

Patient Safety Tip of the Week

October 18, 2016

Yet More Questions on Contact Precautions

One of our recurrent themes has been unintended consequences of contact isolation precautions (see the list of our prior columns at the end of today's column). Previous research has shown that patients in contact isolation have less contact by healthcare workers (and visitors) and this may lead to errors and omissions in care and other unintended consequences like decubiti, delirium, falls, and fluid/electrolyte disorders among other preventable adverse events.

In our May 2016 What's New in the Patient Safety World column "[More Debate on Contact Precautions](#)" we noted that Morgan and colleagues at the University of Maryland, who have done much of the work we've previously cited on adverse consequences of contact isolation, have reconsidered contact precautions for endemic VRE and MRSA ([Morgan 2015](#)). They did a literature review, a survey of the SHEA Research Network members on use of contact precautions, and a detailed examination of the experience of a convenience sample of hospitals not using contact precautions for MRSA or VRE. They found that there is no high quality data to support or reject use of contact precautions for endemic MRSA or VRE and that hospital practices are widely varied. They concluded that higher quality research on the benefits and harms of contact precautions in the control of endemic MRSA and VRE is needed and that until more definitive data are available, practices in acute care hospitals should be guided by local needs and resources.

But not all studies have found more adverse events in patients on contact isolation. Two publications ([Croft 2015a](#), [Croft 2015b](#)) also came from the University of Maryland researchers and were part of a PhD dissertation ([Croft 2015c](#)). The first study ([Croft 2015a](#)) compared non-ICU hospital ward patients (medical and surgical) and found that preventable adverse events did not significantly differ between 148 patients on contact precautions on admission and 148 matched patients not on contact precautions. And hospital ward patients on contact precautions were less likely to experience noninfectious adverse events during their hospital stay than patients not on contact precautions. The second study ([Croft 2015b](#)) addressed patients in ICU's and found that In ICUs where healthcare workers donned gloves and gowns for all patient contact, patients were no more likely to experience adverse events than in control ICUs. Thus, concerns of adverse events resulting from universal glove and gown use were not supported. The authors suggest that similar considerations may be appropriate regarding use of contact precautions.

Consider also that adherence to all elements of contact isolation precautions has always been less than optimal. One study which did 1300 observations at 11 teaching hospitals found that compliance with all 5 recommended components (hand hygiene before and after patient encounter, donning of gown and glove upon entering a patient room, and doffing upon exiting) was only 28.9% ([Dhar 2014](#)). They also found that as the proportion of patients in contact isolation increases, compliance with contact isolation precautions decreases. Placing 40% of patients under contact precautions represented a tipping point for noncompliance with contact isolation precautions measures

So what is the current status of contact isolation precautions in the US and what changes might we expect? Russell and colleagues, acknowledging that the risk:benefit ratio of contact precautions for methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE) remains controversial and that use of interventions such as daily bathing with chlorhexidine gluconate have become more widespread, did a cross-sectional survey of physicians in the Emerging Infections Network ([Russell 2016](#)). Over 90% of respondents routinely use contact precautions for MRSA and VRE, with the most widely used trigger being a positive culture for these pathogens. They found that 92% perform routine chlorhexidine gluconate bathing and 67% perform *S. aureus* decolonization with mupirocin for 1 or more subsets of inpatients. 23% reported using either hydrogen peroxide vapor or ultraviolet-C room disinfection at discharge. But practices for discontinuation of isolation varied widely. They also noted that free text responses frequently conveyed frustration and variation in the application, practice, and process for initiation and discontinuation of contact precautions. They conclude that the heterogeneity of practices and policies was striking and that evidence-based guidelines regarding contact precautions and other interventions are needed.

And now several studies have suggested that elimination of contact isolation precautions may not be detrimental. Edmond and colleagues ([Edmond 2015](#)) found that discontinuation of contact precautions for patients with MRSA and VRE colonization/infection had no impact on device-associated hospital-acquired infection rates in an academic medical center. And in a hematology-oncology unit with a high prevalence of VRE colonization the incidence of VRE bacteremia remained stable after discontinuation of VRE surveillance and contact precautions ([Almyroudis 2016](#)). Aggregated antibiotic utilization and nursing hours per patient days were similar between the 2 study periods.

It will, of course, be difficult to do a randomized controlled trial to determine whether contact precautions achieve beneficial outcomes that exceed any unintended negative consequences. But a new before/after study suggests that doing away with contact precautions may not be harmful. Martin and colleagues ([Martin 2016](#)) analyzed laboratory-identified clinical culture rates 1 year before and after routine contact precautions for endemic MRSA and VRE were discontinued and chlorhexidine bathing was expanded to all units at 2 California hospitals. Discontinuing routine contact precautions for endemic MRSA and VRE did not result in increased rates of MRSA or VRE after 1 year. Of course, this was not a randomized controlled trial. And the

concurrent chlorhexidine intervention is a confounding factor. But the results are still strongly suggestive that routine contact precautions may not be necessary.

Moreover, the financial savings to the hospital from elimination of routine contact precautions in the Martin study were substantial. When combining isolation gown and chlorhexidine costs, the health system saved \$643,776 in 1 year. Considering average room entries and donning time, estimated nursing time spent donning personal protective equipment for MRSA/VRE before the change was 45,277 hours/year (estimated cost, \$4.6 million). They conclude that with cost savings on materials, decreased healthcare worker time, and no concomitant increase in possible infections, elimination of routine contact precautions may add substantial value to inpatient care delivery.

Another recent study demonstrated that flagging patients has having MRSA/VRE can lead to unwanted hospital operational consequences ([Shenoy 2016](#)). Shenoy and colleagues performed a retrospective cohort study at the Massachusetts General Hospital and found that MRSA/VRE designation was associated with delays in time to bed arrival, increased likelihood of acuity-unrelated within-hospital transfers and extended length of stay. They conclude that efforts to identify patients who have cleared MRSA/VRE colonization are critically important to mitigate inefficient use of resources and to improve inpatient flow.

So you should consider all the above in developing your policies on contact precautions. Decisions about who and when to use contact precautions should be made considering the potential benefits and potential harms, the clinical scenarios and epidemiology. Such decisions could be made on a case-by-case basis in most circumstances and you need to consider both healthcare workers and visitors (see our May 2016 What's New in the Patient Safety World column "[More Debate on Contact Precautions](#)" regarding visitors). You may want to audit your current compliance with contact precautions. If you do implement contact precautions, make sure that your care plans include appropriate interventions and monitoring to ensure that patients on contact precautions get all their medical and psychological needs met. And pay careful attention to developing criteria and mechanisms for discontinuation of such precautions.

Some of our prior columns on the unintended consequences of contact isolation:

- January 17, 2012 "[Delirium and Contact Isolation](#)"
- March 25, 2008 "[More on MRSA](#)"
- January 2013 "[More on the Downside of Contact Isolation](#)"
- April 29, 2014 "[More on the Unintended Consequences of Contact Isolation](#)"
- May 2016 "[More Debate on Contact Precautions](#)"

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