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Things We Do For Good Reasons: Contact Precautions for Multidrug-resistant Organisms, Including MRSA and VRE

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Contact precautions (CP), the use of gowns and gloves as personal protective equipment when caring for patients who are colonized or infected with one or more multidrug-resistant organisms (MDROs), is an important infection prevention intervention utilized to prevent pathogens from being transmitted among patients in healthcare settings. Recently, certain healthcare facilities have taken steps to limit the use of CP for patients colonized or infected with MDROs that are considered to be endemic, namely methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant Enterococci (VRE). In this issue of the *Journal of Hospital Medicine*, authors Young et al. argue that CP for MRSA and VRE is an intervention that should be eliminated as part of the “Choosing Wisely” campaign because it is a “thing we do for no reason.”¹ We respectfully disagree with this characterization of CP for MRSA and VRE, and we assert instead that CP are a necessary practice that should be continued.

Young et al. refer to published studies and a recent meta-analysis that did not conclusively show a benefit of CP for MRSA and VRE.² The quasi-experimental studies cited have major methodological flaws that limit their ability to demonstrate the effect of CP. Most importantly, these studies fail to account for the fact that among patients who develop an infection following hospital-acquired MRSA colonization, approximately 70% of the infections are identified after discharge.³ When such studies do not restrict their outcome measure to include only those infections occurring among patients with hospital-acquired colonization, and do not take steps to accurately identify postdischarge infections that occur in such patients, their results are biased toward the null and difficult to interpret. Due to several serious challenges to study feasibility, including the need for an extremely large sample size, a very long period of follow-up, and the need to control for a variety of other

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concurrent infection prevention measures, there may never be a study that conclusively proves that CP, apart from other infection prevention interventions, has a significant impact. However, despite these limitations, one of the recent multicenter randomized controlled trials, cited by the authors as evidence against the use of CP, was able to demonstrate a significant reduction in MRSA transmission using universal gowns and gloves for all intensive care unit patients, even in sites that utilized other effective strategies, including chlorhexidine bathing.^{4,5}

In this issue of the *Journal of Hospital Medicine*, Young et al. acknowledge that CP are generally utilized as part of a comprehensive package of infection prevention approaches that also includes hand hygiene, environmental cleaning, antimicrobial stewardship, and evidence-based interventions to prevent device- and procedure-related infections. This multifaceted approach makes it more difficult to determine the attributable effect of CP alone. However, there is a strong rationale for using CP to prevent transmission, and there are numerous examples where the use of bundled approaches that include CP was associated with success. In the Netherlands, CP were part of an aggressive “search and destroy” approach to MRSA associated with almost total elimination of MRSA from hospitals in that country. The United Kingdom achieved an 80% decrease in MRSA bacteremia following a series of aggressive intervention policies designed to prevent MRSA transmission, including use of screening and CP.⁶ In the United States, the Veterans Affairs system utilizes this type of approach and reported a 62% decrease in MRSA rates. Subsequent analysis showed that the downward trend of hospital-onset MRSA infections was observed only among patients who were not carrying MRSA at the time of admission, suggesting that preventing transmission was an important contributor to the overall trends.^{7,8} More broadly, healthcare-associated MRSA rates in the United States have decreased dramatically over the past decade,^{9,10} a period during which more than 81% of hospitals reported using CP for patients colonized or infected with MRSA as part of the bundle of infection prevention approaches.¹¹ Given these decreases, and the potential role that CP played in achieving these results, we, along with others,¹² urge caution about the dangers of abandoning CP prematurely and without data to indicate that it is safe to stop.

Although some studies report adverse events associated with CP, including a reduced number of visits from healthcare personnel and increased anxiety and depression, these studies rarely control for important confounding variables such as the severity of illness or the presence of anxiety and depression at the time of hospital admission.^{13–15} The highest-quality evidence in studies that control for severity of illness and the presence of depression at the time of admission suggests that CP are not associated with an increased incidence of adverse events.^{16,17}

Interestingly, Young et al. acknowledge that CP are important and should be continued for patients infected or colonized with certain MDROs, including carbapenem-resistant Enterobacteriaceae, multidrug-resistant *Pseudomonas aeruginosa*, and *Candida auris*. They even suggest continuing CP for patients with certain types of antimicrobial-resistant *Staphylococcus aureus* isolates that are resistant or intermediate to vancomycin (Vancomycin-resistant *Staphylococcus aureus* [VRSA] or Vancomycin-intermediate *Staphylococcus aureus* [VISA]) and for which transmission has rarely been documented

in the United States. It is unclear why they believe that CP are indicated and useful to prevent transmission of these multidrug-resistant pathogens while advocating that CP are not useful or indicated to prevent transmission of MRSA and VRE. One must consider whether it makes sense to use such a selective approach to using CP for patients with some, but not all, MDROs.

The authors state that CP should be employed to help interrupt outbreaks and for patients with high-risk situations such as open wounds, uncontained secretions, or incontinent diarrhea. We agree that there is appeal to a risk-based approach in which CP are applied based on the likelihood that an individual patient may be carrying and shedding an MDRO. However, to our knowledge, there are no validated algorithms available for this purpose, and it appears likely that using such algorithms would result in an increase in the proportion of patients cared for using CP, rather than a decrease.

The use of CP when caring for patients colonized or infected with an MDRO is considered to be a standard of care. Based on experimental, clinical, and epidemiologic studies and a strong theoretical rationale, the use of CP is currently recommended by the U.S. Centers for Disease Control and Prevention (CDC), the Healthcare Infection Control Practices Advisory Committee (HICPAC),¹⁸ the Society for Healthcare Epidemiology of America (SHEA),¹⁹ and the Infectious Diseases Society of America.²⁰ Many healthcare facilities continue to employ CP for patients with a wide array of MDROs, including MRSA and VRE, and many infection prevention experts continue to support and utilize this approach. In response to the growing movement to discontinue CP, the CDC recently reaffirmed its support and recommendation for the use of CP when caring for patients colonized or infected with MRSA.²¹

In summary, a bundled, multifaceted approach to infection prevention and transmission of MDROs is extremely important, and we caution against stopping CP for MRSA and VRE before data are available on the potential harm of that approach. Study limitations make it difficult to demonstrate the individual contribution of CP, but CP are an important component of a comprehensive infection prevention MDRO bundle that has successfully reduced healthcare-associated MRSA. Well-designed studies that control for confounders such as the severity of illness at the time of admission suggest that CP are not associated with an increased incidence of adverse events. Currently available data do not support a selective approach to utilizing CP for some MDROs while not using CP for others. Current guidelines call for the use of CP for preventing MDRO transmission, including MRSA and VRE. Healthcare facilities need to focus on how to implement CP in a patient-centered manner, rather than abandoning CP for some MDROs.

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