

Proposed Update of Patient Placement and PPE Recommendations for Select Viral Hemorrhagic Fevers, Andes and Nipah Viruses (Appendix A)

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August 22, 2024

Agenda

1. Review of rationale for update
2. Review of updated patient placement and PPE recommendations for select viral hemorrhagic fevers (Marburg, Crimean-Congo Hemorrhagic Fever, Lassa, South American Hemorrhagic Fevers), Andes, Nipah
3. Questions/comments
4. Vote

Rationale for Update

Rationale

- Recent examples of risk for non-Ebola viral hemorrhagic fever pathogen importation
 - Marburg outbreaks in Equatorial Guinea, Tanzania (2023)
 - Lassa, Crimean Congo Hemorrhagic Fever are often possible diagnoses for ill returning travelers from endemic regions
 - 2 U.S. patients with Nipah on the differential diagnosis (2023)
 - Single imported Andes virus case (person-to-person transmissible hantavirus) in U.S. (2018)

Recommendations



Recommendations

- June 2023 meeting: Proposed updates to personal protective equipment (PPE) and patient placement recommendations for Lassa, CCHF, Marburg, and South American Hemorrhagic Fever viruses were approved by HICPAC
 - **Recommendation:** Same as PPE and patient placement recommendations for Ebola

Recommendations (cont.)

- November 2023: Proposed updates to personal protective equipment (PPE) and patient placement recommendations for Nipah and Andes virus were approved by HICPAC
- **Recommendation:**
 - Andes virus and Nipah virus patient placement: AIIR
 - Andes virus PPE: gown, gloves, eye protection, N95 respirator or higher
 - Nipah virus PPE:
 - *If suspect Nipah case and clinically stable*: gown, gloves, eye protection, N95 respirator or higher
 - *If suspect Nipah case and clinically unstable (e.g., hemodynamic instability, vomiting) OR confirmed Nipah case regardless of clinical stability*: use PPE according to clinically unstable VHF guidance

Federal Register Submission

- February-April 2024: submitted to Federal Register for 60 days
 - Received one comment not related to subject matter
 - No additional changes made

Questions/comments?



Vote



Vote on Proposed Update for Marburg

- **Proposal:** Change recommended PPE and placement for Marburg to be same as recommended for Ebola
- **If change is accepted:**
 - Appendix A will be updated to refer to Ebola guidance
 - Ebola guidance will also be updated to include other pathogens to which it applies in addition to Ebola

Vote on Proposed Update for CCHF

- **Proposal:** Change recommended PPE and placement for CCHF to be same as recommended for Ebola
- **If change is accepted:**
 - Appendix A will be updated to refer to Ebola guidance
 - Ebola guidance will also be updated to include other pathogens to which it applies in addition to Ebola

Vote on Proposed Update for Lassa

- **Proposal:** Change recommended PPE and placement for Lassa to be same as recommended for Ebola
- **If change is accepted:**
 - Appendix A will be updated to refer to Ebola guidance
 - Ebola guidance will also be updated to include other pathogens to which it applies in addition to Ebola

Vote on Proposed Update for South American Hemorrhagic Fevers

- **Proposal:** Change recommended PPE and placement for South American Hemorrhagic Fevers to be same as recommended for Ebola
- **If change is accepted:**
 - Appendix A will be updated to refer to Ebola guidance
 - Ebola guidance will also be updated to include other pathogens to which it applies in addition to Ebola

Vote on Proposed Update for Andes and Nipah viruses

Andes Virus Patient Placement and PPE

- **Patient Placement:** AIIR
- **PPE:** gown, gloves, eye protection, N95 respirator or higher

Nipah Virus Patient Placement and PPE

- **Patient Placement:** AIIR
- **PPE:**
 - *If suspect Nipah case and clinically stable:* gown, gloves, eye protection, N95 respirator or higher
 - *If suspect Nipah case and clinically unstable (e.g., hemodynamic instability, vomiting) OR confirmed Nipah case regardless of clinical stability:* use PPE according to clinically unstable VHF guidance

Supplementary Slides

Appendix A Update - Marburg

Virus	Clinical Illness	Mortality	Modes of P2P transmission	Body fluids	Episodes of occupationaly-acquired transmission in healthcare	Proposed PPE and Patient Placement
Marburg	<p>Fever, chills, headache, myalgia, sore throat, nausea, vomiting</p> <p>May progress to multi-organ failure, massive hemorrhage</p>	<p>23-90%</p> <p>No vaccine or approved treatments available</p> <p>Remdesivir used as treatment, efficacy unclear</p>	<p>Contact with body fluids – blood, most of all</p>	<p>Virus has been isolated from blood, urine, throat, liver biopsy (autopsy), eye (anterior chamber)</p>	<p>Yes</p> <p>Insufficient or no PPE (skin contact with body fluids), sharps injuries, mucous membrane exposures</p>	<p>Same as Ebola</p>

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Appendix A Update – Crimean Congo Hemorrhagic Fever

Virus	Clinical Illness	Mortality	Modes of P2P transmission	Body fluids	Episodes of occupationally-acquired transmission in healthcare	Proposed PPE and Patient Placement
Crimean Congo Hemorrhagic Fever (CCHF)	<p>Fever, headache, back/joint pain, stomach pain, nausea, vomiting, jaundice</p> <p>Severe bruising, nosebleeds, uncontrolled bleeding at injection sites</p>	<p>3-30%</p> <p>No vaccine or approved treatments available</p>	<p>Contact with body fluids</p> <p>Improper sterilization of medical equipment</p> <p>Percutaneous inoculation from needles</p> <p>Possible droplet/aerosol transmission</p>	<p>PCR detected in blood, nasal swab, saliva, urine, stool, vaginal fluid</p> <p>Viral isolation has been reported from patients/corpses</p>	<p>Yes</p> <p>Percutaneous and cutaneous transmission</p> <p>Possible droplet/aerosol transmission</p>	<p>Same as Ebola</p>

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Appendix A Update – Lassa Fever

Virus	Clinical Illness	Mortality	Modes of P2P transmission	Body fluids	Episodes of occupationaly-acquired transmission in healthcare	Proposed PPE and Patient Placement
Lassa	<p>Mild symptoms: flu-like illness</p> <p>Severe illness: hemorrhage, respiratory distress, vomiting, hearing loss, tremors, encephalitis, multi-organ failure</p>	<p>Hospitalized patients' mortality rate: 15-20%</p> <p>Overall mortality rate: 1%</p> <p>Ribavirin used as treatment, efficacy unclear</p> <p>No vaccine available</p>	<p>Prolonged contact in setting of unknown exposure</p> <p>Respiratory droplet or aerosol spread in earlier outbreaks were implicated when source was unknown</p>	<p>Viral culture positive in blood, urine, saliva, and semen</p>	<p>Yes</p> <p>Insufficient or no PPE (skin contact with body fluids)</p>	<p>Same as Ebola</p>

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Appendix A Update – South American Hemorrhagic Fevers

Virus	Clinical Illness	Mortality	Modes of P2P transmission	Body fluids	Episodes of occupational ly-acquired transmission in healthcare	Proposed PPE and Patient Placement
<p>South American Hemorrhagic Fevers (Arenaviruses)</p> <p>Junin (Argentine HF) Machupo (Bolivian HF) Chapare (Chapare HF) Guanarito (Venezuelan HF) Sabia (Brazilian HF)</p>	<p>All: flu-like illness</p> <p>Junin: absence of respiratory symptoms</p> <p>Machupo: may develop neurologic/hemorrhagic manifestations</p> <p>Chapare: may develop ARDS/multiorgan dysfunction</p> <p>Guanarito: respiratory symptoms, may develop neurological/hemorrhagic manifestations</p> <p>Sabia: may develop multiorgan dysfunction</p>	<p>Junin: 15-30%, 1% w/ Rx</p> <p>Machupo: 25%</p> <p>Chapare: 60%</p> <p>Guanarito: 33%</p> <p>Sabia: 50%</p> <p>Only Junin has vaccine (not available in US)</p> <p>No proven treatments for any</p>	<p>Junin: P2P transmission surmised in large-scale outbreaks</p> <p>Machupo: P2P transmission demonstrated in 1971, large-scale outbreaks</p> <p>Guanarito: Unclear; only one case of secondary transmission has been identified</p> <p>Chapare: Yes, via contact with body fluids (all)</p> <p>Sabia: not established</p>	<p>Junin: reported from oral swabs, urine, breastmilk, ?sexual transmission</p> <p>Machupo: blood/throat swab/post-mortem liver/spleen (viral cx)</p> <p>Chapare: 2019 outbreak w/ blood/urine/conjunctival/semen NP/OP +PCR and culture/NGS</p> <p>Guanarito: not established</p> <p>Sabia: not established</p>	<p>Junin: none</p> <p>Machupo: yes</p> <p>Chapare: yes</p> <p>Guanarito: none</p> <p>Sabia: two lab accidents</p>	<p>Same as Ebola</p>

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Andes Virus

- **Clinical Illness:** fever, chills, headaches, cough, shortness of breath progressing to respiratory failure, coagulopathy, multiorgan dysfunction
- **Mortality:** 30%, no vaccine/treatment
- **Modes of person-to-person transmission:** thought to occur during close and prolonged proximity to case-patients via droplet/aerosolized inhalation or contact
- **Detection in body fluids:** blood/serum/PBMC (PCR; viral isolate), urine (PCR), respiratory samples (PCR), breastmilk (PCR)
- **Documented episodes of occupationally-acquired transmission in healthcare:** Yes, in setting of no or minimal PPE

Andes Virus Patient Placement and PPE

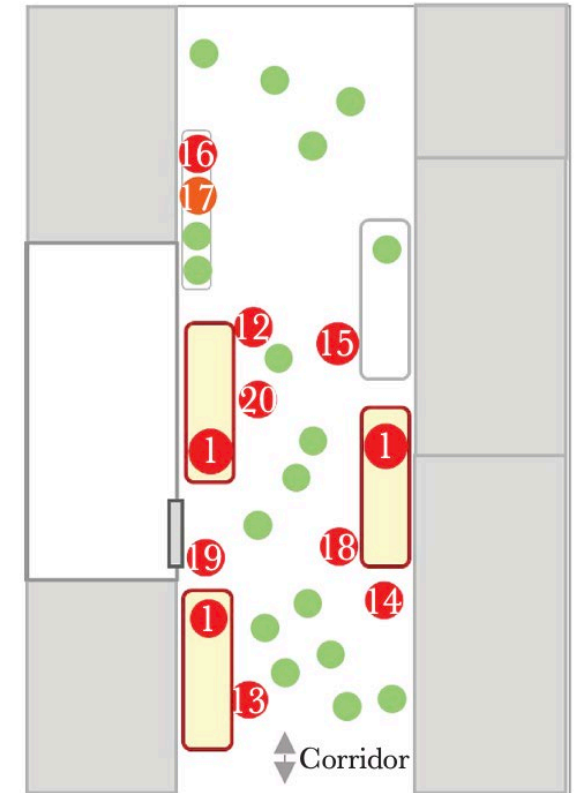
- **Patient Placement:** AIIR
- **PPE:** gown, gloves, eye protection, N95 respirator or higher

Nipah Virus

- **Clinical Illness:** prodromal phase (fever, HA, myalgia, dizziness), respiratory symptoms, vomiting; neurological symptoms within 1 week (coma, hyporeflexia, areflexia, seizures); survivors may have relapse or late-onset encephalitis
- **Mortality:** 40-75%, no vaccine/treatment
- **Modes of person-to-person transmission:** contact with body fluids, especially respiratory secretions; prolonged exposure to case-patients especially those with respiratory symptoms and older age
- **Detection in Body fluids:** Respiratory samples (PCR, viral culture), urine (PCR)
- **Documented episodes of occupationally-acquired transmission in healthcare:** Yes, in setting of no or minimal PPE

5 May

Corridor outside CT room



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Nipah Virus Patient Placement and PPE

- **Patient Placement:** AllR
- **PPE:**
 - *If suspect Nipah case and clinically stable: gown, gloves, eye protection, N95 respirator or higher*
 - *If suspect Nipah case and clinically unstable (e.g., hemodynamic instability, vomiting) OR confirmed Nipah case regardless of clinical stability: use PPE according to clinically unstable VHF guidance*