Patient Safety Tip of the Week

April 29, 2014

More on the Unintended Consequences of Contact Isolation

An elderly nursing home resident with diabetes and dementia was admitted to an acute care facility because of a UTI and hyperosmolar state with increased confusion. Because of the presence of MRSA on a previous admission the patient was placed on isolation and contact precautions. She subsequently developed delirium and a sacral decubitus. Though she eventually recovered enough to return to the nursing home, her acute care hospitalization was prolonged and costs were over $50,000.

We've done a few columns on the unintended consequences of contact isolation precautions (see the list at the end of today's column). Would the above patient still have developed the decubitus and delirium had she not been put on isolation and contact precautions? We'll never know for sure. But we do know that less contact by healthcare workers (and visitors) with patients in contact isolation leads to errors and omissions in care and other unintended consequences.

A new study used location tracking via RFID chips embedded in hospital ID badges to compare the amount of time interns spent with patients in contact isolation vs those not in contact isolation (Dashiell-Earp 2014). They found that interns, on average, spent 5.2 minutes per day with their patients in contact isolation vs. 6.9 minutes in those not in isolation ($p < 0.001$).

We and the authors of that study are surprised at the low number of minutes per day that interns spend in direct contact with even their non-isolation patients. Nevertheless, the study again validates previous studies that patients having contact isolation precautions have reduced contact with their physicians.

We've discussed some of the unintended consequences of contact isolation in prior Patient Safety Tips of the Week (January 17, 2012 "Delirium and Contact Isolation" and March 25, 2008 "More on MRSA") and our January 2013 What's New in the Patient Safety World column "More on the Downside of Contact Isolation". Kirkland and Weinstein (Kirkland 1999) found that healthcare workers who treated patients in contact

isolation entered their rooms less frequently and had significantly less direct contact with them. Saint et al. (2003) found that attending physicians in two teaching hospitals were about half as likely to examine patients in contact isolation. Another study (Stelfox et al. 2003) showed that isolated patients are twice as the likely as control patients to suffer an adverse event during hospitalization. The difference was primarily due to **preventable** adverse events and included events such as falls, decubiti, and fluid/electrolyte disorders. In fact, the latter events were **8 times more likely** in isolated patients. They also had a cohort of congestive heart failure patients in isolation and these patients were much less likely to have certain interventions and evidence-based care than a control group of congestive heart failure patients. And we have all seen that patients in contact isolation often do not get services such as active rehabilitation that they might get were they not in isolation. A review of the literature (Morgan 2009) found 15 studies relating to adverse outcomes of contact isolation and identified these in four main themes: less patient-healthcare worker contact, changes in systems of care that produce delays and more noninfectious adverse events, increased symptoms of depression and anxiety, and decreased patient satisfaction with care. The University of Maryland group (Morgan 2011) had also previously poor adherence to core measures for patients on contact isolation. And another study from the University of Maryland (Day 2012) found that delirium was 75% more common in patients who are put into contact isolation during admission (as opposed to those placed in contact isolation at the time of admission).

Our January 2013 What's New in the Patient Safety World column "More on the Downside of Contact Isolation" highlighted another study from the researchers at the University of Maryland (Morgan 2013) further quantifying some of the impact of contact precautions on patient care. Patients on contact precautions had 36.4% fewer hourly visits by healthcare workers (HCW's) than patients not on contact precautions (2.78 vs 4.37 visits per hour). They also had 17.7% less direct patient contact time with HCWs (13.98 vs 16.98 minutes per hour). The latter difference, however, was largely accounted for by patients who were not in ICU's (those in ICU's did not have a significant difference in contact time with HCW's). Those on contact precautions also had 23.6% fewer visitors.

These studies all reinforce the observation that patients in contact isolation (particularly those in non-ICU settings) have considerably reduced contacts and contact time with both providers and visitors, likely increasing the potential for more adverse events.

The process used at some hospitals of cohorting patients with MRSA may also raise their risk of reacquiring MRSA (or other multiple drug resistant organisms).

One factor often not considered in studies on the impact of contact isolation is the **duration of the isolation**. While guidelines for putting a patient in isolation are available, there are few evidence-based guidelines for discontinuation of contact isolation, resulting in widespread variability of hospital protocols for discontinuation of contact precautions (Shenoy 2012). Many patients are kept on isolation and contact precautions unnecessarily because they never complete the screening criteria (Pegues 2013).

To evaluate the impact of passive vs. active MRSA screening on contact precaution discontinuation, researchers at the Massachusetts General Hospital did a randomized trial (Shenoy 2013). One arm received the local standard of care (which relied upon identifying candidates at risk for MRSA and getting 3 negative cultures 24 hours apart before discontinuing contact precautions) and the other received active screening with study staff immediately taking a nasal swab for culture and one for PCR (polymerase chain reaction) testing for MRSA, repeated on subsequent days. Patients in the active intervention arm had their contact precautions discontinued over 4 times more frequently than those in the passive (standard care) arm. Moreover, screening with the PCR technique revealed excellent sensitivity, specificity, and positive and negative predictive values. The number of contact precaution days avoided was substantial in the active screening arm. In particular, the strategy of active screening with PCR resulted in a **55% reduction in patient days on contact precautions**. Though PCR testing is more expensive than cultures on a per test basis, the resultant avoidance of precaution days resulted in an estimated annualized savings of over $1.5 million for the hospital.

Both the authors of the MGH study (Shenoy 2013) and the accompanying editorial (Pegues 2013) suggest that use of electronic alerts and clinical decision support tools might help get more patients screened appropriately and promptly, thereby improving the effectiveness of such screening programs and avoiding more unnecessary days in contact isolation.

A 2010 systematic review of the adverse effects of contact isolation (Abad 2010) noted all of the unintended consequences noted above but also stressed that patients on contact isolation are generally more dissatisfied with their care. Those authors stress the importance of good communication with such patients and preparing them emotionally prior to isolation.

Make your decisions wisely about who and when to use contact isolation and make sure you appropriately assess the need for continued isolation. But make sure that your care plan includes appropriate interventions and monitoring to ensure that patients on contact isolation get all their medical and psychological needs met.

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"

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