

A systematic review on the global burden of human monkeypox: epidemiology and implications for outbreaks

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Method Article

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Abstract

Monkeypox is a viral zoonosis having symptomatology that is likened to those observed in smallpox patients. More than 120 confirmed or suspected cases of monkeypox have been reported in at least 11 non-African countries in the past week. The emergence of the virus in separate populations across the world where it doesn't usually appear has alarmed scientists and sent them racing for answers.

The disease is clinically lesser in severity than smallpox, but still has a mortality rate of about 10%. Since the eradication of smallpox and cessation of smallpox vaccination, monkeypox is currently the most relevant orthopoxvirus in humans, especially in 2022. Monkeypox occurs mostly in Central and West Africa, but small outbreaks have also been observed in e.g. the US in 2003. A new third-generation vaccine has been approved to prevent this disease.

Introduction

Monkeypox is a viral zoonosis having symptomatology that is likened to those observed in smallpox patients. More than 120 confirmed or suspected cases of monkeypox have been reported in at least 11 non-African countries in the past week. The emergence of the virus in separate populations across the world where it doesn't usually appear has alarmed scientists and sent them racing for answers.

Reagents

Articles from outbreak investigations or case notifications, interventional studies, and observational studies: surveillance, cohort (prospective, retrospective, nested), case-control (matched or unmatched), cross-sectional, case reports, and ecological studies.

Equipment

none

Procedure

Articles from outbreak investigations or case notifications, interventional studies, and observational studies: surveillance, cohort (prospective, retrospective, nested), case-control (matched or unmatched), cross-sectional, case reports, and ecological studies would be used in this study.

A three-step selection procedure would be followed:

- 1) screening of title and abstract;
- 2) screening of the full article;

3) screening during the data extraction phase.

Quality control measures:

- 100% of titles and abstracts will be screened in duplicate by two independent researchers from the group.
- The first 10% of full-text articles will be critically appraised in duplicate by two independent researchers from our group. The results will be compared and discussed early in the process. Any disagreements will be adjudicated by a third researcher if necessary. If there are differences between the two researchers with regard to more than 5% of the articles screened in duplicate, another 10% of the articles will be screened in duplicate.
- Data extraction: the evidence tables will be compiled by junior researchers and reviewed by the senior researcher of the project.

Troubleshooting

Quality control measures:

- 100% of titles and abstracts will be screened in duplicate by two independent researchers from the group.
- The first 10% of full-text articles will be critically appraised in duplicate by two independent researchers from our group. The results will be compared and discussed early in the process. Any disagreements will be adjudicated by a third researcher if necessary. If there are differences between the two researchers with regard to more than 5% of the articles screened in duplicate, another 10% of the articles will be screened in duplicate.
- Data extraction: the evidence tables will be compiled by junior researchers and reviewed by the senior researcher of the project.

Time Taken

Six months approximately.

Anticipated Results

The results would be as per findings from each of the sections mentioned below:

Number of cases, incidences

Age and gender of cases

Geography and setting

Underlying risk factors

Transmission route

Number of deaths

Prevention

References

Bunge, E.M., Hoet, B., Chen, L., Lienert, F., et al. (2022) The changing epidemiology of human monkeypox –A potential threat? A systematic review. *PLOS Neglected Tropical Diseases*. [Online] 16 (2), e0010141. Available from: doi:10.1371/journal.pntd.0010141.

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