

Infection prevention and control measures for Ebola and Marburg Virus disease: A series of rapid reviews

KQ4 and KQ7 Personal Protective Equipment- Initial Summary

(Version 1, 16 May 2022)

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Funding: Funding for this protocol and the subsequent reviews was provided by the World Health Organization (Funding # 202818287). The working group (WG) from the WHO/HQ Country Readiness Strengthening Health Care Readiness Unit will be consulted to develop and refine the scope, and review and approve the protocol. The WG will not be involved in the conduct of the review including selection of studies and data analysis but will advise as needed on priority population(s), interventions, and outcomes in an iterative process during the review process based on the available evidence. The WG will also comment on the draft report and provide input on interpretations of findings. AT is funded by a Tier 2 Canada Research Chair in Knowledge Synthesis. SM is funded by a Tier 2 Canada Research Chair in Mathematical Modeling and Program Science.

Competing interests: DM was involved in the 2015 rapid review by Hersi et al. [1] There are no other competing interests to acknowledge.

Acknowledgements: We thank Kaitryn Campbell, MLIS, MSc (St. Joseph's Healthcare Hamilton/McMaster University) for peer review of the Embase search strategy.

Questions

Question (4): Should health workers conducting EVD or Marburg virus disease related screening and triage activities wear a face shield alone versus in combination with a medical (non-structured) mask?

Question (7)- (a): Should health workers conducting Ebola or Marburg virus disease related screening activities wear a gown versus wear a coverall?

Question (7)- (b): Should health workers conducting Ebola or Marburg virus disease related triage activities wear a gown versus wear a coverall?

Methods Summary

This is one of a series of rapid reviews answering 12 key questions related to three themes on infection prevention and control measures for filoviruses: (i) transmission/exposure (n=3 questions), (ii) personal protective equipment (PPE) (n=5), and (iii) decontamination and disinfection (n=4). Data sources include Medline, Embase, bio/medRxiv pre-print servers, Global Medicus Index, Epistemonikos, China National Knowledge Infrastructure (CNKI) and Wangfang database. We used an automation tool (CAL® tool) for titles/abstracts screening for relevant systematic reviews and primary comparative studies. Full-text screening, data extraction, risk of bias assessment, and GRADE (Grading of Recommendations Assessment, Development and Evaluation) for the certainty of evidence were completed independently by two reviewers with any disagreements resolved by consensus, with arbitration by a third reviewer, when needed.

Findings

Initial searches and screening for key questions 4 and 7a/b were performed together due to the similarity of the questions under the theme of personal protective equipment use for healthcare workers during screening and triage activities. A total of 393 studies were screened in the CAL tool software and 86 studies were included for full-text screening. Two systematic reviews were identified to be of potential interest.^{1,2} The included studies in these reviews were reviewed to determine if they addressed key questions 4 and 7a/b. While the reviews provided some contextual information, none of the 86 reviewed studies or the studies included in the two systematic reviews met the eligibility criteria for either key question (Appendix 2). A list of excluded studies with reasons for exclusion can be found in Appendix 1.

Citations:

1. Hersi M, Stevens A, Quach P, et al. Effectiveness of Personal Protective Equipment for Healthcare Workers Caring for Patients with Filovirus Disease: A Rapid Review. Kuhn JH, ed. *PLOS ONE*. 2015;10(10):e0140290. doi:10.1371/journal.pone.0140290
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Appendix 1. Excluded Studies List – By Reason for Exclusion:

Duplicate Reference (Different versions of same systematic review)

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Exclude due to non-English language

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Health workers not performing screening or triage activities

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Infection rates not presented by HW activity (screening/triage) and use of PPE equipment

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Irrelevant PPE comparison

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Non-Comparative Study

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No outcome data related to use of PPE

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Appendix 2. Eligibility Criteria

Question (4): Should health workers conducting EVD or Marburg virus disease related screening and triage activities wear a face shield alone versus in combination with a medical (non-structured) mask?

Population	Staff performing screening and triage activities in health care facility or ETU
Background interventions (Standard of care)	WHO current guidance: <i>“Staff in the triage area should wear a scrub suit, a gown, examination gloves and a face shield. The area should be large enough to keep the patient at a 1-metre distance...”</i>
Intervention	wearing a medical mask in combination with the face shield
Comparator(s)	Not wearing a medical mask with the face shield
Outcome	Infection with Ebola or Marburg, <i>PPE breaches, compliance and/or breaches (touching face) related to heat/humidity and comfort, human factors, health worker confidence</i> Indirect evidence: Lassa fever
Potential effect modifiers	<i>Vaccination status, Design of face shield used may affect the face protection, heat/humidity and comfort</i>

Question (7)- (a): Should health workers conducting Ebola or Marburg virus disease related screening activities wear a gown versus wear a coverall?

Setting	Health care facilities, ETU *Contexts to consider: ETU use vs. healthcare facility; outbreak vs readiness vs. high alert scenario.
Population	Staff performing screening activities in health care facility or ETU
Background interventions (Standard of care)	Staff in the screening area should wear a scrub suit, a gown, examination gloves and a face shield.
Intervention	wearing a gown
Comparator(s)	wearing coverall
Outcome	Infection with Ebola or Marburg, PPE breaches, compliance related to heat and comfort, <i>human factors, health worker confidence</i> Indirect evidence: Lassa fever
Potential effect modifiers	<i>Vaccination, Receiving training for proper doffing, Staff job duties/ activities in triage (pass/ receive things, escort them to a new location, etc.) volume of patients, physical distance from patients, and hours of work (long vs. short shift)</i>

Question (7)- (b): Should health workers conducting Ebola or Marburg virus disease related triage activities wear a gown versus wear a coverall?

Setting	Health care facilities, ETU *Contexts to consider: ETU use vs. healthcare facility; outbreak vs readiness vs. high alert scenario.
Population	Staff performing triage activities in health care facility or ETU
Background interventions (Standard of care)	Staff in the triage area should wear a scrub suit, a gown, examination gloves and a face shield.
Intervention	wearing a gown
Comparator(s)	wearing coverall
Outcome	Infection with Ebola or Marburg, PPE breaches, compliance related to heat and comfort, <i>human factors, health worker confidence</i> Indirect evidence: Lassa fever
Potential effect modifiers	<i>Vaccination, Receiving training for proper doffing, Staff job duties/ activities in triage (pass/ receive things, escort them to a new location, etc.) volume of patients, physical distance from patients, and hours of work. (long vs. short shift)</i>