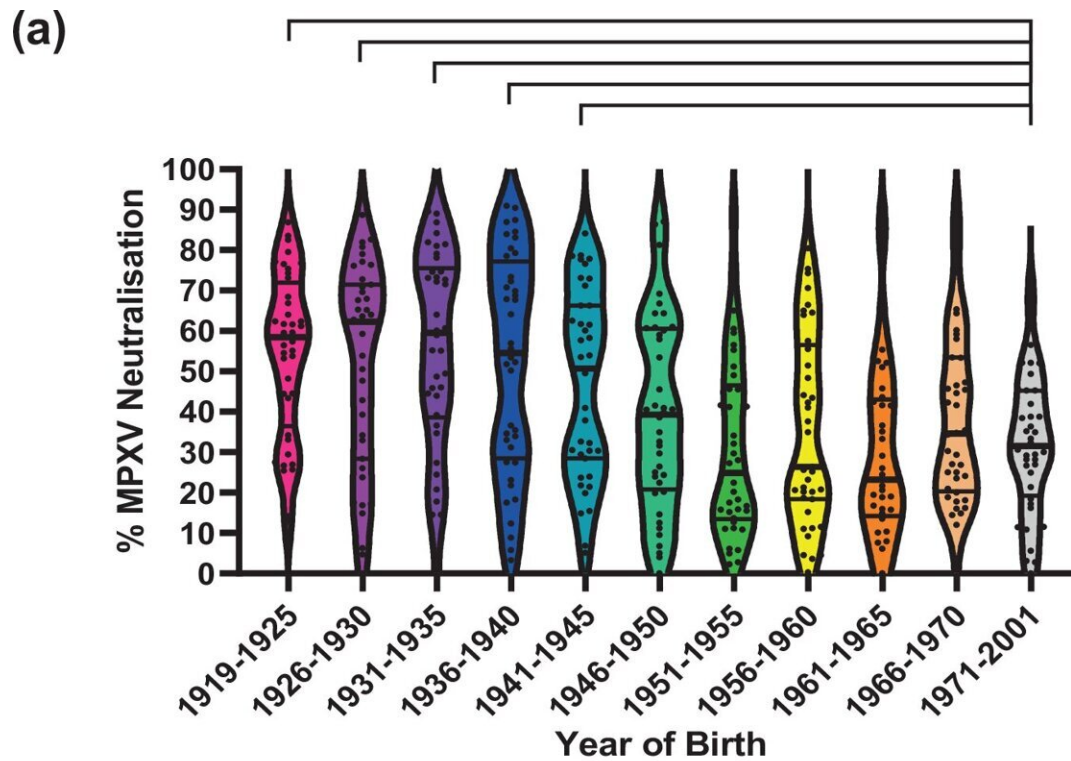


Historical smallpox vaccination may confer some protection against mpox disease

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(b)

VACV and MPXV are significantly less neutralized by sera from patients born after 1971. (a) A total of 430 serum samples were tested for their capacity to neutralize MPXV. (b) VACV is more neutralized by sera taken from the top 20 % neutralizing samples. (c) MPXV is more neutralized by sera taken from the top 20 % neutralizing samples. Credit: *Journal of General Virology* (2024). DOI: 10.1099/jgv.0.001999

Researchers studying the mpox virus have made an interesting observation which may relate back to an outbreak of smallpox in Glasgow in 1950.

The study—which is led by the MRC-University of Glasgow Center for Virus Research and [published](#) in *Journal of General Virology*—shows that serum samples derived from [older people](#) within the NHS Greater Glasgow and Clyde Health Board (NHSGGC) have greater neutralizing capacity against the mpox virus compared to serum samples taken from [younger people](#) from the same health board.

There was a smallpox outbreak in Glasgow in March of 1950, in which 19 people were infected and six died. This led to a widespread vaccination campaign in Lanarkshire and Renfrewshire, with around 300,000 people having received vaccinations, possibly conferring long-lasting enhanced protection against mpox disease, which continues to this day.

The researchers found greater levels of antibodies against the virus in people who were born before this outbreak compared to samples taken from people who were born after the smallpox vaccination campaign ended in the U.K., in 1971.

The scientists believe the result of these individuals being vaccinated against smallpox has provided remaining immunity, with detectable antibodies which in laboratory experiments cross-neutralize the mpox virus, a closely related virus, and thus might offer protection against mpox.

Mpox is a zoonotic disease caused by mpox virus, which is in the same group of viruses as Variola virus (VARV), the causative agent of smallpox. Mpox used to be reported mainly in countries in Central and Western Africa, but as of August 2023, it has been reported in 113

countries, with nearly 90,000 laboratory-confirmed cases and 152 deaths, leading to the declaration of a Public Health emergency by the World Health Organization (WHO).

Professor Pablo Murcia, Professor of Integrative Virology at the UofG-MRC CVR, said, "The results of our study are really interesting, as they lead us to speculate that this older group of people in Glasgow—who were vaccinated for smallpox decades ago—may have a reduced risk of severe illness from mpox disease.

"Of course, this isn't something we can say with certainty, but as all our study samples were from the local NHSGGC health board, our findings suggest there may be some long-lasting immunity against mpox from having a [smallpox vaccine](#) in the past."

Dr. Kieran Dee, a virologist at the CVR, added, "It is notable from our study that serum from patients who may have either been vaccinated against Smallpox, or exposed to the virus that causes smallpox, decades ago, not only have detectable antibodies, but also that they retain neutralizing and cross-neutralizing activity against live viruses."

For the study, 430 serum samples were selected from a biobank of residual biochemistry specimens obtained from [adult patients](#) from primary and secondary health care settings, collected during the COVID-19 pandemic between March 2020 and September 2022.

More information: Kieran Dee et al, Smallpox vaccination campaigns resulted in age-associated population cross-immunity against monkeypox virus, *Journal of General Virology* (2024). [DOI: 10.1099/jgv.0.001999](https://doi.org/10.1099/jgv.0.001999)

Provided by University of Glasgow

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