission, and disease severity, as they detect OPXV and MPXV Clade 2. Ongoing evaluations by the Foundation for Innovative New Diagnostics (FIND), with results expected by mid-2025, aim to identify more effective and accessible POC solutions.
- **Antigen-based rapid diagnostic tests (RDTs):** While antigen RDTs are available, they have shown insufficient accuracy in evaluations. As a result, they are not recommended as a primary diagnostic tool but may be used as a complementary option in certain contexts. Ongoing evaluations will determine their potential role.
- **Serology:** Setting up serology for MPXV is challenging in reference laboratories, and antibody RDTs claiming to distinguish MPXV-specific antibodies are likely unreliable. Therefore, serology is not currently recommended for routine diagnosis.

The World Health Organization (WHO) has released target product profiles (TPPs) for tests used in mpox diagnosis, outlining key targets for test developers. These TPPs are intended to guide the development of diagnostic tools that maximize public health benefits and impact, ensuring that effective diagnostics are available and accessible worldwide.

Vaccines

The development and research of mpox vaccines are essential components of the global response to the outbreak. Currently, no vaccines are WHO prequalified or hold emergency use licenses. However, several potential vaccine candidates are under consideration:

- **MVA-BN:** A non-replicating vaccine indicated for smallpox, authorized in several countries for mpox prevention.
- **LC16m8:** A minimally replicating vaccine authorized in Japan for smallpox and mpox prevention.
- **ACAM2000:** A replicating vaccine indicated for smallpox, with emergency use authorization for mpox in the United States.

Vaccines in preclinical studies include:

- **BNT166a and BNT166c:** Next-generation mRNA vaccines designed to provide broad protection against MPXV and related orthopoxviruses. These vaccines are showing promising preclinical results, with robust immune responses and complete protection in challenge studies.

Research efforts are focused on evaluating the efficacy and safety of these vaccines across diverse groups, including immunocompromised individuals and people living with uncontrolled HIV. Ongoing trials aim to generate evidence on critical aspects such as optimal dosing schedules, routes of administration, safety in special populations, and the effectiveness of vaccines in the outbreak context.

In addition, next-generation vaccines are being developed to facilitate delivery and scale-up production. The current outbreak presents an opportunity to evaluate new vaccines, which, if proven effective and safe, could expand vaccination efforts and help control the outbreak. Vaccination strategies include both post-exposure and pre-exposure approaches by vaccinating contacts of cases.

Scaling up global production and distribution to meet demand, particularly in low- and middle-income countries, is vital. Accelerating regulatory evaluations for both new and existing vaccines is also essential to ensure their availability when needed. Building public trust in mpox vaccines through effective communication and community engagement is crucial for achieving high vaccination coverage.

Research is increasingly focusing on developing pan-orthopoxvirus vaccines that could provide broader protection against multiple related viruses, offering a more comprehensive solution for future outbreaks. Additionally, long-term studies are being conducted to monitor the durability of immune responses and determine the need for booster doses, which will be critical in shaping future vaccination strategies and policies.

Therapeutics

There is currently no approved therapeutic specifically for mpox. Multiple trials are underway to evaluate the efficacy and safety of tecovirimat in patients with Clades 1 and 2, but preliminary results suggest little or no effect on the primary endpoint. Therefore, the priority is to ensure that mpox patients receive the highest standard of supportive care while the scientific community continues to evaluate additional candidate therapeutics.

To support these efforts, WHO has published a draft Target Product Profile (TPP) for mpox therapeutics, outlining the preferred and minimal acceptable characteristics for new treatments. This document guides developers in aligning their products with global needs.

WHO has also released the CORE protocol, an international, adaptive, multi-country, randomized controlled trial framework designed to accelerate the evaluation of therapeutic agents by enabling their testing across diverse geographical and clinical settings under a standardized protocol.

Additionally, WHO has developed the Atlas of mpox Lesions, a tool aimed at standardizing the clinical characterization of mpox lesions across various populations. This resource is crucial for ensuring consistency in clinical trials and the evaluation of treatment outcomes. It aids researchers in the uniform collection of clinical data, including HIV status, contributing to a more accurate understanding of disease progression and therapeutic efficacy.

In the absence of proven effective therapeutics, optimizing the standard of supportive care remains essential. The collection of standardized clinical data using the WHO Global Clinical Platform further supports clinical characterization and management, enabling the global sharing of critical data to enhance treatment protocols and outcomes.

Access, allocation and supply chain coordination

Effective allocation and supply chain coordination are crucial to ensuring that the available supply of mpox countermeasures is used in a way that maximizes public health impact, particularly as supply dynamics evolve. This approach includes establishing pre-defined lists of essential commodities and standards, regularly updated based on emerging data. Coordinated demand forecasting will focus on the needs of at-risk and marginalized populations, while market shaping and supply efforts—through procurement and donations—will require careful coordination to meet public health goals, especially in low-resource settings. Transparent, needs-based allocation frameworks will guide resource distribution, incorporating ethical principles and public health priorities. Robust logistics systems, including strategic stockpiles, will ensure efficient delivery and adherence to appropriate standards. These measures will help create a responsive and resilient supply chain to support the global mpox response.

Key actions

- **Establishment of Disease Commodity Package Standards:** Develop pre-defined lists of essential mpox supplies and associated technical standards. Formulate evidence-based policies for the use of these countermeasures and establish mechanisms for rapid updates based on emerging data. Conduct coordinated market assessments to inform equitable access strategies as needed.
- **Coordinated Demand Forecasting and Planning:** Ensure that all entities share information and coordinate demand forecasting for medical countermeasures, focusing on risk-based demand analysis and generating aggregated forecasts across multiple regions. These efforts should prioritize the needs of at-risk and marginalized populations.
- **Transparency on Secured Supply and Market Shaping Plans:** Enhance decision-making and collaboration across various supply sources for medical countermeasures, including procurement and donations. Maintain open communication channels, ensure compliance with standards through sound specifications, and leverage market-shaping advantages to secure affordable and equitable access to countermeasures, particularly for low-income countries.
- **Equitable and Transparent Needs-Based Allocation:** Implement fair and transparent mechanisms for the allocation of medical countermeasures during the mpox emergency. Develop adaptable, needs-based allocation frameworks that prioritize public health goals and ethical considerations, in consultation with regional entities and countries. Establish a global allocation process that manages conflicts of interest and ensures efficient, transparent resource distribution.
- **Logistics and Distribution:** Strengthen logistics and distribution systems to ensure the availability, integrity, and efficient distribution of medical countermeasures. This includes establishing strategic stockpiles, coordinating transportation and cold chain capacity, streamlining export and import processes, supporting country readiness, and monitoring supply chains for quality assurance. Develop a cooperative network of health emergency supply chain actors to support the effective distribution of countermeasures.

Emergency coordination

Effective coordination is essential for a swift and impactful response to the mpox outbreak. This strategy emphasizes the establishment of robust coordination mechanisms at all levels to ensure seamless collaboration among stakeholders, efficient resource allocation, and rapid adaptation to changing circumstances. By fostering strong partnerships and maintaining clear communication, the strategy aims to maximize the effectiveness of response efforts, ensuring that all actions are timely, evidence-based, and well-coordinated.

Key actions

- **Establishment of Response Coordination Mechanisms:** Create dedicated incident management support teams at global, regional, and national levels. These teams, including representatives from key partners, will coordinate activities, align governance levels, and facilitate joint decision-making processes.
- **Enhanced Communication and Collaboration:** Maintain open communication channels with Member States, relevant committees, and partners. Encourage collaboration among stakeholders across response pillars, ensuring timely information exchange and rapid resource mobilization.
- **Development of Evidence-Based Response Strategies:** Conduct comprehensive assessments of the epidemiological situation, transmission patterns, and social-behavioral data to inform effective response strategies. Develop flexible, multisectoral emergency response plans that can be quickly adjusted as the situation evolves.
- **Mobilization and Allocation of Resources:** Establish scalable mechanisms to mobilize and allocate financial and human resources for implementing response plans. Ensure funding is readily available and can be quickly disbursed to address resource gaps and ensure equitable distribution.
- **Operational Support and Logistics:** Provide robust operational support, ensuring the safety and security of response staff, implementing protective measures, and maintaining key infrastructure. Ensure the efficient procurement and distribution of essential supplies.
- **Safeguarding Operations from PSEAH:** Collaborate with inter-agency committees to integrate protection from sexual exploitation, abuse, and harassment (PSEAH) into all operations. Implement a risk-based approach focusing on prevention, accessible reporting mechanisms, victim support services, and strong leadership accountability.
- **Continuous Monitoring, Review, and Reporting:** Implement continuous monitoring and evaluation systems to track progress and impact. Use data to inform decision-making, ensuring accountability and transparency. Regularly review strategies to assess effectiveness, adapt as needed, and ensure the response remains relevant.
- **Operational Risk Management:** Develop a robust risk management framework to identify and mitigate risks related to response delivery, safeguarding, ethics, financial stewardship, partnerships, and reputation. Conduct an Operational Risk and Response Analysis (ORRA) and integrate risk response plans into ongoing monitoring activities.

Sample collection after a suspected case notification in Abuja, Nigeria, in October 2022.

© WHO / Eromosele Ogbeide

6. Concept of operations

The Concept of Operations (CONOPS) outlines the implementation and adaptation of the mpox response strategy at global, regional, and country levels. The approach is designed to be flexible, allowing for rapid adjustments to the evolving epidemiological landscape and specific needs of different regions and countries. This ensures that the global response is coordinated while being tailored to local contexts and the intensity of mpox transmission.

To ensure a coordinated and effective response to the ongoing mpox outbreak, WHO will establish integrated incident management teams (IMST) at the global, regional, and country levels as needed. These teams will facilitate regular communication between incident managers across different geographical levels and ensure close operational coordination with national governments, partners, and stakeholders.

Global level

At the global level, WHO, in collaboration with its partners, will lead and coordinate the mpox response through a comprehensive approach that includes strategic leadership in support of national response efforts, and efficient access to medical countermeasures (MCMs). The Global Mpox Incident Management Support Team (IMST), guided by the International Health Regulations (2005) Emergency Committee, and supported by emergency partnership networks, will ensure a unified and effective global response.

- **Global Leadership and Coordination:** WHO and its partners will establish inter-agency coordination of the global response through the IMST under the Director-General's leadership. Regular meetings with key technical and operational partners will provide updates, share information, and make strategic decisions necessary to manage the outbreak effectively.
- **Emergency Committee and Strategic Guidance:** The WHO Director-General, in consultation with the International Health Regulations (2005) Emergency Committee, will issue temporary recommendations to guide global and national response efforts, ensuring a coordinated international response.
- **MCM-Net for Mpox:** WHO will leverage the i-MCM-Net to enhance collaboration among existing MCM networks and partnerships, facilitating the coordinated development, manufacturing, distribution, and delivery of critical countermeasures during pandemics.
- **WHO R&D Blueprint for Epidemics:** WHO will update the research and development roadmap, fostering collaborative research to address critical knowledge gaps and maximize the impact of interventions.
- **Coordination with Global Health Cluster and IASC:** In humanitarian settings, WHO will work closely with the Global Health Cluster and the Inter-Agency Standing Committee (IASC) to integrate mpox response efforts into broader health and emergency response strategies. This coordination will ensure that vulnerable populations in complex humanitarian contexts receive timely and effective care.
- **Financing Coordination:** A financing coordination mechanism will be implemented donors and financing institutions to mobilize and allocate resources effectively, aligning financial strategies with operational priorities to strengthen the overall response.
- **Leverage Emergency Partners and Networks:** WHO will collaborate with a broad range of emergency partners and networks to enhance coordination across key areas such as surveillance, community protection, clinical care, and rapid response.

Regional level

At the regional level, WHO and Africa CDC will collaborate to spearhead the coordination of mpox response efforts across the African continent, tailoring strategies to the unique challenges and transmission patterns in each region. WHO regional offices will establish Incident Management Support Teams (IMSTs) to lead preparedness and response activities, working in close alignment with global strategies to ensure a coherent response.

- **Joint Africa CDC and WHO Coordination:** WHO regional offices for AFRO and EMRO, in collaboration with Africa CDC, will lead the coordination of response efforts across Africa, ensuring alignment with regional needs and challenges.
- **Other Regional and Sub-Regional Coordination Mechanisms:** WHO and partners will establish regional IMSTs to manage preparedness and response activities, ensuring that regional and sub-regional strategies are consistent with global strategies.

Country level operations

Country-level operations are categorized based on specific epidemiological contexts, including regions with active Clade 1b outbreaks, areas with endemic Clade 1 and 2 transmission, and countries at risk of imported cases or community transmission.

Active outbreaks:

- **Key areas:** Eastern DRC and neighboring countries.
- **Risk level:** High, with challenges in control measures due to rapid transmission and vulnerable populations.
- **Key actions:** Intensify surveillance and detection, decentralize laboratory capacity, deploy rapid response teams, prioritize risk-based vaccination, scaleup clinical care, and enhance cross-border coordination.

Endemic transmission:

- **Key areas:** Endemic areas of the DRC, Nigeria, and other endemic countries in West, Central, and East Africa.
- **Risk level:** Moderate to high, depending on region, with ongoing transmission challenges.
- **Key actions:** Strengthen surveillance, enhance healthcare infrastructure, provide clinical care, engage affected communities, ensure effective risk communication, prevention, and protection for at-risk populations.

All other countries:

- **Key areas:** Countries outside endemic regions with moderate risk.
- **Risk level:** Moderate, with a focus on preventing resurgence through surveillance and preparedness.
- **Key actions:** Strengthen surveillance and detection, increase awareness and risk communication and collaborate with international partners.

This CONOPS provides a comprehensive framework for a coordinated, flexible, and scalable response to the mpox outbreak, ensuring that all levels of governance work together to manage and control the spread of the virus effectively.

Mpox response supplies are donated to a health facility in Maniema province, DRC, in June 2022.

© WHO / Eugene Kabambi

7. Resource requirements

The effective implementation of the Mpox SPRP demands adequate and sustained resources to support the various activities outlined in the response strategy. This section details the key resource requirements for the first six months of operations (September 2024 to February 2025), which are crucial to stopping acute outbreaks of human-to-human transmission.

The estimated resource requirements provide an initial funding envelope for international support to national mpox responses, aligned with the strategies outlined in the SPRP. The following key assumptions have been made for planning purposes.

Coordination and technical assistance

Resource estimates include establishing and operating joint Incident Management Support Teams (IMSTs) for coordination and technical assistance across all levels, consistent with the Concept of Operations:

- Global (WHO and partners)
- Africa Region (WHO, Africa CDC and partners)
- Countries with active outbreaks (DRC, Burundi)
  - Sub-national field hubs in zones of active transmission x 5
  - Sub-national field hubs in zones at-risk of transmission x 10
- Countries with endemic transmission (Nigeria, South Africa, Congo, Cameroon, Uganda, Côte d'Ivoire, Rwanda, Central African Republic, Kenya, Liberia)
- Countries at risk of importation (Ghana, Angola, Zambia, South Sudan, United Republic of Tanzania, Eswatini, Lesotho, Namibia, Botswana, Mauritania, Mozambique, Zimbabwe)
- Other regions (EURO, EMRO, PAHO, SEARO, WPRO)

Operations support and supplies

Estimated resource requirements also include operational support and supplies of key medical countermeasures (MCMs) and equipment. Based on current epidemiology, the initial case load is expected to be 1000 cases per week, increasing to 2000 cases per week during the first two months of operations. This level is expected to continue through the fourth month, after which cases may decrease as acute outbreaks are controlled. The total estimated number of cases for planning purposes is 40 000 over the first six months.

The following costing assumptions have been made for each 1000 cases per week:

- **Number of PCR tests:** 500 per week
- **Number of RDT tests:** 5000 per week (once available)
- **Number of vaccinations:** 20 000 per week (based on vaccinating approximately 20 contacts per suspected case)
- **Number of cases treated at home:** 900 per week
- **Number of cases treated in hospitals:** 100 per week

Estimated resource requirements

The table below summarizes the estimated resource requirements for the first six months of operations, covering the establishment of IMSTs for coordination and technical assistance across all levels, as well as operational support and supplies to control acute mpox outbreaks.

The operational support and supplies focus on Phase 1 of the vaccination strategy aimed at stopping outbreaks by targeting known transmission chains and vaccinating healthcare and frontline workers in areas with active cases. This approach is designed to efficiently reduce transmission using fewer vaccine doses and resources. It is estimated that approximately 2 million vaccine doses will be required over the six-month period (based on a two-dose regimen). The cost of supplying vaccines (currently $50-$75 per dose) is excluded from this estimate. Costs for PCR tests and medical supplies are included, while additional MCMs such as RDTs and therapeutics, which may become available through ongoing R&D efforts, are not included.

The estimated costs (Table 1) cover the expenses of all partners involved. Further operational planning at the global, regional, and national levels will refine cost estimates, define roles and responsibilities, and determine individual partner funding requirements.

Table 1: Estimated resource requirement for international support to national mpox response

Response stratetgy	Coordination and technical assistance	Operational support and supplies	Total
Collaborative surveillance	11.0	13.8	24.8
Community protection	6.8	34.2*	41.0
Safe and scalable care	7.1	12.7	19.8
Access to countermeasure	14.9	-	14.9
Emergency coordination	20.6	14.7	35.3
Total	**60.4**	**75.4**	**135.8**

* Excludes cost of vaccine purchase (approx. 2 million doses @ $50-$70 per dose)

8. Monitoring and evaluation

Monitoring and Evaluation (M&E) are critical components of the SPRP, ensuring that response efforts are effective, timely, and adaptable to changing circumstances. This section outlines the framework for monitoring the implementation of the response strategy, evaluating its impact, and making data-driven adjustments as needed.

Monitoring framework

The monitoring framework is designed to track the progress of response activities in real-time, providing continuous feedback to inform decision-making at all levels. Key elements include:

- **Performance Indicators:** Establish key performance indicators (KPIs) to measure the effectiveness of response activities. These indicators will cover areas such as surveillance coverage, case detection rates, vaccination coverage, uptake of recommended practices and public health measures, treatment outcomes, and community engagement.

  Indicators will be disaggregated by factors such as age, gender, and geographic location to identify disparities and target interventions more effectively. An indicator compendium will provide definitions, measurement criteria, and methods for verifying achievements.
- **Data Management Processes:** Develop, revise, and adapt global surveillance tools and protocols for timely data collection and reporting at global, regional, and country levels. Ensure consistent and accurate data collection with regular reporting intervals (e.g., weekly, monthly) to provide timely insights into the response's progress. Data will be sourced from health facilities, laboratories, community surveys, and digital health platforms.
- **Regular Monitoring Reviews:** Conduct regular monitoring reviews at global, regional, and country levels, including Joint Operation Reviews (JOR), to assess response progress. These reviews will analyze KPIs, identify bottlenecks, and discuss necessary strategic adjustments. Reviews will occur monthly or more frequently if needed, with participation from key stakeholders.

Key Performance Indicators

Strengthened surveillance and detection

- Percentage of countries with mpox surveillance systems and diagnostic capabilities in place.
- Average time from symptom onset to case detection and confirmation.
- Percentage of suspected mpox cases reported from the local to national level within 24 hours of detection.
- Percentage of suspected mpox cases tested.
- Positivity rate among tested suspected cases.
- Percentage of cases with a known epidemiological link.

Enhanced community protection

- Risk perception and Knowledge, Attitude, and Practices (KAP) surveys conducted among key affected populations.
- Percentage of at-risk populations (e.g., healthcare workers, close contacts of people with mpox, key populations such as MSM and sex workers, prisoners) vaccinated against mpox.
- Percentage of countries reporting mpox cases through functional community-based surveillance systems and/or integrated national mpox surveillance systems.
- Percentage of countries implementing community IPC and WASH interventions in high-risk communities (e.g., IDP and refugee camps, congregate settings, schools) as part of the mpox response.
- Proportion of areas with high mpox transmission where community groups representing high-risk populations have received training, financial resources, and/or supplies to facilitate community outreach and engagement.

Safe and scalable clinical care

- Percentage of healthcare facilities with established clinical care pathways, including IPC measures for mpox.
- Standardized clinical data collection for mpox patients in use.
- Percentage of Member States with national clinical IPC guidelines for mpox.
- Number of healthcare workers trained in mpox clinical care and infection prevention.

Access to medical countermeasures

- Percentage of knowledge gaps identified in the Global R&D roadmap addressed through ongoing or completed research.
- Percentage of low- and middle-income countries with community transmission having access to WHO-approved mpox vaccines and therapeutics.
- Percentage of countries implementing a vaccination strategy to interrupt virus transmission.

One Health collaboration

- Zoonotic spillover intervention strategies clearly defined based on an increased understanding of the human-animal interface and ecology of mpox.
- Percentage of countries incorporating the animal health sector into their outbreak response activities, including regular data sharing.

Reporting and accountability

Effective reporting and accountability mechanisms are essential for transparency and trust in the mpox response. Key elements include:

- **Real-Time Dashboards:** Implement real-time dashboards to visualize key metrics and provide decision-makers with up-to-date information on the outbreak status and response effectiveness. These dashboards will be accessible to WHO, regional offices, national governments, and partners to support coordinated action.
- **Regular Reporting to Stakeholders:** Provide regular reports on response progress to key stakeholders, including WHO leadership, regional offices, national governments, donors, and partners. These reports will cover performance indicators, outcomes, impact, challenges, and any adjustments made during the response.
- **Public Accountability:** Ensure public accountability by sharing key findings and updates with the general public. This includes publishing summary reports, conducting press briefings, and engaging with the media to communicate response progress and impact. Transparency in reporting will help build public trust and support.
- **Adaptive Management:** Use insights gained from M&E to inform adaptive management of the response strategy. This includes making data-driven decisions to modify interventions, allocate resources more effectively, and address emerging challenges, ensuring the response remains flexible and responsive to the evolving situation.

Evaluation framework

- The evaluation framework is designed to assess the overall impact of the mpox response strategy, identifying successes, challenges, and lessons learned. Key elements include:
- **Outcome and Impact Assessments:** Conduct assessments to evaluate the response's effectiveness in achieving strategic objectives, focusing on outcomes such as reducing mpox transmission, morbidity, and mortality rates, and improving access to healthcare services. Impact assessments will also consider the broader social and economic effects of the response.
- **Mid-Term and Final Evaluations:** Perform mid-term and final evaluations to provide a comprehensive analysis of the response strategy's implementation and outcomes. The mid-term evaluation will identify necessary course corrections, while the final evaluation will assess the strategy's overall success in controlling the mpox outbreak.
- **Intra-Action and After-Action Reviews:** Organize intra-action reviews (IARs) during the response to capture real-time feedback and make immediate improvements. After-action reviews (AARs) will be conducted post-response to document lessons learned, best practices, and areas for improvement. These reviews will involve stakeholders at all levels, including affected communities.
- **Community Feedback Mechanisms:** Establish mechanisms for collecting and incorporating community feedback into the evaluation process. This can include surveys, focus groups, and community consultations to gather input on the effectiveness of public health messaging, access to services, and overall satisfaction with response efforts. Community feedback will be integral to ensuring that the response aligns with the needs and expectations of affected populations.

Tresor, a health worker in charge of mpox, talks to a patient in front of the consultation room at a hospital near Goma, DRC, on 14 August 2024. The hospital includes a treatment centre where mpox patients from the local community and from nearby internally displaced persons (IDP) camps are being treated.

"We receive many patients, and our job is to try and give them a safe space where we can better respond to their needs," he said.

© WHO / Guerchom Ndebo

World Health Organization
Avenue Appia 20
1211 Geneva 27
Switzerland

WHO in Emergencies:
www.who.int/emergencies/en