



EVIDENCE TO RECOMMENDATIONS FOR CHIKUNGUNYA VACCINE USE AMONG LABORATORY WORKERS

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Infections among laboratory workers

- At least 44 chikungunya virus infections identified among laboratory workers worldwide over ~ 50 years¹⁻³
 - 43 cases overt disease, 1 asymptomatic infection, no deaths
- 4 disease cases in US laboratorians since chikungunya became notifiable disease in 2015
 - One case hospitalized for observation, no deaths
- Identified cases underestimate all infections as no formal laboratory 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; 3. US national arboviral disease surveillance system, 2015–2022

Routes of transmission

- Aerosol
- Percutaneous
 - Needlestick while working with and injecting mice
 - Forceps prick while dissecting mosquitoes infected with chikungunya virus
- Mucosal (possible)



Policy question

Should chikungunya vaccine be recommended for laboratory staff at risk for chikungunya virus infection?

Laboratory worker Evidence to Recommendations notes

- Same GRADE assessment as vaccination for travelers
- Considered data on cross-protection from vaccine against 3 genotypes of chikungunya virus
 - Only limited data from laboratory studies to confirm cross-protection
 - Chikungunya virus considered single serotype and limited genotype-specific differences in antigenicity
 - No evidence of re-infection in humans with different genotypes

Evidence to Recommendations: Public health problem

Topic	Decision	Comment
Public health problem	No, not of public health importance overall	<ul style="list-style-type: none">• Only occasional US laboratory-acquired infections reported• Potential for acute infection with severe polyarthralgia and possible chronic arthralgia
Values	Laboratorians likely think desirable effects large relative to undesirable effects No important variability	<ul style="list-style-type: none">• Scientists will understand risks of disease and risks and benefits of vaccination

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Evidence to Recommendations: Acceptability

Topic	Decision	Comment
Acceptability	Yes, acceptable to key stakeholders	<ul style="list-style-type: none">• Acceptable for occupational health directors, laboratory managers, and laboratorians because will improve safety
Resource use	Yes, reasonable and efficient allocation of resources	<ul style="list-style-type: none">• Limited number of staff undertaking research or specific diagnostic work with chikungunya virus• Small cost to avoid impact and costs of worker becoming infected
Equity	Probably increased	<ul style="list-style-type: none">• If employer offers vaccination, will improve safety for staff and addresses an occupational health issue

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Evidence to Recommendations: Equity

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Evidence to Recommendations: Feasibility

Topic	Decision	Comment
Feasibility	Yes, feasible	<ul style="list-style-type: none"><li data-bbox="908 423 1609 518">• Likely build on existing occupational health program

Balance of consequences

- Undesirable consequences *clearly outweigh* desirable consequences in most settings
- Undesirable consequences *probably outweigh* desirable consequences in most settings
- The balance between desirable and undesirable consequences *is closely balanced or uncertain*
- Desirable consequences *probably outweigh* undesirable consequences in most settings
- Desirable consequences *clearly outweigh* undesirable consequences in most settings
- There is insufficient evidence to determine the balance of consequences

Draft recommendation

Chikungunya vaccination is recommended for laboratory workers with potential for exposure to chikungunya virus

Information accompanying recommendations

- Local biosafety committee should undertake risk assessment of potential for chikungunya virus exposure considering
 - Type of work to be performed
 - Biosafety level at which work is being conducted
- Vaccination not necessary for workers handling routine clinical samples

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