THE ROLE OF INTERNATIONAL INSTITUTIONS IN MANAGING DISEASES OF INTERNATIONAL CONCERN IN NIGERIA: A CASE STUDY OF M-POX

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A PROJECT SUBMITTED TO THE DEPARTMENT OF HISTORY AND INTERNATIONAL STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF ARTS (B.A) HONOURS DEGREE IN INTERNATIONAL STUDIES AND DIPLOMACY

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CERTIFICATION

This is to certify that this project was carried out by AGBOTUTA FAITH in the Department of History and International Studies, University of Benin, under my supervision.

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(Project Supervisor)	***(Head of Department)***
_____	_____
Date	**Date**

DEDICATION

This work is dedicated to God Almighty.

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CHAPTER ONE

BACKGROUND TO THE STUDY

Introduction

In recent years, the world has been facing the growing threat of diseases that do not respect borders. This is one of the reasons that international institution tends to always be involved in the prevention and control of disease outbreak, irrespective of the country that is affected. Majority of the diseases that their outbreak receives intervention from international institutions are those that spread beyond national borders and are seen as public health threats (Adler et al., 2022). According to the World Health Organization - WHO (2022), these diseases are monitored under the International Health Regulations (IHR), a legal framework that guides how countries should respond to outbreaks that might have cross-border implications. Some diseases of international concern include Ebola, Zika, and more recently, Mpox (Monkeypox). An important characteristic of such diseases (of international concern is their potential to quickly spread across countries and even continents. This can be due to factors such as international travel, trade, and migration (Thornhill et al., 2022). These diseases do not respect national borders and can lead to widespread health crises. To control their spread, countries need to work together, share information, and provide necessary resources and expertise (Adler et al., 2022).

From a global perspective, the implications of diseases of international concern are numerous. Public health systems in affected regions are overwhelmed as they

scramble to contain the spread of the disease (WHO, 2022). Economically, countries can face major losses, particularly in sectors like tourism, trade, and healthcare (Worldbank, 2022). Socially, fear and stigma often accompany outbreaks, which can disrupt communities and cause additional harm. International collaboration is essential in managing these diseases. Countries do share surveillance data, collaborate on research for vaccines and treatments, and offer medical assistance where needed (Zhu et al., 2022). These efforts help limit the global spread and reduce the long-term impact of such diseases. The role of global organizations like WHO is to provide guidance and coordinate responses, making sure that affected countries are not left to handle these challenges alone (WHO, 2022). In this study, Monkeypox (Mpox) is the disease to be discussed. It is a viral disease that shares similarities with smallpox but is generally less severe. It is caused by the monkeypox virus, which is part of the same family of viruses as smallpox, although it causes milder symptoms (Heskin et al., 2022). Mpox was first discovered in 1958 in monkeys, which is how it got its name. However, it is not only found in monkeys; other animals, such as rodents, can also carry the virus. The first human case of monkeypox was reported in 1970 in the Democratic Republic of Congo, where the disease is endemic (Zhu et al., 2022).

Mpox has a wide geographical spread, but it is primarily found in Central and West Africa. In these regions, the disease often circulates in rural areas, where people have close contact with animals. The virus is transmitted to humans through direct

contact with the blood, bodily fluids, or lesions of infected animals, as well as from person to person (Raccagni et al., 2022). The disease can also be spread through contaminated objects or respiratory droplets from infected individuals. Historically, monkeypox outbreaks were relatively rare, but in recent years, the number of cases has increased (Falendysz, 2015). In 2003, a significant outbreak occurred in the United States, traced back to imported animals from Africa. In 2018, Nigeria faced a significant surge in monkeypox cases, which led to increased global awareness of the disease. The virus had previously been contained in small outbreaks in certain regions, but with the rise of international travel and the movement of people, the disease has been spreading more widely (Rodríguez-Morales et al., 2022). Although the disease's clinical presentation resembles that of smallpox, it is however less severe, characterized by fever, chills, fatigue, headache, lymphadenopathy, back discomfort, myalgia, and skin rash. The extremities are frequently affected by skin lesions, which progresses from maculopapular to vesicles, pustules, and crusts (Jairoun et al., 2022). WHO declared Mpox as a Public Health Emergency of International concern on July 23, 2022 and as of 12 April, 2023, a total of 86,956 confirmed cases from over 100 countries were reported, of which 85,502 and 1,454 cases were from locations that have historically not reported Mpox and those who have reported it, respectively (WHO, 2023). In Nigeria, a total of 829 confirmed cases with 9 deaths have been reported from 26 3 states since the beginning of 2022. Historically, the largest outbreak of Mpox was reported in Nigeria in 2017 with 197 confirmed cases from 18 states (WHO, 2023).

The most threatening virus outbreak in West Africa occurred in Nigeria between September and November 2017. Data collected in 2017 showed that 88 cases were confirmed, and since then, Nigeria has been reporting new cases. From its re-emergence in September 2017 to August 2018, the South-South region reported the highest number of cases (WHO, 2022). Nigeria recorded 262 suspected and 113 confirmed cases in 26 states and seven deaths in 16 states. Eight to 49 human monkeypox cases were recorded annually between 2019 and 2021. Nigeria had its lowest number of reported cases in 2020 since the outbreak in 2017, with only eight recorded instances (WHO, 2022). Disease outbreaks are affected by factors such as geography location, population size, travels between places, infectious disease levels within the locality and the public behavior (Al-Mustapha et al., 2023).

Nigeria's geography and healthcare infrastructure present unique challenges in managing Mpox outbreaks. The disease has spread to several states, with Lagos, Rivers, and Delta states being among the most affected (Harapan et al., 2020). The challenge for Nigerian authorities has been to contain the spread in urban areas while also addressing the needs of rural communities, where healthcare access is often limited. In some instances, the disease has gone undiagnosed for weeks, allowing it to spread further before public health measures can be put into place (Yinka-Ogunleye et al., 2019). The public health impact of Mpox in Nigeria has been significant. The Nigerian Centre for

Disease Control (NCDC) has been at the forefront of the response, working with local and international partners to control the outbreak (NCDC, 2023).

The role of international institutions has been effective in managing Mpox outbreaks in Nigeria. Organizations like the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have provided technical support, resources, and expertise in dealing with the disease (Bunge et al., 2022). Their involvement has been beneficial to the improvement of Nigeria's disease surveillance, outbreak containment strategies, and public health messaging. In Nigeria, national institutions like the Nigerian Ministry of Health and the Nigerian Center for Disease Control (NCDC) also play their own roles, alongside the Ministry of Foreign Affairs (Al-Tammemi et al., 2022). WHO's strategies for managing diseases like Mpox focus on prevention, containment, and response. During an outbreak, WHO works to ensure that countries are well-prepared with clear response plans in place (WHO, 2023). In Nigeria, the WHO has supported surveillance systems, helping to track and monitor cases of Mpox in real-time. Surveillance is important because it allows health officials to detect the disease early, prevent further spread, and allocate resources to affected areas quickly (WHO, 2022). WHO helps Nigeria in setting up these surveillance systems, ensuring that they are functioning properly during an outbreak. One of the key areas where WHO provides support is funding. WHO has various funding mechanisms to support countries like Nigeria in responding to disease outbreaks (WH), 2021).

The Centers for Disease Control and Prevention (CDC), based in the United States, has long been an important partner in global health efforts, including in Nigeria. CDC has been involved in disease surveillance, diagnostics, and training to help Nigeria respond to health crises like Mpox (CDC, 2022). One of the CDC's primary roles is providing technical assistance to improve Nigeria's ability to detect and diagnose Mpox early. CDC has helped set up laboratories that can quickly and accurately diagnose Mpox cases, which is crucial for containing the spread of the disease. CDC has also been involved in case studies of successful interventions in Nigeria, where the agency has helped curb outbreaks by providing hands-on support (CDC, 2022). For instance, during the Ebola outbreak in 2014, the CDC's involvement in Nigeria was credited with helping to contain the disease. They applied lessons learned from previous outbreaks to Mpox, focusing on early detection, contact tracing, and community engagement. Their work in both diagnostics and response has made a significant difference in Nigeria's ability to control infectious diseases (CDC, 2023).

Statement of the problem

In today's world, everything is connected. The world has become more globalized, with people, goods, and information traveling faster and more frequently than ever before. This increased movement has made it easier for diseases to spread across borders, often without warning. Diseases that once might have been confined to a small area can now quickly affect large parts of the world. For example, diseases like COVID-

19 and M-pox, once limited to specific regions, can now reach many countries within days or weeks, creating global health emergencies. The ease of travel, trade, and communication makes it possible for an outbreak in one country to spread quickly to other nations. This has made managing diseases much more complex and urgent. When an outbreak happens, it's not just the country where the disease begins that is affected. The connection between many countries in the world means that diseases of international concern, like M-pox, can spread rapidly beyond borders, impacting global health and safety. Even if a disease starts in a specific region, it has the potential to affect other parts of the world, especially when countries have high levels of travel and trade. For example, when M-pox was detected in some African countries, it quickly spread to other continents, making it a global concern (Jahan, 2022).

In recent years, M-pox has become a cause for concern, particularly because of the increasing number of cases. Though Nigeria has made efforts to control the disease, including surveillance, contact tracing, and vaccination campaigns, challenges remain. One of the main difficulties is the spread of misinformation and fear, which prevents people from seeking medical help. There’s also a lack of awareness about how the disease spreads, which makes it hard to prevent new cases. Furthermore, Nigeria’s healthcare system, which faces challenges such as understaffing and limited resources, struggles to respond quickly to outbreaks. M-pox is not just a local issue for Nigeria—it is part of a larger global challenge. The disease, while not as deadly as others like Ebola,

has the potential to spread to other countries, especially given the level of global travel and trade. Addressing M-pox is important because it serves as a reminder of how diseases can spread quickly in a connected world. It shows how vulnerable countries like Nigeria are to outbreaks and how international institutions can help manage these threats.

Nigeria, despite being the most populous country in Africa, faces significant challenges in managing infectious diseases. One of the main problems is the country's healthcare infrastructure. Although Nigeria has made progress in improving its healthcare system, it still faces many limitations (Hobson et al., 2021). For example, there is a shortage of healthcare professionals, especially in rural areas where health facilities are often underdeveloped or poorly equipped (Rao et al., 2022). The healthcare system also struggles with insufficient funding and outdated technologies, making it difficult to keep up with the latest methods for diagnosing and treating infectious diseases (Costello et al., 2021). Hospitals and health facilities often lack basic infrastructure, such as electricity, running water, and medical equipment, which are essential for providing quality care. The lack of funding also affects the ability of the government to invest in disease prevention programs and public health education campaigns, which are crucial for controlling diseases like M-pox (Hobson et al., 2021).

Given these challenges, Nigeria has had to rely heavily on international institutions for help in managing infectious diseases. The support from organizations like WHO, CDC, UNICEF, is important for filling the gaps in Nigeria's healthcare system.

These organizations provide technical assistance, training, and financial resources to strengthen Nigeria's response to outbreaks (WHO, 2023; CDC, 2023: UNICEF, 2023). Even after international institutions began to assist Nigeria in managing M-pox, the challenges did not disappear. While organizations like the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and GAVI have provided much-needed technical support, funding, and expertise, the implementation of these resources has not always been smooth (WHO, 2023; CDC. 2023). One issue is the lack of coordination between international and local efforts. Although these organizations bring valuable expertise, the response to outbreaks may not always be well-integrated into Nigeria's public health system (Hobson et al., 2021). Sometimes, the solutions provided by international organizations are not tailored to the specific context of Nigeria, making them less effective. Another challenge is that even though international institutions provide vaccines and treatments, distribution and access remain issues (Eseigbe et al., 2021). The logistics of delivering vaccines to remote areas or providing adequate treatments to every affected individual are often complicated. Nigeria's health infrastructure is spread thin, especially in rural areas where the majority of the population lives (Costello et al., 2022). The limited healthcare facilities in these regions may not have the capacity to store or distribute vaccines properly. Furthermore, there may not be enough healthcare workers available to manage the increased workload during an outbreak. Even after international support, these issues persist, making it harder to control the spread of M-pox (Jahan, 2022). . Addressing these challenges requires more than just

external support—it requires a comprehensive approach that strengthens the country's healthcare infrastructure, improves coordination between international and local efforts, and ensures that resources are used effectively to manage outbreaks.

Significance of the Study

It is necessary to evaluate the effectiveness of support from organizations such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). This study is significant as it will evaluate this and also sheds light on how these collaborations enhance Nigeria's capacity for disease surveillance, case detection, and outbreak response. The insights gained through literature reviews and findings of this study will help with the establishment of strategies that will optimize these international diseases-prevention intervention and partnerships, and also ensure more effective and coordinated approach to the management of Mpox and similar health threats.

In addition to this, this study will address the challenges that hinder effective disease management, including funding gaps, logistical constraints, and technical expertise shortages. As this study addresses this challenges, its findings will propose actionable recommendations to strengthen Nigeria's healthcare infrastructure and response mechanisms towards the management of Mpox and other diseases of international concern.

Aim and Objectives of the study

The aim of this study is to ascertatin the role of International Institutions in Managing diseases if international concern in Nigeria A case study of M-pox. The objectives of this study include the following:

1. To evaluate the effectiveness of international institutions' support in disease surveillance, case detection, and outbreak response.
2. To assess the coordination mechanisms between Nigeria's public health authorities and international partners in managing M-pox.
3. To identify gaps in funding, logistics, and technical expertise provided by international institutions for M-pox management.
4. To examine the role of international institutions in public awareness and risk communication during M-pox outbreaks.
5. To provide recommendations for strengthening international collaboration in managing diseases of international concern in Nigeria.

Literature Review

A disease of international concern is one that has the potential to spread across countries and cause serious harm to global health. Some of these diseases can spread very quickly and affect millions of people, leading to widespread panic, economic loss, and disruptions to daily life (WHO, 2023; Worldbank, 2022). Examples of such diseases

include Ebola, Zika, and more recently, COVID-19. While these diseases are alarming on a global scale, their impact is especially significant in countries like Nigeria, where the healthcare system often struggles to handle large-scale outbreaks (Zahid et al., 2022).

In Nigeria, a country with a population of over 200 million people, managing diseases of international concern has always been a challenge. Poor healthcare infrastructure, limited access to medical resources, and a lack of trained health workers in some areas have made it difficult to control the spread of many infectious diseases (Mauldin et al., 2020). However, the role of international institutions has been critical in helping Nigeria manage these public health threats. International organizations like the World Health Organization (WHO), the United Nations (UN), and the Centers for Disease Control and Prevention (CDC) have been essential in providing support (WHO, 2023). This support includes sending medical experts, providing funding, and helping with the coordination of emergency response efforts. Without these global partnerships, it would be even harder for countries like Nigeria to manage these health crises (Rao et al., 2022).

M-pox, formerly known as monkeypox, is one of the diseases that has recently become a major concern globally, including in Nigeria. M-pox is a viral disease that shares similarities with smallpox, though it is less severe (Mauldin et al., 2020). It has been spreading in several countries, including Nigeria, where there have been a number of outbreaks. The reason M-pox is so important to focus on in this study is that it

highlights the present need for international cooperation in disease management (Hobson et al., 2021). Despite being a relatively rare disease, the outbreak of M-pox in Nigeria has shown how vulnerable countries are to diseases that have the potential to cross borders. M-pox provides a useful case study because it demonstrates both the successes and challenges in managing diseases with international implications (Costello et al., 2022).

M-pox, previously known as monkeypox, was first identified in 1958 in Denmark when monkeys kept for research purposes developed a pox-like disease. The first human case was reported in 1970 in the Democratic Republic of Congo, where the disease is still mostly found. Initially, it was thought to be a rare, localized illness that mainly affected people in Central and West Africa, where it was transmitted to humans from animals, particularly rodents and primates (Ogoina et al., 2020). Over time, the disease was seen as less of a global threat compared to other more widespread diseases like Ebola or HIV. However, in the 21st century, M-pox began to spread beyond its traditional African regions (Erez et a., 2018). In 2003, the first outbreak of monkeypox outside Africa occurred in the United States, when several people contracted the disease after coming into contact with infected prairie dogs that had been exposed to an imported Gambian rat (Ogoina, et al., 2020). This outbreak raised concerns about how the disease might spread in non-endemic regions, especially with the increase in global travel and trade. Since then, cases of M-pox have been reported in other countries, including the UK, Israel, and Singapore, with increasing frequency (Zahid et al., 2022).

The global epidemiology of M-pox has changed significantly over the years, especially with the more recent rise in cases outside of Africa. While most cases still occur in Africa, there have been outbreaks in other parts of the world, prompting health authorities to reevaluate how M-pox is monitored and controlled (Jahan, 2022). The rapid spread of the disease in different countries, including in 2022 and 2023, has highlighted the global risk of infectious diseases that cross borders and spread quickly. This shift in the global distribution of M-pox has brought attention to the need for stronger international collaboration and response mechanisms (Zahid et al., 2022).

M-pox was not initially considered a disease of international concern in the same way as diseases like smallpox, Ebola, or HIV/AIDS. However, as the disease spread to new regions and countries with no previous history of M-pox, the global community began to take notice. This was especially true when M-pox started appearing in places with limited resources and inadequate healthcare systems, such as in Nigeria, where outbreaks have been reported since 2017 (Thornhill et al., 2022). One of the factors that contributed to M-pox's rise as a global health concern was its zoonotic nature. M-pox can be transmitted from animals to humans, which is a characteristic that makes it harder to predict and control. This type of disease can be difficult to manage because it is not just humans that are at risk – animals can also play a role in transmitting the virus back to humans. As a result, M-pox requires a more integrated approach to disease management,

one that includes understanding animal reservoirs, environmental factors, and human-to-human transmission (Adler et al., 2022).

The spread of M-pox to countries with no previous cases also increased the urgency for international health organizations like the World Health Organization (WHO) to pay closer attention to the disease. As cases began to appear in non-endemic countries, such as the 2022 outbreak in the United Kingdom, the global community realized that it was no longer confined to certain regions, and that it could pose a serious threat to public health worldwide (WHO, 2023), The global spread of M-pox further highlighted the importance of international coordination in responding to emerging infectious diseases. This recognition of M-pox as a disease of international concern was important because it prompted the activation of frameworks like the International Health Regulations (IHR) to respond more effectively to the disease's spread (Heskin et al., 2022)..

International Health Regulations provided the framework for responding to outbreaks that were spreading beyond the typical regions of Central and West Africa. When M-pox began to show up in countries outside its traditional range, WHO began to activate International Health Regulations to coordinate an international response (Zhu et al., 2022). This included surveillance, reporting of cases, and mobilizing resources to help countries facing outbreaks. International Health Regulations also include provisions for travel and trade restrictions, although these are usually applied in extreme cases when the disease is deemed to be a major public health threat (WHO, 2022). In 2022, when the

spread of M-pox reached a level that raised concern internationally, WHO began to take more significant steps under the IHR framework. It issued public health advice to all countries about the need for increased vigilance and monitoring of M-pox cases. WHO also worked with local health authorities in affected countries to ensure that proper protocols were followed to contain the spread of the disease (WHO, 2023).

M-pox is a viral disease that has affected Nigeria for several years. Historically, Nigeria has experienced sporadic outbreaks of M-pox, particularly in the southern and central parts of the country (NCDC, 2023). In 2017, Nigeria experienced a major M-pox outbreak, with over 100 reported cases in several states. The Nigerian government, through the Nigeria Centre for Disease Control (NCDC), worked with local health authorities and international partners to contain the outbreak. However, challenges such as delayed reporting of cases, insufficient healthcare infrastructure, and inadequate awareness of the disease in rural areas slowed the response (NCDC, 2023).

In 2022, Nigeria experienced another M-pox outbreak, but this time it was part of a larger global trend, with cases reported in countries outside of the endemic regions. The international spread of M-pox during this outbreak led to greater global attention, and Nigeria's response was more coordinated, benefiting from international support (Jahan, 2022). Epidemiologically, M-pox outbreaks in Nigeria have been characterized by a mix of urban and rural cases, with the majority of cases occurring in males between the ages of 20 and 40. Transmission is mainly through direct contact with infected animals or

humans, and human-to-human transmission has been documented during outbreaks (Al-Tammemi et al., 2022).

Several socioeconomic and cultural factors influence the spread and control of M-pox in Nigeria. One of the key factors is the country's high population density, particularly in urban areas. This density increases the risk of disease transmission, as people live in close quarters and may have limited access to sanitation and healthcare services (Yinka-Ogunleye et al., 2019) . Additionally, rural areas in Nigeria, where healthcare infrastructure is limited, often lack proper disease surveillance and reporting systems. This results in delayed detection of outbreaks and slow response times. Cultural practices, such as hunting and consumption of wild animals (which may carry the virus), also contribute to the spread of M-pox (Rodríguez-Morales et al., 2022).. In some rural communities, hunting monkeys and other animals is a common practice, and this can increase the risk of zoonotic transmission, where the virus is passed from animals to humans. Additionally, traditional beliefs and misconceptions about disease prevention can hinder effective public health messaging and interventions (Al-Tammemi et al., 2022).

M-pox outbreaks are often met with a lack of awareness in affected communities, which can lead to delayed treatment, improper handling of infected individuals, and further spread of the disease (Yinka-Ogunleye et al., 2019). Public health campaigns to raise awareness about M-pox have been somewhat effective in urban areas, but cultural

beliefs in rural regions remain a challenge. For example, some communities may rely on traditional medicine or spiritual healing practices instead of seeking medical care, which can delay the identification and treatment of M-pox cases (Al-Mustapha et al., 2023). Socioeconomic status of affected individuals also influenced the control of M-pox. People in lower-income areas hardly had access to the necessary healthcare services or vaccines, making them more vulnerable to infection. The lack of financial resources also affects the ability of local health authorities to conduct thorough contact tracing, quarantine individuals, and implement other preventive measures (Rodríguez-Morales et al., 2022).

International institutions have helped to manage diseases that have the potential to spread across countries and affect global health. These organizations work together to provide resources, technical expertise, and coordination during outbreaks, ensuring that countries have the support they need to respond effectively. Some of these international institutions include World Health Organization (WHO), United Nations Children's Fund (UNICEF), Centers for Disease Control and Prevention (CDC), and the World Bank, along with other funding agencies.

WHO is the leading international body responsible for global public health. Established in 1948, WHO is tasked with setting health standards, providing technical support, and coordinating the global response to health emergencies. When it comes to diseases of international concern like M-pox, WHO plays a central role in managing the

situation by overseeing the global response, providing guidance, and ensuring that information is shared among affected countries. WHO's role in disease management includes monitoring outbreaks, conducting research, offering emergency response teams, and supporting countries in the implementation of effective health measures. During outbreaks like M-pox, the organization helps countries prepare by providing advice on case identification, surveillance, and containment strategies. WHO also coordinates international efforts to provide vaccines, treatments, and other resources, ensuring that countries have access to the tools needed to control the spread of the disease (WHO, 2023).

UNICEF is another important international institution that plays an important role in disease management, especially when it comes to protecting vulnerable populations such as children. UNICEF is widely recognized for its efforts in improving the health, nutrition, and well-being of children worldwide, particularly in developing countries. While UNICEF may not directly manage outbreaks like M-pox, it works closely with organizations like WHO to ensure that children and other vulnerable groups are not disproportionately affected by the disease. During health emergencies, UNICEF’s role includes providing vaccines, promoting health education, and ensuring that health services reach remote and underserved communities. The organization also helps in the distribution of humanitarian aid, such as safe water and nutrition, during outbreaks. In the case of M-pox, UNICEF has been involved in ensuring that affected populations,

particularly children, have access to the necessary resources to protect themselves. The organization has supported vaccination campaigns and health education programs aimed at preventing the spread of infectious diseases, not just in Africa, but globally. UNICEF's advocacy efforts also help to raise awareness about the importance of disease prevention and the need for global cooperation to manage outbreaks (UNICEF, 2023)

The Centers for Disease Control and Prevention (CDC) is one of the leading health institutions in the United States, but its role extends well beyond the U.S. CDC is heavily involved in global health, particularly in the prevention and control of infectious diseases. The organization provides expertise, resources, and technical assistance to countries facing outbreaks, including those in Africa, where M-pox is most commonly found. CDC contributes to global disease surveillance, helping to track the spread of diseases like M-pox and coordinating efforts with local health authorities to respond quickly. CDC often sends experts and personnel to assist in field investigations, diagnostic testing, and the implementation of disease control measures such as quarantine and contact tracing. CDC is also involved in research and development, working with other organizations to develop vaccines and treatments for diseases like M-pox. For example, CDC has worked with WHO to evaluate the effectiveness of smallpox vaccines against monkeypox, as the two diseases are related. This research is important for understanding how to prevent and manage outbreaks in both endemic and non-endemic regions. In addition to providing direct assistance, CDC's leadership in global disease

control has been instrumental in guiding international efforts to manage M-pox (CDC, 2023).

World Bank and other international funding agencies, such as the Global Fund and the Gates Foundation, have also helped in disease management. These organizations provide financial support to countries that are dealing with outbreaks, particularly in low- and middle-income countries that may not have the resources to respond effectively on their own. World Bank's involvement in health crises like M-pox often includes providing loans and grants to fund emergency response activities, including the procurement of vaccines, medical supplies, and health infrastructure. By providing financial support, the World Bank helps countries strengthen their health systems, improve disease surveillance, and ensure that they have the capacity to manage outbreaks in the future. The organization also helps to mobilize resources for global health initiatives, working alongside other institutions to ensure that funding is available for disease control efforts. Other international funding agencies, such as the Global Fund, also contribute by supporting programs that focus on infectious diseases, including M-pox. These organizations often collaborate with WHO, UNICEF, and other institutions to ensure that funding is allocated effectively and that health interventions are delivered in the most efficient way possible. The role of funding agencies extends beyond just providing financial resources. These organizations also help coordinate efforts, monitor the effectiveness of interventions, and ensure that countries are accountable for how the

funds are spent. By working together with international health institutions, funding agencies contribute to the global effort to manage and control diseases of international concern like M-pox (Worldbank, 2023).

The involvement of international institutions is essential for quick responses, effective prevention, and ensuring that countries are prepared for future outbreaks. There are four (4) major functions that these institutions perform: disease surveillance and reporting, policy formulation and implementation, resource mobilization and technical support, and capacity building and training (Raccagni et al., 2022). These functions help in controlling the spread of diseases, protecting public health, and ensuring that countries have the tools and knowledge they need to fight health crises like M-pox.

One of the most important roles of international institutions is disease surveillance and reporting. Disease surveillance is the process of closely monitoring the spread of infectious diseases in different regions to detect outbreaks early. This allows for a quicker response to prevent further spread (Raccagni et al., 2022). WHO, CDC, and other international bodies coordinate global surveillance systems, such as the Global Health Security Agenda (GHSA), which track the spread of diseases like M-pox. Surveillance helps countries to spot new cases quickly and report them to international health organizations (WHO, 2023; CDC, 2023). These organizations then share information with other nations, helping them to prepare and respond in a timely manner. For instance, when M-pox outbreaks happen, it's essential to identify the affected areas quickly and

understand how the disease spreads. This information is shared globally, allowing for better planning and response in both endemic and non-endemic regions (Heskin et al., 2022). Effective disease surveillance also involves gathering data from various sources, such as hospitals, health clinics, and laboratories. This data is analyzed to understand the trends of disease spread, identify high-risk areas, and track the effectiveness of interventions (WHO, 2022).

Another important function of international institutions is policy formulation and implementation. These organizations help countries develop policies that guide how to respond to diseases, from prevention to treatment. WHO, for example, provides countries with guidelines on how to manage disease outbreaks, including how to control the spread of infections, ensure proper healthcare delivery, and improve public awareness (WHO, 2023). International institutions help governments develop policies that are evidence-based and globally relevant. This includes creating strategies for disease prevention, vaccination programs, and public health campaigns (Rodríguez-Morales et al., 2022). . During outbreaks like M-pox, WHO advises governments on how to set up quarantine measures, ensure that health workers are properly trained, and educate the public on how to protect themselves. Implementing these policies can be challenging, but international institutions provide the technical support needed to make sure that countries follow through with the plans (Heskin et al., 2022). They also ensure that countries align their policies with international health standards and frameworks, such as the International

Health Regulations. This helps create a coordinated global response, where countries work together to manage diseases and prevent them from spreading across borders (Al-Mustapha et al., 2023).

Resource mobilization is an importantl function of international institutions, as they help ensure that countries have the financial and material resources they need to manage diseases effectively. M-pox outbreaks, like other diseases of international concern, require substantial resources to combat, including vaccines, medical supplies, and trained personnel. International organizations like WHO, UNICEF, and the World Bank help mobilize these resources by securing funding from governments, international donors, and private sectors (WHO, 2023; UNICEF, 2023). Resource mobilization includes raising funds for emergency responses, such as sending medical teams to affected areas, providing vaccines and other medical treatments, and ensuring that healthcare systems are equipped to deal with outbreaks (Rodríguez-Morales et al., 2022). For example, during the 2022 M-pox outbreak, international organizations helped fund vaccination campaigns, especially in high-risk areas. They also provided technical support, including sending experts to assist in disease management, ensure proper diagnosis, and implement containment strategies (Al-Mustapha et al., 2023).

Beyond financial resources, international institutions offer technical support to help countries improve their disease management capabilities. This includes providing expertise in areas such as laboratory testing, surveillance, and treatment strategies

(Raccagni et al., 2022). For example, the CDC send specialists to a country to assist with diagnosing M-pox cases and ensure that the healthcare system is prepared to handle them. International institutions also coordinate the global sharing of resources (CDC, 2023). This means that when a country faces a shortage of vaccines or medical staff, these organizations can work together to ensure that resources are distributed fairly and efficiently, based on the needs of the affected countries (Al-Mustapha et al., 2023).

Capacity building and training are essential for ensuring that countries are well-prepared to manage disease outbreaks. International institutions helps to strengthen the health systems of countries, especially those with limited resources (WHO, 2023). This includes providing training for healthcare workers, improving laboratory capabilities, and helping governments develop the skills needed to respond to public health crises. WHO, CDC, and other international organizations often conduct training programs to teach healthcare workers how to recognize, treat, and prevent diseases like M-pox (WHO, 2023; WHO 2023). These programs focus on how to diagnose the disease, manage patient care, and prevent the disease from spreading. Training is also provided in outbreak response, such as how to conduct contact tracing, implement quarantine measures, and educate the public (Al-Mustapha et al., 2023).

Capacity building goes beyond just training health professionals. It also involves strengthening the infrastructure needed to manage diseases. WHO help countries improve their public health systems by providing technical assistance to strengthen their disease

surveillance systems or laboratory networks (Zhu et al., 2022). This helps countries respond faster to outbreaks and ensure that their healthcare systems are better equipped to handle future crises. Additionally, international institutions support the development of local expertise by encouraging knowledge exchange between countries. This helps to build a network of experts who can share best practices and lessons learned from past outbreaks, ensuring that countries are better prepared for future health challenges (Raccagni et al., 2022). .

Nigeria's healthcare system has lots of challenges, including inadequate infrastructure, insufficient funding, and a shortage of skilled health professionals. Despite these hurdles, Nigeria has made efforts to improve its ability to handle public health emergencies, particularly diseases of international concern. The country's health system is structured into three tiers: federal, state, and local governments, each with its own responsibility for healthcare delivery (Zahid et al., 2022). However, these levels of government often face challenges in coordinating and implementing health policies and responses due to gaps in infrastructure and management. The health system's readiness to manage diseases of international concern like M-pox is dependent on several factors. One of the key challenges is the limited number of healthcare facilities and personnel, particularly in rural areas (Costello et al., 2022).. The country's healthcare infrastructure is concentrated in urban centers, leaving many rural areas underserved. This makes it difficult to mount an effective response to outbreaks in remote areas where healthcare

resources are limited. Additionally, Nigeria's healthcare system has struggled with chronic underfunding, which affects its ability to implement effective disease surveillance systems, maintain stockpiles of necessary medical supplies, and ensure adequate access to healthcare for the population (Ogoina et al., 2020).

Nigeria has several institutions that are involved in disease management, particularly when it comes to handling outbreaks of diseases of international concerns like M-pox. Nigeria Centre for Disease Control (NCDC) is the lead agency responsible for coordinating responses to public health emergencies. NCDC works closely with the Federal Ministry of Health (FMH), local governments, and international partners to detect, report, and manage outbreaks. NCDC's role includes coordinating surveillance efforts, ensuring timely reporting of cases, providing technical support to states, and mobilizing resources for outbreak response (NCDC, 20223). The agency also works to improve the capacity of health systems at the state and local levels by training healthcare workers and ensuring they have the tools and resources to respond to outbreaks. NCDC has been instrumental in the response to M-pox outbreaks, although it faces challenges in areas such as resource mobilization and coordination with other institutions (NCDC, 2023).

The Federal Ministry of Health is responsible for overseeing the implementation of national health policies, including those related to disease prevention and control. The federal ministry of health works with other government agencies, such as the NCDC, to

ensure that health policies are effectively implemented across the country (NCDC, 2023). . The federal ministry of health also collaborates with international organizations like WHO to ensure that Nigeria follows international best practices in disease management (WHO, 2023). In addition to national institutions, Nigeria has established partnerships with international organizations, such as WHO, UNICEF, and CDC. These partnerships have helped Nigeria improve its disease surveillance systems, access medical supplies, and receive technical support during outbreaks (Costello et al., 2022).

International institutions, including WHO, CDC and other global health bodies, have intervened in the management of M-pox outbreaks in Nigeria. These organizations have supported Nigeria through technical assistance, financial resources, and coordination efforts during M-pox responses. WHO has been particularly instrumental in providing guidance on disease surveillance, outbreak control strategies, and public health messaging (CDC, 2023). WHO has helped in monitoring the effectiveness of interventions and providing recommendations based on global best practices. One of the key contributions from WHO during the M-pox outbreaks was assisting Nigeria in developing a comprehensive plan for managing the disease, which included emergency response protocols, case definitions, and coordination between various stakeholders (CDC, 2023). CDC's contribution included providing technical expertise in epidemiology, case management, and laboratory diagnostics. During M-pox outbreaks, CDC worked alongside Nigerian health authorities to improve disease surveillance and to

ensure that necessary vaccines and treatments were available for those affected by the virus. They also offered guidance on contact tracing and isolation procedures, which are essential to stopping the spread of M-pox in both urban and rural areas (CDC, 2023).

Other international agencies, such as the United Nations Children's Fund (UNICEF) and Médecins Sans Frontières (Doctors Without Borders), have also contributed to the response. These organizations provided not only medical assistance, but also support in terms of communication, public health education, and emergency health kits. UNICEF, for example, helped raise awareness about M-pox, its symptoms, and prevention strategies, focusing on vulnerable populations and health workers who may be at higher risk (UNICEF, 2023). Effective coordination between Nigerian and international institutions has been central to the management of M-pox outbreaks (WHO, 2023).. While international organizations have provided crucial support, the collaboration with Nigerian institutions, particularly the Nigeria Centre for Disease Control and the Federal Ministry of Health, has been effective in ensuring responses to the country's specific context. NCDC has acted as the focal point for coordinating the national response to M-pox outbreaks, with support from WHO, CDC, and other partners (WHO, 2022).

Coordination between international agencies and Nigerian institutions has involved frequent communication, joint task forces, and regular meetings to ensure that efforts are aligned. This partnership has also helped streamline resource allocation and

ensure that resources are deployed effectively (Costello et al., 2022). The NCDC has worked closely with WHO and the CDC to develop and implement guidelines for the response, ensuring that international best practices are adapted to the Nigerian healthcare environment (NCDC, 2023). However, coordination hasn't always been smooth. In some instances, the alignment between local and international priorities has been challenging, particularly in terms of ensuring that international organizations understand the nuances of local health infrastructure, culture, and resources. While international support has been essential, there have been instances where local authorities had to adapt or modify strategies to better fit the Nigerian context (WHO, 2023).

One of the key factors that have contributed to successful disease management during the M-pox outbreaks in Nigeria is the collaboration between international organizations and Nigerian health institutions. The synergy between these two entities has led to improved disease control efforts and better outcomes in tackling the outbreaks. The relationship between WHO, CDC and the Nigerian Centre for Disease Control (NCDC), and other stakeholders has been effective in managing the crisis (NCDC, 2023). These partnerships have allowed for the sharing of resources, expertise, and logistical support, which has been essential in ensuring that the outbreak response is both timely and effective. Collaboration was particularly important in improving surveillance systems across Nigeria. WHO and the CDC supported the Nigerian government in setting up more effective disease surveillance mechanisms, which allowed for quicker identification

and containment of new cases (WHO, 2022) This quick response was important in preventing the spread of the disease to larger areas, especially in urban settings (Federal Minstry of Healtgh, 2022).The coordination between local, national, and international agencies helped streamline efforts in the distribution of medical supplies and vaccines (WHO, 2022).. This was particularly important during times of high demand when the number of reported cases surged. WHO's leadership in coordinating the efforts and maintaining clear lines of communication between all partners was helpful in reducing confusion and ensuring that efforts were not duplicated or misdirected (Costello et al., 2022).

Another major success story in the management of M-pox in Nigeria has been the innovations in disease control that emerged during the outbreak. One of the key innovations was the use of digital tools for disease surveillance and reporting. In an effort to improve the speed and accuracy of M-pox case reporting, Nigerian health authorities, with support from international partners, introduced mobile health (mHealth) applications(Zahid et al., 2022). These applications allowed healthcare workers and field officers to quickly report new cases, track patient movements, and monitor the spread of the disease in real time. This approach reduced delays in information flow and helped authorities make more informed decisions on where to allocate resources and deploy medical teams. Additionally, the use of geographic information systems (GIS) technology was another innovation that helped to control M-pox outbreak (Raccagni et al., 2022). GIS technology allowed health workers to map out areas with high incidences of M-pox and prioritize interventions in those areas. By pinpointing hotspots, the Nigerian government and its international partners could focus their efforts on the regions most affected by the disease, ensuring that resources were used in the most efficient way possible. The ability to track and visualize the spread of the disease made it easier for health authorities to intervene before the outbreak could escalate (Zhu et al., 2022)..

The response also saw improvements in diagnostic capabilities. During the M-pox outbreaks, international agencies, especially WHO and CDC, helped Nigeria to enhance its laboratory diagnostic capabilities. With advanced diagnostic tools and better training

for local healthcare providers, Nigeria was able to more accurately identify cases of M-pox and differentiate them from other diseases with similar symptoms (WHO, 2023). This improvement in diagnostic accuracy was helpful in controlling the spread of M-pox, as it ensured that patients received the correct treatment and were isolated from others as needed. Another innovative response was the adaptation of existing vaccines. Although M-pox is related to smallpox, which has been eradicated globally, smallpox vaccines were found to offer some protection against M-pox (Adler et al., 2022). With support from international organizations, the Nigerian government secured sufficient doses of smallpox vaccines to vaccinate at-risk populations. This approach helped prevent the further spread of the disease, especially in high-risk areas, and significantly reduced the number of cases during the outbreak Worldbank, 2022).

The successful management of M-pox in Nigeria has provided valuable lessons for both the country and the global health community. These lessons are essential in improving future disease responses and building stronger health systems worldwide. One of the key lessons learned is the importance of preparedness and quick action. The ability to respond swiftly to the M-pox outbreak was made possible by pre-existing collaborations between Nigeria and international organizations. Having these relationships in place before the outbreak occurred allowed for a rapid mobilization of resources and technical support. This demonstrated the importance of maintaining readiness in anticipation of potential public health emergencies. Health authorities in

Nigeria and across the globe must prioritize preparedness and invest in building strong, flexible healthcare systems capable of managing unexpected outbreaks. M-pox outbreaks taught health authorities and international organizations the importance of strengthening the healthcare infrastructure, especially in rural and underserved areas. Investments in health infrastructure, including hospitals, laboratories, and transportation networks, are essential in ensuring that countries can respond effectively to future outbreaks.

The involvement of international institutions in managing diseases like M-pox often brings great benefits, but it also comes with challenges and barriers that hinder the effectiveness of their responses. One major barrier is institutional limitations and conflicts, which can delay or complicate the response to disease outbreaks (Bunge et al., 2022). International institutions often operate within rigid frameworks that are not always adaptable to the rapidly changing nature of disease outbreaks. For example, the bureaucratic processes required for mobilizing resources, acquiring permissions, or coordinating actions can be slow, especially when urgent action is needed. These delays can cause problems when countries like Nigeria are facing fast-moving outbreaks such as M-pox (Costello et al., 2022). The lack of flexibility in decision-making and slow response times may lead to missed opportunities for containment and prevention. Also, when multiple international institutions are involved in managing a single disease outbreak, they may not always work together smoothly (Zahid et al., 2022). There are often competing priorities, differing protocols, and conflicting interests, which can lead to

miscommunication and a lack of effective collaboration. In some cases, the involvement of too many organizations with overlapping mandates can make the situation more complicated, instead of helping the response. This can cause confusion on the ground and result in resources being spread thin rather than concentrated in the most critical areas (Ogoina, et al., 2020).

Another major barrier to effective disease management is insufficient local capacity in affected countries. While international institutions may have the resources and expertise to respond to outbreaks, the local institutions in the affected countries may not have the same level of preparedness or infrastructure to handle these emergencies (Mauldin et al., 2020).. In Nigeria, the healthcare system has long faced challenges related to staffing, funding, infrastructure, and access to essential medical supplies. These limitations can prevent effective disease control and put a strain on efforts to manage outbreaks like M-pox (Adler et al., 2022).. One specific issue is the shortage of trained healthcare workers who are capable of diagnosing and treating cases of M-pox. The Nigerian health sector, especially in rural areas, often faces a shortage of skilled healthcare professionals, which limits the capacity to respond to public health emergencies. Even when international institutions provide training and technical support, it may not be enough to fully address the gap in local expertise and resources (Thornhill et al., 2022).

In addition, local health facilities in Nigeria, particularly in rural or remote areas, are often poorly equipped. This lack of basic infrastructure, such as medical laboratories, isolation units, and adequate transportation for delivering supplies can undermine efforts to contain disease outbreaks. Without these resources, healthcare workers cannot efficiently diagnose, treat, or prevent the spread of diseases like M-pox, even when international aid is provided (Ogoina, et al., 2020). Furthermore, the reliance on external assistance, even in the face of international institutional support, means that local governments and healthcare systems may struggle to take full ownership of the response (Zahid et al., 2022). This lack of self-sufficiency can weaken the long-term sustainability of disease control efforts. If international institutions step in too quickly without empowering local authorities and strengthening local systems, it can hinder the country's ability to manage future health emergencies independently (Zahid et al., 2022).

Managing diseases of international concern, like M-pox, in low-resource settings requires planning, resource management, and community engagement. In many low-resource areas, healthcare systems face significant challenges such as limited funding, inadequate infrastructure, and a shortage of trained personnel (Yinka-Ogunleye et al., 2019). Despite these challenges, there are strategies that have been shown to be effective in managing outbreaks, especially when international institutions collaborate with local governments and communities. One important strategy is strengthening local healthcare systems before an outbreak occurs. This means investing in infrastructure, training

healthcare workers, and building effective disease surveillance systems (Bunge et al., 2022). By preparing in advance, healthcare systems can respond more quickly and effectively when a disease outbreak happens. For example, countries like Kenya and Uganda have worked to improve their health infrastructure and trained local healthcare workers to handle outbreaks such as Ebola. This proactive approach ensures that resources are already in place and that health workers have the necessary skills to act swiftly during a crisis (Al-Tammemi et al., 2022).

Another key strategy is improving community engagement and education. Diseases like M-pox often spread because people do not have adequate information they need to protect themselves or respond to outbreaks (CDC, 2022). Educating communities about the disease, how it spreads, and the importance of early reporting can help reduce the spread and save lives. Public health campaigns that focus on simple, easy-to-understand messages can be more effective in low-resource settings, where people may not have access to formal education (UNICEF, 2023). In many parts of Africa, community health workers are trained to go door-to-door, spreading important health messages and encouraging people to seek medical care if they show symptoms. Additionally, the use of mobile health technology, like SMS alerts and mobile apps, can be highly effective in low-resource settings (Al-Tammemi et al., 2022). . In countries like India, mobile phones are being used to send health messages, track disease outbreaks, and provide remote consultations. These digital tools help bridge the gap in healthcare access

by allowing people in remote areas to receive information and services without having to travel long distances (Eseigbe et al., 2021).

Several countries with similar socio-economic conditions and health challenges have implemented successful strategies to manage diseases of international concern (Zahid et al., 2022). For example, during the 2014 Ebola outbreak in West Africa, Liberia, Guinea, and Sierra Leone faced significant challenges in responding to the disease. However, these countries were able to implement several effective strategies that could be adapted to other low-resource settings. One important strategy was the establishment of mobile treatment units (Hobson et al., 2021). These mobile units were deployed to affected areas to provide immediate care, reduce the spread of the disease, and bring medical services directly to the communities. By setting up temporary healthcare facilities closer to affected areas, these countries were able to provide faster and more effective treatment (Costello et al., 2022). This strategy could be applied to other disease outbreaks, including M-pox, to help improve access to care. Another key lesson from the Ebola outbreak was the importance of rapid response teams. In Liberia, for instance, the government and international organizations created rapid response teams that could be quickly deployed to hotspots to conduct testing, trace contacts, and provide care (Erez et a., 2018). This fast-moving, flexible approach is crucial in managing outbreaks in low-resource settings, where the disease can spread quickly if not contained. Countries like Thailand and Vietnam have also shown success in managing infectious

diseases like bird flu and M-pox (Ogoina et al., 2020). They have used a combination of strict border control measures, public health education campaigns, and community-based surveillance systems to reduce the spread of these diseases. These strategies highlight the importance of coordinated efforts between local governments, international agencies, and communities to effectively manage outbreaks (Zahid et al., 2022). .

Methodology

For this study, purposive sampling and stratified random sampling techniques will be employed to select participants. These methods were chosen to ensure that the sample represented the key stakeholders involved in M-pox management in Nigeria while capturing diverse perspectives across different groups. Purposive sampling will be used to identify individuals and groups with specific expertise, experience, or direct involvement in M-pox management, using the Oyo State team of each selected international institution and minstry of health . This approach will allow the selection of participants who can provide in-depth insights into the institutional roles, challenges, and strategies associated with managing M-pox in Nigeria. It will be particularly useful for targeting high-level representatives from international organizations, such as the World Health Organization (WHO), UNICEF, and the Centers for Disease Control and Prevention (CDC), as well as Nigerian public health officials.

To collect data effectively, appropriate instruments are required. This research will rely on qualitative instruments to capture the experiences, opinions, and perspectives of participants. The primary instrument will be structured interviews. These interviews will allow participants to share their insights in a conversational format while ensuring that the researcher covers key topics. The semi-structured format provides flexibility, enabling the researcher to probe deeper into specific areas based on participants' responses. Interview guides will be prepared, containing open-ended questions on topics such as the involvement of international organizations in M-pox control, challenges faced, and outcomes achieved. These guides will ensure consistency while allowing participants to express their unique experiences. Another instrument will be focus group discussions that will be conducted with healthcare workers and community members to explore collective experiences and opinions. These group sessions will encourage interaction and often help to discover perspectives that may not emerge in individual interviews. This research will use document reviews as an additional instrument. This includes reports, policy documents, and other relevant publications from international institutions and the Nigerian government.

Validation ensures that the instruments used for data collection are effective and measure what they are intended to measure. For this study, steps will be taken to ensure the validity of the interview guides, focus group discussions, and observation tools. To establish content validity, the research instruments will be reviewed by the researcher’s

supervisor. All corrections, suggestions and addition made by the supervisor will be honoured, acknowledged and utilized.

Pilot testing will also be conducted with a small group of participants. For example, a few interviews or focus group discussions will be carried out with healthcare workers or representatives from international institutions. Feedback from this process will help refine the instruments, ensuring clarity, relevance, appropriateness, and ensure its reliability.

The data collection process will involve both primary and secondary methods. Data will be collected through structured interviews with 25 key stakeholders and five (5) focus group sessions, each involving 6–8 participants from healthcare and community settings. Policy documents, reports, and outbreak data will be reviewed to provide context and background information. Epidemiological data on M-pox will also be assessed and analyzed to assess trends and intervention effectiveness.

Thematic analysis will be used to analyze the interview and focus group discussions transcripts. NVivo software helped in coding the data and identifying recurring themes. Patterns such as institutional collaboration, resource challenges, and community impact were analyzed through this systematic process. Where quantitative data were available, descriptive and inferential statistics will be applied using SPSS software.

In this study, the following ethical considerations will be ensured:

- Ethical approval from relevant research ethics committees in Nigeria.
- Informed consent from all participants, with explanations of the study's purpose and their rights.
- Assurance of confidentiality and anonymity.
- Adherence to ethical principles of non-maleficence and beneficence.

CHAPTERIZATION

In this study, discussions have been made based on a chapter which CHAPTER ONE (1) and it contained the following:

CHAPTER ONE: BACKGROUND TO THE STUDY

- Introduction
- Statement of the problem
- Significance of the study
- Aims and objectives of the study
- Literature Review
- Methodology
- Chapterization
- End notes

However, discussions will be made under the remaining chapters which are:

CHAPTER TWO: THE OUTBREAK AND CONTROL OF MPOX IN NIGERIA

CHAPTER THREE: INTERNATIONAL COLLABORATION IN THR CONTROL OF MPOX IN NIGERIA

CHAPTER FOUR: CONCLUSION

CHAPTER TWO

THE OUTBREAK AND CONTROL OF MPOX IN NIGERIA

Introduction

Mpox, previously known as monkeypox, is a zoonotic viral disease caused by the monkeypox virus, which belongs to the Orthopoxvirus genus. Historically, the virus was confined to Central and West Africa, but its re-emergence in Nigeria has raised significant public health concerns. The first known human case in Nigeria was recorded in 1971, but for decades, no additional cases were reported. However, in 2017, a major outbreak occurred, making Nigeria one of the most affected countries in West Africa.

The re-emergence of Mpox in Nigeria has been linked to several environmental and socio-economic factors, including deforestation, increased human-animal interactions, the live animal trade, and the consumption of bushmeat. Additionally, initial surveillance gaps and misdiagnosis contributed to the spread of the virus before targeted public health responses were established. Due to its similarity to other rash-causing diseases such as measles and chickenpox, early detection was difficult, allowing the virus to circulate within communities.

The spread of Mpox beyond its traditional endemic zones has highlighted the urgent need for improved disease surveillance and a more coordinated public health approach. Over the years, Nigeria has continued to report cases, with new waves of

infection emerging between 2022 and 2024. The World Health Organization (WHO) declared Mpox a global public health emergency in 2024, further reinforcing the need for sustained control efforts and preventive strategies.

The outbreak of M-pox in Nigeria

The most significant outbreak of Mpox in Nigeria occurred in September 2017, with the first confirmed cases recorded in Bayelsa State. From there, the virus spread to other regions, including Rivers, Delta, Lagos, and several northern states. The outbreak affected both rural and urban populations, demonstrating the ease with which the virus could spread across different demographics.

Most of the reported cases were in young men, but children and individuals with weakened immune systems, such as those living with HIV, were also disproportionately affected. The disease presented with symptoms such as fever, rash, swollen lymph nodes, and flu-like symptoms. While the case fatality rate (CFR) remained relatively low at approximately 1.4%, the high hospitalization rate indicated the severity of the disease in some individuals.

Between 2017 and 2022, Nigeria recorded 558 suspected cases and 241 laboratory-confirmed cases across 32 states, with eight reported deaths. By 2022, Nigeria accounted for 42% of the confirmed Mpox cases in Africa. The majority of cases

occurred in males between the ages of 21 and 40. Nearly half of the infected individuals required hospitalization, and a significant percentage developed severe complications.

The situation escalated further between 2022 and 2024, prompting the Nigerian Centre for Disease Control (NCDC) to strengthen its surveillance mechanisms. Despite efforts to contain the virus, new cases continued to emerge. In 2024, WHO classified Mpox as a public health emergency following a surge in cases across multiple African nations, including Nigeria. This declaration led to renewed global focus on Mpox control, with increased funding and research into vaccination strategies.

Mpox, once called monkeypox has affected Nigeria over the years. Mpox is the new name for the disease that was previously known as monkeypox. World Health Organization renamed the disease in 2022 due to concerns that the previous name was racist and stigmatizing (WHO, 2023). According to Yinka-Ogunleye et al., (2017), the first known cases in Nigeria were in 1971, with two people getting sick. After that, there were no reported cases for a long time. But in September 2017, the disease came back. This outbreak was the largest of its kind in Nigeria at that time, with 118 confirmed cases. States like Bayelsa, Rivers, and Delta have seen higher numbers of cases. The first 2017 confirmed cases of the recent outbreak were in Bayelsa State. From there, the disease spread to nearby areas. Most of the people who got sick were young men (Federal Ministry of Health, 2019). The disease spread from person to person more easily than before. Sadly, seven people died during this outbreak, including a baby and four people

who had HIV/AIDS. A pregnant woman also lost her baby because of the disease (Adeoye et al., 2017).

According to Akinyera et al., (2018), based on the available data and gaps between 1978 and 2017, the absence of reported cases might have been due to lack of testing, cases not being presented to the hospitals, lack of surveillance programs, incomplete reporting practices, and insufficient scientific research into mpox virus etc. This is evident in the number of cases reported between 2017 and 2022, marked at approximately 558 suspected cases, 241 confirmed and 8 deaths spanning through all age groups as reported by the Nigeria CDC (Isidro et al., 2022).

To fight the 2017 outbreak, health workers in Nigeria worked with international groups like the World Health Organization and the Centers for Disease Control and Prevention. They had to set up systems to watch for new cases and trained healthcare workers to recognize and treat the disease. They also told the public about the disease and how to avoid getting sick (WHO, 2022). These actions helped control the outbreak, but the disease did not go away completely. Between 2017 and 2022, Nigeria reported 558 confirmed cases of mpox across 32 states and the Federal Capital Territory (WHO, 2022). There were eight deaths during this time, making the death rate about 1.4%. In 2022, the Nigeria Centre for Disease Control (NCDC) started a group to monitor and report infections, which helped improve the country's response to the diseases (NCDC, 2022).

In 2022, Nigeria had about 42% of Africa's reported mpox cases. The disease often spread through close contact. (NCDC, 2023). Mpox has affected different groups in Nigeria. Most of the people who got sick were men aged 21 to 40. In 2022, about 89% of the confirmed cases were in men, and 11% were in women. Many of these men got the disease through close contact. Some people had to go to the hospital because they were very sick. About 48% of patients were hospitalized, and 19% had severe illness. Sadly, 6% of the patients died. Most of these deaths were due to severe infections. People with weak immune systems, like those with HIV, were more likely to get very sick. Children and pregnant women were also at higher risk. This showed that the disease was still a big problem. NCDC worked hard to find and treat new cases, and they told people how to protect themselves (NCDC, 2023). These efforts helped reduce the number of new cases, but the disease did not stop spreading completely.

According to Punch News (7th October 2024), in 2024, Africa saw nearly 19,000 mpox cases and 541 deaths. This led the World Health Organization to declare it a public health emergency. Nigeria was among the countries affected. Nigeria reported four confirmed cases of mpox by August 7th. One of the new cases was a 34-year-old man from Gasabo District in Kigali. He got sick on July 15th with fever, swollen lymph nodes, sore throat, and rashes. He had traveled back from Burundi on July 12th. He was isolated to prevent the disease from spreading, and five people who had been in close contact with him were watched for signs of illness (WHO, 2024). Children under five

years old have also been notably affected, accounting for the highest number of confirmed cases in 2024, with 15 out of 64 cases in this age group. Suspected cases were documented in 47 local government areas across 23 states and the Federal Capital Territory. This widespread distribution indicates that the disease is not confined to a specific area but affects multiple regions nationwide. To fight the disease, Nigeria started a vaccination program in November 2024. They began by vaccinating healthcare workers and people with weak immune systems in Abuja. The country received 10,000 vaccine doses from the United States in August 2024 (WHO, 2024).

Health workers in Nigeria gathered details about people who might have mpox. They write down information like age, gender, where they live, and their symptoms. This helps to see how the disease spreads and who is getting sick (Adeoye et al., 2017). They also talk to people who have been near someone with mpox to see if they might get sick too. This process is called contact tracing. By doing this, health workers can find new cases early and stop the disease from spreading (Faye et al., 2018). When someone has mpox, it's important to keep them away from others until they are better. This is called isolation. In Nigeria, health officials have given advice on how to do this. People with mpox should stay in a separate room and avoid close contact with others (Brown and Leggat, 2016). They should cover any sores and wear a mask when near people. Isolation should continue until all sores have healed and scabs have fallen off. After isolation ends, the room should be cleaned well to remove any remaining virus (WHO, 2022).

The current spate of the virus in Nigeria is motivated by the reduced herd immunity from smallpox vaccination which was identified to provide cross-protection for monkeypox virus (being genetically related, and bearing in mind that the effectiveness of smallpox vaccine in preventing monkeypox in humans is currently estimated to be about 85%, with some evidence toward the efficacy of ring vaccination to prevent transmission chains), increased human-wild contact including the sale and consumption of meat from the wild, poor community knowledge and lack of awareness of the disease, low efforts toward surveillance of the disease and limited financial support toward research and development (Thomassen et al., 2023). So far, not less than 21 countries have reported more than 270 monkeypox cases (178 confirmed and 92 suspected case) with Spain (102), the UK (71) and Portugal (37) leading current case count (WHO, 2023).

Although the earliest cases reported in the UK between 2018 and 2022 were detected from individuals traveling from Nigeria, the current trends in the present-day outbreaks being reported outside Africa as distinctively demonstrated no sufficient epidemiological and phylogenetic evidences that has successfully linked the current global outbreak (beyond UK) of Monkeypox to Africa (CDC, 2022). The spate can be theoretically associated to the increased social interactions following the lifting of COVID-19 travel restrictions and international travels (Isidro et al., 2022). This further suggests the paucity of surveillance of the virus, and subsequently, a strong justification for possible multiple outbreaks could be due to prior exportation of the virus from an

endemic region followed by undetected chains of transmission into a non-endemic region (Mandja et al., 2022). This could have therefore resulted in a substantial transmission in such naïve population and the current pockets of outbreaks. Transmission in the population can be enhanced by mass gatherings, increase contact rates among infected and susceptible individuals (Thomassen et al., 2023). According to WHO (2023), the several outbreaks of monkeypox has involved the global response of WHO based on cases being reported from the UK (currently having over 240 cases), the Democratic Republic of Congo (DRC) with total reported cases of 10,459 suspected cases and 360 deaths (estimated case fatality (CFR) rate as 3.4%), Cameroon 25 cases and 3 deaths (CFR 8%), Central African Republic 6 cases and 2 deaths (CFR 33.3%)

Developing nations typically like Nigeria experience more severe impacts during an epidemic. Consequently, given that a majority of the countries afflicted by Monkeypox fall under this category, it is important to examine their principal challenges (Isidro et al., 2022). Many urban areas experiencing rapid growth and development frequently have challenges in providing adequately equipped hospitals with the capacity to accommodate multiple patients simultaneously (Kannan et al., 2022). Hospitals see rapid influxes of patients, leading to overwhelming conditions and limited capacity to provide treatment to all those seeking care. Furthermore, it is imperative to have access to high-quality equipment, such MRI scanners and oxygen tanks, as well as well-equipped laboratory facilities, inside hospital settings (Damon 2021). Moreover, a considerable

percentage of hospitals lack a designated isolation ward, which is a significant challenge given the highly transmissible nature of viral infections. Failure to mitigate the chain of transmission can lead to a rapid escalation in the number of patients. With the increasing number of cases, there is a growing demand for additional human resources and medical equipment (Kannan et al., 2022).

Additionally, there exists a deficiency in diagnostic facilities for Monkeypox, with a notable scarcity of laboratories possessing the necessary capabilities to identify the disease. These laboratories are typically concentrated in urban areas and their availability is limited (Fuller et al., 2021). This trend is a significant challenge as it predominantly impacts regions geographically distant from major urban centers, hence impeding the efficiency of testing procedures and imposing limitations on their scope. In addition to the issue of insufficient health infrastructures, communities provide a notable barrier due to the prevalence of distinct belief systems (Mandja et al., 2022). A significant proportion of these communities attribute illnesses to supernatural forces and tend to prioritize seeking assistance from traditional healers over conventional medical interventions (Thomassen et al., 2023). In addition, it is important to consider the potential stigmatization that may compel those in need of medical aid to actively refrain from seeking such treatment, particularly while the virus continues to progress within their bodies (Mandja et al., 2022).

Control Strategies for M-pox in Nigeria

The Nigerian government, in collaboration with international health organizations, implemented a range of public health measures to control the outbreak. The response strategies were aimed at limiting human-to-human transmission, improving case detection, and enhancing public awareness.

One of the primary strategies was enhancing disease surveillance and reporting systems. NCDC improved its data collection processes, ensuring accurate tracking of suspected and confirmed cases. This allowed for more effective contact tracing, which helped identify and isolate individuals exposed to the virus. The surveillance system was also expanded to include routine monitoring of high-risk areas, particularly in communities where bushmeat consumption and animal contact were common.

Public health education and community engagement played a critical role in Mpox control efforts. Awareness campaigns were launched to educate people about how the disease spreads and how they could protect themselves. These campaigns focused on promoting good hygiene practices, discouraging unnecessary contact with wild animals, and encouraging early medical intervention for suspected cases. Reducing stigma around Mpox was also emphasized, as misinformation often led to delayed healthcare seeking behavior.

Infection prevention and control (IPC) measures were strengthened within healthcare facilities to prevent nosocomial transmission. Healthcare workers were trained to recognize symptoms early and follow strict protective guidelines. Personal protective

equipment (PPE) was provided to frontline workers, and isolation protocols were put in place for confirmed cases. In addition, hospitals received guidance on decontaminating affected areas and properly handling infectious waste to prevent further spread.

Intersectoral collaboration was another essential component of the Mpox control strategy. Recognizing the zoonotic nature of the virus, Nigerian authorities worked closely with veterinary and environmental agencies to monitor potential animal reservoirs. The One Health approach was emphasized, integrating human, animal, and environmental health sectors in disease control efforts. Additionally, international partners, including WHO, the Centers for Disease Control and Prevention (CDC), and UNICEF, provided technical expertise, financial support, and medical supplies to bolster Nigeria's response capabilities.

Vaccination efforts became a key focus area following WHO's 2024 declaration of Mpox as a public health emergency. While the smallpox vaccine was known to offer 85% cross-protection against Mpox, its routine use had declined following the eradication of smallpox. In response to the outbreak, Nigeria initiated targeted vaccination campaigns for high-risk groups, such as healthcare workers and immunocompromised individuals. In August 2024, the country received 10,000 vaccine doses from the United States, marking the beginning of its Mpox immunization efforts. Although vaccination remained limited, discussions were underway to expand coverage and integrate Mpox vaccination into broader public health programs.

Conclusion

The resurgence of Mpox in Nigeria highlighted gaps in disease surveillance, public health preparedness, and response coordination. While the 2017 outbreak exposed significant weaknesses in early detection and diagnostic capabilities, subsequent improvements in surveillance, case tracking, and healthcare worker training have strengthened Nigeria's ability to manage future outbreaks.

Efforts by NCDC, WHO, CDC, and other global health organizations have contributed to improved case detection, enhanced public awareness, and better-equipped healthcare facilities. However, challenges remain, particularly in funding, vaccine accessibility, and long-term disease prevention.

Vaccination programs, although in their early stages, offer a promising approach to controlling the spread of Mpox. Continued investment in research, public health infrastructure, and early detection systems will be critical in preventing future outbreaks. Strengthening Nigeria's healthcare system and fostering international collaboration will ensure that the country remains better prepared to combat Mpox and other emerging infectious diseases in the future.

CHAPTER THREE

INTERNATIONAL COLLABORATION IN THE CONTROL OF MPOX IN NIGERIA

International collaborations have helped Nigeria in the effective control of M-pox in Nigeria. These international collaborations have included the input and contributions of World Health Organization (WHO), United States Centre for Disease Prevention and Control (CDC), and United States Agency for International Development (USIAD) (WHO, 2022). In August 2024, the United States, through USAID, gave Nigeria 10,000 doses of the Jynneos m-pox vaccine. This was the first time Nigeria received m-pox vaccines. The donation was meant to help Nigeria fight the m-pox outbreak (WHO, 2024). The vaccines were given to health workers and people with weak immune systems. The goal was to protect those most at risk and stop the disease from spreading. This donation showed the strong partnership between the U.S. and Nigeria in health matters (WHO, 2024). It also highlighted the global effort to fight m-pox. The vaccines were sent to five states: Bayelsa, Edo, Cross River, Lagos, and the Federal Capital Territory. Each state got about 2,000 doses. The plan was to give two shots to each person, 28 days apart (WHO, 2024). The vaccine campaign started on November 18, 2024, in Abuja. It began later than planned because of some delays. The focus was on health workers and people with weak immune systems (WHO, 2024).

According to UN News (2024), this donation was a big step in Nigeria's fight against m-pox. It helped protect those most at risk and showed the importance of working together globally to fight diseases. In August 2024, the World Health Organization (WHO) declared the m-pox outbreak a Public Health Emergency of International Concern (PHEIC). This decision was made due to a significant increase in cases in the Democratic Republic of the Congo (DRC) and other African countries. The declaration of a PHEIC is a serious action. It means that the situation is urgent and needs a global response (WHO, 2024). The goal is to get countries to work together to stop the disease from spreading. After the declaration, countries around the world took action. They increased their efforts to find and treat cases of m-pox. They also shared information and resources to help control the outbreak (CDC, 2024). .

In Nigeria, the government worked closely with international health organizations. They focused on finding cases quickly and providing treatment. They also educated the public about how to prevent the spread of m-pox (Punch News, 2024). The WHO's declaration helped to bring attention to the m-pox outbreak. It encouraged countries to take action and work together to control the disease. This global cooperation was important in managing the outbreak and preventing further spread (WHO, 2024). In August 2024, the United States, through USAID, announced an additional $35 million in emergency health assistance to help fight the m-pox outbreak in Central and Eastern Africa, including Nigeria. This funding was meant to strengthen efforts to control the

spread of m-pox (USAID, 2024). It aimed to improve the detection of cases, support laboratory testing, and enhance the ability to track the disease. The funds also supported educating communities about m-pox and how to prevent it (USAID, 2024)..

In Nigeria, this assistance helped health workers find and manage m-pox cases better. It also supported public health campaigns to inform people about the disease. The goal was to reduce the number of new infections and protect those most at risk. This support from USAID was part of a larger effort by the U.S. government to help countries affected by m-pox (UN News, 2024). By working together, these efforts aimed to control the outbreak and prevent future cases. In November 2024, the Access and Allocation Mechanism (AAM) for m-pox allocated 899,000 vaccine doses to nine African countries hit hard by the m-pox surge, including Nigeria. This allocation aimed to control the outbreaks by ensuring that the limited doses were used effectively and fairly. The AAM worked with affected countries and donors to distribute the vaccines (AfricaCDC, 2024).

In Nigeria, the vaccination campaign began on November 18, 2024, targeting healthcare workers and individuals with weakened immune systems in hospitals across the Federal Capital Territory (FCT) of Abuja. The National Primary Healthcare Development Agency (NPHCDA) led this effort. The AAM's allocation of vaccines was a significant step in addressing the m-pox outbreak in Nigeria and other affected African countries (USAID, 2024) The U.S. Centers for Disease Control and Prevention (CDC) has been working with Nigeria to help manage m-pox outbreaks. They have provided

expertise and resources to support the country's response efforts. One way the CDC has assisted is by helping Nigeria improve its ability to find and track m-pox cases (CDC, 2024). This includes training health workers to recognize the disease and report cases quickly. By doing this, Nigeria can respond faster to new cases and prevent the disease from spreading. CDC has also supported Nigeria in strengthening its laboratory systems. This means improving the ability to test samples and confirm if someone has m-pox (NCDC, 2024). With better testing, health officials can make informed decisions about how to control the outbreak. In addition, the CDC has worked with Nigeria to educate the public about m-pox. They have helped create materials that inform people about how the disease spreads and how to protect themselves. This public education is important for preventing new infections (Nigeria Ministry of Health, 2024). .

Through these efforts, the CDC contributed to how Nigeria manage m-pox outbreaks. Their collaboration has strengthened Nigeria's ability to respond to the disease and protect the health of its people. In September 2017, when Nigeria faced m-pox outbreak, Nigeria Centre for Disease Control activated its Emergency Operations Center to respond (Faye et al., 2018). The CDC provided technical support during this time, helping with outbreak investigation and response strategies. In 2019, the NCDC published the "National Monkeypox Public Health Response Guidelines." (Adler et al., 2022). The CDC collaborated with Nigerian health authorities to develop these guidelines, offering technical expertise to improve prevention, detection, and response

efforts. In 2022, CDC conducted studies on m-pox in Nigeria. These studies provided valuable data on the disease's spread and risk factors, informing public health strategies (CDC, 2022). Throughout 2024, the CDC continued to support Nigeria's m-pox response. They provided technical assistance in surveillance, laboratory testing, and public health messaging. This ongoing collaboration aimed to strengthen Nigeria's capacity to manage m-pox outbreaks effectively (CDC, 2024).

As an effort to partner with international agencies in the United Kingdom, on the 16th day of October, 2023, NCDC and partners launched Research project toward improving M-pox Public Health Response titled "Epidemiological and clinical investigation of m-pox in Nigeria: A multi-disciplinary research project to inform case management and outbreak prevention and control." The research project was meant to be completed over two (2) years and was meant to cover the clinical characteristics and natural history of m-pox disease; the essential epidemiological parameters and factors associated with infection and transmission; and the experience of people infected with m-pox and those close to them. According to NCDC (2023), Prof. Gwenda Hughes, co-project lead, Deputy Director for Research from the UK-Public Health Rapid Support Team (UK-PHRST), and Professor of Epidemiology and Public Health at the London School of Hygiene & Tropical Medicine (LSHTM) said, "the UK Public Health Rapid Support Team (UK-PHRST) is delighted to be part of this exciting collaboration between NCDC and other partners to better understand the clinical characteristics, pattern of

infection and spread of m-pox in Nigeria – a disease that has greatly affected Nigerian communities, especially in recent years. The UK-PHRST will support Nigerian colleagues to answer important scientific questions through this extensive research programme and will also help deliver training of local laboratory staff and field teams. Our microbiology specialists have already provided lab equipment and shared expertise to help build local diagnostic capabilities for m-pox. Through co-creation and by taking a partner-led approach with our Nigerian colleagues, our aim is to support improved case, contact management, and inform the development of effective control measures for m-pox both in Nigeria and globally."

WHO have been supporting Nigeria's m-pox response. In August 2024, they launched a joint continental plan to scale up the m-pox outbreak response, emphasizing a coordinated approach among African nations. This plan aimed to enhance surveillance, laboratory diagnostics, and public health measures across the continent (WHO, 2024). Furthermore, in November 2024, WHO allocated 899,000 vaccine doses to nine African countries severely affected by the m-pox surge, including Nigeria. This allocation aimed to support vaccination efforts in the most impacted regions. Also in August 2024, the U.S. government, through USAID, donated 10,000 doses of the m-pox vaccine to Nigeria (UN News, 2024). This donation supported Nigeria's vaccination campaign, targeting high-risk populations and healthcare workers. The initiative aimed to curb the spread of the virus and protect vulnerable groups. The International Organization for Migration

(IOM) has contributed to Nigeria's m-pox response by focusing on preventing, detecting, and responding to outbreaks, particularly among mobile populations. Their efforts have concentrated on points of entry, congregation points along mobility corridors, and sites for displaced individuals (CDC, 2024).

The collaboration between Nigeria and these international agencies has led to significant improvements in the country's m-pox prevention and control efforts. Enhanced surveillance systems have allowed for quicker detection and reporting of cases, enabling timely interventions. Improved laboratory capacities have facilitated accurate and rapid diagnosis, essential for effective case management and containment. Vaccination campaigns, supported by international donations, have targeted high-risk populations, reducing transmission rates and protecting healthcare workers. Public health messaging, developed in collaboration with international partners, has increased awareness about m-pox, its transmission, and preventive measures among the Nigerian populace.

CHAPTER FOUR

CONCLUSION

M-pox has a wide geographical spread, but it is primarily found in Central and West Africa. In these regions, the disease often circulates in rural areas, where people have close contact with animals. The virus is transmitted to humans through direct contact with the blood, bodily fluids, or lesions of infected animals, as well as from person to person. The disease can also be spread through contaminated objects or respiratory droplets from infected individuals. Historically, monkeypox outbreaks were relatively rare, but in recent years, the number of cases has increased. The virus had previously been contained in small outbreaks in certain regions, but with the rise of international travel and the movement of people, the disease has been spreading more widely. Although the disease's clinical presentation resembles that of smallpox, it is however less severe, characterized by fever, chills, fatigue, headache, lymphadenopathy, back discomfort, myalgia, and skin rash. The extremities are frequently affected by skin lesions, which progresses from maculopapular to vesicles, pustules, and crusts. WHO declared M-pox as a Public Health Emergency of International concern on July 23, 2022 and as of 12 April, 2023, a total of 86,956 confirmed cases from over 100 countries were reported, of which 85,502 and 1,454 cases were from locations that have historically not reported M-pox and those who have reported it, respectively. In Nigeria, a total of 829 confirmed cases with 9 deaths have been reported from 3 states since the beginning of

2022. Historically, the largest outbreak of M-pox was reported in Nigeria in 2017 with 197 confirmed cases from 18 states. Disease outbreaks are affected by factors such as geography location, population size, travels between places, infectious disease levels within the locality and the public behavior.

The role of international institutions has been effective in managing Mpox outbreaks in Nigeria. Organizations like the World Health Organization and the United States Centers for Disease Control and Prevention have provided technical support, resources, and expertise in dealing with the disease. Their involvement has been beneficial to the improvement of Nigeria's disease surveillance, outbreak containment strategies, and public health messaging. In Nigeria, national institutions like the Nigerian Ministry of Health and the Nigerian Center for Disease Control also contributed, alongside the Ministry of Foreign Affairs. WHO's strategies for managing diseases like M-pox focus on prevention, containment, and response. The United States Centers for Disease Control and Prevention, based in the United States, has long been an important partner in global health efforts, including in Nigeria. CDC has been involved in disease surveillance, diagnostics, and training to help Nigeria respond to health crises like M-pox. One of the CDC's primary contributions is providing technical assistance to improve Nigeria's ability to detect and diagnose M-pox early.

International institutions have played a significant role in managing M-pox outbreaks in Nigeria, providing technical assistance, resources, and expertise. M-pox, a

viral disease primarily found in Central and West Africa, spreads through direct contact with infected animals, bodily fluids, and lesions, as well as from person to person via respiratory droplets or contaminated objects. Historically, outbreaks were rare, but increased human movement and international travel have contributed to the global spread of the disease. The clinical presentation of M-pox resembles smallpox but is generally less severe, with symptoms such as fever, chills, fatigue, headaches, lymphadenopathy, muscle pain, and skin rash. The World Health Organization (WHO) declared M-pox a Public Health Emergency of International Concern (PHEIC) on July 23, 2022, following a rise in global cases.

In Nigeria, M-pox has become an increasing public health concern, with cases rising over the years. Since 2022, a total of 829 confirmed cases and 9 deaths have been recorded in the country. The largest outbreak was reported in 2017, with 197 confirmed cases across 18 states. Factors such as geography, population density, movement between regions, and public health behaviors contribute to the prevalence of the disease.

The World Health Organization (WHO) has been instrumental in Nigeria's response to M-pox by providing technical support, surveillance strategies, and containment measures. WHO's approach focuses on prevention, control, and response, ensuring that the spread of the disease is minimized. The United States Centers for Disease Control and Prevention (CDC) has also contributed significantly by assisting Nigeria with disease surveillance, diagnostics, and early detection of cases. Their

involvement has improved Nigeria's ability to manage outbreaks more effectively through enhanced public health messaging and early intervention. Other international organizations have provided funding, medical resources, and expertise to strengthen Nigeria's healthcare system. These contributions have played a critical role in training healthcare workers, improving laboratory testing, and increasing access to medical care for affected communities.

The impact of international support has been evident in Nigeria's public health sector. Strengthened disease surveillance has enabled early detection and response, reducing the spread of M-pox. Public awareness campaigns, supported by international institutions, have helped educate communities about the disease, its transmission, and preventive measures. Additionally, cross-border collaborations have been established to ensure that containment strategies are implemented effectively. International assistance has also facilitated the provision of essential medical supplies, vaccines, and financial support for outbreak management. Beyond M-pox, these contributions have improved Nigeria's capacity to manage other infectious diseases, reinforcing the country's healthcare infrastructure.

Despite the support from international organizations, several challenges persist in Nigeria's fight against M-pox. Limited healthcare infrastructure, particularly in rural areas, affects the ability to detect and respond to outbreaks promptly. Inadequate funding remains a significant barrier to sustaining disease control programs, and the slow

implementation of containment measures hinders effective response efforts. To improve Nigeria's preparedness for future outbreaks, there is a need for increased investment in healthcare infrastructure and research. Strengthening both local and international collaborations will enhance the country's capacity to manage infectious diseases. Expanding public health education is also essential to combat misinformation and stigma associated with M-pox. Additionally, establishing more effective surveillance systems will allow for the early detection of new cases, preventing widespread outbreaks.

International institutions have played a crucial role in mitigating the impact of M-pox in Nigeria by providing technical assistance, funding, and expertise. Their contributions have led to improvements in disease surveillance, diagnostics, and public health education, helping Nigeria respond more effectively to outbreaks. However, for long-term sustainability, Nigeria must continue strengthening its healthcare system to reduce dependence on international aid. Continued collaboration with global health organizations remains vital in ensuring effective disease control and prevention strategies. Investing in public health infrastructure and enhancing national response mechanisms will be essential in managing future outbreaks and safeguarding public health in Nigeria.

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