The Journal *of* Medicine, Law & Public Health (JMLPH)

ISSN (P): 2788-9815
ISSN (E): 2788-791X

Vol. 5 No. 1 (2025) : Jan-Mar

Mpox Preparedness and Response 2024: Position Statement of The Disaster Management Experts Club

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Submitted: 02/11/2024
Accepted: 28/11/2024
Published: 06/12/2024

Article Link: https://www.jmlph.net/index.php/jmlph/article/view/163
DOI: https://doi.org/10.52609/jmlph.v4i4.163
Citation: Aloqaily, H., Alnafea, R. A., Alotaibi, S. A., Bakir, M., Bin Nafisah, S., Mzahim, B. (2025). Mpox Preparedness and Response 2024: Position Statement of The Disaster Management Experts Club. The Journal of Medicine, Law & Public Health, 5(1), 514-527.
Conflict of Interest: Authors declared no Conflict of Interest.
Acknowledgement: No administrative and technical support was taken for this research.

Mpox Preparedness and Response 2024: Position Statement of The Disaster Management Experts Club

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Statement of intent: **The worldwide re-emergence of mpox underlines the pressing necessity for a strengthened, coordinated, international strategy to manage and avert future outbreaks. The Disaster Management Experts Club promotes an approach that emphasises strong surveillance systems, healthcare readiness, and global cooperation to avert dissemination of this virus. Although mpox has demonstrated a comparatively mild clinical presentation in numerous instances, especially relative to its initial outbreaks, its capacity for rapid transmission, particularly among immunocompromised individuals, necessitates a proactive global response.**

The objective of this position is to reduce the current threats associated with mpox and prevent potential future pandemics. Through this, the Disaster Management Experts Club seeks to advocate:

- **Augmented surveillance and proactive detection: Surveillance systems are crucial for identifying cases, monitoring transmission dynamics, and detecting potential mutations. The need to augment early warning systems encompasses not only case identification, but also indirect indicators such as absenteeism from employment or education.**
- **Enhanced resilience of healthcare systems: A resilient healthcare infrastructure that facilitates early case detection, isolation, and infection control is essential. The smooth transition of patients through primary healthcare, prehospital care, and hospital triage is vital for effective mpox management. Infection control measures, including the use of personal protective equipment (PPE) and rigorous environmental cleaning protocols, must be intensified to reduce nosocomial infections, as evidenced in previous outbreaks.**
- **International collaboration: A proactive coalition can limit the dissemination of mpox, especially considering its zoonotic origins and cross-border transmission. Cooperative initiatives among public health organisations, government entities, and healthcare providers are essential to the establishment of a comprehensive database to monitor and analyse mpox cases across various regions.**

***Abstract*—The global emergence of mpox, previously known as monkeypox, traces back to the mid-19th century. The 2022 outbreak represented a significant escalation, prompting the World Health Organization (WHO) to declare a public health emergency. The imminent risk of a pandemic requires a proactive strategy for preparedness and mitigation. Despite human-to-human transmission, the clinical manifestations of mpox in the recent outbreak were notably milder, frequently presenting as**

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DOI: 10.52609/jmlph.v5i1.163

subclinical prodromes and benign skin lesions resembling those of common sexually transmitted infections. Although complications were rare, they included severe outcomes such as pneumonia, sepsis, and neurological issues, particularly in immunocompromised individuals.

Effective management of the outbreak required robust surveillance systems for early case detection, trend monitoring, and contact tracing. The smooth flow of patients through primary healthcare, prehospital care, and hospital triage was critical for early detection and isolation of suspected cases. Infection control measures, including the use of personal protective equipment (PPE) and environmental cleaning protocols, played a role in reducing nosocomial infection.

This article highlights the importance of training healthcare providers, fostering collaboration across health sectors, and developing disaster preparedness plans to respond effectively to future outbreaks. It also explores the role of individual and mass vaccination, particularly among high-risk populations. This publication serves as a comprehensive resource for understanding the mpox pandemic and the collaborative efforts of the Disaster Management Experts Club in tackling this public health challenge.

***Index Terms*—Disaster Response; Infection; Mitigation; Mpox; Pandemic; Position Statement; PPE; Preparedness.**

I. BACKGROUND

A global outbreak of mpox (formerly known as monkeypox, belonging to the orthopoxvirus genus) was first documented in the laboratory in the mid-19th century, with the initial human case reported two decades later [1]. Two viral clades were identified, I and II, with the latter being less virulent [2]. The most recent outbreak, in 2022, was reported in more than 100 countries and was consequently declared the 7th ever public health emergency of international concern [3]. On 29 May 2022, the World Health Organization (WHO) characterised this multi-regional outbreak as the first instance of cases and clusters being reported simultaneously in geographically distinct endemic and non-endemic countries without established epidemiological linkages [4]. After the first identification, in May 2022, of human mpox outside of the endemic regions of Central and West Africa, the outbreak spread rapidly around the globe and showed evidence of sustained human-to-human and community transmission [5,6]. Beginning in September 2023, the WHO initiated reporting on the 2022 mpox outbreak, documenting slightly over 99,000 confirmed cases and 207 fatalities. Approximately 95,000 cases have been documented in 115 non-endemic countries [7]. On 14 August 2024, the WHO declared the outbreak to be a matter of concern. Controlling outbreaks may be challenging due to the incubation time of the disease, the ease of cross-border travel, the legalisation of homosexuality, and contact with wild animals kept as pets, such as squirrels, rodents, dormice, or monkeys.

II. CLINICAL PRESENTATION

Mpox 2022 is comparatively more subtle in its manifestation than before. It presents as a subclinical prodrome and benign skin lesions in the genital and/or anal regions that are similar to those of common sexually transmitted infections (STIs) [9]. Human-to-human transmission is, therefore, mainly through close contact with the skin of an infected individual, either directly or via personal items such as infected clothing or bedding [10]. The viral prodrome is characterised by fever, chills, enanthem, headache, lymphadenopathy, and fatigue, with rashes developing within 4 days [11,12]. The classical symptoms of mpox are very similar to those of smallpox, except for key differentiating features such as the lymphadenopathy in cervical and inguinal areas prior to the onset of rashes [13].

The 2022 mpox outbreak was marked by the emergence of rashes in the groin area, which subsequently disseminated centrifugally, similar those of smallpox. Some patients exhibited subclinical and asymptomatic prodromal symptoms, whereas others presented with both prodromal

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symptoms and lesions concurrently [11]. In June 2022, 25 individuals diagnosed with mpox were assessed, revealing that 53% exhibited lymphadenopathy and 41% experienced fever [11]. The predominant symptoms were enanthem in the rectum and oral cavity; a considerable number of patients exhibited noticeable lesions. The five stages of lesion progression include macular, papular, vesicular, and pustular, concluding with scabbing and healing. Lesions are often well-defined, ranging in size, and may cause itching or pain [13]. The infection lasts two to four weeks, occasionally extending beyond that, from the commencement to the resolution of lesions.

III. COMPLICATIONS & SPECIAL POPULATIONS

Ongoing research into the mpox virus reveals that significant uncertainties persist concerning the infection and its related effects [11-14]. Scientists compare the evolution of the virus to the numerous uncertainties that accompanied the SARS-CoV-2 viral outbreak.

Prodromal signs of mpox encompass fever, nausea, and myalgias. It may, however, present neurologically as a prodromal frontal headache as has been observed in the majority of patients [14]. Several patients have suffered mental symptoms and neuralgia, with infrequent instances of conjunctivitis noted.

Due to the self-limiting nature of the virus, mpox lesions are generally mild in healthy individuals, self-resolving within a few weeks [14]. Nevertheless, they result in scarring. Severe consequences, although exceedingly rare, encompass bronchopneumonia, blindness, sepsis, and encephalitis. Scarring and the formation of pockmarks in regions with a high concentration of sebaceous glands are the most prevalent sequelae of mpox, resembling the signs of smallpox. Viral neuro-invasiveness poses a considerable risk to immunocompromised individuals, particularly those with concurrent human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) co-infections, who are more susceptible to severe consequences [10, 13]. Patients may experience a range of uncommon neurological consequences as co-infections, including Guillain-Barré syndrome (GBS), acute disseminated encephalomyelitis, and transverse myelitis.

Mortality rates in endemic African nations vary from 1% to 10%, with the Democratic Republic of Congo (DRC) accounting for almost 90% of total fatalities since 2022. Between January and June 2022, there were 72 documented deaths, all occurring in Africa, with 64 of these in the DRC. Until July 2022, no fatalities had been documented outside Africa; however, on 29 July 2024, Brazil reported the first mpox-related death, followed by a further fatality in Spain shortly thereafter [15]. Reported fatal consequences resulting in death include sepsis and central nervous system (CNS) invasion with encephalitis [15,16]. A weakened immune system is a significant factor in all these fatal complications; consequently, special populations consist primarily of the elderly and immunocompromised persons. Researchers determined that child fatalities in previous mpox epidemics in Africa were likely attributable to comorbidity with the Varicella zoster virus (VZV), particularly in the basin region of the DRC [17].

IV. TRANSMISSION

The mpox virus spreads primarily through direct physical contact with an infected person showing symptoms, or indirectly via contaminated surfaces or personal items belonging to mpox-infected individuals. Zoonotic animal-to-human transmission can occur through direct contact with an infected animal or indirectly through exposure to its bodily fluids or lesions.

The incubation period ranges from 6 to 13 days, but can extend from 5 to 21 days, with an average incubation period of 8.5 days [11]. A patient is considered contagious from the onset of symptoms until all lesions have crusted and dried [18,19].

V. SURVEILLANCE

Surveillance during any pandemic or impending pandemic is employed to identify cases promptly, observe trends, track viral mutations, and assess nosocomial infection rates among healthcare

providers. However, detecting mpox during the incubation period, before the rash appears, is challenging. This is due partly to the nonspecific nature of the prodromal symptoms and partly to the relatively prolonged incubation period.

Data collection is the first step in detecting trends, and should include the number of all patients presenting with a rash, as well as a database of all suspected or confirmed cases or those with unspecified rashes that present at any healthcare facility. Demographic details, travel history, site visits, and shared places must be recorded and mapped against a geographical area, to signal any outbreak site. Indirect signs are always helpful, including work and school absenteeism, any increase in the logs of virtual or hotline emergency consultations, or increased use of over-the-counter antipruritics. In addition, the time elapsed before seeking help, the patient's geographical area of residence, the time of day, weather humidity, social activity, whether they are urban or rural, and any animal contact should be inquired about and documented for quantitative analysis.

Additionally, it is an effective strategy to document all photographs of rashes within a designated period of heightened observation. This can be achieved through a centralised government authority and at the hospital level, as well as by disseminating surveillance methodologies and data in partnership with international health organisations to acquire insights into the evolving behaviour of the virus.

VI. PATIENT FLOW - PRIMARY HEALTHCARE

The surveillance system must begin at the start of the patient's journey, involving primary healthcare centres, emergency medical services (EMS), triage, hospitals, the infection control registry, and inpatient care. The goal is to ensure early containment through comprehensive early detection. Although most patients turn to the Primary Health Care Centres (PHCC) for mild symptoms, some can also present due to the rash [20].

An early warning system should be designed to identify the initial case (patient zero) or, at a minimum, to help contain the spread and prevent a resurgence of the disease [21]. Such a surveillance system must be put in place and activated on the basis of key symptoms such as rash and fever, bilateral infiltrates in chest X-ray, and a surge in patients seeking consultation, among others. A mechanism for awareness needs to be in place, alongside a pathway for admission and follow-up.

The dynamic nature of the patients visiting PHCC, as well as the office-based nature of the clinics, might pose a risk for healthcare providers and other patients visiting the same clinic. Leveraging an "epidemic-ready primary healthcare system" [22] for early detection, reporting, vaccination, and continuity of care with the emergency department will speed recovery and foster business continuity.

Virtual care, as a means to provide care safely, is superior in any pandemic, especially those requiring PPE or distance measures [23]. Mpox diagnosis, and even treatment in those without complications, can be managed virtually without the need to be physically present in the hospital; this can be complemented by home delivery of prescribed medication. Hence, virtual care might be a strategic approach for all rash complaints during this period. Nonetheless, meticulous triage is essential to identify those requiring emergency care or ambulance transfer. This strategy, demonstrated to be safe and beneficial during the previous epidemic, is applicable to future pandemics where personal interaction is unwarranted [23,24].

VII. PATIENT FLOW - PREHOSPITAL CARE

Prehospital personnel are frequently the first healthcare practitioners to encounter patients with suspected or confirmed mpox. The virus should be considered a potential diagnosis in patients with risk factors, as it may be transmissible during the subclinical prodromal phase or prior to the onset of a rash. The disease might resemble many dermatological disorders and STIs (Herpes simplex, varicella zoster, and syphilis), complicating differentiation from more prevalent illnesses in the prehospital environment [11].

Well-known strategies to reduce transmission include physical distancing, symptom monitoring, and maintaining standard hygiene practices.

However, these can be challenging to implement in a prehospital setting due to the confined nature of ambulances and the unpredictable nature of patient encounters [25].

To mitigate transmission risks in confined spaces, a clear checklist of infection control practices should be followed. This includes actions such as segregating the driver's compartment from the patient's compartment, utilizing exhaust fans and fresh air, asking the patient to wear a mask and cover affected skin areas if a rash is present, and encouraging responders to meet patients at the door. During transport, it is crucial to minimise aerosol-generating procedures such as intubation, suctioning, and non-invasive ventilation, as these can increase the risk of exposure and allow infectious mpox virus aerosols to persist in enclosed areas for extended periods [26]. Once transport is complete, the ambulance must undergo thorough cleaning and disinfection, with all surfaces and equipment properly sanitised before being reactivated for use [27].

Although the chance of human-to-human transmission through respiratory routes appears minimal at this stage of the pandemic [28], Mpox pharyngitis without rash [29] has been reported, and the asymptomatic nature of the disease may influence disease transmission [30]. Hence, when transferring any patient into the ambulance, full PPE is mandatory. Prehospital clinicians should wear appropriate PPE during initial contact, patient transport, care transfer, and while disinfecting the transport vehicle. Recommended PPE includes an N95 respirator (or equivalent or higher), gloves, gown, eye protection, and, if available, shoe covers [29]. A tool for prehospital personnel is provided in Appendix 1.

Dispatchers must have protocols in place for identifying potential mpox patients. While rash, fever, and travel history remain relevant for assessing disease exposure risk, their utility has diminished due to documented community transmission in non-endemic areas. Exposure risks unrelated to travel include contact with individuals or animal reservoirs with suspected or confirmed mpox, as well as contact with contaminated surfaces or fomites.

Similarly, transport crews should inform the receiving facility early on about their suspicions, enabling the facility to prepare adequately and minimising the risk of infection transmission or delays in care transfer.

VIII. PATIENT FLOW - TRIAGE

Triage serves as the entry point to the hospital, facilitating the early isolation of infected patients without contaminating the waiting area or other sections of the emergency department. It must therefore be capable of identifying high-risk patients. High-risk populations can be characterised by their susceptibility to disease acquisition due to high-risk behaviours, such as travelers to regions with elevated transmission rates, individuals with specific sexual histories, those who have been in contact with patients exhibiting rashes or sickness, pet owners, and those who frequently visit hospitals due to chronic illness or immunosuppression [31].

A history of rash or fever should trigger triage for possible mpox. The patient should be given gloves and a mask, even if the rash is not on the hands. This precaution is necessary because the disease often causes pruritis, which can lead to the virus being transferred to the hands and nails.

From an operational perspective, this means gloves should be available in the triage station. The patient should not retrieve the gloves from their box; instead, they must be handed over by a provider donned in PPE at that station. Numerous stations may be necessary to reduce patient proximity.

IX. ISOLATION

Movement of confirmed patients should be minimised as far as possible. Transferring patients from one bed to another is discouraged as it may spread infection, increase nosocomial infections among healthcare providers, and prolong the deactivation of beds, thereby increasing the burden on healthcare providers [32]. Delineating the exact pathway of the patient, from registration to disposition, is an evidence-based practice. Designate a continuously decontaminated, well-ventilated

waiting area together with adjacent restrooms, ideally for each unique waiting area. Minimising movement inside the emergency department are essential. If a move or transport is necessary within or outside the facility, maintain transmission-based precautions, place a well-fitting medical mask on the patient (if they can tolerate it), and cover any lesions. The receiving facility/ward/unit should be informed of the need for transmission-based precautions and should prepare the isolation or designated area in advance [18].

A single room with private toilet should be utilised, while healthcare personnel should care for the patient using contact and droplet precautions, adhering to hand hygiene, and using proper PPE (gloves and gown for contact, medical mask for droplets). Any aerosol-generating procedures should take place in a negative pressure room following airborne precautions (using N95 masks). Such isolation must continue until mpox is ruled out or, for confirmed cases, until all lesions have crusted over or have separated, with a new layer of healthy skin forming underneath. Generally, in the early detection stage of any pandemic, contact precautions and airborne precautions for aerosol-generating procedures, along with quarantine [33,34] and vaccination (if known), should suffice while genomic research is ongoing [35]. In the case of mpox, genomic surveillance ought to be performed for genomic sequencing and clade-specific testing to facilitate early detection of mutations, given the mutation that the virus underwent in the 2022 outbreak [36-38].

X. ENVIRONMENTAL MEASURES

The rooms of suspected or confirmed mpox patients should be cleaned every day, with particular attention to frequently touched surfaces. Any medical equipment used must be thoroughly cleaned and disinfected before reuse. Linens and patient clothing should be treated as infectious, placed in appropriate laundry bags, and washed on a high-temperature cycle; linen should not be shaken [39]. Food utensils should preferably be disposable. If disposable utensils are not an option, they must be thoroughly disinfected before reusing. Waste from patients' rooms should be treated as infectious and discarded accordingly. Housekeepers and staff responsible for cleaning and disinfection should wear appropriate PPE when cleaning patients' rooms [27].

XI. REPORTING

Once the patient is isolated, the doctor must inform the facility's infection control department and notify the local health authority through the appropriate channels. In Saudi Arabia, for instance, the Ministry of Health (MOH) will be alerted immediately by the Health Electronic Surveillance Network (HESN), which will send the notification forms to the Communicable Diseases Program at clusters and/or regional health directorates, while coordinators at the regional health directorate will report to the Communicable Disease Department at MOH [40].

XII. CONTACT TRACING

Nosocomial infection can be mitigated by interrupting the chain of viral transmission, through early — and fast — recognition of suspected cases. Upon detection of a suspected case, it is imperative to identify all individuals with whom they have interacted and commence contact tracing, covering those who conducted the initial assessment, individuals in triage, boarding nurses, and X-ray technicians. Monitoring of healthcare providers observing suspected mpox patients must encompass a comprehensive inquiry into all nosocomial and health-related cases, including their contacts, immune status, and the policies and procedures governing time off until the provider is no longer infectious.

Providers who are immunosuppressed or pregnant should not be assigned to handle possible or confirmed mpox cases [41], irrespective of their vaccination status.

XIII. MONITORING EXPOSED INDIVIDUALS

A mechanism needs to be put in place to trace patients and providers in the event that a patient is found to have mpox. Contacts must be notified within 24 hours of identification. Providers who transported a confirmed case must be monitored for

21 days for any symptom development, commencing from their last contact with the patient. If a rash develops, the individual must be placed in mpox isolation until the rash is assessed, testing is conducted, and the results are negative [27].

Occupational exposure (exposure of personnel while caring for the mpox patient) can be categorised as follows:

- High risk: Unprotected contact without PPE between an individual's broken skin or mucous membranes and the skin lesions or bodily fluids of an mpox patient, or with materials visibly contaminated by bodily fluids, dried lesion exudate, or crusts. Recommendations: administer post-exposure prophylaxis and observe for 21 days.
- Intermediate risk: Unprotected (no PPE) contact between an individual's intact skin or clothing and the skin lesions or bodily fluids of an mpox patient, or with materials visibly contaminated by bodily fluids, dried lesion exudate, or crusts; OR entering the room of an individual with mpox without donning the requisite PPE while the individual undergoes medical procedures that may generate aerosols from oral secretions. Recommendations: monitor for 21 days; requirements for post-exposure prophylaxis to be assessed on a case-by-case basis.
- Minimal risk: Unprotected contact with an mpox patient whose lesions are completely covered. Recommendations: monitor for 21 days; no need for post-exposure prophylaxis [18, 40].

The regional health directorate's public health team is responsible for tracing contacts, and monitoring symptoms in the homes of mpox patients and in other individuals in the community associated with mpox patients [40].

XIV. HOME QUARANTINE

Home quarantine is prescribed for exposed individuals who do not exhibit signs or symptoms of the disease. They should be monitored daily for any development of signs or symptoms.

Patients with suspected or confirmed mpox who have mild, uncomplicated cases and are not at high risk for complications can be isolated at home throughout the infectious period until their skin lesions have crusted, the scabs have fallen off, and a fresh layer of skin has formed underneath, provided that a home assessment confirms that infection prevention and control (IPC) conditions are met in the home setting. The patient should remain in a dedicated, well-ventilated room with a private bathroom separate from other members of the household, and should be capable of managing their own self-care. Items such as eating utensils, linens, towels, electronic devices, and beds should be used exclusively by the mpox patient to avoid sharing personal items. The patient should wear a well-fitting medical mask and cover any lesions when in close contact with others or when leaving the designated isolation area. Anyone entering the isolation area should maintain a distance of at least one metre from the patient. If maintaining such distance is not possible, they must wear a well-fitting medical mask and disposable gloves. Hands should be cleaned with soap and water or an alcohol-based hand sanitiser before and after contacting the patient or their environment and before putting on or removing gloves [18, 40].

XV. TRAINING AND EDUCATION

Infection control practices are crucial in any pandemic, to prevent healthcare-associated exposure or occupational exposure in a laboratory. It is therefore essential to ensure adequate training in the handling of patient specimens, performance of aerosol-generating procedures on suspected or confirmed cases, and dealing with accidental exposure. In addition, awareness surrounding linen management is vital and should be part of any healthcare provider contact. Pamphlets are a good option; sharing video links is another method; and podcasts and websites, among other techniques, should be used depending on the patient's age and language, and on the feasibility thereof.

Sections a-b of Appendix 2 illustrate the proposed pamphlet in English, while sections c-d present the pamphlet in Arabic.

Training must encompass simulation and implementation of hygiene practices, notification procedures, and the application of the national pandemic protocol. Poor understanding will result in improvised practices, which may prove ineffective in diminishing disease transmission. Training must be supplemented by the evaluation of hand hygiene and PPE practices. Considering their closeness to patients and their substantial numbers, nurses may be the most suitable stakeholder cohort in which to audit this practice.

XVI. COLLABORATION AND COALITIONS

Collaboration requires proactive measures, whether between hospitals or as a central coalition for studying disease activity. This can be accomplished by establishing a central committee comprised of representatives from public healthcare providers, the private sector, the military, and EMS. More specialised teams of infectious disease experts can hold virtual sessions to oversee patients throughout the country. A specified team may be deployed to manage a facility's clinical pathway and provide training in how to deal with mpox patients.

It may be more important to have a cross-country investigation group to understand the disease more in-depth, or a coalition for medical supplies or with academic centres to inform practices based on the ongoing findings of the behaviour of the disease.

XVII. DISASTER PREPAREDNESS

An essential determinant of the success of the pandemic emergency plan is the timing of its activation. This is based on the assumption that such a plan exists, and will entail limiting triage, activating virtual care, clustering cases into one unit or in one hospital, and adhering strictly to infection control practices. Moreover, it should also include a plan to restore critical infrastructure while automating or digitising every service from a distance. Regular meetings with stakeholders and a channel for feedback submission can facilitate timely recovery and pinpoint areas for improvement. Engaging front-line employees in modifying the plan will create engagement, buy-in, and compliance. However, without prior rehearsal and leadership commitment, any such plan is bound to fail.

An important aspect of scenario planning is also to account for another pandemic or a change in the pattern of the disease during the recovery period. This period is when surveillance often becomes oversaturated and strict adherence to protocols becomes loose and less likely. Preparedness for a potential outbreak within the hospital is crucial, especially when there is insufficient PPE, as such scenarios can unfold rapidly. The pandemic response plan should be reviewed and updated regularly, based on new information, training outcomes, and lessons learned from drills and actual events, while maintaining a reliable supply chain of rapid deployment of PPE, especially gloves.

While incident command systems (ICS) are often instrumental in rapidly raising stakeholder alertness, they are particularly important for coordinating response efforts during outbreaks, such as if an mpox outbreak occurs within a single hospital rather than in scattered locations. However, what takes precedence is investment in surplus infrastructure to address emerging pandemics, which includes strengthening public health systems and enhancing laboratory capacity for testing and analysis.

Contingency funds need to be ready to be allocated on an emergency basis to study the activity of any emerging disease, and to understand the appropriate response and treatment. Often, government bodies focus more on response, and thus more resources are allocated to such strategy. However, investing in understanding the virus's behaviour, monitoring for any virtual mutation, and preparing a plan based on the phases of the disease may hasten the recovery and influence the response strategy to make it more efficient and cost-effective. In the case of mpox, investigating the R0 of the disease and monitoring trends will influence how we perceive the virus. Similarly, it is important to investigate whether there is any potential for the virus to become airborne,

assess vaccine efficacy against different viral strains, and evaluate the effectiveness of one or more vaccine doses, or the need for booster doses in specific patient groups, through detailed epidemiological surveillance. This applies to any new vaccine, with key considerations including its ability to prevent infection and reduce hospitalisations, the use of post-exposure vaccination, and its effectiveness in preventing severe disease in various patient groups [42].

XVIII. MANAGEMENT

No specific authorised treatments exist for mpox; however, the CDC endorses the use of FDA-approved smallpox antivirals, while ongoing randomised controlled trials (RCTs) continue to assess their efficacy and safety [43,44]. Symptomatic management in the prodromal phase includes antipyretic medications to alleviate fever, nausea, and myalgias. Non-steroidal anti-inflammatory drugs (NSAIDs) are contraindicated at this stage due to the potential risk of haemorrhagic lesions. Analgesics are advised for painful lesions in the oral cavity, ocular region, and other mucosal surfaces [43]. Due to the extremely painful lesions, care should be taken when maintaining a hygienic microenvironment to avoid excessive discomfort and secondary infection.

Certain viral proteins disrupt NF-κB transcription, an essential immune defense mechanism, and should be targeted to enhance the ability of the immune system to combat mpox [11]. The combination of cidofovir and specific small interfering RNA (siRNAs), or siRNAs alone, has demonstrated efficacy in inhibiting mpox viral replication [45]. Maintaining cleanliness and moisture in affected areas minimises transmission risk. It is advisable to cleanse wounds with soap and water or a diluted povidone-iodine solution, subsequently covering them with a sterile, disinfected bandage. Patients with secondary bacterial infections, including pneumonia, sepsis, or superinfection of lesions, require treatment with suitable antibiotics. Tecovirimat, sanctioned in 2018 for oral use, is also advised for mpox treatment due to its efficacy in inhibiting the p37 Orthopoxvirus protein, which facilitates virion deployment [44,45].

It is recommended to use the appropriate smallpox vaccine, which should be effective for both strains. In cases where the vaccine does not work, providers are advised to opt for post-exposure prophylaxis (PEP) as soon as possible, ideally within 4 to 14 days after potential exposure to the virus [46]. Mass vaccination for mpox is not justifiable given the level of disease activity and its mortality rate at the time of this writing. However, geographical vaccination or vaccination of patient segments is justifiable if there is an increase in disease activity in that specific region or among specific patient segments.

The consideration of mental health within the response strategy should positively impact several disease situations, as stigma is a significant factor here. Access to mental health services via a hotline, as well as offering virtual health consultations, will help facilitate a rapid recovery. Indeed, it may ensure access to medical care for individuals who have been exposed or infected, but have not visited the hospital because of the associated stigma.

Another important aspect of disease preparedness is the perception of risk. Mpox generated a bimodal increase in risk perception: when the 2022 outbreak first occurred, the hazard vulnerability analysis indicated that the pandemic was high risk, and the probability of a virtual mutation was expected to be high. However, the perception of risk decreased until the WHO declared the pandemic. Hence, community engagement at this stage should include awareness of transmission routes, preventive methods, and the role of vaccination. However, generating a public health campaign is not a priority before the disease is reported in the country; instead, investment in an alarm system should first be implemented.

Appendix 1: *[click here]*

A prehospital tool for the early identification of potential cases and a protocol for patient transport is included.

Appendix 2:

A printable pamphlet is available in both *English* and *Arabic* versions.

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