

# *Reducing Violent Incidents Against Healthcare Employees:*

## *Utilizing Wireless Panic Button Technology*

*Chad Salahshour*



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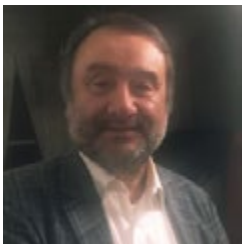
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# A Message From the Author

## ***My Life Changed Forever***

After the death of my niece at the hands of a terrorist bomb in 1988, my life changed in ways I didn't even fully realize until many years later. I started my career as a police officer nearly three decades ago... and when cell phones and mobile devices became popular, I started to see just how limited emergency communications technology was when it came to locating them. Eventually I decided to combine my law enforcement background and computer programming skills to create 911Cellular, a company dedicated to providing the highest quality technology and support with emergency communications software.

The healthcare industry has been in dire need of effective solutions to reduce the epidemic of violence carried out by patients against employees for many years. This devastating challenge is substantially far-reaching, and the utilization of a single piece of technology is in no way capable of eliminating the issue altogether. The solution must be comprehensive and cohesive, and I know 911Cellular technology to be a vital part of this solution as I have personally overseen its careful engineering and implementation into many hospital environments. It is my initiative that 911Cellular continues to progress and improve as it takes its place alongside others in the battle to reduce these unnecessarily violent scenarios.



***Chad Salahshour***  
President, CEO of 911Cellular



# *The Difficulty of Today's Hospital Violence Landscape*

## ***A Long & Frustrating Battle***

Violence against healthcare workers has been an issue for many years now. Statistics show that incidents of serious workplace violence (those requiring days off for the injured worker to recuperate) were four times more common in healthcare than in private industry between 2002 and 2013, according to the Occupational Safety and Health Administration (OSHA). Also, healthcare workers suffer 50% of all workplace violence assaults, according to the Bureau of Labor Statistics.

Despite growing awareness of the issue, these daunting trends continue at many hospitals across the nation. Before getting into the solutions that can help in decreasing violence, we must first understand exactly what is happening at the ground level and what costs are incurred.



### The Critical Cost of Violence

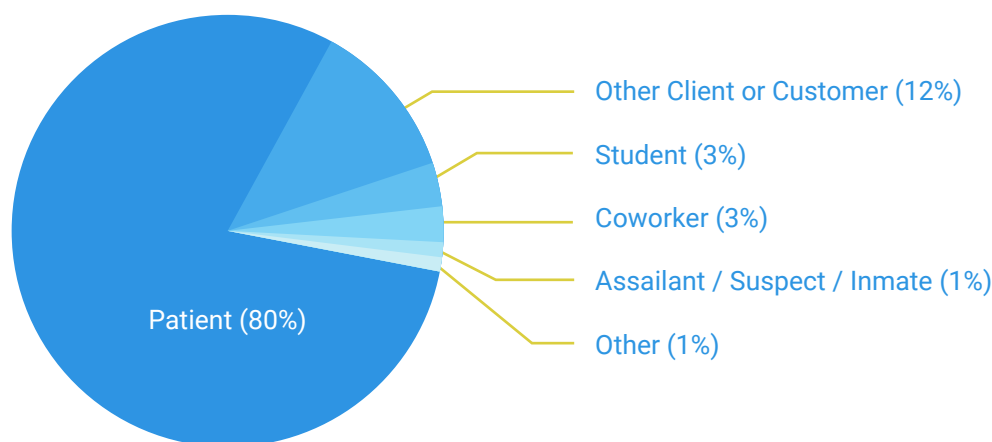
The cost of healthcare employees missing work due to workplace injuries can be devastating as well. One hospital system had 30 nurses who required treatment for violent injuries at a cost of nearly \$100,000 for the year. Workers' compensation can pay for the cost, but insurance premiums can still be affected. If your organization self-insures, it will bear the full cost.

Additional costs to healthcare organizations can also incur. These may be less obvious but just as devastating, such as caregiver fatigue, injury or stress leading to a higher risk of medication errors and patient infections. Studies have also found higher patient satisfaction levels in hospitals where fewer nurses are dissatisfied or burnt out (with the constant threat of violence contributing to stress levels).

Injuries and stress are common factors that lead to higher turnover rates for nurses and other healthcare employees... and data indicates a correlation between violence in healthcare and staff turnover. 60% of nurses leave their first nursing position within 6 months of being hired... and the estimated cost of replacing just one nurse is between \$27,000 and \$103,000 (cost estimates include separation, recruitment, hiring, orientation, training and lost productivity).

### Patients Directing Violence Toward Hospital Employees

These violent incidents against healthcare workers come from a variety of sources, but patients are (by far) the largest source of violence in healthcare settings. In 2013, 80% of serious violent incidents in healthcare settings were caused by employees interacting with patients, as seen in the chart below:



Also, 21% of registered nurses and nursing students reported being physically assaulted and over 50% reported being verbally abused during a 12-month period according to a survey conducted by the American Nurses Association.



## ***Vulnerabilities Within Emergency Departments***

Furthermore, emergency room physicians and staff members are particularly vulnerable, with many patients in need of time-sensitive care at all hours of the day and night.

In an ACEP conducted survey, nearly half (47%) of emergency physicians report being physically assaulted at some point during their career. And almost 70% of emergency physicians say that emergency department violence has increased in the last half decade.

In the same survey by ACEP, nearly all emergency physicians (96% of women and 80% of men) reported that a patient or visitor made inappropriate comments or unwanted advances toward them at some point. Also, more physicians reported feeling “constantly fearful” of becoming a victim of violence in 2018 than in previous years.

### **Primary reasons for increased violence against Emergency Department employees include:**

- ◇ Prolonged waiting times for patients seeking medical care
- ◇ Increased number of patients using emergency room for ‘general practice’ purposes
- ◇ Increased number of patients under the influence of drugs or alcohol
- ◇ Increased number of privately armed individuals
- ◇ Increased number of patients seeking mental health treatment from overcrowded or ineffective community mental health programs
- ◇ Poor environmental design
- ◇ Staff training on handling violent situations is lacking or non-existent

## ***The Problem is Bigger Than It Looks (The Pressure To Be Silent)***

Though the landscape of violence in healthcare settings seems bad enough, it's perhaps even worse than the numbers reveal due to a tendency of underreporting such incidents in the industry. Healthcare workers often feel pressure to ignore filing an official report when violence occurs because they either think it's ‘just part of the job’ or because they feel an ethical duty to ‘do no harm’ to their patients... so they willingly risk their own safety to shove these incidents under the rug.

## Analyzing Existing Efforts & Their Challenges

*“Violence against hospital staff members and health-care providers is seen as a top priority issue for many, if not all, healthcare organizations. Most organizations have policies and have worked around all types of violence – lateral violence, bullying, disruptive behavior and patient physical violence.”*

**Jennifer Embree**

President of the Indiana State Nurses Association



### ***What's Being Applied Today?***

Since the ongoing struggle to reduce violence against healthcare employees is well known to hospital staff and administrators, a variety of attempted solutions have been thrown into the mix at many organizations nationwide. Some of these compare to each other, while others do not. No single solution can completely resolve the issue of violence in healthcare... and we'll talk later about how the 911Cellular solution works well to immediately reduce violence. The challenges associated with many of these other solutions can include large up front costs, administrative overhead, large resource output or resource reallocation and major procedural changes.

#### ***Non-Technology Solutions***

The breadth of non-technical solutions that can be implemented to assist in reducing healthcare violence is too large to touch on in its entirety. To start, OSHA's "Guidelines for Preventing Workplace Violence for Healthcare and Social Service Workers" lays out non-regulatory advice that includes management commitment and worker participation, worksite analysis and hazard identification, hazard prevention and control, safety and health training, and recordkeeping and program evaluation.

Many hospitals attempt to implement creative solutions, moving toward a safer work environment without heavy resource investment. For instance, one hospital decided to mobilize their security personnel to consistently 'make rounds'. This mobilization encouraged engagement with staff and patients, creating a less tense environment, while also allowing security to keep a close eye on potential problem areas or situations in advance.

This creative solution to the violence in healthcare problem makes sense, but the main challenges associated with large organizational changes is clear. So many resources must be invested in multiple ways, that it may be impractical for most healthcare institutions to even put plans in motion. Environmental design considerations, facility improvements, new managerial policies / enforcements, staff training and work routine changes are just a few of the challenges that require a heavy resource investment. And the actual effects of these changes on workplace violence statistics can take time.

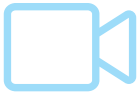




## Analyzing Existing Efforts & Their Challenges

### Technology Solutions

Again, the variety of technology available today is large, even for the purpose of assisting healthcare facilities to combat violent incidents against its employees. We'll cover a few of the more popular devices in today's landscape.



#### Security Cameras

The challenges associated with counting on any camera system to prevent violence is that when an actual incident does occur (either the perpetrator didn't see the camera or didn't care about the camera), the camera itself is left to merely record the crime for later review... it cannot actively help (unless all cameras are being monitored by security personnel at all times, which rarely happens).



#### Metal Detectors

A rather direct way of preventing armed individuals from entering a healthcare facility, metal detectors can certainly be effective in doing just that. However, challenges associated with metal detector implementation can include cost, company culture degradation, negative public image, inconvenience and inefficiency. To be effective, you'd need to place metal detectors at all entrances, which will likely be expensive. With the addition of metal detectors, your hospital brand may be seen as tarnished and the flow of patients / staff entering your hospital will be slowed.



#### Hard-wired Panic Buttons

Hard-wired panic buttons can be installed to protect vulnerable staff members in soft areas of the hospital. They send a distress signal to security personnel when pressed. The challenges associated with hard-wired panic buttons can include cost, reliability and rigid functionality. Since hard-wired panic buttons contain many physical parts, wiring and installing them can be expensive... and the cost of maintaining them (testing, repairing, replacing) can be even higher. This cost tends to deter hospitals from installing these buttons at every point of need. Instead, these facilities will leave some vulnerable areas unprotected while hoping any incidents happen at only button-installed areas. Hard-wired panic buttons are also often only one-way communication devices.

# 911Cellular Wireless Panic Button Solutions

To help de-escalate violent scenarios by reducing response times for security personnel to be present at the site of the incident, 911Cellular wireless panic buttons are both a lightweight and effective solution. The technology successfully avoids the concerns that affect many of the above technology products (cameras, metal detectors, hard-wired panic buttons). As primarily a software solution, no additional hardware is required to reap the benefits of the full system, including its NIST tested Hyper-Accurate Indoor Positioning System Technology. This location technology, which can locate emergency activations down to the floor and room number, needs no beacon installation to maintain its accuracy.

## ***Panic button technology for:***



**Desktops**



**Laptops**



**Tablets**



**Smartphones**



**Bluetooth Devices**



### ***Complete Coverage Potential***

The solution also tends to be less expensive and more effective than its hard-wired panic button counterpart. Easier installation, less testing and repair cost also gives the client the option to install more buttons throughout the hospital system (allowing them to obtain complete or near-complete device coverage).

As much, a survey of over 300 behavioral staff members at one California-based hospital system showed that 97% of them feel safer with a mobile panic button than a hard-wired panic button present.

**911Cellular wireless panic button implementation is designed to be quick yet thorough, and training of the system is lightweight, even in an environment with many system users or with a high turnover rate. This fast launch timeline is possible for a number of reasons:**

- No additional hardware necessary to acquire full system benefits
- No major required changes to organizational SOPs or emergency response procedures
- No major required changes to day-to-day workflow for involved personnel
- All installations, configurations and functions controlled from the 911Cellular Portal
- Highly knowledgeable 911Cellular support staff standing by

Because 911Cellular wireless panic buttons are a lightweight and reliable solution to help reduce violence against staff members, they're implementation alongside any current or planned non-technology solutions is also simple, effective and non-intrusive. Minimal setup and training is needed to successfully launch the technology at nearly any scale.



### Reducing Violence Through Reduced Response Times

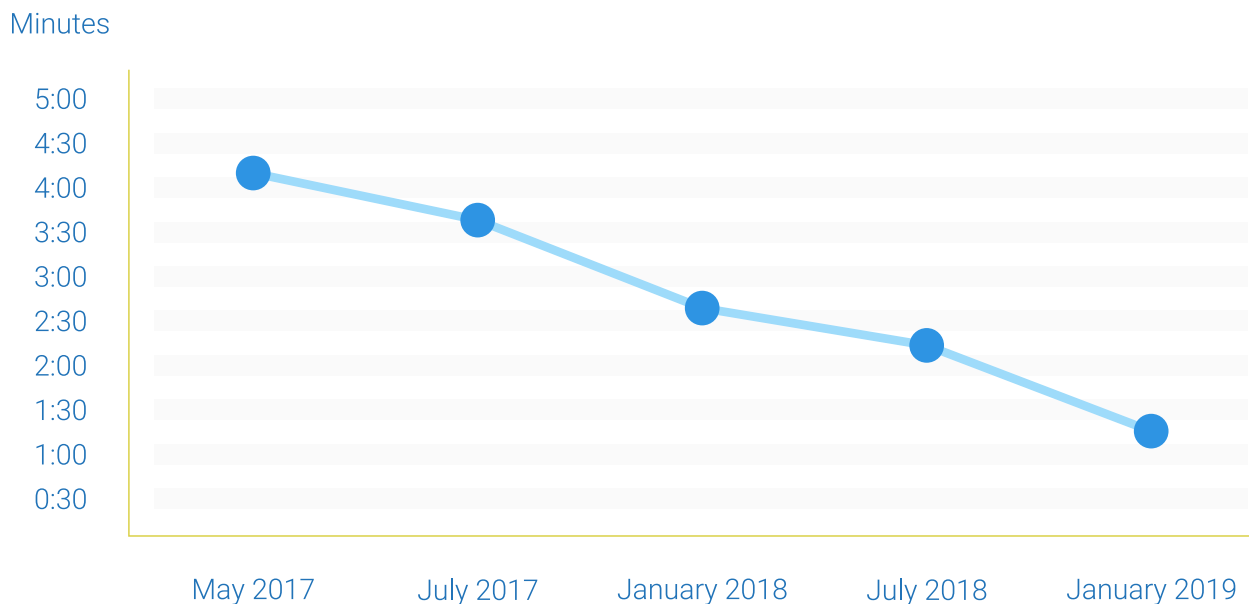
The mere presence of additional personnel, especially security personnel, has proven to be effective in reducing violence against hospital staff members through de-escalation of the scenario.

Under one particularly creative hospital safety initiative, a Missouri hospital system began asking its guards to make rounds within the hospital, instead of remaining stationary and waiting for a call to respond to. As a result, one of their hospitals saw the number of violent incidents reported reduced by half less than 6 months after implementation.

Each hospital system is different, and although the above example is showing promise for that particular hospital... other hospitals may not have the personnel or resources to carry out that type of plan. It is also nearly impossible for any hospital, regardless of budget, to assign security personnel to all potential soft areas and stand on guard day and night. This is why 911Cellular wireless panic buttons are designed to serve as a beacon that can be placed at these locations (or on the staff members themselves) and quickly signal for security to arrive at that exact location when needed.

Utilizing 911Cellular wireless panic buttons, response times for one hospital system (shown below) have decreased steadily since deployment in 2017, with an overall response time decrease by 70% during this 20-month period.

**Incident Response Times Since 911Cellular Deployment**



## Locating Mobile Activations

### **NIST** tested technology

When it comes to mobile activation location accuracy, 911Cellular's Hyper-Accurate Indoor Positioning System (HIPS) is the only federally tested safety communications technology in the nation. The National Institute of Standards and Technology (NIST) tested & evaluated 911Cellular's location technology in 2017, and found the results to far exceed FCC rules for the year 2021. Further, NIST's report found the technology to be horizontally accurate to less than 7.5 meters on average... and it correctly decided from which floor the call was placed in over 85% of the time.

To achieve these accurate results, no additional hardware is required, as the software uses existing WiFi Access Points to pinpoint location.

### *A Breakdown of the Technology (Per Device)*

911Cellular wireless panic buttons have been implemented by hospitals and healthcare organizations nationwide. The software's main function is to send quick and accurate data (including a hyper-accurate location) to safety personnel and anyone able to respond to the incident (or needing to be informed of the panic activation). This basic, emergency assistance functionality is accessible through multiple devices by the end user. These devices include:



Desktop



Laptop



Tablet



Smartphone



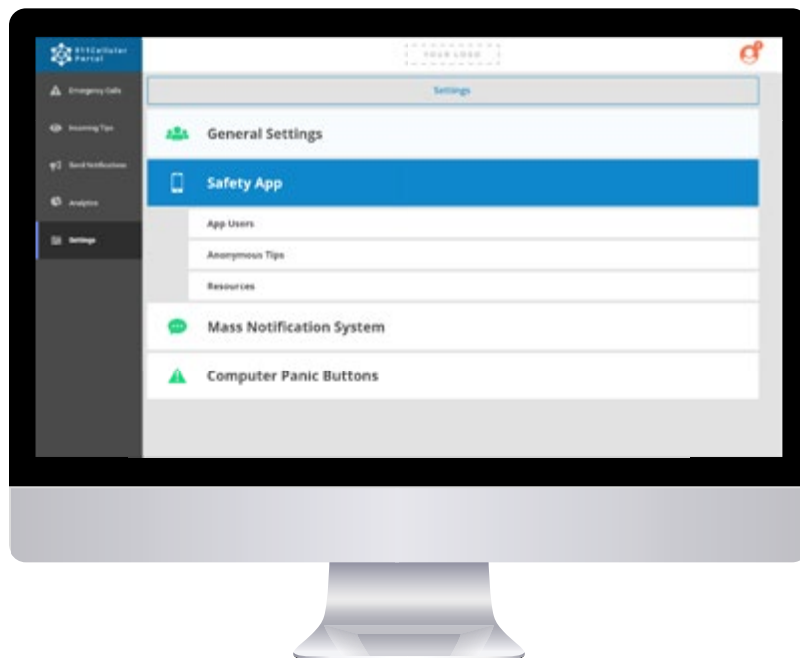
Bluetooth

911Cellular computer panic button software (desktops, laptops and tablets) are activated in one of two ways: by double clicking the panic button icon in the device's task tray or by pressing the keystrokes in sequence (Alt + Backspace). For smartphone users, downloading the HealthGuard safety app will provide access to an emergency button that can be pressed from the application's home screen or the phone's lock screen (the widget must be enabled in settings for lock screen activation access). The bluetooth safety button is a small, physical panic button that can be attached to clothing or a lanyard. This button, when double clicked, sends an emergency signal to safety forces when paired with the HealthGuard app.



### *The 911Cellular Portal*

Once an emergency signal is sent out by a user on any of the above devices, the signal is received by safety forces via the 911Cellular Portal. The 911Cellular Portal is a website that will alert safety personnel (visual and audio cues) when an emergency activation has taken place. The 911Cellular Portal also serves as the hub for downloading, updating and testing computer panic button software, as well as the platform for sending out notifications to your community.



### *Emergency Response Teams*

If an organization does not have the resources to constantly monitor the web-based 911Cellular Portal, they can add Emergency Response Team (ERT) members at any time within the Portal's settings page. ERT members will receive a text message containing emergency activation data during the time of the activation. The text will include all pertinent information that a dispatcher monitoring the 911Cellular Portal would receive, including accurate location information so that they can respond to the scene of the activation promptly. Administrators can change the way ERT members receive this information as well, allowing an option for an automated call to be sent instead of a text message.



## Conclusion

911Cellular wireless panic buttons are a great solution for any hospital that wishes to see quick results in the ongoing battle to reduce violence against healthcare professionals. For those hospitals which may have less resources to devote to a large-scale, policy-changing plan for action... this technology may be particularly useful in reducing the frequency of escalated violent incidents. 911Cellular wireless panic buttons, being easy-to-use and train personnel to receive calls for, also work nicely as a compliment to the larger-scale, foundational, OSHA-inspired changes that many hospital systems find themselves in the midst of (changes that may take more time to see results for).

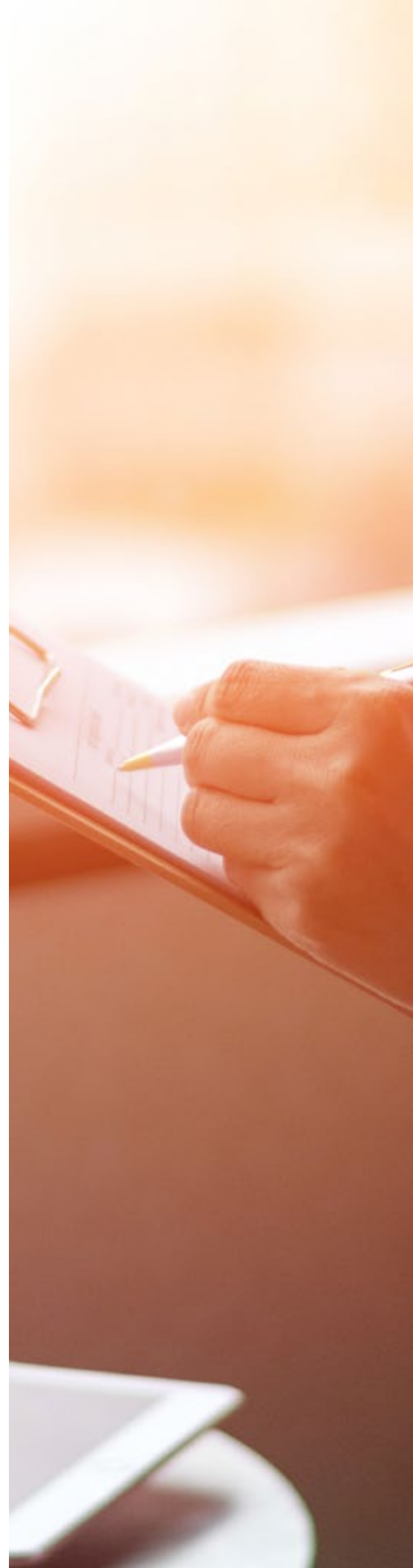
Despite the grim statistics and escalating workplace violence against healthcare employees, we see a bright and safe future for the individuals who have chosen to dedicate their lives to healing others. 911Cellular technology is built to be flexible enough to find successful implementation in a large variety of healthcare environments, yet reliable so it can help to save careers... and save lives when it is called upon to signal for help.

So many lives have already been positively affected by our technology, contact us today to learn more:

***info@911cellular.com***

***216-283-6100***

***www.911cellular.com***



## References

- 'Nurses' Widespread Job Dissatisfaction, Burnout, And Frustration With Health Benefits Signal Problems For Patient Care' (Matthew D. McHugh, Ann Kutney-Lee, Jeannie P. Cimiotti, Douglas M. Sloane, and Linda H. Aiken 2011):  
<https://www.healthaffairs.org/doi/10.1377/hlthaff.2010.0100>
- 'Newly Licensed Registered Nurse Job Turnover and Turnover Intent' (Lynn Y. Unruh, Ning Jackie Zhang 2014):  
[https://www.nursingcenter.com/cearticle?an=01709760-201409000-00002&Journal\\_ID=54029&Issue\\_ID=2586895](https://www.nursingcenter.com/cearticle?an=01709760-201409000-00002&Journal_ID=54029&Issue_ID=2586895)
- 'A literature review of nursing turnover costs' (Li Y, Jones CB, Journal of Nursing Management, 2012)
- 'Workplace violence in health care: Understanding the challenge' (Occupational Safety and Health Administration 2013):  
<https://www.osha.gov/Publications/OSHA3826.pdf>
- 'Workplace stress from bullying can turn nurses away from profession' (Lisette Hilton 2018):  
<http://mediakit.nurse.com/blog/workplace-stress-from-bullying-can-turn-nurses-away-from-profession/>
- 'Emergency Department Violence' (American College of Emergency Physicians 2018):  
<http://newsroom.acep.org/2009-01-04-emergency-department-violence-fact-sheet>
- 'Test & Evaluation of the Safety App from 911Cellular, LLC at NIST' (Nader Moayeri, Lu Shi, Chang Li, Report # 1962 2017):  
<https://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1962.pdf>