

Do Patients Perceive Safety Culture on Their Hospital Unit?

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Background

To do the sick no harm; to lessen such suffering in the future from causes that may have been preventable *Nightingale, 1863*

The nation's health care delivery system has fallen far short in its ability to translate knowledge into practice *IOM, Crossing the Quality Chasm, 2001*

Measuring the incidence rate of accidents . . . has serious drawbacks. Positive measures . . . have been identified as a more effective approach to measuring the degree to which an organization has implemented a safety culture *IOM, Keeping Patients Safe, 2004*

Our healthcare system tends to be data rich and information poor

Forces that contribute to the healthcare safety problem in the U.S.

- Complex structure and nature of the healthcare system
- Roles and functions of the regulatory bodies
- Hospital structure; lack of continuity of patient care
- Care provider characteristics, perceptions, and actions
- Patient characteristics, perceptions and actions
- Measurement problems: Errors infrequent, underreported

Significance of the Problem

What is known:

- The hospital unit is “ground zero” for care quality and safety-- including errors, failures, and untoward events that harm, or have the potential to harm patients (Tucker & Edmondson, 2003)
- Limited knowledge about the relationships between patients and care providers (Burroughs, et al. 2007)
- Patients, doctors, nurses, will align with their respective groups. Teamwork tends to occur within, but not between, groups (McDonald, Waring, Harrison, Walshe, & Boaden, 2005)
- There are significant mismatches between Patient-RN, RN-MD, or Patient-MD perceptions of care, failures, quality, error reporting, and patient needs (Espin, Levinson, Regehr, Baker, & Lingard, 2006)
- Failures result from mismatch of patient acuity and resources, lack of resources, and caregivers acting in the best interests of their own groups (Young, Minnick, & Marcantonio, 1996)

Significance of the Problem

What is not known:

- No evidence of whether these instruments can tell us anything about the relationships between the unit's patients and the providers who care for them
- We have very little data on how unit safety culture affects patient outcomes
- Although the tools have similar origins and developers, *and* pertain to the same unit the data could not compared
- Little attention has been paid to the relationships between patients and care providers

Questions

- Do patients perceive safety culture on the hospital unit?
- What is the relationship between care providers' perceptions of safety culture and patients' perceptions of their experiences of care?
- No standardized tool exists for measuring these two populations as a cohort
 - Cross-sectional, quantitative, correlational design
 - Measured using
 - Hospital Survey on Patient Safety Culture-**SOPS**
 - Consumer Assessment of Healthcare Providers and Systems (Hospital version)-**HCAHPS**

Sample

Care Provider Sample-287 SOPS

- All “frontline” care providers
 - Physicians=47
 - Physicians in Training=100
 - Nurses=120
 - Assistive personnel=20

Patient Sample-216 HCAHPS

- Hospital A=84
- Hospital B=44
- Hospital C=88

Measurement of Perceptions

- Underlying assumption is that perceptions influence practice and/or experiences which in turn influence outcomes
- Morbidity and mortality are rare outcomes, other errors are grossly underreported (Vincent, Stanhope, & Crowley-Murphy, 1999)
- We have evidence that patient perceptions are correlated with quality (Weingart et al., 2005)
- The surveys and data used in this study are routinely collected by hospitals

Measurement of Perceptions

- Hospital Survey on Patient Safety Culture measures care provider perceptions of unit safety
 - Independent (predictor) variables-care providers (42 items, 12 subscales)
 - 5-point Likert scale
- Hospital Consumer Assessment Healthcare Providers and Systems measures patient experiences of care (27 Items, 6 subscales)
 - “Composites” used as Dependent (Outcome) variables-patients
 - 4-point Likert scale

Analysis

- Most difficult do to various data issues
- Needed to find a model that would answer the question using existing data
- Needed to account for patient data's negative skew
- 72 regression analyses using the Generalized Estimating Equations, Negative Binomial Model

Analysis-Reported Values

- p -values
- Incident Rate Ratios (IRR)
 - Used to interpret the coefficients, similar to logistic regression, a relationship between 2 groups
 - Usually used with count data
 - Difficult to interpret by itself, used to calculate effect size
- Effect Sizes
 - Measures the strength of the relationship between 2 variables, in this case the unit safety culture SOPS and patient HCAHPS scores
 - Reports the size of the relationship
 - On the original scale, such as a Likert scale, effect size is useful for determining if a difference is truly significant

Results

NATIONAL

Study: Alligators Dangerous No Matter How Drunk You Are





Alligators exhibit the potential to inflict serious harm, regardless of the blood-alcohol levels of their victims.

Results of 72 Regression Analyses, $p < .001$

Provider Predictor SOPS ↓	Patient Outcome HCAHPS →	Nurse communication	MD Communication	Responsiveness	Physical environment	Pain control	Communication about meds
Overall Perceptions							
Frequency of Errors Reported		ns	ns	ns	ns	ns	ns
Supervisor Actions		ns	ns	ns	ns		ns
Organizational Learning- QI							
Teamwork Within Units							
Communication Openness			ns	ns	ns	ns	ns
Error Feedback & Communication		ns			ns		ns
Nonpunitive Response			ns	ns		ns	
Staffing		ns					
Management Support				ns			
Teamwork Across Units		ns					
Hospital Handoffs		ns			ns		

72 Regression Analyses- 45 Significant Relationships

RESULTS

Provider Predictor 	Patient Outcome 	Nurse communication	MD Communication	Staff Responsiveness	Physical environment	Pain control	Communication about meds
Overall Perceptions		.64	.25	.85	.88	.55	.93
Frequency of Errors Reported		ns	ns	ns	ns	ns	ns
Supervisor Actions		ns	ns	ns	ns	-1.09	ns
Organizational Learning- QI		1.08	.69	1.4	1.28	1.08	1.26
Teamwork Within Units		.58	.19	.67	.75	.43	.82
Communication Openness		.69	ns	ns	ns	ns	ns
Error Feedback & Communication		ns	.24	.85	ns	.52	ns
Nonpunitive Response		.91	ns	ns	1.08	ns	1.10
Staffing		ns	.21	.74	.74	.46	.79
Management Support		.48	.14	ns	.63	.31	.69
Teamwork Across Units		ns	.19	.70	.71	.44	.77
Hospital Handoffs		ns	.21	.75	ns	.46	.74

Interpretation Examples

Organizational learning (SOPS) + Nurse communication (HCAHPS)

- for every 1 point increase in the SOPS subscale **organizational learning/QI** there is a predicted 1.08 point, or 97% increase in the HCAHPS subscale **nurse communication**

Staffing (SOPS) + Communication about medications (HCAHPS)

- for every 1 point increase in the SOPS subscale **staffing**, there is a predicted .79 point, or 61% increase in the HCAHPS outcome **communication about medications**

Results

Looking for a pattern of results for significant relationships between SOPS and HCAHPS $p < .001$

- Organizational learning 6/6
- Overall perceptions of safety 6/6
- Teamwork within the unit 6/6
- Teamwork across units 5/6
- Staffing 5/6
- Supervisor and management support for safety 5/6

Results

Looking at effect sizes of 0.5 pts or >

- Organizational learning/QI 6/6
- Teamwork within units 4/6
- Staffing 3/6
- Teamwork across units 3/6
- Non-punitive response to error 3/6

Discussion

Found relationships consistent with the literature that support positive patient safety activities on the unit

- Provides validation for management and organizational commitment to safety and quality outcomes (Khatri, Baveja, Boren, Mammo, 2006)
- Supports the learning organization. Although a good deal has been written on reliability theory in hospitals, very little empirical data exists that supports HRT principals (Tamuz & Harrison, 2006)
- There was no relationship between error reporting (SOPS) and ANY of the HCAHPS composites—consistent with recent OIG report on adverse events
- Informs the current health profession education reform movement: that teaching the knowledge, skills, and attitudes that promote patient safety in the health professions' curricula is appreciated by the patient.
- Care that is truly patient-centered results in the best outcomes for the organization

What is Organizational Learning?

- From high reliability theory
 - Focus is on monitoring inputs, maintaining alertness
 - No strict boundaries on where learning comes from
 - Weick and Sutcliffe, 2001
- Active improvements that promote patient safety
- Active review of errors on the unit that lead to positive changes
- Reviewing changes to evaluate effectiveness



Patient room information board with posted patient daily goal

Meaning of the Findings

So What? Implications for policy

- Literature is full of unproven ways to improve safety culture, patient safety, patient experiences
 - Often derived from other industries
- Although interactions occur at the unit level, results provide support for specific conditions that make up a safety milieu that supports positive patient outcomes
 - Identifies areas to be targeted for change

Meaning of the Findings

- Uses existing hospital data
 - HCAHPS part of CMS Conditions of Participation
 - HCOPSC in wide use nationwide, over 400 hospitals benchmark externally with AHRQ
- Hospitals can leverage the most out of their data
 - Provides useful patient data independent of infrequent error and failure rates
 - Can tell your staff how they are doing
- Hospitals can use evidence to invest scarce resources in care provider programs **known to impact** patient outcomes
 - Such as programs and other structures that support positive patient outcomes

Limitations of the Study

- Unlinked observations within the units
- Social desirability bias
- Ongoing interventions during the data collection periods

Questions for Future Research

- Could a simpler design be developed to compare these two instruments
- Would these findings replicate in other settings and hospitals?
- What are some of the best practices in place in hospitals that promote “Organizational Learning”?
- How might these findings differ with different groups?