Patient Care Provider Safety: Examining one intervention to reduce hospital violence

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Patient Care Provider Safety:

Examining a Training Intervention to Reduce Hospital Violence

by

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy
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Dedication

To all the patient care providers and support staff of Tampa General Hospital.

Tampa General Hospital is an organization committed to the healing of the sick and injured with kindness and respect.
Acknowledgments

Thank you, family, friends, and colleagues who supported, encouraged, and made this possible.

Dr. Wolfson was invaluable as a guide, a mentor, a friend, and a teacher. I could never have survived without his wisdom, sense of humor, and encouragement. Thank you to the University of South Florida for the opportunity and all the professors who worked to provide such a positive experience.

Thank you to my leaders at Tampa General Hospital: Mr. Hytoff, Deana Nelson, and Cheryl Eagan. Their leadership has demonstrated to me the courage and strength necessary to take and persevere through the toughest challenges. Their caring and faith in my eventual success helped chart my course through this endeavor and going forward.

I have been very blessed and thank God for all those who were part of this journey.
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Abstract

In the summer of 2009, Tampa General care providers met with Hospital Administration to express concern that violence on care units was a growing problem and making it difficult to provide quality care. Nurses stated that such violence was one important reason many of their peers choose to retire. Administration took this situation seriously and formed a committee to gather information and submit suggestions to reduce the violence. The committee consisted of representatives from several nursing units, human resources, risk management, security, and administration. Duties assigned included investigation of the actual number of reports on all units and trends. The committee was also charged with the production of a report regarding reviewing other hospital data, literature review, and developing recommendations.

Internal reports indicated that the total prevalence of reported violence as well as the incidence per patient had increased annually since 2005. The hospital reports contradicted the national literature regarding the emergency department (ED) and psychiatric unit (Psych) being the two hospital units with the highest number of violent events. One possible reason for the difference is that these departments require all care providers to attend de-escalation and self-defense classes annually. Based on these findings, the researcher developed and adapted training similar to that of the ED for other units reporting aggressive, abusive, and violent patients. The committee approved a draft plan for implementation. Following presentation to Nursing Administration, some
modifications were made, and the Internal Review Boards of the hospital and University of South Florida (USF) approved the project.

The hypothesis tested in this study was whether training in de-escalation and self-defense modifies providers’ behaviors to prevent or reduce aggressive, abusive, or violent behavior by patients and visitors. The independent variable was training. The dependent variable was requests for assistance with unruly, angry, or violent patients or visitors. Event reports of the year prior were used for historical comparison. Event reports for the experimental period were assembled subsequent to the training for comparison.

Nursing Administration selected two units to receive the training intervention. The two units selected were neither the worst nor the best in numbers, but rather the middle. Nursing required that all training be scheduled in normal department meetings and that Nurse Managers of the units agree to participate. The research design presumed that at least 85% of care providers on a unit would attend the training. Schedules were developed to accommodate all care providers. The training was presented during June of 2010.

Experimental and comparison units were monitored each month for the number of reported violent events (Code Grays) on each unit. During the fourth months of monitoring, there was a data spike in the Cardiac Care unit. No action was taken until another spike occurred during the sixth month. It was determined that an error had occurred that partially invalidated the data from the Cardiac Care unit: the 85% participation rate among staff had not been reached. Monitoring continued for 12 months after the training. The Eldercare unit showed reduced requests for assistance. Overall, the Cardiac Care unit increased requests for assistance from the year before. Results were
adjusted for patient census. Wilcoxon Signed Ranks Testing was performed and displayed using box plots to show how far the median changed during the research from one group to the next. The analysis compared prior year with the year following the interventions, and indicated that there was a movement toward a reduction of Code Grays. To determine if there was a difference between comparison units and experimental units 12 months after the training, Poisson Regression Analysis was utilized. When the comparison units were set as the reference, Poisson analysis indicated the events were decreasing on both units. The Cardiac Care unit did not have a statistically significant p value. The Eldercare unit had a p value of .019.

In conclusion, the results are mixed and statistically inconclusive. From the care providers’ perspective, any reduction in violence is significant. The data regarding the training interventions indicates that there was an empirical, albeit not a statistically significant, change in Code Gray reports. Training may have reduced the violence on the Eldercare unit by nearly half.
Chapter 1: Introduction

Several respected Nursing leaders met with Tampa General Hospital (TGH) Administration in June of 2009 to express concern that violence on patient care units was a growing problem. They believed that violence was increasing and making it difficult to provide quality care. Nurses stated that such violence had been one reason contributing to retirement of peers. Administration took this situation seriously and decided to form a committee to gather information and submit suggestions to reduce the violence. The researcher suggested the development of training similar to what had seemed to be effective in the emergency department. The suggestion was approved as a trial study to determine the effectiveness of de-escalation and self-defense training on reducing abuse, aggression and violence on patient care units.

Tampa General Hospital Information

Figure 1 - Tampa General Hospital
TGH has a zero tolerance policy for violence. Security is expected and monitored to be on scene of a violent or potentially violent situation in less than two minutes. Charge nurses and the emergency department historically attend a 60-minute de-escalation and hands-on self-defense training. This training includes how security should respond and how administration supports them. None of these factors changed before, during, or after this research. All of these practices have been part of the philosophy of TGH since 2005 and are still in place.

The following facts about TGH may influence the number and severity of violent events that occur. Tampa General Hospital is:

- A 1051 bed acute care hospital—the number of patients and visitors in such a large hospital increases the random chance of violence
- A level 1 trauma center—criticality of patients and its emotional impact could increase number and severity of violence
- The primary teaching hospital for the University of South Florida, College of Medicine—residents learning how to approach difficult patients could increase number and severity of violence
- The region’s only Burn Center—patients and families are similar to trauma patients in criticality
- An adult Solid Organ Transplant Center—life and death decisions on transplant recipients could increase violence
- The Provider of Inpatient Specialized Rehabilitation Services—frustration from heightened expectations and difficulty of rehabilitation may contribute to violence
Administration was presented with a literature review to aid its decision to implement the trial study. The literature reports included a 2009 study from *The Journal of Nursing Administration*, which found that over the preceding three years, 50 percent of Emergency Department nurses experienced some type of physical violence – such as being shoved, hit, kicked, and spat upon - and 70 percent experienced verbal abuse. Also, in 2001, the U.S. Department of Labor, Bureau of Labor Statistics reported that 48 percent of all non-fatal injuries from occupational assaults and violent acts occurring in the United States occurred in health care and social services settings. This report stated that health care workers are at a higher risk of violence than workers in any other employment sector, indicating the seriousness and severity of such violence. A quotation from the *Journal of Advanced Nursing* stated: “Violence has a detrimental effect on nurses’ psychological, cognitive, emotional, behavioural and spiritual well-being and a negative impact on public healthcare costs and organizational effectiveness.” (Lyneham, 2000: Mayhew & Chappell, 2001) Consequences of violence on a hospital unit not only affect nurses but also reduce all care providers’ effectiveness and harm patient care. (Henderson 2003, 1). The alarming trend is that violence is most often committed by patients (Fidorff, McGovern, Wall, Gerberich, & Alexander, 2008).

**Violence as a Public Health Issue**

The Surgeon General’s *Healthy People* Report in 1979 included the first public United States governmental recognition that violence was a Public Health issue. Previously, violence had only been addressed as a criminal, psychological, anthropological or sociological problem. In response, the Department of Health and Human Services established goals for violence prevention and included them in their
In 1983, the Center for Disease Control and Prevention (CDC) began epidemiological studies and established the Violence Epidemiology Branch. Subsequently, C. Everett Koop’s "Workshop on Violence and Public Health" emphasized the importance of public health professions' involvement in prevention of violence. By 2000, a new Healthy People report by the Surgeon General listed violence and abusive behavior as one of 22 top public health priorities and called for “cooperation and integration across public health, health care, mental health, criminal justice, social service, education and other relevant sectors.” The CDC then established the Division of Injury Epidemiology and Control for Violence.

Violence as a public health issue has many manifestations. The CDC's recent document, “A Timeline of Violence as a Public Health Issue,” specifies that issues of suicide, interpersonal violence, youth violence, intimate partner violence, violence against women, child maltreatment and dating abuse are all issues of public health. The CDC is addressing these issues by having established the Violence Epidemiology Branch and a new Division of Violence Prevention, having acquired funding for youth and intimate partner violence, violence against women and child maltreatment prevention, and having developed programs for suicide and interpersonal violence. Their publication, VIOLENCE, Occupational Hazards in Hospitals, recognizes negative impacts such as low worker morale, heightened job stress, increased employee turnover, and reduced trust of management, coworkers, and hostility in the work environment.
Violence as a Hospital Issue

One common element of most violence is that all seriously injured victims end up in the hospital. Victims’ injuries and emotions, as well as possibly associated situational threats, become part of the hospital occupational environment. Acknowledgement of such potential for problems mandates that hospitals plan and implement mitigation along with control and response procedures (Johnson, 2006, 100).

The magnitude and scope of violence in hospitals, particularly in emergency departments, is illustrated by a study conducted by the Emergency Nurses Association between May 2009 and February 2010. Titled "Emergency Department Violence Surveillance Study," this endeavor reported the following data about hospital violence:

Table 1.1: Results from Emergency Department Violence Study

<table>
<thead>
<tr>
<th>Questions</th>
<th>Percentage of Staff in agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violence perpetrated by patients and their relatives</td>
<td>97.1</td>
</tr>
<tr>
<td>Violence occurred in patient rooms</td>
<td>80.6</td>
</tr>
<tr>
<td>Violence occurred in corridors, hallways and elevators</td>
<td>23.2</td>
</tr>
<tr>
<td>Violence occurred at nurses’ stations</td>
<td>14.7</td>
</tr>
<tr>
<td>Violence was against emergency nurses while they were triaging a patient</td>
<td>38.2</td>
</tr>
<tr>
<td>Occurred while restraining or subduing a patient</td>
<td>33.8</td>
</tr>
<tr>
<td>Occurred while performing invasive procedures</td>
<td>30.9</td>
</tr>
<tr>
<td>Male nurses reported being victims</td>
<td>15</td>
</tr>
<tr>
<td>Female nurses reported being victims</td>
<td>10.3</td>
</tr>
<tr>
<td>Violence occurred in large urban areas</td>
<td>13.4</td>
</tr>
<tr>
<td>Violence occurred in rural areas</td>
<td>8.3</td>
</tr>
</tbody>
</table>
As early as 2007, Donna Mason, then President of the Emergency Nurses Association (ENA), foresaw the critical nature of violence in healthcare and dedicated her term in office to reducing it. She advocated political activity by the ENA at the state level to increase awareness and seek tougher legislation for emergency departments and healthcare employees, with the intention to improve the working environment for all nurses. (Mercer Ray, 2007)

International Hospital Violence

Hospital violence is not limited to the United States. During a recent 12-month period, a Swiss study revealed that 72 percent of nurses had experienced verbal patient and/or visitor violence, and 42 percent had experienced physical patient and/or visitor violence (Hahn, 2010). Within the last few years, an Australian study of 94 nursing wards in 21 hospitals reported 65 percent of nurses had perceived emotional abuse during their previous five shifts at work. (Roche, 2007) The China Daily reported that during one period in 2007, because of violence and attacks on physicians, policemen were stationed in and around the Shanghai Minhang District Central Hospital (Li, 2007). A Turkish study of 290 hospitals reported that 80.3 percent of nurses had faced verbal abuse, and that it had decreased their professional performance (Oztunc, 2006). Violence on patient care units is both an international and a growing problem (Farrell, Bobrowski, & Bobrowski, 2006, and Cowan, 2002).

Statement of the Problem

This study will explore the growing number of aggressive, abusive, and violent acts perpetrated by patients and visitors on patient care units. Many victims of violence
today bring with them into hospitals all the mental complexities, physical pain, and emotional worries conducive to a continuation of violence. The challenge hospitals are facing is how to prevent, mitigate, control, and respond to such violence within the caring and compassionate nature of the hospital environment. Methods must be found to meet the needs of arriving victims without claiming care providers as collaterally damaged victims themselves.

Violence is harming patients, care providers and hospitals. Violence harms patients by changing or reducing care providers’ attitudes toward them. The attitude and behavior of a care provider dealing with violence on a care unit is different from one on a unit without violence. Violence takes away from care providers’ concentration and attention to patients. Violence in hospitals is harming the physical, mental, and emotional states of care providers. Care providers are leaving the profession, retiring early and not promoting patient care as a profession because of violence. Violence harms the reputation of hospitals. The reputation of a hospital affects patient selection or non-selection for care. Reputation also influences the physician’s choice of where to practice and helps job seekers decide where to apply and work. (Roche M, 2010, Sofield & Salmond, 2003, Luck, Jackson & Usher, 2007)

Purpose of Study

The purpose of this study is to determine if a one-hour de-escalation and self-defense training, performed without overtime or call in pay, targeting all care providers on a hospital unit can reduce violence as compared to historical records of the same unit and concurrent comparison with control units. The reasons for pursuing the study are to improve the work environment for patient care providers, and thereby allow for improved
quality of care for patients. Violence in a patient care setting can cause mental anguish for patients and visitors as well as care providers. Time attended to and care providers waste recovering from violence.

History of this Study

During the summer of 2009, a group of nurses at TGH convinced administration that patients were becoming increasingly aggressive, abusive, or violent. They expressed the concern that these violent and potentially violent acts were having a negative impact on their work environment and their ability to provide quality patient care. Some nurses of the group believed that this was why many of their colleagues were retiring.

Tampa General Administration formed a committee to investigate the nurses' concerns and make recommendations for improvement. The nurses who had originally brought this matter to administration’s attention organized the committee. Hospital departments of Risk Management, Security, Research, Safety, Quality Improvement, Clergy, the Emergency Department, and the Mental Health unit were asked to provide members to the committee. The committee was titled the “Problem Patient Committee.”

Hypothesis

Hypothesis as a scientific formula using the null hypothesis follows:

\[ \mu = \text{Number of calls to security for assistance from patient care staff.} \]

\[ \mu_1 = \text{Number of calls for security assistance from the Comparison Units.} \]

\[ \mu_2 = \text{Number of calls for security assistance from the Experimental Units.} \]

Null hypothesis \( H_0: \mu_1 = \mu_2 \)

Alternative hypothesis \( H_a: \mu_2 \neq \mu_1 \)
If calls to security for assistance by patient care staff concerning violence is related to care providers’ knowledge of de-escalation and perception of ability to defend one’s self, then providing a de-escalation and self-defense training will reduce the number of times patient care staff call security for assistance. Calls for assistance from security before and after the intervention will serve as the measure for quantifying violence on the patient care unit. Calls to security for assistance are documented on Code Gray reports.

Delimitations of the Study

Delimitations are internal to the study but not within the researcher’s control.

- This study is delimited in that the researcher may offer participation to a nurse manager but that manager may decline participation.
- This study is also delimited to the events reported by the care providers.

Limitations of the Study

Limitations are aspects external to the study not under the control of the researcher. The following are some limitations of this study:

- This study was conducted at a large teaching hospital, so findings may not be applicable for smaller hospitals, or to other large hospitals due to patient mix differences.
- Reporting systems with other hospitals may not capture the same information, so comparison may be difficult.
Unique Nature of this Study

There are two unique characteristics of this research. First, the intervention was designed by hospital staff and patient care providers, and was crafted to be minimally invasive with respect to time and limited in cost. The intervention is only one hour long and can be presented at unit department meetings without requiring overtime or changing care providers’ schedules. It is comprised of real care providers’ experiences, which are easily recognized by peers. It is designed to be dramatic, engaging, and hands-on. The intervention acknowledges the importance of teamwork, confidence, and respect, and targets at least 85 percent of patient care staff on a unit.

Second is the research design and implementation. Numerous hospital violence research studies rely upon retrospective, self-reported, cross-sectional design. The inquiries embedded in questionnaires and self-reporting used in these studies rely upon broad definitions of violence and differing timeframes. There is little information about the validity of the questionnaires or of the self-reporting forms used in past studies (Findorff, 2005, Hahn, 2008). This study is designed to collect quantitative data using a quasi-experimental approach. There is no questionnaire or self-reporting. The reporting mechanism has been stable and utilized for notification of patient and visitor violence in the same manner since 2005. If an event report was completed, it meant that a care provider faced a situation that was or could turn violent.

The researcher reviewed historical records for Code Grays for all patient care units and provided the eight units with the most reported violent events to Patient Care Leadership. Prior to the training, the researcher explained to Nursing Administration the importance that several items related to the research remain stable during its duration. Patient Care leadership suggested two units for experimentation and asked that the
remaining six be the comparison group. After the year of monthly monitoring was completed, the researcher reviewed the comparison and experimental units to determine if leadership (person in charge), staffing matrix (number and type of care providers per patient), types of injuries or illness of patients treated, policies and procedures and physical location of the units had changed. No discernible changes occurred that would affect this study. The participating units are similar in that they all reported more violence than the average hospital unit. The eight units all dealt with seriously injured or critically ill patients, and with family members who demonstrated worry and anxiety. The staffing scheduling and routine hospital issues were similar.

During the literature review, only one study was found utilizing a comparison group. It was not a hospital based study and depended on pre and post self-reported events. (Arnetz & Arnetz, 2000) No study was found using hospital event reports as a data collection tool. No study was found that implemented an intervention designed to reduce violence in a hospital.

The implementation of the intervention was organized to meet the actual working requirements of a major hospital. Restrictions imposed by nursing leadership could be anticipated if the intervention proved successful and was chosen for implementation at other hospitals. The time, expense, and data collection tools are likely to be very similar in other large hospitals.

The only example of research approaching a quasi-experimental design on hospital-based violence was a Swiss study (2004) in which a systematic aggression risk assessment combined with a standardized course in aggression management was implemented on an acute admission psychiatric unit. The number and severity of the
aggressive incidents were registered and measured. The comparison was with historical events but no concurrent comparisons were performed. It concluded that on such a unit, the particular combination of interventions may assist in reducing the incidence of coercive measures, but further study was also recommended. (Needham, 2004)
Chapter 2: Literature Review

This literature review focuses on determining the extent and severity of violence committed by patients and visitors on hospital care units. It begins by contrasting the media portrayal of such events with studies of actual violence occurring on care units. Next presented are studies that explain the frequency, type, and severity of care providers’ experiences on patient units. Background material includes multidisciplinary constructs, models, violence theory, challenges to the definition of violence, underreporting, and recommendations from other studies, which support the intervention in this study.

Media Coverage

In 2010, physicians were shot at both Johns Hopkins Hospital and Baton Rouge General Medical Center and each event made headlines. In 2011, physicians were shot at Florida Hospital Orlando and Physicians’ Regional Medical Center, each again reported in news headlines. The popular dramatic television series "Grey’s Anatomy" depicted a gunman in their hospital for the season six finale. These news stories and television episodes elucidate the violence actually occurring in hospitals, yet do not fully disclose the extent of the problem. The larger story is the ongoing violence that care providers are subjected to by patients and visitors. This unpublicized and little known violence disrupts hospital environments, operations and objectives, and in so doing threatens their effectiveness to save lives and promote health.
Frequency of Hospital Violence

Surveys and studies have documented the frequency of hospital violence in recent times. One such survey, by the International Association of Healthcare Security and Safety (IAHSS), of 212 hospitals, reported 660 aggravated assaults and 2,720 simple assaults in 2009 (IAHSS 2010). A 2009 British survey of nurses confirmed 33 percent had been punched, 19 percent kicked, 17 percent spit on, and 8 percent had had hair pulled. A 2003 Massachusetts Nurses Association survey reported that 50 percent of nurses questioned were punched at least once during a two-year period, and that 91 percent of nurses reported verbal abuse in the past month. (Fierce Healthcare) These studies demonstrate a problem exists beyond news headlines and television shows, impacting significant numbers of care providers and in so doing impacting patients.

The International Association for Healthcare Security and Safety, the professional association of hospital security administrators, attempts to track crime in hospitals. In their 2004 Crimes Survey, 192 hospitals documented 7,764 crimes, while in the 2010 Crimes Survey 212 hospitals documented 14,991 crimes. The definitions of crime and method of reporting did not change during that time. (IAHSS, 2006) This indicates increased aggression, abuse and/or violence.

Hospitals both in the United States and internationally use the IAHSS training and certifications to train security staff. The *BASIC Training Manual and Study Guide for Healthcare Security Officers* presents a study performed by the Department of Medicine at the University Of Louisville, which surveyed 170 teaching hospitals:

- 32% of respondents stated they had received one or more verbal threats per day
• 18% acknowledged that once a month or greater, a weapon was displayed as a result of a threat.

• 43% affirmed medical staff were subject to one or more physical attacks per month.

• 70% confirmed that at least one act of violence led to a death in the past five years (Lehman & Scaglione, pp. 12, 13-20).

This study points out that aggression, abuse, and violence committed by patients in hospitals are both frequent and severe.

Decisions concerning the value and appropriateness of resources committed to reduce, mitigate, and prevent such events must be based on individual hospital data. There is no national data bank currently collecting information from hospitals concerning violence. Consequently, it is impossible to cite definitively the frequency or severity of this problem.

Underreporting

There is adequate data that violence is prevalent in hospitals, but also that the true scope of the problem may be underreported. Russell Collings, a health care security consultant who advises the Joint Commission states, “Many incidents go underreported because they do not fall into the hospital’s definition of ‘violence’ but others are omitted because officials do not want them to reflect negatively on the hospital’s image.” (Hospitals & Health Networks Page 27, Howell, 2011) In 2000, the ENA published research indicating that up to 80 percent of all abusive acts committed by patients are not reported. Reasons cited for nurses underreporting included a) accepting such events as part of the job, b) misunderstanding what should be reported (definition), c) fearing that
something inappropriate was done to provoke the attack and fear of reprimand, and d) disliking the time it takes to complete the reports (Erickson, 2000). Another study of nearly 8,800 nurses in 201 hospitals revealed that 70 percent of nurses experiencing abuse had not reported the mistreatment (Duncan & Hyndman, 2001). Further, one study suggested that nurses feel unsupported by management in relation to workplace violence, and this influences their decision not to report. (Jackson, Claire, & Mannix, 2002) Underreporting could be the reason a study in 2007 concluded that some hospital administrators do not know violence occurs in their hospitals. (Phillips 2007)

Impact on Care Providers

A patient or visitor may witness or participate in a violent event but is soon gone from the hospital. The care provider, however, remains, and may encounter violence day after day, leading to physical, mental, and emotional hardship. The National Advisory Council on Nurses Education and Practice (NACNEP, 2007) presented a report to the U.S. Department of Health and Human Services beginning with the following paragraph:

“Violence against nurses is a complex and persistent occupational hazard facing the nursing profession. This violence can take the form of intimidation, harassment, stalking, beatings, stabbings, shootings, and other forms of assault. Nurses are among the most assaulted workers in the American workforce. Psychological consequences resulting from violence may include fear, anxiety, sadness, depression, frustration, mistrust, and nervousness. These consequences can have a negative impact on nurse retention”.

(http://bhpr.hrsa.gov/nursing/NACNEP/reports/fifth/intro.htm, p.1)
In the same document, NACNEP stated that nurses exposed to abuse and violence early in their careers became disillusioned with nursing. Seventy five percent of nurses reported having been assaulted during their career, and assaults contributed to many leaving the profession. Aggression, abuse, and violence experienced by care providers caused them to feel incompetent, guilty, powerless, worthless, and fearful of criticism. A 2005 Maryland Nurses Association survey affirmed that 18 respondents left a job because they feared for their safety, and 15 indicated they wanted to leave but had not done so (Distasio, Hall, & Beachley, 2005, 38). Veteran nurses reported violence as contributing to burnout and resignations. (Shader et al., 2001)

Impacts of Verbal Assaults

Nurses experiencing non-physical (verbal) assaults sometimes exhibit symptoms of emotional and psychological trauma. Such assaults can lead to cumulative stress, compassion fatigue, apathy, flashbacks, crying spells, intrusive thoughts, and nightmares, and may culminate in increased use of sick time (Phillips, 2007). Fifty-three percent of nurses in a verbal assault study stated they would not recommend nursing as a career choice for their children, and 23 percent would actively discourage someone close to them from entering the profession. (Keough, Schlomer, & Bollembier, 2003)

Impacts of Physical Events

A comprehensive summation of the impact of physical violence on patient care staff was found in an English textbook. Jonathan Shepherd, author of Violence in Health Care, A Practical Guide to Coping with Violence and Caring for Victims (1994), divided the effects into four categories: psychological, physical, behavioral, and long term. An individual can suffer any one or any combination of these. Psychological effects of
assault included depression, guilt, loss of confidence, loss of sense of professional competence, increased feelings of vulnerability, self-doubt, unfocused anger, irritability, generalized anxiety, and decreased concentration. Physical effects of assault included insomnia, nightmares, and change in appetite, decreased sexual activity, and complaints such as lethargy, headaches, muscle tension, and nausea. The behavioral effects included increased alcohol, cigarette and drug consumption, increased startle response and absenteeism, avoidance of patient contact, social withdrawal, loss of interest and involvement in work, and phobic avoidance of reminders of the assault. Long term effects included “burn out syndrome” and post-traumatic stress disorder, and possibly resignation. (Jonathan Shepherd, 1994)

Examples of Patient and Visitor Violence

Melinda Mercer Ray provides three short examples to show how aggression, abuse and violence are acted out in hospitals. “A young psychiatric patient hallucinates and begins to bite, scratch, and kick whoever walks up to her. A frantic family in the waiting room demands information and storms into the treatment area, pushing nurses and other staff aside. Or, a drunken college student wants to fight his way out of the hospital, pushing and spitting on anyone who does not get out of his way.” (Ray, 2007)

Ann Longmore-Ethridge supplies another vivid example. She writes of an instance of an elderly man in the hospital for a chronic ailment. His three children visited regularly – one of whom at one point became more insistent about almost every aspect of his care. He leaned out of his father’s room and snapped his fingers, yelling, ‘Here, puppy!’ to obtain the nurses' attention. One evening, when a nurse came in to address his
concerns about a certain treatment, he threw the bedpan at her. (Longmore-Ethridge, 2008)

Violence Constructs

Theories and models about possible motivations of perpetrators and causative factors are available to guide development of interventions to reduce or prevent violence on patient care units. Methods, constructs, theories and assumptions that might prove helpful in refining the intervention implementation are also abundant. Collecting, reviewing and synthesizing this information to provide insight and direction for elimination or reduction of the violence problem on care units are foundational to this study.

Functional and symbolic sociological concepts impact care providers’ responses to violent events. These two different approaches are evident in the decision making process for reporting: a care provider acting on the functional approach is likely to follow through with a report, while one acting on the symbolic approach may or may not do so. The functional approach defines violence as subversive of order, and as such needs to be restrained. This approach values law and order as necessary to maintain social stability, and seeks to reduce or eliminate violence because of perceived harm to society. The functional approach encourages reporting as well as strict enforcement of rules and policies against deviant actions. A care provider acting out the functional approach may respond quickly and confrontationally, possibly neglecting to consider individual and situational variables. In contrast, the symbolic approach defines violence as subjective and possibly the result of cultural differences. This approach agrees that one side of violence is subversive and must be controlled, but supposes that violence can
be constructive in destroying an old order and constructing a new order. The patient care provider acting out the symbolic approach may wish to wave a rule or allow some aggressive and abusive behaviour, rationalizing that it may have been predicated by the situation. This paradox of approaches creates inconsistencies of action by care providers. It is also helpful for responders to understand and appreciate a care giver’s approach in order to adjust to their responses and requested actions appropriately (Stewart and Strathern, 2002).

Biological factors are arguably a contributing factor in violence. Thomas Hobbs, often called the Father of Analytic Philosophy, writes in his book Human Nature in 1650 that men are naturally violent and aggressive. He supported the concept that violence is a propensity rooted in the biology and psychology of the human. Sigmund Freud supported this relationship between biology and violence by associating aggression and sexuality. (Stewart & Strathern, 2002) Freud proposed that violence is a primordial force manifested when pleasure seeking through sexual acts or pain avoidance is frustrated. Whether man is innately violent or not is beyond the scope of this study, but the concept holds ramifications for development and presentation of the intervention.

National Institute of Justice Violence Workshop

The National Institute of Justice sponsored a workshop on violence theory in 2007. Participants compared, contrasted and evaluated both conventional and developing theories. Conventional scientific criteria for theory evaluation included:

- Parsimony—simple statements with maximum explanatory power are optimal.
• Generality—a theory should account for as much variation in the facts as possible.

• Testability—testing a theory’s formulations and hypotheses should be feasible.

• Validity—a theory’s propositions and observations of reality should match.

• Originality—new ideas should give a better explanation of behavior than previously available.

Participants were instructed to include the following in future violence theory:

• A tangible principle for the concept of time and space—theories should explain the relevance of emotional development to actions later in life as it relates to predicting violent behavior.

• Concreteness to reduce distortion—abstract theories are easily misunderstood and twisted.

• Restriction to small-scale violence—focus should be on illegitimate or deviant violence, as opposed to acts of war.

Violence was segmented into three types. Type One violence is that ostensibly provoked by other violence or negative conditions. An example in Feminist theory is that violence is necessary as a response to perception that gender blocks accomplishment of goals though legitimate channels. Type Two violence is committed to solve a problem. Violent Structures theory rationalizes violence as exigent when a person’s sense of justice has been violated because action is needed to correct the violation. Type Three violence is categorized as processes, which may motivate or cause violence. Radical Ecology theory, for instance, manifests that low exposure to lead causes violence.
Various theories have been developed to elaborate on violence. Robert Dubin developed Strain Theory in 1959. He maintains that violence is the result of an individual or group taking actions outside the norm because of strains due to desire for social or personal gain. Robert Agnew, in 1992, adjusted Strain Theory to include individual characteristics that possibly create and control interpersonal strains. Such attributes as temperament, intelligence, interpersonal skills, self-efficacy, social support, association with antisocial groups, age and status are cited. When the individual’s perceived desires are greater than their control, the Strain Theory would predict violence. Strain Theory accords that to reduce anger, aggression and violence on a care unit, a hospital should identify and develop methods to reduce the strains on patients, visitors and care givers.

Another theory, Travis Hirsch’s Control Balance Theory, states that violence is the result of an imbalance between society and an individual’s desired achievement. When a personal achievement has priority over an institutional norm, an imbalance exists which may propagate deviant behavior. If the individual’s perceived gain surpasses his perceived social controls, a deviant act such as violence can result. This theory points out that excessive control or lack of control may affect deviant behavior. Additionally, the stronger the bond between the person and society, the less likely they are to engage in criminal acts. Three specific actions are delineated in the Control Balance Theory: predation, consisting of predators’ actions, deviance, consisting of deliberate inappropriate action to demonstrate individual power, and submission, consisting of a victim completely obeying authority. Control Balance Theory contributes to this study by emphasizing the need for security and care provider training to control predator
designs. Listening to and observing a patient is expounded as the best way to predict and avert tendencies of aggression and violence. Interestingly, proponents of Control Balance Theory show concern that while the economic stability of the 1990s moved a significant number of people into a balanced control ratio and reduced violence, the opposite is occurring today. They warn that the current economy is changing the balance control ratio, which could lead to increasing violence for the next several years.

The Social Learning Theory is one of the most influential theories of learning and development. It postulates that threatening or acting violent is often learned. The three core concepts are: 1) people learn by observation, 2) a person’s internal mental state is an essential part of learning and 3) learning alone does not mean the person will change behavior. Albert Bandura added a fourth core concept to Social Learning Theory - the ability of a person to learn just by watching the actions of others and anticipating similar results by adopting similar actions:

“Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action.”

-Albert Bandura, Social Learning Theory, 1977 (B 2)
This theory is important to this study because it emphasizes the need of including behavior modeling in the intervention. It also supports actual hands-on demonstration and practice of concepts by participants. (Cherry 2011)

Cohen and Felson proposed Routine Activities Theory, stating that criminal and violent actions are often the result of clearly thought out rational decisions. The Routine Activities Theory contends that for a crime, or violence, to take place, three requirements are necessary: a motivated offender, a suitable target, and an absence of capable guardians (Cohen, 2002). The first requirement indicates that in some circumstances the individual arriving as a patient might be inclined to violence or aggression. The second requirement is significant because hospitals have a reputation for allowing and understanding socially deviant behaviors as caused by the illness or injury and not the person. Therefore, a perpetrator may see a hospital as an environment where deviant actions are less noticeable, and apprehension and prosecution are unlikely. The third requirement indicates that normal routines may allow the crime to go unnoticed or not prosecuted. Hospitals focus on patients’ and family members’ care and comfort. To maintain a family friendly atmosphere, hospitals avoid closed and locked doors and access control systems. Open doors and uncontrolled access create an environment that allows many crimes to go unnoticed until it is too late to perform proper investigations. This theory explains why hospitals can be easy targets for criminals.

Donald Black conceived Social Geometry Theory, which states that social space and social direction are the foundations for action, rather than the individual. Social Geometry Theory predicts that the greater the social distance between participants at the time of the event, the greater the possibility of violence. Social distance for this theory is
not specifically defined, but the context would indicate that it is the differences between peoples’ economic, political and class distinctions. Social Geometry is not taken into account when patients are admitted in a hospital. All classes, economic levels, races, and educational levels are mixed, as people become patients in a hospital. This theory provides some understanding that care providers need to recognize individual patient’s social norms and attempt to make accommodations. (NIJ, Workshop, 2002)

All of these theories contributed to recommended actions and attitudes included within the training developed for this study. The Strain Theory broadens caregivers’ awareness of the stresses and strains patients and visitors feel when having to be in a hospital. Therefore, empathy is a key factor in de-escalation training. (Robert Dubin, 1959) The Violence Structures Theory supports another key de-escalation factor - that negative events are cumulative and it is best to intervene as soon as possible to prevent them from escalating. This highlights the importance of listening to and observing signals of a patient, family member or visitor to recognize if they are experiencing personal challenges, which might be manifested in their actions. (Stewart & Strathern, 2002) Control Balance Theory supports the intervention proposal that all care providers must envision how their actions will be interpreted by other shifts as time passes. Patients and visitors may observe inconsistencies and interpret them as unfair or controlling on the part of staff. Care providers must be careful to interpret and explain actions observed. One example of this is a night nurse allowing a visitor to sleep in a waiting room but in the morning the day shift telling him it is against the rules and calling security. (Branson 2005) Social Learning Theory led to the 85% participation requirement. This theory reminds managers and leaders that one person acting
inappropriately could become a model for others and increase deviation from desired behaviors. The Routine Activities Theory provides insight into the importance of the work environment and encourages review of operational tasks that could promote or discourage deviant or violent behavior. It underscores the importance of visible security. It also suggests proper signage about appropriate behavior. The Social Geometry Theory can assist when deciding to what nurse or room a patient is assigned, acknowledging that similar persons may get along better, and recognizing that the social distance between care provider and patient may influence the actions of both parties in the healthcare setting. Life-course, Developmental and/or Integrative Theory demonstrates the complexity of identifying differing ethos that should be considered when communicating. Awareness and appreciation for both the diverse and similar characteristics of theories concerning violence provides a foundation for the development and implementation of this study. (Gottesman & Brown. 2010)

Conceptual Models of Violence

Four models of violence will be presented. These are the Theory of Violence Model by Jonathan Shepherd, the Public Health Model from the Centre for Disease Control and Prevention (CDC), the Socio-Ecological Model also developed by the CDC, and Riches’ Triangle Model.

The Violence Theory Model is from Violence in Health Care (Shepherd, 1994, p. 19). This model includes many existing theories and risk factors. Long and short term influences on an individual that create the potential for violence are part of this model.
Figure 2.1: Violence Theory Model (Modified from, Stewart & Strathern, 2002)

The two models which follow were developed by the Centers for Disease Control and Prevention. The CDC’s first model is a four-level social-ecological model (CDC, 2011). It provides understanding of what influences violence and of the impacts of potential prevention strategies.
The CDC’s second model is designed to explain violence in terms of characteristics within the individual, close relationships, the community and the greater society (CDC, 2011). Factors of the individual segment of this model include biological items such as age and health, and personal history items such as education, income, substance use or history of abuse. Prevention strategies include educational presentations designed to change attitudes, beliefs, and behaviours. Factors of the relationship segment include social-circle peers, partners, and family. Prevention strategies include mentoring and peer programs to reduce conflict, foster problem solving, and promote healthy
relationships. Factors of the community segment include environmental characteristics such as school, workplaces, and neighbourhoods. Prevention strategies include marketing campaigns to foster community climate, processes, and polices to promote healthy relationships. Factors of the societal segment may encourage or inhibit violent actions. Prevention strategies include programs impacting the health, economic, and education systems as well as cultural norms, social policies, and inequalities.

The final model, Riches’ Triangle Model, is widely accepted among violence researchers. It presents the concept that the perspective and relationships of the victim, perpetrator and witnesses define and determine the appropriateness of a violent action. Riches, in 1998, explained violence as a triangle involving the victim, the performer, and the witnesses. "Witnesses" in this model decide if an event is justified and appropriate.

![Riches Violence Triangle](image)

Figure 2.4: Riches Violence Triangle

This model demonstrates that violence, aggression, and abuse are understood differently due to participants' perspectives in the situation. The performer normally views their actions as justified and appropriate. The victim normally sees the actions as unjust and illegitimate. Time is also held as a variable in this model. Riches model states that the performer and victim may view their original conclusion differently over time. However, at the moment the event occurs, each justifies or rationalizes their belief. The
witness is not seen as an unbiased or completely honest evaluator of the event. The witness's perceptions change depending on his/her relationships and history with the victim or performer. The perspective of the victim, performer and witness may all be seen as appropriate depending on the audience and the situation. Riches’ violence model has been used to explain why violence as a sport is not shocking. The participants are performer and victim, and the observer is the witness. They have a relationship that justifies the violence in the name of sport as long as it is within set sports boundaries. (Strathern & Stewart, 2004)

Hallpike in 1979 added passion as a variable to Riches’ model. (Hallpike 1979) Progression from irritation, to aggression, to anger and verbal abuse is intensification of differences between people’s perceptions, and the violent act is the pinpoint of absolute collapse of controlled behaviour. Passion is often observed during acts of aggression, abuse and violence in the hospital environment.

Risk Factors Related to Violence

The National Institute for Occupational Safety and Health (OSHA) published the first nationally accepted list of risk factors for violence in 1996. The CDC later made some changes based on their research, and republished the following list in 2006. The investigator has provided hospital relationships.
### Table 2.1: Occupational Risks*

<table>
<thead>
<tr>
<th>Risk Factors for all Occupations</th>
<th>Hospital Situational Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange of Money</td>
<td>Gift Shops, cafeteria, pharmacies, cashiers' offices</td>
</tr>
<tr>
<td>Delivery of passengers, goods or services</td>
<td>Employee buses, patient shuttles, movement of medications, laboratory specimens and supplies</td>
</tr>
<tr>
<td>A mobile workplace such as a taxicab or police cruiser</td>
<td>Home health services which go to patient homes, bloodmobiles, community services</td>
</tr>
<tr>
<td>Working with unstable or volatile persons in healthcare, social services or criminal justice settings</td>
<td>Life and death situations, long care staff hours, worry about patients and feeling the stress of both patients and patient family members</td>
</tr>
<tr>
<td>Working alone or in small numbers</td>
<td>Small pockets of employees working during some evenings and weekends</td>
</tr>
<tr>
<td>Working late at night or during early mornings</td>
<td>24/7 environment of hospitals</td>
</tr>
<tr>
<td>Working in high crime areas</td>
<td>Some hospitals are located in high crime areas</td>
</tr>
<tr>
<td>Guarding valuable property or possessions</td>
<td>Patient belongings, narcotics, specialized equipment</td>
</tr>
<tr>
<td>Working in community based settings</td>
<td>Community programs and services held at hospitals</td>
</tr>
</tbody>
</table>

*Risk factors provided by the Center for Disease Control and Prevention (CDC, 2002)*

The following table presents the risk factors, again from OSHA, specific to hospitals and adds mitigation activities.
Table 2.2: Hospital Risk Factors*

<table>
<thead>
<tr>
<th>Hospital Risk Factor</th>
<th>Relationship to Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of adequately trained, armed or visible security guards</td>
<td>Security training is needed for de-escalation and communications skills.</td>
</tr>
<tr>
<td>Pain and discomfort</td>
<td>Care givers' awareness of patients' pain and discomfort creates concern, stress and possible feeling of helplessness.</td>
</tr>
<tr>
<td>Family member stress and fear of unknown</td>
<td>Family members' stress requires adequate communication of social services availability.</td>
</tr>
<tr>
<td>Family member anger at unclear and conflicting policies and inconsistent enforcement</td>
<td>Care providers need to demonstrate respect by allowing for exceptions to policies and applying them such that they are understandable for the patient and family member at the moment of the situation.</td>
</tr>
<tr>
<td>Cramped space</td>
<td>Care providers should assist patients and visitors with seating and privacy.</td>
</tr>
<tr>
<td>Long wait times</td>
<td>Caregivers should explain wait times and demonstrate concern.</td>
</tr>
<tr>
<td>Particular ailments such as head injuries, senile and adolescents</td>
<td>Special training is needed for care providers who work with special populations.</td>
</tr>
<tr>
<td>Culture-specific grieving actions</td>
<td>Caregivers should allow as much culture-specific behavior as possible without causing undue hardships on others.</td>
</tr>
<tr>
<td>Intoxication and substance abuse</td>
<td>Special training of and understanding by care staff and support by security staff are needed.</td>
</tr>
<tr>
<td>Police custody</td>
<td>Security involvement and support for care staff is necessary.</td>
</tr>
<tr>
<td>Rude or uncaring presentations by staff</td>
<td>Intervention by other care providers and notification of supervisors to correct attitudes is exigent.</td>
</tr>
<tr>
<td>Victims and perpetrators at same location (Example: gang members)</td>
<td>Location, confidentiality, and control of visitors must be managed.</td>
</tr>
</tbody>
</table>

*Risk factors provided by the Occupational Health and Safety Administration (OSHA, 2002)
These risks relate to the complexity and scope of preventing or mitigating aggressive, abusive, or violent actions in a hospital. Identification of the risk factors of the patient, visitors and care providers is the first step to preventing, mitigating, or de-escalating violence. Hospital Security Departments rely on incident reports to track and trend data. If the data is not accurate due to underreporting, poor decisions can result. The severity and frequency of events are normally part of the analysis. If one event such as a suicide or active shooter occurs, this may create the political energy to promote security improvements without extensive data collection. For instance, the shooting at Johns Hopkins motivated change at Johns Hopkins and many other hospitals. The act, as well as the publicity, created political motivation, which may prevent similar acts at other hospitals. Minor events, such as patients verbally abusing care providers, may require excessive instances before the political landscape is impacted enough to engage action. This presents a dilemma for hospital security: if a hospital security department is either expert enough or lucky enough to prevent major public events, it may be viewed as effective and not needing to improve, even leading to budget cuts. It is also important to remember that a single major event may create negative publicity, damaging the institutions’ reputation and causing loss of patients and revenues.

It is paradoxical that seeking to keep information about what happened at a hospital private also limits the ability of other hospitals to learn from such experiences. There was almost no media attention to the shooting of a physician at Florida Hospital Orlando, and other hospitals viewed this as an excellent control of media. Furthermore, the ability to track and trend within a city, county, or state does not exist. Each hospital must independently determine if violence is a problem. There is no current method to
accurately quantify the scope and severity of violence occurring on patient care units at hospitals across this county or internationally. Until there is collaboration and cooperation between hospitals, data driven studies will remain sketchy. Individual hospitals, however, are working to reduce, mitigate, or prevent violence. Some of the actions taken by most hospitals include surveys of risk, design changes for better lighting and visibility, awareness training, development of violence and bullying policies and response plans, and classes to improve care providers’ communications skills with patients and visitors. The knowledge and actions of the care provider may be the most important elements in preventing, mitigating, and responding to violence on a patient care unit.

Definitions of Violence, Abuse, and Aggression

There is no single definition of violence, abuse, or aggression standardized for research purposes. Researchers define verbal or physical aggression, abuse, or violence to suit particular purposes. Studies concerning care providers and violence in healthcare organizations offer several unique definitions. One such definition is that of Lauretta Luck, James Cook University, Queensland, Australia, who defines violence in terms of subcategories of physical and nonphysical violence, where physical violence includes any damage to person or property, and non-physical violence covers verbal abuse, threatening language and abusive language. She points out that, “The term violence is not used consistently in literature and frequently includes sexual, physical, emotional, or verbal abuse, threatening behavior, and damage to property.” (Luck, 2007, p. 12) Ms. Luck’s definition is broad and applies to research about hurt feelings or damage to property.
Mary Findorff, School of Nursing, University of Minnesota, provides a second and more concise definition: “Violence is broadly defined as words and actions that hurt people.” (Findorff 2005, p. 23) Her definition is extensive in the respect that it does not limit what causes harm to people; however, it eliminates property and items that people might hold valuable. Morrison, in 1990, presented violence as, “any verbal, non-verbal, or physical behavior that threatens others or property, or that actually harms others or property.” (Hahn. 2008) Uniquely, this definition characterizes threats as a form of violence. Susan Phillips presents a definition specific to physical assault. She states that, “Physical assault is characterized by hands-on offensive contact or attacks ranging from slapping and biting to rape, homicide, and the use of weapons to inflict injury with firearms, bombs, or knives”. Her definition portrays violence broadly to allow for many actual modalities. (Phillips, 2007, p. 210)

The Emergency Nurses Association's Emergency Department Violence Surveillance Study seems to make the definition larger in scope by including aggression, but limits the definition to the workplace. She defines violence as “an act of aggression directed toward persons at work or on duty, ranging from offensive or threatening language to homicide. Workplace violence is commonly understood as any physical assault, emotional or verbal abuse, or threatening, harassing, or coercive behavior in the work setting that causes physical and/or emotional harm.” (ENA, 2010, p. 11) The ENA has also been involved in political activities to strengthen penalties and develop national standards for responses to violence.

Finally, the Occupational Health and Safety Administration (OSHA) definition of violence is provided. It is not designed specifically for healthcare, but because it is
federal law, an OSHA compliance officer can cite a hospital after a reported violent event. OSHA states, “Workplace violence is any physical assault, threatening behavior, or verbal abuse occurring in the work setting. A work place may be any location either permanent or temporary where an employee performs any work related duty." This includes, but is not limited to, buildings and surrounding perimeters including parking lots and field locations, as well as clients’ homes and travel to and from work assignments. OSHA provides specific examples, such as rape and shootings, as well as more general examples, such as inappropriate remarks and threats. Interestingly, interpretation of violence can be different for employers, employees, and witnesses. (OSHA, 2012)

OSHA defines risk in the form of permissible exposure limits based on scientific research. They do not attempt to examine how much violence, aggression or abuse is permissible. Employers should take caution because this definition allows an individual employee to complain to OSHA based on their personal definition. There is also no method to enforce or control many of the examples in this definition. (NIOSH, 2002) Inconsistencies and conflicts, such as those presented in these definitions, manifest themselves in a care provider’s decision whether to complete an incident report for an event. If there is a witness, that witness may influence the decision. However, if only the care provider and the patient or visitor is involved, then uncertainty can cause non-reporting. For reporting purposes, a hospital may not have a written definition of violence. Hospitals often defer to a Risk Management concept that anything out of the ordinary should be on an incident report. How is a care provider to determine if aggression, abuse or even violence is out of the ordinary given the specific set of
circumstances and the emotional state of the patient or visitor? Care providers' personal histories, cultures, races, education levels, environments, and states of mind at the time may influence their decision. In fact, the numbers of incidents reported are far below those acknowledged during studies.

Reporting and Increases of Violence

Reports of violence in hospitals are limited to recent history. Bryan Warren, President-Elect of the International Association of Healthcare Safety and Security, stated for the media after the shooting of a transplant surgeon in Orlando, Florida, in May 2011, “Hospitals at one time were much like churches and schools, and were considered somewhat sacred. Unfortunately, that’s not the case anymore.” (Shrieves, 14) The Journal of Healthcare Protection Management provides additional support for this viewpoint (1998, 43). This report describes hospitals as once revered places of healing and caring. Healthcare professionals have lost the reverent and protected status they historically held. Burgess in 1994 states: “Violence in America is increasing. It has moved from the home to community and into the workplace, and it has exacted a staggering toll of victims. Violence is occurring even in formerly protected and sacrosanct environments, such as schools, hospital, and places of worship.” (Platt & Mays, 1998) The Journal of Health Care Protection Management conducted crime surveys of hospitals in 2000/2001 and in 2005. The 2000-2001 crime survey indicates patients committed 6% percent of crimes in hospitals, while the 2005 survey indicated patients committed 29% of crimes. The crimes mentioned in both surveys were simple assaults.

1. Doctors are no longer thought of as "Gods." This means they are more easily blamed when a patient’s condition deteriorates.

2. Hospitals are now regarded as businesses. This perception has been aggravated by television as well as by the effects of the recession on jobs and the loss of health insurance.

3. There is lack of respect and resources (funding) for hospital security departments. Rather than being seen as a crucial protection for the hospital staff and patients, many security departments are chronically underfunded and used for a variety of non-security functions, such as making bank deposits for hospital gift shops.

Ramsey-Hamilton also points out that Security Directors' duties have changed from what was historically internal security to include:

- managing contract staff,
- de-escalating violent patients,
- performing risk assessments to prevent infant abduction,
- operating valet and parking garages,
- collecting and handling cash from valet and parking garages,
- coordinating landing and departure of helicopters,
- training law enforcement to sit with prisoners,
- enforcing visitor control programs,
• assisting employees with domestic violence,
• investigating harassment claims, and
• handling risk management investigations and claims.

Her experience indicates that while the duties have grown the budgets have not kept pace with the expansion. (Ramsey-Hamilton, 2011)

De-Escalation and Self-Defense Training

Several studies have suggested that de-escalation and self-defense training maybe successful in providing care staff the tools and confidence to reduce and prevent escalation of violence by patients or visitors. They recommend de-escalation and self-defense training based on anecdotal reports, questionnaires, and surveys. Several suggest actual implementation of an intervention and qualitative testing.

• The National Advisory Council on Nurse Education and Practice (NACNEP) recommends offering violence prevention and management training in the workplace and keeping violence and security issues on the radar screen of risk managers in health care facilities. (NACNEP, 2005)

• Laura Sofield and Susan W. Salmond studied verbal abuse and care staff turnover. They stated that, “Through education and policy implementation, an organization can effectively empower its nurses to eliminate verbal abuse.” (Sofield and Salmond, 2003, p. 37)

• The Service Employees International Union and the American Federation of State, County and Municipal Employees had the Department of Labor & Industries, Safety and Health Assessments and Research Prevention
perform research into violence and recommended providing for adequate facility staffing to ensure that all staff attend de-escalation, restraint, and containment training.

- Italian research at the Padua University Hospital, School of Nursing, into violence, aggression prevention, and management strategies for violence in European renal units concluded that violence prevention and management strategies are not widely implemented in Europe. Dissemination of information about prevention and management of violence aggression is vital. (2010)

- The Emergency Nurses Association in 1994 recommended mandatory annual training to recognize and defuse potentially violent situations.

- The Emergency Care Research Institute (ECRI) in 2005 recommended each hospital perform a violence risk assessment and management training including techniques for identification, de-escalation, and response to violence.

- The two most important factors in determining a clinician's confidence when managing aggression are training and use of prevention and intervention strategies. (Martin T. & Daffern M., 2006)

- Participants’ evaluation of aggression training supported such training as a durable, positive change in care providers’ confidence to handle difficult situations. (Collins 1994, Beech & Leather, 2003)

- Tampa General Hospital emergency department requires annual de-escalation and self-defense training. While emergency departments are
generally recognized as the most violent part of a hospital, the TGH ED did not record as many violent episodes as some other care units.

The greatest weakness in the literature reviewed and in most studies of violence in hospitals is the method of data collection. Erickson in 2000 performed a review of health care assault research and concluded it was subject to retrospective recall resulting in bias due to subjective memory. Hospital administrators are careful decision makers and need facts to support a problem and make the best decision for addressing the problem. This study was experimental and provided quantitative evidence.

Conclusion

As this literature review has illustrated, developing a method to reduce and prevent violence on hospital care units is exigent. Widely publicized extreme violence is not indicative of actual, routine, violence in hospitals. The public has not been provided the frequency, severity or harm from violence committed by patients and visitors on care units. Studies support that such routine violence holds dire consequences for care providers. Constructs, theories and models reviewed provide the basis for development and implementation of the intervention proposed in this study. Finally, several previous studies recommended implementation of de-escalation and self-defense training and monitoring of the results. This study will attempt to perform that function.
Chapter 3: Methodology

The methodology for this study was formulated to answer why the research is important, how the research will be conducted, what data will be collected, and what particular methods will be utilized for analysis. The importance of this study was demonstrated when TGH Nursing staff approached hospital leadership with their concerns about violence. They stated that violence seemed to be increasing, was impacting their ability to provide quality patient care, and contributing to nursing retirement.

Research was initiated by developing an intervention utilizing violence theory and constructs. A presentation was developed to increase care provider sensitivity, and to provide verbal and physical methods to de-escalate or escape violence. The sensitivity and awareness section of the training was developed to improve the attitude and ability of care providers to anticipate violent tendencies of patients and visitors. De-escalation taught both nonverbal and verbal methods to calm, display respect, and encourage continual dialog. The self-defence portion provided basic techniques of escaping the most common forms of physical contact by patients and visitors, beginning with methods to seek assistance and understanding the importance of identified escape routes. Next was demonstration of and practicing escapes from arm grams, clothing grabs, hair pulls, and blocking punches. The physical portion was designed to increase self-confidence and encourage care providers to attempt verbal de-escalation as well as self protection and escape, if necessary.
Nursing Administration was provided eight units with the highest number of Code Gray reports to choose experimental and comparison units for the research. It was decided that two units would be experimental due to the number of nurses to be trained and some special requirements requested. Nursing Administration required all training be conducted during normal department meetings and no overtime or call in pay be utilized for the training. The managers of the recommended units still had to volunteer their units for participation. The remaining six units were suggested to be averaged for the comparison. The average was to eliminate the possibility that one unusual disruptive patient would skew the comparison.

Security continued to record events after the presentation. Monthly, the researcher reviewed all reported violence. No special visits were made to either experimental or comparison units by the researcher during the year after the intervention.

![Figure 3.1: Baseline Code Grays per Patient Comparisons](image)

<table>
<thead>
<tr>
<th>Year</th>
<th>Codes per 1000 patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.6</td>
</tr>
<tr>
<td>2006</td>
<td>0.8</td>
</tr>
<tr>
<td>2007</td>
<td>1.2</td>
</tr>
<tr>
<td>2008</td>
<td>1.5</td>
</tr>
<tr>
<td>2009</td>
<td>1.4</td>
</tr>
<tr>
<td>2010</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Theory Driven Model Study Design

This study was designed incorporating the Theory Driven Model developed by Chan in 1994. He proposed that a theory be developed first, followed by a hypothesis and questions based on expectations of the theory (Donaldson, 2003, p. 29). The theory
for this study is that violence on a care unit can be reduced by care providers’ actions. The hypothesis for this study is that de-escalation and self-defense training can reduce violence on a hospital unit. The training intervention was application of a 60-minute presentation to at least 85% of care providers on a hospital unit, utilizing actual event examples and hands on self-defence techniques.

The critical measurement for this study was the number of times security was called for assistance and an event report was generated. The event reports for twelve months before the intervention of each unit was used for historical comparisons. The collection of event reports for all other units during the twelve months after the intervention provided information to determine if any hospital-wide changes not anticipated or controlled for occurred. Hospital-wide data provided a baseline for stability of the hospital during the research. The six comparison units’ number of Code Grays was averaged to reduce the possibility that one-time events affected the data. The emergency department and the mental health units were excluded from this research because of their dissimilarity to the other units.

**Hypothesis Review**

\[\mu = \text{the number of calls to security}\]

\[\mu_1 = \text{the number of calls for security assistance from Comparison Units}\]

\[\mu_2 = \text{the number of calls for security assistance from the Experimental Units}\]

**Null hypothesis**  \[H_0: \mu_1 = \mu_2\]

**Alternative hypothesis**  \[H_a: \mu_2 \neq \mu_1\]
Method to Test Hypothesis

This study is applied research to test a method believed to reduce violence on patient care units in hospitals. A successful outcome would be a change in violence on experimental units compared to their historical trends and concurrent data with similar units. De-escalation and self-defense training was presented to the experimental units, and those numbers were compared with numbers from the comparison units. Completed Code Gray critique forms determined the number of events reported per unit. This same reporting process has been in place for over 15 years.

Similar processes are in place at all hospitals. This method for testing an intervention can be duplicated at most hospitals, utilizing existing employees and processes. Security event reports may be different but a reflection of the frequency of events is captured by having reports. Care units routinely have meetings, so an intervention that can be performed during these meetings causes little or no disruption to patient care. Histories and concurrent data are relatively easy to organize and tabulate. Reductions of violence in any amount would satisfy most hospital administrators if there is little or no expense associated with the reduction. In addition, there can be a positive employee morale factor associated with a formal decision to measure and reduce incidents of violence.

Historical baseline data was used as the criteria for change. Outliers to the data indicated a non-parametric statistical analysis was appropriate. The non-parametric Wilcoxon Signed Ranks was performed using SPSS software to determine differences within the units over time. The Mann-Whitney U Test was utilized to evaluate the comparison and experimental units. The statistical significance factor of $P<0.05$ was
accepted. Scatter plots were developed to provide a visual reference. Line charts were
developed to show trending. Regression analysis was utilized from the SPSS 20.0
program because of the small number of samples and the non-parametric distribution.
The Poisson regression model was used for two comparisons: a) the number of events per
month for the year before the training with the number of events after the training per
unit, and b) any differences between number of events per month after the intervention
between comparison and experimental units.

Study Questions

1. Does a time trend exist regarding reported violence at the hospital before or
   after the training?
2. Does a time trend exist regarding the reported violence on the experimental
   units before or after the training?
3. Does a time trend exist regarding the reported violence on the comparison
   units before or after the training?
4. Will the data collected for one year before and after on the intervention units
   indicate any change in number of reported violent events?
5. Will there be a difference between the reported number of Code Grays on the
   experimental units and comparison units.

Assumptions of the Study

This study contains the following assumptions:

- Care providers at TGH understand to call a Code Gray when they feel
  threatened and need security assistance.
• Without some intervention, care providers will report events without change as they have historically.

• Event reports are an indicator of actual number of events occurring on care units.

• Staff and patients on units reporting above average Code Grays are similar to those on other units.

• Aggression, abuse, and violence on units are similar in causation but random per location.

• No harm will come to patients, visitors or care providers resulting from this study.

• Patient care staff on the intervention or comparison units will attend no similar de-escalation or self-defense training during the study.

• Staffing mix and per patient ratios will not change during this study.

• Management of the patient care units will not change during this study.

• Patient types and unit services will not change during the study.

• Security will not change responses to events.

Process Study as Quality Improvement Activity

The Problem Patient Committee utilized several quality improvement processes to understand violence on patient care units. The committee and this researcher had the support and approval of TGH administration to design an intervention, present this intervention on patient care units, and then compare the results with both the history of the same units and with the data collected simultaneously from comparison units. This approval and support made it possible to use the experimental design for this study.
The quasi-experimental design contributes to the internal validity, which is crucial to demonstrate if the intervention is associated with any observed changes. The change in the number of Code Gray calls was the variable measured - the indicator of effectiveness. The experiment tested whether participants in the intervention made fewer event reports during the year after the training, and if those who did not participate continued to make the same average number of event reports as before, or as the trend for the unit.

The intervention was a 60-minute presentation. Limiting the time to 60 minutes made it possible without requiring overtime or changing care providers’ schedules. The time limit was a practical consideration for the study to be replicated on other units and at other hospitals. No other intervention described as de-escalation or self-defense is currently offered in this format. Existing commercially offered violence prevention programs require several days of training.

To control for confounding effects, data was collected for all patient care units before, during, and after the intervention. This data signaled any uncontrolled variables and helped determine if any trends on other units changed or developed.

The de-escalation and self-defense training presented was similar to a program that has been presented in the TGH Emergency Department for over ten years. While ERs are traditionally ranked first in frequency of violent events in hospitals across the nation, the TGH ER has decreased its rank to between fifth and eighth since the institution of this training program. Since such a dramatic decrease may have been in part due to the intervention training, administration was receptive to the possibility of
adapting it to and testing a similar approach on care units. This is the first such training to patient care staff at TGH.

No definition of violence was supplied or implied to care providers who experienced the training or to those on comparison units. The comparability of historical data to post-intervention data depended on leaving each patient care provider with their own internal understanding of what constitutes violence.

Application to the Systematic Methodology Process

Figure 3.2: The Logical and Systematic Methodology Process

This study was applied research with the desired outcome to develop a method of reducing violence on patient care units in all hospitals. A successful outcome would be an impact of the intervention on experimental units as compared to control units. The
primary method of determining a successful outcome was quantitative. The number of events occurring before and after the intervention on participating units and other hospital control units was compared utilizing Wilcoxon Signed Ranks and Poisson Regression. Changes in the percentage of physical and verbal events were compared before and after the training.

Application of Methods, Models and Theories

Three quality improvement methods were utilized. These included Stakeholder Analysis, Ishikawas Diagram and Logic Modelling. These models provided guidance for the development of the training.

Stakeholder Analysis

Trying to understanding each stakeholder’s concerns allows insight into different types of prevention of, mitigation of, and response to violent events. This method of analysis identifies shared concerns of and solutions for various shareholders. It also points to specific concerns unique to a stakeholder. This process was performed by actually talking with patients, their family members, and other persons on the care units. There were discussions with administrators and hospital human resource staff to determine their thoughts on how violence influences their duties. Several of those questioned provided similar concerns for their safety and the possible impact on patient care. Some of the care providers pointed out they have to perform a balancing act with some patients because they know that if they curse, scream, and threaten nurse they get quicker service or special attention. Care providers realize how unfair this is to other patients yet sometimes respond because they it is the easiest way to calm the situation.
<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Care Providers</td>
<td>Personal injury, fear of injury, anxiety due to aggression and abuse</td>
</tr>
<tr>
<td>Patients</td>
<td>Reduced patient care staff, quality of care issues, legal issues</td>
</tr>
<tr>
<td>Patient Families</td>
<td>Quality of care issues, legal issues, lack of patient care staff</td>
</tr>
<tr>
<td>Hospital administrators</td>
<td>Regulatory concerns of staff protection, duty to provide a safe workplace, quality of care impact and reduced patient care staff or fearful staff, reputation of hospital, increased costs due to turnover and rising job position costs</td>
</tr>
<tr>
<td>Patient Care providers families</td>
<td>Anxiety about family members being harmed</td>
</tr>
<tr>
<td>Hospital patient care recruiters</td>
<td>Increases difficulty in recruitment and increases need for more recruitment as a result of retirement or moving staff</td>
</tr>
<tr>
<td>Hospital security departments</td>
<td>Responding to and protecting patient care increases need yet also increases fear of injury to security staff</td>
</tr>
<tr>
<td>Insurance companies</td>
<td>Costs of injuries to staff and others, increased hospitalization time costs</td>
</tr>
<tr>
<td>Media</td>
<td>High interest stories attract media attention and harm hospital reputations, media maybe manipulated to cover dramatic but not proven events</td>
</tr>
<tr>
<td>General society</td>
<td>Fear, anxiety, violence destabilizes public comfort level and reduces quality of life for all persons, loss of respect for patients and patient care providers</td>
</tr>
</tbody>
</table>
Figure 3.3: Ishikawas Diagram

Logic Model

Logic Models are used to understand how programs function. They help identify inputs, activities, and outcomes. Based on research, interviews, group discussions, and data analysis, the researcher developed the following logic model. The logic model is on the following page.
Table 3.2: Logic Model to Examine Violence on a Patient Care Unit

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Outputs</th>
<th>Short Term Outcomes</th>
<th>Long Term Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient care staff exposed</td>
<td>Review of environment to eliminate possible weapons</td>
<td>Number of reported patient events</td>
<td>Possible reduction in stress of patient care staff when patients act out</td>
<td>Possible reduction in lost work time due to patient care staff injury</td>
</tr>
<tr>
<td>Continued funding for staff, facility, supplies, education, and equipment</td>
<td>Provide visibility to for observation of violence</td>
<td>Number of injuries to staff</td>
<td>Possible reduction in number of reported patient events</td>
<td>Possible reduction in security and patient care staff time responding to disruptive behavior</td>
</tr>
<tr>
<td></td>
<td>Develop rapid response team</td>
<td>Number of repeat visits to one patient</td>
<td>Possible reduction in number of reported patient events</td>
<td>Possible improved attitudes towards patient care staff to patients</td>
</tr>
<tr>
<td></td>
<td>Sufficient staffing for response to anticipated threats</td>
<td>Number of de-escalation and self-defense classes held for patient care staff</td>
<td>Possible reduction in need for security to respond for assistance</td>
<td>Possible improvement in staff morale.</td>
</tr>
<tr>
<td></td>
<td>Provide de-escalation/self-defense training</td>
<td>Number of education / prevention activities and number of participants</td>
<td></td>
<td>Possible reduction in overall violence, disrespect, and disruptive actions</td>
</tr>
<tr>
<td></td>
<td>Monitor and document all violent events</td>
<td></td>
<td></td>
<td>Possible reduction in turnover</td>
</tr>
</tbody>
</table>

This study combines “quasi-experimental design” utilizing two experimental and averaging of six comparison units, historical and concurrent data comparisons with several quality improvement processes to understand violence on patient care units.

Department Participation Process

Based on frequency of reported events from 2005 to 2009, units were presented to Patient Care Leadership for inclusion as experimental or comparison units. Patient Care
Leadership was advised to exclude any unit with anticipated changes in leadership, location, patient types served, or staffing ratios.

Patient Care Leadership recommended two units for participation and six for comparison. The six comparison units were averaged to reduce the possibility that an outlier would skew the data. All 140-hospital units’ data was averaged as a baseline.

After Patient Care Leadership recommended a unit, the nurse manager of that unit could refuse participation for operational reasons. Both invited managers chose to participate. They agreed to schedule the de-escalation and self-defense training during normal staff meetings and keep track of participation. No individual staff member was interviewed, selected, or volunteered for this study. The two experimental units were treated the same as all other units after the training. The unit staffs are similar in background, education, income, and working environment. Many cultures, races, and religions are represented on each unit. The units selected for the experimental de-escalation and self-defense training was the Eldercare Unit and the Cardiac Unit.

Data Collection Process

There were no changes in the data collection process at TGH during the study. The data collection process begins when a care staff member calls for security assistance. The care provider calls a central code line and reports the code. The operator announces a Code Gray overhead and the security dispatcher announces it over security radios. Three to five security staff members respond to the scene. Care managers and leadership
may also respond to a Code Gray. Security completes the report and passes it to security leadership for review and appropriate actions.

Data is collected using a Code Gray critique form. The same Code Gray critique form has been used for the past ten years by security. It gathers information, which is used to track and trend for quality improvement, excluding names of patients or staff involved.

The data collected on these forms includes:

- What was the time the code was called and security arrived—security is held to a two minute response time anywhere within the almost 1.7 million square feet of the facility
- Did security hear the overhead announcement—for improved communication to security staff
- Were proper restraints available—if restraints are not quickly available, additional officers are needed to hold down a patient
- Was Tampa Police assistance requested—this tracks the number of times such an event goes beyond the ability of a security officer
- Did unit staff take a leadership role—to track their knowledge of recommended patient control techniques
- Did security officers wash their hands—to sustain infection prevention

To control for confounding variables, no additional training was provided to security officers and no changes were made to their response expectations. They were not informed that the Eldercare or Cardiac Units were participating in this study.
Security did not increase surveillance or perform any other duties on these units that were not performed prior to this study.

Code Gray Data Collection Tool

The Code Gray Critique form is designed to provide security leadership with information needed to determine training effectiveness and improve systems for responding to and reporting of aggression, abuse, or violence. Each quantitative data question on the form is assigned 9 percentage points if a “yes” is indicated, and no points when “no” is checked. Leadership totals these points to determine pass or fail and assign follow-up. Sixty-five percent or above is passing, meaning that four “no” answers constitutes a failed response. This system determines a level of performance expectation of patient care providers, building systems, and security officers. Each failed responses results in counseling of those responsible. Please see Appendix A.

Code Gray Investigation Procedures

The security supervisor and manager review these reports. If the quantitative score is low, or if something is out of the ordinary in the opinion of the supervisor or manager, it is brought to the attention of the director. All events that result in an injury are investigated. Since it is the security officer responding who writes these reports, further investigation begins with that officer. Events are tracked and trended. Discovery of any commonalities is reported to the Security Subcommittee of the Environment of Care Committee for follow-up. The event reports allow Security to determine how many events occur on each shift, day, week, month, and unit. They often provide knowledge
that is used to determine where card access, panic buttons, or cameras are needed to protect staff.

The research project added one new step in the review of event reports. This was the research advisory group, which was formed to determine if any adverse events occurred because of this research.

**Intervention Design**

The intervention was designed utilizing four basic theories. Riches’ Violence theory provided the basis for perception and sensitivity training. It also demonstrated the impact on all persons involved in rather than just those directly impacted by the event. Albert Bandura’s Social Learning theory provided the reason to require 85% participation. This number was chosen to provide a good chance that there will always be trained care providers for modelling of desired behaviour. John Dollard’s Frustration Aggression theory pointed out situational awareness and awareness of actions of patients and visitors that could indicate growing anger. Recognition of both provides the caregiver with an opportunity for de-escalation before a situation becomes violent.

Training is divided into three parts. These parts intertwine both logic and emotion to impact the differing personalities of care providers. The first part of the presentation appeals to empathy by participants. It explores the possible reasons that a patient or visitor becomes aggressive, abusive or violent, discussing fears, anxieties, and worries of patients and visitors. Information about how different cultures and religions traditionally respond to grief is explained. Family dynamics and stressors to be aware of are examined. Actual events on their unit, or well-known events from other units, are used
so that they can identify with such situations. Material is presented such that care providers accept they might do the same thing in a similar situation.

Discussion continues regarding how everyone is influenced in a situation by their own perceptions, emotions and fears. Examples are provided of care providers whose actions escalated rather than calmed a situation. This part of the presentation is designed to move perspective from personal to situational, thereby removing or reducing what is commonly known as the “fight or flight” reflex. When the context of an event changes to situational, it is easier for a care provider to stay composed and objective about it. In contrast, when an event is considered personal, often unintended and undesirable behaviours emerge, such as bullying or grandstanding. (Stewart and Strathean, 2002) Support systems for patient care staff are explained. This portion ends with how listening, respecting, providing information, and showing empathy without putting oneself at risk can reduce or prevent escalation.

In the second portion of the presentation, de-escalation techniques provide a prescriptive method of response. These techniques can be reasonably trusted to provide outcomes which maintain self respect and status of the care provider while seeking to calm and meet the needs of the patient or visitor. The acronym "HEAT" is used to remind the care giver: Hear the person out without interruption, show Empathy, Apologize for anything inappropriate (without agreeing with any statements), and Take some action. Since the care provider may not be able to provide what the patient or visitor wants, they are taught how to refuse politely and provide realistic options. They then allow the patient or visitor to make the choice. Care providers are encouraged to
make a modest gesture to reinforce that they care, such as bringing a blanket, pillow, or soft drink to the visitor or patient.

The third portion of the intervention is hands-on self-defence. During this portion, the atmosphere is kept “light” and non-threatening. Stated goals are self-protection, escape and assistance. No offensive or aggressive actions, such as hitting or kicking, are demonstrated. Individual respect and dignity must be protected in techniques presented. Therefore, techniques to stun, shock, facilitate release, block, and escape are demonstrated and practiced.

The effectiveness of this portion of the presentation relies on active participation by every attendee, and trust and respect of the presenter. One technique for earning trust quickly is for the facilitator to identify the largest, strongest member of the group and volunteer that person to pretend to be the perpetrator. This shows the participants the facilitator’s confidence in the techniques and adds credibility to the presentation. Participants have to believe that they can, with practice, perform the technique, and it will work if they are attacked by a larger and stronger adversary. The facilitator may need to employ humour to reduce tension and allow participants to accept personal errors. The presentation is normally noisy, with many people talking and practicing at the same time. There should be challenges to techniques and questions from participants. Both physical and verbal understanding should be solicited by the presenter. During the physical activities, the presenter must carefully monitor the energy levels and attitudes of the participants. No one should be allowed to act dangerously or angrily during the practice. The facilitator must listen to feedback from the participants as well as monitor their non-verbal cues to prevent injuries.
The presentation ends by providing care providers an understanding of how to direct security responders during such events. Code words and methods security use are explained. Understanding that security is normally at an event in less than two minutes, and that three to five officers are required to respond, is reassuring. Care providers must believe that security will subdue the violent person and calm the situation quickly and quietly.

Internal Controls for Validity

Numbers of actual requests for assistance were compared with historical and concurrent data. Actual care provider turnover and patient satisfaction scores were analyzed. The following threats to internal validity were recognized, and efforts made to control them:

- Construct variation – participants understanding the presentation differently
  Mitigation plan:
  - Asking for feedback during and after the presentation to demonstrate desired understanding and allow for better refinement of information.
  - Using much of the emergency department and charge nurse training material, this has proven over time to be clear and understandable. This training material has also proven to be linguistically and culturally acceptable to the care providers.
  - Performed training with a power point format to maintain as much uniformity as possible in the presentations.

- Reactivity – participants may respond differently based on the way the speaker presents (body language, tone etc...).
Mitigation plan:
- The same researcher performed all the interventions
- The same terminology, examples, and demonstrations were used in each session

- Seeking Approval of Authority—participants may agree with the speaker to gain favored status.

Mitigation plan:
- After the presentation, the presenter did not visit the intervention units or discuss the intervention with any member of those units until final data collection.
- The researcher responded to codes on all units the same.

- Selection Bias—the researcher could choose participants who are favorable to the research. Mitigation plan:

  Patient Care Leadership performed selection of units for participation in training. They were given information on units with the largest number of events for the past five years and trends. The Emergency Department and Mental Health Unit were excluded from the list because of their marked differences from other patient care units. The Cardiac Care Unit had historically been in the top five units requesting security assistance. The Eldercare Unit had just made the top six lists for the past two years.

Statistical Methodology

Once the experimental and comparison groups had been determined, methods to compare these units before the training were established. There were 12 samples for the experimental units and low numbers of events, so a non-parametric comparison was
utilized. Kruskall-Wallis provided the following data for the comparison and experimental units. This data does not show any change over time.

Table 3.3: Kruskall-Wallis Comparison

<table>
<thead>
<tr>
<th>Units</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison (n=72)</td>
<td>3</td>
<td>0-14</td>
</tr>
<tr>
<td>Cardiac Care (n=12)</td>
<td>2.5</td>
<td>1-7</td>
</tr>
<tr>
<td>Eldercare (n=12)</td>
<td>3.5</td>
<td>0-10</td>
</tr>
</tbody>
</table>

This table indicated there was similarity before the training for the comparison and experimental units. Scatter plots and line graphs were developed to visualize the spread and trending. These same methods were utilized after the year of monitoring was completed. In addition, performing Wilcoxon Signed Ranks determined differences within groups. Changes in the rate of events over time Regression modeling was utilized to determine if there was an increasing or decreasing trend, and the statistical significance of any such trend. The Statistical Package for Social Sciences (SPSS) was used for all statistical analysis.
Chapter 4: Results

The study was designed to investigate the impact of de-escalation and self-defense training for care providers on reducing occupational violence. It compared and contrasted two units where de-escalation and self-defense training was performed with their historical trends, six similar units, and the hospital overall average. The six similar units acted as comparison units. The hospital overall average was used to determine events that might affect the entire study. The eight units selected as experimental and comparison were determined by totaling reports from 2005 to 2009 for all hospital units. These eight units excluded the psychiatric and emergency departments, as they are dissimilar to other units.

Code Gray Baseline Data

Table 4.1: Baseline Data from Event Reports

| Code Grays from 2005 to 2010 | 1695 |
| Possible reporting units | 140 |
| Average annual total Code Grays for the hospital | 282.5 |
| Average annual Code Grays per unit from 2005 to 2010 | 5.46 |
| Number of units reporting Code Grays every year | 16 |
| Total Code Grays of 16 departments reporting annually | 1350 |
| Percentage of every year group to total | 80 % |
| Average Code Grays per 16 annual reporting units | 84.38 |
| Number of units reporting Code Grays from 2005 to 2010 | 54 |
| Units reporting in 2005 | 30 |
| Units reporting in 2006 | 26 |
| Units reporting in 2007 | 30 |
| Units reporting in 2008 | 42 |
| Units reporting in 2009 | 34 |
| Units reporting in 2010 | 35 |
Sixteen units comprised 80% of the Code Grays; they were from trauma, intensive care, psychiatric and emergency departments. The highest number of Code Grays on one unit was 268.

Table 4.2: Baseline Data for Participating Units

<table>
<thead>
<tr>
<th>Experimental Units</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Annual Average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5A-Cardiac</td>
<td>23.0</td>
<td>24.0</td>
<td>26.0</td>
<td>23.0</td>
<td>27.0</td>
<td>46.0</td>
<td>28.2</td>
<td>169</td>
</tr>
<tr>
<td>6C-Elderly</td>
<td>8.0</td>
<td>11.0</td>
<td>9.0</td>
<td>18.0</td>
<td>44.0</td>
<td>39.0</td>
<td>21.5</td>
<td>129</td>
</tr>
<tr>
<td>Comparison Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5C</td>
<td>10.0</td>
<td>21.0</td>
<td>20.0</td>
<td>18.0</td>
<td>17.0</td>
<td>17.0</td>
<td>17.2</td>
<td>103</td>
</tr>
<tr>
<td>5K</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>5.0</td>
<td>32.0</td>
<td>38.0</td>
<td>25.0</td>
<td>76</td>
</tr>
<tr>
<td>6A</td>
<td>48.0</td>
<td>22.0</td>
<td>57.0</td>
<td>62.0</td>
<td>44.0</td>
<td>35.0</td>
<td>44.7</td>
<td>268</td>
</tr>
<tr>
<td>8C</td>
<td>10.0</td>
<td>27.0</td>
<td>27.0</td>
<td>25.0</td>
<td>54.0</td>
<td>61.0</td>
<td>34.0</td>
<td>204</td>
</tr>
<tr>
<td>8F</td>
<td>6.0</td>
<td>7.0</td>
<td>8.0</td>
<td>14.0</td>
<td>23.0</td>
<td>41.0</td>
<td>16.5</td>
<td>99</td>
</tr>
<tr>
<td>9A</td>
<td>43.0</td>
<td>22.0</td>
<td>41.0</td>
<td>53.0</td>
<td>38.0</td>
<td>48.0</td>
<td>40.8</td>
<td>245</td>
</tr>
</tbody>
</table>

The Cardiac Unit experienced 169 Code Grays and Eldercare 129 from January 2005 to July 2010. The average annual Code Grays for the Cardiac Unit was 28.17, and for Eldercare was 21.50. The Eldercare unit changed from a normal med surge unit to Eldercare in 2008.

Statistics Adjusted for Patient Days

Before proceeding to data analysis, the researcher investigated whether any differences in the numbers of Code Grays were due to the numbers of patients served. The figure below demonstrates that there was an increase in Code Grays per patient over time for the entire hospital.
Figure 4.1: Baseline Code Grays per Patient Comparisons

The following Table and Figures demonstrate that, even when adjusted for patient days, the data remains stable.

Table 4.3: Overall Rate Statistics –Codes per Patient Days on Units

<table>
<thead>
<tr>
<th>n-months of data</th>
<th>Before</th>
<th>After</th>
<th>Wilcoxon Signed Ranks</th>
<th>Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison Units (n=72)</td>
<td>0.004 (0.004)</td>
<td>0.004 (0.004)</td>
<td>0.684</td>
<td>0.437</td>
</tr>
<tr>
<td>Cardiac Unit (n=12)</td>
<td>0.002 (0.001)</td>
<td>0.003 (0.003)</td>
<td>0.875</td>
<td>0.565</td>
</tr>
<tr>
<td>Eldercare Unit (n=12)</td>
<td>0.006 (0.004)</td>
<td>0.003 (0.002)</td>
<td>0.050</td>
<td>0.026</td>
</tr>
</tbody>
</table>
Figure 4.2: Patient Day Rate Comparisons

These units are at 90 to 100% capacity at all times. This comparison indicated the appropriateness of using actual data numbers for the remainder of the analysis.

Histogram Monthly Results

Monthly, the data was collected, reviewed, plotted, and placed on a line graph for visualization. The results are explained in the following: a histogram of monthly
averages, scatter plots, line graphs, Wilcoxon box plots, and comparison tables of Regression Analysis.

The first figure is the histogram. The hospital average takes the total number of events, including both comparison and experimental units, and divides this by the 140 possible units where Code Grays could occur.

![Monthly Averages](image)

Figure 4.3: Before and After Averages
This visualization demonstrates that the average number of Code Grays per hospital department fell; the comparison units remained stable, the Cardiac Care unit increased and the Eldercare unit had a decrease.

Next, the monthly number of events was divided by the number of patients and placed on scatter plots. The trend lines were the first indication of changes before and after.

Figure 4.4: Scatter Plot 1: Comparison Units—trend line remains stable

Figure 4.5: Scatter Plot 2: Cardiac—slight increase maybe due to outliers
Figure 4.6: Scatter Plot 3: Eldercare—decrease steady after intervention

Line Graphs were developed to visualize monthly changes in the number of events. Trend lines were added for comparison with the scatter plot trends and include the entire 24 months of the study.

Figure 4.7: Line Graph of Comparison Units Averages

The comparison units are increasing slightly during the year before and after the training.
Figure 4.8: Line Graph of Experimental Units Averages

Figure 4.9: Line Graph of Eldercare Unit

This Trendline demonstrates a decline. Events from June 2010 stay below the four events per month and smooth out around two.
When the major increases occurred on the Cardiac Unit, an investigation was performed to determine if something had happened that would threaten safety of care providers on that unit. A meeting was held with the Unit Manager. It was discovered that many in the meeting had not attended the training. When the group was asked why the number had increased, they did not realize they had increased. Those who had attended the training had attempted to explain the process to those who did not it seems to have increased awareness, without providing the tools for intervention and this could have caused the increase. This type of increased sensitivity has been reported in other studies.

Similar Results to First Six Months of Cardiac Unit

Arnetz & Arnetz in 2000 performed a study with somewhat similar results to the Cardiac Care Unit. Their hypothesis stated that a group that attended a controlled,
practical intervention program would report better awareness of risks, improved handling of aggressive situations and less exposure to violent incidents. Their results did indicate improved risk awareness and better knowledge of how to handle violence compared with a baseline. There was an increase in reported events, similar to the Cardiac unit of this study. The Arnetz & Arnetz study indicated the increased reports were a result of increased awareness and attention paid to those making reports. This is very possibly the same reason for the increased number of reports on the Cardiac unit. While there seemed to be an increase of awareness on the Cardiac unit, the care providers did not receive any increased attention from security or administration. The data was utilized for the remainder of the study with this taken into consideration.

At the completion of the 12 months of data collection, a new Kruskall-Wallis chart was prepared to compare with the “before” training data.

Table 4.4 Second Kruskall-Wallis Chart

<table>
<thead>
<tr>
<th>Units</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison (n=72)</td>
<td>2</td>
<td>0-12</td>
</tr>
<tr>
<td>Cardiac Care (n=12)</td>
<td>2.5</td>
<td>0-11</td>
</tr>
<tr>
<td>Elder Care (n=12)</td>
<td>2</td>
<td>0-4</td>
</tr>
</tbody>
</table>

Table 4.5 Combined Before and After Kruskall-Wallis Tables

<table>
<thead>
<tr>
<th>Units</th>
<th>Before</th>
<th>After</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Range</td>
<td>Median</td>
</tr>
<tr>
<td>Comparison</td>
<td>3.0</td>
<td>0-14</td>
<td>2.0</td>
</tr>
<tr>
<td>Cardiac</td>
<td>2.5</td>
<td>1-7</td>
<td>2.5</td>
</tr>
<tr>
<td>Elder Care</td>
<td>3.5</td>
<td>0-10</td>
<td>2.0</td>
</tr>
</tbody>
</table>
This comparison indicated the possibility of a significant reduction in the Eldercare Unit. Further analysis was performed to clarify this indication.

Wilcoxon Before and After

Wilcoxon Signed Ranks was chosen to show the differences between the comparison and experimental units because it makes no assumptions of the underlying statistical distribution and is non-parametric. The star and circle indicate extreme and abnormal outliers removed from the data for comparison.

There is little change in the hospital average; it stays close to “0”. The Cardiac Care unit shows a slight decrease, while the Eldercare unit shows a slight increase.

Figure 4.11: Overall Hospital vs. Experimental Units
The Cardiac unit is showing a general trend towards decrease, but two measurements that showed a dramatic increase are pulling the distribution in the upwards direction. The Eldercare Unit is mostly below the line and shows the clearest pattern of change.

Figure 4.12: Wilcoxon Signed Ranks Test Before and After for Cardiac
Non-parametric paired (pre-post testing) Wilcoxon Signed Ranks test, $p=0.651$ (NS). There appears to be no change on the Cardiac Unit.

Figure 4.13: Wilcoxon Signed Rank Test Before and After for Eldercare
The non-parametric paired (pre-post testing) Wilcoxon Signed Ranks test, $p=0.028$ (SIG) indicates a change for the Eldercare Unit.

**P-Scores for Wilcoxon Signed Ranks**

**Comparison Group** (median, range)
Before: 3 (0-14)
After: 2 (0-12)
Test: Wilcoxon Signed Ranks
$P=0.720$

-----------------------------------------------

**Cardiac** (median, range)
Before: 2.5 (1-7)
After: 2.5 (0-11)
Test: Wilcoxon Signed Ranks
$P=0.651$

----------------------------------------------

**Eldercare** (median, range)
Before: 3.5 (0-10)
After: 2 (0-4)
Test: Wilcoxon Signed Ranks
$P=0.028$

Table 4.6: Pre-Post Change Comparison (median, range)

<table>
<thead>
<tr>
<th></th>
<th>5A</th>
<th>p-value</th>
<th>6C</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0 (-14 to 10)</td>
<td>-1 (-4 to 9)</td>
<td>0.969</td>
<td>-2.5 (-7 to 3)</td>
</tr>
</tbody>
</table>

**Regression Analysis**

There were several steps in the Regression Analysis. Model 1 combines 24 months of data to view overall change. Model 2 compares the trend line slopes before and after the training. Model 3 uses the comparison units as reference for changes in the experimental units.
Model 1

This model combines the data to determine if an overall change has occurred during the twenty-four months.

a. Assumes a Poisson distribution for outcomes
b. Codes are the dependent variable
c. Time is the independent variable, 1 to 24 months.

Table 4.7: Overall Change 24 Months

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beta</th>
<th>95% Confidence Interval (CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.220</td>
<td>1.06-1.38</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time</td>
<td>-0.004</td>
<td>-0.02 to 0.007</td>
<td>0.491</td>
</tr>
</tbody>
</table>

Omnibus test, p=0.491

The beta is -0.004, indicating almost zero change during the study.

Model 2

This model compares the slope of the events the first twelve months with the slope of the events for the second twelve months. This required the use of “spline modeling” which allowed for the creation of two dummy variables.

a. One model was created for each of the units.

b. Independent variables were Codes Grays before the training, utilizing a dummy variable of zero for codes after the training (Time_Before), and Code Grays after the training, utilizing a dummy variable of zero for codes before the training (Time_After).

b. The dependent variable was codes.
Three tables are presented: Comparison Units, Cardiac Care and Eldercare

Table 4.8: Comparison Units

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beta</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.970</td>
<td>0.77-1.17</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time_Before</td>
<td>0.037</td>
<td>0.009-0.066</td>
<td>0.010</td>
</tr>
<tr>
<td>Time_After</td>
<td>0.028</td>
<td>-0.001-0.057</td>
<td>0.060</td>
</tr>
</tbody>
</table>

Table 4.9: Cardiac Care Unit

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beta</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.291</td>
<td>0.821 - 1.762</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time_Before</td>
<td>-0.026</td>
<td>-0.099 -0.048</td>
<td>0.497</td>
</tr>
<tr>
<td>Time_After</td>
<td>-0.031</td>
<td>-0.106 – 0.044</td>
<td>0.415</td>
</tr>
</tbody>
</table>

Table 4.10: Eldercare Unit

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beta</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.216</td>
<td>0.734 – 1.699</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time_Before</td>
<td>0.027</td>
<td>-0.041 – 0.094</td>
<td>0.436</td>
</tr>
<tr>
<td>Time_After</td>
<td>-0.083</td>
<td>-0.171 – 0.005</td>
<td>0.065</td>
</tr>
</tbody>
</table>

When the year before the training is compared to the year after the training for each individual unit, no statistically significant changes are observed.

Model 3

This model compares the experimental groups with the comparison group.

1. Independent Variables:
   a. Group (Comparison=reference, Cardiac Unit and Eldercare Unit)
b. Time_Before, Time_After

c. Interaction Term: Group*Time_Before, Group*Time_After (for slope comparison over time for the units’ data)

2. Dependent variables: Code Grays

Table 4.11: Final Regression Statistics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Beta</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.970</td>
<td>0.768 – 1.172</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time_Before</td>
<td>0.037</td>
<td>0.009 – 0.066</td>
<td>0.010</td>
</tr>
<tr>
<td>Time_After</td>
<td>0.08</td>
<td>-0.001 – 0.057</td>
<td>0.060</td>
</tr>
<tr>
<td>Group=Comparison REF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group=Eldercare</td>
<td>0.246</td>
<td>-0.277 – 0.769</td>
<td>0.356</td>
</tr>
<tr>
<td>Group=Cardiac Care</td>
<td>0.321</td>
<td>-0.277 – 0.833</td>
<td>0.219</td>
</tr>
<tr>
<td>Interaction=Comparison*Time_Before REF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction=Eldercare*Time_Before</td>
<td>-0.11</td>
<td>-0.084 – 0.062</td>
<td>0.774</td>
</tr>
<tr>
<td>Interaction=Cardiac*Time_Before</td>
<td>-0.063</td>
<td>-0.142 – 0.016</td>
<td>0.118</td>
</tr>
<tr>
<td>Interaction=Comparison*Time_After REF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction=Eldercare*Time_After</td>
<td>-0.111</td>
<td>-0.204 – 0.018</td>
<td>0.019</td>
</tr>
<tr>
<td>Interaction=Cardiac*Time_After</td>
<td>-0.059</td>
<td>0.139 – 0.021</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Lines 7 to 9 above indicate there are no significant differences between the comparison units and the experimental units. Lines 10 to 12 indicate that, compared to the comparison units, Eldercare is exhibiting a statistically significant decrease. The Cardiac Unit also shows a decrease, but fails to reach statistical significance.
Final Statistical Model:

\[ Y \text{ (Code Grays)} = 0.970 \text{ (intercept)} + 0.037 \text{ (Time\_Before)} + 0.028 \text{ (Time\_After)} + 0.246 \text{ (Eldercare)} + 0.321 \text{ (Cardiac Unit)} - 0.011 \text{ (Eldercare\_Time\_Before)} - 0.063 \text{ (Cardiac Care\_Time\_After)} - 0.111 \text{ (Eldercare\_Time\_After)} - 0.059 \text{ (Cardiac\_Time\_After)} \]

Physical and Verbal Comparisons

The percentage of physical to verbal events changed after de-escalation and self-defense training. The control group maintained the same percentage of physical to verbal events. In the experimental group, percentages of verbal events increased and physical events decreased.

![Comparison Units Percentages](image)

Figure 4.14: Comparison Unit Verbal vs. Physical Percentages
Conclusions

- Total Code Grays for TGH continued to increase during the 24 month period of this study. The rate of increase slowed.
- Monthly averages for the total hospital increased slightly.
- Monthly averages for comparison units remained approximately the same.
- Monthly averages for the Cardiac care unit increased by 1.5 codes per month, however the trend was negative.

Figure 4.15: Experimental Unit Verbal vs. Physical Percentages
• Monthly averages for the Eldercare unit decreased by 2.5, and continued to decline.

• Wilcoxon indicated no significant change occurred on the Cardiac Unit, at p=0.651.

• Wilcoxon indicated that changes on the Eldercare unit were significant, at p=0.028.

• The first Poisson Regression Analysis compared overall change and did not report significance.

• The second Regression Analysis compared reports before the training to reports after the training on each study unit. The results failed to reach statistical significance.

• The third Regression Analysis set the Comparison Units as the reference. The comparison with the Cardiac Unit failed to find a statistically significant difference. The comparison with the Eldercare unit indicated a statistically significant p-value of 0.019.

• The Eldercare Unit had nearly 50% fewer total Code Grays the year after the de-escalation and self-defense training.
Chapter 5: Conclusions

The results of this study support the principle that de-escalation and self-defense can reduce the number of times patient care units requested security assistance with disruptive patients. There was no indication that events were occurring and not reported. Reporting may have actually increased due to increased staff awareness. The increase in verbal and decrease in physical events after the intervention suggests that care providers may have been more successful in preventing physical violence. The divergent results from the two experimental units indicate the need for stronger controls on participation rates.

Strengths and Weaknesses of this Study

The strengths are primarily related to the ability of this study to be repeated.

- Security staff remained blinded during the duration of the study
- Meetings where care providers voiced strong concern for increasing aggression, abuse, and violence on patient care units led to the study
- The use of existing hospital systems and staff creates simplicity
- Existing hospital departments can plan, implement and collect data for a study
- No overtime cost for participation, no call in pay required, and training during routine staffing maintains existing hospital operations and budgets
- Actual event reports are not subjective to memory or participant bias
- Data collected prior to training allows historical comparison
• Utilizing the entire hospital as part of the study provided data on stability of baseline

• Staffing ratios, patient types, locations, operating policies and procedures and leadership were held stable during this study

The weaknesses are due to the necessity of assumptions and the difference of the research hospital to other hospitals.

• Care providers may have participated in other types of de-escalation and self-defense classes during the study

• External variables that could influence the study such as economic crisis, media reports of violence, political or regulatory changes were unable to be controlled during the study.

• Unique size and location of TGH causes difficulty to generalize to other hospitals

• No valid general baseline data or historical studies of violence in hospitals exist for comparison

• Assumptions
  
  o Care providers understood to call a Code Gray when they felt threatened and needed security assistance

  o Care providers continued to report events as they had historically

  o Event reports were a valid substitute for the actual number of events occurring on care units

Recommendations for Future Research

• Include variables such as care providers’ job satisfaction, unit turnover rates, and patient satisfaction before and after training
• Present same training to new staff before they begin working on the unit

• Improving the research design may include separating the types of incidents. The Royal College of Nursing, London, has recommended events be categorized as follows for research purposes:
  o Swearing/bad language
  o Being slapped/hit/punched
  o Being spat at
  o Abuse of a specially racial nature
  o Having hair pulled
  o Being bitten
  o Sexual harassment or advances
  o Being threatened or intimidated in any way
  o Being physically taken hold of
  o Facing threats of self-harm from the aggressor from non-compliance with demands
  o Being pushed/shoved/grabbed
  o Being kicked (Zarola, Leather, Barklamb, 2008)
  o The barrier to the acquisition and accumulation of such data would be the time it takes the security person to determine and document relevant details (Zarola, Leather, & Barklamb, 2008)

• Develop standardized term and event definitions, training programs and presentations for several hospitals

• Conduct similar experiments at different size hospitals
• Develop acceptable cost benefit analysis criteria and perform before and after research

Reasons for More Research

The consequences of hospital violence committed by patients and visitors harms care providers and may hinder their ability to provide quality care. (Henderson, 2003) The public, care providers and hospital administrators generally do not understand the frequency or severity of patient and visitor violence. Increased research is needed to provide policy and decision makers with valid information about issues, situations and types of interventions that might contribute to prevention of violence. Increased research is needed to inform the public of the impacts of such violence and to promote political changes for the protection of patient care providers.

If research does not lead to improved working conditions for care providers, regulatory agencies may become involved. The current trend for regulatory agencies is results-oriented, as opposed to prescriptive. Such regulations emphasize rates as end products, rather than methods by which to achieve rate reductions. Consequently, hospitals that invest in cost-effective interventions before regulatory involvement may find themselves ahead of their competitors in ways that can be both measured and publicized.

In addition, labor unions use safety as a reason to gain a foothold in hospital. National unions have worked with federal agencies to document the need for hospital actions to protect care providers from patient and visitor violence. (McPhaul, Lipscomb, 2004) Hospital administrators can promote research into patient and visitor violence if they wish to help prevent unions from using it as a campaign issue.
The American Nurses Association reports that the estimated average cost of each physical assault is approximately $13,197. The increasing incidence trend is further raising the cost of healthcare. (Grice, 2005) In the end, as is the case with most public health measures, it may be far less expensive and more effective to prevent assaults on health care providers rather than to react to and manage their consequences.
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### Appendix A

**Tampa General Hospital “Code Gray” Critique**

| Name of Response Team: __________  __________  __________  __________  __________  __________ |
|---|---|---|---|---|---|

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of code</th>
<th>Arrival Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>__________</td>
<td>__________</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recall</th>
<th>Bldg</th>
<th>Floor/Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>__________</td>
<td>__________</td>
<td>__________</td>
</tr>
</tbody>
</table>

### System Quantitative Data

<table>
<thead>
<tr>
<th>Could the announcement be heard?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was proper restraints/equipment available?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was Security notified?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was 7777 dialed?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Were there any injuries to personnel or to the patient?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was TPD intervention required?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did staff provide TEAM leadership?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

### Employee Training

<table>
<thead>
<tr>
<th>Did Safety/Security respond?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did any fixed post security respond?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did Nursing Administrator respond?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did all officers wash hands before and after the code?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>____</td>
<td>9%</td>
<td>____</td>
<td>__________</td>
</tr>
</tbody>
</table>

### Response Team

<table>
<thead>
<tr>
<th>Brief narrative of the situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________________________________________________________________</td>
</tr>
</tbody>
</table>
If arrival time to code is more than 2 minutes, please give an explanation on back.

Dispatcher___________________ Manager____________________________
Quantitative Score__________________