

## Publication

### A systematic review of chlorine-based surface disinfection efficacy to inform recommendations for low-resource outbreak settings

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**BACKGROUND:** Infectious diseases can be transmitted via fomites (contaminated surfaces/objects); disinfection can interrupt this transmission route. However, disinfection guidelines for low-resource outbreak settings are inconsistent and not evidence-based. **METHODS:** A systematic review of surface disinfection efficacy studies was conducted to inform low-resource outbreak guideline development. Due to variation in experimental procedures, outcomes were synthesized in a narrative summary focusing on chlorine-based disinfection against seven pathogens with potential to produce outbreaks in low-resource settings (*Mycobacterium tuberculosis*, *Vibrio cholerae*, *Salmonella* spp., hepatitis A virus, rotavirus, norovirus, Ebola virus). **RESULTS:** Data were extracted from 89 laboratory studies and made available, including 20 studies on relevant pathogens used in combination with surrogate data to determine minimum target concentration $\times$ time ("CT") factors. Stainless steel (68%) and chlorine-based disinfectants (56%) were most commonly tested. No consistent trend was seen in the influence of chlorine concentration and exposure time on disinfection efficacy. Disinfectant application mode; soil load; and surface type were frequently identified as influential factors in included studies. **CONCLUSIONS:** This review highlights that surface disinfection efficacy estimates are strongly influenced by each study's experimental conditions. We therefore recommend laboratory testing to be followed by field-based testing/monitoring to ensure effectiveness is achieved in situ.

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