

O'Neill Institute Briefing

The Exploding MPOX Global Health Emergency: What We Know and What Should We Do?

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On August 13, 2024, the Africa Centers for Disease Control and Prevention (Africa CDC) [declared](#) a Public Health Emergency of Continental Security (PHECS) - the first time the agency used its emergency powers. The Africa CDC Statutes (Art 3, Para F) grant the agency the power to lead and coordinate the regional response to health emergencies, particularly those declared a PHECS.

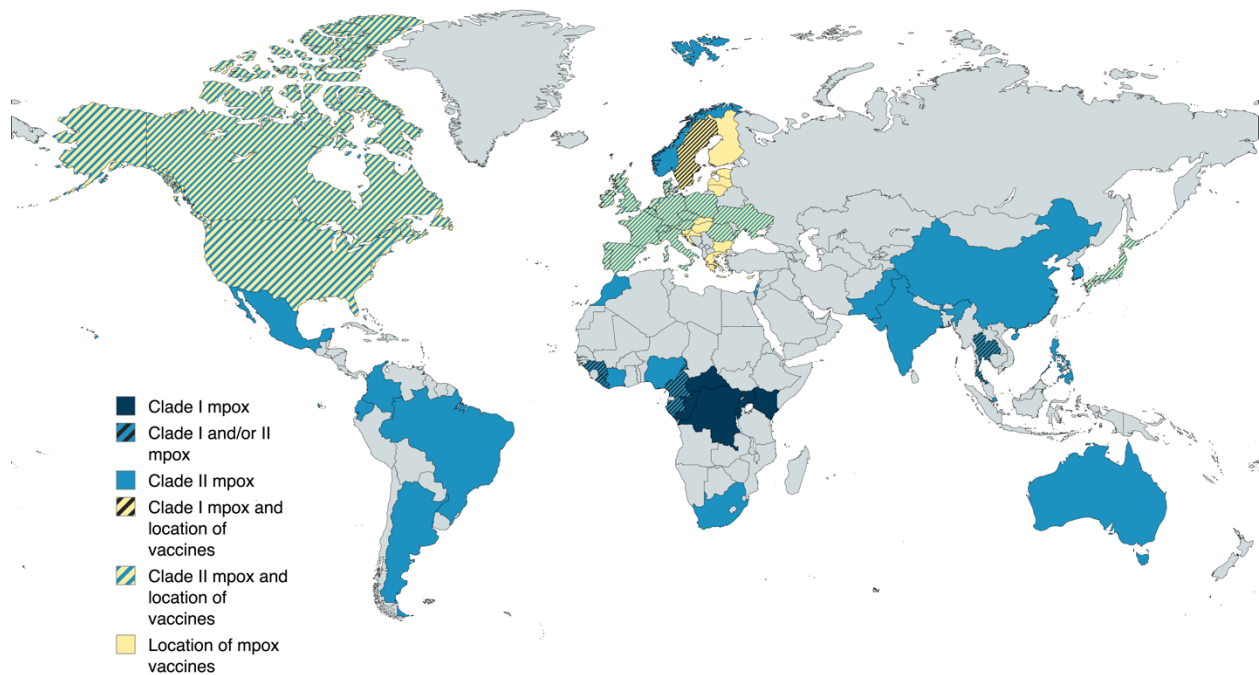
The following day, the World Health Organization (WHO) followed suit and [declared](#) the outbreak of mpox in the Democratic Republic of the Congo (DRC) and neighboring countries in Africa to be a Public Health Emergency of International Concern (PHEIC) under the International Health Regulations (2005) (IHR). This is not the first time WHO had determined that mpox was an international health emergency. Just two years earlier, the Director-General declared a PHEIC for the multi-country outbreak of mpox, largely affecting the Americas and Europe among communities of men who have sex with men (MSM). But just as the emergency declaration was ended for that outbreak, cases of mpox in Africa were on the rise due to exponential increases in human-to-human transmission and insufficient public health capacities.

Until recently, endemic mpox in the region had garnered scant international attention and funding, despite the growing harms in Africa. Once the emergency ended in high-income countries, the urgency of responding to the enduring mpox health threat in Africa waned. The twin declarations—the first-ever concurrently in effect at regional and global levels—could change that. They present an historic opportunity not only for WHO and the Africa CDC to mount a highly coordinated response, but also for the international community to demonstrate its resolve to commitments of solidarity and equity in pandemic response through the mobilization of financing and lifesaving countermeasures.

In this Briefing, we explain the different mpox clades in circulation and examine the evolving outbreak. We then explore the international response, including the

availability, approval and need for mpox vaccines, WHO's recommendations to Member States under the IHR, and the contents of WHO and Africa CDC's joint continental response plan. Finally, we present our own legal and policy recommendations to bring the emergency under control, and to prevent future outbreaks of mpox.

First, we invite readers to ponder why – after the unconscionable and inequitable allocation of vaccines during the COVID-19 pandemic – there is such an imbalance in the distribution of vaccines the use of which WHO advises to prevent mpox. See the map below, which shows where the cases are compared to where those vaccines are. Note that virtually all the cases are in central Africa and all the manufacturing capacity and supplies are in the United States, Europe, and Japan. That needs to change.



Data from: Reuters, World Health Organization, as at September 17, 2024

The allocation of vaccines to Africa is starting to shift but the bottom line is that, as always, lifesaving medical resources arrive in low- and middle-income countries too little and too late.

1. Mpox

Mpox is the disease caused by the monkeypox virus, which comes from the same family of orthopoxviruses as [smallpox](#). While the first known human case of mpox was reported in 1970, outbreaks of mpox in Africa have increased in frequency. In 2022, the virus spread to previously unaffected countries including in Europe and North America. Early outbreaks were associated with zoonotic transmission from wildlife, such as rodents and primates, to humans. But in recent years, there has been a noticeable epidemiological shift toward human-to-human transmission.

Two types of monkeypox virus cause mpox: Clade I and Clade II.

Clade I has been endemic in DRC for over a decade, but cases have increased significantly in the past few years: it is the clade driving the upsurge in mpox cases in [Central and Eastern Africa](#). Clade I has been associated with more severe disease and higher mortality than Clade II, with a case fatality rate [as high as 10%](#). Two subclades have been detected for Clade I mpox:

Clade Ia	Clade Ib
Clade Ia is endemic to Central Africa and is currently spreading within DRC, Cameroon, the Republic of Congo, and the Central African Republic. Clade Ia has been associated with regular spillover from animals into humans with some onward human-to human transmission.	Clade Ib emerged in South Kivu in DRC in September 2023 and has since spread to several other countries within Africa, including four which had not yet reported cases of mpox: Kenya, Uganda, Burundi and Rwanda. It is currently undergoing sustained human-to-human transmission. Since WHO declared a PHEIC in 2024, cases of clade Ib mpox have been reported in Sweden and Thailand . Cases outside endemic regions suggests the potential for rapid international spread. The emergence of mpox, its rapid spread and new modes of transmissions, contributed to the WHO Director-General’s PHEIC declaration.

Clade II mpox is endemic to West Africa and is understood to cause [less severe disease](#) than Clade I. Two subclades have also been detected for Clade II mpox:

Clade IIa	Clade IIb
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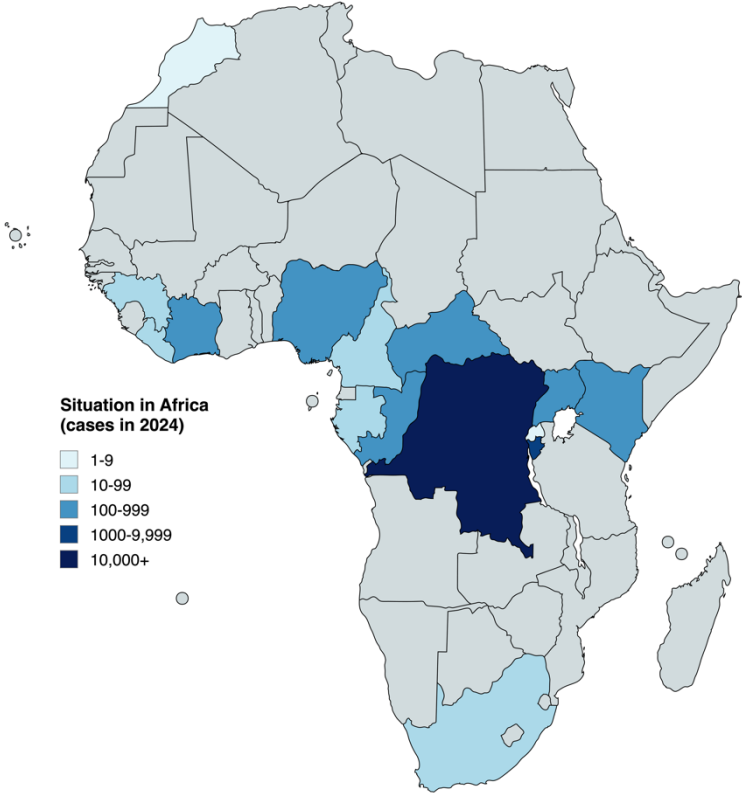
<p>Clade IIa is associated with animal transmission and has rarely been isolated in humans.</p>	<p>Clade IIb drove the multi-country outbreak of mpox in 2022-2023, largely detected in MSM. The WHO Director-General determined that outbreak to be a PHEIC on July 23, 2022 and ended the emergency declaration on May 11, 2023. Within Africa, Clade IIb mpox is now circulating in Nigeria, Côte d'Ivoire, South Africa and Cameroon. And outside Africa, Pakistan reported its fifth mpox case on September 11, 2024.</p>
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The genetic differences that explain the increased severity of Clade I mpox compared to Clade IIa, and the increased transmissibility of Clade IIb, are [not currently well understood](#).

2. Situation Report

Considering the number of clades involved, the current mpox emergency is better understood not as a single outbreak, but multiple outbreaks. In the last year, DRC has reported an unprecedented number of suspected Clade I mpox infections. Since the beginning of 2024, DRC alone has [reported](#) almost 26,000 suspected cases and 806 deaths. DRC's case count accounts for 87% of all new cases across the African continent (which has recorded almost 30,000 suspected mpox cases in total), but the outbreak is growing in other countries, including neighboring Burundi which has experienced an [exponential growth](#) in mpox Clade I cases in recent weeks and has reported 1,557 cases since the beginning of the year. It is also important to stress that reported cases likely represent only the tip of the iceberg. Many countries experiencing outbreaks do not have sufficient testing, laboratory, and surveillance capacities and face challenges transporting samples to laboratories, meaning their health systems are unable to identify many cases. This most likely means that reported cases and deaths are a significant under-estimate. The total health toll is probably much higher than is currently understood.

Country	Cases in 2024
Democratic Republic of the Congo	25,757
Burundi	1,557
Nigeria	935
Central African Republic	285
Congo	184
Côte d'Ivoire	176
Uganda	120
Kenya	115
Liberia	85
Cameroon	54
Guinea	30
South Africa	25
Gabon	15
Rwanda	4
Morocco	2
Total	29,342



Data from: World Health Organization, as at September 17, 2024

The epidemiology of the various mpox outbreaks is complex and evolving, and varies from country to country, impacting risk communication and control strategies. Human-to-human transmission of mpox generally occurs through close contact including sexual contact, other types of close physical contact, sharing clothes, and inhalation of infectious respiratory droplets, as well as transmission to a fetus during pregnancy. Household transmission, which affects children and families, is of particular concern. Risk factors include unsafe sexual practices, low vaccination coverage in affected countries, co-infections (e.g., HIV), poor sanitation, population mobility, and – owing to the ongoing risk of zoonotic spillover – interactions with wildlife.

In DRC and Burundi, children under the age of 15 are at increased risk of infection and death, representing respectively 60% and 54% of reported cases, and [78%](#) of all suspected deaths, indicating transmission via household and other non-sexual

forms of contact. However, sexual transmission of Clade I has also been reported in DRC among MSM and in sex workers and their contacts, including through heterosexual sexual contact. In countries experiencing an upsurge in mpox where same-sex sexual contact is criminalized, including Burundi and Uganda, these communities face barriers to vaccination and care. Forcibly displaced people are also at high risk of infection due to their high mobility and living conditions. There are [42 million forcibly displaced people](#) in Africa, many of whom live in countries experiencing an upsurge of mpox. DRC is the epicenter of the current mpox outbreak and has the second-largest population of displaced people in Africa, with over 520,000 refugees and over 7 million internally displaced people. As of 10 September 2024, over 88 cases have been reported among refugees in Africa, the majority of which (68) were reported in DRC.

3. Vaccines

While widespread testing, effective risk communication, and prevention and control measures will measurably reduce the spread of mpox, vaccination remains the best solution for bringing the outbreak under control. Africa CDC estimates that it needs [10 million doses](#) to stop the current outbreak, while 3.5 million doses would be needed for DRC alone. Importantly, the continent will need vastly more doses over the long-term, as mpox is expected to remain endemic or at least recurrent in many African countries.

But as we suggested above, the inequitable access to affordable vaccines that was so vivid during the COVID-19 pandemic appears to be recurring in the mpox emergency. Simply put, mpox vaccines are in the hands of the world's richest countries and companies. And for now, Africa waits for charitable contributions and affordable vaccine prices.

As at September 17, 2024, a total of 250,000 mpox vaccine doses have arrived in Africa. This will allow affected countries to begin vaccination campaigns, and a vaccination campaign is scheduled to begin in DRC on [October 2](#), coordinated by UNICEF, prioritizing adults in the most affected provinces (Equateur, South Kivu and Sakuru). But this supply represents a drop in the ocean compared to the continent's total vaccine needs. Details of the recommended vaccines and data on how many doses have been secured are included in the table below.

Regulatory and Governance Failures

WHO's Strategic Advisory Group of Experts on Immunization currently recommends two mpox vaccines: the JYNNEOS vaccine manufactured by Denmark-based Bavarian Nordic (MVA-BN), and the LC16 vaccine manufactured in Japan by KM Biologics. A third vaccine, ACAM2000 manufactured by US-based Emergent BioSolutions, is indicated for the prevention of smallpox and WHO recommends its use against mpox only when the two other vaccines are unavailable. The US has a large supply of ACAM2000 and it was [recently approved](#) by the U.S. Food and Drug Administration (FDA) for use in people at high risk mpox infection. But the vaccine has more known side effects, including myocarditis, and contraindications than JYNNEOS. It would be ethically unacceptable if Africa was forced to rely on its use where safer alternatives were unavailable.

On September 24, 2019, the FDA granted regulatory [approval of JYNNEOS](#) in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection. In July 2022, the European Medicines Agency (EMA) also approved JYNNEOS (marketed in the EU as Imvanex) for use in adults. The US and EU deployed that vaccine during the 2022-2023 mpox response. In 2022, Japanese regulators [licensed](#) the LC-16 vaccine produced by Japan's KM Biologics, including [for use in children](#). While the JYNNEOS vaccine is only approved for use in adults, the EMA is currently examining additional data in order to approve the vaccine for use in adolescents aged 12-17, which could happen by the end of the month. On August 31, 2024, UNICEF [announced](#) that it has issued an emergency tender for the procurement of mpox vaccines, and will work with Africa CDC, Gavi, WHO and PAHO to secure doses.

Despite approval by FDA and EMA as early as 2022, WHO had never before granted JYNNEOS emergency use listing (EUL) or pre-qualification. This hindered the efforts to procure and deliver the vaccine by GAVI and UNICEF. And since the DRC approved the vaccine only recently, it was unable to take donations offered by the US earlier in the epidemic. That has now changed. On September 13, 2024, WHO [announced](#) the MVA-BN vaccine (JYNNEOS/Imvanex) as the first vaccine against mpox to be added to its prequalification list. The agency, however, recommended a single dose in resource constrained countries (instead of the standard 2-dose regimen). It also recommended "off label" use for children 18 years old or younger. The agency [announced](#) it was "progressing with prequalification and emergency use listing procedures with manufacturers of two other mpox vaccines: LC-16 and ACAM2000."

This history makes clear that there is precious little anticipatory thinking about regulatory approvals, and WHO as well as low- and middle-income countries have not sufficiently clarified legal channels by which regulatory review by FDA and EMA may supplement national regulatory agency review, or even substitute for national review. Overall, the lack of regulatory planning and coordination among regulatory agencies, including WHO, has severely impeded the mpox response.

	JYNNEOS (MVA-BN)	LC-16	ACAM2000
Manufacturer	Bavarian Nordic	KM Biologics	Emergent BioSolutions
WHO Prequalification	Yes	Pending	Pending
Approved for use (nationally)	In adults only	In adults and children	In adults and children at high risk of smallpox or mpox
African country-based emergency approvals	DRC, Nigeria, Rwanda, Cameroon	DRC, Nigeria, Rwanda, Cameroon	N/A
Doses secured	From the EU HERA/Bavarian Nordic/Africa CDC Partnership: 200,000 doses. Africa CDC received 99,100 doses on September 5, 2024 and 100,900 doses on September 7, 2024. From USAID: 10,000 doses of JYNNEOS were donated to Nigeria and received on August 29, 2024 , and DRC received 50,000 doses on September 10, 2024.	N/A	N/A
Doses pledged	Europe: an additional 351,500 doses from France (100,000 doses), Germany	Japan: 3 million doses	Emergent BioSolutions: 50,000 doses

	(100,000 doses), Spain (100,000 doses), and 51,500 additional doses between Malta, Portugal, Luxembourg, Croatia, Austria, Poland and potentially some other Member States. Canada: 200,000 . Bavarian Nordic: 15,000 .		
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4. PHEIC and Temporary Recommendations

The PHEIC is WHO’s highest alert level under the IHR for health emergencies. The declaration sets in motion binding legal obligations on IHR States Parties to cooperate with one another and with WHO to rapidly report data, mobilize funding (e.g., for diagnostics, surveillance, and medical countermeasures), and comply with any relevant WHO recommendations. The IHR ordinarily require countries to avoid imposing unnecessary travel or trade restrictions and to base their public health response to a PHEIC on science and respect for human rights. But when a PHEIC is declared, the Director-General is required to issue time-limited and risk-specific temporary recommendations to guide countries in their response to the PHEIC.

Following the PHEIC declaration, the Director-General issued [temporary recommendations](#) specific to countries experiencing the upsurge of mpox, including but not limited to DRC and neighboring countries. Countries affected are advised to report quarterly to WHO on their implementation of the recommendations, including any challenges. These recommendations are expected to be implemented by those countries in addition to the current [standing recommendations for mpox](#), which the Director-General extended until August 20, 2025. These standing recommendations are applicable to *all* IHR States Parties and relate to mpox as an ongoing risk to public health. The recommendations are arranged by topic below.

	Temporary Recommendations	Standing Recommendations
IHR power	Article 15	Article 16

Application	To countries experiencing an upsurge of mpox cases, and only while there is an active PHEIC.	To all IHR States Parties until at least August 20, 2025, even if mpox is no longer determined to be a PHEIC.
Coordination	Establish or enhance emergency response coordination arrangements, coordinate with stakeholders, and engage partner organizations for support including humanitarian actors.	Develop and implement national mpox plans, building on WHO guidance and outlining actions to control mpox and achieve elimination of human-to-human transmission.
Surveillance and Laboratory Diagnostics	Enhance surveillance, expand access to diagnostics to differentiate mpox clades, strengthen transportation of samples and arrangements for genomic sequencing, monitor contacts, scale up efforts to investigate cases, and regularly report cases to WHO.	Establish and sustain laboratory-based surveillance and diagnostic capacities, include mpox as a notifiable disease, report to and notify WHO of mpox cases and events, and collaborate for access to genomic sequencing and by sharing genetic sequence data.
Safe and Scalable Clinical Care	Strengthen health worker knowledge and training, provide workers with PPE, expand access to clinical care for all mpox patients, including children, patients living with HIV and pregnant women, manage co-infections, and promote infection prevention and control measures and basic sanitation.	Provide guidance and resources for clinical care for mpox, including access to treatment and supportive measures to protect health workers and caregivers.
International travel	Establish or strengthen cross-border collaboration for surveillance and management	Provide travellers with relevant information and travel advice, and refrain

	of suspected mpox cases without resorting to general travel and trade restrictions.	from implementing travel-related health measures such as entry or exit screening, or requirements for testing or vaccination.
Vaccination	Prepare for the introduction of the mpox vaccine for emergency response, targeting people at high risk of infection, proactive community engagement and data collection.	N/A
Risk communication and community engagement	Strengthen risk communication and engagement with affected communities and local workforces for outbreak prevention, response and vaccination, including through training, mapping high risk and vulnerable populations, managing misinformation, and addressing stigma and discrimination via meaningful community engagement.	Communicate risk, build awareness, engage with affected communities and at-risk groups, and implement interventions to prevent stigma and discrimination.
Governance and financing	Galvanize and scale up national funding and explore external opportunities for targeted funding of prevention, readiness and response activities.	N/A
Addressing research gaps	Invest in research on the dynamics of transmission of mpox, risk factors, the social and behavioral drivers of transmission, the natural history of disease, and the	Initiate, support, and collaborate on research to generate evidence for mpox prevention and control, including by

	effectiveness of public health interventions and novel therapeutics and vaccines against mpox.	conducting clinical trials of countermeasures.
Access to Countermeasures	N/A	Ensure equitable access to countermeasures, including through resource mobilization mechanisms.

5. Continental Response Plan

The history of close collaboration between WHO in Geneva and the WHO African Region (AFRO), as well as Africa CDC, has been uneven. Yet in an encouraging act of shared resolve, WHO and Africa CDC released the [Mpox Continental Preparedness and Response Plan for Africa](#). The plan – which adopts a singular plan, budget, coordination, and monitoring approach – intends to support African countries to prevent and control mpox outbreaks with an emphasis on preventing human-to-human transmission and mitigating animal-to-human transmission. Excluding the cost of vaccine procurement, the estimated budget for the six months from September 2024 to February 2025 is close to US\$600 million, of which 55% is allocated for mpox response in 14 affected member states and readiness in 15 others. The remaining 45% is earmarked for operational and technical support through Africa CDC and WHO partners.

Member States are classified into four categories based on their level of mpox risk which determine priority actions in the mpox response:

1. Countries with sustained human-to-human transmission (DRC, Burundi, Nigeria, South Africa, Cote d'Ivoire, Central African Republic)
2. Countries with sporadic cases, or endemic reservoirs (Rwanda, Kenya, Uganda, Sierra Leone, Liberia, Ghana, Cameroon, Gabon, Republic of Congo, Morocco, Egypt, Benin, Mozambique, Sudan)
3. Countries near high-risk areas (Angola, Zambia, Eswatini, Lesotho, Ethiopia, South Sudan, Tanzania, Malawi, Republic of Guinea)
4. All other countries.

Essential priorities to contain mpox are organized around ten pillars of implementation: (1) coordination and leadership, (2) risk communication and

community, (3) surveillance, (4) laboratory, (5) case management, (6), infection prevention and control, (7) vaccination, (8) research and innovation, (9) operations support and logistics, and (10) continuity of essential services.

WHO and Africa CDC are already working to scale up the operational response in Member States in accordance with the plan. But the response is likely to test coordination between the agencies – the [greatest challenge](#) will be ensuring that vaccines are delivered and deployed where they are needed most. As the plan notes, COVID-19 exposed vulnerabilities in national health systems and inequities African countries faced in securing equitable access to countermeasures.

6. Recommendations

Here, we offer a number of proposals to shore up global solidarity, equity, financing, and access to lifesaving medical countermeasures in the regional and global response to mpox. We also recommend improved health governance going forward.

Countermeasures. In the short term, states should begin or continue to make available a meaningful percentage of their mpox vaccine stockpiles to affected countries, support research and development into new countermeasures including diagnostic kits and antivirals, and collaborate for access to genomic sequencing and in the sharing of genetic sequence information. Africa CDC has already secured 250,000 JYNNEOS vaccine doses, and this early show of solidarity is laudable and will kickstart immunization campaigns in the areas most affected. But this figure pales in comparison to Africa CDC’s assessed needs of 10 million vaccine doses. Beyond donations, the multi-country outbreak has demonstrated the danger of allowing endemic mpox to persist without sustainable access to vaccines and effective treatments. Long-term access to countermeasures requires a new approach, achieved through building up local and regional research and manufacturing capacities and sharing technologies and know-how with the support of high-income countries, the private sector, and development partners.

Risk Communication. As the [epidemiology of mpox has shifted](#) from zoonotic spillover events to sustained human-to-human transmission through multiple transmission pathways (including household transmission to children and heterosexual and same-sex sexual contact), accurate, non-stigmatizing and precise risk communication delivered by trusted community members is more important than ever. Investments and guidance are needed to strengthen community-level

risk communications, including to protect against disinformation and ensure marginalized communities (including MSM, sex workers, people living with HIV/AIDS, and displaced people) receive appropriate information about prevention and care.

Financing. Financing is needed immediately and over the long term to support the response on the ground. WHO's Contingency Fund for Emergencies has released [US\\$1.45 million](#) and WHO plans further allocations. The Pandemic Fund Board has also [agreed](#) to fast-track support to affected countries. Africa CDC has [called for](#) the creation of a dedicated funding window exclusively for the mpox response, which would support the budget for the Continental Response Plan (budgeted at almost US\$600 million). And UNICEF [launched](#) a US\$58.8 million appeal to support the response in countries affected by clade I mpox, where children are at elevated risk. Organizations of wealthy countries including the OECD and the G7 should work with international financing and development partners to mobilize financing for the response including for vaccine procurement and laboratory capacities. The cost of investing in the mpox response now will likely pale in comparison to the economic impacts of prolonged multi-country mpox outbreaks.

Solidarity. Countries must act in [solidarity](#) with those affected by the upsurge in mpox by complying with WHO's recommendations, including by refraining from implementing travel-related health measures such as travel bans and entry or exit screening requirements. This is in addition to supplying and supporting procurement of vaccines and not imposing export bans on those lifesaving tools or the materials needed to make them. While countries at low or moderate risk should be on high alert for imported cases, this vigilance cannot extend to hoarding lifesaving tools.

Global Health Governance. The emergence of a new clade of mpox, its rapid spread through resource-stretched settings, and predictable inequities in the global distribution of medical countermeasures all reaffirm the need for stronger international rules for pandemic prevention, preparedness and response. As a first step, IHR States Parties should be actively preparing to implement the revised IHR, including supporting the new Financing Mechanism and obligations on equitably sharing countermeasures, as soon as they come into effect, if not before. But even these amendments do not comprehensively support pandemic prevention and response. This mpox emergency - like COVID-19, Ebola, SARS and other health emergencies before it - underscores the urgent need for a Pandemic Agreement with One Health prevention obligations, commitments to strengthen [health](#)

[systems](#) and facilitate equitable access to countermeasures, and a Conference of the Parties to develop additional rules and guidance. Countries in the [Intergovernmental Negotiating Body](#) for a new Pandemic Agreement should finalize and adopt the agreement by the May 2025 World Health Assembly, if not sooner, with a clear plan and deadlines for the adoption of any further instruments or protocols.

Recommendations	
Countermeasures	<ul style="list-style-type: none"> • Donate and pledge existing vaccine supplies. • Support research and development into new countermeasures. • Collaborate for access to genomic sequencing and in the sharing of genetic sequence information. • Transfer technology and know-how. • Support local and regional research and manufacturing capacity-building.
Risk Communication	<ul style="list-style-type: none"> • Deliver accurate, non-stigmatizing risk communication using trusted community members to fight disinformation and protect marginalized communities.
Solidarity	<ul style="list-style-type: none"> • Provide financing for an effective emergency response and long-term mitigation. • Refrain from implementing restrictive travel and trade measures.
Global Health Governance	<ul style="list-style-type: none"> • Implement the revised IHR and adopt a Pandemic Agreement.

Conclusion

The regulatory, governance, and equitable resource distribution challenges in the ongoing mpox response sadly are not new. The national and global responses to Ebola, COVID-19, and the previous multi-country mpox outbreak all vividly showed core weaknesses in preparedness and response, along with cavernous inequities in the allocation of lifesaving medical resources. It is high time we apply the lessons those events taught. A response guided by equity and solidarity that supports local surveillance, research and manufacturing capacities, fairly distributes countermeasures, builds resilient health systems, and protects vulnerable populations will save countless lives across Africa and beyond. Urgent, coordinated action is needed now, as complacency poses a threat to all of us. After the debacle of COVID-19, we owe it to the world to get this right.