

A Comparison of Hospital Patient Safety Culture Data in Magnet® and non-Magnet Hospitals

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Abstract

Objective

Describing patient safety culture in hospitals is an important step in the development of safe work environments. Research has confirmed that Magnet® hospitals provide a positive work environment for nurses; research related to patient safety culture in Magnet hospitals versus non-Magnet hospitals is scarce. This study, using secondary data analysis from the Agency for Health Care Research (AHRQ) compared Hospital Survey on Patient Safety Culture (Hospital SOPS) data in Magnet and non-Magnet hospitals in United States.

Methods

The study was a correlational descriptive design and the data were unidentifiable. The Hospital SOPS instrument measures hospital staffs' perceptions about patient safety issues, medical error and events reporting. The only hospital characteristics were Magnet status (variable of interest) and hospital bed size (categorical measure). The sample consisted of respondents in **1,295 hospitals, 149 Magnet hospitals and 1,146 non-Magnet hospitals** that voluntarily submitted information in the AHRQ Research Hospital SOPS 2012 and 2013 Database.

Results

All results were reported in positive percent scores. Regression analysis, descriptive statistics, and hierarchical linear modeling described the comparisons of Hospital SOPS measures in Magnet and non-Magnet hospitals. Magnet hospitals showed small statistically significant positive differences (2-4%) in all categories.

Conclusion

In large data bases, AHRQ recommends percentage differences of **at least 5%** to be considered meaningful; therefore, it was not determined that Magnet hospitals showed more positive safety culture than non-Magnet hospitals. For both hospital groups, **teamwork within units** stood out as the most strongly positive attributes and **punitive response to error and under reporting of errors** the greatest weakness.

Discussion

Magnet hospitals have recently focused attention on patient outcomes. Understanding how Magnet hospitals positively influence patient safety culture is evolving and will be discussed.

Background & Purpose

- Despite much effort in the past 10 years, patient injury rates due to medical error remain unchanged (Landrigan et al., 2010; Levinson, 2010)
- Nurse Executives are pressured by government and by hospital administrators to demonstrate patients are safe from medical harm (Sammer, Lykens, Singh, Mains & Lackan, 2010)
- Magnet designation has been proven to be a positive work environment for nurses (Kramer, Schmalenberg & Maguire, 2010; Upenieks, 2003; Wolf et al., 2008)
- Compare through secondary data hospital staffs' perceptions of patient safety culture in Magnet and non-Magnet hospitals

Conceptual Framework

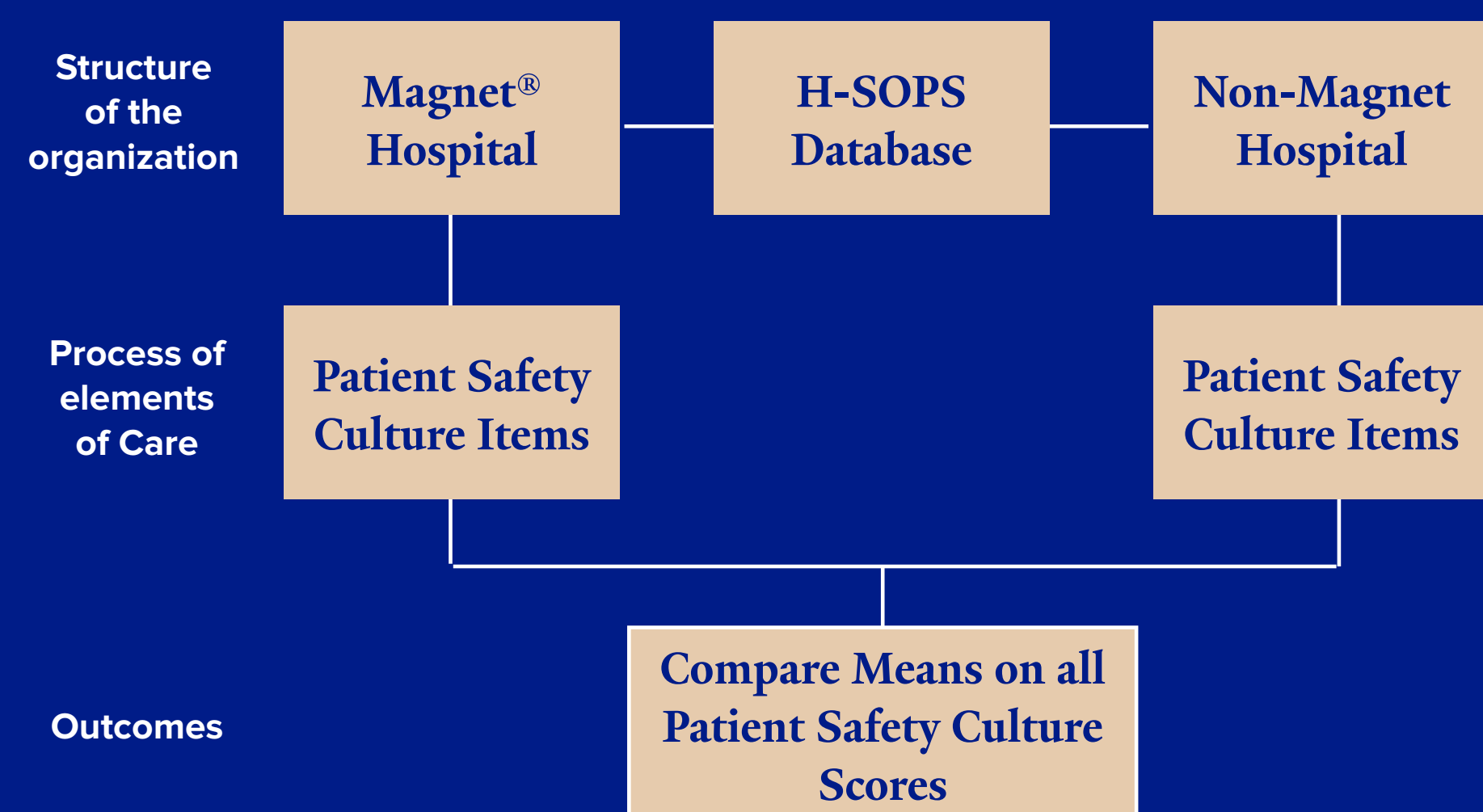


Figure 1. Magnet Hospital and Non-Magnet Hospital and Patient Safety Culture

Research Questions

Using Hospital Survey on Patient Safety Culture (Hospital SOPS) data:

- Are there differences in the 12 Hospital SOPS patient safety composites between Magnet and non-Magnet hospitals?
- Is there a difference in the overall Hospital SOPS composite average score between Magnet and non-Magnet hospitals?
- Is there a difference in the number of reported adverse events between Magnet and non-Magnet hospitals?
- Is there a difference in overall patient safety grade in Magnet and non-Magnet hospitals?

Sample & Methods

Sample:

- Consisted of staffs' perceptions in 1,295 hospitals, 149 Magnet® & 1,146 non-Magnet
- Though percentage of Magnet Hospitals® (11.5%) was small versus non-Magnet hospitals (88.5%). This data represent Magnet hospitals® (7%) across the nation (Kelly, McHugh & Aiken, 2011)
- All hospital staff who interact with patients were invited to respond

Methods:

- The study was a correlational descriptive design
- Secondary Data analysis from the AHRQ & Westat was used (AHRQ, 2013)
- The Hospital SOPS instrument measured hospital staffs' perceptions about patient safety issues, medical error and events reporting
- Hospital characteristics were Magnet status (variable of interest) and hospital bed size (**categorical measure that was controlled for**)
- Regression analysis, descriptive statistics & hierarchical linear modeling were used to describe the comparisons of Hospital SOPS measures in Magnet and non-Magnet hospitals
- Results were reported in positive percent scores

Hospital SOPS Measures (12 composites, 2 single item & one overall average)

- Communication openness
- Frequency of events reported
- Feedback and communication about error
- Handoffs and transitions
- Management support for patient safety
- Non punitive response to error
- Organizational learning
- Overall perception of safety
- Staffing-Hospital SOPS
- Supervisor/manager expectations & actions promoting patient safety
- Teamwork across units
- Teamwork within units
- Patient safety grade on unit
- Number of adverse events reported in past 12 months
- Hospital SOPS composite average (12 composites)

Results

Hospital Bed Size

Distribution of Hospitals by Bed Size and Magnet Status

BED SIZE	HOSPITALS n %	MAGNET n %	NON-MAGNET n %
25-99 beds	490 38	10 6.7	480 41.9
100-199 beds	290 22	16 10.7	274 23.9
200-299 beds	202 16	33 22.1	169 14.7
300-399 beds	123 9	29 19.5	94 8.2
400-499 beds	73 6	21 14.1	52 4.5
500 beds+	117 9	40 26.8	77 6.7

Research Question #1

Were the differences in the 12 Hospital SOPS patient safety composites between Magnet and non-Magnet hospitals?

Estimated means for 12 H-SOPS composites by Magnet Status

Estimated Marginal Means for the 12 Hospital SOPs Composites by Magnet Status

Hospital SOPS Composite	Magnet n Mean (%)*	Non-Magnet n Mean (%)*	P
Communication openness	149 64	1143 62	.004**
Frequency of events reported	147 65	1143 64	.36
Feedback and communication about error	148 66	1143 65	.40
Handoffs and transitions	149 48	1143 46	.04*
Management support for patient safety	149 75	1142 72	.001**
Nonpunitive response to error	148 46	1141 44	.03*
Organizational learning	148 74	1146 72	.03*
Overall perceptions of safety	147 68	1131 66	.001**
Staffing - HSOPS	148 59	1143 56	.002**
Supervisor/management expectations and actions promoting patient safety	149 76	1137 75	.18
Teamwork across units	148 62	1138 59	.001**
Teamwork within units	148 82	1145 80	.002**

*Estimated Marginal Means; *p < .05; ** p < .001

Research Question #2

Was there a difference in the overall Hospital SOPS composite average score (12 composites) between Magnet and non-Magnet hospitals?

- Magnet status again showed significant difference in overall average but percentage point practical difference not met
- Magnet (65%) and non-Magnet (63%)

Research Question #3

Was there a difference in the number of adverse events, as assessed by Hospital SOPS, between Magnet and non-Magnet hospitals?

Adverse Events in Means by Magnet Status

Hospitals Reports on Adverse Events by Hospital Sample (N=1295) in Means and by Magnet Status in Means

Category of adverse events	Total Sample Mean (%)	Magnet Mean (%)*	Non-Magnet Mean (%)*	p
Hospitals reporting no events	54	54	54	.30
Hospitals reporting 1 or 2 events	27	28	27	.13
Hospitals reporting 3 to 5 events	12	13	12	.16
Hospitals reporting 6 to 10 events	4	4	4	.40
Hospitals reporting 11 to 20 events	1	2	2	.44
Hospitals reporting >20 events	1	1	1	.07

*EMM—estimated marginal means

Research Question #4

Was there a difference in the patient safety grade, as assessed by Hospital SOPS, between Magnet and non-Magnet hospitals?

Safety Grades by Magnet Hospital Status in Estimated Marginal Means

Safety Grade	Magnet Mean (%) ^a	Non-Magnet Mean (%) ^a	p
A (Excellent)	33	30	.004*
B (Very Good)	46	45	.09
C (Acceptable)	17	20	.001*
D (Poor)	3	4	.004*
E (Failing)	.5	.8	.007*

*EMM—estimated marginal means

^a p<.001

Summary of Results

- Magnet hospitals showed small significant positive differences (2-4%) in 9 out of 12 multi-item categories
- However, AHRQ recommends, in such a large data base, that percentage differences of at least 5% between hospitals is considered meaningful
- Therefore, it could not be determined that Magnet hospitals showed more positive safety culture than non-Magnet hospitals
- Results between Magnet and non-Magnet hospitals in the 2 variables of reporting adverse events and patient safety grades showed no meaningful differences between the two hospital groups.
- Under reporting of adverse events occurred at alarmingly high rates in both hospitals. 54% of both hospital groups reported no adverse events in the past 12 months
- More Magnet hospitals rated patient safety grades in their units as excellent or very good, and more non-Magnet hospitals rated safety grade, in their units as less favorable or failing



Discussion

- Magnet hospitals slightly outperformed non-Magnet hospitals on most scores
- Both hospital groups showed similar strengths (teamwork within unit) and similar weaknesses (non-punitive response to error)
- Magnet and non-Magnet hospitals rated themselves in the low to mid 60% range in the overall average score that determined how safe in general they felt their hospitals were
- Both groups reported astonishingly low rates of adverse events
- Magnet hospitals perceived their work unit as safer and non-Magnet hospitals rated their units as less safe

Possible explanations for Magnet Hospital scores

- Magnet Hospitals had larger bed-size than non-Magnet Hospitals. Already proven that the larger the bed size the lower the Hospital-SOPS scores (Sorra et al, 2012)
- Magnet Hospitals have implemented superior nursing practice environments. Non-Magnet hospitals may have learned from example without acquiring the Magnet designation
- Too soon to measure Hospital-SOPS differences as Magnet has only started to focus on patient outcomes (Poe &White,2010; Portera, 2012)
- Patient safety grade higher in Magnet . Previous research linked nursing empowerment scores with safety grade . Higher the empowerment the higher the Hospital SOPS scores & as safety grade decreased so did empowerment scores (Armellino et al., 2010). Similar results in this study.

Implications

Knowledge:

Added to body of knowledge in patient safety culture in hospital organizations.

Practice:

Quantify patient safety culture & focus on strengths and weaknesses to make improvements Safety culture within departments stronger than other areas Nurses play a significant leadership role in creating positive safety culture

Education:

More study needed around safer hospital environments that support error reporting

Policy:

Both Magnet and non-Magnet hospitals despite government regulations are still not that safe according to hospital staff.

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