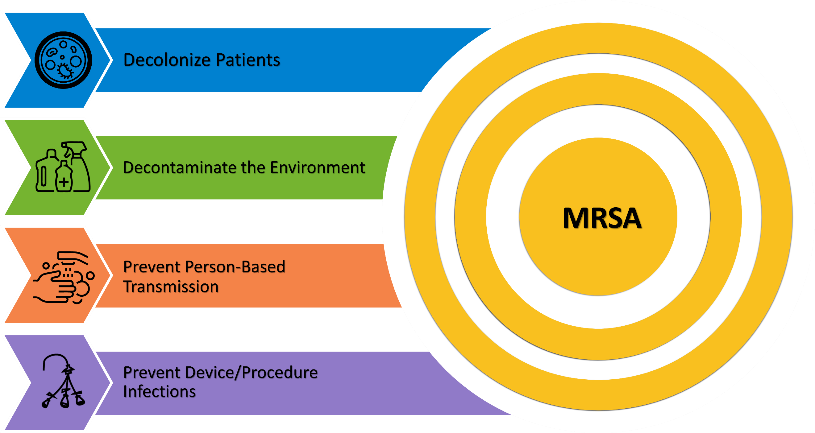
Methicillin-resistant *Staphylococcus aureus* (MRSA) is spread through direct contact, from person to person, or indirect contact, by touching something in the environment that was previously contaminated. Contact precautions, a type of transmission-based precaution, are used to reduce the risk of person-based transmission of pathogens such as MRSA. Contact precautions for MRSA include the use of a gown and gloves by healthcare personnel during contact with a patient with MRSA and/or potentially contaminated areas in the patient’s environment. Placement of the patient in a single-patient room is preferred.

Contact precautions are typically used as part of **a MRSA prevention bundle**—including not only contact precautions, but also hand hygiene promotion, adherence to standard precautions, MRSA surveillance to identify which patients require contact precautions, environmental cleaning and disinfection, and decolonization strategies.1,2

More information on **the four key strategies to take aim and target MRSA**—decolonizing patients, decontaminating the healthcare environment, preventing person-based transmission, and preventing device- and procedure-associated infections—can be found on [**The 4 Key Strategies of MRSA Prevention**](https://www.ahrq.gov/hai/tools/mrsa-prevention/toolkit/key-strategies.html) and [**Contact Precautions**](https://www.ahrq.gov/hai/tools/mrsa-prevention/toolkit/contact-precautions.html) pages of the Toolkit website.

Current Centers for Disease Control and Prevention guidance and SHEA/IDSA/APIC practice recommendations for MRSA prevention in acute care hospitals include use of contact precautions for patients colonized and infected with MRSA.1,3 A brief summary of the rationale for and the evidence regarding the use of contact precautions for patients with MRSA is provided below.

# Rationale and Evidence Regarding the Use of Contact Precautions for MRSA Prevention

* Observational studies have demonstrated that MRSA frequently contaminates the environment of hospital patients who are colonized or infected with MRSA and that healthcare personnel become contaminated with MRSA in approximately 16 percent of interactions with such patients and/or their environment.4-8 The odds of healthcare personnel contamination vary widely among healthcare personnel types, activities performed, and the items and surfaces touched. A recent simulation study found that, in the absence of hand hygiene, healthcare personnel who become contaminated with MRSA may frequently transmit MRSA to subsequent patients.8 The use of gown and gloves is intended to reduce the risk of healthcare personnel contamination and subsequent forward transmission of MRSA.
* Many single-center, observational studies have reported successful control of MRSA, often in outbreak settings, after the introduction of contact precautions and a variety of other interventions. Because multiple interventions were often introduced simultaneously, the impact attributable to any single intervention, such as contact precautions, cannot be determined from such studies.
* Additional studies have attempted to more rigorously evaluate the impact of contact precautions on MRSA transmission in hospitals.
* The STAR\*ICU trial was a 6-month, cluster-randomized trial of active surveillance and expanded barrier precautions for the prevention of MRSA and vancomycin-resistant enterococci (VRE) transmission in adult intensive care units (ICUs).9  Intervention units implemented universal gloving for all patient contact until results of active surveillance tests for MRSA and VRE were known. Contact precautions were implemented for patients found to be colonized with MRSA or VRE. No change in the incidence of MRSA or VRE colonization was observed. The authors noted, however, that adherence to the use of contact precautions and universal gloving was less than required.
* A retrospective study observed reductions of 62 percent and 45 percent in healthcare-associated MRSA infections in ICUs and non-ICUs, respectively, in association with the introduction of a “MRSA bundle,” consisting of active surveillance testing for MRSA, contact precautions, hand hygiene, and institutional culture change, across Veterans Affairs hospitals nationwide.2 Rates of MRSA transmission were noted to decrease by 17 percent and 21 percent, respectively, after the bundle was implemented. A subsequent mathematical modeling study estimated that contact precautions reduced MRSA transmission by 47 percent over a 10-year period.10
* The BUGG study was a cluster-randomized trial of the effectiveness of universal gown and glove use for all patient contact in 20 ICUs.11 The study did not show a difference in the primary outcome of MRSA and VRE acquisition combined, but a significant decrease in MRSA acquisition, a secondary outcome of the study, was observed. A subsequent mathematical modeling study using data from the BUGG study estimated that 44 percent of the observed reduction in MRSA acquisition was due to the use of gowns and gloves.12
* Several hospitals have reported outcomes observed after discontinuation of routine use of contact precautions for MRSA. In these observational studies, increases in hospital-acquired MRSA infections were not identified. Of note, prior studies have reported that patients often do not develop MRSA infection until after discharge.13 Studies reported to date have not included assessment of post-discharge MRSA infections after discontinuation of contact precautions. Additionally, most studies have not assessed the impact of discontinuation of contact precautions on MRSA transmission. However, two small, single-center observational studies did not detect an increase in MRSA transmission after discontinuing contact precautions.14,15
* The potential for unintended consequences and adverse outcomes associated with the use of contact precautions has been evaluated in several studies.
* A systematic review of observational studies published in 2009 found an association between contact precautions and reduced patient-healthcare worker contact, changes in care that contribute to delays and non-infectious adverse events (e.g., falls, pressure injuries), increased symptoms of depression and anxiety, and decreased patient satisfaction.16
* Adverse outcomes have not been identified in some more recent, higher-quality studies. The cluster-randomized BUGG study reported that universal gown and glove use decreased the frequency of healthcare personnel entry into patient rooms but had no significant impact on the rate of adverse events.11 A study that evaluated patients’ mental state upon entering the study found patients no more likely to develop depression, anxiety, or negative moods while on contact precautions.11,17

# Interpretation of the Literature

The conflicting and incomplete data contribute to a range of interpretations and opinions regarding if and how contact precautions should be used for prevention of MRSA transmission in acute care hospitals. This has led to a variety of practices in U.S. hospitals, from use of contact precautions for all patients with MRSA to complete discontinuation of the use of contact precautions for MRSA. A third proposed approach is a “risk-based” strategy for use of contact precautions, where gowns and gloves are used in situations and settings within a hospital where the risk of contamination of healthcare personnel is greatest, potentially optimizing the benefits and minimizing potential risks and resource utilization.1,18

While current practice recommendations include the use of contact precautions for all patients known to be infected or colonized with MRSA as an essential practice for all hospitals, the recommendations provide considerations for modification of the use of contact precautions in hospitals that have strong horizontal infection prevention practices (e.g., hand hygiene, decolonization) and neither ongoing MRSA outbreaks nor high or increasing rates of MRSA infection.1 Prior to modifying the use of contact precautions for some or all MRSA-colonized or MRSA-infected patients, such hospitals are encouraged to conduct a thoughtful MRSA risk assessment to determine the potential benefits and risks associated with contact precautions within the specific context of the hospital and its patient populations. Hospitals that choose not to use contact precautions for some or all patients with MRSA are encouraged to monitor for changes in rates of MRSA infection and/or transmission.

# Summary

As part of a larger MRSA control program, contact precautions are recommended for patients in acute care hospitals who are colonized or infected with MRSA. Discontinuation of use of contact precautions for some or all MRSA-colonized or MRSA-infected patients may be considered in locations or patient populations where the risk and outcomes of MRSA transmission are determined to be low. MRSA infection and/or transmission rates should be monitored closely if the use of contact precautions is discontinued. It is important to review the references below and continue to follow new published evidence and guidelines related to this topic.

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