

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Decolonization for the Treatment of Methicillin- Resistant Staphylococcus Aureus: Clinical Effectiveness and Guidelines

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Research Question

What is the clinical effectiveness of decolonization for Methicillin-Resistant Staphylococcus Aureus (MRSA) in patients known to be carrying MRSA?

Key Findings

Six systematic reviews (two with meta-analyses) and six randomized controlled trials were identified regarding the clinical effectiveness of decolonization for Methicillin-Resistant Staphylococcus Aureus (MRSA) in patients known to be carrying MRSA.

Methods

A focused literature search (with main concepts appearing in the title or subject heading) was conducted on key resources including PubMed, the Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2012 and January 17, 2019. Internet links were provided, where available.

Selection Criteria

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

Table 1: Selection Criteria

Population	Adult and pediatric oncology, hemodialysis, surgical patients, and “healthy” patients known to be carrying methicillin-resistant Staphylococcus aureus (MRSA)
Intervention	Decolonization
Comparators	Usual care; Any comparator; No comparator
Outcomes	Negative MRSA test results for the patient; decrease in transmission
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials

Results

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

Six systematic reviews (two with meta-analyses) and six randomized controlled trials were identified regarding the clinical effectiveness of decolonization for Methicillin-Resistant Staphylococcus Aureus (MRSA) in patients known to be carrying MRSA. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. George S, Leasure AR, Horstmanshof D. Effectiveness of decolonization with chlorhexidine and mupirocin in reducing surgical site infections: a systematic review. *Dimens Crit Care Nurs*. 2016 Jul-Aug;35(4):204-222.
[PubMed: PM27258958](#)
2. Tidwell J, Kirk L, Luttrell T, Pike CA. CA-MRSA decolonization strategies: do they reduce recurrence rate? *J Wound Ostomy Continence Nurs*. 2016 Nov/Dec;43(6):577-582.
[PubMed: PM27820584](#)
3. Gebreselassie HM, Lo Priore E, Marschall J. Effectiveness of methicillin-resistant Staphylococcus aureus decolonization in long-term haemodialysis patients: a systematic review and meta-analysis. *J Hosp Infect*. 2015 Nov;91(3):250-256.
[PubMed: PM26443485](#)
4. Kock R, Becker K, Cookson B, et al. Systematic literature analysis and review of targeted preventive measures to limit healthcare-associated infections by methicillin-resistant Staphylococcus aureus. *Euro Surveill*. 2014 Jul 24;19(29).
[PubMed: PM25080142](#)
5. Chen AF, Wessel CB, Rao N. Staphylococcus aureus screening and decolonization in orthopaedic surgery and reduction of surgical site infections. *Clin Orthop Relat Res*. 2013 Jul;471(7):2383-2399.
[PubMed: PM23463284](#)
6. Schweizer M, Perencevich E, McDanel J, et al. Effectiveness of a bundled intervention of decolonization and prophylaxis to decrease Gram positive surgical site infections after cardiac or orthopedic surgery: systematic review and meta-analysis. *BMJ*. 2013 Jun 13;346:f2743.
[PubMed: PM23766464](#)

Randomized Controlled Trials

7. Lindgren AK, Nilsson AC, Akesson P, Gustafsson E, Melander E. Eradication of methicillin-resistant *Staphylococcus aureus* (MRSA) throat carriage: a randomised trial comparing topical treatment with rifampicin-based systemic therapy. *Int J Antimicrob Agents*. 2018 Apr;51(4):642-645.
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[PubMed: PM29107078](#)
9. Rezapoor M, Nicholson T, Tabatabaee RM, Chen AF, Maltenfort MG, Parvizi J. Povidone-iodine-based solutions for decolonization of nasal *Staphylococcus aureus*: a randomized, prospective, placebo-controlled study. *J Arthroplasty*. 2017 Sep;32(9):2815-2819.
[PubMed: PM28578841](#)
10. Cluzet VC, Gerber JS, Metlay JP, et al. The effect of total household decolonization on clearance of colonization with methicillin-resistant *Staphylococcus aureus*. *Infect Control Hosp Epidemiol*. 2016 Oct;37(10):1226-1233.
[PubMed: PM27465112](#)
11. Landelle C, von Dach E, Haustein T, et al. Randomized, placebo-controlled, double-blind clinical trial to evaluate the efficacy of polyhexanide for topical decolonization of MRSA carriers. *J Antimicrob Chemother*. 2016 Feb;71(2):531-538.
[PubMed: PM26507428](#)
12. Sousa RJ, Barreira PM, Leite PT, Santos AC, Ramos MH, Oliveira AF. preoperative *Staphylococcus aureus* screening/decolonization protocol before total joint arthroplasty—results of a small prospective randomized trial. *J Arthroplasty*. 2016 Jan;31(1):234-239.
[PubMed: PM26362785](#)

Appendix — Further Information

Previous CADTH Reports

13. Screening, isolation and decolonization strategies for methicillin-resistant staphylococcus aureus: a review of the clinical evidence. (*CADTH rapid response report: summary with critical appraisal*). Ottawa (ON): CADTH; 2012: <https://www.cadth.ca/sites/default/files/pdf/htis/oct-2012/MRSA%20Final.pdf>. Accessed 2019 Jan 21.
14. Screening, isolation, and decolonization strategies for vancomycin-resistant enterococci or extended spectrum beta-lactamase producing organisms: a systematic review of the clinical evidence and health services impact. (*CADTH rapid response report: systematic review*). Ottawa (ON): CADTH; 2012: https://www.cadth.ca/sites/default/files/pdf/htis/sept-2012/RE0028_VREReport_e.pdf. Accessed 2019 Jan 21

Non-Randomized Studies

15. Peng HM, Wang LC, Zhai JL, Weng XS, Feng B, Wang W. Effectiveness of preoperative decolonization with nasal povidone iodine in Chinese patients undergoing elective orthopedic surgery: a prospective cross-sectional study. *Braz J Med Biol Res*. 2017 Dec 18;51(2):e6736. [PubMed: PM29267501](#)
16. Cho OH, Baek EH, Bak MH, et al. The effect of targeted decolonization on methicillin-resistant Staphylococcus aureus colonization or infection in a surgical intensive care unit. *Am J Infect Control*. 2016 May 1;44(5):533-538. [PubMed: PM26847518](#)
17. Peterson LR, Wright MO, Beaumont JL, et al. Nonimpact of decolonization as an adjunctive measure to contact precautions for the control of methicillin-resistant Staphylococcus aureus transmission in acute care. *Antimicrob Agents Chemother*. 2016 Jan;60(1):99-104. [PubMed: PM26459898](#)
18. Sporer SM, Rogers T, Abella L. methicillin-resistant and methicillin-sensitive Staphylococcus aureus screening and decolonization to reduce surgical site infection in elective total joint arthroplasty. *J Arthroplasty*. 2016 Sep;31(9 Suppl):144-147. [PubMed: PM27387479](#)
19. Baratz MD, Hallmark R, Odum SM, Springer BD. Twenty percent of patients may remain colonized with methicillin-resistant Staphylococcus aureus despite a decolonization protocol in patients undergoing elective total joint arthroplasty. *Clin Orthop Relat Res*. 2015 Jul;473(7):2283-2290. [PubMed: PM25690169](#)
20. Finnell SM, Rosenman MB, Christenson JC, Downs SM. Decolonization of children after incision and drainage for MRSA abscess: a retrospective cohort study. *Clin Pediatr (Phila)*. 2015 May;54(5):445-450. [PubMed: PM25385929](#)

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[PubMed: PM25882709](#)
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[PubMed: PM26688720](#)
24. Sasi SP, Sistla SC, Sistla S, et al. Decolonisation of MRSA and its effect on surgical site infections--a study in a tertiary care institute. *Int J Clin Pract*. 2015 Mar;69(3):366-374.
[PubMed: PM25652576](#)
25. Kohler P, Bregenzer-Witteck A, Rettenmund G, Otterbech S, Schlegel M. MRSA decolonization: success rate, risk factors for failure and optimal duration of follow-up. *Infection*. 2013 Feb;41(1):33-40.
[PubMed: PM22782694](#)
26. Mehta S, Hadley S, Hutzler L, Slover J, Phillips M, Bosco JA, 3rd. Impact of preoperative MRSA screening and decolonization on hospital-acquired MRSA burden. *Clin Orthop Relat Res*. 2013 Jul;471(7):2367-2371.
[PubMed: PM23423618](#)
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28. Kang YC, Tai WC, Yu CC, Kang JH, Huang YC. Methicillin-resistant *Staphylococcus aureus* nasal carriage among patients receiving hemodialysis in Taiwan: prevalence rate, molecular characterization and de-colonization. *BMC Infect Dis*. 2012 Nov 1;12:284.
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29. Krespi YP, Kizhner V. Laser-assisted nasal decolonization of *Staphylococcus aureus*, including methicillin-resistant *Staphylococcus aureus*. *Am J Otolaryngol*. 2012 Sep-Oct;33(5):572-575.
[PubMed: PM22503099](#)

Guidelines and Recommendations

30. Jardine M, Commons R, de Zoysa J, et al. KHA-Cari guideline recommendations for infection control for haemodialysis units. *Nephrology (Carlton, Vic)*. 2018 Oct 16.
[PubMed: PM30328179](#)

Clinical Practice Guidelines - Methodology Unspecified

31. Methicillin-resistant *Staphylococcus aureus* (MRSA) – acute care. Saskatoon (SK): Saskatchewan Health Authority; 2016:
<https://www.saskatoonhealthregion.ca/about/IPColicies/40-110.pdf>. Accessed 2019 Jan 21.
32. Guidance for the decolonisation of methicillin resistant *Staphylococcus aureus*: a guide for healthcare professionals. Hobart (Australia): Tasmanian Government, Department of Health and Human Services; 2015: <https://www.dhhs.tas.gov.au/>

Additional References

33. Summary of a systematic review on decolonization with mupirocin ointment with or without chlorhexidine gluconate body wash for the prevention of *Staphylococcus aureus* infection in nasal carriers undergoing surgery. (*WHO surgical site infection prevention guidelines*). Geneva (Switzerland): World Health Organization; 2016:
<https://www.who.int/gpsc/appendix3.pdf?ua=1>. Accessed 2019 Jan 21.