Things We Do For No Reason: Contact Precautions for MRSA and VRE

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Background

Contact precautions (CP) for patients with methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant Enterococcus (VRE) infections are common in several hospitals. CP pose a significant burden to health systems, with an estimated 20%-25% of hospitalized patients on CP for MRSA or VRE alone.1 CP are becoming increasingly more prevalent with state laws and the Veterans Affairs (VA) hospital system requiring active surveillance cultures (ASC) and subsequent CP when ASC are positive.2

WHY YOU MIGHT THINK CONTACT PRECAUTIONS ARE HELPFUL FOR MRSA AND VRE?

Supporters highlight the utility of CP in preventing the spread of infection, controlling outbreaks, and protecting healthcare workers from certain transmissible diseases. The Centers for Disease Control and Prevention (CDC) recommended CP after prior studies demonstrated their effectiveness during outbreaks of transmissible infections.3 CP were included in bundles alongside interventions such as improving hand hygiene, chlorhexidine gluconate (CHG) bathing, and ASC with targeted or universal decolonization.2 The VA MRSA bundle, for example, demonstrated a reduction of healthcare-associated MRSA in the ICU by 62% after implementation. The Society for Healthcare Epidemiology of America Research Network (SHEA) and the Infectious Diseases Society of America (IDSA) recommend CP for MRSA-infected and colonized patients in acute care settings to control outbreaks.4,5 The CDC also has broad recommendations supporting CP for all patients infected and previously identified as being colonized with target multidrug-resistant organisms (MDROs) without identifying which are considered to be “targets.”

WHY CONTACT PRECAUTIONS MAY NOT BE HELPFUL FOR MRSA AND VRE

Despite current guidelines, cluster-randomized trials have not shown a benefit of initiating CP over usual care for the prevention of acquiring MRSA or VRE in the hospital. One study demonstrated no change in MRSA and VRE acquisition with broad screening and subsequent CP.7 Another study evaluated a universal gown and glove policy in an ICU setting and found a reduction in MRSA acquisition, but no reduction in VRE acquisition.8 A third study investigated hand hygiene and daily CHG bathing and noted a reduction in MRSA transmission rates, where CP for screened colonized patients had no effect on transmission of MRSA or VRE.9

In addition, a prospective trial at a large academic center over two six-month intervals utilized universal gloving with emollient-impregnated gloves compared with CP and found no difference in MRDO acquisition. Universal gloving was associated with higher hand hygiene rates than CP.10 Another more recent retrospective observational study compared universal contact precautions (UCP) in ICUs to a historical nine-year baseline and concurrently to other nonuniversal CP ICUs. There was no significant decrease in MRDOs during the UCP period compared with baseline or with non-UCP units.11

Further interest in and scrutiny of CP prompted a recently published meta-analysis of 14 studies in which CP were eliminated. The rates of transmission of MRSA, VRE, or other MDROs studied were not impacted by discontinuation.12 One of the studies included two large academic medical centers and assessed the impact of discontinuing CP for endemic MRSA and...
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VRE. The bundled intervention included the discontinuation of CP for all carriers of MRSA and VRE, except patients with draining wounds, maintaining high hand hygiene rates, and CHG baths for nearly all patients. There was no significant increase in transmission rates, and the intervention saved the health system an estimated $643,776 and 45,277 hours per year in healthcare worker time previously spent on donning and doffing personal protective equipment. Another large academic hospital published a time series approach of seven interventions to reduce healthcare-associated infections and noted no increase in MRSA or VRE transmission when CP were discontinued when combined with other horizontal preventions. Results were found to be similar in a high-risk population of patients with hematologic malignancies and hematopoietic stem cell transplantation, where both surveillance and CP for VRE were discontinued and did not impact the rates of VRE bacteremia.

WHY CONTACT PRECAUTIONS MAY BE HARMFUL

Multiple studies have examined the deleterious effects of CP, including a comprehensive systematic literature review of various adverse outcomes linked with CP. CP decrease the amount of time that healthcare workers (HCW) spend with patients, create delays at admission and discharge, increase symptoms of anxiety and depression in patients, and decrease patient satisfaction with care. In a study conducted at the Cleveland Clinic Hospital, physician communication, staff responsiveness, patients’ perception of cleanliness, and their willingness to recommend the hospital on the Hospital Consumer Assessment of Healthcare Providers and Systems survey were lower in each category for patients on CP when compared with patients not on CP. Patients who are on CP are six times more likely to experience an adverse event in the hospital, including falls and pressure ulcers. A recent study from a large academic medical center demonstrated that noninfectious adverse events were reduced by 72% after discontinuing CP for MRSA and VRE. These events included postoperative respiratory failure, hemorrhage or hematoma, thrombosis, wound dehiscence, pressure ulcers, and falls or trauma.

The financial costs of unnecessary CP have also been studied. A recent retrospective study examining a large cohort of patients on CP for MRSA demonstrated that when compared with nonisolated patients, those on MRSA CP had a 30% increase in length of stay and a 43% increase in costs of care. Patients isolated for MRSA were 4.4% more likely than nonisolated individuals to be readmitted within 30 days after discharge, unrelated to MRSA. These data contribute to the growing evidence that a conscientious, patient-centered approach to CP is preferred to CP when it is appropriate to discontinue CP.

WHAT YOU SHOULD DO INSTEAD

Horizontal prevention aims to reduce the burden of all microorganisms. This includes techniques such as hand hygiene, antimicrobial stewardship, CHG bathing, and environmental cleaning methods to decrease colonization of all MDROs in hospital rooms. Compared with vertical prevention strategies that use active surveillance testing for colonization and CP, horizontal interventions are the most effective means to reduce transmission of MDROs. The simplest and the most well-studied method for reducing transmission of all organisms in the hospital remains hand hygiene. High institutional hand hygiene rates of at least 90% are critical to the success of any initiative that seeks to eliminate CP.

CHG bathing has also been studied across multiple patient settings for reducing MRSA and VRE acquisition, catheter-associated urinary tract infections, and central line-associated bacterial infections. In addition, hospital-wide daily CHG bathing has been associated with decreased C. difficile infection, and the baths were well tolerated by patients.

SHEA recently released recommendations for timing of discontinuation of CP for patients with MDROs and emphasized that hospital systems must take an individual approach to discontinuing CP that takes into account local prevalence, risk, and resources. The decision to not place a patient on CP is one side of this high-value coin. The other side is knowing when it is appropriate to discontinue CP.

RECOMMENDATION

- Discontinue the use of CP for MRSA and VRE in hospitals with low endemic rates and high hand hygiene compliance.
- Improve horizontal preventions by promoting hand hygiene, antimicrobial stewardship, and considering CHG bathing for all patients.
- Create a systematic approach to discontinuing CP and compare transmission of MRSA and VRE rates through microbiology surveillance before and after discontinuation.

CONCLUSION

In addition, there are other commonly encountered organisms for which CP should be continued. CP should be used for active Clostridium difficile infection to prevent transmission. Due to the paucity of data regarding prevention of novel and highly resistant organisms and the complexity in treating these MDROs, it is reasonable to initiate CP in these cases. Examples include active infection with multidrug resistance, including carbapenem-resistant Enterobacteriaceae, highly drug-resistant Pseudomonas aeruginosa, and other emerging MDROs such as vancomycin-resistant or -indeterminate S. aureus (VRSA or VISA) and Candida auris. Limiting CP to instances where there is clear evidence to support will ensure patient safety and limit the harms associated with CP.

WHEN CONTACT PRECAUTIONS SHOULD BE USED FOR MRSA AND VRE

Contact precautions for MRSA and VRE should be used to interrupt transmission during uncontrolled outbreaks, and in patients with open wounds, uncontained secretions, or incontinent diarrhea.
with increased rates of patient adverse events. Hospitalists can lead the effort to ensure optimal hand hygiene and work with local infection control teams to reevaluate the utility of CP for patients with MRSA and VRE.

Do you think this is a low-value practice? Is this truly a “Thing We Do for No Reason?” Share what you do in your practice and join in the conversation online by retweeting it on Twitter (#TWDFNR) and liking it on Facebook. We invite you to propose ideas for other “Things We Do for No Reason” topics by emailing TWDFNR@hospitalmedicine.org.

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References