Hand Washing for Health Care Workers to Reduce the Transmission of Infection: Clinical Effectiveness and Guidelines

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To produce this report, CADTH used a modified approach to the selection, appraisal, and synthesis of the evidence to meet decision-making needs during the COVID-19 pandemic. Care has been taken to ensure the information is accurate and complete, but it should be noted that international scientific evidence about COVID-19 is changing and growing rapidly.
Research Questions

1. What is the clinical effectiveness of hand washing with soap and water compared with hand sanitization solutions for health care workers in direct contact with patients?

2. What are the evidence-based guidelines regarding the use of hand washing with soap and water for health care workers in direct contact with patients?

Key Findings

One systematic review and one non-randomized study were identified regarding the clinical effectiveness of hand washing with soap and water compared with hand sanitization solutions for health care workers in direct contact with patients. In addition, three evidence-based guidelines were identified regarding the use of hand washing with soap and water for health care workers in direct contact with patients.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline via OVID and CINAHL via EBSCO, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were hand hygiene and health care workers. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and January 1, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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| **Comparator**              | Q1: Hand sanitization solution (alcohol-based and other solutions)  
Q2: Not applicable |
| **Outcomes**                | Q1: Clinical effectiveness (e.g., spread of infection, disease progression)  
Q2: Recommendations regarding the use of hand washing with soap and water for health care workers taking care of patients |
| **Study Designs**           | Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, and evidence-based guidelines |
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports and systematic reviews are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One systematic review\(^1\) and one non-randomized study\(^2\) were identified regarding the clinical effectiveness of hand washing with soap and water compared with hand sanitization solutions for health care workers in direct contact with patients. In addition, three evidence-based guidelines\(^3^5\) were identified regarding the use of hand washing with soap and water for health care workers in direct contact with patients. No relevant health technology assessments or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One systematic review\(^1\) and one non-randomized study\(^2\) were identified regarding the clinical effectiveness of hand washing with soap and water compared with hand sanitization solutions for health care workers in direct contact with patients.

The authors of the systematic review\(^1\) included one randomized controlled trial that compared hand washing with soap and water to an alcohol rub plus additional hydrogen peroxide and found no significant difference in the risk of surgical site infection between the groups. Overall, the authors concluded that there was no firm evidence that demonstrated any single type of hand antisepsis was more effective than others in preventing surgical site infections.\(^1\) Conversely, the authors of the non-randomized study\(^2\) found that a persistent, alcohol-based hand sanitizer was significantly more effective in reducing the rate of hospital-acquired infections compared to hand washing alone.

Guidelines from the Australian government\(^3\) recommend that soap and water be used for hand hygiene when hands are visibly soiled. Health care workers in contact with known or suspected *Clostridium difficile* and non-enveloped viruses such as norovirus should wash with soap and water if their hands are visibly contaminated.\(^3\) Otherwise, they may use an alcohol-based rub.\(^3\)

Similar recommendations are included in guidelines from the Association of periOperative Registered Nurses,\(^4\) who recommend using soap and water whenever hands are visibly soiled, following exposure to blood or body fluids, after care is provided to patients who are infected with spore-forming organisms or norovirus, and after the use of a restroom. The guidelines recommend alcohol-based hand rub products when hands show no visible soiling.\(^4\)

Finally, the National Institute for Health and Care Excellence suggests that health care workers should decontaminate their hands using an alcohol-based rub in most situations.\(^5\) The guidance suggests that soap and water should be used when hands are visibly soiled or contaminated with bodily fluids, or if there is a potential spread of alcohol-resistant organisms such as *Clostridium difficile*.\(^5\)
References Summarized

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-Analyses

Randomized Controlled Trials
No literature identified.

Non-Randomized Studies

Guidelines and Recommendations


Appendix — Further Information

Previous CADTH Reports


Randomized Controlled Trials — Alternative Outcomes


Non-Randomized Studies — Mixed Intervention


Clinical Practice Guidelines


Review Articles


Additional References

See: Infection, Prevention and Control (IPC), Question #11, page 3.


See: Executive Summary, page i.