

A Program to Reduce Serious Safety Events Throughout an Academic Hospital

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Background

High Reliability Organizations (HRO's) function within complex, uncertain, unstable environments, but are able to avoid errors that resulting in catastrophic consequences.¹ Increasingly, health care literature focuses on the changes required for hospitals to become HRO's² including avoiding catastrophic errors. In healthcare, a Serious Safety Event (SSE) is an error leading to severe permanent/temporary harm or death.³⁻⁴ Examples include wrong site surgery or severe renal failure due to a medication error. In 2006, Cincinnati Children's Hospital Medical Center, a 500 bed academic hospital and associated outpatient services, adopted a goal to reduce SSE's by 80% over a 3 year period. Our purpose is to describe the deployed safety improvement initiatives and track the effects on the rate of SSE's and culture of safety.

Methods

A diagnostic phase was undertaken consisting of:

- a) Review of 2004-05 events to accumulate data on root causes and define a baseline rate.
- b) Study our culture using the AHRQ Safety Culture survey. We administered electronically to all providers. We used reminders to achieve 40-60% response rate.
- c) Semi-structured interviews with a cross section of 125 individuals across organization.

A change strategy was then developed that included five broad initiatives:

- 1) Revise Patient Safety governance to increase focus and responsibility of senior leaders to achieve the goal.
- 2) Adopt cause analysis methods from outside healthcare including a common cause database
- 3) Train every team of providers in error prevention behaviors. Reinforce behavior change via simulation training and safety coaches.
- 4) Develop a culture of continuous learning using transparency of results on intranet, continuous sharing of improvements and front-line stories
- 5) Achieve 99.9% reliability on pre-procedure time-outs and prevention of foreign body retention techniques. (Fig. 3 for details)

Improvement teams were developed for each initiative. Senior leaders, including the CEO, reviewed progress on a regular basis.

SSE's were detected via reporting from front-line leaders. A panel of 2 physicians and 2 risk specialists reviewed any potential SSE to assure consistency in application of the methodology. The safety culture survey was repeated annually using similar methodology as the baseline. Significance was determined using a two-sided Fisher's exact test.

Results

The rate of SSE's across the organization decreased 78% to 0.22/10,000 adjusted patient days based on 12 month rolling average (Figure 1). Analysis of the 4th year culture survey results showed 19/34 questions were significantly improved while 1/34 significantly declined (Figure 2).

Conclusion and Implications

We conclude that a broad-based organizational effort focused on SSE reduction has been effective in reducing significant patient harm. This effort has included structural and operational changes in addition to process improvement. At the same time, the culture of safety across this organization has shown significant improvement. This initial effort at one academic organization may serve as a pilot for others seeking similar results. Looking to the future, analysis of the common cause database, reveals efforts to improve situation awareness and resiliency across the organization should lead to further reductions in SSE's.

1. *Managing the Unexpected: Assuring High Performance in an Age of Complexity*, edited by KE Weick, KM Sutcliffe (San Francisco, CA:Jossey-Bass,) 2001.
2. *Becoming a High Reliability Organization Operational Advice for Hospital Leaders*, prepared for Agency for Healthcare Research and Quality, Contract No. 290-04-0011, April, 2008.
3. Donnelly LF, Dickerson JM, Goodfriend MA, Muething, SE. "Improving Patient Safety: Effects of a Safety Program on Performance and Culture in a Department of Radiology." *Am J of Roentgenology* 193, 165-171, 2009.
4. <http://hpiresults.com> Healthcare Performance Improvement

Fig. 1

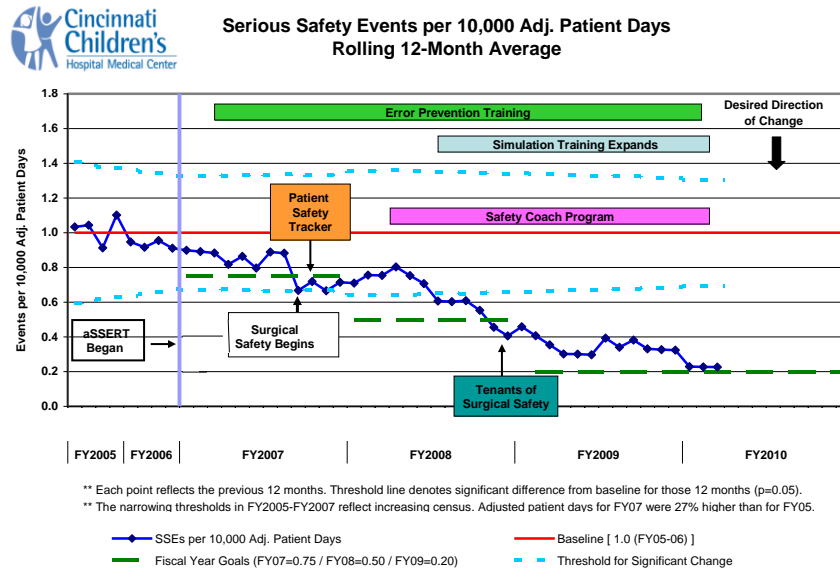


Fig. 2

Dimension Name	Question	Pos% 2009	Pos% 2008	Pos% 2007	Pos% 2006
Teamwork Within Hospital Units	People support one another in this unit	87.8%	86.3%	86.3%	87.4%
	When a lot of work needs to be done quickly, we work together as a team to get the work done	89.8%	89.2%	87.6%	89.7%
	In this unit, people treat each other with respect	82.3%	80.4%	79.1%	81.8%
	When one area in this unit gets really busy, others help out	75.0%	74.0%	72.6%	74.9%
Org Learning -- Continuous Improvement	We're actively doing things to improve patient safety	92.5%	88.4%	87.8%	89.7%
	Mistakes have led to positive changes here	77.3%	73.3%	68.3%	70.4%
	After we make changes to improve patient safety, we evaluate their effectiveness	78.6%	74.6%	71.9%	73.6%
Hospital Mgmt Support for Patient Safety	Hospital management provides a work climate that promotes patient safety	87.0%	83.5%	81.5%	84.9%
	The actions of hospital management shows that patient safety is a top priority	85.4%	84.6%	79.8%	81.8%
Super/Mgr Expectations & Actions Promoting Safety	Hospital management seems interested in patient safety only after an adverse event happens	69.0%	67.2%	60.6%	66.1%
	My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	69.0%	68.6%	64.3%	65.8%
	My supervisor/manager seriously considers staff suggestions for improving patient safety	78.7%	77.9%	76.1%	77.5%
Overall Perceptions of Safety	Whenever pressures builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	81.6%	80.6%	77.3%	79.9%
	My supervisor/manager overlooks patient safety problems that happen over and over	81.0%	80.2%	78.9%	80.4%
	It is just by chance that more serious mistakes don't happen around here	71.5%	68.1%	65.6%	68.1%
	Patient safety is never sacrificed to get more work done	61.5%	60.5%	59.3%	64.6%
Staffing	We have patient safety problems in this unit	63.2%	59.7%	58.8%	64.9%
	Our procedures and systems are good at preventing errors from happening	82.5%	77.3%	74.1%	76.1%
	We have enough staff to handle the workload	63.9%	62.9%	59.2%	62.5%
	Staff in this unit work longer hours than is best for patient care	60.5%	56.6%	56.8%	58.3%
Communication Openness	We use more agency/temporary staff than is best for patient care	68.8%	70.5%	62.9%	68.1%
	We work in 'crisis mode' trying to do too much, too quickly	57.3%	52.8%	51.4%	56.5%
	Staff will freely speak up if they see something that may negatively affect patient care	76.6%	74.1%	71.4%	74.8%
Feedback & Communication About Error	Staff feel free to question the decisions or actions of those with more authority	48.5%	46.2%	40.8%	43.3%
	Staff are afraid to ask questions when something does not seem right	70.7%	65.1%	63.8%	65.8%
	We are given feedback about changes put into place based on event reports			49.8%	50.7%
Frequency of Event Reporting	We are informed about errors that happen in this unit	60.3%	55.0%	49.5%	53.5%
	In this unit, we discuss ways to prevent errors from happening again	70.8%	68.6%	64.7%	69.0%
			46.0%	43.1%	46.2%
Teamwork Across Hospital Units	When a mistake is made, but has no potential to harm the patient, how often is this reported?	53.1%	46.5%	44.4%	47.0%
	When a mistake is made that could harm the patient, but does not, how often is this reported?	71.2%	67.5%	64.7%	67.5%
	Hospital units do not coordinate well with each other	41.2%	35.9%	33.0%	36.5%
	There is good cooperation among hospital units that need to work together	55.0%	51.7%	47.9%	51.3%
Nonpunitive Response To Error	It is often unpleasant to work with staff from other hospital units	60.8%	58.4%	56.1%	59.4%
	Staff feel like their mistakes are held against them	50.1%	50.9%	49.0%	51.2%
	When an event is reported, it feels like the person is being written up, not the problem	52.3%	50.5%	49.0%	51.2%
Hospital Handoffs & Transitions	Staff worry that mistakes they make are kept in their personnel file	36.3%	35.8%	34.2%	36.3%
	Things 'fall between the cracks' when transferring patients from one unit to another	33.7%	31.0%	28.7%	31.4%
	Important patient care information is often lost during shift changes	48.4%	43.1%	44.0%	46.0%
Patient Safety Grade	Problems often occur in the exchange of information across hospital units	37.1%	33.2%	33.1%	35.4%
	Shift changes are problematic for patients in the hospital	39.5%	34.9%	35.7%	38.7%
Please give your work area/unit in this hospital an overall grade on patient safety.		82.1%	76.9%	73.2%	76.5%

GREEN – Means 2009 is Significantly Better

PINK – Means 2009 is Significantly Worse

Fig. 3

