

Nonpunitive Medication Error Reporting 3-Year Findings From One Hospital's Primum Non Nocere Initiative

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Nonpunitive Medication Error Reporting

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Objective: To identify underlying practices and attitudes on medication error occurrences and reporting practices.

Background: In response to a hospital-wide quality improvement initiative, a task force was formed to facilitate a nonpunitive culture toward reporting medication errors. To identify underlying practices and attitudes on medication errors and medication error reporting, a baseline survey was conducted. Based on findings, an initiative that included modifications to clinical and administrative processes was developed and implemented.

Methods: A pre/post initiative questionnaire to measure staff practices and attitudes on medication error reporting was developed and administered. Findings from the presurvey were used to craft the Nonpunitive Patient Safety Policy and its implementation plan. Pre-post comparative analysis was performed following a baseline-postimplementation design.

Results: Conceptually, a medication error is qualified by its outcome severity. Medication errors with more serious outcomes are more likely to be reported than those with less serious ones. Staff perception that medication error reporting carries the risks of disciplinary action was identified as a primary barrier to the likelihood of reporting.

Conclusion: Evaluation of the initiative suggests that a multicomponent approach facilitates positive movement in the direction of a nonpunitive culture toward reporting medication errors.

Since the release of the Institute of Medicine's reports, "To Err Is Human: Building a Better Health System"¹ and "Crossing the Quality Chasm,"² a number of initiatives in patient safety have been undertaken at the national, state, and local levels. Professional organizations, hospitals, and health systems have intensified their efforts at preventing patient injuries.

Traditional approaches to improving patient safety focus on errors by healthcare providers. Blaming and imposing disciplinary actions against the provider in the guise of protecting the system from legal liability creates the victimization of the provider and the patient. Rather than improving safety for the patient, punishment provides strong incentive for providers to hide their mistakes, which prevents the recognition, analysis, and correction of underlying causes and system problems.^{3,4}

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The current evidence-based patient safety literature recognizes that human errors are an end result of a complex set of events, processes, and contributing factors that lead to failure.⁵⁻⁷ A qualitative study performed by Stetina et al⁵ suggests that nurses perceive an occurrence of a medication error when there are simultaneous events viewed as having greater priority (context counts, time is on our side) and when systems fail (reliance on systems), and Osborne et al⁷ found name-band checks, fatigue, exhaustion, and distraction as the major causes of medication error reported by nurses.

The Institute of Medicine's reports note that when an error occurs, blaming an individual does little to make the system safer and prevent someone else from making the same error.^{1,2} Benner et al⁸ states, "Experiential learning within a practice discipline and team is distinctly different from a 'shame and blame' culture." Deming⁹ believes that creating trust minimizes practices that undermine self- and mutual respect, encourages pride in work practices, and encourages process improvement. Managers and administrators should work to create an environment where individuals are trained to handle the difficult situation of a medical error and create a safe place to work where empathy and respect for coworkers prevails.¹⁰ As Wolf and Serembusso³ eloquently conclude their article on ending the blame-game, "Cultural change begins with us."

An important goal for healthcare administrators is to create a culture that accepts the imperfection of human performance and solicits the assistance of team members in the development of safeguards for error prevention.¹¹ Despite the proliferation of national attention given to the benefits of a nonpunitive system-based approach to error reduction, a recent survey of healthcare workers indicated that a nonpunitive culture tolerates failure. These workers represented managers, administrators, and staff.¹²

Treating more than 40,000 inpatients a year across 3 sites, Lehigh Valley Hospital and Health Network (LVHVN), an academic community hospital in eastern Pennsylvania, acknowledges that a culture of punishment is counterproductive to patient safety. In Fall 2000, LVHVN embarked on a multidisciplinary, targeted response to the first Institute of Medicine's report. The initiative, entitled *Primum Non Nocere*, or First Do No Harm, is composed of quality improvement projects that emphasize systems approaches to improving care and reducing medical errors.¹³ It became evident through this initiative that a major barrier to the

staff reporting of medical errors is the risk of disciplinary action. Therefore, a task force was developed to create a nonpunitive approach to reporting patient safety issues, particularly medication errors.

Methods

To identify underlying practices and attitudes on medication errors and disciplinary actions within LVHVN, the task force conducted a baseline survey. Findings from the survey were used to craft the Nonpunitive Patient Safety Policy (NPSP), introduce the policy to department heads, and develop an interactive education workshop related to the NPSP policy.

Survey Instrument

The Staff Attitudes on Medication Error Reporting survey was developed based on an intensive literature search and recommendations from an expert panel. The panel included representatives from direct clinical care, indirect clinical care, and management. Disciplines represented included nursing, pharmacy, physicians, risk management, care management, nursing education, human resources, and health studies. A pilot questionnaire was administered to a representative sample of respondents to ensure comprehensibility and appropriate length. Revisions were made based on pilot test results.

The baseline survey took approximately 10 minutes to complete and had 45 questions arranged in 3 distinct sections: (1) respondent characteristics, (2) perceptions on the occurrence and reporting of medication errors, and (3) attitudes/beliefs toward medication error causes and reporting. Respondents were asked to rank the likelihood of occurrence for each described medication error situation using a 5-point Likert scale with 1 representing "very unlikely to occur" and 5 representing "very likely to occur." Respondents were also asked to indicate their degree to which they agree or disagree with described attitude and value statements regarding medication error causes and disciplinary actions using a 5-point Likert scale with 1 representing "strongly disagree" and 5 representing "strongly agree." The order of questions was designed to follow a standard survey placement pattern.

The postsurvey was identical to the baseline and included 3 additional questions on the NPSP program. To minimize interruption to question placement and respondent bias, these 3 questions were added to the end of the survey. The surveys were distributed through group meetings and sent

directly to senior management through intrahospital mail. Confidentiality and anonymity were preserved using envelopes preaddressed to a third-party hospital-based research division.

Data analysis was performed following a baseline-postimplementation design. Statistical analysis was performed using SPSS and MetStat.¹⁴ Descriptive statistics and Pearson χ^2 tests were used to describe respondent groups. Statistical tests used for pre/post intervention comparisons were parametric and nonparametric *t* tests as indicated. Nonparametric Spearman ρ technique was used to analyze associations between variables.¹⁵

Intervention

In January 2002, the baseline survey was administered to all staff members who prepare, administer, transcribe, educate, or oversee medication administration. Senior management and physician residents were asked to complete the survey in March/April 2002.

Baseline survey findings were used to construct the NPSP intervention. Baseline findings and the NPSP were initially presented to administration and medical staff between October 2002 and January 2003. By March 2003, the hospital orientation classes had been updated to include medication safety, team education, and team building. A hospital-wide interactive education workshop, "Moving Beyond Blame: Turning the Tide," was developed during the summer of 2003. This workshop was first offered in November 2003 to administrators and managers responsible for medication error counseling. Upon request from administrators, the education workshop was subsequently videotaped, and copies were distributed to all nursing units as part of their continuing education program.

"Objectives of the Moving Beyond Blame: Turning the Tide," an interactive education workshop, were to (1) discuss the importance of recognizing and reporting all medication errors/near misses, (2) demonstrate nonpunitive coaching and feedback skills using identified case scenarios, and (3) identify and develop change agents to promote awareness and adoption of NPSP. The agenda included an overview of the NPSP policy, pre-established medication error scenarios discussed in small group breakout sessions then reported back to the group at large, and a summary of key points.

After the NPSP intervention, in October 2004, the postsurvey was administered to the same types of staff members, with the exception of Senior Management and Physician Residents.

Results

For the purposes of this article, findings as they apply to nursing staff are reported.

Demographics

A total of 644 and 665 nursing staff completed and returned the Staff Attitudes on Medication Error Reporting survey in 2002 and 2004, respectively. Respondents were classified as direct and shared management (MGT), direct patient care (DPC), and indirect patient care (IPC). Respondents classified as IPC may perform medication transcription and included supporters of those who perform DPC. Respondents classified as DPC included staff that provide day-to-day patient care and administer medications to patients. Respondents classified as MGT were those who provide some DPC and supervision of DPC in varying time units proportional to unit staffing patterns. They were responsible for review, action, and follow-up of event reporting, including medication errors.

Respondents to both the 2002 and 2004 surveys included MGT, IPC, and DPC. The number of full-time, part-time, and per diem respondents was proportional to staffing levels. Percentages of respondents according to day, evening, or night shifts were also proportional. There was a significantly lower number of IPC and increased number of DPC from 2002 to 2004 ($P = .012$) (Table 1).

Baseline Survey Findings

Baseline findings were used to evaluate the existing culture, as it pertains to medication error perceived occurrence, perceived cause, and perceived prevalence of reporting. Findings reported in this section were those used to develop the NPSP program.

Table 1. Respondent Demographics

	2002 (n = 644), %	2004 (n = 665), %
Management	8.4	7.4
Indirect patient care	6.5	3.2
Direct patient care	85.1	89.5
Full-time	71	72
Part-time	23.8	23
Per diem	5.2	5
Day shift	61	62
Evening shift	15	11
Night shift	20	20
Years worked at this hospital	13.33 ± 8.88 1 mo–45 yr	13.13 ± 9.95 1 mo–40 yr

Table 2. Differences Between Preintervention and Postintervention in Responses to Perceived Likelihood of Occurrence*

	Spring 2002	Fall 2004	P
1. A medication error occurs as a result of			
a. a system failure	2.80 ± 1.19	2.78 ± 1.18	.722
b. inadequate staffing	3.80 ± 1.11	3.58 ± 1.15	<.001
c. excess hours worked	3.63 ± 1.16	3.44 ± 1.16	.002
d. job stress	3.86 ± 1.07	3.70 ± 1.05	.005
e. poor performance	3.30 ± 1.31	3.30 ± 1.29	.991
2. Given that a staff member is aware of a medication error, (s)he reports it if			
a. a medication error requires the patient to be transferred to the intensive care unit	4.62 ± 0.93	4.61 ± 0.90	.777
b. a medication error demonstrates a change in the patient's vital signs	4.55 ± 0.85	4.48 ± 0.90	.144
c. a medication error requires the patient to be monitored more closely	4.53 ± 0.84	4.41 ± 0.97	.017
d. a medication error demonstrates no immediate change in the patient's clinical outcome	3.58 ± 1.25	3.55 ± 1.28	.602
e. a medication error does not reach the patient	2.37 ± 1.39	2.46 ± 1.42	.263
3. If I discover a transcription error, I would			
a. do nothing	1.42 ± 1.01	1.44 ± 1.06	.723
b. tell the person who made the error	4.41 ± 0.96	4.38 ± 1.01	.562
c. notify the patient's care giver	3.97 ± 1.41	4.04 ± 1.31	.348
d. tell the physician	3.55 ± 1.47	3.74 ± 1.35	.018
e. complete an event report	3.64 ± 1.39	3.74 ± 1.35	.188
4. Staff who report someone else's medication error feel supported.	3.11 ± 1.16	3.30 ± 1.09	.002
5. Staff who report their own medication error feel supported.	3.31 ± 1.20	3.55 ± 1.05	<.001
6. A medication error is not reported because of paperwork involved.	2.61 ± 1.32	2.64 ± 1.31	.696
7. Someone who makes a medication error			
a. receives educational training	3.12 ± 1.33	3.54 ± 1.22	<.001
b. receives counseling	3.52 ± 1.20	3.57 ± 1.22	.506
c. incurs a decreased merit raise or no merit raise	2.49 ± 1.24	2.45 ± 1.20	.501
d. is placed on suspension	2.19 ± 1.10	2.18 ± 1.17	.830

Rating scale: 1 = very unlikely through 5 = very likely.

*Statistically significant differences in bold text.

Findings comparative to the postintervention survey are reported in "Precomparative Analysis: Pre-Post NPSP Implementation" section.

Reporting Errors

The MGT group was more comfortable reporting medication errors than the DPC group ($P = .013$). In addition, MGT were more likely to feel that they provide education to those involved in a medication error event, as opposed to suspension or decreased merit raise, than DPC ($P = .012$). All groups believed that medication errors with more serious outcomes are more likely to be reported than those with less serious ones. Mean occurrences of reporting a medication error by severity incidence were sequenced from more likely (value of 5) to less likely (value of 1) to be reported. All groups strongly agreed that near misses were as important to prevent as actual medication errors. All groups believed that medical errors result from job stress, inadequate staffing, and excess hours worked. However, respondents were less likely to indicate that their workload interferes with their ability to report a medication error (Table 2).

Comparative Analysis: Pre-Post NPSP Implementation

Respondents indicating employment at LVHHN after the introduction of the NPSP program (less than 2.6 years) were compared with those having been employed before policy introduction. Newly hired employees receive NPSP policy training as part of their employee orientation program. Employees that worked 2.6 years or longer for LVHHN were more likely to indicate that if they discover a transcription error, they would tell the person who made the transcription error ($P = .047$) and would notify the patient's care giver ($P < .001$). There were no other statistically significant differences between these groups across the survey.

Respondents were asked whether they were aware of the NPSP, whether they understood the NPSP, and whether they attended an NPSP interactive education workshop. Overall 35% indicated that they had attended the NPSP workshop. The workshop was first offered to MGT staff and, at the time of the 2004 survey, MGT was more likely to have attended (60.7%) than DPC (33%) and IPC (19%). Respondents were asked to rate on a

scale from 1 (strongly disagree) to 5 (strongly agree) the following 2 questions: “I am aware of the Nonpunitive Safety Program Policy” and “I understand the Nonpunitive Safety Program Policy.” Mean awareness was 3.90 ± 1.25 and mean understanding was 3.71 ± 1.31 . Responses were collapsed to high (4–5), mid-range (3), and low (1–2) categories of awareness and understanding. Using the Spearman association coefficient, a significant, strong association between awareness of the NPSP and understanding the NPSP was identified ($r = 0.926, P < .001$). There was a significant, moderate to weak association between attending the NPSP interactive education workshop and being aware of the policy ($r = .390, P < .001$), and a significant, moderate association between attending the NPSP workshop and understanding the NPSP ($r = 0.428, P < .001$). Statistically significant differences in attitudes toward reporting medication errors between those attending and those not attending the NPSP workshop are displayed in Table 3.

That medication errors with more serious outcomes are more likely to be reported than those with less serious ones was demonstrated postintervention as well. Postintervention responses followed the same pattern as baseline responses. Mean occurrences of reporting a medication error by severity incidence were sequenced. Statistically significant differences in likelihood of medication error occurrence and attitudes toward reporting medication errors between baseline and postintervention are both displayed in Tables 3 and 4 in bold text.

Discussion

All groups indicated a sequential structure in reporting medication errors, such that those with more serious outcomes are more likely to be reported than those with less serious ones. This finding may parallel that of Osborne et al, in their discussion of how a reportable medication error is defined. For example, if the error did not reach the patient or did no systemic damage, then it may not be perceived as an error. It is also plausible that managing the process of patient logistics and error reporting is qualified by outcome severity. This theme has been described by Stetina et al as “context counts.”

Postintervention respondents were less likely to indicate that a medication error occurs than at the time of baseline as a result of inadequate staffing, excess hours worked, or job stress. An increase in nursing staff was most likely responsible for alleviating this belief. Fatigue and exhaustion placed second to failure to check patient name band in the Osborne’s investigation of the nursing perception of medication error cause.

There was also a postintervention indicator of greater likelihood to report a medication error rather than solely discuss the error with the person who committed it. In addition, postintervention respondents were more likely to indicate that they would tell the physician if a transcription error is discovered. Another indicator of positive change was increased beliefs that if allowances were made for mistakes, then staff would be more open about reporting and recommending changes. However,

Table 3. Statistically Significant Differences in Reporting Medication Errors Between Those Who Attended the Nonpunitive Policy Education Session and Those Who Did Not

Total Respondents	Attended	Not Attended	P
2. I believe that near misses are			
b. as important to prevent as actual medication errors.	4.36 ± 0.90	4.16 ± 0.96	.010
4. I believe that the primary concern of those who review reports of medication error is assuring patient safety.	4.59 ± 0.66	4.35 ± 0.83	< .001
b. be more likely to recommend changes to decrease medication error.	3.92 ± 1.06	3.73 ± 1.01	.027
8. I feel that an appropriate response to a medication error is			
a. training and education	4.31 ± 0.87	4.00 ± 1.00	<.001
b. feedback to involved staff	4.54 ± 0.68	4.34 ± 0.81	.002
12. If I were to observe a medication error, I would prefer to discuss it with the person who committed it, rather than to report it.	3.05 ± 1.23	3.35 ± 1.14	.001
13. I feel I can report a medication error that I discover without fear of			
a. reprisal by my supervisors	3.96 ± 1.05	3.70 ± 1.09	.004
15. I feel comfortable			
a. reporting medication errors made by coworkers	3.43 ± 1.09	3.16 ± 1.10	.003
b. openly communicating my opinions on patient care practice	4.03 ± 1.00	3.83 ± 0.91	.009

Rating scale: 1 = very unlikely through 5 = very likely.

Table 4. Differences Between Preintervention and Postintervention in Responses to Attitudes Toward Reporting Medication Errors*

	Spring 2002	Fall 2004	P
1. A medication error occurs as a result of			
a. a system failure	2.80 ± 1.19	2.78 ± 1.18	.722
b. inadequate staffing	3.80 ± 1.11	3.58 ± 1.15	<.001
c. excess hours worked	3.63 ± 1.16	3.44 ± 1.16	.002
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d. is placed on suspension	2.19 ± 1.10	2.18 ± 1.17	.830

Rating scale: 1 = very unlikely through 5 = very likely.

*Statistically significant differences in bold text.

this finding only hints on the movement toward an open-error reporting climate because the staff continued to indicate that they would rather report errors anonymously.

There was a significant, positive association between attending the interactive educational workshop and understanding the nonpunitive policy. Most of the significant differences between the 2 groups were found in attitudes and beliefs toward reporting medication errors. Although there was a significant increased likelihood between preintervention and postintervention to believe that if allowances were made for mistakes, then the staff would be more likely to recommend changes and to indicate appropriate responses to medication error, which include training, education, and feedback to the involved staff, these encouraging outcomes were augmented by the workshop. Those attending the workshop were also more likely to believe that near misses are as important to prevent as actual medication errors and that the primary concern of those who review the reports of medication error is to assure patient safety and to indicate that they felt comfortable

(1) reporting a medication error they discovered without fear of reprisal by their supervisors, (2) reporting medication errors made by coworkers, and (3) openly communicating their opinions on patient care practices. Those attending the workshop were less likely to indicate that if they observed a medication error, they would prefer to discuss it with the person who committed it rather than to report it.

The authors recognize that the evaluation reflects the success of an initiative offered at a community-based teaching hospital in mid-eastern Pennsylvania, United States.

Implications for Practice

The primary barrier to reporting medication error identified through this intervention was staff perception that reporting an error carries a risk of disciplinary action. Previously conferred in the introduction, this barrier is cemented into place through traditional authoritarian attempts to improve patient safety and a resistance to change syndrome. Our evaluation suggests that a multi-component intervention facilitates a significant,

positive change in the staff perception of the purpose and outcome of reporting medication error.

The findings suggest that these changes are enhanced by an interactive educational workshop. Those attending our interactive education workshop incurred significant, positive changes in their belief that near misses are reportable and that assuring patient safety is the primary objective of the medication error reporting process. They also were more likely to indicate comfort in reporting a medication error without fear of supervisor reprisal and in openly communicating opinions on patient care practice. This comfort level is needed to bridge the gap from a culture steeped in a traditional

disciplinary approach to medical error toward one that acknowledges risk and recognizes prevention as everyone's responsibility.

Lehigh Valley Hospital and Health Network believes in the importance of cultivating a non-punitive culture for optimal adverse event reporting. Both clinical and administrative processes have been modified to facilitate the reduction of adverse events. Lessons learned through this baseline investigation continue to be communicated throughout the organization. The authors recognize that culture change is an iterative and long-term mission; however, evaluation of this initiative suggests the first steps of a cultural movement in favor of a Non-punitive Patient Safety program

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