



CHIKUNGUNYA VIRUS INFECTIONS AMONG LABORATORY WORKERS

Susan Hills, MBBS, MTH
CDC Lead, Chikungunya Vaccines Work Group
Arboviral Diseases Branch
Division of Vector-Borne Diseases
Fort Collins, Colorado

ACIP meeting, June 22, 2023

Chikungunya virus management in the laboratory

- Handled at biosafety level (BSL)-3
- High viral loads in blood samples increase risk for laboratory-acquired infections¹

1. Simmons G et al, Emerg Infect Dis 2016; Appassakij H et al, Transfusion 2013

Information on laboratory worker infections

- Summary article published in 1980 by Subcommittee on Arbovirus Laboratory Safety (SALS)¹
- Case report in a publication on exposures to pathogens in a U.S. laboratory²
- Cases reported to the U.S. national arboviral disease surveillance system

1. The Subcommittee on Arbovirus Laboratory Safety of the American Committee on Arthropod-Borne Viruses. Am J Trop Med Hyg 1980
2. Rusnak JM, et al. J Occup Environ Med 2004

SALS report¹

- Methods
 - Conducted literature review and two surveys
 - Surveys sent to national and international labs in 1976 and 1978
- 39 chikungunya virus disease cases or infections
 - 38 (97%) disease cases, no deaths
 - 1 (3%) asymptomatic infection
- Route of transmission
 - 7 (18%) aerosol
 - 32 (82%) not identified/unknown

Case report from worker in a U.S. laboratory

- Occurred during 1989–2002
- Needlestick injury
- Full recovery after slow convalescence with intermittent joint pains, headaches, and blurred vision for several months

Reports to national arboviral disease surveillance system, 2015–2022

- Four disease cases
 - One case hospitalized for observation
 - No deaths
- Route of transmission
 - Needlestick (n=2)
 - Other percutaneous (n=1)
 - Unknown (n=1)



Reported cases likely underrepresent all infections in laboratory workers

- Underreporting of cases to national arboviral disease surveillance system
- Asymptomatic infections not reportable to surveillance system
- No formal laboratory surveillance system
- Reluctance to publish

Summary

- Laboratory workers at risk for chikungunya virus infections and disease
 - At least 44 reports, including 4 cases during last 8 years
- Documented modes of transmission include aerosol and percutaneous routes
- Likelihood of disease vs. asymptomatic infection probably high



Thank you