WHO Monkeypox research: Current knowledge on monkeypox transmission dynamics

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Outline

- Brief background
- Transmission and risk of infection
- Managing the spread of monkeypox
- Compartmental model for the disease control
- Priority research questions
- Summary and conclusion

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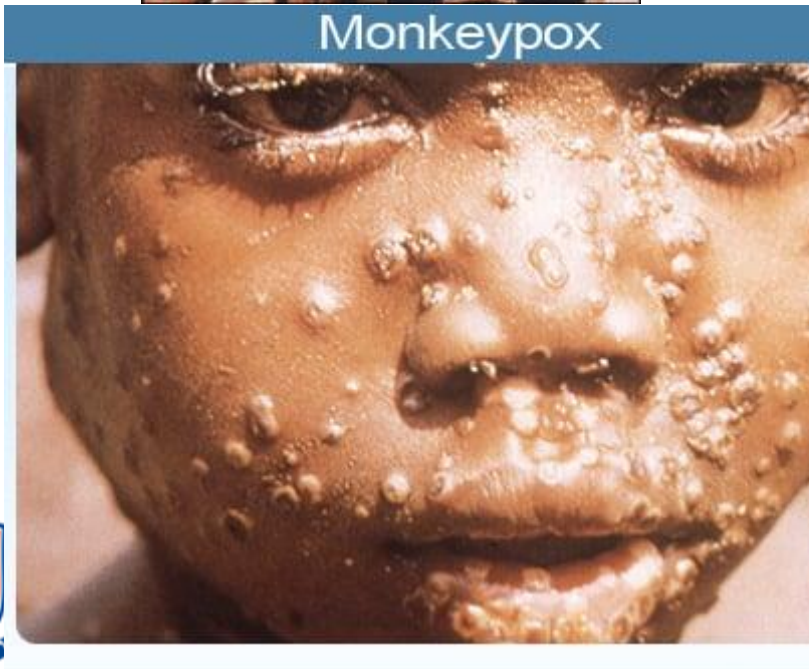
Brief background

- Monkeypox is a relatively rare disease that was first detected in monkeys in Africa in 1958
- Monkeypox virus belongs to the *Orthopoxvirus* genus in the family *Poxviridae*.
- Monkeypox is a viral zoonotic disease that occurs primarily in tropical rainforest areas of central and west Africa and is occasionally exported to other regions

Child affected with monkeypox



Transmission and risk of infection

➢ **Human-to-human transmission**

- **Monkeypox virus is transmitted from one person to another by close contact**
- **Ulcers, lesions or sores in the mouth can also be infectious, meaning the virus can spread through saliva**
- **People who closely interact with someone who is infectious, including health workers, household members and sexual partners are at greater risk of infection**
- **Monkeypox is not a sexually transmitted disease, but it can spread through intimate contact during sex when someone has an active rash**
- **Transmission can also occur via the placenta from mother to fetus (which can lead to congenital monkeypox) or during close contact during and after birth**

➢ **Animal-to-human transmission**

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Managing the spread of monkeypox

- Early detection,
- Isolation and treatment of persons with monkeypox could control the spread of the disease

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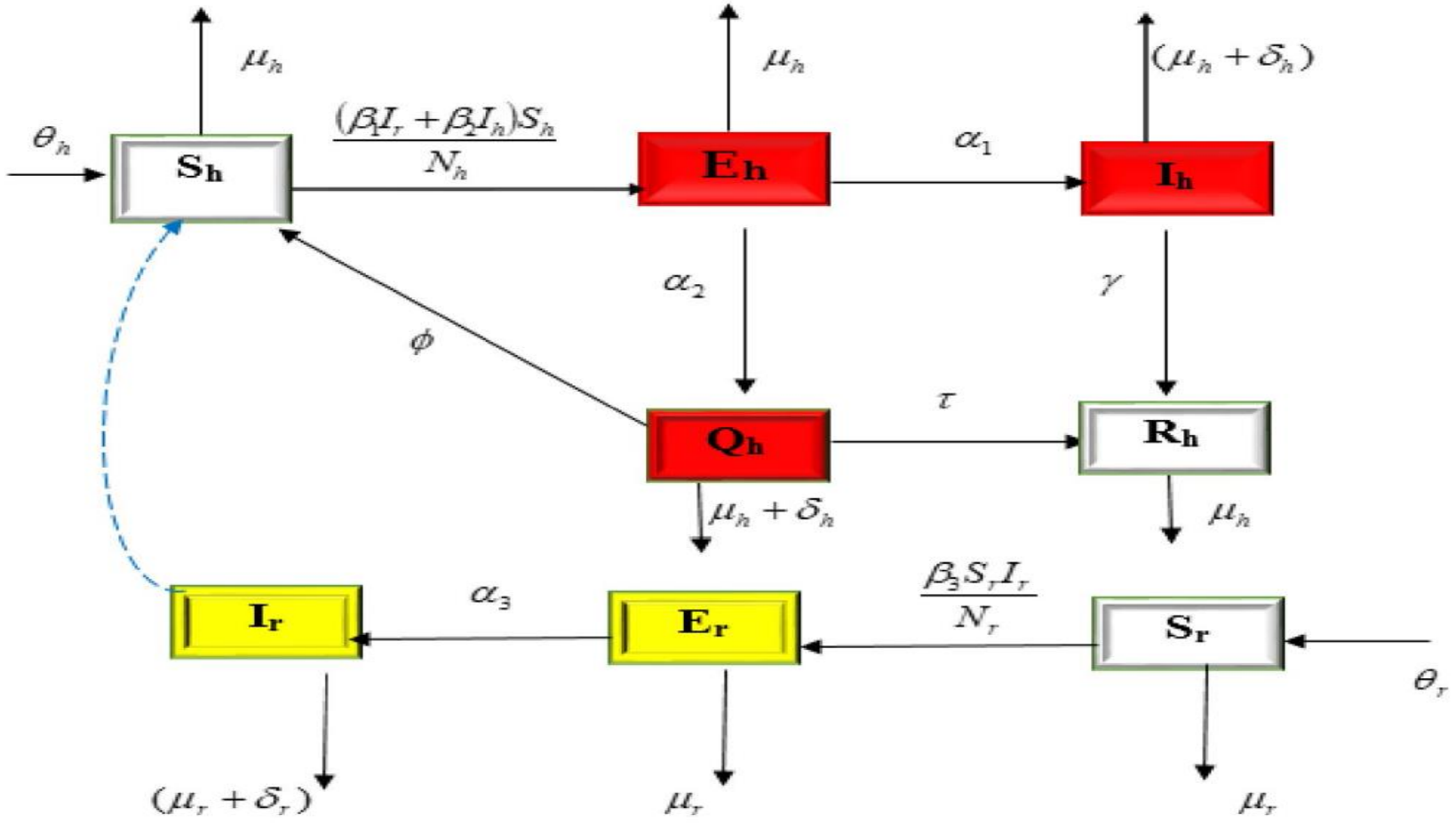
Compartmental model for the disease control



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Compartmental model for the disease control

- Modeling the disease will help us to further understand the transmission dynamics
- Access to country-specific observational or serological data to validate the model will help in the disease prediction and control
- The basic reproduction number
- Optimal intervention analysis that will help us to set up some intervention scenarios and guide us in choosing the best strategies

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Priority research questions

The following are some of the research questions that will help in the disease control

- What signs and symptoms can confirm the clinical diagnosis of Monkeypox?
- What clinical findings (signs, symptoms, biomarkers, and imaging) are associated with a worse prognosis in ?
- What is the best strategy to achieve treatment goals in patients with non-communicable diseases (NCDs) during the Monkeypox pandemic?
- What are the short, mid-, and long-term post-infectious sequelae of Monkeypox?
- What is the Monkeypox Infection Fatality Rate in low and middle countries, including stratification by age?
- What is the excess mortality of non- Monkeypox in low- and middle-income countries (LMIC) during the pandemic?

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Summary and conclusion

- Infection prevention and control (IPC) strategies should consider all the possible routes of transmission and should target all patient care activities involving the risk of;
- human-to-human and animal-to- human transmission.
- This review may assist international health agencies in updating their guidelines.

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