

A hand with manicured nails points at a tablet screen. In the foreground, a silver stethoscope rests on a white clipboard with a blue pen. The background is a dark blue gradient with a white hexagonal molecular structure pattern.

INTERACTIVE DIGITAL SOLUTIONS PRESENTS
**IMPROVING HOSPITAL
PERFORMANCE AND
PATIENT EXPERIENCE**

Virtual Patient Observation White Paper

Introduction

Interactive Digital Solutions (IDS) has been deploying telehealth solutions for over a decade within hundreds of clinics, hospitals and health systems. Seeing the need first hand for bi-directional video patient observation, our first product iteration was an on-premise solution. The web edition of MedSitter® is the culmination of innovative development that brings together technology, clinical operations, and implementation. Our customers value day-1 ROI and tend to report an immediate reduction in patient falls.



TABLE OF CONTENTS

- 4** STAFF SHORTAGES
- 5** PATIENT AND CLINICAL STAFF RISKS AND INJURIES
- 8** VIRTUAL OBSERVATION: HOW IT WORKS
- 10** PATIENT SECURITY AND PRIVACY
- 11** COST BENEFITS (ROI) OF VIRTUAL OBSERVATION
- 12** OVERALL BENEFITS
- 13** CONCLUSION

It is something no one wants to do – check their loved one into a healthcare facility for surgery or treatment for a serious illness. Every day, people leave parents, grandparents, partners, and children in the hands of healthcare providers, with their only reassurance being that they will be well attended by the facility's staff. The goal of every provider is to meet that expectation and release their patients in a better state of health than when they arrived. Unfortunately, this is not always the outcome, as issues such as patient secondary health conditions, infectious illnesses that require isolation, and staff shortages leave patients unattended and at risk for accidents that result in further injury, lengthier hospital stays and increased cost. How do these accidents take place, and why are they not prevented?

In recent years, as demand for care has increased but resources have not, providers need to seek other options for ensuring the safety of patients with high risk of suffering from accidents and injuries, or those who have the potential to harm hospital staff. By employing virtual observers, hospitals can provide more consistent patient monitoring and communication as well as staff support.

Healthcare providers that have implemented virtual patient observation programs have reported a significant reduction in patient accidents, more efficient use of hospital resources, and improved patient experience through immediate communication with Virtual Observers. The additional support also allows members of the nursing staff to attend to their primary responsibilities while a second set of eyes is helping them stay aware of activities in patient rooms. These are just some of the benefits that hospitals, treatment centers, senior centers, and behavioral health facilities have realized through virtual observation.

As the technology grows, healthcare providers are recognizing the positive impacts that virtual observation offers. The Covid-19 pandemic quickly brought this realization into sharper focus, by amplifying the difficulties inherent in operating understaffed facilities. The inability to ramp up at a rate that meets demand has created a space for telehealth and virtual care.





Staffing Shortages

With budgetary constraints minimizing the number of nurses hired each year, there is an overwhelming strain placed on nursing staff that is called upon to administer medications and carry out treatment orders while keeping a watchful eye on high-risk patients. Patient Care Technicians who would normally serve as a second set of hands for nurses are often tasked as patient sitters. While this could be perceived as a beneficial source of support, higher patient enrollment causes this to become an inefficient use of resources, as one sitter can only observe one patient at a time.

Facing these issues of increased demand, under staffing and fatigue, hospital workers find themselves spread extremely thin, unable to be in all places where they are needed. As a result, as many as 80% of falls in U.S. hospitals can go unobserved. Higher patient loads are associated with higher hospital readmission rates, with studies showing that assigning four or more patients to an RN significantly increases the likelihood of hospital readmissions. With budgetary limits imposed, healthcare providers are often limited in their ability to add the additional staff needed to circumvent accidents and other risks to staff and patient safety. Virtual observation technology addresses this issue by allowing one person to observe as many as 10 patients in one setting.

DUE TO STAFFING SHORTAGES ACROSS THE UNITED STATES, AS MANY AS 80% OF FALLS IN US HOSPITALS CAN GO UNOBSERVED.

Patient and Clinical Staff Risks and Injuries

The growing population of seniors over age 80, a challenged economy, and unprecedented demands such as the COVID-19 pandemic have further strained the number of available healthcare workers and present the possibility of increased risks to patient and clinical staff safety.

Patient Falls

At a rate of almost 1 million occurrences per year (or up to 11.5 falls per 1,000 patient days), accidental falls are among the most common incidents reported in hospitals, resulting in the complication of approximately 2% of hospital stays. This not only exacerbates the patient's condition, but increases the stress of family members and increases the cost of care. Patients who experience a serious injury related to a fall during their hospital stay have an average of six additional inpatient days at a cost of roughly \$14,000 more than uninjured patients with a similar primary condition.

Hospitals and other clinical health facilities carry an enormous responsibility in not only ensuring the care of patients, but also patient safety. The potential long-term negative impact of even one patient fall includes legal and financial liability, as well as damaged reputations that could reduce new patient enrollment and cause existing patients to no longer see the hospital as their trusted provider. The use of virtual observation allows the provider to ensure patients and families that there will be a watchful eye on the patient. Observers can stop potentially dangerous behavior by remaining in regular contact with staff on the premises so they can quickly respond to any issues. In a time of understaffed and overbooked hospitals, this is insurance that hospitals cannot afford to go without.

Patient Suicide & Self Harm

Aside from the scenarios we tend to associate with patient risks, patient suicide and self-harm is a critical consideration that providers address daily. Inpatient mental health is mental health treatment that involves admission to a hospital or clinic for at least one overnight stay. However, patients that are not being directly treated for mental health conditions may also need to be monitored due to new circumstances that result in suicide risk. Patient records that note a potential for suicide or self-harm ask for increased levels of observation, presenting a greater challenge for short-staffed facilities. According to the national Suicide Prevention Resource Center, suicide prevention strategies to consider in these circumstances include training staff in suicide risk assessment, modifying the physical environment to ensure patient safety, and providing increased monitoring during high-risk periods.

Of the 35,000 or more suicides per year in the United States, about 1,800 (6%) are inpatient suicides; it's estimated that a psychiatric nurse will experience a completed suicide every 2½ years on average.

ABOUT 1,800 (6%) OF SUICIDES IN THE UNITED STATES PER YEAR ARE INPATIENT SUICIDES.

An annual review of inpatient suicide trends in clinical settings reveals how impactful regular and consistent observation is on suicide risk.

- 20% to 62% of suicides occurred on intermittent observation
- 2% to 9% of suicides occurred on constant observation (staff informally cease observation to undertake other activities)
- Reduced staff supervision increases risk especially at nights during hand-offs and in unsupervised areas



Hospitals and facilities can use virtual observation to place a patient under constant supervision with immediate communication between the observer and the clinical staff. Mental health care and observation do require specialized training in patient behaviors and response techniques, but the use of virtual observation tools can serve as a great source of support for the clinical staff that could be attending to more than one patient in this high-risk category.

Infectious Disease Isolation

Over the last decade, the United States (and many or most countries around the world) has experienced outbreaks of highly infectious diseases including SARS, H1N1, Ebola and now, the Covid-19 pandemic. These diseases are those that have been transmitted in a variety of ways, largely by emission of respiratory droplets from person to person. While public health officials and governments can create regulations and conditions that protect the public at large, healthcare providers are at risk of contracting or transmitting infectious diseases in the clinical setting.

Healthcare workers who work near patients and who handle human secretions (e.g., respiratory secretions) are particularly vulnerable to transmission of droplet-transmitted respiratory infections. The outbreak of severe acute respiratory syndrome (SARS) in 2003 had a tragic impact on healthcare workers with attack rates of more than 50%.

Especially in the time of the Covid-19 pandemic, people are increasingly aware and vigilant about exposure to those who may be infected with the virus. Unfortunately, healthcare workers do not have the same option as others – they simply cannot practice social distancing while providing patients with physical care. A study by the University of San Francisco explains that “COVID-19 patients and patients under investigation (PUI) have a high risk of falling and rapidly decompensating respiratory conditions. However, isolation precautions require COVID-19 and PUI patient rooms to maintain closed doors. Additionally, many

medical-surgical and telemetry units lack windows on the patient doors, prohibiting staff from viewing patients. The healthcare team cannot prevent a COVID-19 or PUI patient from falling and cannot detect when these patients exhibit signs of respiratory deterioration.”

The risk of exposure to infected patients can be reduced by engaging virtual observation tools for functions that do not require physical contact. Patients can communicate with observers and clinical staff with questions or concerns, and the staff can respond or resolve issues virtually when appropriate. As the technology expands, family members who are restricted from in-person visits may find a virtual observation station to be a welcome solution.

Patient Wandering and Elopement

A true nightmare scenario for any inpatient clinical provider is a wandering or eloping patient – basically, a patient who leaves their room or the facility, putting themselves at risk for any number of injuries or illnesses.

The difference between these risks is intention. A wandering patient is an at-risk patient who has shown a propensity to stray beyond the view or control of employees. These patients normally do not have a deliberate plan to leave the facility but still run the risk of injury, making a higher degree of monitoring and protection necessary.

A patient elopement is an instance in which a patient that is aware that he or she is not permitted to leave but does so with intent. These patients more typically attempt to leave the facility altogether. Elopement incidents often occur because of delirium, dementia, reaction to medication, or trauma. Patients at risk of elopement require an elevated level of observation because of their intention to leave. Many cases of patient elopement have resulted in patient death.

Such a protocol may include locating the patient close to the desk, placing an electronic monitoring device on the patient when available, partnering the patient with a roommate, or requesting a

family member or nursing assistant to sit with the patient. Additional precautions common in mental health and rehabilitation facilities include automatic door locks, alarms, and diversion activities.

Patient wandering or elopement are risks that can be prevented by virtual observation. Tools such as verbal commands and alarms allow the Virtual Observer to direct patients to return to their beds as well as communicate with clinical staff to warn them of possible issues. The minimal staff that is often on duty in overnight hours (when many patients find opportunities to move about) could find great support in having extra eyes on their shift that can maintain vigil on patients while the staff attends to other patients or responsibilities. This has the potential for long-term and far-reaching benefits to the facility via staff support.



**PATIENT FALLS WITH INJURY
CAN INCREASE HOSPITAL
COST BY UP TO \$14,000**



**UP TO 62% OF SUICIDES
WHILE IN CARE OCCURRED ON
INTERMITTENT OBSERVATION**



**VIRTUAL OBSERVATION CAN
HELP MONITOR AT-RISK
PATIENTS**



Virtual Observation: How it Works

Virtual observation is a method that uses technology to engage the services of a person who is hired to maintain constant watch on patients that have been identified as higher risk for behaviors that could result in injury or exacerbated illness. In clinical settings where patients could perform acts that could result in injury or illness in themselves or others, there has been a rising challenge in trying to watch patients to prevent those events. To avoid punitive measures such as patient restraints or seclusion, facilities used “sitters” – personnel with a physical presence in the patient’s room – to watch over the patient on a shift-by-shift schedule. Over time, sitter services have become prohibitive both in cost and risk.

Virtual Observer noun.
[vur-choo-uhl uhb-zur-ver]

A trained professional who monitors, communicates, and keeps records of multiple patients at once from a remote location.

Patient Monitoring Cart noun.
[pey-shuhnt mon-i-ter-ŋg kært]

Two-way video and audio telehealth units that are mounted on transportable medical carts that are placed in patient rooms for virtual observation.

The Virtual Observer is a trained professional who observes multiple patients from a remote location. Using the various features of the monitoring station, the observer can greet the patient, monitor their movements to determine if high-risk behavior is taking place, ask questions of the patient, issue commands to maintain patient behavior, and communicate with the clinical staff to make them aware of any situations or patient needs.

Patient monitoring tools are available as two-way audio and visual units that are mounted on transportable carts and placed in patient rooms. They are positioned to give the observer a direct view of the patient as well as the ability to pan the entire room. Motion detection functionality catches sudden movements or patients in distress. Units equipped with alarms make it possible to immediately notify on-site clinical staff of emergencies.

The hardware and software should also facilitate the relationship between the observer and the clinical staff. As the role of the virtual observer does not place them onsite, communication tools help create trust and establish the observer as an accepted member of the clinical team. While the observer is not necessarily a trained medical professional that administers care, their training would be designed to make them see things through

the eyes of the clinician. The goal is for the observer to see the same red flags and have the same reactions as a nurse or other clinician, allowing them to interact with the patient appropriately and effectively while following the appropriate protocols for engaging the staff. They know when to alert staff that a patient is about to fall, has wandered away from their room, or is exhibiting other high-risk behaviors. This makes observation an enhanced level of support and patient protection.

VIRTUAL UNITS ALSO ALLOW RECORDKEEPING AND REPORTING THAT HELP TEAM MEMBERS MAKE INFORMED DECISIONS.

Virtual units also allow recordkeeping and reporting that help team members make informed decisions. Those can include information screens for entering patient details and high-risk behaviors; reporting capabilities that allow observers to send and receive messages to one another, advising of any recent events or issues; and camera tools that can capture incidents and room conditions. The virtual unit creates a relationship between the patient, the clinical staff, and the observer – all resulting in more comprehensive patient care and staff support.

As technology continues to be developed, units are seeing more advanced communication features such as language selection, on-screen captions, and American Sign Language interpretation for hearing-impaired patients. Patient circumstances vary across different types of clinical settings; developers are continuing to create features that respond to those needs.



Patient Security and Privacy

One of the most important aspects of virtual observation is respect. The privacy of the patient both in their room and of their information is protected by the Health Insurance Portability and Accountability Act (HIPAA) in all aspects of clinical care, and this should extend to virtual service. The observation unit and supporting network software should be secure with encrypted software and password protected access. Healthcare providers are responsible for the oversight of patient privacy rules in care delivery and should include virtual observation in their policy and procedure documentation, and the observation process should include the Observer introducing themselves to the patient and/or visitors to make them aware of their presence.

Patient privacy can also be managed and protected using features on observations units. The patient has the right to request or control the visibility of their room, which they or the observer should be able to control. It is important for the patient to know that this feature is available to maintain their trust.



**HIPAA-SECURE
TECHNOLOGY SHOULD
COME STANDARD WITH
ENCRYPTED SOFTWARE
AND PASSWORD
PROTECTED ACCESS.**



Cost Benefit (ROI) of Virtual Observation

Healthcare providers may see the investment in virtual observation equipment and staff as one that has a potentially negative impact on their bottom line. However, just the opposite is true. There are proven, significant cost savings associated with the interventions that virtual observation provides. Something as simple as a second set of eyes on a patient reduces risks of the events outlined in this paper – falls, wandering, elopement, self-harm, and suicide. Hospital systems have reported up to 51% reduction in patient falls that result in injury.

Virtual observation has been helping labor costs, too. Hospitals that have opted to employ virtual rather than onsite sitters experience significant savings, as observation technology gives one person the ability to observe and communicate with several patients. The use of virtual observation has the potential to reduce attrition among burned-out clinical staff, as working with support reduces pressure and improves morale. In a 2014 national survey, 59% of hospital staff stated that using technology for 1:1 observation for safety would be useful. While the numbers vary across facilities, hospital systems have reported savings of as much as \$2.5 million in staffing and risk reduction over a two-year period.

Along with cost considerations, many facilities have considered virtual observation out of scope for their offerings. Until recently, virtual care has been viewed as appropriate only in large hospital settings. With the advent of the Covid-19 pandemic, the engagement of virtual services has expanded across every industry, with healthcare at the top of that list. Services such as telehealth have become a widely sought-after service; in the clinical in-patient setting, virtual observation offers an excellent option to provider staff with limited bandwidth and even to families with little to no access to their loved one. In short, virtual observation is changing the way we understand care delivery.



59% OF HOSPITAL STAFF STATED THAT USING TECHNOLOGY FOR ONE-ON-ONE OBSERVATION WOULD BE USEFUL.

Overall Benefits

The benefits of virtual patient observation continue to be discovered, and the technology continues to be developed as providers recognize the ways in which it can be implemented. Studies and surveys of clinicians and patients have revealed some common returns on the virtual observation investment. Here are some common themes that were discovered.



Patient Experience

- Reduction of patient falls
- Increased feeling of safety
- Greater trust in the care they are receiving
- Sense of connection through communication with observer
- Ability to receive visitors even in isolation

Employee Satisfaction

- Increased number of patients monitored
- Additional patient support for clinical staff
- Fewer Patient Care Technicians pulled for VO duties
- Reduced workplace injuries
- Virtual observation professionals playing a vital role on care team
- Decreased stress of nursing team

HOSPITAL SYSTEMS ARE SEEING SAVINGS OF AS MUCH AS \$2.5 MILLION IN STAFFING AND RISK REDUCTION OVER A TWO-YEAR PERIOD.

Administrative Costs

- More efficient use of resources by monitoring of multiple patients by a single observer
- More available PPE for staff and patients due to fewer non-emergency room visits
- Decreased overtime among nurses and Patient Care Technicians
- Reduction in administrative costs of patient falls

Conclusion

In the ongoing effort to innovate patient care, rarely is a solution found that offers great benefits to all stakeholders - patients, staff, and administrators alike. The use of virtual observation continues to prove itself as not only a cost-efficient service, but one that greatly enhances the quality of patient care and the overall experience. The ability to communicate with patients, keep them safe, and prevent the risk of accidents or exposure to illness while supporting staff and raising morale is an ideal scenario that is being brought to reality with the development of this technology. At the end of the treatment experience, a patient and their loved ones want to be able to say that they were in the best possible hands; virtual observation will allow providers to make that promise.



Resources and Citations

1. Agency of Healthcare Research and Quality
2. Tubbs-Cooley HL, Cimiotti JP, Silber JH, et al. An observational study of nurse staffing ratios and hospital readmission among children admitted for common conditions. *BMJ Quality & Safety* 2013; 22:735-742.
3. National Institute for Health
4. Suicide Prevention Resource Center. Inpatient Mental Health. Website. <https://www.sprc.org/settings/inpatient-mental-health>
5. Jabbarpour YM, Jayaram G. Suicide risk: navigating the failure modes. *Focus*. 2011; 9:186-193. <http://www.ap.psychiatryonline.org/article.aspx?articleid=114953>.
6. Nijman H, Bowers L, Oud N, Jansen G. Psychiatric nurses' experiences with inpatient aggression. *Aggressive Behav*. 2005; 31:217-227.
7. Bowers L, Banda T, Nijman H. Suicide inside: a systematic review of inpatient suicides. *J Nerv Ment Dis*. 2010; 198:315-328.
8. Wilder-Smith A, Low JG. Risk of respiratory infections in health care workers: lessons on infection control emerge from the SARS outbreak
9. Plahar, Asia QuoVadis Williams, "Implementing Virtual Sitters to Reduce Falls and Sitter Costs" (2020). Doctor of Nursing Practice (DNP) Projects. 234. <https://repository.usfca.edu/dnp/234>
10. Management of Wandering and Missing Patients. Veterans' Health Administration. Washington, DC: Department of Veterans Affairs: December 3, 2010. VHA Directive 2010-052
11. DeRosier JM, Taylor L. Analyzing missing patient events at the VA. *TIPS (Topics in Patient Safety)*. November/December 2005; 5:1- 2. http://www.va.gov/ncps/TIPS/Docs/TIPS_NovDec05.pdf
12. Rigelhaupt J Jr. Hospital's liability for patient's injury or death resulting from escape or attempted escape. In: *American Law Reports*. Vol 37. 4th ed. Eagon, Minn: West Publishing Co; 1985:274-277.
13. Pleading and practice forms, hospitals. In: *American Jurisprudence*. 2nd ed. Rochester, NY: Lawyers Cooperative Publishing; 2002: Sec 151.
14. Roth, Mandy. Ochsner Reduces Patient Falls By 51% with Telesitters. *Healthleadersmedia.com*. January 25, 2019. <https://www.healthleadersmedia.com/innovation/ochsner-reduces-patient-falls-51-telesitters>