

Waning Smallpox Vaccination, Decreased Population Immunity Rate and Increased Incidence of Monkeypox: Reappraisal on West African Situation

Dear Editor,

In addition to the well-known pox infections, new zoonotic pox diseases have emerged, and they are now a global concern.^[1] Monkey pox has expanded across Europe as a result of its widespread outbreak, posing a severe public health risk.^[2] Monkey pox is an uncommon pox infection that has resurfaced due to zoonosis.^[1] Monkey pox has spread over Europe, posing a serious public health threat.^[2] Monkey pox is a rare type of pox that has returned due to zoonosis. Human-to-human transfer is currently being investigated.^[1] As the number of reported cases in various countries rises, the medical community is concerned, and careful planning to coincide with a potential monkeypox outbreak is essential.

Vaccination is the most effective technique of preventing monkeypox. The traditional smallpox vaccine has been shown to be effective against monkeypox. Attack rates in people with and without vaccination scars revealed that smallpox vaccination (which was discontinued in 1980) provided roughly 85% protection against monkeypox.^[3] However, due to global success in controlling smallpox, smallpox vaccination has been not routinely used since 1970. The impact of wanting smallpox immunization on monkeypox epidemiology is an intriguing topic. It is expected that monkeypox virus will continue to be introduced into human groups from animal sources, and that the average volume and length of monkeypox epidemics will grow as population vaccine-derived immunity falls.^[4] When smallpox vaccine was not available for a long time in West African countries such as Nigeria and Congo, monkeypox emerged. The link between wanting smallpox vaccination, low population immunity, and greater incidence of monkeypox is an intriguing topic in preventive medicine. The authors reassess the situation in West Africa in this article.

According to previous observations, general population immunity, which was estimated to be 65.6% in 1970 prior to the introduction of smallpox vaccination, has dropped to only 2.2% (95% in 2018). In 2016, the year before the outbreak, 10.1% of the population was vaccinated, and estimated population immunity was 2.6%.^[4]

Another study found that the incidence of suspected monkeypox increased from 0.64/100,000 in 2001 to

2.82/100,000 in 2013.^[5] These data will be used in additional modelling to determine the association between lower population immunity and higher incidence of monkeypox.

According to primary data, the estimated population immunity reduction rate is -1.32% per year, and the incidence of monkeypox increases at a rate of 0.17/100,000 per year. As a result, the interrelationship between lower population immunity rate and higher incidence of monkeypox can be represented as 1% decrease in population immunity rate = 0.13/100,000 rise in monkeypox incidence. This interaction can be useful in planning for containing the current outbreak of monkeypox.

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Conflicts of interest

There are no conflicts of interest.

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