

The 2022 monkeypox outbreak alert: Who is carrying the burden of emerging infectious disease outbreaks?



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In 1981, one of the most brilliant Latin-American writers, the Nobel-prize laureate Gabriel García Márquez, wrote *Chronicles of a Death Foretold*. The book tells the story of small-town dwellers who knew in advance about the planned murder of Santiago Nasar but did nothing to stop it, exposing our lack of collective responsibility. The criticism behind the plot suits well with our way to deal with outbreaks of emergent and reemergent infectious diseases worldwide.

As I write this text on June 15, 2022, it has been more than 1980 confirmed cases of monkeypox distributed among thirty-six non-endemic African countries. Monkeypox is not a new disease; outbreaks of monkeypox infection in humans have occurred in Sub-Saharan African countries since 1970.¹ What is new is the high number of cases quickly spreading through continuous community transmission in non-African countries.²

Following the 2003 outbreak in eleven US states, which was traced back to infected wild rodents imported from Africa,³ few cases of monkeypox in humans have been reported outside the African continent, with a slight increase after 2017.⁴ In the past, monkeypox cases were associated with travel to monkeypox-endemic areas in African countries but subsequent secondary transmission was infrequent.⁵ The 2022 outbreak reveals a different scenario that nevertheless could have been anticipated; the warning signs were there.⁴

Since the 1980s, there has been a growing number of monkeypox cases in humans in Africa, most likely because of three main factors. First, the ending of smallpox vaccination worldwide after smallpox eradication led us to a greater susceptibility to being infected by Orthopoxviruses. The smallpox vaccine protected individuals against different orthopoxvirus infections, including monkeypox, due to a well-known cross-immunoreactivity seen in members of the *Orthopoxvirus* genus (family *Poxviridae*). This also explains the increase in other orthopoxvirus infections, such as

cowpox and vaccinia, over the recent decades. Secondly, the emergency of zoonotic infections is certainly related to the increasing human invasion of sylvatic areas to be used for housing or explored for farming and crop activities. This invasion has created an unbalanced environment that leads to increased synanthropy and unprecedented close contact among humans, animals, and pathogens. Lastly, densely overpopulated areas set the stage for an easy spread of any contagious infection among humans.⁶

From 2000 to 2009, there were 10,027 confirmed or suspected cases of human monkeypox in the Democratic Republic of Congo (DRC); a cumulative tally of more than 18,000 cases was determined in 2019.⁴ As of May 31, 2022, there have been 1400 suspected or confirmed cases of human monkeypox with 66 deaths reported in Sierra Leone, Liberia, Cameroon, Congo, Central African Republic, Nigeria, and DRC.⁷

The increase in MPXV cases in Africa and of exported cases in the last years should have been taken as a warning sign of the potential of an MPXV outbreak occurring outside Africa. So why more effective actions were not taken earlier to help control the outbreaks in Africa?

History repeats itself and the little attention the healthcare community pays to what happens in Africa has just resulted in one more international public health alert. Similar situations have been seen before with the 2014–2016 Ebola outbreak in West Africa when large cities had an unprecedented number of infected patients and deaths. At the time, Ebola infection reached non-African countries for the first time.⁸ Ebola outbreaks have been occurring since 1976, but these have been largely neglected by the developing and developed countries. Similarly, warnings on the detection of bat coronaviruses able to attach to human cell receptors have been reported numerous times since 2005.⁹ However, instead of investing in one-health strategies to deal with such warnings, several countries not only opted for neglecting the potential risk of new spillover events but also promoted major cuts in research budgets.

The burden of new outbreaks is particularly high for developing countries, especially now that they are still recovering from the COVID-19 disaster. Resources for public health investments are quite limited, particularly

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in low-income countries. Resources are more than needed to put in place new action plans and strategies. It is likely that hospitals will once again stretch their capacities, isolation areas will be created, and front-line workers will again face highly stressful situations. Preparedness against new public health threats should be built upon planning and long-term investments in public health and science, instead of sharp cuts in education and science budgets, as presently seen in Brazil, my home country.¹⁰ The last few viral epidemics made clear that investment in different capacities and expertise in science is essential to all countries, in order to build robust responses. Permanent actions to promote health and social equity globally are also important assets for the future of our society. The 2022 monkeypox outbreak exposes once again our inability as humankind to assume responsibility towards our planet. In this realm, it seems we have not learned anything from other previous emerging infectious disease outbreaks. As Gabriel García Márquez once wrote, “there had never been a death more foretold.”

Declaration of interests

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