

15-19 Surveys

51 Failure to Comply with the Condition of Participation for Infection Control - The California Experience

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Background: Acute care hospitals (ACH) receiving Centers for Medicare and Medicaid (CMS) reimbursement must be in full compliance with the federal regulations (FR) set forth in the Conditions of Participation (CoP). In California, the FR are used to randomly validate Joint Commission on Accreditation of Healthcare Organizations (JCAHO) surveys and to investigate complaints related to patient safety. Following an initial investigation using State regulations to substantiate a complaint, authorization to perform a survey using the FR must be obtained from CMS. Hospitals determined to be out of compliance with one or more of the FR ("NOT MET") may be resurveyed to determine if previously observed deficient practices have been corrected. The federal regulation for IC states: "The hospital must provide a sanitary environment to avoid sources and transmission of infections and communicable diseases. There must be an active program for the prevention, control and investigation of infections and communicable diseases."

Objective: To identify and describe deficient IC practices cited on FS performed in California ACH.

Methods: All FS for which the IC regulation was cited between January 2004 and December 2006 were included.

Results: Reasons for authorizing a survey included: (1) patient exposure to contaminated surgical instruments and endoscopic equipment (4/12 [33%]), (2) failure to perform hand hygiene (1/12 [8.0%]), (3) failure to comply with one or more FR on a previous survey (2/12 [16.6%]) and (4) failure to prevent transmission of infectious agents (6/12 [50.0%]). The most common deficient practices cited included failure to: (1) maintain a sanitary environment (large accumulations of dust and dirt in patient-ready rooms, nurse's stations and medication rooms) and visible blood on the external surfaces of glucometers 12/12 (100%), (2) validate endoscopic equipment reprocessing competencies (6/12 [50%]), (3) prevent transmission of infectious agents including methicillin-resistant *Staphylococcus aureus*, *Aspergillus spp.*, *Peptostreptococcus spp.*, *Salmonella spp* and *Escherichia coli* (7/12 [58.3%]). Hospital administrators were cited for failure to implement corrective action plans for identified IC problems on 9 of 12 (75%) surveys. Three of 12 (25%) ACH for which the IC regulation was "NOT MET" had been surveyed by JCAHO within the previous year.

Conclusions: (1) ACH are frequently not in compliance with the federal regulation for IC, including oversight of environmental sanitation, (2) JCAHO surveys fail to recognize non-compliance with the federal regulation for IC and (3) hospitals are unaware that breaches in environmental sanitation may play a role in the transmission of healthcare-associated infections.

52 A National Veterans Affairs (VA) Quality Improvement Initiative to Decrease Nosocomial Methicillin-Resistant *Staphylococcus aureus* (MRSA) Infection: A Baseline Survey to Assess Employee Knowledge and Perceptions of Organizational Culture

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BACKGROUND: The VA has undertaken a national quality improvement prevention initiative to decrease nosocomial MRSA transmission and infection rates.

OBJECTIVE: To assess employee baseline knowledge and perceptions about MRSA and organizational culture.

METHODS: A cross-sectional survey was conducted in at least one unit at each of 16 VA facilities. The survey included 5 items on knowledge about MRSA and 22 Likert-items designed to measure organizational culture (total possible scores ranging from 22 to 110 with higher scores = more positive culture).

RESULTS: Of 2309 surveys distributed, 1621 (70.2%) were completed (range 33.3% to 91.3%). We excluded surveys of respondents spending <5% of their time on the intervention unit or not entering patient rooms; final sample was 1389: 8.9% physicians, 35.4% nurses, and 55.6% other healthcare personnel (HCP). Only 9.1% of respondents answered all 5 knowledge questions correctly, with an average total score of 70.4% (mean=3.52, SD 0.85). Significant differences in knowledge scores were found by job type: 73.7% physicians, 72.4% nurses, and 68.7% other HCP ($p=.03$), with facility scores ranging from 66% to 90%. 84% of respondents reported that they were satisfied with their job; job satisfaction did not differ significantly by job type. Respondents were more likely to believe that MRSA was a national problem than a problem in their unit (87.4% vs 55.1%; $p<.01$). Total organizational culture scores ranged from 22 to 110 (mean 75). Factor analysis revealed 4 factors accounting for 56.3% of variance: unit teamwork (18.7%), unit stress/chaos (14.7%), unit leadership (13.0%), and hospital leadership (10.5%). After adjusting for facility, higher culture scores and factor scores were associated with higher levels of job satisfaction among nurses and other HCPs ($p<.0001$), but not physicians ($p=.06$ to $.36$). When adjusting for facility and job type, unit teamwork and unit stress were the only factors associated with perceiving MRSA as less of a local than a national problem ($p<.001$).

CONCLUSIONS: Baseline gaps in MRSA knowledge and variations in organizational culture were identified. Cultural variations were related to job satisfaction and perceptions of MRSA as a problem. These findings provide an important foundation for evaluating the relationship between organizational culture and MRSA prevention programs.

53 Patient Attitudes Regarding Participation in Studies of Gastrointestinal Colonization with Antimicrobial Resistant Pathogens

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Background: Recent efforts to elucidate the epidemiology of antimicrobial resistance have focused on the role of gastrointestinal tract colonization with resistant pathogens. However, participation in research studies in which fecal sampling (e.g., rectal swab) is required has been low. Attitudes toward such studies among potential study participants have not been assessed.

Objective: To examine patient beliefs and attitudes regarding participation in studies of antimicrobial resistance.

Methods: We conducted a cross-sectional survey, enrolling 3 groups of inpatients from a large academic center: Group 1: patients who previously participated in a cohort study of fluoroquinolone-resistant *E. coli* (FQREC) which involved collection of peri-rectal swabs; Group 2: patients who previously refused to participate in the FQREC study; and Group 3: a random sample of patients never approached for the FQREC study. The questionnaire examined attitudes toward medical research, willingness to consent to a peri-rectal swab, and attitudes about monetary compensation. Responses were measured using a 5-point Likert scale. Fisher's exact test was used to compare dichotomized responses across study groups.

Results: Over a 2-month period, we surveyed a total of 90 patients: 29 in Group 1, 29 in Group 2, and 32 in Group 3. Overall, the median age was 60.5, 40 (41%) subjects were male, and 51 (57%) subjects were Caucasian. Among all subjects, approximately one third believed that researchers may run additional tests on collected samples without informing the patient (Table 1). Over 25% believed that persons other than the research team or the primary care physician might gain access to study results. There were several questions for which responses differed across study groups (Table 2). The belief that one would

get sicker as a result of a peri-rectal swab was significantly more common among subjects who previously refused participation in the FQREC study. Also, a higher proportion of subjects who had previously refused to enroll in the FQREC study disagreed with the statement that participation in such a study would not affect their health.

Conclusion: This study highlights important beliefs and attitudes among hospitalized patients regarding participation in studies of antimicrobial resistance. More importantly, these beliefs may be associated with the likelihood of participating in such studies. Explicitly addressing these concerns with eligible subjects is critical in optimizing successful subject participation in future studies.

Table 1. Overall Survey Responses

Survey Statement	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Right now, I am too sick to take part in a research study	7 (8%)	27 (30%)	2 (2%)	43 (48%)	11 (12%)
Taking part in a research study will not affect my care in the hospital	18 (20%)	14 (16%)	11 (12%)	11 (12%)	3 (3%)
I would be more likely to take part in the study if my doctors were given my results from the research study	4 (4%)	40 (44%)	8 (9%)	28 (31%)	10 (11%)
People other than the researchers or my doctors might get access to my results from the research study	3 (3%)	22 (24%)	13 (14%)	38 (42%)	14 (16%)
I would take part in a study if it required that a swab sample be taken from the skin around my rectum	9 (10%)	34 (38%)	8 (9%)	22 (24%)	17 (19%)
I would not get sicker as a result of someone taking a swab from the skin around my rectum	14 (16%)	49 (54%)	9 (10%)	14 (16%)	4 (4%)
Researchers may run more tests on my swab sample than what they tell me	6 (7%)	25 (28%)	31 (34%)	22 (24%)	6 (7%)
I would take part in the study only if I were offered money to participate	1 (1%)	4 (4%)	2 (2%)	55 (61%)	28 (31%)

Table 2. Agreement Rates* Among Study Groups

Survey Statement	Group 1. Previous Participants (n=29)	Group 2. Previous Refusals (n=29)	Group 3. Never Approached (n=32)	P value
Right now, I am too sick to take part in a research study	10 (35%)	17 (59%)	7 (22%)	0.005
Taking part in a research study will not affect my care in the hospital	26 (90%)	12 (41%)	27 (84%)	<0.001
I would be more likely to take part in the study if my doctors were given my results from the research study	20 (69%)	12 (41%)	13 (41%)	0.14
People other than the researchers or my doctors might get access to my results from the research study	10 (35%)	8 (27%)	7 (22%)	0.26
I would take part in a study if it required that a swab sample be taken from the skin around my	21 (72%)	5 (17%)	17 (53%)	0.001

rectum				
I would not get sicker as a result of someone taking a swab from the skin around my rectum	26 (90%)	15 (52%)	22 (69%)	0.02
Researchers may run more tests on my swab sample than what they tell me	10 (35%)	8 (27%)	13 (41%)	0.58
I would take part in the study only if I were offered money to participate	0 (0%)	4 (14%)	1 (1%)	0.14
* Agreement rate = "strongly agree" + "agree"				

54 A Nationwide Assessment of Pertussis and Pertussis Exposures in Acute-Care Hospitals, United States, 2003-2005

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Background: Pertussis outbreaks are being increasingly reported in healthcare facilities. Nosocomial pertussis exposures and outbreaks can lead to disruption in medical services and substantial, morbidity and costs.

Objective: To determine the number of pertussis cases and the frequency and characteristics of pertussis exposures in US acute-care hospitals.

Methods: In December 2005, we sent a web-based questionnaire to infection control and/or occupational health personnel to obtain information about pertussis cases and exposures from January 1, 2003 through June 30, 2005 (study period). We selected all Children's hospitals, and a 20% stratified, random sample of general medical-surgical (GMS) hospitals from the 2003 American Hospital Association database. We compared hospitals with and without pertussis exposure events by facility-level factors. An exposure event was defined as ≥ 1 person who had unprotected, close contact with a clinical or confirmed pertussis case (i.e., source patient).

Results: Of 1063 hospitals selected, 583 (55%) completed the survey; 52% were GMS hospitals, 42% GMS hospitals with pediatric services (GMSP) and 6% Children's hospitals. GMSP hospitals were over represented among completers. The proportion of hospitals with ≥ 1 pertussis case increased (17% in 2003 vs. 23% in 2004, $P=0.006$) as did the mean number of cases/hospital (7 vs. 9, $P<0.0001$). Also, more hospitals (1% in 2003 vs. 3% in 2004, $P=0.004$) reported healthcare personnel (HCP) cases, ranging from 1- 11 HCP cases/facility. Overall, 151 (26%) hospitals reported a total of 944 exposure events during the study period; the proportion of hospitals reporting an exposure event ranged from 10% in 2003 to 15% in the first half of 2005 ($P=0.03$). Emergency departments (ED), pediatric wards, outpatient clinics, general medical wards and radiology were the most common locations for exposures; pediatric patients accounted for 74% of source patients identified. There was a mean of 30 HCP (range: 1-250) and a mean of 8 patients (range: 1-66) exposed per event. Using bivariate analysis, hospitals with exposure events were more likely than those without to be a Children's (Odds Ratio [OR] = 3.7, 95% Confidence Interval [CI] 1.8-7.6, $P=0.0003$) or GMSP (OR=1.9, 95% CI 1.3-2.8, $P=0.002$) hospital; to have >100 beds (OR=1.8, 95% CI= 1.3, 2.7, $P=0.002$); be affiliated with a medical school (OR=1.7, 95%CI 1.2-2.6, $P=0.009$) or have more annual ED visits (28876 vs. 20367, $P<0.0001$).

Conclusion: These findings suggest that pertussis and pertussis exposures are being increasingly recognized in US hospitals, particularly in those providing pediatric and emergency services. Early recognition of cases, prompt initiation of infection control precautions and vaccination of HCP are the recommended strategies for preventing nosocomial pertussis transmission.

55 Hospital Epidemiology and Infection Control Roles Expanding despite Limited Resources and Compensation

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Background/Objective: Detailed data on the responsibilities, resources and compensation of Hospital Epidemiology and Infection Control (HEIC) departments are limited. This study aimed to obtain such information to assist HEIC professionals in negotiation for resources.

Methods: A 28 question electronic survey was sent via email to all SHEA members using WebSurveyor software in 10/06. Surveys were sent by US mail (for faxed return) for those with returned e-mails. E-mail reminders were sent at 2 and 4 weeks after survey launch. Preliminary basic analyses were run using the WebSurveyor software for responses received by 1/6/06.

Results: Responses were received from 425/1255 SHEA members with a response rate of 34%. Of the respondents, 83% were MDs/DOs, 6% were RNs and 20% had an MPH or MSc degree. 65% were male with a median age of 50-59 years. 61% held an academic position. Practice location varied with 24% from the Midwest US, 20% from the Northeast US, ≤15% from all other US regions, and 16% from outside the US. Two-thirds of respondents practiced in a hospital setting: 41% university hospitals, 32% community teaching hospitals, and 15% non-teaching hospitals.

64 % were the primary or associate hospital epidemiologist. More than 50% of respondents have taken the SHEA/CDC training course and another 25% had ≥1 year of additional training in HEIC outside of fellowship. On average, respondents had 16 years of experience in HEIC.

Survey respondents had a wide range of activities. The group reported that 39% of their time was spent doing clinical work and 30% providing HEIC services (range 0-100%). Although 92% provide HEIC services, only 62% have this specified in a written agreement and 65% are specifically compensated. HEIC compensation was negotiated pre-hire in less than 50% of cases. Expertise in antimicrobial management, patient safety, employee health, and emergency preparedness was provided by 75-80% of respondents, but was compensated in less than 25% of cases.

Of the 84% of MD/DO respondents working in the US, the median professional earnings was \$151,000-200,000, regardless of region of the country. The contribution of HEIC to total earnings ranged from 0 to >75%, median <25%. Staffing levels varied considerably: MD FTEs median 1.0, (range 1-5) and only about 25% of respondents had at least 3 IC practitioner FTEs. 24 hour call coverage was provided by about 80% of respondents. Only 56% of HEIC departments reported having an administrative assistant.

Conclusions: Professionals working in HEIC have significant training and provide a wide and growing range of services. In general, only traditional IC work is specifically compensated and at a level much less than the time dedicated to providing those services. Most HEIC departments are understaffed in terms of professional and nonprofessional personnel. Data such as these are essential to aid in advocating for needed funding and resources as the roles of HEIC expand.