Elsevier has created a Monkeypox Information Center in response to the declared public health emergency of international concern, with free information in English on the monkeypox virus. The Monkeypox Information Center is hosted on Elsevier Connect, the company's public news and information website.

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Neglecting emerging diseases – monkeypox is the latest price of a costly default

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As the world slowly emerges from almost three years of a global pandemic of COVID-19, there has been hope of a return to a semblance of normality missed in recent years. There is now some fear that returning to normal may be affected by the largest outbreak of Monkeypox virus infection involving multiple countries in non-endemic regions. Yet another reminder that viruses do not care about geographical borders, that prioritizing planetary health is a global emergency and that ignoring emerging infections which occur in poor countries will not make them magically disappear. So far there are hundreds of suspected and confirmed cases across 23. countries (https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON388). Many infection clusters have no travel link to an endemic country, indicating local transmission as a major source of new infections. Why is this happening now and what has changed about a virus we have known to exist and to infect humans[1] for over 50 years? The answer is a combination of timing, neglect and opportunity.

Like other significant outbreaks of infectious disease, the emergence of Monkeypox as a pathogen with global implications has been brewing for a long time. Before the current outbreaks, the majority of cases recorded in humans had mostly been reported in West and Central African countries,[2] with sporadic cases elsewhere linked to returning travelers from endemic countries or animals imported for research.[3] A close relative of the now eradicated smallpox virus which caused 300 million deaths globally, the Monkeypox virus belongs to the genus of orthopoxviruses, which are large viruses with linear double stranded DNA and complex genomes.[4]

The name Monkeypox is a misnomer, because it was first isolated from non-human primates kept for research in Denmark. It has a wide host range and, though not fully characterized, small rodents like squirrels and rats have been implicated as a main zoonotic reservoir in Africa.[2] Transmission occurs through close physical contacts, droplets or contaminated inanimate objects.[2] Although most infections are mild and the clinical course is self-limited, disseminated infections have been described with multi-organ involvement and complications including ocular disease, encephalitis and hepatitis. Immunocompromised individuals and children are at higher risk for severe infections.

A study conducted in the Democratic Republic of Congo between 2006-2007 documented 760 cases of monkeypox, an estimated 14 cases for every 10,000 people. 90% of these cases occurred in individuals born after the end of the smallpox immunization programs in the 1980s.[5] This study showed that in just 20 years there had been a sharp increase in cases compared to WHO surveillance estimates between 1981-1986, when only one case was being reported per 10,000 population.[5] These numbers reflect a growing population interacting more closely with animal reservoirs of the virus and no longer protected by the smallpox vaccine, which offers up to 85% protection against Monkeypox infection.[6]

Since that time multiple outbreaks have been reported in Nigeria, the DRC, Congo and Cameroon.[6] Despite these warning sirens, surveillance programs remained critically underfunded, research to understand the evolution and the epidemic potential of monkeypox was not prioritized and few or no interventions were put in place to prevent these spillovers from occurring.[7] This time there was fair warning on the potential threat but, sadly, the world again faces a reactionary response and a race to contain an emerging virus from spreading even more widely.

It is unlikely that the ongoing outbreaks will lead to a pandemic like the one caused by SARS-CoV-2. Thanks to the efforts of dedicated scientists working in Africa through the years and reporting on Monkeypox outbreaks, we have a better understanding of how the virus is transmitted and the public health measures that are needed to stop these outbreaks. The cases reported in the current outbreaks have so far mainly clustered in gay/bisexual or other men who have sex with men, many of whom have presented with atypical genital, peri-genital or oral lesions. This likely reflects introduction and transmission within shared social networks and human activities facilitating close contacts.

Aggressive contact tracing, testing and monitoring will be key in helping better define how widespread the current outbreaks are and implementing measures to break transmission chains. Initiating vaccination early to prevent nosocomial

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spread in exposed health workers responding to ongoing outbreaks and ring vaccination of close contacts are strategies already being used in some European countries reporting these outbreaks. Drawing on experiences from the HIV/AIDS epidemic and preemptively addressing the need to sensitize emerging risk groups on clinical presentations should be framed in the context of preventing stigma targeting gay/bisexual and other men who have sex with men.

The genomes sequenced from cases so far indicate that the current outbreak is being driven by the West African clade of the virus, which tends to cause a milder disease course and has a low level of mortality, estimated at 1%.[2] There are two authorized antiviral drugs for treatment of Monkeypox, Brincidofovir and Tecovrimat, but there is limited clinical experience on using either of these drugs in human outbreaks.[8,9] A recent small retrospective cohort of seven patients with Monkeypox in the United Kingdom, including four patients from the current outbreak, did not show any clear benefit of treatment with Brincidofovir in patients who received the drug. Tecovirimat appeared to reduce virus shedding and symptom duration in some patients.[10]

In coming weeks as case finding intensifies, we are likely to see more cases of Monkeypox detected and reported. The numbers will eventually slow down as focused control interventions are put in place. However, the long incubation period of the virus, which can be up to three weeks, affords it stealth and a low level of transmission could persist in niche networks, fueling sporadic cases for many more months. There is the real possibility that spillover into susceptible animals in non-endemic regions could occur, creating local reservoirs and potential sources for future outbreaks from spillover back into humans.

Now more than ever the international attention placed on Monkeypox should serve as a reminder that we live under the constant threat of new outbreaks of infectious diseases. Prioritizing funding and research to understand these diseases should not be a considered a matter of urgency only when wealthy countries are affected. Making sure the resources available for tracking and preventing disease are accessible in resource limited settings may have prevented the current situation if warnings had been heeded.

In responding to the outbreaks in non-endemic and mostly wealthy countries, the ongoing outbreaks in Africa must not be forgotten and should be addressed simultaneously. This means making vaccines available in these countries which have been dealing with outbreaks for decades to provide protection to these populations and expanding access to antiviral therapies. When the dust settles on the latest outbreaks, we cannot revert back to the default of neglecting diseases just because they mainly affect resource-limited countries. This has been costly, with far reaching consequences globally in other outbreaks, and will continue to be so until we choose to act differently.

DECLARATION OF INTERESTS

The author has no interests to declare.

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