UK Health Security Agency

# Adherence and barriers to following isolation guidance for mpox (monkeypox)

## A rapid review

Search to 15 August 2022

# Contents

# Main messages

1. This review (search up to 15 August 2022) identifies and summarises evidence relating adherence and barriers to following isolation guidance for monkeypox (mpox) (clade II) (3 studies from 2022).
2. The 3 studies reported on 2 online surveys, conducted in the US and the Netherlands in June and July 2022. Overall, the studies suggested that in these countries (GRADE assessment: very low certainty of evidence):
   - awareness of mpox is high, but knowledge of mpox was often reported as poor or very poor
   - people who had received a coronavirus (COVID-19) vaccination were much more likely to report they would receive an mpox vaccination if recommended, compared with people who remained unvaccinated
   - men who have sex with men were frequently (though not universally) willing to reduce their number of sexual partners and encounters, and receive a vaccination if recommended
   - less than half of respondents indicated they would be extremely likely to self-isolate after an mpox infection
3. No studies reported on the barriers and facilitators to adherence to mpox guidance (any guidance from any country), whether the guidance is reaching its intended audience, or whether the guidance is understood.

# Purpose

To identify and summarise evidence relating to adherence and barriers to following isolation guidance for mpox (clade II).

# Methods

A rapid review was conducted, following streamlined systematic methodologies to accelerate the review process (1). A literature search was undertaken to look for primary studies related to guidance for mpox (any guidance from any country), published (or available prior to peer review as a preprint) up to 15 August 2022. Only studies including the clade II of mpox were considered, as this is the clade circulating in the 2022 global outbreak, including in the UK.

Ten percent of the screening on title and abstract was screened in duplicate, while full text screening and data extraction were performed by one reviewer and checked by another. Risk of bias assessment using the quality criteria checklist (QCC) (2) was planned for this review, but as the studies included in this review were descriptive rather than analytical, risk of bias assessments were not performed. GRADE assessment of the certainty in the evidence was performed. Full details on the methodology are provided in Annexe A.

# Evidence

In total, 3 studies reporting on the level of understanding about mpox or intentions to follow guidance were included in this report (3 to 5). The studies reported on 2 online surveys, conducted in June and July 2022 in the US and the Netherlands. The studies reported on attitudes towards mpox (5), determinants of sexual activity reduction because of mpox (3), and determinants of vaccination and self-isolation intention after diagnosis of mpox (4).

Malik and others conducted an online survey in the US in June 2022, asking about participants' awareness and knowledge of mpox, their trusted sources of information, and their intentions to receive vaccination against mpox if recommended to do so (5). In total, 856 participants responded: 51% of respondents were female, 41% had a college degree or higher, and 38% were aged 55 years or older.

While 79% of respondents were aware of the mpox outbreak, 47% rated their knowledge about mpox as poor or very poor, and 44% of respondents were concerned about the outbreak. Most respondents considered avoiding close contact with sick people (83%) and washing hands with soap and water (80%) were effective at preventing mpox. Many respondents (48%) said eating a balanced diet was also effective. When asked if they would receive an mpox vaccine if recommended, 46% (95% confidence interval [CI]: 42% to 50%) of respondents agreed, 29% declined, and 25% did not know. People vaccinated against COVID-19 were much more likely

than unvaccinated people to report that they would take an mpox vaccine if recommended (odds ratio [OR]: 32.1, 95% CI: 16.7 to 61.7), and women were less likely than men to report that they would take an mpox vaccine if recommended (OR = 0.6, 95% CI: 0.4 to 0.8). Respondents ranked healthcare professionals as the most reliable group to convey information about the outbreak, followed by health officials, then websites, television, Government officials, newspapers and magazine, and friends and family.

Wang and others conducted an online survey in The Netherlands in July 2022, reporting their results in 2 papers. One paper investigating willingness and determinants of sexual behaviour change in men who have sex with men (3), and one paper investigating the ability to self-diagnose mpox skin lesions, and the intentions to receive vaccination and to self-isolate after an mpox infection (4). The authors looked for determinants of willingness to reduce number of sexual partners or encounters, intention to receive vaccination, and intention to self-isolate after an mpox infection, using multivariable logistic regression. In total, 394 men who have sex with men responded to the survey: 43% below the age of 43 years, 6% living with HIV, and 66% using HIV pre-exposure prophylaxis.

Most respondents indicated an intention to reduce their number of sexual partners (69% probably or definitely willing to reduce their number of sexual partners) as well as their number of sexual encounters (78% probably or definitely willing to reduce their number of sexual encounters) (3). The results were too imprecise to identify any determinants for willingness to reduce either sexual partners or encounters.
In total, 52.3% of respondents were able to correctly identify mpox from a photo, although a photo of staphylococcus lesions/rash was frequently mistaken for mpox (38.1%) (4).

Most respondents indicated they would get a vaccination for mpox if recommended (70.0% extremely likely). Men who were single but dating (OR = 2.42, 95% CI: 1.13 to 5.20, p=0.024) or in an open or polyamorous relationship (OR = 3.96, 95% CI: 1.97 to 7.99, p=0.001) were more likely to report they would be extremely likely to receive vaccination if recommended than single men, as were retired compared with employed men (OR = 11.04, 95% CI: 1.35 to 90.36), and men who were more concerned about being infected by mpox (OR = 1.74, 95% CI: 1.35 to 2.26, p<0.001, concern rated on a Likert scale). Other results, including for number of sexual partners, HIV pre-exposure prophylaxis use status, erectile dysfunction treatment, knowing anybody who has or had mpox, perceived risk of being infected by mpox, and perceived problematic consequences of mpox, were imprecise.

Less than half of respondents (43.6%) indicated they would be extremely likely to self-isolate after an mpox infection. Men with bachelor's (OR = 0.54, 95% CI: 0.30 to 0.95, p=0.034) or master's degrees (OR = 0.52, 95% CI: 0.29 to 0.93, p=0.029) were less likely to be extremely likely to self-isolate than men with education lower than bachelor's degrees, retired men were more likely to report they would self-isolate than employed men (OR = 5.35, 95% CI: 1.84 to 15.57, p=0.002), as were men who perceived more problematic consequences of mpox (OR = 1.39, 95% CI: 1.11 to 1.74, p=0.005, how problematic rated on a Likert scale). Other results were imprecise.

# Summary

One study suggested many people in the US responding to an online survey rated their knowledge of mpox as poor or very poor, and while 46% of people reported they would receive a vaccination if recommended, this was much higher for people who had received a COVID-19 vaccination compared with people who remained unvaccinated, as well as for men compared with women.

Two studies reporting on the same online survey in The Netherlands suggested men who have sex with men were frequently (though not universally) willing to reduce their number of sexual partners and encounters, and receive a vaccination if recommended, though less than half of respondents indicated they would be extremely likely to self-isolate after an mpox infection.

No studies reported on the barriers and facilitators to adherence to mpox guidance (any guidance from any country), whether the guidance is reaching its intended audience, or whether the guidance is understood.

GRADE assessment: very low certainty of evidence.

# Inequalities

There was little evidence available to explore inequalities through variations across populations and subgroups, for example cultural variations or differences between ethnic, social or vulnerable groups. As such, it was not possible to examine inequalities in this report.

# Limitations

The source of evidence in this review included only preprint articles, and their results should be treated with caution as they have not been peer reviewed or subject to publishing standards and may be subject to change. We did not conduct an extensive search of other sources (such as websites of public health organisations). As with all reviews, the evidence identified may be subject to publication bias, whereby null or negative results are less likely to have been published by the authors, though descriptive studies may be less susceptible to publication bias than other study types. In addition, this rapid review is limited by the fact that we were reviewing evidence from an emerging and ongoing outbreak that has only lasted for 4 months. These studies may have been conducted at pace, with the aim to provide evidence in a timely manner, which may have impacted on the quality of the studies, both in term of design (particularly with limited statistical analyses) and reporting (insufficient detail).

# Evidence gaps

No studies reported on the barriers and facilitators to adherence to mpox guidance, whether the guidance is reaching its intended audience, or whether the guidance is understood.

# Conclusion

Online surveys conducted in the US and The Netherlands suggested knowledge of mpox was often reported as poor or very poor. People who had received a COVID-19 vaccination were much more likely to report they would receive an mpox vaccination if recommended compared with people who remained unvaccinated, men who have sex with men were frequently (though not universally) willing to reduce their number of sexual partners and encounters, and receive a vaccination if recommended. Less than half of respondents indicated they would be extremely likely to self-isolate after an mpox infection.

No studies reported on the barriers and facilitators to adherence to mpox guidance, whether the guidance is reaching its intended audience, or whether the guidance is understood.

# Acknowledgment

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# Disclaimer

UKHSA's rapid reviews aim to provide the best available evidence to decision makers in a timely and accessible way, based on published peer-reviewed scientific papers, unpublished reports and papers on preprint servers. Please note that the reviews: i) use accelerated methods and may not be representative of the whole body of evidence publicly available, ii) have undergone an internal, but not independent, peer review, and iii) are only valid as of the date stated on the review.

In the event that this review is shared externally, please note additionally, to the greatest extent possible under any applicable law, that UKHSA accepts no liability for any claim, loss or damage arising out of, or connected with the use of, this review by the recipient and/or any third party including that arising or resulting from any reliance placed on, or any conclusions drawn from, the review.

# References


1. Tricco A and others. 'Rapid reviews to strengthen health policy and systems: a practical guide' World Health Organization 2017 (viewed February 2023)
2. Academy of Nutrition and Dietetics. 'Evidence Analysis Manual: Steps in the Academy Evidence Analysis Process' 2016 (viewed 14 February 2023)
3. Wang H and others. 'Brief report: Determinants of potential sexual activity reduction in the face of the Monkeypox epidemic' medRxiv 2022
4. Wang H and others. 'Monkeypox self-diagnosis abilities, determinants of vaccination intention and self-isolation intention after diagnosis among MSM in the Netherlands' medRxiv 2022
5. Malik AA and others. 'Attitudes of the US general public towards Monkeypox' medRxiv 2022
6. Page MJ and others. 'The PRISMA 2020 statement: an updated guideline for reporting systematic reviews' British Medical Journal (Clinical research ed.) 2021: volume 372, pages n71
7. Agency for Healthcare Research and Quality (AHRQ). 'Systems to rate the strength of scientific evidence. Evidence report/technology assessment (Summary)' 2002 (viewed 14 February 2023)

# Annexe A: methods

This rapid review aimed to answer the following research question.

1. What evidence is available for adherence to mpox isolation guidance?

    - what are barriers and facilitators to adherence to the guidance?
    - is the guidance reaching the intended audience?
    - is the guidance understood?

Further research questions on what evidence is available for mpox transmission and mpox infectious and incubation periods use the same search strategy, but are addressed in a separate report.

Our rapid review approach follows streamlined systematic methodologies (1). In particular, 10% of the screening on title and abstract were screened in duplicate, and full text screening, data extraction and risk of bias assessment were performed by one reviewer and checked by another. The review has been reported according to PRISMA guidelines (6).

## Protocol

A protocol was produced a priori and is available on request.

## Sources searched

OVID Medline, OVID Embase, Scopus, MedrXiv, Preprints.org, Google, Google Scholar, and an internal mpox digest, which included searches in pubmed, direct websites, Government, and grey literature documents.

## Search strategy

Searches were conducted for papers published up to 15 August 2022.

Search terms covered key aspects of the review question. The search strategies for all databases are presented below. Additionally, we checked reference lists of relevant systematic reviews and evidence summaries and consulted with topic experts. All papers that had been identified as preprints were last checked and updated (if necessary) on 26 September 2022.

## Search strategy for Ovid Medline

1. Monkeypox/
2. Monkeypox virus/
3. ("monkey pox" or monkeypox or monkeypoxvir* or hMPXV or MPXV or MPX).kf,tw.
4. ((Infect* or symptom* or incubat* or contag* or transmissi*) adj3 (time* or period* or timing or duration)).kf,tw.
5. Infectious Disease Incubation Period/
6. 1 or 2 or 3
7. 4 or 5
8. exp Disease Transmission, Infectious/
9. exp "Chain of Infection"/
10. ((infectio* or disease*) adj2 (transmission or reservoir* or carrier*)).kf,tw.
11. "transmission*".ti.
12. 8 or 9 or 10 or 11
13. exp Public Policy/
14. (guidance or adher* or advice).tw.
15. Guideline Adherence/
16. 13 or 14 or 15
17. 7 or 12 or 16
18. 6 and 17

### PrePrint (MedRxiv, Preprints.org, OSF Preprints, Google Scholar)

"monkey pox" or monkeypox or monkeypoxvir* or mpx (manually filtered for relevance)

### Prospero

"monkey pox" or monkeypox or monkeypoxvir* or mpx (manually filtered for relevance)

### Scopus

( TITLE-ABS-KEY ( "monkey pox" OR monkeypox OR monkeypoxvir* OR hmpxv OR mpxv OR mpx ) AND TITLE-ABS-KEY ( infection OR symptom OR transmission OR guidance OR advice OR adherence OR compliance ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )

### African Index

(tw:("monkey pox" or monkeypox or monkeypoxvir* or hMPXV or MPXV or MPX))

### Other /Grey Lit

"monkey pox" or monkeypox or monkeypoxvir* or mpx (manually filtered for relevance)

# Inclusion and exclusion criteria

Article eligibility criteria are summarised in Table A.1.

**Table A.1. Inclusion and exclusion criteria**

| | Included | Excluded |
|---|---|---|
| Population | Any | |
| Settings | Any | |
| Context | Mpox infections (clade II) and outbreaks | Other diseases |
| Intervention, exposure | People who have suspected or confirmed mpox | |
| Outcomes | 1. Adherence, barriers, and facilitators to guidance, and whether the guidance is reaching the intended audience and is understood. | |
| Language | English | |
| Date of publication | Up to 15 August 2022 | |
| Study design | 1. Primary studies that include data for individuals with or without mpox. | 1. Systematic or narrative reviews.<br>2. Guidelines (unless they include data on outcome 3 above).<br>3. Opinion pieces. |
| Publication type | Published and preprint | |

# Screening

Title and abstract screening was completed by 2 reviewers: 10% of the eligible studies were screened in duplicate (disagreements were resolved by discussion) and the remainder were screened by one reviewer.

Full text screening was completed by one reviewer and checked by a second.

The PRISMA diagram showing the flow of citations is provided in Figure A.1.

# Data extraction and risk of bias assessment

Data from included studies were extracted straight into summaries in the report, with both the summaries and table checked by a second reviewer.

Studies were planned to be assessed in duplicate using the quality criteria checklist (QCC) for primary research (2). However, as the studies included in this review were descriptive rather than analytical, risk of bias assessments were not performed.

Variations across populations and subgroups, for example cultural variations or differences between ethnic, social or vulnerable groups were considered, where evidence was available.

# GRADE assessment

GRADE assessment was conducted for the certainty of evidence around guidance for mpox, see Table A.2.

Only observational studies were included, so the assessment started with a low certainty of evidence.

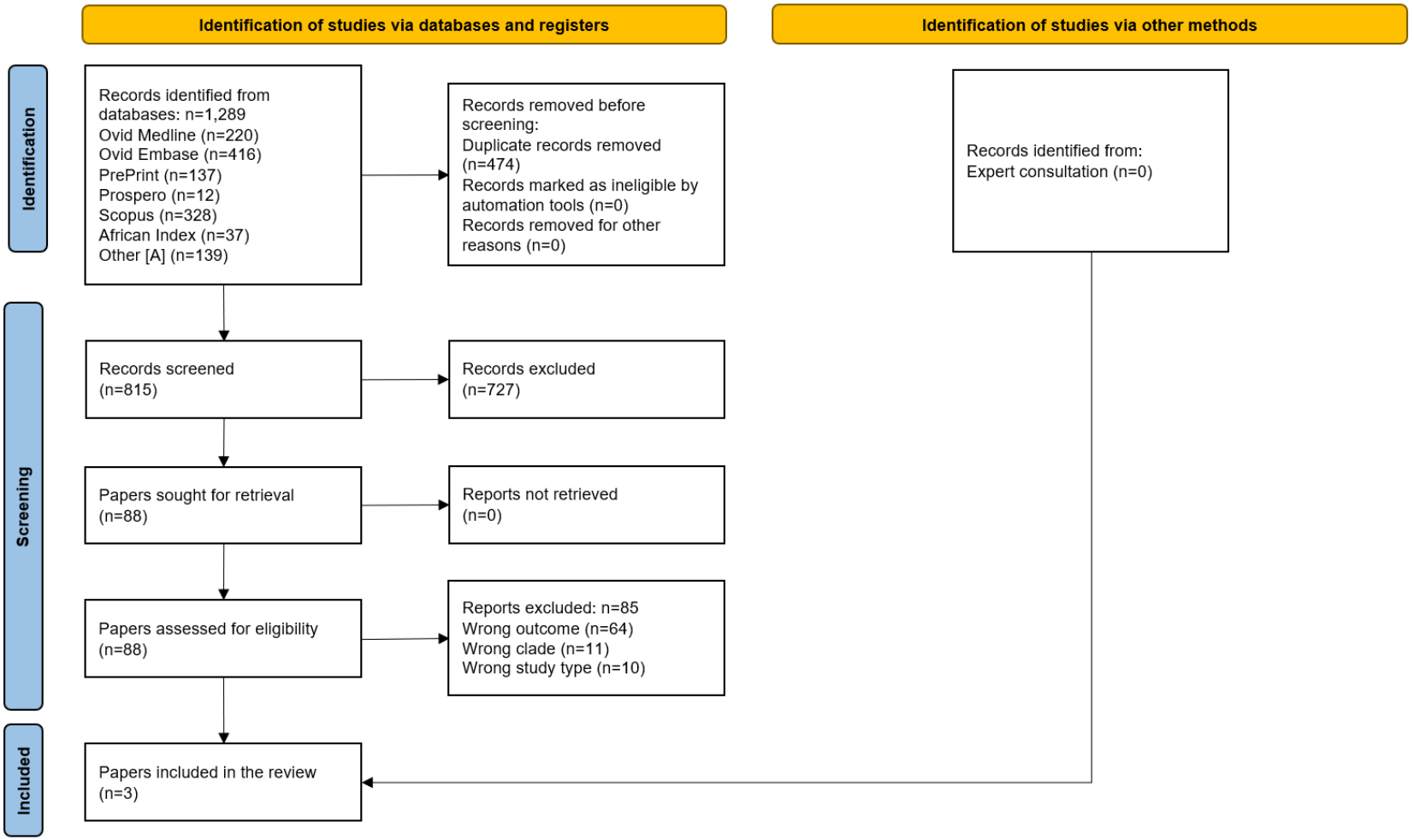
The risks of bias, indirectness, consistency, and publication bias were judged as not serious, the available evidence directly reported descriptions of the 2022 mpox outbreak.

However, there was relatively little available evidence, so the risk of bias from imprecision was judged as serious. The overall certainty of evidence was therefore rated as very low.

**Table A.2. GRADE assessment: summary of findings**

| Outcome | Effect | Studies | Certainty in the evidence |
|---|---|---|---|
| Guidance | Two online surveys conducted in the US and The Netherlands suggested knowledge of mpox was often reported as poor or very poor, people who had received a COVID-19 vaccination were much more likely to report they would receive an mpox vaccination if recommended compared with people who remained unvaccinated, men who have sex with men were frequently (though not universally) willing to reduce their number of sexual partners and encounters, and receive a vaccination if recommended, though less than half of respondents indicated they would be extremely likely to self-isolate after an mpox infection. | 2 | ⨁◯◯◯ Very low |

## Figure A.1. PRISMA diagram




[A] Other = sources included in the internal monkeypox digest, including pubmed (n=136 of 139 results), direct websites, Government and grey literature documents, excluding OVID Medline and Embase results.

**Figure A.1. PRISMA diagram – alt text**

A PRISMA diagram showing the flow of studies through this review, ultimately including 52 studies.

From identification of studies via databases and registers, n=1,289 records identified from databases:

- Ovid Medline (n=220)
- Ovid Embase (n=416)
- PrePrint (n=137)
- Prospero (n=12)
- Scopus (n=328)
- African Index (n=37)
- Other [A] (n=139)

From these, records removed before screening:

- duplicate records removed (n=474)
- records marked as ineligible by automation tools (n=0)
- records removed for other reasons (n=0)

n=815 records screened, of which n=727 were excluded, leaving n=88 papers sought for retrieval, all of which were retrieved.

Of the n=88 papers assessed for eligibility, n=85 reports were excluded:

- wrong outcome (n=64)
- wrong clade (n=11)
- wrong study type (n=10)

From identification of studies via other methods, n=0 studies were identified from expert consultation.

n=3 papers included in the review (n=3 from identification of studies via databases and registers, n=0 from expert consultation).

[A] Other = sources included in the internal mpox digest, including pubmed (n=136 of 139 results), direct websites, Government and grey literature documents, excluding OVID Medline and Embase results.

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