CONCISE COMMUNICATION

Variability of Contact Precaution Policies in US Emergency Departments

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Online enhancement: questionnaire.

Contact precautions policies in US emergency departments have not been studied. We surveyed a structured random sample and found wide variation; for example, 45% required contact precautions for stool incontinence or diarrhea, 84% for suspected *Clostridium difficile*, and 79% for suspected methicillin-resistant *Staphylococcus aureus* infection. Emergency medicine departments and organizations should enact policies.

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More than 1 million healthcare-associated infections (HAIs) occur annually in the US.[1] HAIs cause substantial morbidity and mortality, with more than 100,000 deaths and $30 billion in healthcare expenditures per year.[1] Hands and clothing of healthcare personnel become contaminated by bacteria during patient care. Gloves and gowns reduce transmission between patients.[2]

In the United States, there are 130 million annual emergency department (ED) visits, which give rise to nearly half of all hospital admissions. The ED is a fertile setting for pathogen transmission as a result of close physical proximity of patients with varying healthcare exposures, high frequency of staff-patient contact, and many invasive procedures.

The Centers for Disease Control and Prevention (CDC) and other groups recommend use of contact precautions (gown and gloves) when caring for patients with any antimicrobial-resistant bacteria or *Clostridium difficile*.[3-5] Though EDs have been successful in managing respiratory transmission of pathogens, we are aware of no policies, guidelines, or data on practices relating to contact precautions in the ED setting.[6] We surveyed a sample of all US EDs in order to assess their adoption of institutional policies reflecting national guidelines on contact precautions.

METHODS

We surveyed a random sample of all hospital-based, nonspecialty, nonfederal US EDs, drawing the sample from the 2009 National Emergency Department Inventory USA database, a comprehensive database of all hospital-affiliated EDs in the US, whose derivation has been described previously.[7] From 4,824 eligible EDs, we randomly selected 417 using multistage stratification, with purposeful oversampling for hospitals with more than 50,000 annual ED visits ($N = 662$) and teaching hospitals ($N = 300$). The sample size of 417 was chosen in the planning of a larger survey, of which this was a substudy. We planned for 80% power to detect differences of more than 40% between ED and intensive care unit adoption of policies regarding hand hygiene, catheter-associated urinary tract infections, and central line–associated bloodstream infections (outcomes different from those reported in this substudy). We oversampled large-volume EDs and EDs in teaching hospitals because they are referral centers and have a higher burden of HAIs, and as teaching institutions they are highly influential in the future practice of emergency medicine. After disqualification of 5 EDs, there were 412 in the final sample: 80 large-volume teaching, 65 large-volume nonteaching, 37 non-large-volume teaching, and 230 non-large-volume nonteaching EDs.

We mailed a questionnaire (available online) to the medical director of each ED. We repeated mailings as needed up to

TABLE 1. Contact Precaution Policies in US Emergency Departments (EDs)

Does your ED have a policy to place the following patients on contact precautions (gown and gloves)?	All EDs ($n = 301$)	≤50,000 ED visits ($n = 180$)	>50,000 ED visits ($n = 121$)	Teaching hospital ($n = 99$)	Nonteaching hospital ($n = 20$)
a. All patients with stool incontinence or diarrhea	45 (38–51)	44 (36–52)	49 (39–59)	45 (35–55)	45 (37–52)
b. Patients with suspected *Clostridium difficile* infection	84 (79–89)	83 (78–89)	87 (81–94)	90 (84–96)	84 (78–89)
c. All patients with a cutaneous abscess or other purulent skin infection	49 (42–56)	50 (42–58)	42 (32–52)	36 (26–45)	50 (43–57)
d. Patients with suspected methicillin-resistant *Staphylococcus aureus* infection	79 (74–85)	79 (73–85)	81 (74–89)	75 (67–84)	80 (74–86)
e. Patients with drug-resistant gram-negative organisms (eg, extended-spectrum β-lactamases)	63 (57–70)	62 (54–69)	72 (63–82)	67 (57–76)	63 (56–70)

NOTE. Data are % yes (95% confidence interval).

TABLE 2. US Emergency Departments' (EDs) History of Participation in Projects Targeting Healthcare-Associated Infections

Has your ED participated in projects to address the following?	All EDs (n = 301)	≤50,000 ED visits (n = 180)	>50,000 ED visits (n = 121)	Teaching hospital (n = 99)	Nonteaching hospital (n = 20)
a. Methicillin-resistant *Staphylococcus aureus*	48 (41–55)	46 (38–53)	62 (52–71)	47 (37–57)	48 (41–55)
b. *Clostridium difficile*	37 (30–43)	35 (27–42)	47 (37–57)	32 (23–41)	37 (30–44)

NOTE. Data are % yes (95% confidence interval).

3 times and then contacted sites by telephone, e-mail, or fax until we achieved at least a 70% response rate. Surveys were administered directly over the phone or resent by either e-mail or fax, when necessary.

We sought to determine the proportions of US EDs that had policies corresponding to national guidelines designed to prevent HAIs. We asked about clinical characteristics suggestive of drug-resistant bacteria or suspected infection from particular pathogens. The specific questions asked are indicated in Tables 1 and 2 and in the questionnaire. We assessed the association of ED volume and hospital teaching status with these policies in individual bivariate models and in a multivariable regression model, with number of implemented precautions as the dependent variable. We also asked whether EDs had participated in quality improvement projects designed to address methicillin-resistant *Staphylococcus aureus* (MRSA) or *C. difficile.*

Our reported estimates are weighted to represent all US EDs, with adjustment for sampling by category via weights equal to the inverse probability of being selected for the study, by group. We used SAS 9.2 for all analyses. Our institutional review board approved the study.

RESULTS

Of 412 EDs surveyed, we received responses from 301 in 49 US states, for a 73% response rate. There was no difference in response rate by region or federally designated critical access status. However, nonrespondent EDs had lower annual ED visit volumes (mean, 31,578 vs 42,757; P = .002) and were less likely to be in a teaching hospital (69% vs 85%; P < .001).

Most EDs have policies requiring contact precautions when specific organisms are suspected, but a minority have such policies for the symptoms often caused by those organisms (Table 1). For example, 79% of EDs require isolation when MRSA infection is suspected, while 49% have such a policy for all patients with purulent skin infections, predominantly caused by MRSA.[8] Our bivariate and multivariable analyses revealed no associations between ED characteristics and adoption of precaution policies.

About half of EDs reported having participated in a project relating to MRSA, and about one-third had participated in projects relating to *C. difficile* (Table 2). Large-volume EDs were 1.4 times more likely than smaller-volume EDs to have participated in a project relating to MRSA (relative risk, 1.4 [95% confidence interval, 1.1–1.9]; P = .01).

DISCUSSION

We surveyed a random sample of US EDs and found substantial variation in the adoption of policies relating to contact precautions. While most EDs have policies requiring contact precautions when specific organisms are suspected, a minority have such policies for the symptoms often caused by those organisms. This indicates that institutional policies do not mirror consensus recommendations by the CDC, the Society for Healthcare Epidemiology of America, and other national bodies.[3,9] Our results extend prior research in the inpatient setting to the ED.[10]

We observed that only 49% of US EDs have policies that contact precautions be used for patients with purulent skin infections. We are not aware of national guidelines that specifically mention contact precautions for these patients. However, the majority of purulent skin conditions treated in US EDs are due to community-associated MRSA, which is known to be spread by contact, and CDC and Society of Healthcare Epidemiologists of America guidelines recommend contact precautions for patients with clinical infections by any drug-resistant organism.[3,8,9]

Quality improvement programs, such as educational campaigns, are used to improve practice. We found that most US EDs have not participated in projects related to decreasing the spread of HAIs, though larger EDs were more likely to have done so. Smaller EDs might benefit more from multidisciplinary programs at their hospitals.

Our survey was limited in its scope to an investigation of policies relating to HAI prevention. Policy is only one of several tools. Other approaches to behavior change in the fight against HAIs include education, targeted feedback, rewards, penalties, checklists, facility design, and reengineering workflow. The specific efficacy of the policies studied as determinants of practice change has not been quantified.

The variation in policy that we observed leads us to recommend that emergency medicine organizations, such as the American College of Emergency Physicians and the Emergency Nursing Association, and individual ED leaders should enact policies addressing contact precautions in the ED. While national organizations such as the CDC have such guidelines, they do not focus on the ED.[9]

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