

Editorial

New Isolation Strategies: Is There a Need?

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See also pages 329 and 335.

Category-specific isolation, body substance isolation, disease-specific isolation, drainage/secretion precautions, enteric precautions, resistant-organism precautions, universal precautions, tuberculosis precautions: Can anybody other than aficionados keep these systems straight without a scorecard? What confusion have we wrought on the ordinary healthcare worker, especially those without special expertise in infection control but on whom we rely to carry out isolation policy? Are we creating isolation systems too complex, specific, and confusing to meet the basic needs of our healthcare system? Indeed, have we even confused ourselves by inventing new isolation systems when a careful reading of existing recommendations suggests that with minor updating, vigilant implementation of those guidelines would be sufficient?

In this issue, two groups present articles favoring additional modification of standard Centers for Disease Control and Prevention (CDC) isolation practices and recommendations. Patterson et al¹ address concerns of antibiotic-resistant organisms and argue for new special organism precautions with extra attention to the environment. On a different front, the consequences of lost employee time after varicella exposures have lead Haiduven et al² to suggest abandoning the practice of excluding exposed nonimmune employees from clinical duties during the incubation period by allowing them to work while wearing masks.

As we continue to experience the spread of multiply-resistant pathogens in our hospitals, it is easy to point to the now-dated CDC *Guidelines for Isolation Precautions in Hospitals*³ and wonder if they are sufficient to handle these problems. After all, the CDC

document does not even mention vancomycin-resistant *Enterococcus faecium* (VREF) nor does it address the problems posed by *Clostridium difficile*.

Nevertheless, while certainly in need of an update, the CDC guideline for isolation is a remarkably comprehensive system based on the simple rationale that identification of the pathogen, its source, and the mode of transmission will suggest logical means to prevent spread. Yet despite the satisfying logic, there are weaknesses in this approach. The 1983 CDC system did not take into account some of the practical problems faced by infection control practitioners in clinical settings. We often do not know the identity or even suspect the presence of a colonizing pathogen of nosocomial significance when a patient arrives at the hospital. Universal precautions for bloodborne pathogens were adopted by the CDC just for these reasons.⁴ Certainly these concerns are well known to the proponents of the body substance isolation (BSI) system, which purports to solve this dilemma.⁵ Unfortunately, the BSI system pays for its simplicity by failing to emphasize the education of healthcare staff regarding transmissibility of nosocomial pathogens. And, despite its claim of simplicity, there is still a need for supplemental isolation categories to accommodate pathogens spread by routes other than direct contact with body substances.

The BSI system requires additional measures to prevent transmission of organisms via droplet nuclei, droplets, or even contact with dry skin or contaminated environmental surfaces. Thus, even a system that was designed to limit the need to educate healthcare staff in the nuances of disease transmission fails without such teaching. We could put an end to much of the confusion if the next revision of the CDC

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94-ED-021. O'Rourke E. New isolation strategies: is there a need? *Infect Control Hosp Epidemiol* 1994;15:300-302.

TABLE
COMPARISON OF CDC CONTACT PRECAUTIONS AND SPECIAL ORGANISM ISOLATION

	CDC Contact Precautions	Special Organism Isolation
Private room	Yes, when possible; cohorting permitted	Yes, when possible; cohorting permitted
Barrier	Gloves for contact with infectious material; gowns if soiling is likely; routine handwashing after touching patient or potentially contaminated articles	Gloves and gowns for all patient contact
Equipment	Disinfect equipment between patients	Equipment assigned exclusively to patient
Cleaning	"Routine" daily cleaning	Daily cleaning with germicide

guidelines incorporates the basic tenet of BSI, using gloves for contact with all body substances, as an acknowledgment that in the real world of infection control often we do not know all we would like about the presence of potential pathogens. We then could get on with the business of promoting understanding of infectious nosocomial hazards and ensuring compliance with preventive measures by healthcare staff.

In response to VREF and a particularly resistant strain of *Acinetobacter anitratus*, Patterson et al¹ have developed a category of precautions they term *special organism isolation* (Fable). In considering this proposed special organism category, several questions need to be addressed. First, how does this new category differ from the standard CDC contact precautions? Second, is this new precaution category necessary to limit spread of pathogens such as VREF, *C difficile*, and gram-negative bacteria? Finally, does the new category simplify or complicate the efforts to educate and ensure compliance with precautions by hospital staff and visitors?

Contrasting the proposed special organism precautions with the standard CDC contact precaution guidelines is revealing. There are few differences as long as one promotes adherence to the general guidelines spelled out for CDC isolation precautions along with the category-specific or disease-specific isolation. The 1983 CDC guidelines do address the isolation of patients with antibiotic-resistant pathogens. A general statement suggesting contact isolation is made along with other general practice recommendations such as requirements for a single room or cohorting. Environmental controls such as routine and terminal cleaning are not addressed explicitly under each organism but are discussed in the preamble on isolation techniques.

The special organism isolation category proposed in this issue simply appears to make more explicit some general cleaning topics and requires gloving for all contact. If we assume gloving for contact with infectious material and adequate hand-

washing before leaving the room, one might reasonably conclude that there is no substantial difference between the CDC contact isolation for a multiply-resistant organism and the proposed special organism isolation.

I have no argument with Patterson's challenge to focus more of our attention on the probability that patients contaminate their inanimate environment. A weakness in applying the current CDC guideline for contact precautions for pathogens such as VREF and *C difficile* or even respiratory syncytial virus in infants is that, based on current knowledge, "contact with infectious material" must be interpreted to include any part of the patient as well as contaminated environmental surfaces. Additional information also must be taken into consideration on organisms whose mechanism of spread was not well delineated at the time the original CDC guidelines were developed. New understanding of mechanisms of spread for organisms such as VREF, *C difficile*, *Enterobacter cloacae*, and *Candida krusei* may require changes in the way we approach environmental cleaning. Yet I do not think we need to confound our control efforts by accomplishing this via the introduction of a new precaution category.

Admittedly, it is difficult to study the effect of introducing a new precaution system. Patterson et al¹ describe only a few examples where this special isolation category had been used to control an outbreak of resistant bacterial disease. There undoubtedly was considerable extra attention and education from the infection control staff associated with the introduction of their new category. Would they have been just as successful with augmented educational efforts to ensure accurate and thorough implementation of traditional CDC contact precautions? Indeed, they describe VREF transmission on wards even after introduction of the special organism precautions system, so even the new system can fail. What evidence is there that modification of routine daily cleaning is needed? Was it the extra attention from infection

control or the special organism precautions that resulted in control of the spread?

The authors cite a *C difficile* outbreak example in a nursing home where the implementation of special organism precautions revealed that overbed tables were being shared between patients. Sharing was a direct violation of standard, plain vanilla CDC guidelines for contact isolation precautions. Did the nursing home staff, perhaps using a BSI system, simply not understand one of the basic principles of isolation precautions as taught by the CDC guidelines: that transmission by contact is not limited to direct contact but can involve indirect contact transmission, as with contaminated gloves, instruments, bedding, or other hospital equipment? Was this really a failure of the contact precaution isolation category or of its implementation? Should we develop new levels of precautions or put more effort into teaching the fundamentals and rationale for our current isolation precaution system?

Of course, the introduction of any new system does increase the educational effort as the infection control team educates healthcare staff regarding the rationale and protocols for the new system. But I am afraid it may be at the cost of burying the fundamental teaching points on transmission of nosocomial pathogens under the need to teach and understand new signage, protocols, and other housekeeping matters.

Patterson et al¹ have shown that, by giving special attention to outbreaks, they can control the nosocomial spread of several important pathogens. They do not give us any strong evidence that a new category of precautions is required. Attention to education of staff and enforcement of contact precautions as defined by the CDC might well have had the same outcome. And there is an important down side of a new isolation category to consider. Will the newly proposed special organism isolation category simply confuse healthcare workers further? Wouldn't we be better off putting effort into education and enforcement of existing guidelines? When resistant organisms are transmitted nosocomially, we must ask whether it is the isolation system itself or the implementation that has failed.

The second article addressing isolation systems offers a different type of challenge to traditional practice. We recognize the need to avoid loss of work time for employees after exposure to varicella, but is constant wearing of masks a workable, safe solution, and is it the only alternative?

After documenting rather lax compliance by some hospitals in their community with the CDC recommendations for exclusion of varicella-exposed nonimmune healthcare workers, Haiduven et al² developed a program to allow varicella-exposed nonimmune employees to work at normal duties while

masked. Although I sympathize with their goal of avoiding unnecessary disruption of hospital staffing and unwanted lost work hours, this strategy is questionable from several perspectives. First, is it really safe to assume that employees will wear masks constantly when these devices are almost universally regarded as uncomfortable and annoying? Will they change masks every 30 to 60 minutes or when the mask becomes moist? Second, will the message to employees be 'We no longer take varicella exposures as seriously'?"

Haiduven et al² describe their hospital's experience over 8 years with 134 varicella exposure incidents and 45 nonimmune employees who were masked from 10 to 21 days postexposure. They experienced no secondary cases of varicella, although four of the masked employees developed varicella. Although their experience has been positive so far, their numbers are too small to give great comfort, considering the consequences of failure. There may be safer and less onerous alternatives to sending an exposed employee on a mandatory varicella exposure furlough. Why not allow exposed staff to work in nonclinical areas with other immune employees? Most hospitals have need of chart review projects for clinical staff or duties outside clinical areas for nonclinical staff. There may be times or institutions when a masking protocol is appropriate, but I do not believe this strategy is a wise choice for the great majority of hospitals. Even minor risk of exposure to varicella in an oncology service, a neonatal ICU, or a transplant service really is not acceptable when incurred only to minimize the disruption of staff schedules caused by an exposure. We must be careful before accepting an increased risk to our vulnerable patients in the interest of avoiding what amounts no to more than confusion in staff scheduling. With any luck, the long-overdue varicella vaccine will increase options both for institutions and individuals to minimize the number of nonimmune employees.

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