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Effects of Voluntary Public Reporting on the Nurse Sensitive Measures of Falls and Falls with Injury in Hospitals: A Massachusetts Perspective

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EFFECTS OF VOLUNTARY PUBLIC REPORTING ON THE NURSE SENSITIVE MEASURES OF FALLS AND FALLS WITH INJURY IN HOSPITALS: A MASSACHUSETTS PERSPECTIVE

A Dissertation Presented

by

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ABSTRACT

EFFECTS OF VOLUNTARY PUBLIC REPORTING ON THE NURSE SENSITIVE MEASURES OF FALLS AND FALLS WITH INJURY IN HOSPITALS: A MASSACHUSETTS PERSPECTIVE

December 2011

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Background: Interest and efforts in the health care industry to be transparent by collecting and publicly reporting performance measures about healthcare quality and cost has increased in recent years. The National Quality Forum (NQF) endorsed a set of 15 national quality measures for nursing-sensitive care that could be used for public accountability and quality improvement, including measures of patient falls and falls with injury. Patient falls have been among the largest category of reported incidents in hospitals, and are a serious concern for healthcare leaders and healthcare team members. In 2006, Massachusetts hospitals began voluntarily publicly reporting the nurse sensitive measures of patient falls and falls with injury through the *Patients First* initiative.

Purpose: The purpose of this study was to evaluate effects of the voluntary public reporting program, *Patients First*, on the nurse sensitive measures of patient falls and falls with injury and the quality improvement interventions implemented to prevent patient falls.

Method: A policy evaluation study was conducted to determine the effectiveness of the *Patients First* policy over the period of 2006 – 2009. Data collection and evaluation were guided by the Conceptual Model for Nursing and Health Policy (CMNHP) Guidelines for Policy and Program Evaluation (Fawcett & Russell, 2001). The study was conducted at Level 2 of the revised CMNHP focusing on the outcomes – effectiveness of the policy (Fawcett & Russell, 2005). In this mixed method study design, falls and falls with injury over time and data about interventions for fall prevention that were implemented were collected from chief nursing officers.

Results: The overall fall rate demonstrated a decreasing trend and the overall fall with injury rate demonstrated a decreasing movement after the implementation of the voluntary public reporting program, *Patients First*. Chief nursing officers indicated that public reporting of falls and falls with injury indirectly and directly led to the implementation of fall prevention intervention strategies.

Conclusion: The public reporting of falls prompted action to be taken that stimulated change and increased knowledge of fall and fall prevention in hospitals, and served to advance quality and safety in hospitals.

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TABLE OF CONTENTS

CHAPTER Page

LIST OF FIGURES

Figure Page

LIST OF TABLES

Table Page

LIST OF TABLES

Table Page

CHAPTER 1

INTRODUCTION TO THE PROBLEM

The 2001 publication of the Institute of Medicine's (IOM) report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, provided a vision of an ideal health care system that delivers consistent high quality care, an overarching goal to which all health care organizations need to aspire. The report included a framework made up of six dimensions of the quality of healthcare – patient centered, safe, effective, efficient, timely, and equitable. Over time, this framework has come to serve as a guide for all organizations' evolving quality and safety programs. The transformational agenda for change that was proposed in the report included a call for transparent information about organizational performance of safety, evidence-based practice, and patient satisfaction (IOM, 2001). Since the publication of the report, there has been more interest and effort in the health care industry to be transparent by collecting and publicly reporting information and performance measures about healthcare quality and cost (Colmers, 2007; Fung, Lim, Mattke, Damberg and Shekelle, 2008; Gallagher and Rowell, 2003; Hibbard, Stockard, and Tusler, 2003; Kurtzman & Jennings, 2008; Marshall, Shekelle, Leatherman, and Brook, 2000; Pham, Coughlan, and O'Malley, 2006). There also has been an increasing focus on holding healthcare providers accountable for the quality of their care.

Public reporting of performance information was designed to "inspire improvements and aid in provider selection, and foster higher-quality, cost-effective

care" (Kurtzman & Jennings, 2008**,** p.349). Publication of performance information revealed variation in provider performance and facilitated consumer choice of healthcare providers, which may result in improved quality of care and limits on costs (Smith & Jordan, 2008). Advocates for public reporting noted that it would infuse competition into the healthcare system, make the system more accountable, help providers improve by benchmarking against others, encourage private insurers and public programs to reward quality, and help inform patients about choices for care (Colmers, 2007). Publicly reported information of healthcare costs can improve transparency, which can lead to the development, use, and sharing of appropriate and effective quality and efficiency measures (Collins & Davis, 2006). Public reporting was thought to increase awareness of the measures that are reported and put more focus on hospital performance (Hibbard et al., 2003, 2005; Pham et al., 2006).

Initiatives to develop performance measures related to nursing and to collect and publicly report this information were part of the overall emphasis on improvement of the quality of healthcare. Measuring nursing performance and nursing's impact on care began in the 1990s with the inception of the Nursing Safety and Quality initiative by the American Nurses Association. In 2004, the National Quality Forum (NQF) endorsed a set of 15 national voluntary consensus standards or quality measures for nursing-sensitive care that could be used for public accountability and quality improvement (NQF, 2004). The 15 measures were among the NQF-Endorsed Standards for Acute Care Hospital Performance (NQF, 2007). These measures included patient falls and falls with injury.

The effect of public reporting on the nurse-sensitive measure outcomes and quality improvement efforts had not been studied.

More than one third of adults 65 years of age and older in the United States fall each year (Hausdorff, Rios, and Edelber, 2001). Indeed, falls are the leading cause of injury deaths among older adults (Center for Disease Control (CDC), 2006). The CDC continues to report increases in fall rates among older adults. In 2007, over 18,000 people over 65 and older died from injuries related to unintentional falls; an increase of 2,200 people from 2005. In 2009, 2.2 million people 65 and older were treated in emergency departments for non fatal injuries from falls, and more than 581,000 of these patients were hospitalized. This is an increase of 0.4 million people treated in emergency departments in 2008, and an increase of 148,000 of these patients who were hospitalized (CDC, 2010). In 2000, it was estimated that the total direct cost of all fall injuries for people 65 and older exceeded $19 billion -- $0.2 billion for fatal falls, and $19 billion for nonfatal falls (Stevens, 2006). Fall related injury death rates in Massachusetts, reported per 100,000 population, increased from 3.2 in 2000 to 5.7 in 2006 (Massachusetts Department of Public Health, 2008). Moreover, falls were the largest category of reported incidents in hospitals (Eldridge, 2004). Patient falls were usually noted as the second most frequent cause of harm, surpassed only by medication errors (Eldridge, 2004). In May 2008, the Massachusetts Department of Public Health (MDPH) reported that of 70 incidents reported as serious reportable events (SRE) by 33 hospitals, 67% were fall with death or disability incidents.

Massachusetts hospitals voluntarily publicly report the nurse sensitive measures of patient falls and falls with injury through the *Patients First* initiative (www.patientsfirstma.org). As part of the leadership platform of the initiative, which began in 2005, Massachusetts hospital administrators signed pledges to collect and publicly report hospital-specific data on a subset of the NQF endorsed nurse sensitive measures (Massachusetts Hospital Association, 2005; Reid Ponte, Moore, Crowley Ganser, Madigan and Gale, 2005). As part of the *Patients First* initiative, an NQF Nursing Measure Special Workgroup was convened to evaluate and recommend pilot testing of measures. Six of the nurse sensitive measures were tested in hospitals in the state, and falls and falls with injury data were among the three measures chosen to be publicly reported. Hospital-specific patient falls and falls with injury data beginning from October 2006 were first posted on the *Patients First* website in October 2007. Hospitals were also welcome to include narratives about their improvement work with patient falls in their hospital specific report.

The purpose of this study was to evaluate effects of the voluntary public reporting program, *Patients First*, on the nurse sensitive outcome measures of patient falls and falls with injury and the quality improvement interventions implemented to prevent patient falls. The specific aims were to:

1. Examine changes over the time period 2006 – 2009 in the public reporting of falls and falls with injury rates in Massachusetts acute care hospitals
2. Examine characteristics of the Massachusetts acute care hospitals that publicly report falls and falls with injury rates over the time period 2006 – 2009.

3. Describe quality improvement interventions implemented over the time period 2006 – 2009 to prevent patient falls in Massachusetts acute care hospitals.

Conceptual-Theoretical-Empirical Structure

The Conceptual Model for Nursing and Health Policy (CMNHP) (Fawcett & Russell, 2001; Russell & Fawcett, 2005) guided this study. This model was designed to further develop knowledge of the intersection between nursing and health policy and could be used to guide analysis or evaluation of a health program or policy.

The revised CMNHP (Russell & Fawcett, 2005) provided a starting point for construction of a conceptual-theoretical-empirical structure for analysis and evaluation of health policies. The sources of the policy may be public, organizational, or professional. The components of the policy address health care services, health care personnel, and health care expenditures. The conceptual model addressed the nursing metaparadigm concepts of unit of analysis (person), environment, health, and nursing health policy focus and outcomes. Four interacting levels of nursing and health policy focus and outcomes were recognized (Russell & Fawcett, 2005). Level I focused on individuals, families, groups, and communities, with focus on nursing practice processes and outcomes emphasizing quality. Level II focused on a specific nursing practice or health care delivery system with a focus on practice delivery systems and outcomes emphasizing quality and cost. Level III focused on health care systems of geopolitical communities, states, nations with a focus on health care delivery subsystems and

outcomes emphasizing access. Level IV focused on humankind with a focus on world health administrative practices and outcomes emphasizing quality, cost, and access.

The policy source for this study was of both organizational and professional origin. The policy source was the quality and safety organizational initiative specifically called "*Patients First*: Continuing the Commitment to Safe Care," jointly developed by the Massachusetts Hospital Association (MHA) and the Massachusetts Organization of Nurse Executives (MONE), and in which all acute care hospitals in Massachusetts were enrolled. Hospital chief executive officers, with the support of their governing board, signed a "Pledge of Participation" document to support the *Patients First* initiative and its leadership platform (MHA, 2005; Reid Ponte et al., 2005). The additional policy source for the study was the policy guideline developed by the professional organization, The Joint Commission on Accreditation of Healthcare Organizations. The guideline was composed of five major dimensions of fall causes developed from root cause analyses of fall sentinel events from 1995-2004 (JCAHO, 2005, p. 29-50).

The policy component for this study was health care services. This included a voluntary program in the state to publicly report patient falls and falls with injury; thereby providing users with a network of data to inform, as well as to improve process and outcomes. This program, the *Patients First* database, housed hospital characteristics and falls data. The hospital characteristics included hospital bed size, hospital teaching status, hospital type, and unit type. The falls and falls with injury data were reported on a quarterly basis by hospital unit type and stored in the database. The falls and falls with injury data are publicly posted on the *Patients First* website and represent four quarters of

data. Hospital teaching status was available from the Massachusetts Division of Healthcare Finance and Policy (DHCFP). Hospital bed size and ownership status were available from the American Hospital Association (AHA) database. Hospital Magnet status was available from the American Nurses Credentialing Center (ANCC) website. CNO demographics were a component of the qualitative interviews. Hospital characteristics were needed to determine whether the fall rates or fall prevention interventions/strategies change or were different in different types of hospital units, in hospitals of different sizes, of different teaching status, of different ownership status, or among Magnet/non-Magnet hospitals. The health care services component for this study also included the interventions and strategies implemented to prevent falls and falls with injuries in the hospitals. Such interventions and strategies may have included caregiver communication strategies, staff orientation and training programs, patient assessment and reassessment tools and systems, care planning and care provisions systems, and interventions in the patient care environment. These policy components were stored in the *Patients First* database, American Hospital Association (AHA) database, American Nurses' Credentialing Center (ANCC) website, and demographic components were also included in transcripts of qualitative interviews, which were completed by the researcher.

This study was directed to Level II of the CMNHP. Within the model at Level II, the study focused on effectiveness, specifically on effectiveness of the health care delivery systems in hospitals in Massachusetts (through a quality and safety initiative, with a focus on hospital characteristics, the effectiveness of fall prevention interventions), and of the outcomes of fall rates and fall with injury rates that emphasized the quality and

safety of the hospitals. The outcome measures of falls and falls with injury were defined by NQF and The Joint Commission. The Conceptual-Theoretical-Empirical Structure for the study is illustrated in Figure 1.

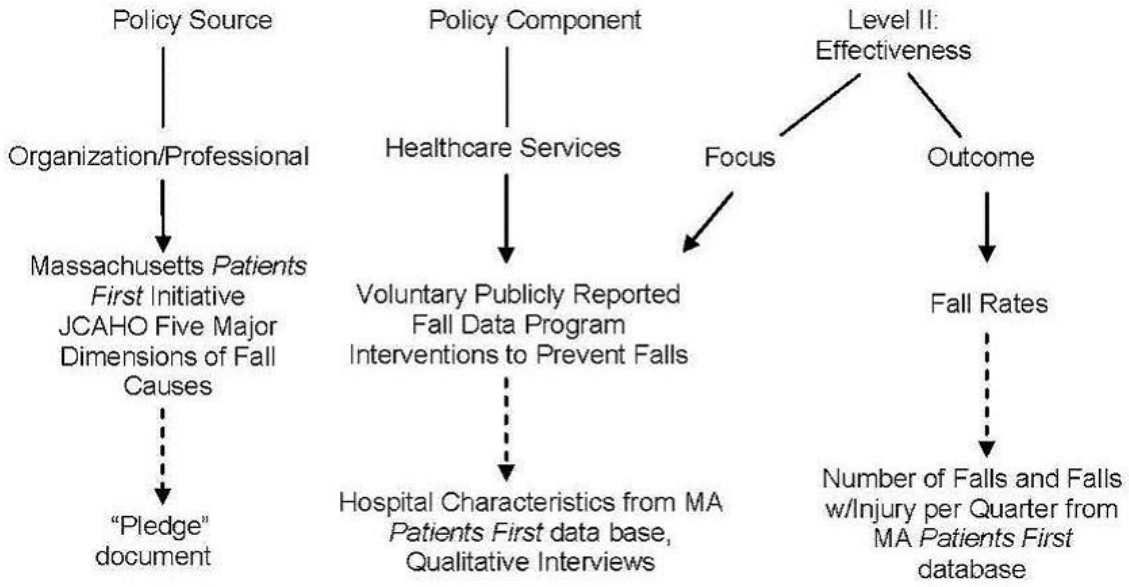


Figure 1. Conceptual-Theoretical-Empirical Structure for the Study of the Effects of Voluntary Public Reporting on the Nurse Sensitive Measures of Falls and Falls With Injury in Hospitals: A Massachusetts Perspective.

The *Guidelines for Policy and Program Evaluation* (Fawcett & Russell, 2001) was used as the organizing structure for the analysis of the study data. The questions posed in the policy evaluation and the ways in which they were answered were listed in Table 1.

Table 1

Use of Guidelines for Policy and Program Evaluation for Study of Voluntary Public Reporting of Patient Falls.

Topic	Evaluation
The Policy	*Patients First* initiative
What is the policy/program to be evaluated?	Public reporting of patient falls as part of *Patients First*
Does it focus on healthcare services, personnel, expenditures, or some combination of the three?	Health care services. See Chapter I.
To which level of the CMNHP is the policy directed?	Level II. See Chapter I.
The Problem	
What problem was solved by the policy?	Statewide patient fall rates and fall with injury rates and interventions to prevent falls
What was the magnitude of the problem?	See Chapter 2
The Solutions	
What solution(s) was (were) selected?	Comparative analysis among like units in Massachusetts hospitals, quality improve-ment interventions
Why?	Improve patient care.

	Increase quality and safety in Massachusetts hospitals. Improve care environment. See Chapter 2.
The Stakeholders	
Who continues to support the policy?	See Chapter 4
Is there new support since the implementation?	
Who opposes the policy?	
Is there any new opposition since implementation?	
The Costs	
What is the cost of the solution?	See Chapter 4
How does it compare to anticipated costs?	
Has funding been adequate?	
Are there any cost overruns due to poor management?	
The Benefits	
What are the intended benefits of the policy on society as a whole?	See Chapters 2 and 4
Are there any unintended effects – positive or negative of the policy?	Saves money, increased sharing across hospitals
The Recipients	
How has the target group benefited from the policy?	Working harder to improve. See Chapter 4

Are there any unintended beneficiaries?	See Chapter 4
Are there any people harmed by this policy?	Increased fall rates may be due to unmitigating circumstances due to patient population.
The Implementation Plan	
Who formulated this policy?	Massachusetts Hospital Association and Massachusetts Organization of Nurse Executives
Who has been charged with implementing this policy?	Massachusetts Hospital Association and Massachusetts Organization of Nurse Executives
Who is conducting this evaluation and for what reason?	Doctoral student
What fiscal, human, and material resources were used to implement this policy?	See Chapters 2, 3, and 4
Is the policy being administered efficiently?	See Chapters 2, 3, and 4

CHAPTER 2

LITERATURE REVIEW

The review of the literature included an examination of what is known about public reporting, nurse sensitive measures, patient falls and patient falls with injury, and the Massachusetts *Patients First* Initiative. A fall is defined as "unintentionally coming to rest on the ground, floor, or other lower level, but not as a result of syncope or overwhelming external force" (Agostini, Baker, & Bogardus, 2001, p. 282).

The historical, political, social, and economic context of the public reporting of patient falls was examined.

The Policy: Voluntary Public Reporting of Patient Falls and Falls with Injury through the *Patients First* Initiative.

Relevant Health Policy

Public reporting of patient outcome measures currently occurs through a number of organizations, such as CMS' Hospital Compare, The Joint Commission Quality Check, Leapfrog, insurers/payors, managed care organizations, and state based report cards. A number of states have mandatory reporting through a statute requiring hospitals to report quality information that becomes publicly available or voluntary efforts to collect or report hospital quality information (American Hospital Association, 2008).

Historical Perspective

The Health Care Financing Administration (HCFA) began public reporting of hospital mortality rates of Medicare patients in 1984 (HCFA, 1986). In the early 1990s, New York and Pennsylvania began reporting cardiac surgery mortality rates for hospitals and surgeons. The National Committee for Quality Assurance (NCQA) began to report data for the quality of managed care plans in 1993. These data were drawn from the Health Plan Employer Data Information Set (HEDIS), which is also comprised of health plan enrollee satisfaction survey data known as the Consumer Assessment of Healthcare Providers and Systems (CAHPS). Since that time, the NCQA expanded reporting to include Medicare and Medicaid plans, and commercial point-of-service plans. The National Quality Forum (NQF) was created in 1999 to develop and implement a national strategy for health care quality measurement and reporting. In 2002, NQF identified 27 adverse events published in *Serious Reportable Events in Healthcare (*NQF, 2002). Since that time NQF developed voluntary consensus standards for reporting data for a range of health care conditions and settings. Beginning in 2002, Medicare initiated quality measurement and reporting that focused on different provider groups. The Nursing Home Quality Initiative was followed by the Home Health Quality Initiative, the Hospital Quality Initiative, and the Physician Focused Quality Initiative. The Centers for Medicare and Medicaid Services (CMS) played a role in improving quality by reporting hospital performance through the Hospital Quality Alliance and available at the Hospital Compare website *(www.hospitalcompare.hhs.gov).* This consumer-oriented website provides information about how well hospitals provided recommended care to their

patients. The consumer can see the recommended care that an adult should receive if being treated for a heart attack, heart failure, or pneumonia or having surgery. The Joint Commission sponsors the Quality Check website (www.qualitycheck.org), where hospital performance is reported. The United States Agency for Healthcare Research and Quality (AHRQ) Quality Indicators are measures indicated for hospital performance and are available at www.mass.gov/healthcareqc.

Public reporting is also made available through the efforts of government organizations (state based report cards), managed care organizations (e.g. Harvard Pilgrim), employer groups (e.g. Leapfrog), and healthcare publishers. Health Grades, (www.healthgrades.com) provides ratings and profiles of hospitals, nursing homes, and physicians to consumers, corporations, health plans, and hospitals. State quality improvement efforts continue to multiply. Thirty states have mandatory reporting through a statute requiring hospitals to report quality information that becomes publicly available. Thirty-five states have a voluntary effort to collect or report hospital quality information (Tucker, 2009).

The Quality Workgroup of the National Committee on Vital and Health Statistics (NCVHS) conducted a hearing in June 2007 and subsequently issued a report recommending actions for Quality Measurement and Data Reporting. Of the four key themes that emerged, one related to public reporting: "An organization's commitment to performance measurement and public reporting is a major factor in improving the quality of care" (www.ncvhs.hhs.gov/080128lt.pdf).

Publication of the two Institute of Medicine reports on safety and quality reinforced earlier public reporting initiatives. *To Err is Human,* was published in 1999, followed by *Crossing the Quality Chasm: A New Health Care System for the 21st Century*, in 2001. The latter report emphasized six dimensions of quality -- patient centered, safe, effective, efficient, timely, and equitable care.

A systematic review of studies published between 1986 and 1999 focused on the evidence for public disclosure of performance data and to identify a future research agenda (Marshall, Shekelle, Leatherman, & Brook, 2000). The findings indicated that hospitals respond most to the data, and Marshall et al. proposed that public performance data be used as a "catalyst to stimulate and promote internal quality improvement mechanisms at the level of the organizational provider" (Marshall et al., p. 1874.) At the time of this publication, Marshall et al. believed that the use of public performance data to stimulate quality improvement by the provider organizations at the organizational level was more important in the immediate future than the use of such data by consumers, purchasers, or regulators. The researchers also highlighted several unanswered questions related to public release of performance data. First, the risks and benefits of public performance data were uncertain. Second, unintended consequences such as gaming, the focus on what is being measured, and the impact of poor performance on staff morale and public trust needed examination. Third, there was uncertainty about the "most effective and appropriate level for the reporting of performance data and the degree of risk adjustment of health outcomes required to achieve a balance between cost, effectiveness, and fairness to providers" (Marshall et al., p. 1874). The researchers also supported the

need for articulation of a clear purpose for public disclosure of performance data and the development of an evidence based process to guide and monitor its implementation and evolution.

The public reporting of patient care performance data has been theorized to improve the quality of care through greater transparency, greater accountability of health care providers, and greater motivation to increase quality, effectiveness, and safety (Fung et al., 2008; Hibbard, 2008; Lansky, 2002). Berwick and colleagues (2003) developed a model to demonstrate the connections between quality measurement and improvement by outlining two pathways to quality improvement -- the selection pathway and the change pathway -- which are linked by external motivating forces such as higher payments and gaining markets or reduced payments and losing markets (p. I-37). The selection pathway links to the change pathway by linking "the self interest of health care systems and the self-awareness of individual clinicians with the improvement of performance" (p. I-37). Fung and colleagues (2008) used this model to propose that publicly reported performance data is knowledge that may motivate an organization to improve its performance via the selection and change pathways. Through the selection pathway, individuals and organizations with the knowledge of the publicly reported performance data can select among providers of care or health plans. Through the change pathway, provider knowledge of the publicly reported performance data can stimulate quality improvements in an organization and improve organization performance.

Hibbard and colleagues (2003, 2005) proposed a third pathway to the model, the reputation pathway; in which hospitals implement quality improvement efforts to protect

their image or reputation. Hibbard (2008) proposed that the selection and reputation pathways stimulate or motivate quality improvement to protect market share and public image more than the change pathway, the impact of which is less of an organizational threat or liability.

Werner and Asch (2005) summarized that public reporting of performance data through health care report cards, while intending to stimulate quality improvement and providing accountability through highlighting high quality physicians, stimulating physician competition, and providing feedback to physicians; may have unintended or negative consequences on health care. Examples include physician selection of patients based on their risk, and unnecessary screening or treating of patients regardless of patient preference or physician judgment. The authors recommended that the design and use of report cards be understandable and disseminated widely, that the reported measures decrease physician incentive of patient selection to improve their rankings, and lastly, that participation in public reporting should be mandatory and universally adopted to improve quality of care.

A systematic review of 45 articles published since 1986 focused on evaluation of the impact of public reporting on quality (Fung et al., 2008). The researchers concluded that studies of the effect of public reporting on outcomes did not provide clear results, and the use of public reporting in improving patient safety was not shown. Most of the hospital level studies focused on mortality rates and cardiac procedures. Fung et al. also concluded that public reporting of performance data "stimulates hospital quality improvement activity" (p. 121). They recommended three areas of future focus:

evaluation of existing reporting systems, research on the effect of report design and implementation on the report's impact, and examination of the causal pathways through which public reporting influences quality of care. In an editorial commenting on the review of Fung et al., Hibbard (2008) reinforced the need to improve the content, format, and measurement of performance and public reporting to better determine its effect on the motivation of practitioners, health plans, and hospitals to improve in order to protect or expand their market share.

The results of a study in which hospitals with public reporting were compared to hospitals with public reporting and pay for performance through a national public-reporting initiative, suggested that "financial incentives are capable of catalyzing quality-improvement efforts among hospitals already engaged in public reporting" (Lindenauer, Remus, Roman, Rothberg, Benjamin, Ma et al. 2007**,** p. 495).

Several nursing initiatives provide performance information through public reporting. Measuring nursing performance and nursing's impact on quality of care began prior to the release of the IOM (1999) report, *To Err is Human*. In 1994, the American Nurses' Association (ANA) spearheaded an initiative to educate nurses and make them accountable for measurement, improvement, and benchmarking of clinical cost and quality outcomes. This became known as Nursing's Patient Safety and Quality Initiative. The initiative included development of hospital quality indicators, recruitment of nurses and hospitals to collect data on staffing and the indicators in six states (Arizona, California, Minnesota, North Dakota, Texas, Virginia), and the pooling of the data in a data bank for future analysis (Needleman, 2007). This initiative led to the development

of 10 acute care indicators, known as the ANA Nursing Care Report Card for Acute Care (ANA, 1995) and ANA Implementing Nursing's Report Card: A Study of RN Staffing, Length of Stay and Patient Outcomes (ANA, 1997). As part of this initiative, 10 community-based non-acute care indicators were subsequently identified in 2000. This data bank became National Database of Nursing Quality Indicators (NDNQI), which was established at the University of Kansas School of Nursing. The 10 indicators selected included a combination of outcome measures, process measures, and nursing structure measures (Needleman, 2007). Outcome measures included nosocomial infection rate, rate of patient falls with injury, patient satisfaction with nursing care, patient satisfaction with pain management, patient satisfaction with educational information, and patient satisfaction with care. Process measures included maintenance of skin integrity (patients with pressure ulcers) and nurse satisfaction. Nursing structure measures included proportion of nursing care hours provided by registered nurses, and total nursing care hours per patient day. Hospitals may join the NDNQI; and benchmarking information is shared only among member hospitals and not publicly reported.

Similar to NDNQI, the Veterans' Administration Nursing Outcomes Database (VANOD) is a repository for internal nursing quality reporting among many hospitals. In addition, Collaborative Alliance for Nursing Outcomes (CALNOC) which was started in 1996, is a statewide nursing performance database comprised of many nursing-focused performance measures; however, they are not publicly reported (Brown et al., 2001).

In February 2003, the NQF undertook a project to establish consensus on a set of national nursing-sensitive performance measures in acute care hospitals. The project was

also expected to address the implementation of the measures to improve nursing care and patient outcomes and identify a subset of the measures appropriate for public reporting (NQF, 2003). A large, diverse group of stakeholders participated in a structured process aimed at endorsing a set of nursing sensitive performance measures. The structured process involved the use of two key processes to arrive at consensus standards: Consensus Development Process (CDP) and the Measure Evaluation Process. Over 150 measures were screened. Each measure was evaluated against four criteria: importance, scientific acceptability, usability, and feasibility.

Eventually, 15 national voluntary consensus standards for nursing sensitive care were endorsed by the NQF board of directors in April 2004 (NQF, 2004). The measures were grouped into three domains: patient centered outcomes, nursing centered intervention measures, and system centered measures. Patient centered outcomes included death among surgical inpatients with treatable serious conditions, "failure to rescue", pressure ulcer prevalence, falls prevalence, falls with injury, restraint prevalence, urinary catheter associated urinary tract infection for intensive care patients, central line catheter associated blood stream infections for ICU and neonatal intensive care unit patients, and ventilator associated pneumonia for intensive care and high risk newborn patients. Nursing centered intervention measures included smoking cessation counseling for three categories of patients: those with acute myocardial infarction, those with heart failure, and those with pneumonia. System centered measures included skill mix of RNs, LPNs, assistive personnel, and contract staff; nursing care hours per patient day, the Practice Environment Scale of the Nursing Work Index, and voluntary turnover.

(Needleman et al., 2007). The designation of these measures signified the nursing profession's contribution to health care quality.

In October 2004, with funding from the Robert Wood Johnson Foundation, the Joint Commission began development of an implementation guide with standardized technical specifications for the 15 nurse sensitive care performance measures. Final revisions to the guide were made in 2005, which is publicly available as *The Implementation Guide for the NQF Endorsed Nursing Sensitive Care Performance Measures (*The Joint Commission, 2005). In January 2007, the Robert Wood Johnson Foundation funded The Joint Commission to test implementation of the NQF Endorsed Nursing-Sensitive Care (NSC) Performance Measure Set in a diverse group of hospitals over a two year period (The Joint Commission, 2008). In 2009, the NQF Consensus Standards Approval Committee and Board approved continued endorsement of 8 measures, including falls and falls with injury; and updates to the Implementation Guide are publicly available (The Joint Commission, 2010). The 15 NQF Endorsed Nursing-Sensitive Care (NSC) Performance Measures, which evolved to become endorsed as nursing-sensitive standards; also became endorsed among a set of hospital measures. These measures are known as NQF-Endorsed Consensus Standards for Acute Care Hospital Performance (NQF, 2007). Most of the 15 nursing-sensitive standards were identified as cross cutting measures. The additional hospital measures were identified as condition-specific, clinician-level, patient experience with care, safe practices, and serious reportable events.

Since the inception of CALNOC, hospital membership expanded beyond California to include hospitals from the states of Washington, Oregon, Arizona, Nevada, and Hawaii. CALNOC researchers shared benchmarking information with nursing-sensitive data from the database for use in performance improvement processes by hospitals not participating in databases with nursing-sensitive data that provide comparative benchmarking. The researchers noted that "Benchmarking is an important component of improving performance on public report cards as well as ensuring optimal performance-based reimbursement" (Brown, Donaldson, Bolton & Aydin, 2010).

In 2005, the Joint Commission included falls prevention as one of the National Patient Safety Goals in an effort to improve patient safety. Goal 9 was "reduce the risk of patient harm resulting from falls" through "assess and periodically reassess each patient's risk for falling, including the potential risk associated with the patient's medication regime, and take action to address any identified risks" (JCAHO, 2005, www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/05_hap_npsgs.htm) Goal 9 was also identified as a National Patient Safety Goal in 2006, 2007, 2008, and 2009 by The Joint Commission. Since 2006, the action aspect of the goal was modified to read "Implement a fall reduction program including an evaluation of the effectiveness of the program" (JCAHO, 2006), www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/06_npsg_cah.htm. Therefore, all Joint Commission-accredited hospitals were expected to have implemented a fall reduction program and to be able to show evidence of the effectiveness of the program, and be able to answer any questions about the program from surveyors. Based

upon the Joint Commission review of sentinel events of "care recipient falls" between 1995 and 2004, several root causes of falls with corresponding intervention strategies were identified (JCAHO, 2005, p. 30). The highest percentage of identified root causes of falls were: inadequate caregiver communication, inadequate staff orientation and training, inadequate assessment and reassessment, unsafe environment of care, and inadequate care planning and provision (JCAHO).

In 2004, the National Council on Aging (NCOA) sponsored a National Summit on Fall Prevention, gained consensus, and developed and released a National Action Plan containing strategies to reduce falls and related injuries in older adults (NCOA, 2005). There was insufficient funding to promote national implementation of the action plan, and thus the summit organizations collaborated and created the *National Falls Free Coalition* in 2005. The goals of this coalition were to promote public awareness, disseminate evidence-based fall prevention programs in communities, and support legislation. Then in 2006, due to the accomplishments and challenges of the coalition states in addressing fall prevention, NCOA created the *State Coalition on Fall Prevention Workgroup* (NCOA, 2009). Approximately 20 states joined the state coalitions workgroup, including Massachusetts.

The MDPH took a lead role in taking action to reduce the incidence and severity of falls and falls with injuries among older adults in the state. In January 2007, the MDPH, along with the Home Care Alliance and the Massachusetts Extended Care Foundation, founded the statewide Massachusetts Falls Prevention Coalition. The Coalition was formed to reduce the number of fall related injuries and to develop and

implement evidence based programs in the state. The Coalition brought together individuals and organizations across the span of care including representatives from acute care, rehabilitation, long-term care and community-based care settings (MDPH, 2008).

In 2004, the Massachusetts Hospital Association (MHA) and the Massachusetts Organization of Nurse Executives (MONE) identified a joint interest in addressing the ongoing debate about mandated nurse-patient ratios through a reporting initiative that would make nurse staffing and nurse sensitive measures public. The initiative, *Patients First: Continuing the Commitment in Safe Care*, and known as *Patients First*, began in Massachusetts in 2005. With the initiation of the *Patients First* initiative, hospitals began voluntary public reporting of certain nurse-sensitive quality measures as endorsed and defined by the NQF. At its inception, 77 Massachusetts hospitals took the pledge of participation and began to publicly report planned and actual nurse staffing worked hours via the Patients First website at www.patientsfirstma.org. Public reporting of patient falls, falls with injury, and pressure ulcer prevalence followed. There has been nearly unanimous participation of all types of hospitals in the state, including acute care hospitals, rehabilitation hospitals, and long term acute care hospitals. Participation in the *Patients First* initiative required hospitals to voluntarily sign a pledge of participation to commit to a five part leadership platform (MHA, 2005). Item #3 of the platform called for "Providing the public with the hospital performance measures they need to make informed decisions about their care" (MHA, 2007, p. i).

In June-July 2005, a MHA/MONE NQF Nursing Measure Special Workgroup convened to evaluate and recommend measures from the NQF 15 for pilot testing. The

pilot test plan was endorsed in January 2006, and a pilot test data collection period followed in March-May 2006.

Seventy-five Massachusetts hospitals registered for participation in a pilot study in March – May 2006 to measure up to six nurse-sensitive measures, utilizing the NQF measure definitions endorsed by The Joint Commission (Smith & Jordan, 2008). The measures tested included (NSC-2 Pressure Ulcer Prevalence, NSC-3 Patient Falls, NSC-4 Falls with Injury, NSC-7 CLABSI for ICU and NICU patients, NSC-8 VAP for ICU and NICU patients, and NSC-14 Practice Environment Scale), (Smith & Jordan, 2008). For the hospitals that participated in the pilot study to test measurement of NSC-3 Patient Falls and NSC-4 Patient Falls with Injury, results were the following. The weighted rate for patient falls per 1,000 days were 1.16 critical care, 2.72 step down, 4.40 medical, 2.68 surgical, and 3.48 medical-surgical. The weighted rates for falls with injury per 1,000 days were 0.17 critical care, 0.84 step down, 0.85 medical, 0.38 surgical, and 0.85 medical-surgical. The NQF definition of falls with injury rate included the categories of an injury level of minor or greater. Therefore, fall with injury rates using the NQF definition would generally be higher than the NDNQI definition, as minor injuries are included in the NQF rate calculation.

In September 2006, the Workgroup reviewed pilot results and recommended for public reporting the measures of falls, falls with injury, and pressure ulcer prevalence. In October 2006, data collection for public reporting began and in October 2007, hospital-specific patient falls and falls with injury data was posted on the *Patients First* website. Hospital specific pressure ulcer prevalence data was added to the website in January

2008. Updates of new quarterly data for patient falls, falls with injury, and pressure ulcer prevalence measures were made in July and September of 2008.

Massachusetts hospitals submit falls data through a password protected, web based site on a quarterly basis. Hospitals have the opportunity to post stories or narratives of fall programs and fall prevention strategies on the website. Networking among hospitals is encouraged, as well as sharing strategies and opportunities for continuous improvement (MHA, 2005)

Political Perspective

In both Maine and Massachusetts, the movement which led to mandated public reporting of patient falls measures in Maine and to voluntary public reporting of patient falls measures in Massachusetts was a result of the ongoing nurse ratio staffing proposed legislation and debates in both states (Kitch, Noga, Clifford, Gale, Feibelmann, Weissman, 2009). These initiatives in both states led the way in public reporting of the nurse-sensitive measures. Massachusetts voluntarily reports the measures of falls, falls with injury, pressure ulcer prevalence, nursing hours per patient day, and skill mix of RNs, LPNs, and assistive personnel (www.patientsfirstma.org). Maine has a legislative mandate to report the measures of falls, falls with injury, pressure ulcer prevalence, restraint prevalence, nursing care hours per patient day, skill mix of RNs, LPNs, assistive personnel and contract staff, and voluntary turnover (www.mqf.org). However, the effect of public reporting of the nurse-sensitive measures performance measures in general, and of the falls and falls with injury measures, in particular, has not been studied. In an

unpublished study examining the roll out of the nurse sensitive measures in Maine, and Massachusetts, CEOs and CNOs were asked their opinions about the effects of public reporting on nursing care and safety in their hospital. Of the respondents from Massachusetts; eighty-two percent responded that public reporting would positively affect quality of nursing care; eighty-eight percent responded that it would positively affect patient outcomes, and sixty-six percent responded that public reporting would positively affect other quality improvement initiatives or activities within the hospital. (Kitch et al., 2009).

At the national level, the Safety of Seniors Act was signed into law in April 2008, but never funded. The bill focused on public education campaigns for older adults to prevent falls, demonstration projects to evaluate fall prevention strategies, research and the effect of falls on health care costs (Beattie, 2008).

In 2005, the Massachusetts Department of Public Health's State Injury Prevention Plan cited falls among adults as a key cause of unintentional injury and recommended a multi-pronged strategy of interventions to decrease falls across all settings (MDPH, 2008). The MDPH set up a falls prevention information line at 1-800-227-SAFE, and worked with other organizations to support *Keep Moving* walking programs and *A Matter of Balance* training sessions to benefit elders (MDPH, 2008). The Massachusetts Fall Prevention Coalition partner organizations supported and coordinated a First and Second Annual Statewide Falls Prevention Symposium in the state. September 2010 marked the fourth year of the Falls Prevention Awareness Day event which is meant to raise awareness that falls are common and costly. The event is held annually at the

Massachusetts State House and includes attendance by clinicians, community advocates, state officials, and seniors.

Unintentional fall-related injuries and injury death rates among older adults in Massachusetts are compiled and reported by the Department of Public Health annually (MDPH, 2008). In the report issued in 2008, falls were responsible for 340 deaths in 2006, 20,209 hospital stays, and 36,751 emergency department discharges related to fall injuries among residents ages 65 years of age and older. In addition, of the fatal unintentional deaths by place of injury occurrence for residents over 65 years of age, 3% (n=10), occurred in a hospital. In April 2009, the annual reporting of serious reportable events (SREs) in Massachusetts, which had previously been confidentially reported to the MDPH, became a public report for the first time. Acute care hospitals in the state reported 338 SREs in 2008. More than 68 percent (231) were environmental events, with falls as the highest category at 224 events. Hospital specific data and responses were posted on the MDPH website (http://www.mass.gov/Eeohhs2/docs/dph/quality/healthcare/sre_hospital_responses.xls). In the 2010 annual report of serious reportable events (SREs), acute care hospitals in the state reported 383 SREs in 2009. More than 54 percent (207) were environmental events, with falls at 199 events, a decrease from the previous year. Among the reported SREs were hospital specific serious falls by type, number, and comments by each hospital. It was proposed that the Centers for Medicare and Medicaid Services (CMS) adopt falls and falls with injury for reporting 2011. In July 2010, the quality measures to be used for the FY 2011 payment determination under the RHQDAPU program were finalized. These

include “Participation in a Systematic Clinical Database Registry for Nursing Sensitive Care”. Proposed measures for the nursing sensitive care registry-based topic include patient falls and falls with injury (CMS, 2010). CMS has also finalized these measures for reporting for the FYs 2012, 2013, and 2014 payment determinations. In addition, CMS finalized additional measures for FYs 2012, 2013, and 2014 payment determination related to patient falls. This includes the hospital acquired condition (HAC) Falls and Trauma (CMS, 2010).

In the Massachusetts legislature, three bills focused on fall prevention were filed in 2009. Senate Bill No. 317 (SB317), sponsored by Senator Richard Moore, was a resolve relative to the prevention of falls by older adults. If passed, this legislation would designate a special commission on falls prevention to investigate and study the effects of falls on older adults and the potential of reducing the falls in this population. Another bill sponsored by Senator Moore, Senate Bill No. 318 (SB318), was a resolve to prevent falls among older adults. If passed, this legislation would designate the Secretary of Elder Affairs to oversee implementation of a statewide approach to reducing falls among older adults and across all care settings and living settings. House Bill No. 2123 (HB2123), sponsored by Representative Michael Moran, was an act relative to a patient’s report card of nursing. If passed, this legislation would require care facilities to report data related to nursing care interventions and patient outcome data, including patient falls data.

Subsequently, HB2123 (Nursing Report Card) was placed in study with the Public Health Committee in June 2009 and did not progress. SB318 (Falls Prevention Program) was given a favorable report by the Elder Affairs Committee, and then placed into study by the

Health Care Financing Committee (A. Delmolino, personal communication, October 8, 2010). SB317 (Special Commission) was approved favorably by the Elder Affairs and Health Care Financing Committees, and it was redrafted into Senate Bill No. 2240 (SB2240). Subsequently, the provisions of SB2240 were amended and incorporated into Section 9 of Chapter 288 of the Acts of 2010. (http://www.malegislature.gov/Laws/SessionLaws/Acts?2010/Chapter288)

Sociological Perspective

Falls can have serious effects on a person's ability to function as a productive member of his family, community, and society. Hospital fall and fall with injury rates show variability due to patient risk factors, the presence of fall prevention programs and interventions, the patient population case mix, and the definition of the fall rate metric. Rubinstein (1998) reported fall rates of 0.6 – 2.9 falls annually per bed in hospitalized patients. Hitcho, Krauss, Birge, Dunagan, Fischer, Johnson, et al. (2004) reported fall rates of 2.3 – 7 falls per 1,000 patient days. In their prospective analysis of falls in a hospital setting, Hitcho et al. found a fall rate per 1,000 patient days to range by service from 0.80 in orthopedics to 6.12 in medicine and neurology; with an overall rate of 3.38. Falls with injury defined as minor injury was highest on the medicine service at 37.1% and the highest for elimination related falls at 67.7%. In their study, which was designed to characterize inpatients who fell and determine predictors of serious fall-related injury, Fisher, Krauss, Dunagan, Birge, Hitcho, Johnson, et al. (2005) found the overall hospital

fall rate to be 3.1 falls per 1,000 patient days; with the rate ranging from 0.86 on the women's and infants' service to 6.36 on the oncology service.

The California Nursing Outcomes Coalition published information on fall rates over time for critical care, step-down and medical/surgical units from 136 California CALNOC hospitals for twenty-four quarters from 1998 to 2004. 74% of the reported falls were from medical/surgical units, 21% of falls from step-down units, and 5% of falls were from critical care units. The fall rates for each unit type trended over time were found to be stable over the time period from 1998 to 2004 (Donaldson, Brown & Aydin, 2005).

In the publication of CALNOC benchmarking database information on the nursing-sensitive outcome of patient falls, Brown et al. provided trended information on medians and upper/lower quartiles of falls per 1,000 patient days. The data concluded that there was almost no performance improvement between 2001 and 2008, with performance gaps between the quartiles. The researchers analyzed fall and fall with injury data from 196 CALNOC hospitals reported during 2007 and the first two quarters of 2008. Outcome benchmarks were reported by percentile for falls by unit type. For all unit types combined, falls per 1,000 patient days was 1.99 for the top performing decile (10^{th} percentile) and 4.19 for the bottom performing decile (90^{th} percentile). For medical surgical units, falls per 1,000 patient days was 2.12 for the top performing decile (10^{th} percentile) and 4.82 for the bottom performing decile (90^{th} percentile). For step down units, falls per 1,000 patient days was 1.43 for the top performing decile (10^{th} percentile) and 4.57 for the bottom performing decile (90^{th} percentile). For critical care units, falls

per 1,000 patient days was 0.06 for the top performing decile (10^{th} percentile) and 2.22 for the bottom performing decile (90^{th} percentile), (Brown et al., 2010).

Falls were the leading cause of injury-related deaths among older adults (CDC, 2006), and were the largest category of reported incidents in hospitals (Eldridge, 2004). Falls are often regarded as the second most frequent cause of harm to patients after medication errors (Eldridge).

The strongest predictor of falling is a previous fall. Other risk factors include age older than 80 years, gait or balance deficit, muscle weakness, assistive device use, visual deficit, arthritis, impairment in activities of daily living, depression, and cognitive decline (Agostini et al., 2001; Eldridge, 2004; Fisher et al., 2005; Salisbury Lyons, 2005). There is a greater risk of falling with a greater number of risk factors (Agostini et al., 2001). In health care settings, falls often occur as a result of both the individual patient's risk factors and institutional factors (Currie, 2008; Salisbury Lyons, 2005).

A prospective analysis of characteristics of falls in a large urban academic medical center revealed that falls in the hospital affect young as well as older patients, often occur when the patient is alone, in the patient's room, and during the evening and overnight time. Half of the falls were related to elimination-related activities, and these increased the risk of injury (Hitcho et al., 2004). A study of predictors of inpatient falls and fall related injuries in a large academic hospital found considerable variation in fall rates and fall related injuries by service. (Fischer et al., 2005).

Fall characteristics differed by hospital type, academic and non-academic, in a study of circumstances of patient falls and injuries in a nine-hospital healthcare system

(Krauss et al., 2007). For the academic hospital, increased age, falls in locations other than patient rooms, and falls that occur when the patient is alone were associated with increased injury risk. For the nonacademic hospitals, increased age, falls in the bathroom, and falls that occur when the patient is alone were associated with injury.

Prevention of falls in the acute care hospital usually includes a comprehensive fall prevention program (Agostini et al., 2001; Eldridge, 2004,). This multi-faceted program may include fall analysis (how, where, when) monitoring of fall rates, multidisciplinary predictive fall risk assessment of patients upon admission, customizing the fall prevention program to meet individual patient needs, and non punitive reporting (Eldridge, 2005).

Fall prevention interventions include comprehensive falls risk assessment and evaluation, treatment of underlying health condition (moving confused patients closer to nursing staff and unit activity, instituting strategies to assist cognitively impaired patients, performing frequent patient rounding), medication modification (minimize sedating medications), environmental modification (special flooring, lighting and grab bars in bathrooms, supplemental lighting, decreasing unit and room obstacles, lowering bed height and bed rails), exercise programs (patient orientation activities, review of prior falls, scheduled physical activities and therapy activities, minimization of bed rest and immobility), balance and gait training, mobility aids, toileting programs, protective devices (identification bracelets, bed alarms, hip protectors) restraint reduction (physical restraints), and education (staff, support staff, patient, family) (Agostini et al., 2001; American Geriatrics Society, British Geriatrics Society, American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2008; McCarter-Bayer, Bayer, & Hall,

2005; Boushon, Nielsen, Quigley, Rutherford, Taylor & Shannon, 2008; McFarlane-Kolb, 2004; Salisbury Lyons, 2005; Stevenson, 1998).

Implementation of a program to prevent falls and eliminate falls with injury in eight hospitals at Ascension Health led to a decrease in acute care fall and fall with injury rates from January 2006 to October 2006 (Lancaster, Ayers, Belbot, Goldner, Kress, Stanton, Jones, & Sparkman, 2007). Four key strategies were implemented: 1) assessment and re-assessment of patient risk factors for falls, 2) visual identification of patients at high risk, 3) communication of patient fall risk status, and 4) education of patients, families, and staff about fall prevention (Lancaster et al., p. 370). The fall rate decreased from 3.65 falls per 1000 patient days to 3.29 falls per patient day. Ascension Health reached a "Better Performers Range" of 2.5 – 3.5 falls per 1,000 patient days, representing a 9.9% decrease in the rate of falls. The "better performers range" for fall index to benchmark hospital performance was used (Premier, Inc, 2007). During the same time period, the fall with serious injury rate was <.10 per 1,000 patient days – less than the expected rate of >1 per 1,000 patient days, representing a 6.4% decrease during the same period. The NDNQI (2006) definition of falls and reporting requirements were applied, with the fall with Injury rate including the categories of Moderate, Major, and Death.

Several studies have focused on identification of the characteristics and determining the effectiveness of fall prevention programs in hospitals. A review of the literature on fall prevention in acute care spanning the years of 1988-1998 encompassed 21 articles. Fall prevention measures were identified, but no relation between preventive

measures and a decreased number of falls was found (Schwendimann, 2000). A systematic review of 10 studies of hospital fall prevention programs revealed that a pooled effect of 25% reduction in the fall rate occurred in studies of prospective interventions compared to fall risk in historical controls. Single fall prevention interventions yielded no significant benefit (Oliver, 2000). One meta-analysis of eight studies found no conclusive evidence that the number of hospital falls or the number of patient fallers decreased with a fall prevention program (Coussemant, DePaepe, Schwendiman, Denhaerynck, Dejaeger, & Milisen, 2008). However, the researchers recommended further studies to confirm a tendency observed only on long stay care units. The analysis suggested that fall prevention programs that target a patient's most important risk factors for falls assists in reducing the number of falls (Coussemant et al., p. 35).

Several studies of the prevention of falls in hospitalized patients demonstrated that some interventions do reduce patient falls in hospitals. Institution of a nurse-led fall prevention program led to preventing multiple patient falls, but not first falls (Schwendimann, Milisen, Buhler, & DeGeest, 2006). The use of a fall prevention toolkit (FPTK) using health information technology in hospital units demonstrated a reduced rate of patient falls when compared with units in which patients received usual care. (Dykes, Carroll, Hurley, Lipsitz, Benoit, Chang, et al., 2010). A systematic review and meta-analysis of randomized clinical trials revealed that a multifactor falls risk assessment and management program was the most effective intervention in reducing the risk of falling and the rate of falls. (Chang, Morton, Rubenstein, Mojica, Maglione,

Suttorp, et al., 2004). Agostini et al. (2001) advised that more multicomponent fall prevention studies be implemented in hospital and institutional settings. However, the authors noted that researchers should consider the following when generalizing the findings to other settings – diversity of patient care units, appropriate risk assessment of patients, analysis of fall intervention components implemented to achieve improvement in falls, and replication of studies in settings with varied resources for implementation (Agostini et al., p. 283-284).

A systematic review and meta-analysis of 43 studies was designed to evaluate evidence for strategies to prevent falls in residents care homes and hospital inpatients (Oliver, Connelly, Victor, Shaw, Whitehead, Genc, et al., 2007). The researchers concluded that there was some evidence that multiple types of interventions in hospitals decrease the number of falls, but that there was insufficient evidence for the effectiveness of single interventions.

Economic Perspective

The cost of falls is expensive and contributes to our increasing health care expenditures. Patient falls are the second most frequent cause of harm in hospitals and are the largest category of reported incidents in hospitals (Eldridge, 2004). The cost of falls is an important issue for many stakeholders – individuals, business, and government (Tzeng and Yin, 2008). Unintentional fall deaths for Massachusetts residents, ages 65 years and older totaled 340 in calendar year 2006 and totaled 363 in calendar year 2007. In the Bay State, total hospital charges associated with unintentional fall injuries in older

adults ages 65 years and older were over $407 million in FY2006 and totaled over $482 million in FY2008 (MDPH, 2008; MDPH 2009). Utilizing a cost estimate model developed by Boswell, Ramsey, Smith, and Wagers (2001); the researchers Tzeng and Chang, estimated the projected cost per fall with injury to hospitals in 2007. It was projected that the cost would be at least $6,437 and the average cost per fall would be $425 (Tzeng and Chang, 2008).

In addition, the new CMS ruling that disallows additional payment for certain hospital acquired conditions not present on admission; with falls with serious injury being one of the eight conditions, is beginning to impact revenue for hospitals. As of October 1, 2008, the Centers for Medicare and Medicaid Services (CMS) issued a new rule that represents a transition to an eventual pay for performance system and a stimulus to improve care quality. The rule disallows additional payment for 1 of 8 hospital acquired conditions not present on admission (CMS, 2008, Kurtzman & Buerhaus, 2008). One of the eight hospital acquired conditions is falls with serious injury, such as fractures, dislocations, burns, and intracranial injury. Inouye, Brown and Tinetti (2009) provide the perspective that this ruling may have unintended consequences due to its increased focus on fall prevention and potentially increase harm to patients. They postulated that such a focus on preventing falls, may lead to an increase in use of physical restraints and a decrease in patient mobility which can lead to other complications such as agitation, functional loss, and pressure ulcers.

Summary

This review of the literature has examined what is known about public reporting, nurse sensitive measures, patient falls and patient falls with injury, and the Massachusetts *Patients First* Initiative. The study findings indicated that public reporting stimulates quality improvement efforts in hospitals but do not indicate that public reporting results in improvement in patient outcomes. These outcomes are predominantly cardiac and mortality measures.

CHAPTER 3

METHODS

A policy evaluation study was undertaken to examine the effect of a voluntary public reporting program, *Patients First,* on the nurse sensitive outcome measures of patient falls and falls with injury, and the quality improvement interventions implemented by chief nursing officers (CNO) to prevent patient falls. The policy that was evaluated is an organizational and professional policy, *Patients First*, also called *Patients First: Continuing the Commitment to Safe Care* (MHA, 2005). As can be seen in Table 1, (see Chapter 1) the CMNHP Guidelines for Policy and Program Evaluation (Fawcett & Russell, 2001) guided data collection.

To better understand the effect of the voluntary public reporting program, *Patients First,* both quantitative and qualitative data were examined in this policy evaluation study. The quantitative data, the patient falls and falls with injury outcome measures, were analyzed. The qualitative data, the quality improvement interventions implemented by CNOs, were collected and analyzed. Then, through an approach known as concurrent triangulation, the two sets of data were compared to determine if there was convergence, difference, or some combination (Creswell, 2009) to better understand the effect of the *Patients First* program.

Design

In this mixed methods study, the study design was of a sequential nature. The quantitative data were submitted to the MHA by hospital project managers from October 2006 to September 2010. These data influenced the development of the CNO interview questions. CNO interviews were conducted from April 2010 to August 2010. The design was similar to the sequential transformative strategy, which is a two phase project with a theoretical lens (Creswell, 2009). The CMNHP conceptual framework provided a "theoretical perspective" to guide the study (Creswell, 2009, p. 212). Creswell (2009) pointed out that by using two study phases in a sequential manner, the researcher "may be able to give voice to diverse perspectives, to better advocate for participants, or to better understand a phenomenon or process that is changing as a result of being studied" (p. 213). This researcher determined that the sequential nature of the quantitative and qualitative data collection and analysis in this study guided by the CMNHP resulted in meaningful results for the policy evaluation: voluntary public reporting of patient falls and falls with injury through the *Patients First* initiative.

Sample

There were three data sources for the study. One source was data the MHA/MONE NQF Nursing Special Workgroup pilot study of six nurse sensitive measures, which was pre-public reporting data from 75 hospitals from March to May 2006. The data were collected and compiled on Excel spreadsheets by participating hospital staff and submitted to the MHA. The second source was data from the *Patients*

First initiative, which was publicly reported data from the Massachusetts *Patients First* database from October 2006 to December 2009. Approximately 70 acute care hospitals have been participating in the public reporting of nurse sensitive measures. In 2007, the data were collected and compiled on Excel spreadsheets on a quarterly basis by participating hospital project managers and submitted to the MHA. For 2008 and 2009, the data were collected via a web based data entry system on a quarterly basis by hospital project managers. The database was maintained by the MHA.

The third source was data about quality improvement interventions designed to prevent falls obtained from CNOs of hospitals in Massachusetts. CNOs were recruited through contacting the acute care hospital nurse executives who held CNO positions during 2006-2009. Contact was made via an electronically mailed invitation. Once CNOs expressed interest in participating in the study, the informed consent form and semi-structured interview guide were shared with the potential participants. Participants were interviewed in person or via telephone. Although it was anticipated that a sample of 20 of CNOs would be needed to achieve data saturation (Creswell, 2007), a sample of 18 CNOs participated in the study, and data saturation was achieved.

The 18 CNOs cumulatively provided leadership of 20 of the Massachusetts hospitals in the hospital sample. Of the 18 CNOs interviewed 5 were identified as system CNOs, with 3 of the 5 CNOs leading two hospitals. One CNO worked at two hospitals during the study period. Two CNOs worked at the same hospital during the study period, but at different times. Demographic data for the CNOs who were interviewed are given in Table 2.

Table 2

CNO Demographics (N=18 CNOs)

CNO Demographics	
Years of Experience as a CNO: Range	10 months - 25 years
Years of Experience as a CNO: Average	7.9 years
Years in CNO Role	
0 – 5 years	9 CNOs
6 – 10 years	4 CNOs
11 – 15 years	3 CNOs
16 – 20 years	1 CNO
> 20 years	1 CNO
Years at Study Hospital: Range	10 months – 9 years
Years at Study Hospital: Average	3.9 years
0 – 3 years	9 CNOs
4 – 6.5 years	8 CNOs
7 – 10 years	2 CNOs

Demographic data for the hospitals in which the CNOs worked are given in Table 3.

Table 3

Hospital Demographics (N=20 Hospitals)

Demographics of the Hospitals of which CNOs Were Interviewed		
Hospital Bed Size	< 100	3
	100 – 199	8
	200 – 299	5
	300 - 499	2
	≥ 500	2
Teaching Status	Non Teaching	10
	Teaching	10
Hospital Type	Acute Community	17
	Academic Medical Center/Tertiary	3
Magnet Status	Yes	2
	No	18
Ownership Status	Not For Profit	18
	For Profit	2

Variables

The specific study variables were patient outcome measures, hospital characteristics, and dimensions that describe the quality improvement interventions designed to prevent falls obtained from qualitative interviews. The variables are listed in Table 4.

Table 4

Variables and Operational Definitions

Variables	**Definition**
Patient Outcome Measures	
Patient fall rate	Number of patient falls, with or without Injury to the patient, by type of unit during calendar month x 1,000 divided by patient days by type of unit during the calendar month (NQF, *Patients First* database)
Patient fall w/injury rate	Number of patient falls with an injury level of minor or greater by type of unit during the calendar month x 1,000 divided by patient days by type of unit during the calendar month (NQF, *Patients First* database)
Hospital Characteristics	
Hospital Bed Size	<100 beds, 100-299 beds, 300-499 beds, ≥ 500 beds (AHA)
Teaching Status	Teaching, Non-teaching (MA DHCFP)
Hospital Type	Community, Tertiary Academic Medical Center (*Patients First* database)
Magnet Status	Yes, No (ANCC)
Ownership Status	Non-profit, Profit (AHA)
Unit Type	Critical Care, Step Down, Medical-Surgical, Medical, Surgical (NQF, *Patients First* database)
Five Major Dimensions of Fatal Fall Causes as identified by JCAHO (2005), to be used as overarching framework of interview guide	**Intervention Strategies toward preventing patient falls as identified by JCAHO (2005), p. 29-50.** **Operational Definition of Fall Causes**
(Inadequate) Caregiver Communication	1. Ensure continual observation of the

	individual patient 2. Ensure that care is provided in a coordinated manner 3. Communicate changes in the patient's condition and behaviors 4. Reassess and revise the patient's care plan who is at risk for falls, as needed (p. 32-33)
(Inadequate) Staff Orientation and Training	1. All caregivers must be competent in addressing age-specific care needs and identifying cognitive impairments, gait instability, or other conditions that place patients at risk for falls 2. All staff must be competent in fall reduction program elements before providing care to individuals who are at risk of falling (p. 33-34)
(Inadequate) Assessment and Reassessment	1. Completely assess and reassess a patient's risk of falling 2. Allow ample time to assess and reassess an individual's risk of falling 3. Develop a plan of care to address the specific condition of the patient 4. Ensure continual observation of the patient and frequently monitor the patient's status for changes in condition 5. Use observational techniques and communicate with the patient or family for specific health concerns 6. Educate patients and family members about fall prevention strategies 7. Consider all prescription and over-the-counter drugs and supplements the patient is taking 8. Consider the physical environment and all the possibilities of a fall (p. 35-38)
(Unsafe) Environment of Care	1. Improve environmental assessment by staff 2. Have specifically trained staff make regular environmental rounds to

	check for possible hazards 3. Ensure that the temperature of the room is comfortable 4. Ensure that the ventilation of the patient room is adequate 5. Ensure that the noise level is acceptable 6. Ensure that the lighting is adequate and minimizes glare 7. Ensure that the bedside table is available to the patient and that the bed wheels are locked 8. Ensure that the room is free of hazards and closet and shelf spaces are accessible 9. Ensure that patient care equipment (walkers, wheelchairs, commodes) are in good repair 10. Ensure that handrails in the toilet area are present and secure 11. Ensure that the call light system is in working order and accessible to the patient 12. Ensure that the floors of patient rooms are free of clutter and hazards, clean and dry, and free of odors (p. 38-41)
(Inadequate) Care Planning and Provision	1. Conduct a thorough medication assessment of each patient on admission; document medication allergies and drug reactions that may increase fall risk 2. Ensure a multifactorial, interdisciplinary approach to assessment and reassessment
(Inadequate) Care Planning and Provision -	3. Communicate and document the patient's condition across disciplines and across the continuum of care 4. Assess the condition of all walking aids and equipment 5. Ensure that fall reduction strategies

	are highly individualized to the patient (p. 41-45)
Other Category	

The semi-structured interview guide questions are listed in Figure 2.

1. What strategies or interventions regarding communication (caregiver, patient, family) were implemented / put into place at your hospital?
2. What strategies or interventions regarding staff orientation and training were implemented / put into place at your hospital?
3. What strategies or interventions regarding patient assessment and reassessment were implemented / put into place at your hospital?
4. What strategies or interventions regarding the care environment were implemented / put into place at your hospital?
5. What strategies or interventions regarding care planning and provision were implemented / put into place at your hospital?
6. What strategies or interventions regarding organizational structure and culture and quality improvement/performance improvement were implemented / put into place at your hospital?
7. What other strategies did you initiate?
8. What effect did the *Patients First* initiative and its public reporting of patient falls have on quality improvement interventions that were put in place?
9. Did you do anything new/different because of public reporting of falls?
10. Did anything else change due to the public reporting of falls? (such as increased awareness by staff, patients)
Demographic Questions
11. How many years have you been in the CNO role at a hospital(s) in Massachusetts?
12. During which years have you been the CNO at this hospital?
13. What is the bed size of your hospital?

Figure 2. CNO Interview Questions

Procedures for Data Collection

The data from the MHA/MONE NQF Nursing Special Workgroup pilot study of six nurse sensitive measures were abstracted and recorded on an Excel spreadsheet by the

researcher for the patient outcome variables and hospital characteristics. The data from the Massachusetts *Patients First* database were received on an Excel spreadsheet by the researcher. Monthly data were converted to quarterly data. The time points for measurement of the publicly reported falls and falls with injury outcomes measures were October-December 2006; January-March 2007, 2008, 2009; April-June 2007, 2008, 2009; July-September 2007, 2008, 2009; October-December 2007, 2008, 2009. The interviews of CNOs were completed by the researcher at a mutually convenient time. Participants were asked to share their perspectives about what interventions to prevent patient falls were implemented in hospital environments.

Ethical Considerations

Institutional Review Board Approval for this study was obtained from the University of Massachusetts Boston. Approval for the study was also obtained from the MHA and the Research Committee of MONE. Written informed consent was obtained from CNOs. Signed consent forms were received by the researcher prior to the start of in-person interviews or via secure fax or mail prior to the start of telephone interviews.

Data Analysis Plan

The plan for data analysis for each of the study aims is described here.

Study Aim 1:

Examine changes over the time period 2006 – 2009 in the public reporting of falls and falls with injury rates in Massachusetts acute care hospitals.

The count and rates of fall and fall with injury were reported by overall hospitals, hospital unit type (critical care, step down, medical, surgical, medical surgical), hospital bed size, hospital type, hospital teaching status, hospital magnet status, and hospital ownership status. A graphical method was used to describe trend (by overall hospital units, by unit type, by hospital bed size, by hospital type, by hospital teaching status, by hospital magnet status, by hospital ownership status) using line plots.

Data management and analysis were completed by the researcher utilizing Excel spreadsheet functions and with STATA version 11.1 (StataCorp, College Station, TX, USA).

Study Aim 2:

Examine characteristics of the Massachusetts acute care hospitals that influence falls and falls with injury rates over the time period 2006 – 2009.

Data analysis included an analysis of the falls and falls with injury rates and of the hospital characteristics. Descriptive statistics were used to summarize the data, including quartiles of the falls and falls with injury rates, and count and percentage of hospital characteristics. Regression with Newey-West estimator was performed to examine hospital characteristics associated with the falls and falls with injury using time series data. Because time series data are correlated data, in that each period of measure can be influenced by the previous time series period, this autocorrelation results in correlated residuals over time and violates the assumption of independent residuals in standard regression methods. The Newey West estimator is used to try to overcome autocorrelation or correlation in the error terms in regression models. Therefore, the

Newey-West estimator was used to correct the correlated residuals in time series data (Andrews, 1991; Newey & West, 1987; Newey & West, 1994).

Longitudinal data analysis utilizing a growth curve model (random effects model) was used to examine the effect of hospital characteristics on falls and falls with injury rates, as each of the hospitals has multiple data points or observations. The growth curve model is shown as follows:

$$Y_{ij} = \beta_0 + \beta_1 \text{Time}_{ij} + \beta_k{}^{T} Z_j + \gamma_{i0} + \gamma_{i1} \text{Time}_{ij} + \varepsilon_{ij}$$

where *i* and *j* index hospital and time point, respectively, $Time_{ij}$ is the j^{th} time point on the i^{th} hospital, and Z*i* is the vector of hospital characteristics variables, including hospital type, ownership status, magnet status, teaching status, and hospital bed size. The coefficient β_0 is the baseline outcome measurement, β_1 measures average changes over time, $\beta_k{}^{T}$ are the regression coefficients for the covariates of hospital characteristics. The two random effects γ_{i0} and γ_{i1} are individual departure in baseline outcome measurements and slope as a function of time. The random-effects linear regression model was utilized with the time series data in this study. Data management and statistics for all analysis were completed with STATA version 11.1 (StataCorp, College Station, TX, USA). Statistical significance was set at < 0.05, with all tests two-tailed. The tests were set as two-tailed as the researcher did not hypothesize a directional relationship (Munro, 2005, p. 93)

Study Aim 3:

Describe quality improvement interventions implemented over the time period 2006

2009 to prevent patient falls in Massachusetts acute care hospitals. The five major dimensions of fall causes as identified by JCAHO (2005) provided the overarching framework for the interview questions (see Table 4). The five major dimensions of fall causes were then used as a guideline for a priori categories for the content analysis. An "other" category was included for any data that did not fit the a priori categories. Those data then were further analyzed in a search for additional dimensions of fall causes**.** The quality improvement interventions identified through the completed CNO interviews were transcribed by the researcher, and then categorized by theme/domain with the five major dimensions of causes of fatal falls as identified by JCAHO (2005), (see Table 4). Data management for all analyses was completed with ATLAS.ti version 6.0 (ATLAS.ti, Berlin, Germany).

The utility of the five dimension JCAHO (2005) framework was supported by the findings of a qualitative study of staff nurses' perspectives about the causes of preventable patient falls in a hospital unit and the possible ways to prevent falls (Tzeng & Yin, 2008). The findings revealed 24 solutions to preventing inpatient falls in hospital rooms. Fifteen of the solutions were categorized into the dimensions of unsafe care environment, five solutions were related to the dimensions of inadequate caregiver communication, three solutions were related to inadequate assessment and reassessment, one was related to inadequate care planning and provision, and none was associated with the dimension of inadequate staff orientation and training. The researchers concluded that these solutions could lead to "reaching a consensus on useful and cost-effective fall prevention strategies and interventions" (Tzeng & Yin, 2008, p. 182).

CHAPTER 4

RESULTS

Study Aim 1:

Examine changes over the time period 2006 – 2009 in the public reporting of falls and falls with injury rates in Massachusetts acute care hospitals.

Study Aim 2:

Examine characteristics of the Massachusetts acute care hospitals that influence falls and falls with injury rates over the time period 2006 – 2009.

Descriptive statistics for the hospital characteristics are listed in Table 5.

Table 5

Hospital Characteristics

Hospital Characteristics		**Count**	**Percentage**
Sample Size, Number of Hospitals Participating		70	100
Hospital Bed Size	<100	16	22.8
	100-199	28	40
	200-299	13	18.6
	300-499	7	10
	≥ 500	6	8.6
Teaching Status	Non Teaching	52	74.3
	Teaching	18	25.7
Hospital Type	Acute Community	61	87.1
	Academic Medical Center/Tertiary	9	12.9
Magnet Status	Yes	5	7.1
	No	65	92.9
Ownership Status	Not for Profit	65	92.9
	For Profit	5	7.1

For each quarter during the time period 2006-2009, approximately 33% of the total number of reporting units were critical care units and medical surgical units; 10-15% of the total reporting units were step down units, medical units, and surgical units. That accounted for a range of 64-70 reporting units each for critical care and medical surgical units per quarter and a range of 20-32 reporting units each for step down, medical, and surgical units per quarter.

Fall Rate

The overall fall rate by year inclusive of all hospitals and all unit types is given in Table 6.

Table 6

Overall Fall Rate by Calendar Year

Calendar Year	2007	2008	2009
Overall Fall Rate	3.11	3.17	2.98

The count and rates of falls were completed by overall hospital units, and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 3). Regression with Newey-West estimator was performed by application to the falls time series data. The Newey-West regression results for overall falls rate demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter (Table 7).

Table 7

Newey-West Results for Overall Falls

Variable	Coefficient	95% Confidence Interval	P
Overall Rate	-.019	-.032 -.005	0.011

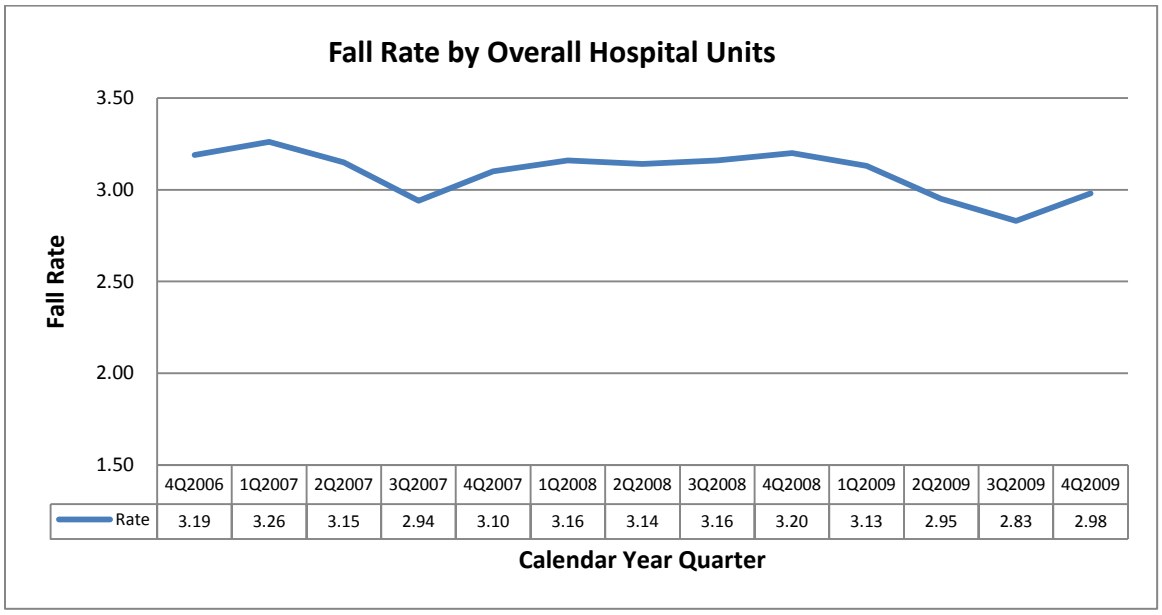


Figure 3. Fall Rate by Overall Hospital Units

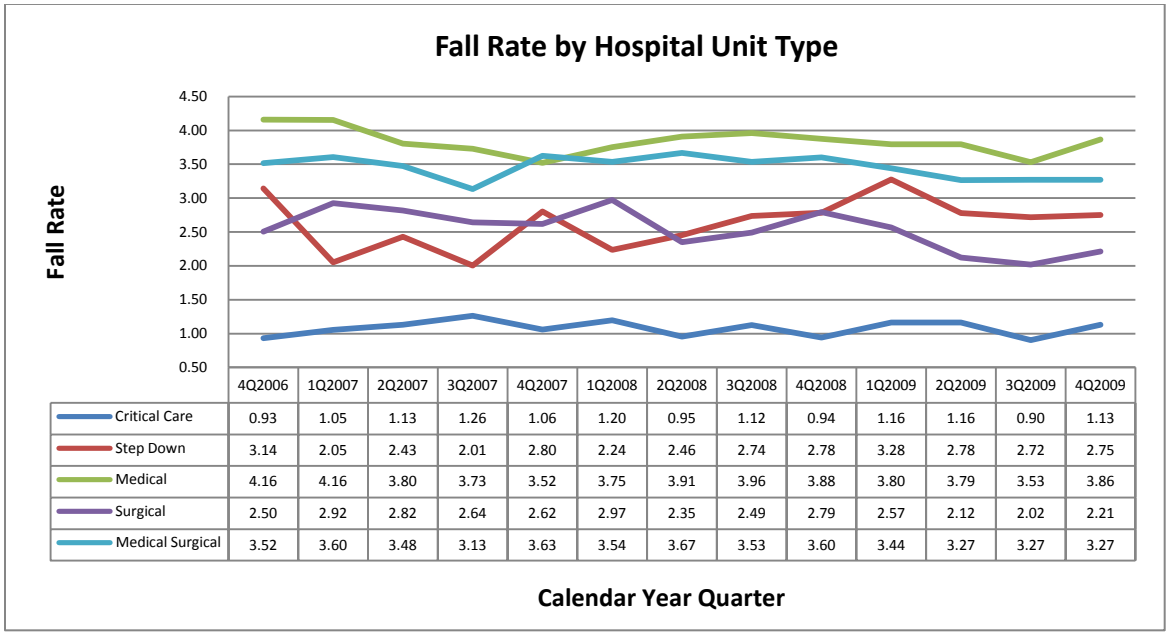
As shown in Figure 3, the fall rate by overall hospital units demonstrated a decreasing tendency. Of note, there was a seasonal pattern showing as fall rates decreased from Quarter 1 to Quarter 3, and then increased in Quarter 4.

The count and rates of falls were completed by hospital unit type (critical care, step down, medical, surgical, medical surgical), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 4). The Newey-West regression results for overall falls rate by hospital unity type demonstrated statistical significance for a downward trend for falls only in surgical units (Table 8).

Table 8

Newey-West Results for Overall Fall Rate by Hospital Unit Type

Variable		Coefficient	95% Confidence Interval		P
Unit Type	Critical Care	-.000	-.014	-.013	0.965
	Step Down	.037	-.010	.083	0.111
	Medical	-.021	-.048	.006	0.112
	Surgical	-.052	-.082	-.021	0.003
	Medical Surgical	-.017	-.038	.003	0.090



	4Q2006	1Q2007	2Q2007	3Q2007	4Q2007	1Q2008	2Q2008	3Q2008	4Q2008	1Q2009	2Q2009	3Q2009	4Q2009
Critical Care	0.93	1.05	1.13	1.26	1.06	1.20	0.95	1.12	0.94	1.16	1.16	0.90	1.13
Step Down	3.14	2.05	2.43	2.01	2.80	2.24	2.46	2.74	2.78	3.28	2.78	2.72	2.75
Medical	4.16	4.16	3.80	3.73	3.52	3.75	3.91	3.96	3.88	3.80	3.79	3.53	3.86
Surgical	2.50	2.92	2.82	2.64	2.62	2.97	2.35	2.49	2.79	2.57	2.12	2.02	2.21
Medical Surgical	3.52	3.60	3.48	3.13	3.63	3.54	3.67	3.53	3.60	3.44	3.27	3.27	3.27

Figure 4. Fall Rate by Hospital Unit Type

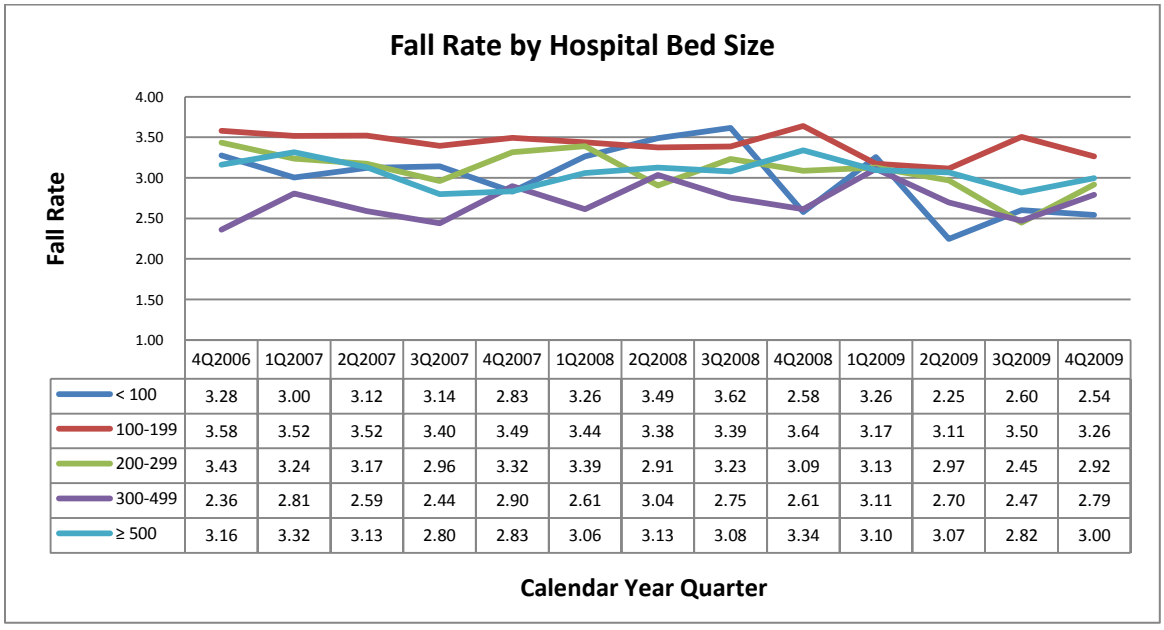
As can be seen in Figure 4, the fall rate by unit type was the highest on medical units, followed by medical surgical units, step down units, surgical units and critical care units. The unit type that demonstrated a decreasing tendency in fall rates was surgical units.

The count and rates of falls were completed by hospital bed size (<100 beds, 100-199 beds, 200-299 beds, 300-499 beds, ≥ 500 beds), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 5). The Newey-West regression results for overall falls rate by bed size demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter in hospitals with <100 beds, 100-199 beds, and 200-299 beds (Table 9).

Table 9

Newey-West Results for Overall Fall Rate by Hospital Bed Size

Variable	Coefficient	95% Confidence Interval		P
Hospital Bed Size < 100 Beds	-.054	-.098	-.009	0.023
100-199 Beds	-.023	-.031	-.014	< 0.001
200-299 Beds	-.044	-.064	-.023	0.001
300-499 Beds	.016	-.009	.041	0.187
≥ 500 Beds	-.010	-.031	.011	0.331



	4Q2006	1Q2007	2Q2007	3Q2007	4Q2007	1Q2008	2Q2008	3Q2008	4Q2008	1Q2009	2Q2009	3Q2009	4Q2009
< 100	3.28	3.00	3.12	3.14	2.83	3.26	3.49	3.62	2.58	3.26	2.25	2.60	2.54
100-199	3.58	3.52	3.52	3.40	3.49	3.44	3.38	3.39	3.64	3.17	3.11	3.50	3.26
200-299	3.43	3.24	3.17	2.96	3.32	3.39	2.91	3.23	3.09	3.13	2.97	2.45	2.92
300-499	2.36	2.81	2.59	2.44	2.90	2.61	3.04	2.75	2.61	3.11	2.70	2.47	2.79
≥ 500	3.16	3.32	3.13	2.80	2.83	3.06	3.13	3.08	3.34	3.10	3.07	2.82	3.00

Figure 5. Fall Rate by Hospital Bed Size

As can be seen in Figure 5, the fall rate by hospital bed size was highest in 100-199 bed hospitals, followed by 200-299 bed hospitals, ≥ 500 bed hospitals, <100 bed hospitals, and then 300-499 bed hospitals. The hospital bed sizes that demonstrated a downward tendency in fall rates were in <100 bed hospitals, 100-199 bed hospitals, and 200-299 bed hospitals.

The count and rates of falls were completed by hospital type (acute community, tertiary AMC), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 6). The Newey-West regression results for overall falls rate by hospital type demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter in acute community hospitals (Table 10).

Table 10

Newey-West Results for Overall Fall Rate by Hospital Type

Variable		Coefficient	95% Confidence Interval		P
Hospital Type	Acute Community	-.028	-.046	-.009	0.007
	Tertiary AMC	-.004	-.021	.013	0.622

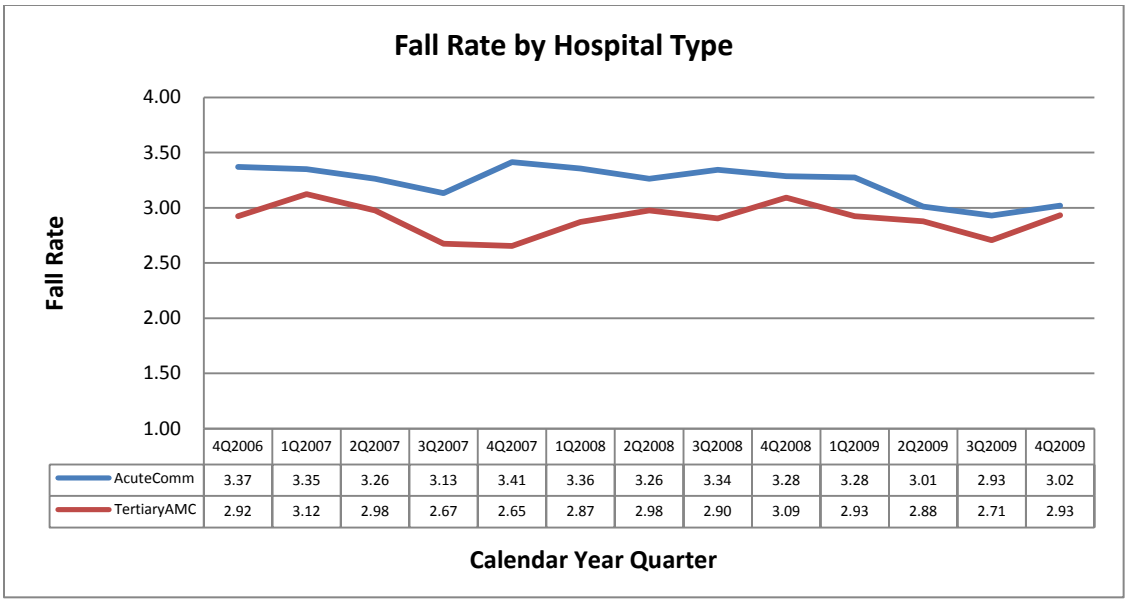


Figure 6. Fall Rate by Hospital Type

The count and rates of falls were completed by hospital teaching status (non teaching, teaching), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 7). The Newey-West regression results for overall falls rate by hospital unity type demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter in non teaching hospitals (Table 11).

Table 11

Newey-West Results for Overall Fall Rate by Hospital Teaching Status

Variable		Coefficient	95% Confidence Interval		P
Teaching Status	Non Teaching	-.022	-.038	-.006	0.013
	Teaching	-.014	-.030	.001	0.071

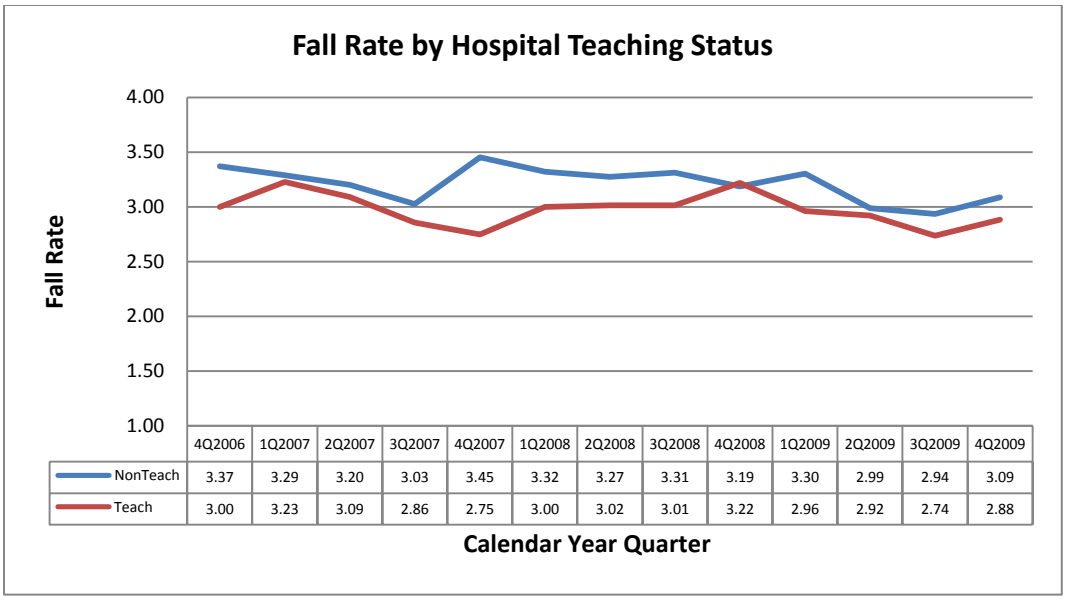


Figure 7. Fall Rate by Hospital Teaching Status

The count and rates of falls were completed by hospital magnet status (no, yes), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 8). The Newey-West regression results for overall falls rate by hospital Magnet status demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter in Magnet hospitals (Table 12).

Table 12

Newey-West Results for Overall Fall Rate by Hospital Magnet Status

Variable		Coefficient	95% Confidence Interval		P
Magnet Status	No	-.008	-.026	.011	0.385
	Yes	-.059	-.078	-.039	< 0.001

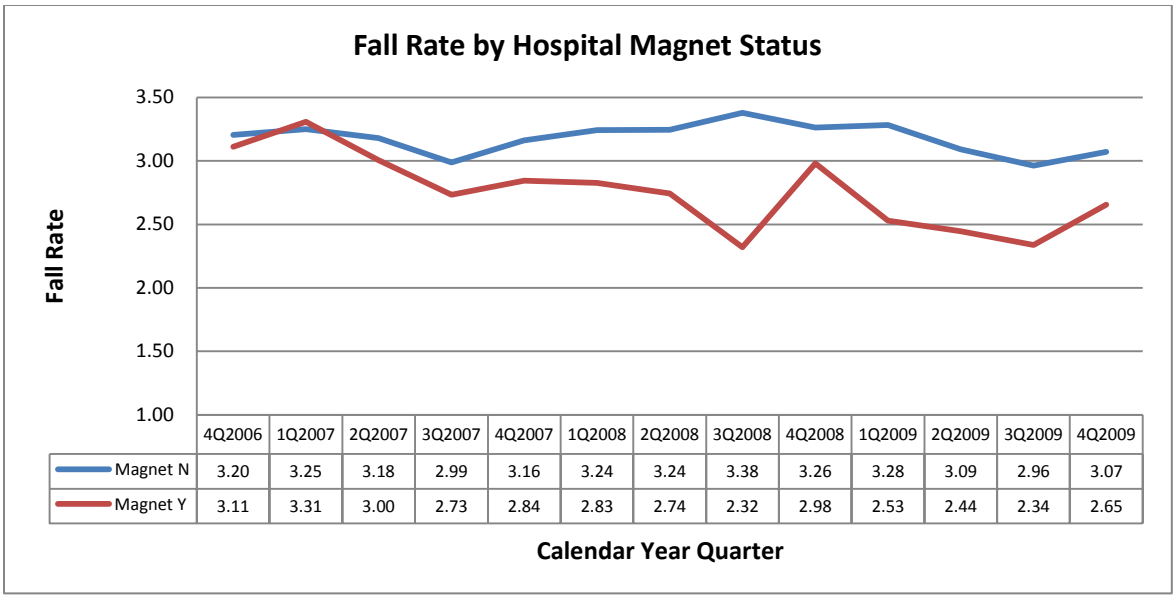


Figure 8. Fall Rate by Hospital Magnet Status

The count and rates of falls were completed by hospital ownership status (not for profit, profit), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 9). The Newey-West regression results for overall falls rate by hospital ownership status demonstrated statistical significance for a downward trend for overall rate of falls by time by quarter in not for profit hospitals (Table 13).

Table 13

Newey-West Results for Overall Fall Rate by Hospital Ownership Status

Variable		Coefficient	95% Confidence Interval		P
Ownership Status	Not For Profit	-.021	-.033	-.009	0.003
	Profit	.030	-.050	.110	0.431

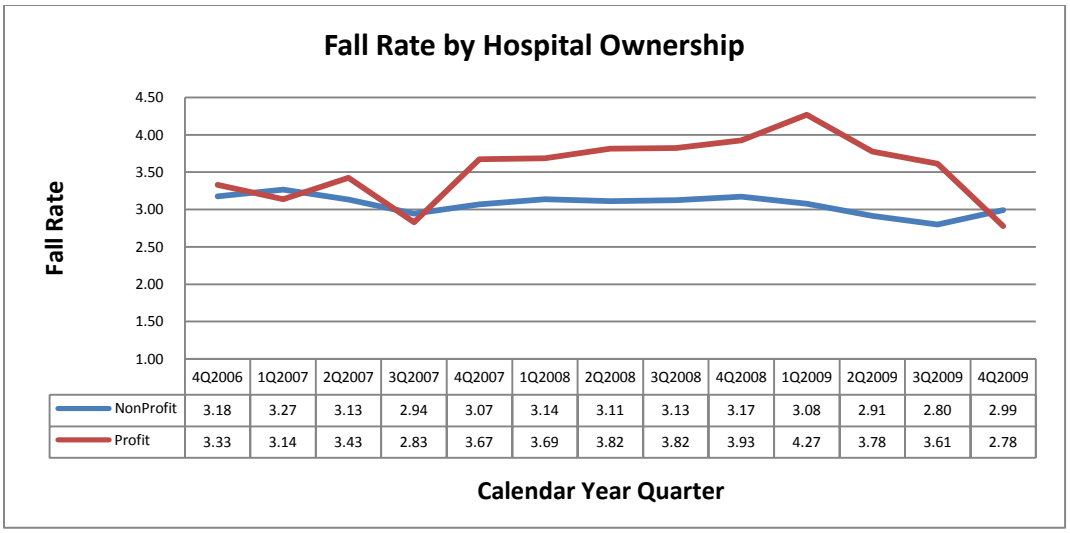


Figure 9. Fall Rate by Hospital Ownership Status

Falls with Injury Rate

The overall falls with injury rate by year inclusive of all hospitals and all unit types is given in Table 14.

Table 14

Overall Falls with Injury Rate by Calendar Year

Calendar Year	2007	2008	2009
Overall Fall w/Injury Rate	0.68	0.65	0.62

The count and rates of falls with injury were completed by overall hospital units, and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 10). Regression with Newey-West estimator was performed by application to the falls with injury time series data. The Newey-West regression results

for overall falls with injury rate demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter (Table 15).

Table 15

Newey-West Results for Overall Falls with Injury

Variable	Coefficient	95% Confidence Interval	P
Overall Rate	-.007	-.009 -.005	< 0.001

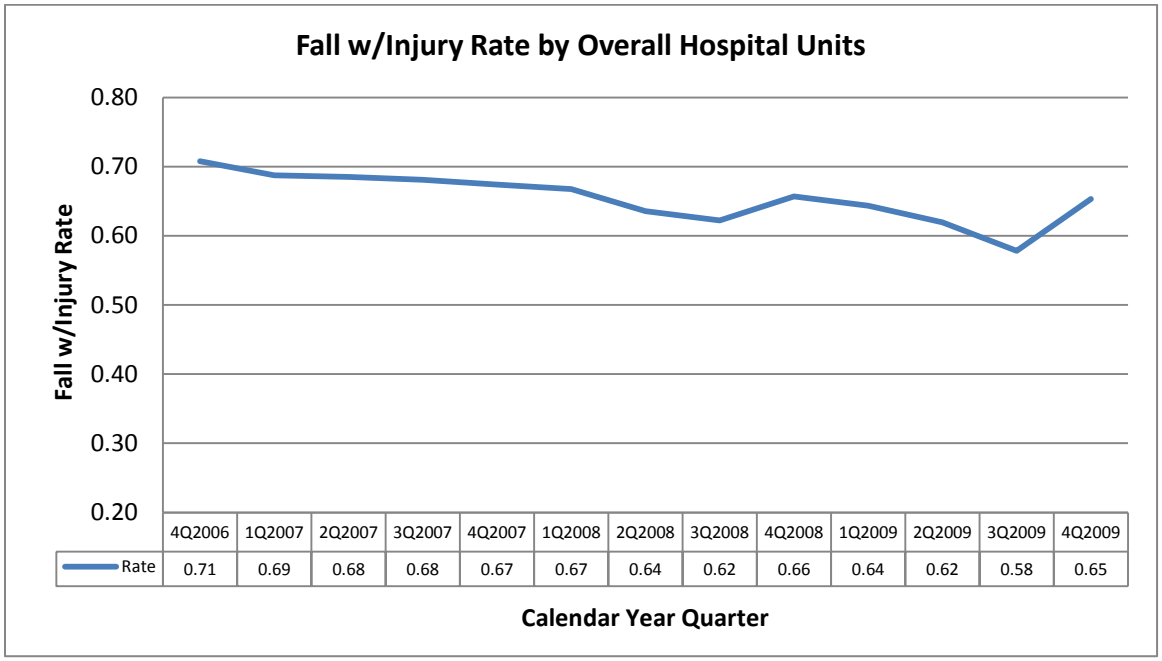


Figure 10. Fall With Injury Rate by Overall Hospital Units

The fall with injury rate by overall hospital units demonstrated a small decreasing movement (Figure 10). Of note, there was a pattern of decreasing fall with injury rates of a seasonal nature during Quarter 3 of 2008 and Quarter 3 of 2009.

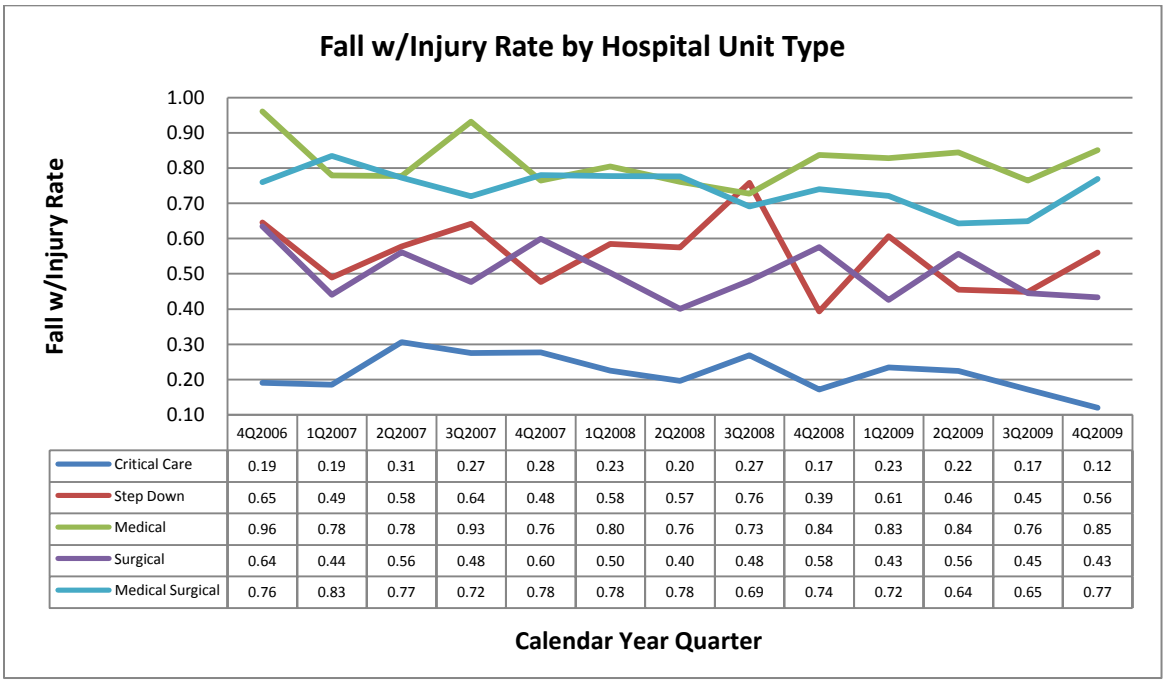
The count and rates of falls with injury were completed by hospital unit type (critical care, step down, medical, surgical, medical surgical), and the trend was described

by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 11). The Newey-West regression results for falls with injury by hospital unit type demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in step down, surgical, and medical surgical units (Table 16).

Table 16

Newey-West Results for Overall Falls with Injury by Hospital Unit Type

Variable		Coefficient	95% Confidence Interval		P
Unit Type	Critical Care	-.006	-.015	.002	0.115
	Step Down	-.007	-.013	-.001	0.028
	Medical	-.004	-.012	.004	0.312
	Surgical	-.008	-.013	-.002	0.009
	Medical Surgical	-.008	-.013	-.003	0.003



	4Q2006	1Q2007	2Q2007	3Q2007	4Q2007	1Q2008	2Q2008	3Q2008	4Q2008	1Q2009	2Q2009	3Q2009	4Q2009
Critical Care	0.19	0.19	0.31	0.27	0.28	0.23	0.20	0.27	0.17	0.23	0.22	0.17	0.12
Step Down	0.65	0.49	0.58	0.64	0.48	0.58	0.57	0.76	0.39	0.61	0.46	0.45	0.56
Medical	0.96	0.78	0.78	0.93	0.76	0.80	0.76	0.73	0.84	0.83	0.84	0.76	0.85
Surgical	0.64	0.44	0.56	0.48	0.60	0.50	0.40	0.48	0.58	0.43	0.56	0.45	0.43
Medical Surgical	0.76	0.83	0.77	0.72	0.78	0.78	0.78	0.69	0.74	0.72	0.64	0.65	0.77

Figure 11. Fall With Injury Rate by Hospital Unit Type

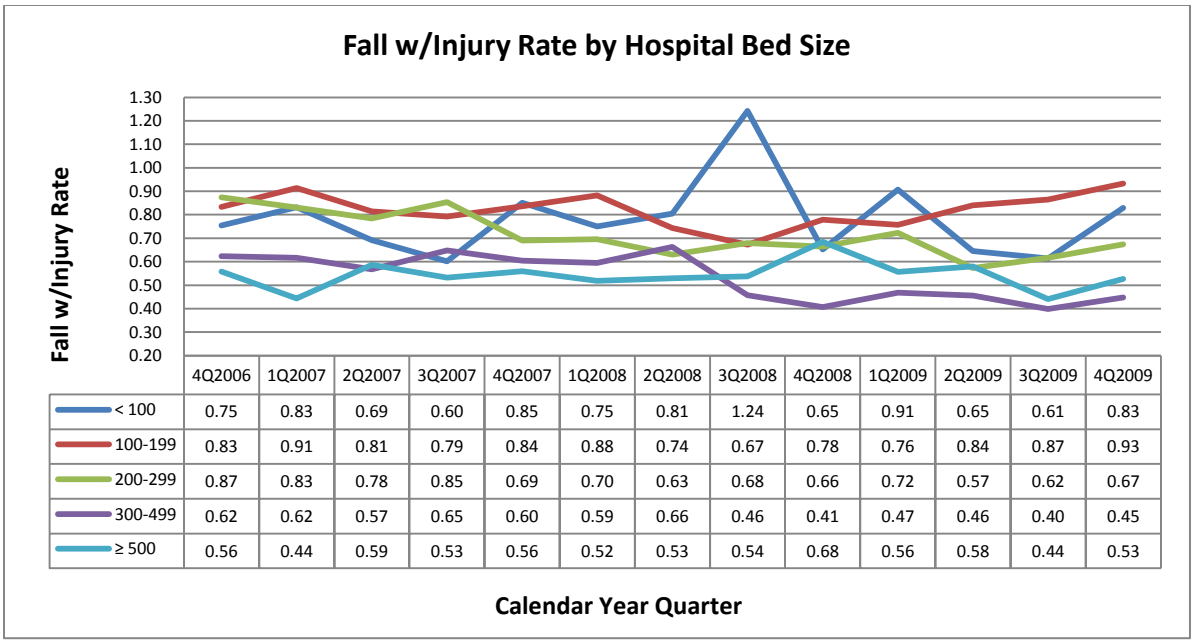
The fall with injury rate by unit type was the highest on medical units, followed by medical surgical units, step down units, surgical units and critical care units. The unit types that demonstrated a downward tendency in fall with injury rates were step down units, surgical units, and medical surgical units (Figure 11).

The count and rates of falls with injury were completed by hospital bed size (<100 beds, 100-199 beds, 200-299 beds, 300-499 beds, ≥ 500 beds), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 12). The Newey-West regression results for falls with injury by hospital bed size demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in hospitals with 200-299 beds, and 300-499 beds (Table 17).

Table 17

Newey-West Results for Overall Falls with Injury by Hospital Bed Size

Variable	Coefficient	95% Confidence Interval		P
Hospital Bed Size < 100 Beds	.001	-.015	.018	0.862
100-199 Beds	.001	-.013	.014	0.928
200-299 Beds	-.020	-.027	-.012	< 0.001
300-499 Beds	-.020	-.026	-.014	< 0.001
≥ 500 Beds	.001	-.007	.008	0.840



	4Q2006	1Q2007	2Q2007	3Q2007	4Q2007	1Q2008	2Q2008	3Q2008	4Q2008	1Q2009	2Q2009	3Q2009	4Q2009
< 100	0.75	0.83	0.69	0.60	0.85	0.75	0.81	1.24	0.65	0.91	0.65	0.61	0.83
100-199	0.83	0.91	0.81	0.79	0.84	0.88	0.74	0.67	0.78	0.76	0.84	0.87	0.93
200-299	0.87	0.83	0.78	0.85	0.69	0.70	0.63	0.68	0.66	0.72	0.57	0.62	0.67
300-499	0.62	0.62	0.57	0.65	0.60	0.59	0.66	0.46	0.41	0.47	0.46	0.40	0.45
≥ 500	0.56	0.44	0.59	0.53	0.56	0.52	0.53	0.54	0.68	0.56	0.58	0.44	0.53

Figure 12. Fall With Injury Rate by Hospital Bed Size

As can be seen in Figure 12, the fall with injury rate by hospital bed size was the highest in 100-199 bed hospitals, followed by 200-299 bed hospitals, <100 bed hospitals, 300-499 bed hospitals, and then ≥ 500 bed hospitals. The hospital bed size that demonstrated a downward tendency in fall with injury rates were in 200-299 bed hospitals, and 300-499 bed hospitals.

The count and rates of falls with injury were completed by hospital type (acute community, tertiary AMC), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 13). The Newey-West regression results for falls with injury by hospital type demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in acute community hospitals (Table 18).

Table 18

Newey-West Results for Overall Falls with Injury by Hospital Type

Variable		Coefficient	95% Confidence Interval		P
Hospital Type	Acute Community	-.010	-.016	-.003	0.006
	Tertiary AMC	-.003	-.009	.003	0.269

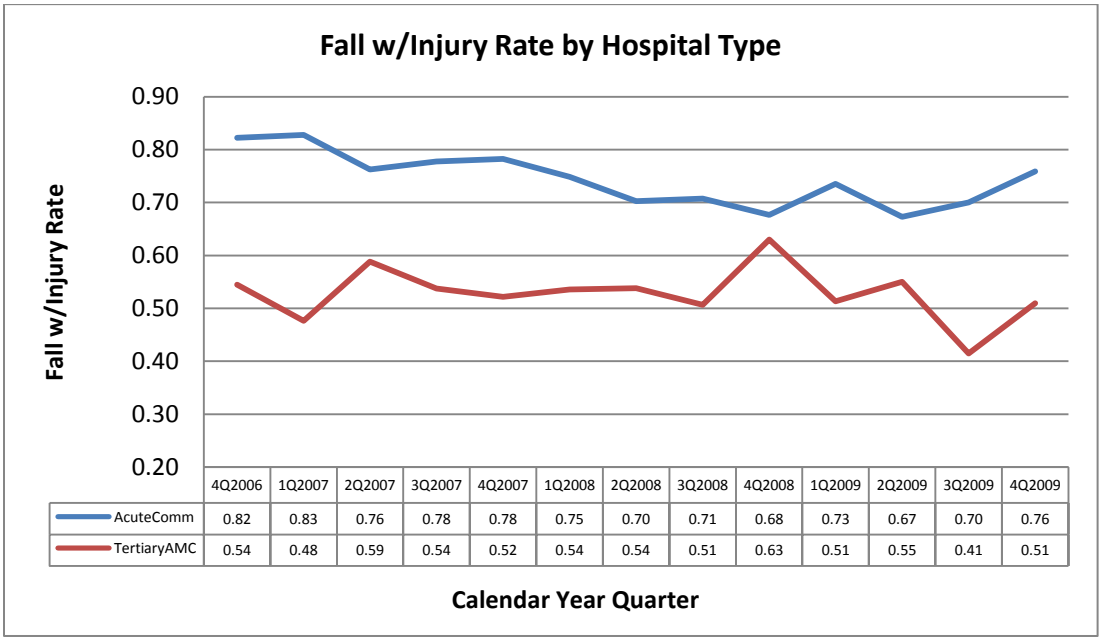


Figure 13. Fall With Injury Rate by Hospital Type

The count and rates of falls with injury were completed by hospital teaching status (non teaching, teaching), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 14). The Newey-West regression results for falls with injury by hospital type demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in non teaching hospitals (Table 19).

Table 19

Newey-West Results for Overall Falls with Injury by Hospital Teaching Status

Variable		Coefficient	95% Confidence Interval		P
Teaching Status	Non Teaching	-.010	-.019	-.002	0.020
	Teaching	-.003	-.010	.003	0.237

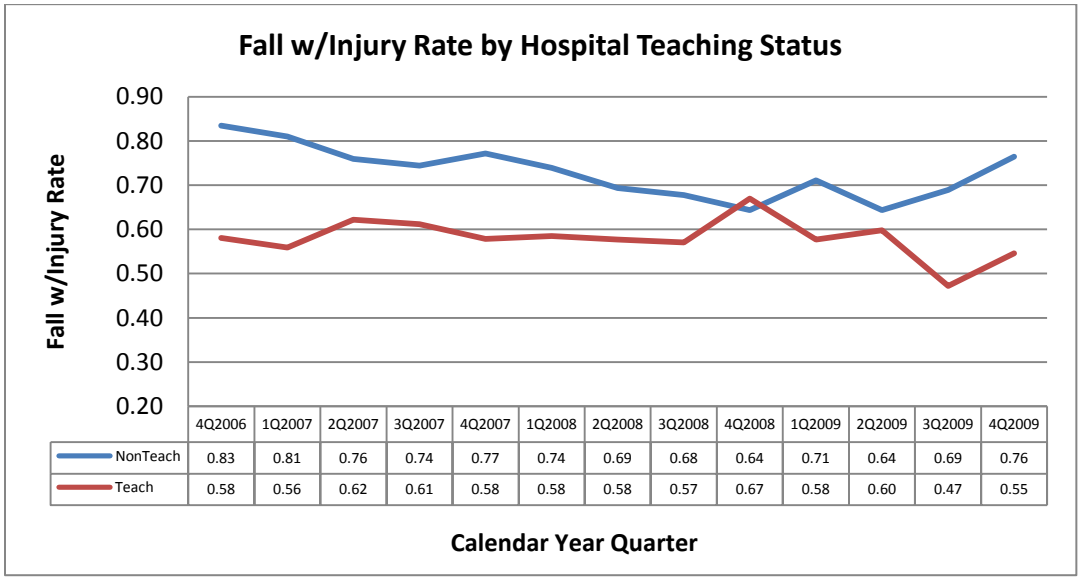


Figure 14. Fall With Injury Rate by Hospital Teaching Status

The count and rates of falls with injury were completed by hospital Magnet status (no, yes), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 15). The Newey-West regression results for falls with injury by hospital type demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in non Magnet hospitals (Table 20).

Table 20

Newey-West Results for Overall Falls with Injury by Hospital Magnet Status

Variable		Coefficient	95% Confidence Interval		P
Magnet Status	No	-.008	-.012	-.003	0.002
	Yes	-.004	-.014	.006	0.367

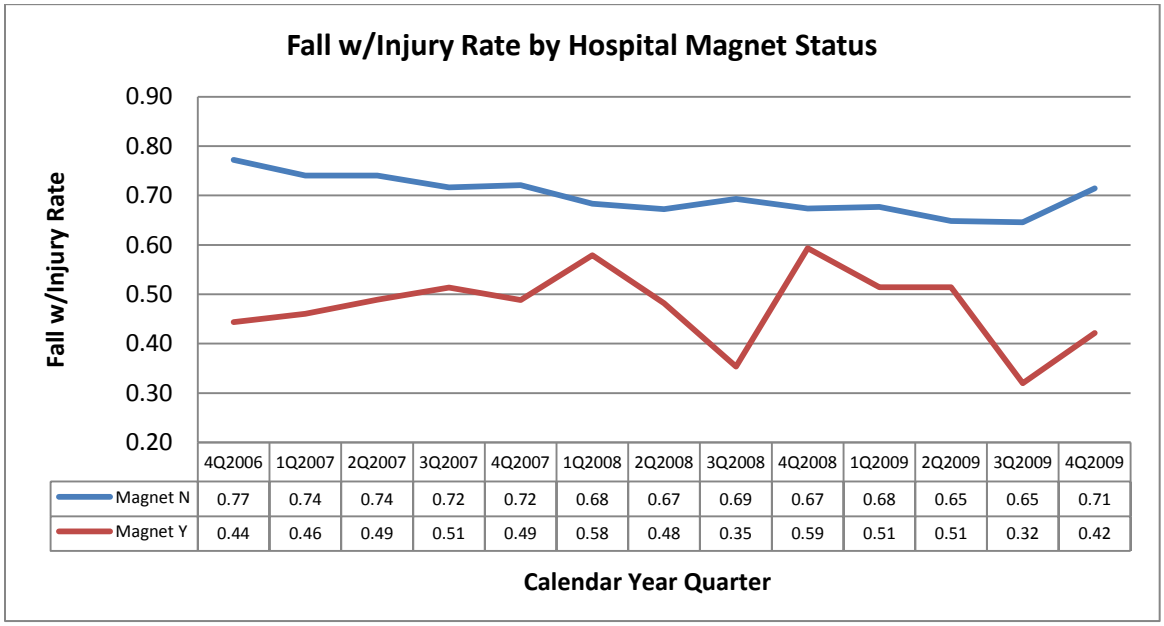


Figure 15. Fall With Injury Rate by Hospital Magnet Status

The count and rates of falls with injury were completed by hospital ownership status (not for profit, profit), and the trend was described by line plot by calendar year quarter from 2006 4th quarter to 2009 4th quarter (Figure 16). The Newey-West regression results for falls with injury by hospital type demonstrated statistical significance for a downward trend for overall rate of falls with injury by time by quarter in not for profit hospitals (Table 21).

Table 21

Newey-West Results for Overall Falls with Injury by Hospital Ownership Status

Variable	Coefficient	95% Confidence Interval	P
Ownership Status Not For Profit	-.009	-.013 -.005	< 0.001
Profit	.021	-.020 .062	0.288

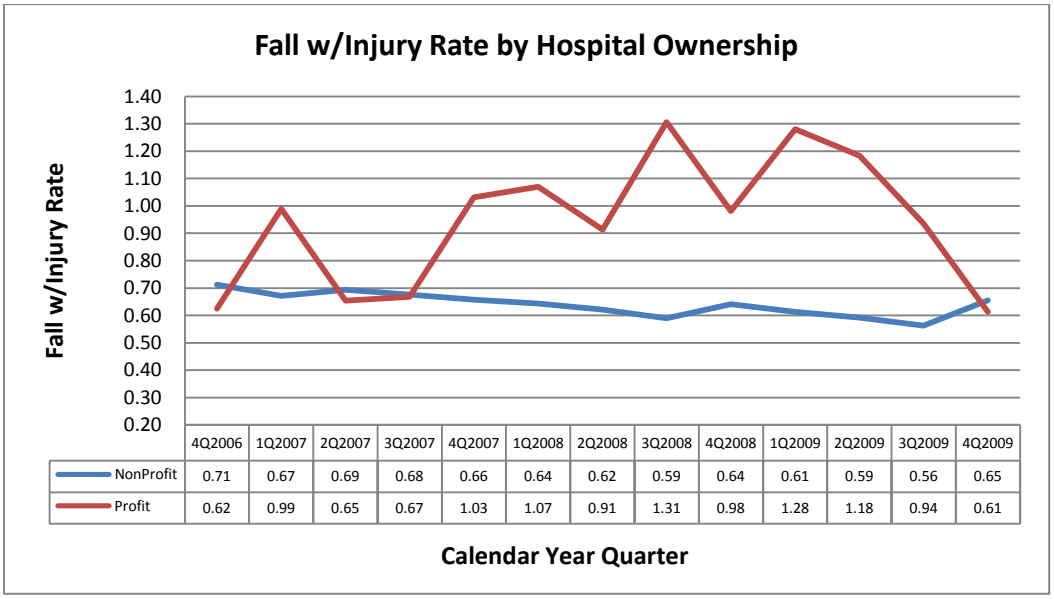


Figure 16. Fall With Injury Rate by Hospital Ownership Status

Longitudinal multivariate data analysis was completed to examine the effect of hospital characteristics on falls and fall with injury rates. The random-effects linear regression model GLS was utilized with the time series data in this study. This analysis included all 70 hospitals, and the number of observations totaled 910. The variables coded included hospital type, hospital ownership, hospital magnet status, hospital educational type, and hospital bed size.

The random-effects GLS Regression results for falls demonstrated a statistically significant downward trend for overall falls by time quarter from 2006 4th quarter to 2009 4th quarter, after adjustment for the hospital characteristics (Table 22).

Table 22

Random-Effects GLS Regression for Falls

Variable		Coefficient	95% Confidence Interval		P
Time by Quarter		- .039	- .059	- .019	< 0.001
Hospital Type	Tertiary AMC	- .569	- 2.080	.939	0.46
Ownership Status	Profit	.205	- .649	1.060	0.64
Magnet Status	Yes	- .533	- 1.480	.412	0.27
Teaching Status	Teaching	- .123	- .785	.540	0.72
Hospital Bed Size	100-199 Beds	.364	- .201	.929	0.21
	200-299 Beds	.154	- .530	.839	0.66
	300-499 Beds	- .020	- 1.030	.993	0.97
	≥500 Beds	.851	- .780	2.48	0.31

The random-effects GLS regression results for falls with injury demonstrated a statistically significant downward movement for overall falls with injury by time quarter from 2006 4th quarter to 2009 4th quarter, after adjustment for hospital characteristics (Table 23).

Table 23

Random-Effects GLS Regression for Falls with Injury

Variable		Coefficient	95% Confidence Interval		P
Time by Quarter		- .009	- .019	.000	0.05
Hospital Type	Tertiary AMC	.017	- .519	.552	0.95
Ownership Status	Profit	.207	- .097	.510	0.18
Variable		Coefficient	95% Confidence Interval		P
Magnet Status	Yes	- .088	- .423	.248	0.61

Teaching Status	Teaching	- .041	- .276	.195	0.73
Hospital Bed Size	100-199 Beds	- .053	- .253	.148	0.61
	200-299 Beds	- .115	- .358	.128	0.35
	300-499 Beds	- .295	- .655	.064	0.11
	≥500 Beds	- .255	- .835	.326	0.39

Study Aim 3:

Describe quality improvement interventions implemented over the time period 2006 – 2009 to prevent patient falls in Massachusetts acute care hospitals. The five major dimensions of fatal fall causes (JCAHO, 2005), which were used as a priori categories for the content analysis of interview data, included (Inadequate) Assessment and Reassessment, (Inadequate) Care Planning and Provision, (Inadequate) Caregiver Communication, (Inadequate) Staff Orientation and Training, and (Unsafe) Environment of Care. The content analysis revealed these five dimensions as the overarching code families of 1) Assessment and Reassessment, 2) Care Planning and Delivery, 3) Caregiver Communication, 4) Staff Orientation and Training, and 5) Hospital Care Environment. Two additional dimensions or code families were identified -- 6) Organizational Structure and Culture, and 7) Public Reporting Impact.

From these initial dimensions, additional codes were identified. Identified codes and the compiled number of code citations identified from the interview data are listed in Table 24.

Table 24

Overall Identified Code Families, Codes and Compiled Number of Code Citations

Code	Number of Code Citations
Assessment and Reassessment	32
Process of Assessment and Reassessment	55
Care Planning and Delivery	129
Communication Among Caregivers	22
Communication Healthcare Team	51
Communication Patient and Family	32
Staff Orientation and Training	70
Hospital Care Environment	79
Organizational Structure and Culture	127
Public Reporting Effect	72
Public Reporting Healthcare Team	27
Changes Due to Falls Public Reporting	18
New / Different due to Falls Public Reporting	26
Public Reporting Confounders	48
Timeline Fall Prevention Interventions	19

The code family of Assessment and Reassessment included the codes of Assessment and Reassessment (32 citations) and Process of Assessment and

Reassessment (55 citations). There were a number of sub-codes within each code, as indicated in Table 25.

Table 25

Identified Code, Sub-Codes and Compiled Number of Code Citations for Assessment and Reassessment

Code	Number of Code Citations
Assessment and Reassessment	32
Tool	23
Doc System	13
Falls Definition	4
Process of Assessment and Reassessment	55
Post Fall Assessment	18
Individualized Interventions	12
Timing	8

Each of the 18 CNOs interviewed identified intervention strategies for preventing falls as identified in the JCAHO Domain of (Inadequate) Assessment and Reassessment. Each of the CNO's organizations utilized a fall risk assessment tool, with the Morse Fall Scale (Morse, 1995) and Hendrich II Scale (Hendrich, 2007) as the most frequently cited. Many spoke of the documentation system used to assess, plan, and document individualized fall prevention interventions in their organizations. The majority of

participants described the post fall assessment that was completed as soon as possible after a patient fall occurred.

For example, one CNO stated:

> But, you know AHRQ has published a lot of work that was a foundation for us and we those practice guidelines; and we changed to a new…we really had a non evidence based – I don't even know where it came from – assessment tool. So, we adopted the Heindrich II model, which as you know, that modifies the Heindrich I and include the "get up and go" test. So, we did that …we implemented that for all of our adult med / surg areas, and as well as adult psychiatric units and one of which was a geriatrics unit, so even more appropriate; but all the adult units we implemented it.

Another CNO commented:

> So, the core assessment remains the same and is much more rigorous; and we also went to electronic documentation during this time period too, so that the trigger to do the Morse assessment every shift is automatic. So, once you're at risk, you're supposed to do it every shift and it comes up and if not at risk it's a daily reassessment; so. But we learned that that had to be hardwired through our audits, so it was very interesting. .. So the assessment itself and reassessment has been hardwired through our electronic documentation. I think the bigger bang we got was on this individualized intervention plan that was generated from the assessment.

Additional CNO quotations are given in Appendix A.

The code family of Care Planning and Delivery (129 citations) included the identification of 12 sub-codes; with Falls Program (29 citations), Automation EMR (20 citations), and Hourly Rounding (16) the most frequently cited. All sub-codes are indicated in Table 26.

Table 26

Identified Code, Sub-Codes and Compiled Number of Code Citations for Care Planning and Delivery

Code	Number of Code Citations
Care Planning and Delivery	129
Falls Program	29
Automation EMR	20
Hourly Rounding	16
Expert Use	14
Sitter Program	11
Outpatient Falls Program	10
Falls Committee	8
Shift to Shift Handoff	7
Face to Face Report	5
Nurse Staffing	3
Practice Council	2
No Passing Zone	1

Each of the 18 CNOs interviewed identified intervention strategies used to prevent falls as identified in the JCAHO Domain of (Inadequate) Care Planning and Provision translated to the Code of Care Planning and Delivery. Each of the CNOs cited the falls program that was in place in the organization. The majority spoke about the components of the falls program that were incorporated into their electronic medical record so that the patient assessment drove the plan of care and cited patient specific fall prevention interventions that should be implemented. Hourly rounding was often cited as a care delivery intervention for fall prevention. Many CNOs noted the use of experts to educate staff, assist in implementation of fall prevention interventions, and monitor and provide feedback. These experts included unit champion, unit based educators, clinical nurse specialists, and geriatric clinical nurse specialists. The majority of participants spoke of how they expanded their inpatient fall prevention program to the operating room and to the outpatient areas of radiology, ambulatory clinics and to the emergency department. The majority of CNOs also described their programs as including the use of sitters / patient observers to keep patients safe.

For example, one CNO stated:

> But, we took advantage of the fact that it was Boston and the Red Sox to implement the Red Socks program. So, that all patients who were identified as being at risk were given red socks and then we used… That was sort of the emblem if you will, or the symbol of the program so the fall risk signs that we put on patients' doors, these are for the inpatients, they had two little red socks on them. And, in addition, we

used green bracelets, I think, for fall risk. So that that could also identify…I mean the red socks as well as the green bracelets could identify the fall risk, not only to nursing staff, but also to other departments…whether the patient's going to radiology or some interventional procedure or some other diagnostic test.

Another CNO commented:

We standardized the practice. We standardized the documentation. We standardized the approach. So, we took what's evidence based and through the automated system you're able to integrate what's evidence based practice into day-to-day operations practice. So, yes we have improved it; because we've taken what's best practice, we automate it, it becomes part of the ongoing documentation of the nurse, the nurse gets triggers on what they need to assess for. The nurse then gets an automatic care plan or protocol on what they need to do for that given patient. So, yea you have. Because you see you integrate best practice into documentation of what the nurses practice. That's part of the advantage of an automated system.

Additional CNO quotations are given in Appendix B.

The code family of Caregiver Communication included the identification of 3 codes; Communication Among Caregivers (22 citations), Communication Healthcare Team (51 citations), and Communication Patient & Family (32 citations). There were 10 sub-codes within each code, as indicated in Table 27.

Table 27

Identified Code, Sub-Codes and Compiled Number of Code Citations for Caregiver Communication.

Code	Number of Code Citations
Communication Among Caregivers	22
Accountability	7
SBAR	7
Communication Healthcare Team	51
Ticket to Ride (Patient Passport)	7
Wristbands	6
Track Days without Fall	4
On Falls Committee	3
Communication Patient and Family	32
Patient Education	14
Brochure and Literature	13
Teachback	1
Team Members	1

Each of the 18 CNOs interviewed identified intervention strategies used to prevent falls as identified in the JCAHO Domain of (Inadequate) Caregiver Communication. Related to Communication Among Caregivers, accountability among care providers and the use of SBAR (Situation, Background, Assessment, Response) was

frequently noted. Regarding Communication Healthcare Team, ways among which healthcare team members effectively communicated was cited, as well as the use of the Ticket to Ride communication tool and the use of colored patient wristbands to identify patients at high risk for falls. Specific healthcare team members described as involved in the intervention strategies include nurses, pharmacists, dietary staff, physician hospitalists, physical therapists, occupational therapists, patient care technicians, and the entire hospital leadership team. Regarding Communication Patient and Family, actual examples of providing patient education and the use of fall prevention brochures and literature such as fall prevention fact sheets were discussed.

Communication Among Caregivers

For example, one CNO stated:

> We did develop an SBAR report. So, it's a computerized report that the nurses print out and the CNAs print out at the beginning of the shift. And of course, one of the pieces of that information is the Morse score. And with the patients at high risk or low risk or more interventions have happened to the patient related to fall risk, and the nursing assistants also do that. When we did do the initial education for the Morse, everybody was included – transport, radiology; because we have the Ticket to Ride… We have the SBAR, the report that goes with the patient; so it's communicated throughout the institution

Another CNO commented:

> We do huddles and briefs on all the units now. So, there's kind of that sense of situational awareness that I think we had moved away from a little bit because each

nurse was getting report on their patient. And, we did not have charge nurses on the unit. So, really when you went up to the unit, if you asked any nurse "Who is the sickest patient on the unit?" They would all supposedly say one of their patients was the sickest…there wasn't that group sense of what was going on on the unit. So, the huddles and debriefs, they basically talk about 'Well this is the patient census, this is how many expected patients we're getting out of the emergency department, the OR, this is who is being discharged, these are the patients that we've really got to watch today'; and they also talk about who they think is at highest risk for falls on the unit…

Communication Healthcare Team

For example, one CNO stated:

…there was a lot of education done around falls; um…and we had actually quite a robust falls team that included pharmacy and rehab. And, in fact, I charged pharmacy and rehab services with chairing the falls team. Because, not unlike many organizations, there are a lot of dept,.., there are a lot of people that think that this is a nursing issue, when in fact it does take the team to safely prevent falls and their involvement, especially when you have elders on 14 and 15 medications and diuretics and everything else; so, um…they were very involved, not only leading the falls team, but also providing education across the organization around falls prevention… Oh, one of the other teams that we engaged, um…with us was the dietary department since they were in the room, um…and we had some falls related to patients trying to get to their trays; so we had engaged the dietary department in

how to “set a patient up

Another CNO commented:

> When we did do the initial education for the Morse, everybody was included – transport, radiology; because we have the Ticket to Ride. That number is on the Ticket to Ride. So, every department in the hospital was educated on the Morse Scale. We do do that on hospital orientation too. So, everybody kind of gets the importance of prevention of falls.

Communication Patient & Family

For example, one CNO stated:

> …well, as I said, patients and families were involved in the falls program, and in fact we had drafted literature that kind of outlined for families how we wanted them to help monitor the environment; you know, for example, when they were leaving…when they were done visiting and about to leave if they could scan the environment and make sure that, you know, slippers weren’t under foot and the call light was still within the patients reach, and so we did that component trying to get families involved,

Another CNO commented:

> So I haven’t talked much about the patient or the family…and I can’t tell you that I think we’ve got that totally hardwired yet; but I’m getting to be almost a zealot about the fact that we don’t do a good job; we in the aggregate, not just _____; do a good job of bringing patients and families into the team. They’re not part of the care team. And I think they have to be. They’re going to have to be going forward for sure.

And I think they're vital. If they understand what the issues are and the concerns are, lots of patients and family will respond accordingly and be much more vigilant.

Additional CNO quotations are given in Appendix C.

The code family of Staff Orientation and Training included the identification of the code Staff Orientation and Training (70 citations). There were 5 sub-codes within each code, as indicated in Table 28.

Table 28

Identified Code, Sub-Codes and Compiled Number of Code Citations for Staff Orientation and Training

Code	Number of Code Citations
Staff Orientation and Training	70
Falls Education	46
Safety Education	10
Sitter Education	7
Multidisciplinary	5
Competency Day	2

Each of the 18 CNOs interviewed identified intervention strategies used to prevent falls as identified in the JCAHO Domain of (Inadequate) Staff Orientation and Training. Each of the CNOs spoke to comprehensive falls education that occurred in the orientation of all new employees and of additional training provided such when a new component of the falls program was initiated or new equipment was introduced into the

care environment. Several CNOs discussed organization wide safety education that occurred, on topics to promote patient, family, and visitor safety; as well as staff safety. In addition, several CNOs noted the sitter education that occurred, particularly for the unlicensed members of the healthcare team.

For example, one CNO stated:

> So, we have our falls prevention program is part of initial hospital orientation. For us, that will have minimal impact because the nursing turnover here is very little…. So, it's about a 10 month program. Everybody goes through 8 hours a year, and that program typically always has falls, all the safety pieces integrated in it. So, that's a reminder for them all the time. So, we use 'Healthstream' here to supplement education. If it falls out and becomes an every other year curriculum in competency day, then they'll get a Healthstream or some other more passive mechanism as a reminder. We also have what we describe as the "practice note" here, which is when our educators and leadership people are reviewing charts or we're doing our own quality review on records. That if we have seen safety not assessed properly, or the interventions not fully applied or documented in the record; the 'practice note' is a mechanism for us to tell the nurses in sort of "real time", here's some feedback on your charting. You know, we want to try to make this better, more thorough.

Another CNO commented:

> Right from the get go, it's right in their orientation; and then you know, it's ongoing in staff meetings. They talk about what their falls risk were, what happened with certain patients, it always gets looped back to their… When we started the whole

falls program, it was rolled out very quickly and you know, we had all the nurses…it was like a 2 hour training… nurses and the PCAs all trained. And after about a year, people weren't getting it. So, we went back and did another whole education for all the PCAs and all the nurses. So, then we have the nurse educators / clinicians / clin specs; we have them always on the floors just going around doing what I call just 'checks.' So, they do spot checks out there and they'll actually go into rooms to validate whether the nurses are assessing appropriately and educating at the same time.

Additional CNO quotations are given in Appendix D.

The code family of Hospital Care Environment included the identification of the code of Hospital Care Environment (79 citations). There were 13 sub-codes identified, with Bed and Chair Alarms (26 citations), Signage in Rooms (14 citations), and Color for Falls (13) the most frequently cited. All sub-codes are indicated in Table 29.

Table 29

Identified Code, Sub-Codes and Compiled Number of Code Citations for Hospital Care Enviroment

Code	Number of Code Citations
Hospital Care Environment	79
Bed and Chair Alarms	26
Signage in Rooms	14
Color For Falls	13
Patient Location	11

Central Nurse Call System	6
Lighting	6
Low Beds	5
Safety Scan	5
Distraction Devices	3
Room Thresholds	3
Sound	2
Space	2
Posey Beds	1

Each of the 18 CNOs interviewed identified intervention strategies used to prevent falls as identified in the JCAHO Domain of (Inadequate) Environment of Care translated to the Code of Hospital Care Environment. Each of the CNOs spoke to their use of various bed and chair alarms and various types of beds to prevent falls. The majority of CNOs spoke to use of fall prevention signage in patient rooms such as "Catch a Falling Star" program signage in the room and fall prevention magnets adhered to the door frame of the patient's room. The majority of CNOs spoke to the use of a specific color for falls – yellow, orange, pink; and the use of these colors on wristbands, blankets, slippers, and johnnies. Several CNOs spoke to the patient location as a strategy to prevent falls, such as in a room visible to staff as they pass by or in a room close to the nurses' station. A few of the CNOs spoke to a purposeful "safety scan" that staff complete every time they interact with a patient, and also of how they teach this to the

patient and family to promote a safe environment. A few of the CNOs spoke to their attention to provide more effective lighting in patient rooms, especially in bathrooms; the removal of room thresholds, and of an effort to minimize noise to calm the environment and promote patient healing.

For example, one CNO stated:

> I think that we really heightened everybody's awareness of environmental safety scan and that's really what we were trying to accomplish with the families also; was just a heightened awareness of…you know, of how to leave the room, um…and we did that really with most teams that had access or with most hospital employees, I should say, that had access to patient care areas

Another CNO commented:

> So, we, in 2006 or 2007, implemented the Red Socks program, where patients who were at risk for fall, were identified with red socks. And the reason we did that is that those patients when they're transported anywhere in the hospital, other staff can see the socks. And we did a lot of house wide education and what that meant for those patients. And then we have red socks magnets that go up on the door frame of patients who are at risk for falls. And that team is also been really focused on bed alarms. We've done a lot of study on bed alarms and why do we use them, and why they don't use them; and how they're reset, and making sure that they work. And what we found out, especially on the tele unit, is because patients move around a lot, and the turnover on that unit is high; that the bed alarms themselves frequently didn't work correctly. So, that unit is really doing the deepest dive into falls for us… The

bed alarms are the big thing. Monitoring the bed alarms making sure there working. And we've done a lot of work with environmental services, and actually we do safety rounds – myself, _____ is the CEO and a member of the Board. With someone from QPS we do safety rounds at least once a month and we talk to staff about what are they concerned about, about safety; and whether it's environment stuff or actual care delivery, we try to address it.

Additional CNO quotations are given in Appendix E.

One newly identified code family was Organizational Structure and Culture (127 citations). There were 10 sub-codes identified, with Discussion All Levels (37 citations), Board Reporting (32 citations), and Scorecards / Report Cards / Dashboards (23 citations) the most frequently cited. All sub-codes are indicated in Table 30.

Table 30

Identified Code, Sub-Codes and Compiled Number of Code Citations for Organizational Structure and Culture

Code	Number of Code Citations
Organizational Structure and Culture	127
Discussion All Levels	37
Board Reporting	32
Scorecards (Report Cards, Dashboards)	23
Involve All Departments	22
Leadership	15
Quality Committees	13

Falls Evaluation	10
Incident Reporting	10
Leadership Rounding	7
Public Campaign	5

Each of the 18 CNOs interviewed identified intervention strategies used to prevent falls as identified in the newly identified code family Organizational Structure and Culture. All of the CNOs interviewed spoke to the discussion of patient falls being discussed regularly at hospital board meetings. All of the CNOs spoke to the fact that fall rates and fall prevention strategies were discussed at all levels of the organization – the board level, hospital level, the department level, and the patient care unit level. The majority of the CNOs shared that fall prevention awareness and activities involved all departments of the organization. Most of the hospital organizations readily utilized scorecards, report cards, or dashboards to identify and monitor their progress to reduce patient falls. The majority of CNOs spoke to the fact that leadership of the hospital played a role in the drive to reduce and prevent falls in most of the organizations. For example, one CNO stated:

> We had a falls committee. It was made up of leaders and staff from literally all over the hospital and those kinds of information we discussed at staff meetings, in the units, and then at the leadership meeting we would look at the data, and then at Quality Committee meeting where we would look at the data and the interventions, that was reported to the Board, I don't know if it was reported to Medical Executive

Committee. Yea, definitely the Board, PCAC (Patient Care Assessment Committee). So, really like almost at every level of the organization we were reporting on the fall prevention program.

Another CNO commented:

And we also did our best to be transparent with data. We had sort of…I wouldn't go so far to say that we had a unit dashboard…but on significant...on the priority indicators like falls, falls with injury, hospital acquired pressure ulcers, restraints, and there were others; those data were patient satisfaction…those data were available and the expectation that I had of the managers was that they would post those data, communicate those data. So, when we were going through the falls implementation changes, the falls prevention implementation changes; I would talk…for example, I had a nurse manager meeting every two weeks…we always talked about the falls prevention initiative for that year that we were implementing it; and also hospital acquired pressure ulcers too because we did a lot of work there. And, so I made it a priority... And, I spoke about our work at Board meetings at least…I'm talking about the general Board meeting, not even the Quality. We spoke about the Quality Committee too, but at the Board meeting – at least three times that I can recall. And, you know, part of the context for it was Patients First; but, you know, it was also great quality improvement work…

Additional CNO quotations are given in Appendix F.

Another newly identified code family of Public Reporting Impact was identified, and included codes of Public Reporting Effect (72 citations), Changes Due to Falls Public

Reporting (18 citations), New Due to Falls Public Reporting (26 citations), Public Reporting Effect Healthcare Team (27 citations) and Public Reporting Confounders (48 citations). Sub-codes were identified and are indicated in Table 31

Table 31

Identified Code, Sub-Codes and Compiled Number of Code Citations for Public Reporting Impact

Code	Number of Code Citations
Public Reporting Effect	72
Drivers	17
Motivator	16
Transparency	16
Awareness	14
Feet to the Fire	11
Public Use	11
Continuous Evaluation	10
Decision Making	4
Inform	4
Public Reporting Healthcare Team	27
Responsibility Other Disciplines	11
Changes Due to Falls Public Reporting	18
New / Different due to Falls Public Reporting	26
Benchmark	15

Public Reporting Confounders	48
SRE	17
Pay for Performance	8
CMS Reimbursement	6
Community	6
DPH	4
Nursing Value	2
Own Organization	2

Each of the 18 CNOs interviewed identified intervention strategies in the newly identified code family Public Reporting Impact. Regarding the code of Pubic Reporting Effect (72 citations); in response to the question "What effect did the *Patients First* initiative and its public reporting of patient falls have on quality improvement interventions that were put in place?" the CNOs spoke to the fact that the effect was that it was a driver to improve, it created transparency, it was a motivator, it resulted in increased awareness, and it held one's "feet to the fire." A number of CNOs also spoke to the fact that it promoted a continuous evaluation of their fall prevention program, efforts, and fall rates. The CNOs spoke to actions that they took or potentially could take, rather than specifically what quality improvement interventions that they initiated to prevent falls. A number of CNOs also spoke to public use of the *Patients First* website, acknowledging that they thought that it was not presently used very much by the public. However, they predicted that future use of the site would occur.

Public Reporting Effect

For example, one CNO stated:

> I think the fact that it's publicly reported was a direct catalyst for me to be reporting it to the Board of Trustees. And then they are an astute group, as most Boards are, and they asked very provocative questions, and they pushed back pretty hard if they didn't get a good solid answer, and although we were already doing what I thought was a lot of work around falls; we invigorated our efforts, we took another look at what's the best practice out there, we went back to the _____ group and said "What else we can we be doing? Who else has got better results?" And, "Can we borrow from them?"… which is how we got to the orange bands, and that sort of thing. So that's, I think that there was an impact…once things are publicly reported, you know…it's out there. You better have an answer when someone asks you a question. And you better know what you're doing to try to fix what's not working well. So, that was my lesson.

Another CNO commented:

> Well, it shined the light, I think, on the issues that were and the concerns that and the indicators that were being publicly reported. And, I think it helped…so it focused attention, and I think it helped just mobilize and provide a context for putting resources into improvements in the areas that we were reporting on. …I'm not saying it wouldn't have happened without the requirement of public reporting; but it kind of got us in gear. Helped to get us in gear. And made it a little more understanding, like 'Well, we're now …our performance is transparent for the entire

> world to see' And it became of interest to the …Boards get very interested in this. Anything that's out there publicly available, they're…they want to pay attention to and they want to see how we're performing against others. And public reporting helped us with benchmarks

Yet another CNO commented:

> Honestly, from my perspective patient falls is an important nursing sensitive indicator; and I think I've always, you know…and because I know it's an important nursing sensitive indicator, we pay attention to it. I don't think that the public reporting piece of it changed how I approach the issue or identify solutions or interventions that are going to be put into place. I think it does keep you more on your toes because you do know it's publicly reported. I think it's important that the consumers know what the data is. I think it's really important. I think it's just…you know the more people are looking at the data, the more visibility the data has; I think the more…it just keeps it in the forefront of everybody's mind. I think it does serve to put pressure on leaders to continue to make improvements.

Additional CNO quotations are given in Appendix G.

Based on this feedback, the researcher inferred that the majority of CNOs described the impact of *Patients First* as one that prompted them to take action and indirectly led to fall prevention interventions, rather than being directly responsible for the implementation of specific fall prevention interventions. The researcher again probed at the topic by asking "Did you do anything new or different because of the public reporting of falls?" (26 citations) and "Did anything else change due to the public

reporting of falls?" (18 citations) Responses were a combination of action behaviors that indirectly led to fall prevention interventions, and then some that were articulated as specific fall prevention interventions.

The majority of CNOs spoke to the fact that through the *Patients First*, they were provided with benchmarking information that they had not had before. Feedback also included that the public reporting increased hospital wide awareness, forced internal changes, it informed staff and leaders, was a motivator, increased commitment, it enhanced internal processes around performance improvement. *Patients First* instilled always looking at ways to improve, shifted away from a "culture of blame," and prompted a look at systems and not people.

Regarding specific interventions that resulted from the public reporting, CNOs spoke of unit level reporting and fall results dissemination, the start of a systematic review of fall occurrences through the use of a "debrief" or "STAT Team," the use of storytelling and the narrative to tell the story of a patient fall, a change in orientation regarding falls and patient safety, and improved event occurrence system. Feedback was also that there was a look at all factors that might have been related to a fall and asking "What's the story behind the fall." It was noted that as a result of the *Patients First* public reporting, there was now a common and accurate definition of fall and fall with injury. In addition, it was noted that a dashboard and unit specific report cards were created, fall prevention was discussed at hospital meetings at many levels, the hospital Boards of Trustees were educated on fall prevention and there became more of a focus on quality and clinical outcomes at Board meetings.

Changes / New or Different Due to Public Reporting

For example, one CNO stated:

> ...it really does generate this continuous look at the care of patients and how can we do better by them with the nurse and the ancillary staff that are caring for them, the plan that we put in place, and we're now at who else did this nurse have accountability for when this occurred? What was going on in the environment when this occurred…that kind of thing.

Another CNO commented:

> I think disseminating the information to the unit level – to the staff. That didn't happen before. I think that just ties to the public reporting piece. People need to know it's out there. Like I said, communicating…incorporating this into our quarterly shared governance meeting. So, all the different departments hear what's going on. And, I'd say with the manager group too, just the level of accountability at the unit manager level – they know that they're responsible…I implemented unit specific report cards for the managers to utilize and to show the staff. So, I'd say we did that. It's mainly awareness. Awareness and just changing; always looking at ways to improve our assessment and re-assessment; and really looking at the specific interventions. And then the other thing too, is the staffing piece that I was talking about

Additional CNO quotations are given in Appendix G.

The researcher also asked about the effect of the public reporting of falls on the health care team (code of Public Reporting Effect Healthcare Team, 27 citations). The

majority of CNOs described the awareness, knowledge of, and role of healthcare team members in patient falls and public reporting. These included nurses, unlicensed assistive staff, physicians, physical therapists, pharmacists, and nutritionists. They spoke to the responsibility of other disciplines in this effort.

Public Reporting Effect Healthcare Team

For example, one CNO stated:

> I think it heightened everybody's awareness; so when you think about falls and the multidisciplinary team…you know…you can go to orthopedics and consider the physical therapists, you can consider the dietitians, the dietary people that are coming in and serving trays, and whether they've got some awareness. You can think of transport, when they're transporting patients off the floor to testing and what do they know what to do in the case of a patient that's high risk for falls.

Another CNO commented:

- You know, I think there are multidisciplinary implications on all of them. The other day we had a discussion…the Falls Team that I was talking about does not a have physician champion, so we had a discussion about whether they needed to or not. And, the Team originally felt that falls belongs to nurses…I mean nursing's responsible for it and that they really didn't need a physician champion. But, as we moved into the pharmacy piece of it and ordering the medications, that really is part of the physician ownership of that. And, even, you know, ordering PT for patients who need PT who have gait issues and stuff. So, there is a physician ownership around falls too. So, I think we probably will get a physician champion on that team

Additional CNO quotations are given in Appendix G.

Regarding the code of Public Reporting Confounders (48 citations); most of the CNOs discussed the Massachusetts Serious Reportable Event (SRE) public reporting, pay for performance, and the changes in CMS reimbursement for serious falls as confounders to the *Patients First* initiative of public reporting.

For example, one CNO stated:

> So, I think the Patients First website was good because it motivated us and got everybody talking about the same things and getting on the same page before there was this overlay of never events and the work that DPH is doing… I'll be honest that we had an SRE here, we had a skin breakdown, and long story short; it was a new bed that the staff really hadn't fully learned in terms of what it could do, along with a very, very sick patient who was on levophed and everything else. So, you could argue this was a patient who couldn't be moved, couldn't be turned; but we didn't do the best by him. DPH came in; we wrote up an improvement plan that we rolled out to the whole house…you know…and they published it, so I know it's out there. So…and since then, we have had zero…hospital acquired…zero. So, this idea of public reporting; whether it's through a bad event, or through a routine reporting; really does help motivate everybody else you work with…because we always want to do the right thing obviously; but in some ways it points you in a direction so that you can get focused and get started too.

Another CNO commented:

> I think it is and I say the reason I think it is…is there's…you're on the hook much

more for the SRE in terms of the design, right. So, what happens; but this is the reality of it…is when you report an SRE to DPH, the implications are far more dramatic than through Patients First. Patients First is passive. You have to go to look for it. You have; but the real part of why the SRE is much more dramatic and gets the emotion out of people to understand the urgency around the issue of falls or whatever else is because when you tell the staff that you have to write the patient a letter that says within 7 day in that you acquired this decubitus ulcer in our care. They say "are you kidding me, really?" And the collective of those serious reportable events gets reported in the newspaper twice a year. And those are the things that, you know, contribute to our brand and how we are known and what our reputation as an organization is. And they're like back in the day, not long ago, we didn't have to do that, did we? So that's where I think the urgency

Yet another CNO stated:

You know what I think the important connection is though, …for me the important connection is…and see I look at things a bit differently as a CNO… The important connection that I think needs to be made for all hospital staff is how this is going to impact our future sustainability because we're coming into a place in our history with payment reform that is likely to go…we're shifting from paying for reporting to paying for performance

Additional CNO quotations are given in Appendix G.

CHAPTER 5

DISCUSSION

This study was an evaluation of the effects of the voluntary public reporting program, *Patients First*, on the nurse sensitive outcome measures of patient falls and falls with injury and the quality improvement interventions implemented to prevent patient falls. The study was guided by the Conceptual Model of Nursing and Health Policy (Fawcett & Russell, 2001; Russell & Fawcett. 2005). The conceptual model provided the organizing framework for the selection of study variables and the study method. The model identified the study components of a policy source (organizational and professional), a policy component (healthcare services), and level II: effectiveness (focus on hospital characteristics, fall prevention interventions, outcomes of fall and fall with injury rates). The CMNHP model provided an identified conceptual-theoretical-empirical structure that served as a concrete and valuable foundation for this study (Figure 1, p.9). The researcher often referenced the CMNHP model during each phase of this study to validate progress and consistency with the study's model structure. As part of the CMNHP model, the *Guidelines for Policy and Program Evaluation* (Fawcett & Russell, 2001), provided the guidance and organization for the study data analysis and discussion for this study that subsequently follow.

Another policy source, the five major dimensions of fall causes as identified by JCAHO (2005) provided the overarching framework for the questions posed during the qualitative interviews and the analysis of the data. These five major dimensions of fall causes provided a valid starting point for the qualitative interviews, and from which the researcher then explored and identified additional themes from the CNO interviews.

The Policy

The study revealed that the policy, the public reporting of patient falls and falls with injury through the *Patients First* initiative, set the expectation for acute care hospitals in Massachusetts to report quarterly fall and fall with injury rates. These rates were subsequently submitted to MHA and reported on the public website, and continue to be reported on a quarterly basis. The publicly posted data as reported to MHA represent four quarters of data that are updated as more recent data are reported. The data are displayed in such a way that hospital specific fall and fall with injury rates are reported by unit type and are compared to a hospital specific peer group of hospitals organized by bed size.

The study revealed that the policy resulted in statewide public benchmarking of the nurse sensitive outcome measure of falls data for the first time. Longitudinal analysis of the falls and fall with injury data demonstrated a downward trend for overall falls and a decreasing tendency for overall falls with injury by time quarter from 2006 4th quarter to 2009 4th quarter, after adjustment for the hospital characteristics. The policy led to the creation of an increasing culture of transparency and of information sharing. Patient falls

data were shared throughout the hospital organization; including staff from all disciplines, managers, executives, and hospital trustees. The data from the CNO interviews indicated that through the policy, public reporting directly and indirectly led to quality improvement interventions to prevent falls and to advance quality and safety in the hospital.

These study findings support the earlier work of researchers who theorized and through several studies found that public reporting of patient care performance data improved the quality of care through greater transparency, greater accountability of health care providers, and greater motivation to increase quality, effectiveness, and safety in an organization and improve organization performance (Berwick et al., 2003; Fung et al., 2008; Hibbard, 2008; Lansky, 2002). Data from the CNO interviews on the public reporting effect, which they described as a "driver," "motivator," "competitor," also support the work of Hibbard and colleagues (2003, 2005). Hibbard et al. proposed a third pathway to the Berwick model -- the reputation pathway -- in which hospitals implement quality improvement efforts to protect their image or reputation (Berwick et al., 2003; Fung et al., 2008 Hibbard, 2003, 2005).

In addition, the study revealed that the results of the policy, the public reporting of patient falls and falls with injury, supported the opinions of Massachusetts CEOs and CNOs, who in a separate study in 2008 were asked their opinions about the effects of public reporting on nursing care and safety in their hospital. Eighty-two percent of the respondents indicated that public reporting would positively affect quality of nursing care; 88% responded that it would positively affect patient outcomes, and 66% responded

that public reporting would positively affect other quality improvement initiatives or activities within the hospital. (Kitch et al., 2009).

The Problem and the Solution

Patient falls are a serious concern for healthcare leaders and healthcare team members in Massachusetts hospitals and health systems. Through the quality and safety initiative, *Patients First,* patient fall and fall with injury performance measures are publicly posted on www.patientsfirstma.org for use by healthcare leaders, healthcare team members, and the public.

Since its inception in 2006, the public reporting of the nurse sensitive measures fulfilled part of the initiative's leadership platform for "providing the public with the hospital performance measures they need to make informed decisions about their care" (MHA, 2007, p. i). The voluntary public reporting of fall and falls with injury data through this policy contributed to the evolving use of nursing-sensitive measures, and now national hospital quality metrics validated by the NQF. The MHA/MONE NQF Nursing Special Workgroup pilot study data on NSC-3 Patient Falls and NSC-4 Falls with Injury for the data collection period of March-May 2006 provided a baseline of patient falls information by unit type. The pilot study data, which were comprised of a smaller sample of hospital reporting units, were not comparable to the present study data. However, the pilot study provided initial data in working with defined fall measures and in the public reporting of these measures that guided the development of this policy in Massachusetts (Smith & Jordan, 2008).

These measures are increasingly used for benchmarking by other healthcare organizations and consumer groups and for pay for performance metrics by insurance companies (Brown et al., 2010). The falls and falls with injury data provided through the *Patients First* initiative is a benchmark to the CALNOC database, which periodically publishes nursing-sensitive measure benchmark data "for hospitals and nurses to improve their performance" (Brown et al, p.11).

The Stakeholders

There will be continued focus on this policy, the public reporting of patient falls and falls with injury, through the *Patients First* initiative. This policy has served as a precursor of things to come and a path for improving healthcare safety. There will be continued focus on these nursing-sensitive standards which also are among a set of endorsed hospital measures (NQF, 2007) on the national, state, and local community levels as health care reform advances, transparency continues, the science of quality and safety evolves, and technologies enhance patient safety and care efficiency. The National Quality Forum Consensus Standards Approval Committee and Board approved continued endorsement of eight nursing-sensitive measures, including falls and falls with injury (The Joint Commission, 2010). The consensus report, *National Voluntary Consensus Standards for Public Reporting of Patient Safety Event Information,* provided guidance to improve the quality of public reporting across all environments of care. The report authors stated that "The primary aim of public reporting is to promote learning among providers and consumers regarding the nature and prevalence of safety risks" (NQF,

2010). Among the 127 NQF-Endorsed Patient Safety Measures, 6 directly relate to patient falls and correspond to one or more NQF-Endorsed Safe Practices or one or more NQF-Endorsed Serious Reportable Events. The CMS ruling that disallows additional payment for falls with serious injury as a hospital acquired condition will continue to affect revenue for hospitals (CMS, 2008). The CDC continues to focus on preventing falls in older adults. The National Council on Aging continues to encourage state involvement in *The State Coalitions on Falls Workgroup.* The Massachusetts Department of Public Health continues to co-lead the Massachusetts Fall Prevention Coalition. Massachusetts Falls Prevention Awareness Day is set for September 23, 2011. The Massachusetts Legislature incorporated the establishment of a commission on falls prevention through passage of legislation in August 2010 http://www.malegislature.gov/Laws/SessionLaws/Acts/2010/Chapter288. Annually, the Massachusetts Department of Public Health continues to collect and publicly report fall serious reportable events. On a positive note, serious falls decreased by 25 from 2008 to 2009.

Feedback from the CNOs who were interviewed for the study demonstrated continued support of the public reporting of patient falls and falls with injury through the *Patients First* initiative. They utilize the data as a benchmark and visit the site as needed for comparative data. It was learned from the study that other members of the healthcare team have heard about the data and have gone to the site, including physicians, physical therapists, and nutritionists. Feedback from study participants is that more patients will begin to go to the site. It is currently not possible to determine who is going to the site. It

was also learned that CEOs, chief financial officers, and hospital Board members want to know what is on the site and what it means, and that the public soon will be visiting the site and using the data more. A review of the literature demonstrated that healthcare colleagues are citing the *Patients First* work and web site in their papers and publications on patient falls. In March 2010, *Patients First* was rebranded and became *PatientCareLink (PCL),* www.patientcarelink.org (MHA, 2010). This effort was focused on moving beyond *Patients First* as predominantly a data reporting site and transitioning to *PatientCareLink* as a site additionally focused on improvement through its sections on *"Success Stories"* and *"Improving Patient Care / Patient Falls"* and more information for patients and families. One of five *PatientCareLink* commitments is: "Making hospital data and performance measures transparent and publicly available." Through this commitment, 1) "hospitals have "committed to a common framework of measurement and reporting…," 2) through the *PCL* and individual hospitals, education of the public about what hospitals are doing "to improve and ensure safe care" will continue, and 3) "forge partnerships among hospitals, and with leaders of business, government, consumer groups, and others to promote access to high-quality, safe care for all." (MHA, 2010).

The Costs

As health care expenditures continue to rise, healthcare reimbursement is increasingly based on performance, the U.S. baby boomer population ages, and health insurance is mandated for all Massachusetts residents. It is, therefore, vital to understand

the economic burden of patient falls and continue to work on preventing falls in hospitals and in all community settings. The annual direct and indirect cost of fall injuries is projected to reach $54.9 billion (in 2007 dollars) by the year 2020 (CDC, 2010; Englander, 1996). In Massachusetts, unintentional fall deaths for Massachusetts residents, ages 65 years and older continue to rise. Deaths in calendar year 2008 totaled 395; an increase of 32 from calendar year 2007, and an increase of 55 from calendar year 2006 (MDPH, 2010). Also in the Bay State, total hospital charges associated with unintentional fall injuries in older adults, ages 65 years and older continued to rise. Charges totaled over $530 million in FY2009; an increase of over $48 million from FY2008, and an increase of over $123 million in FY 2006. (MDPH, 2010). Utilizing the cost estimate model developed by Boswell, Ramsey, Smith, and Wagers (2001) and utilized by Tzeng and Chang (2008) to estimate the projected cost per fall with injury to hospitals in 2007, this researcher used the cost estimate model to project cost per fall with injury in hospitals during the time period of this study – 2006 to 2009. Results are shown in Table 32.

Table 32

Use of Cost Estimate Model to Project Costs of Hospital Falls

Year	Projected Cost Per Fall w/Injury	Average Cost Per Fall
2006	$6225	$411
2007	$6402	$423
2008	$6649	$439
2009	$6624	$437

Except for the year 2008, the costs rise per year. It will be imperative to continue to understand and track the healthcare reform effects and economic burden of falls in hospitals, in communities, and in populations as fall prevention and reduction efforts continue.

The Benefits

The intended benefits of the policy, the public reporting of patient falls and falls with injury through the *Patients First* initiative, on society as a whole is that it does and will continue to provide recent and comparative information about Massachusetts hospital fall and fall with injury rates to whomever navigates to the *Patients First (now, PatientCareLink)* website. The longitudinal trended data have shown that there has been a statistically significant decline in fall rates from 2006 to 2009 and a decreasing movement in fall with injury rates. To patients and families, the data provide hospital-specific and unit type-specific fall and fall with injury information. To healthcare team members and healthcare leaders, the transparency of the site serves to provide benchmarking information for use in their respective hospital organizations and has promoted sharing of information across hospitals. The CNO participants noted that the public reporting of fall data has been informational, has instilled a sense of competition among hospitals; it has been a motivator, and it has held one's "feet to the fire".

A secondary positive effect of going to the *PatientCareLink* website and viewing fall data may be that once patients, families, healthcare colleagues, business leaders, and legislators are viewing the information, they may go to other places on the site to learn

more about fall prevention and what hospitals are actually doing to prevent falls; and about other patient safety efforts. This may encourage viewers to become actively involved in fall prevention. Examples would be for a pharmacist to join the Fall Committee at a hospital, for a hospital Board member to ask that a story about a recent patient fall be shared, for a nurse to represent the hospital on the state Fall Prevention Coalition, or for staff from a hospital communications department to join the Falls Team in preparing for a hospital-wide fall prevention campaign.

The Recipients

Patients, families, and the public can ultimately benefit from this policy, the public reporting of patient falls and falls with injury through the *Patients First* initiative. The study literature search revealed that public reporting stimulates quality improvement efforts in hospitals. The findings of this study indicate that the fall rates from 2006-2009 have declined over time, in fact statistically significantly, after adjustment for hospital characteristics. The findings revealed that public reporting can stimulate behavior changes in the hospital healthcare team and hospital leadership, which can lead to hospital organizational structure and culture changes to directly and indirectly affect quality improvement efforts to prevent falls. Therefore, public reporting over time may lead to ongoing quality improvement efforts, strategies, and programs that will prevent patient falls in hospitals and demonstrate a decline in fall rates and fall with injury rates over time.

Of note, in 2009 the MDPH issued a hospital licensure regulation that required each hospital to establish a Patient and Family Advisory Council (PFAC). The PFAC is intended "to advise the hospital on matters including, but not limited to, patient and provider relationships, institutional review boards, quality improvement initiatives, and patient education on safety and quality matters to the extent allowed by state and federal law" (MDPH, 2009, p.113). This forum for patients and families can serve to involve and seek feedback from PFAC members regarding their hospital's fall prevention program and intervention efforts. Involvement on this council may also prompt patients and families to use the *PatientCareLink* site.

The Implementation Plan

The *PatientCareLink* mission was re-defined "to help participating hospitals provide transparent staffing and patient safety information to the public and other healthcare stakeholders, and also offer valid and reliable information on quality and safety to patients and healthcare workers alike." The findings of this study have validated the importance of the site for the provision of valuable publicly available benchmarking data about falls and falls with injury. The findings also revealed that public reporting of data on the site opened dialogue among hospital leaders and promoted the sharing of information. There is no known opposition to the *PatientCareLink* initiative, and it is expected to evolve to meet the needs and requests of the public and interested healthcare stakeholders.

The Results

Based on the results from quantitative analysis, the fall rate demonstrated a decreasing trend and the fall with injury rate demonstrated decreasing movement after the implementation of the voluntary public reporting program, *Patients First*. Based upon results from the qualitative analysis, the public reporting of falls and falls with injury both indirectly and directly led to the implementation of intervention strategies toward preventing falls. The pubic reporting of falls prompted action to be taken that stimulated change and increased knowledge of falls and fall prevention in the hospitals, and served to advance quality and safety in hospitals.

Limitations

Limitations of the study include the confounding factors of CMS nonpayment for falls with serious injury in hospitals effective October 1, 2008, patient fall serious reportable event public reporting in Massachusetts along with hospital responses effective April 2009, and pay for performance contracts between specific insurers and hospitals. These may have served as motivators to focus on a hospital's fall and in particular, fall with injury rates; and to assess and reassess fall prevention interventions. These were noted by most of the study participants, and in some cases they were identified as stronger drivers for change than the *Patients First* public reporting of falls and falls with injury. The other confounding factor is that during this study many of the participating hospitals were implementing board education on quality. Therefore, hospital trustees were undergoing education on their role in ensuring hospital quality and patient safety.

They became more familiar with nursing-sensitive indicators and hospital quality indicators. Also, individual hospitals were at varying stages advancing quality and safety and of incorporating science of safety behaviors in their organizations.

The *Patients First* public reporting of falls and falls with injury is voluntary, so some hospitals did not report unit specific data for a given quarter. Unit types in a hospital were sometimes changed by quarter or by calendar year due to changes in the unit specific patient population, unit closures, or addition of units due to hospital expansion. Therefore, this resulted in changes in the number of unit types compared from quarter to quarter. This was particularly the case with the medical, surgical, and medical surgical unit types.

Another limitation of the study is that the researcher did not control for historical trending of fall and fall with injury rates in years before the public reporting of falls and falls with injury through the *Patients First* initiative. The researcher did have access to and reviewed the pilot study data from the MHA/MONE NQF Nursing Special Workgroup on NSC-3 Patient Falls and NSC-4 Patient Falls with Injury for the data collection period of March-May 2006. These pilot study data were not utilized as the dataset was not complete and did not include data from all 70 acute care hospitals (Smith & Jordan, 2008).

Future Directions

The study should be replicated over a longer period of time to better understand the effects of voluntary public reporting on fall and fall with injury rates and the quality

improvement interventions implemented to prevent patient falls. The study could be expanded to provide more intensive focus on the combination of both hospital bed size and hospital unit type in relation to these measures. Of interest would be to explore fall and fall with injury rates as compared to the other hospital characteristics. For example, what could account for the gaps between acute community and tertiary AMC hospitals, between teaching and nonteaching hospitals, and between magnet and non magnet hospitals, particularly with the measure of falls with injury. As a number of non-profit hospitals in Massachusetts are now becoming for profit hospitals, will that change over time have any impact on patient falls in hospitals? A future study utilizing the data from this study could also focus on trending hospital specific fall data and aligning it with the hospital specific fall prevention interventions that were described by CNOs during the interviews. What could we learn from this? What is unique about the better performers from whom we could learn? One could also initiate a quality improvement project or research on one of the newer interventions described such as post fall evaluations ("debrief", STAT), continuous monitoring processes for falls, safety scan rounding. Another future study could also involve interviewing unit based staff regarding their role in fall prevention and public reporting – What is unique about their fall prevention program? What interventions do they find successful in preventing falls? How has their unit fall rates changed over time? Do they use unit based dashboards? Do they use the *PatientCareLink* site?

The findings of the study also highlight the role of members of the healthcare team in fall prevention regarding care planning and delivery for the patient, and in

communication to benefit the patient and family. In addition, findings share the healthcare team members' evolving awareness and knowledge regarding the public reporting of patient outcome measures, their evolving accountability for fall prevention within the hospital community, and of their responsibility to be engaged in ongoing performance improvement efforts. These examples cite opportunities for improving collaboration among different types of health professionals. One of the CNO study participants talked about the need for nurse-physician inter-professional education and practice as a way to improve communication, collaborate more effectively, and prevent adverse events in the patient and in the healthcare system. This is highlighted as a recommendation in The Institute of Medicine (IOM), The Initiative on the Future of Nursing (IFN) report (IOM, 2011). The report recommends that nurses along with other healthcare professionals ensure effective inter-professional education and practice to support different types of team based models of care to provide accessible, affordable, high quality affordable healthcare in our future. Some of the teams described in this study are well positioned to meet this challenge and make a difference for patients and families in their hospital community. This will further be enhanced through their partnership with patients and families and hospital Patient and Family Advisory Councils. There are many possibilities for future research in this area related to patient falls and public reporting.

Lastly, there are currently many healthcare reform initiatives ongoing across the Commonwealth as both state and national reform efforts work towards the goal of transforming our healthcare system. One such initiative, The Massachusetts Strategic

Plan for Care Transitions, was developed and challenges the healthcare community to create a paradigm shift – "the creation of a patient-centered care model delivered to populations that encompasses the continuum of care, and a system of care that engages patients/caregivers, and seeks out and follows the patient and not the other way around" (Bonner, Schneider, & Weissman, 2010, p.6). This plan is meant to be a working guideline used to gradually transform healthcare delivery in the state. Collaborations that form from the care transitions related initiatives will serve to enhance fall prevention work across the continuum of care in the state and can lead to research opportunities.

Another movement that is now occurring among the Massachusetts healthcare landscape is that there are many hospital and healthcare provider organizations forming collaborations / affiliations / partnerships among themselves, and thus shifting and aligning as precursors to accountable care organizations (ACO) (Miller, 2009). The findings of this study related to public reporting, nurse sensitive measures, patient falls, and the *Patients First (PatientCareLink)* initiative will serve to inform these evolving entities and our ever dynamic healthcare system; and stimulate quality and safety improvement and research opportunities in the future.

In summary, this study highlights the first time use of statewide public fall and fall with injury benchmarking information, the evolving advances in fall prevention interventions, and the evolving advances in quality and safety initiatives in Massachusetts hospitals. Several of the CNOs interviewed noted that patient care and preventing falls is important to them and to their staff; indeed, it is fundamental to care provision and the

quality of care. Thus, public reporting or not, the CNOs and their staff always focus on fall prevention.

APPENDIX A

CNO QUOTES FOR CODE FAMILY OF ASSESSMENT AND REASSESSMENT

- So during that time we changed the initial fall risk assessment from home grown to a national scale; we used the Morse. That definitely happened during that time. And also during that time, we changed to the frequency of re-assessment from inconsistent to every shift. That is pretty much the only changes on assessment to be honest. Oh, during that time we added the ED into one of the units that we would assess. ED, OB…like we broadened the units that would be required to do a fall risk assessment….from just the med/surg to a much broader hospital wide emphasis.
- The other thing we've done from shift-to-shift, we review the patients at risk for falls and we review their fall risk with oncoming staff where we weren't necessarily that explicit before, we were relying on the fact that it was wherever it was…electronically documented, on the wall, that sort of thing. Now it's an expectation that nurses in their handoff will say…"This patient is a risk for falls because of ….." So, I think that handoff has been maybe another impact on all of this.
- Well, the biggest change was the implementation of our electronic medical record cause that changes nurse work flow to a certain degree. And, what we did just in general, and specifically the fall risk assessment, was take what we had on paper and construct it in our electronic system. So, what we had on paper for our fall risk assessment, including interval for reassessment, got embedded into our electronic medical record. So, we didn't necessarily change our practice, but we changed the

way that we use it through our electronic system versus on paper.

- …and now we do an immediate, any time a fall occurs, we do an immediate debrief with the whole team -- a real time debrief. So, either the nurse manager and the CNS of the unit run that debrief. Or, on the off shifts the nursing supervisor – we've educated them on what we want to see on the debrief. So they have a debrief form, and they go over everything, what happened. You know, when was the patient last assessed. We've had a lot of discussions about when do patients get reassessed, how often? And whether their fall risk changes or not during their hospital stay.

APPENDIX B

CNO QUOTES FOR CODE FAMILY OF CARE PLANNING AND DELIVERY

- Oh, we have the Falling Star program, so patients have the falling star outside the room so everybody in the hospital knows that's on the patient. We have the SBAR, the report that goes with the patient; so it's communicated throughout the institution.
- …we had a couple of falls in the outpatient area. We had a bad fall in the ED, we had another bad fall in radiology; so we have re-invigorated our fall work and the education that we've done with the staff in sort of non-traditional areas where you wouldn't necessarily have thought about managing falls.
- We have a Falls Committee, which we've had for a long time; and there's probably 30 people on the Falls Committee. The committees are not designed to move fast. That's when we formed the Falls Team, which is a team focused on just one unit. So, that team in that unit will be kind of a pilot. So, that team has taken a lead working in the collaborative. So then, we have other units. So, what they'll do (Falls Team), is they'll work this thing for like a year and figure what's best practices are; and then we'll disseminate that probably through the Falls Committee, and then out to the rest of the organization
- Yea, we've actually, you know, we gone back to …you know like every other hospital, I'm sure, you know…reinvigorating our Fall Team; and using them as advisors – we've got a Practice Council structure going too where falls is a significant focus. The Practice Council structure is relatively new – in the last

probably eight months, but falls and skin integrity are the two main focus areas right now. So, we're using the Practice Councils to do sort of unit based education. There's a fall champion on each unit, so they're sort of the point person for all the staff on that unit to make sure the education needs are met; and we're continuing to feed back any information we collect around our success or lack of success in fall prevention

- Basically we created…I think everybody did, a high risk protocol. If a patient was at high risk, you put on the bracelet, put on a magnet, put on the socks, brought him close to the desk if you could, put him on a bed alarm if you could, put it in the care plan, make sure there was nothing on the floor, make sure the call bell was within reach; you know all those standard and typical best practice." We had a falls committee. It was made up of leaders and staff from literally all over the hospital
- So, we're trying to cluster the work; so if we're going in to do meds, that's when we're going to offer them toileting, that's when we're going to see if they need anything else, rather than keep coming in everything 15 minutes; which you can miss a round of 15 if you get tied up with somebody else and then that patient might not be seen for an hour and a half or two hours; if hourly rounding isn't hardwired. And so, I think we've really tried to be more…make a more concerted effort to coordinate the care and give patients more time to rest.
- So, as far as the care planning or care delivery goes…we have automated care plans based on the assessments so we've had to update all those because we changed our scale. I think again, the frequency is huge and the fact that they now understand it's

okay to have someone go on or off and even if they're not assessed as a fall risk on your admission assessment you're still doing it every 12 hours cause things could change with the patient and they may become a fall risk as you move on.

- So, the electronic, the acute care documentation um…on line, was a big boost for us in terms of the Morse Scale, the reassessment, the documentation with the clinical sitter group; I think they're PCAs that also do constant observation as well as checks, etc; and we've done a lot of work with them around what's the difference in different kinds of patients.
- Well, one of the things is our falls risk from our inpatient side is electronic, so we used our electronic documentation system. And, when we did a revision about three years ago, it was a numeric scale and the staff didn't find that beneficial. So, we had done some research and it was changed to a non-numeric scale. The other thing is we added the falls risk assessment to each shift summary report; which is done electronically as well.
- I know one of the things that we implemented that I saw the dramatic decrease was in hourly rounding, because that whole study had come out and we really were one of the early adopters of that; so hourly rounding made such a difference. We did the high risk for fall programs, identifying those patients; but I think combined with the hourly rounding, we saw a really significant drop in patient falls throughout both organizations.
- Ah, we also have an outstanding geriatric nurse practitioner and she is viewed as an unbelievable resource to the staff for many, many things; but she's particularly good

at assessing the geriatric patient and the fall issues. And, she'll come up with sort of customized strategies for how to keep patients safe, and she's just worth her weight in gold.

APPENDIX C

CNO QUOTES FOR CODE FAMILY OF CAREGIVER COMMUNICATION

Communication Among Caregivers

- For inpatients, it's all electronic. So, that information flows over. And, as I said on the SBAR – on the SBAR handoff report – it's a key part of that… I think it increased the level of accountability and transparency for the hospital, the providers, the staff taking care of the patient. So, I'd say it really increased the level of accountability, plus it gave a good benchmark; a statewide benchmark for us to compare to see how we were doing compared to other hospitals of similar size.
- So, we actually started face-to-face report with the nurses and the patients; so that changed as well. And, so inherent in that is hopefully some understanding of the falls risk and pain.
- The other thing we've done from shift-to-shift, we review the patients at risk for falls and we review their fall risk with oncoming staff where we weren't necessarily that explicit before, we were relying on the fact that it was wherever it was…electronically documented, on the wall, that sort of thing.
- Well, we have handoff communication, which includes fall risk assessment as part of the handoff… a teaching tool that they can print off of our electronic system to go through what that means and what our strategies are for preventing fall risk…And, anytime they're transferred we also have a …like if someone's going off unit to a test, we recently…you know, there's ongoing work on handoff communication now includes the Ticket to Ride concept, you know, so part of that Ticket to Ride is the

patient's fall risk

- So, we have a visible…when a patient screens in as a fall risk, 1) we try to put them visibly in a certain place on the physical unit itself. But, we have red pennants – literally they're like triangles that alert people that these patients are at falls risk. And those pennants are placed on the chart, and they're placed outside the patient's room, on top of the red socks. And so, that communication has gone out broadly so that everyone understands who comes into the room what that means around safety.
- You know we also did, we were doing so much there. We did the Transforming Care at the Bedside, so there was a lot of communication when like we had a unit, for example a med/surg unit that tends to have higher falls with new grads. We had…we put in measures so that if we put the red light/green staffing, so if they were running into issues they could communicate that they needed help.
- I think effective communication was key; recognizing those who are doing outstanding and finding what were the best practices, even within _____ so we did do a lot of that. In my weekly meetings, we'd go around asking people to share some of the highlights of the week and I know a lot of quality issues came up. Pressure ulcers, medication errors, fall issues. And then when patients fell, we tried to humanize them and put a story and a narrative around them. And we would do that even in our Chief Nursing Council. We'd talk about, you know if there was an untoward event. If someone fractured a hip, because of a fall; you know it was like 'tell me more about this patient', and what was the circumstances.

Communication Healthcare Team

- Certainly, we do from an institution standpoint, we post our falls data daily. So, it says how many falls in the hospital per month and it goes out on the web and it's actually physically posted. On a unit base, every day we have an email that comes out that looks at the entire falls, it's contemporaneous, so it's ongoing… so T minus 24 hours out, you know how many falls are in the hospital, how many on your unit, and what is the severity of the fall with or without injury.
- The Clinical Practice Council saw that…we also developed…what am I thinking…we developed a Quality and Safety Council made up of just staff. But, we would bring in other members of the interdisciplinary team and then on a broader level; I was a member of the hospital Quality & Safety. So, I brought that data up and shared it with my physician colleagues and Patient Care Service colleagues. So, that was…I think the councils that we had in place and the committees allowed for that collaboration and communication -- a cross fertilization of the data to occur.
- I think it's something we talk about regularly. Falls is something that we report in our safety dashboard across the system, so it's something that gets a lot of viewing across…whether its…today's our nursing quality safety committee, so we look at falls there. We look at falls by unit, we show it in our trustee patient safety committee. We show it at our hospital quality council. So, it gets a lot of view.
- we do rely on the signage in the rooms and the bands so that other people that are assigned to the floor will have a quick understanding that you're at risk for fall and that sign or that band is on you. And, we've read that in some organizations that's

been a real motivator for the staff to be much more vigilant because they really want to be keep saying " it's been a 100 days, it's 200 days" and when they have a fall they say "Oh, I've got to start all over again!" And, so we've tried to do things that make it 'in your face', but not punitive or harsh. Nothing about falls is fun, but if you can at least create some kind of camaraderie, and really get the staff to buy into it…and you get all staff buying into it then.

- The physical therapists, the pharmacists, the physician – they're all engaged in the Fall Team to a certain extent. And, as I use the example of early intervention with PT and OT on the geri pod; which is their model
- Well, we also …as part of our quality team, our falls actually get reported out on a monthly basis to the entire leadership team, so there's a Quality Report and part of that quality report talks about falls, pressure ulcers, SCIP, you know all the other core measures. So, that goes out to the entire hospital leadership team, some nursing, some not nursing, all the way to dietary, to everybody.
- …also working on an hourly rounding initiative, which I think is now pretty much completed. It wasn't completed when I left, but it was something that I began, helped to initiate. So, this was also…as you know there is some data around that and the prevention of falls, particularly around toileting. So, that was going on concurrently; and we were communicating that with families, as well as within the nursing team and across the disciplines. And we also did our best to be transparent with data. We had sort of…I wouldn't go so far to say that we had a unit dashboard…but on significant...on the priority indicators like falls, falls with injury,

hospital acquired pressure ulcers, restraints, and there were others; those data were patient satisfaction…those data were available and the expectation that I had of the managers was that they would post those data, communicate those data. So, when we were going through the falls implementation changes, the falls prevention implementation changes; I would talk…for example, I had a nurse manager meeting every two weeks…we always talked about the falls prevention initiative for that year that we were implementing it

- We've also used / integrated pharmacy a lot on patient care rounds in talking about whose at risk for falls. And what medications they're on and they analyzed; and now we do an immediate, any time a fall occurs, we do an immediate debrief with the whole team -- a real time debrief. So, either the nurse manager and the CNS of the unit run that debrief. Or, on the off shifts the nursing supervisor – we've educated them on what we want to see on the debrief.
- So, I think the creation of this and getting the organization really focused on these harm events has… The teams are just well supported. The teams are doing a great job. They feel a lot of organizational support for the work they're doing. They know it's very important. It's, you know, the Board asks about the HARM dashboard all the time. They want to see the presentations from the teams. It's worked out really well for us.

Communication Patient and Family

- I recall developing laminated bedside resource tools so that …you know…the care plan sometimes in nursing …it's in the computer and people go through and then

they computerize and individualize; but to really make it a working tool is extract it out and put it in laminated cards at the bedside to say that if your patient is high risk or falls into these categories…cause there were interventions for even the low risk to prevent them from …you know…the basic knowledge of the call light response and putting the side rails up, you know…some level of orientation of the patient and the family to the environment and looking to see that the night light is working and some very basic things that

- I think the hourly rounding was wonderful as far as communication with the patient, because when we asked the patient "Are you having any pain, or do you need to go to the bathroom?"-- there was a more proactive…
- The other thing we did to the process in 2009 was to involve the family and patient in fall awareness. Red Slippers? Red Slippers were long before that – we had those probably since '05-'06. But we did implement a catchy phrase called "Call before you fall" with families. That's in their packet, their admission packet. That's reviewed with them by the nurse on admission.
- One of the things we've implemented is doing teachback with the patients, which is basically in essence connects with the patient. 'You know you're at a risk for fall', you know the yellow band and all that other stuff we're all doing that stuff. But also really having a dialogue with the patient about why these things are here.
- And the part of the standard of care included communicating with the family and then giving them a brochure, which we re-did regarding fall risk and the fact that because the patient was at a fall risk; we're working with the patient, but also wanted

to work with family members regarding prevention strategies.

- Well, we did…we also included our Patient Advisory Committee in this... And we also used it as an opportunity to do some education around falls and falls prevention; and hence the importance and extent of this issue. And, we had them review some of the documents that we put together to give to patients and family members.
- So, it's kind of just our whole organizational awareness of it. And, the dashboard has been posted all over the hospital. Family members and patients can read them and see them. They know we are focused on those things.
- And we have signs in the room for family members and we have a _____ fall brochure that we give to every patient on admission, which explains what we're doing, why it's important. They let us know if they notice a subtle change in their loved one.
- The other piece we just recently implemented, which you'll see here is that we put signs in patient rooms…and I don't know if this ties to the family question…but there's…we also have a falling star magnet that goes on the door frame now. So, those are the kinds of things…it's really just to heighten awareness and to continue to assess from the point of entry all the way through discharge. Well, couple of things – 1) when we were looking at some of our falls, we noticed a certain percentage were tied to falls in the bathroom. So we put signs in the bathroom and in the patient rooms trying to educate people about falls risks; which is right here (shows). It says in asking families of patients to help us. We worked with marketing.

APPENDIX D

CNO QUOTES FOR CODE FAMILY OF STAFF ORIENTATION AND TRAINING

- But we did educate the whole team that when you go in the room; the sheet's on the wall, it shows you exactly what this patient's issues are; so that helped a lot with our PT going in the room. What the nurses have been saying is the patient's issues. Um…dietary dropping off a tray and this patient says "I want to run to the bathroom". I look on the wall, I know they can't go by themselves, I call somebody and wait. You know what I mean, that kind of thinking went on on the intervention floor. Um…and again, everything is always done well when it is planned like that and supported, so I think that's the next slice.
- That said, I felt like we had some opportunities to do some re-education; and I would say our staff are very diligent; but maybe sometimes a little reliant on technology…so we have bed alarms, and we put beds in low position and all of that.
- …focusing on the falls with injury and really we tear every one of them apart, and there's a debrief the day within 24 hour of the fall with the staff involved to see what they could do differently. And there's education out to the staff at large. When there's a good teachable moment, we try to share it will all staff across the hospital. Do we do it all the time, probably not; but you know, it's getting to be a much more regular and routine part of our day to do that. I think we are doing a lot of things.
- And the stars are yellow; so what we've done by training all of the nurses now is that it's okay during one admission that if a patient is identified as a fall risk on admission; that if you assess them twelve hours later and they're not at risk anymore

because of the interventions you've had; you can take them off the fall risk precautions. You know…and I think before, once you're in…you're in here for a week and you're on for the whole week not matter what we're doing to you. So, it's been a little bit of a learning curve; but we've changed that.

- …we did a lot of education around the contributing factors…you know, poly pharmacy. I'd say we did some education both in orientation and ongoing with staff about the nuances of the assessment. I don't know if that would be considered changing the process; but …it's one of the enhancements of the assessment.
- Well, we did education for …we did hospital wide education on fall prevention. So, …and we used those socks and the wristbands so that anyone in the hospital that had their socks on, the caregivers could actually prep the transporter, whoever, would know that the patient was at risk for fall. So, I think the two things we did were wristband and socks, and hospital wide education.
- It's part of nursing orientation; it's covered in depth during nursing orientation. We also…it's part of the shared governance group. The fall report is given at that quarterly meeting. So, there are representatives from every unit; so it's presented there. And then everybody is expected to bring it back to the department. We provide unit specific falls data that gets posted in the unit so that they can see how they're doing compared to other units. And we benchmark both PatientCareLink and NDNQI. Those are the two that we…oh, yea; that's the staff satisfaction survey
- It's part of Skills Day, thank you. Let me see if I'm missing anything else. It's mainly covered in orientation, and then if the managers review it with their staff at

staff meetings as well; and then the fall incidents – if there is one that is particularly ties to their unit, they review it with the staff involved and they try to communicate lessons learned on their units too. And the Skills Day…we also have it as part of our Healthstream annual competencies.

- And I think too one of the other processes changes that we did change is that I changed orientation. We extended orientation out longer than it was and we based it on the National Patient Safety Goals. So, we really focused on National Patient Safety Goals and one part of it they have an hour on SREs, because I think people are more fearful of not telling you and reporting it just in case.
- …we're really focusing now on safety behaviors. And we have 6 safety behaviors and 12 tools that we're implementing hospital wide. So, we really just started a lot of education on that this year. So, every nurse and everyone in my division went to a boot camp, a two hour boot camp on all the safety behaviors – just give an overview and now every month we just rollout one of the safety behaviors. So, for example, this month it's STAR; so everybody's working on STAR: Stop, Think, Act, and Review; and you talk about when you could use it and how it would make things safe.
- We identified that we needed to continue to do re-education and have that nurse champion make the effort on the unit to get the change in practice that we're looking for. So, that has been after Patients First.
- Well, with every new part of the nursing orientation is falls, falls assessment, fall prevention. That's standard. That happens with every new employee – from RNs to

PCTs. Also, every year we do an annual update for the staff. Like a Competency Day, which is part of their ongoing….there's an online education that all staff need to take and that's part of it; as well as the ongoing education that happens with the 'champion nurses'.

- We also have changed the way that we orient and we've added it to patient observer orientation – which it wasn't even a part of patient observer orientation in the past. So, sort of a diffusion strategy if you will – you know to try to reach the masses.

APPENDIX E

CNO QUOTES FOR CODE FAMILY OF HOSPITAL CARE ENVIRONMENT

- I'm trying to think…you know, we have bed alarms, we tried to reduce to the amount of clutter in the rooms; in some of the spaces we bought new chairs, for example, that take up less space so those big geri-chairs aren't there that people can trip over; and you know, I think that just in terms of managing the environment it really has…oh, the other thing is guess, one of the big things that we've done in terms of the environment…we've gone from about 30% private rooms to about 70% private rooms; and in many of those cases those rooms were designed to be semi-private. So, they were tight at two beds and three chairs and a bunch of over bed tables and stuff; and you've got a lot of clutter and a lot of opportunity to cause a fall; and so we've gone to this private model to the extent that we can…not necessarily because of falls, but because we needed to create a different environment on the units.
- The magnet on the outside.., the socks in the patient's room; then some of the room specific processes like to ensure that the bed is in the lowest position. To make sure that you have the call bell within reach. To set the patient next to the nursing station if it was possible; to utilize better chair alarms. Care environment…we use geri chairs for patients at risk once they're in the chair. Oh, we did signs on the bathroom door that said "please call for assistance", because we found that they'd sort of forget and get to the bathroom door and go "Ok, I'm going to the bathroom", and they'd be 'Oh, I've got to call for help'. That's it for the care environment.
- We have bed alarms that tie into the nurse call system and pagers, but they weren't

being consistently plugged in or turned on. We now have C.N.A.'s assigned to do bed checks looking specifically for beds being plugged into the call system. We are doing walking handoffs and are in the process of implementing hourly rounding through a Studer initiative. Toileting on a regular basis is a priority since most falls involve a patient trying to get to the bathroom. Tab alarms can hold a recording that sounds if the patient tries to get up gently reminding them not to get up…the voice is immediately followed by an alarm.

- Yea, what we…when I looked through the…we actually implemented the new identification bracelet. It's a yellow bracelet. It says "fall risk". So that everybody is aware who comes into the room. During hospital orientation, which is … I always worry about that because we always seem to think that hospital orientation is the catch all; but it's only for those new people. So we don't have a lot of turnover; so you're not getting a whole lot of people. But, during orientation, there is a falls overview for every employee; not just the nursing ones. And then, when they come to nursing orientation they get a little more detail. So, everybody knows there; as well as the significance of the yellow bracelet
- More just signage than anything else. I mean the physical plant, so you know, we had 'stop signs' put up, we had the falls posters, the placards. The actual rooms themselves; just made it tangle free make sure there's nothing extraneous around that they're going to trip on. We also have outside each door there's a metal band or a magnetic band strip that has which patient is at a fall risk external. So, when people walking by, they can see that patient in 23 Bed 2 is a falls risk. You know it's a fall

risk room, and then of course, then we have tab alarms and e have chair alarms. Tab alarms, chair alarms, and bed alarms.

- …in terms of the environment of care; we have environmental safety rounds and I think as we did this work we prioritized looking at the environment for potential tripping hazards, loose boards and surface areas and so forth that could be…create risk and those kinds of things. So, I think that was something that we added. In terms of the care delivery, it became a … like anything else, you expect leaders to prioritize.
- So, we have a visible…when a patient screens in as a fall risk, 1) we try to put them visibly in a certain place on the physical unit itself. But, we have red pennants – literally they're like triangles that alert people that these patients are at falls risk. And those pennants are placed on the chart, and they're placed outside the patient's room, on top of the red socks. And so, that communication has gone out broadly so that everyone understands who comes into the room what that means around safety.
- I don't have integrated bed alarms…we all need new beds, but not enough money do that yet…so we have overlay bed alarms and we have chair alarms as well. One of the environmental changes that's being implemented now is that those chair alarms and bed alarms just alarm at the bedside; but we're putting in a whole new nurse call system in so we've made sure that when we have the nurse call system, those portable chair bed alarms that we have can be integrated in to the nurse call so that we can have a central monitor at the central station.

- We used colored socks and colored wrist bands (and magnets on the outside of the room like everybody does) to notify the caregivers; all caregivers of the risk. It was pink and 'No', 'cause everybody knew. Pink socks, pink magnet, pink ….
- And we have signs in the room for family members and we have a ___Hospital fall brochure that we give to every patient on admission, which explains what we're doing, why it's important. They let us know if they notice a subtle change in their loved one. So, we have involved the families.
- In terms of communicating fall risk to the general population, including staff and families, we have door magnets. We have the usual things. The door magnet that indicates the persons a risk. They wear wristbands, which gives the staff another cue that someone's at risk for fall.
- Well, couple of things – 1) when we were looking at some of our falls, we noticed a certain percentage were tied to falls in the bathroom. So we put signs in the bathroom and in the patient rooms trying to educate people about falls risks; which is right here (shows). It says in asking families of patients to help us. We worked with marketing. We did the fall magnets. And, you should pop into our elevators. There's a falls campaign that we have going on; they're in the elevator. There's a huge poster and it's actually really good. So, it just highlights what we're doing, and it's going to rotate to educate the general public.
- Um, I think one of the big things is I mentioned with the bathroom piece; so one of the things that we struggled with for a couple of years was patients... some patients fell in the bathroom, but that was because they said that they wanted to be alone in

the bathroom. And, we pretty much came to a conclusion of safety over privacy. So, now we require that techs go in to the bathroom to assist patients. So, I would say that was a change in the plan and … I'm just trying to think of some other things that we've done… That was actually a big one, because we used to let patients go to the bathroom by themselves, yet they were identified as a falls risk. So, if they're identified as a falls risk, they have to be accompanied. So, it was…we a… The committee went back and forth on that one.

APPENDIX F

CNO QUOTES FOR CODE FAMILY OF ORGANIZATIONAL STRUCTURE AND CULTURE

- We knew there would be some public reporting, we knew we had to begin to look at it, at the same time ____ had begun saying "geez, falls are going to be publicly reported; it's something that we're all struggling with across the System and we're a part of that system. So, we immediately became engaged with them in terms of the work as well, ah…
- I think it's something we talk about regularly. Falls is something that we report in our safety dashboard across the system, so it's something that gets a lot of viewing across…whether its…today's our nursing quality safety committee, so we look at falls there. We look at falls by unit, we show it in our trustee patient safety committee. We show it at our hospital quality council. So, it gets a lot of view
- I think bringing unit level awareness to it was another thing, actually we did, which was call out our reporting by unit. When you are reporting a global fall rate, the accountability at the nurse manager and unit level is very different. So, I think the unit based scorecard is really important around that. So, that the staff themselves can own their own outcomes around it. You know, every unit has their own culture within one organization; so anything you can see unit based provides more ownership and I think that's helped us is one other thing we did to tweak the data. We used to just see a global fall rate, we never saw it at the unit performance level.
- From a hospital meeting, absolutely. Cause we have a clinical safety committee that

meets every single week, we have a patient care assessment committee which is Board level for quality and safety – all the data goes up through that. At the Board itself, we're in the middle of this cultural change where for years and years and years they've got these really onerous Board reports that were like …. We have two physicians on the Board; but they get these reams of reports, just like narrative reports and data …. I don't think they ever understood it. So, we're in the process now of creating a dashboard for them so they can understand it; and having focused presentations on these types of outcomes a couple times a year.

- …we also developed…what am I thinking…we developed a Quality and Safety Council made up of just staff. But, we would bring in other members of the interdisciplinary team and then on a broader level; I was a member of the hospital Quality & Safety. So, I brought that data up and shared it with my physician colleagues and Patient Care Service colleagues. So, that was…I think the councils that we had in place and the committees allowed for that collaboration and communication -- a cross fertilization of the data to occur
- You know I think the notion that falls is completely a nursing sensitive outcome; it resonates with staff. And I think, you know, I don't know if this is with the culture exactly; but I just think that, you know, to focus on things that were really that nursing people have an impact on uniquely, you know, kind of made it more of a highlight. There are just so many things that go and have so many facets to them and are so multi factorial, and falls was something that there was just an awful lot that you could do at the unit level.

- We have…it's an evolving focus. To be candid, I think that we need a greater focus on patient safety and quality at the Board level. I did participate in the Blue Cross Blue Shield program that was offered to our Board recently. It was a good program. I think they were literally blown away. It was an amazing juxtaposition because of the power shift in the room. Like they were so naïve and ignorant of what it takes…And, I don't know if it's New England or community hospitals. I don't know if it's any different in academic centers, but I think we have work to do in terms of the culture. I think we're headed there
- Well, I don't think there's a single person in the hospital who doesn't know about falls. It's just been a whole, canvassing cultural push that this is a significant patient issue; and it's just not a nursing, not a physician; it's a hospital issue that we all have to be part of. Other than that, it's pretty well ingrained. Pretty well ingrained
- It's on many dashboards. It's in so many places that it's on a lot of people's minds. It wasn't a topic of conversation when I came to CHA. We made it an important topic of conversation in a lot of different forums. Board, nursing…again, I was relentless about it in the manager meeting. And, you know, and some folks would say "Look, I work in OB, would stop talking about it." I could see the looks. But, you know, this is evidence, this is a reflection of nursing practice at CHA no matter where you work. So, and it's now publicly reported at PatientsFirstma.org. You know, this is something that every nurse leader at this organization's got to know about, be influencing in one way, or at least be able to talk about "This is our falls with injury rate, this is our falls rate, this is how it changed after we implemented a

new program"; because we put a lot of resources into this. So, I just think we brought it as a topic of conversation and interest to many areas of the organization

- We do have, you know, the patient rounds on all the different floors; and all the different disciplines are involved in that. But, on all the …what we started, what two years ago…we started the HARM dashboard. So, we selected 5 HARM events in the hospital; and really set a goal to eliminate those HARM events. And, the goal last year, every year is to cut it in half. So, that dashboard we communicate widely and very transparently throughout the whole organization – every staff meeting, every discipline, even the finance people know about the HARM dashboard because we present it at the Board meetings, we present it at Med Exec, we present it at Management Sem…. So, I think the creation of this and getting the organization really focused on these harm events has… The teams are just well supported. The teams are doing a great job
- And, what we've been doing with the Board level Quality Committee and some of the education that we've had, you have to tie that incident to…it's a patient. You have to keep everybody…and I guess that was another cultural type thing. Is really communicating to everybody that it's a patient. One incident is still a patient. So, it's really trying to get that. And the Board has to have the leadership has really grasped that
- Part of the quality reporting includes falls and falls with injury. So, that's reported up through the Board. Also, at Hospital Councils, we report patient falls. It is. It's part of our ongoing…it's part of the structure of what we measure and we report on.

So, if you measure it and you report on it, you get high visibility and you get focused attention. So, when we see an increase in our falls rate, the Board asks me "What's going on?" But, it's also part of our Quality Reports that we report on; so the reporting is at the Board level, it's also at the unit level. So, the staff see what their falls rates are. And the only way you get change in culture, you're right, is to measure and report on it. So, if there's focused attention, then you'll start to see a change in performance.

- …what I did most recently was put a public campaign together, a public campaign for the hospital. Thinking back on the theme of engaging the patients in this, and so we had posters placed all around the hospital, had big placards "If you see this, help us keep people safe." And so not only did we engage the patient, family; but also the public as they're walking around, because sometimes it was kind of an epiphany I just happened to be walking by there was nobody around and I saw a person that getting out of bed was all tangled up and so I said "How can we wedge someone else walking by to do the same thing." So, we engaged the public and the entire hospital. I would like to think there's not a person in the hospital who doesn't know about falls
- Because you know sometimes like when you get publicly reported data, you know it's important, but when it starts to get publicly reported it a different level of importance. So, if I'm looking at doing…if I'm looking at … you know it's just good to have awareness and interest and questioning about…you know, say "Why is your fall rate high? You know…"What's going on here?" It's really important for

me to get that level of accountability from the Board up; which it should be. So, I'm held accountable

- …it's visible and the activity around that was tangible…like everybody could see that things were happening and there was a commitment to safety; that I think that it helped bring the organization together; particularly like physicians and administration because…you know…like hospital #1, it was publicized; it was on the website, it was a visible, tangible entity. You walk up on the floor, it was a focus of the staff; it was easily articulated; you could look at the record and they've got the laminated intervention cards; you could really see and feel it. And so and then the physicians were involved in the Quality Team, was interdisciplinary, but involved as well; and they were concerned about injury rates to their patients and falls in patients, so I think it had a positive effect in both organizations…

APPENDIX G

CNO QUOTES FOR CODE FAMILY OF PUBLIC REPORTING IMPACT

Public Reporting Effect

- So, I think the Patients First website was good because it motivated us and got everybody talking about the same things and getting on the same page before there was this overlay of never events and the work that DPH is doing and again, internally it allowed me as a chief nurse to begin to identify these are the quality metrics that nurses are very accountable for and we gotta be very mindful of it; and know that
- But, because the spirit of Patients First initiative and that it is here to stay, and it's transparent and public reporting; I think the influence of that is to really, you know…look at it as patient safety, as a quality improvement initiative and to really ensure that the interventions that you pick are hardwired and they're consistent and that you continue to measure it, and you're always constantly looping back to look…so it's not just something that you fix and then you move on…because of the public component, and it's not just the public component but I think it does have some influence in terms of …I know as a CNO, I'm committed to patient safety because I'm a nurse and I care about patients and I want to make a difference
- They were two important business line areas for us as an organization. We felt they affected our brand. So, all of those things, I think, factor into a decision the hospital has to make to decide you're going to apply resources to a certain thing. And, I think public reporting helps that. It helps put it on the list. I don't think it drives it by itself.

- So, I think what it did was transparency, I think throughout, has made the C Suite quiver. I find it refreshing. I think we were long overdue. I'm a big transparency person. And I truly think transparency is here to stay; so fall rates are gonna be part of just the way we do business. And, the way insurers are going to look at institutions. It's just gonna be one of many quality indicators
- With the PatientCareLink, if it wasn't available – would our efforts be any different? I don't think they'd be very, significantly different. I think that we would still be focused on it; but I do think there's always that little "fear" is not the right word. But, it certainly there's that…it's competition.
- And so, personally, I'd rather have it. This is the age of public reporting. It's not going away. It's a good thing because it actually can drive change. It really can drive change because it's just not the healthcare folks who are looking at it; it's the public that are looking at it. I think once it catches on more, the public…because the public are becoming much better consumers of healthcare; and as reimbursement goes down and as things become more regulated and healthcare is going to be less funded, people are going to be choosing based upon quality. And, then quality is publicly reported. And people are going to flock to those hospitals. So, that's I think that is another driver of why it's so important for people to use these different sites out there.
- So, and it's now publicly reported at PatientsFirstma.org. You know, this is something that every nurse leader at this organization's got to know about, be influencing in one way, or at least be able to talk about "This is our falls with injury

rate, this is our falls rate, this is how it changed after we implemented a new program"; because we put a lot of resources into this. So, I just think we brought it as a topic of conversation and interest to many areas of the organization

- I think it increased the level of accountability and transparency for both the hospital, the providers, the staff taking care of the patient. So, I'd say it really increased the level of accountability, plus it gave a good benchmark; a statewide benchmark for us to compare to see how we were doing compared to other hospitals of similar size.
- … For me, I know for me, we saw dramatic change from where it was before Patients First. I think we continue to see incremental improvements; I'm not so sure it's a result of Patients First. It could be cause of the visibility of the information. But, I think in general, for all of the core measures; I think it's been very important to have it publicly reported. I think that hospitals do take it seriously

Changes / New or Different Due to Public Reporting

- Historically, I don't think that they were really that in tune to the quality of patient care. I think that it really pulled together patient care…it pulled together the organization in a unique way…like everybody…it's like sort of 'top of mind' for physician staff, and all levels of administrative staff, like everybody is…like awareness…like in terms of heightened importance. You know I guess it just like elevated the topic of quality of patient care and healthcare
- If I was a guessing man, or if I was to speculate, I would say the public reporting of this data has definitively implemented change, honestly. I've been around long enough, unfortunately; where all this was always hush-hush; and you would never,

never talk about the bad stuff that goes on in hospitals. And now, it's …the doors are open, the lights are on, and people are saying 'you know, this is an issue, you have to fix it, and the public need to know what kind of care you provide.' And, that in itself, it comes down to business too. People aren't going to go to a hospital that…at least people are going to think twice about going to a hospital that has the highest SRE rate or that has the wrong site surgeries, or…that grandma is falling out of bed all the time. They're not going to go to those hospitals because the public are becoming much more in tune to what's going in hospitals because they have public access to what goes on inside the doors.

- …we also included our Patient Advisory Committee in this. So, we went to them with "This is what we're planning and why". And we also used it as an opportunity to do some education around falls and falls prevention; and hence the importance and extent of this issue. And, we had them review some of the documents that we put together to give to patients and family members. We talked about the Red Socks program. Now, you know, we also talked about the fact that this is now publicly reported information. I know that, you know, so that's…was it because of public reporting per say, I mean I would just, you know…it's because of our falls prevention initiative; but I think we really got a lot of steam and energy – clearly, you know, the public reporting in Patients First, you know, helped us move that along. So, in that sense it's maybe not a direct relationship; but it's certainly an important connection. So, that would be one example

Public Reporting Effect Healthcare Team

- I think it absolutely did (raised awareness). It absolutely did because it gave nurse leaders leverage with their physician colleagues and with their rehab colleagues, and pressure ulcers, with you know, their surgical colleagues. You know, I think that same lesson. All this is going to be out there and we have a lot of input into how these results come out just because we have so many interventions to prevent them, that I think it just gave us more power to make changes faster than we would have if it wasn't publicly reported
- And, you know, and patients and physicians. Physicians now look – 'do I want to work at this hospital?' What do their numbers look like? If I was going to a different hospital, the first thing I'd do is I'm going to look at what their numbers are…what the data is out there that they're publicly reporting -- Patients First, Hospital.Compare, the DPH, the wealth of data that's out there…just for looking at it.
- It helps the internal constituency. I mean that's where you get the improvement -- is when the nurses or the physicians or whoever feels this is publicly reported. They're the ones who are looking at it and then responding to it. And, even if we know internally…if we just went out said, you know, this unit, we're going to do a celebration on this unit because they have the best fall rate or the lowest fall rate; it will spark some internal competition. I don't know that the public…I don't have a great sense if the public themselves are going and either selecting organizations or connecting everything together to form a profile of what services to utilize
- So, the rest of the team…so obviously it makes it a very real issue; we know it's not

just nurses…it's nurses, physicians, respiratory therapists, anybody whose touching this patient, so I think having it be public helps others recognize, like "wow" we all are part of caring for this patient and there's only going to be more and more of these, you know

- I found that through the process, particularly hospital # 2, that other disciplines looked on the Patients First and were just more aware of it and more in tune to it. Like, I would give QI reports to the Board and a lot of physicians sat on the Board. And, family practice physicians and surgeons that have patients in bed for longer periods of time or in the ICU; so they were particularly interested in pressure ulcers and falls, and in what I had to say, and then also how did we fare against other like organizations or competition, and challenge ourselves and looking for improvement. So, a commitment; I saw particularly that they were…the Board members were committed as well as rehab services…
- You know, I think there are multidisciplinary implications on all of them. The other day we had a discussion…the Falls Team that I was talking about does not a have physician champion, so we had a discussion about whether they needed to or not. And, the Team originally felt that falls belongs to nurses…I mean nursing's responsible for it and that they really didn't need a physician champion. But, as we moved into the pharmacy piece of it and ordering the medications, that really is part of the physician ownership of that. And, even, you know, ordering PT for patients who need PT who have gait issues and stuff. So, there is a physician ownership around falls too. So, I think we probably will get a physician champion on that team

Public Reporting Confounders

- I think what brought that up is again going back to the SRE report, I know for sure when that first SRE report had us at 25th or at the top of the list for SREs; I know that other people were reporting…I would assume or at least speculate that other people had data that was not as good as it looked. So, it's a natural thought, or a natural discussion, or a natural way to think about it as is Patients First data or any data that comes out truly a comparative analysis. I know my data that goes in there is very accurate. So, you have to look at that data with an inquisitive eye. You say 'what does this mean, I know this hospital, I know this hospital, I know these people over there and I know that maybe this data may not be reflective of the whole situation.' Versus, the SRE – bam! It's in your face.
- I think the big catalyst for us to really move the needle was the SRE report that came out. So that would have been the '07 data, or '08 data; that we had…we were the highest in the state with SREs. And falls were half of the 25 SREs. And we were publicly applauded and publicly chastised all at the same time. Good for the reporting, but bad that this is going on. In a year's period of time, we turned that from 25 into 5.
- …and then the other pressure point; pay for performance, so it just keeps….from CNO's perspective….now there's finances attached to it, not that I wasn't serious to begin with about what I'm doing, but it's just…you know becoming…these external pressures to say "Ok, I really need to keep a focus on this and keep it going; not to

say you wouldn't do that, but it's just because you're getting a report card, you know…Yes, it sort of there, it exists, we're transparent; that's good; but then we have pay for performance, these are all external pressures in healthcare.

- Part of that is because it's not really clear yet whether public reporting drives consumer behavior really…whether it drives anything, really. So, I think if that it gets tied more closely to your insurance rates, or your consumer decision making or something; then it would have a business impact. But right now, other than kind of what you said earlier that nobody wants to be left behind and everybody wants to do well; but you know, really who are you trying to impress? If you look at people's quality data, it's all the same. We all are hovering around the mean on absolutely every single measure
- You know, I think it was part of a number of things that really led to focus on falls. Certainly, it was Patients First and the transparency around that; and then we had a pay for performance contract with Blue Cross that was focused on …I'm trying to think if falls was in there…falls was really not, it was core measures, the VAPS and the central line infections. So, anyway there was all these different factors looking at just both transparency and looking at harm events. They kind of all conspired, as well as just an internal desire to demonstrate improvement in quality to our focusing on the harm events that we selected
- But I don't think our focus was as sharp on them as the things that were out there as publicly reported things. And now with 'never events' being, you know, the care associated with a never event not being reimbursed; of course, that kind of even

gives it a different level of importance. So, I do think that the two big factors are certainly the public reporting and now more recently the reimbursement implications that comes from, you know…pay for performance

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