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DBMI — University of Pittsburgh, Department of Biomedical Informatics

Institute for Clinical Research Education
Promoting Education and Research in Clinical and Translational Science

Division of Geriatric Medicine and Department of Biomedical Informatics

Track: SOPS in Medical Offices, Nursing Homes, and Other Settings
Session: Unique Uses of SOPS: Community Pharmacies, Intellectual Disabilities Services, and Hospital Housestaff
Date & Time: April 20, 2010, 2:15 pm
Track Number: SOPS T2_S3

Assessing Patient Safety Culture of Internal Medicine Housestaff in an Academic Teaching Hospital

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Educational Innovation Project (EIP): Attention to Patient Safety

- In 2006, the University of Pittsburgh Internal Medicine Residency Program was recognized as an EIP training program by the Accreditation Council for Graduate Medical Education (ACGME)

- The overall goal of EIP training programs is to facilitate competency-based education and outcomes assessment

- The reporting of housestaff PSC fulfilled the EIP requirement for assessing the reporting outcomes

Accreditation Council for Graduate Medical Education.
http://www.acgme.org/acWebsite/RRC_140/140_EIPindex.asp

Rationale for Integrating PSC Assessments into our Residency Program

- We assessed hospital PSC from the perspective of internal medicine housestaff using a standardized and previously validated instrument in order to:
  - raise awareness of patient safety issues
  - identify targets for interventions to improve patient safety
  - fulfill the EIP requirement for assessing and reporting outcomes and,
  - establish our own program-specific benchmark data.

Study Objectives

- The primary objective of this study was to assess hospital patient safety culture from the perspective of internal medicine housestaff, and to compare the results across post-graduate year (PGY) of training and to national hospital benchmark data

- The secondary objective was to determine a list of key patient safety topics to be included in a housestaff patient safety curriculum

Methods: Survey Instrument

- The Hospital Survey on Patient Safety Culture (HSOPSC) was developed by Westat under contract for the Agency for Healthcare Research and Quality (AHRQ) and has 12 dimensions and 2 outcome measures

- Each *dimension* has 3–5 questions and uses a 5-point Likert scale of agreement ("strongly disagree" to "strongly agree") or frequency ("never" to "always")

- The *outcome measures* use single-item responses about the number of "events" reported (defined as errors of any type, regardless of whether they result in patient harm) and the overall patient safety grade ("excellent" to "failing")

Methods: Survey Modification

- The HSOPSC was pilot tested for use by 4 internal medicine Chief Residents. Based on their suggestions, the following changes were made to create the Housestaff Patient Safety Culture (H-PSC) survey:

  - an additional definition for "event reporting" was added to orient participants

  - the following phrases were modified – "staff" was replaced with "housestaff," "hospital work area" or "unit" was replaced with "hospital," and "agency/temporary staff" was clarified to mean moonlighters or cross-covering housestaff and,

  - the demographics section was expanded to include information about medical school training, and future career plans.

HSOPSC Benchmark Data

- At the time of the study, the publicly accessible benchmark data contained responses from 108,621 hospital employees from 382 hospitals across the U.S. as of 2006

- Both all-hospital and medicine unit benchmark data were used for analysis

Sorra JS, Nieva VF. Hospital Survey on Patient Safety Culture: 2007 Comparative Database Report. Rockville, MD: Agency for Healthcare Research and Quality. September 2007. Report No.: AHRQ Publication No. 07-0025.

Section H: Patient Safety Needs Assessment

We are designing a patient safety curriculum to ensure all housestaff learn basic safety topics. Please select <u>FIVE</u> topics from the list below that you feel would be important to include in the curriculum:

☐a Adverse drug events (defined as an injury related to the use of a drug): recognition, reporting, and prevention.

☐b Adverse events related to transitions in care (e.g. cross-coverage, patient transfers, etc.): recognition and prevention.

☐c Anticoagulation management: guideline application and prevention of complications.

☐d Delirium: prevention, recognition, and management.

☐e Hyper/hypoglycemia. prevention, recognition, and management

☐f Medical errors: disclosing information to patients and family members.

☐g Hospital-acquired infections (e.g., central line and urinary catheter associated): prevention, recognition, and management.

☐h Hospital-acquired complications (e.g., falls, restraints and related injuries, pressure ulcers): prevention, recognition, and management.

☐i Promoting a culture of safety.

☐j Contrast-induced nephropathy: prevention, recognition, and management.

☐k Venous thromboembolism prevention: guideline application and prevention of complications.

Survey Distribution

- Between December 2006 and February 2007, all PGY-2 and PGY-3 internal medicine housestaff received a survey packet in their mailboxes

- Each packet contained a cover letter, a copy of the survey, and a ballot to enter into a drawing for one of two $100 Amazon.com gift certificates

- A second packet was placed in the mailboxes of non-respondents if the survey was not received within 4 weeks

Data Analysis

- To calculate response rates, the number of respondents per PGY was divided by the total number of potential respondents per PGY

- Individual responses for each survey question was first dichotomized by defining a positive response as either "Agree/Strongly agree" or "Most of the time/Always" for positively worded questions, and "Disagree/Strongly disagree" or "Rarely/Never" for reverse worded questions

Data Analysis

- We created composite scores for each PSC dimension per respondent by calculating a mean percentage of positive responses

- PSC domain scores could range from 0-100, where lowers score represented worse PSC

- We used one and two sample *t-tests* to compare domain score means between PGYs and the national benchmark data

- The safety curriculum topics were calculated using descriptive statistics

Results (N= 58)

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- Overall response rate was 85.3% (58/68)

- 50% were female and 72% planned on completing a fellowship

Table 1. Characteristics of respondents, stratified by post-graduate year

Characteristic	PGY-2	PGY-3
Number of respondents	30	28
Number of potential respondents	35	33
Response rate (%)	85.7	84.8
Graduate of U.S. medical school (%)	23 (76.7)	20 (71.4)
Gender (% female)	18 (60.0)	11 (39.3)

Table 2. Comparison of mean patient safety culture (PSC) composite scores across post-graduate year (PGY) of training

PSC Dimension	PGY-2 Composite Score	PGY-3 Composite Score	P Value
Communication openness	44	30	0.12
Feedback and communication about error	31	22	0.27
Frequency of events reported	34	33	0.93
Handoffs and transitions	23	15	0.25
Management support for patient safety	66	56	0.31
Nonpunitive response to error	44	42	0.87
Organizational learning and continuous improvement	71	62	0.28
Overall perceptions of safety	52	57	0.51
Staffing	55	49	0.45
Supervisor/manager expectations and actions promoting patient safety	82	68	0.03
Teamwork across units	65	46	0.03
Teamwork within units	73	63	0.10

Table 2. Comparison of mean patient safety culture (PSC) composite scores across post-graduate year (PGY) of training

PSC Dimension	PGY-2 Composite Score*	PGY-3 Composite Score*	P Value
Supervisor/manager expectations and actions promoting patient safety	82	68	0.03
Teamwork across units	65	46	0.03

Table 3. Comparison of mean patient safety culture (PSC) composite scores of internal medicine housestaff and hospitals

PSC Dimension	Housestaff Composite Score*	All-Hospital Benchmarks		Medicine Unit Benchmarks	
		Score†	p-Value	Score†	p-Value
Communication openness	37	61	<.01	55	<.01
Feedback and communication about error	27	62	<.01	55	<.01
Frequency of events reported	33	59	<.01	59	<.01
Handoffs and transitions	19	45	<.01	47	<.01
Management support for patient safety	61	69	0.08	64	0.51
Nonpunitive response to error	43	43	0.95	39	0.50
Organizational learning and continuous improvement	67	69	0.58	67	0.94
Overall perceptions of safety	54	63	0.03	53	0.75
Staffing	52	55	0.46	52	0.97
Supervisor/manager expectations & actions promoting patient safety	75	74	0.76	71	0.22
Teamwork across units	56	57	0.82	55	0.80
Teamwork within units	69	78	<.01	73	0.13

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		Score†	p-Value	Score†	p-Value
Communication openness	37	61	<.01	55	<.01
Feedback and communication about error	27	62	<.01	55	<.01
Frequency of events reported	33	59	<.01	59	<.01
Handoffs and transitions	19	45	<.01	47	<.01
Overall perceptions of safety	54	63	0.03	53	0.75
Teamwork within units	69	78	<.01	73	0.13

Table 4. Patient safety topics selected as important by internal medicine housestaff

Patient Safety Topics	Number of Housestaff Selecting Topic (%)
Adverse drug events (defined as an injury related to the use of a drug): recognition, reporting, and prevention.	46 (79.3)
Adverse events related to transitions in care (e.g. cross-coverage, patient transfers, etc.): recognition and prevention.	42 (72.4)
Anticoagulation management: guideline application and prevention of complications.	25 (43.1)
Contrast-induced nephropathy: prevention, recognition, and management.	22 (37.9)
Delirium: prevention, recognition, and management.	25 (43.1)
Hyper/hypoglycemia: prevention, recognition, and management	22 (37.9)
Medical errors: disclosing information to patients and family members.	32 (55.2)
Hospital-acquired infections (e.g., central line and urinary catheter associated): prevention, recognition, and management.	27 (46.6)
Hospital-acquired complications (e.g., falls, restraints and related injuries, pressure ulcers): prevention, recognition, and management.	25 (43.1)
Promoting a culture of safety.	13 (22.4)
Venous thromboembolism prevention: guideline application and prevention of complications.	22 (37.9)

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Adverse events related to transitions in care (e.g. cross-coverage, patient transfers, etc.): recognition and prevention.	42 (72.4)
Medical errors: disclosing information to patients and family members.	32 (55.2)

Key Findings

- To the best of our knowledge, this represents the first study to systematically assess PSC in an ACGME-accredited residency program

- Internal medicine housestaff were in agreement for most of the PSC dimensions

- On 6 of 12 dimensions, the composite scores for housestaff were significantly lower than those of either all-hospital or medicine unit specific benchmarks

- Safety topics of interest to housetaff: adverse drug events, adverse events related to transitional care, and disclosing medical error to patients and family members

Strengths

- The instrument used to measure housestaff PSC is based on the same items and dimensions as the HSOPSC survey instrument developed by the AHRQ allowing for comparison with national benchmark data

- The response rate was very good and better than most surveys and studies of PSC reported in the literature

Limitations

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- Small sample size, representing only a single institution and residency program type

- This may have limited the statistical power to detect significant differences across PGY as well as to draw conclusions that can be generalizable to other programs or institutions

Implications and Future Direction

- PSC should be assessed in additional residency programs with varied programatic, institutional, and housestaff characteristics to develop benchmarking data and identify targets for interventions to improve PSC

- We have developed a patient safety curriculum based on these results, and are in the process of assessing its impact on PSC and specific patient-specific outcomes such as adverse drug event reporting and transitional care

- The ACGME now states that all programs demonstrate that there is a culture of patient safety and continuous quality improvement

ACGME Program Requirements for Resident Education in Internal Medicine.
http://www.acgme.org/acWebsite/downloads/RRC_progReq/140_internal_medicine_07012009.pdf.