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Ensuring Safety From Afar: The Virtual Telesitter Solution

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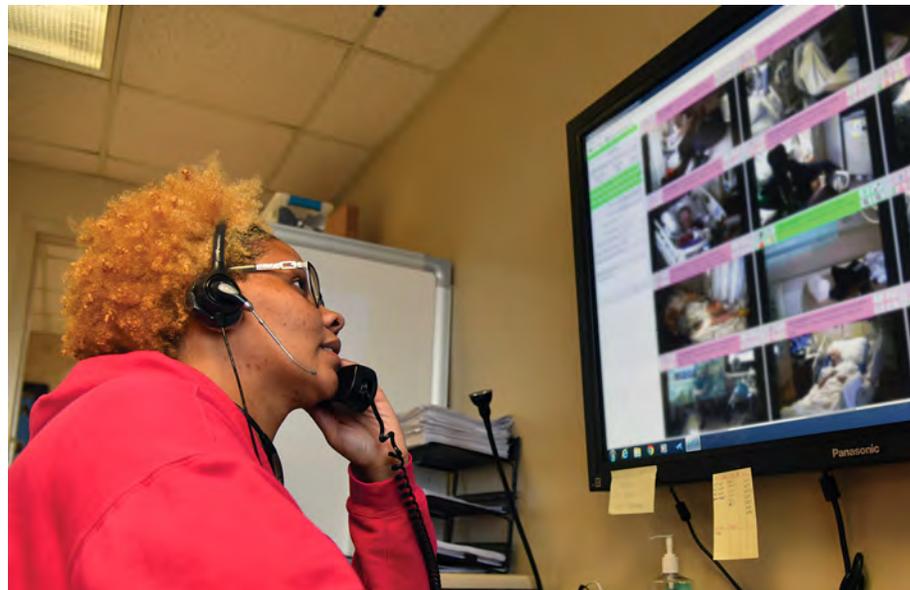
A Cincinnati VA employee monitors Veterans in the ICU via the Virtual Telesitter Solution.

According to the Institute of Healthcare Improvement, at least 30 percent of inpatient falls result in moderate to severe injuries. Of those, 6 to 44 percent involve head injuries, serious fractures, subdural hematomas and excessive bleeding. In 1 percent of falls with injury, or 11,000 times per year, the injuries result in death.[1]

The Cincinnati VA Medical Center has recently integrated the Virtual Telesitter Solution into their acute and critical care areas. The telesitter allows remote monitoring of up to 12 Veterans at a time and the ability to intervene instantly to prevent harm. The fixed and mobile camera units are now found in hundreds of hospitals across the United States including a number of the nation's most prestigious and safety-conscious hospitals and systems.

Within the acute, critical care and long-term care setting, there are many Veterans at risk of hurting themselves or others. These individuals may have an increased likelihood of falling, eloping, becoming violent, pulling off lines and tubes and so on. This meant putting a trained staff person (sitter) in the room 24/7. By using the telesitter, staff can monitor multiple high-risk Veterans at the same time allowing nursing assistants to return to direct patient care activities. Not only does this decrease the cost of treating these Veterans – it is about 20 percent less than the average cost of sitters – but more importantly, the solution catches and prevents adverse

events which improves patient safety, satisfaction and quality.

There are three components to the telesitter solution: technology, clinical workflow and data analytics. From the technology standpoint, the system aggregates telesitter views of at-risk Veterans allowing the observer to see anywhere in the room, including fine details such as skin color changes, shallow breathing and whether a Veteran's pulse oximeter is still attached. The virtual monitoring technician is able to speak with the Veteran through two-way audio. If the Veteran is unresponsive to verbal direction, there is a STAT alarm that automatically cues the nursing staff to immediately go to the Veteran's room.

The Cincinnati VA has also incorporated a wireless, hands-free, wearable, lightweight, voice-controlled clinical communication device into the workflow. This device allows broadcasting to the entire unit when a STAT or emergent event occurs. When there is a language barrier, staff can use the solution's pre-recorded statements that come in more than 200 languages. This includes common phrases such as, "Stay in bed," or, "I'm going to get your caregiver right away." Finally, the system includes data analytics with a real-time dashboard that shows a variety of metrics including: number of carts in use, verbal redirections, STAT alarms, etc.

The new technology does not replace any current safety practices; it simply enhances these efforts and is another tool to provide high-quality care for Veterans. Clinicians determine whether a Veteran's condition and risks call for using the system. Sitters are still used for Veterans who are homicidal, suicidal or severely hard of hearing. Thus far, the feedback received from Veterans and their family members has been very positive. Families feel at ease knowing someone is continuously looking after their loved one when they are most vulnerable.

Strong program leadership was instrumental to implementation. Moving to this kind of system can be a bit disruptive because it is a departure from the typical approach. So, you need to have clinical leaders whom people respect, believe in and will follow. These individuals must take responsibility for building enthusiasm and maintaining momentum, to share good catch stories, to be committed and stay involved in the process to ensure long-term success.

The use of the Virtual Telesitter Solution emphasizes the Cincinnati VA's commitment to quality and safety for our Veterans while using innovative technology to redirect them before a fall or adverse event occurs. For more information about the Cincinnati VA's Virtual Telesitter Solution, please contact JoyeBeth. Ackerson@va.gov.

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Simulation-Based Strategies to Teach the Universal Protocol and Timeouts for Invasive Procedures Occurring Outside the Operating Room

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Incorrect procedures (wrong site, wrong side, wrong patient, wrong procedure, wrong implant, etc.), although infrequent, have the potential to cause devastating consequences to patients, families, providers, and health care organizations. The Joint Commission's Universal Protocol remains the gold standard in the prevention of incorrect procedures.[1] An integral part of the Universal Protocol is conducting a pre-procedure "timeout" immediately prior to the start of the procedure. The timeout allows staff to verify the patient's identity, the procedure to be performed and the procedure site; it also affords staff the opportunity to certify the informed consent and review pertinent medical images. However, despite the importance of pre-procedure timeouts as a patient safety tool and a VHA policy requiring a timeout before any invasive procedure[2], compliance with timeouts outside the operating room (OR) has been an ongoing issue.[3] This is believed to be due, in part, to a lack of training and awareness of timeout procedure and policy.

Current training on timeouts for medical residents in VA consists of a short, one-time didactic module. Simulation training presents a possible alternative educational format for teaching timeouts to physicians and other health care professionals in the Veterans Health Administration. For several years, the VA National Center for Patient Safety (NCPS) has used high-fidelity simulation utilizing advanced simulation mannequins and patient safety faculty experts to teach various patient safety concepts. This instruction includes teamwork and communication techniques as part of our Clinical Team Training curriculum. Additionally, high-fidelity simulation has also been utilized to teach the concepts of pre-procedure timeouts outside of the OR. However, high-fidelity simulation can be time and resource intensive – requiring the use of dedicated simulation space, expensive simulation equipment and trained faculty to facilitate the simulation scenario.

An alternative to high-fidelity simulation is virtual patient

Screenshot of a "Time-Out" virtual simulation app developed in conjunction with NCPS, available on Apple's app store and iTunes.

simulation, which is an interactive computer-based clinical simulation learning format. Virtual patient simulation scales well to large numbers of users because it does not require the use of dedicated space or faculty; it is highly customizable, and allows for much greater flexibility for the learner (can be used on a smartphone or tablet at the user's convenience). Research conducted by Paull et al. at NCPS compared the effectiveness of virtual patient simulation to high-fidelity simulation in teaching pre-procedure timeouts. It was found that virtual patient simulation was on par with high-fidelity simulation in terms of realism and improving confidence of the learner.[4]

In 2015, NCPS was the recipient of a Department of Defense funded research grant to study the comparative effectiveness of different learning formats, specifically virtual patient simulation and high-fidelity simulation. The purpose was to teach the Universal Protocol and pre-procedure timeouts to VA health care professionals who work outside of the operating room. This study randomized learners to either a didactic

education format (reading an article about timeouts), virtual patient simulation, or high-fidelity simulation and then compared their performance on a standardized patient scenario one to two weeks after training. During the standardized patient scenario, participants were expected to follow the steps of the Universal Protocol and conduct a pre-procedure timeout prior to a mock paracentesis. Their performance was evaluated and scored by trained raters using a clinical teamwork scale and an ensuring correct procedures checklist. A pre- and post-training survey and knowledge test were also administered to collect data on the participants' knowledge of timeouts and their perceptions/confidence in performing them.

Preliminary analysis of the results has shown that high-fidelity simulation outperforms traditional didactic learning and virtual patient simulation in improving timeout performance. Virtual patient simulation did not significantly outperform traditional didactic learning in terms of timeout performance, but it did perform on par with the other learning formats in improving

learner confidence and knowledge of timeouts. Virtual simulation thus has a potential to supplement other learning formats. More research is needed to examine the comparative effectiveness of more robust forms of virtual simulation, such as virtual reality simulation and virtual gaming to teach pre-procedure timeouts and other patient safety principles.

A virtual reality simulation application to teach pre-procedure timeouts, developed in conjunction with NCPS, is already publicly available for use on the iPhone and iPad through Apple's app store and iTunes. This free application can be found by searching for "VA Time Out" in Apple's app store.[5] This application can serve as a ready to go patient safety education tool for interested parties in the VA health care system. Patient safety professionals and clinical leadership in VA should strongly consider the potential benefits of simulation, including virtual simulation, when examining ways to improve and enhance their patient safety education efforts.

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Study Examines Factors Associated With Suicide Within One Week of Discharge From VA Psychiatric Facilities

Background

Several studies have shown that patients are at increased risk for death by suicide in the year following discharge from an inpatient mental health unit. To better understand system and organizational factors associated with post-discharge suicide, this study reviewed root cause analysis (RCA) reports of death by suicide within seven days of discharge from all VA inpatient mental health units (112 VA facilities) between FY2002 and FY2015.

The National Center for Patient Safety (NCPS) oversees safety efforts within VA and maintains an RCA database; each RCA report includes one or more root causes. From the RCA reports, investigators abstracted a relevant set of available patient-level data to characterize the study population, including the following variables thought to be associated with suicide risk: gender, age, length of stay, homelessness, acute or chronic pain, and treatment non-adherence.

Findings

* Risk for suicide for Veterans in the week following hospital discharge may be highest during the first few days after discharge. There were 141 reports of suicide within seven days of discharge: 40 percent occurred during the first day of discharge; nearly 80 percent within four days of discharge, and 67 percent within six days of discharge. Additionally, 43 percent of suicides followed an unplanned discharge.

* Root causes for suicide fell into three major categories:
    1. Challenges for clinicians and patients in following the established process of care.
    2. Awareness and communication of suicide risk.
    3. Flaws in the established process of care.

* No association was found between length of hospital stay and days to suicide after discharge.

* Many hospitalized Veterans were described as homeless (20 percent), having symptoms of pain (22 percent), or having a history of treatment non-adherence (22 percent).

Implications

* Current VA policies mandating mental health follow-up within seven days of discharge may be insufficient.

* Also, other methods of intervention to better reach this vulnerable patient population may need to be considered (e.g., telemonitoring).

* The authors also suggest that inpatient teams be aware of the potentially heightened risk for suicide in patients whose discharge is unplanned.

Limitations

* Although RCAs provide a standardized approach for evaluating system factors that contribute to adverse events, the lack of a comparison group limits the ability to draw robust conclusions.

* Because the RCA database cannot be linked directly to patient records, investigators were unable to account for important patient characteristics, such as mental health and/or substance abuse history.

* While VA requires that an RCA be performed for death by suicide within one week of discharge from a mental health unit, the authors were unable to determine whether there was under-reporting. Therefore, results should be used to understand organizational vulnerabilities and opportunities for improvement rather than as epidemiologic estimates.

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