

## TeleHealth Patient Safety Monitoring

### Problem

As America grapples with an aging population and an increase in mental and behavioral health problems, there is a growing need for bedside supervision of hospitalized patients to improve patient safety. Hospitals traditionally have used “sitters” or one-to-one observers to meet this need. Due to staffing challenges and financial constraints, many hospitals are unable to meet this demand consistently.

### Solution

Intermountain Health has successfully implemented a system of electronic monitoring to improve patient safety. The Patient Safety Monitoring (PSM) program began in 2017 with a limited number of camera/microphone units in medical/surgical units. Today, it has grown to include:

- 225 remote bedside monitors. This includes 70 new units provided by a grant from Intel in 2021. The new units feature Intel Core i5 processor, Intel WiFi, and Intel RealSense camera.
- Used in 25 hospitals throughout Utah, Idaho, Colorado, and Montana.
- Used primarily in med/surg. Some limited use in ICU units including respiratory ICU.
- 9,500 patients served for a combined total of more than 1.4 million hours.

### Usage

Intermountain’s PSM program is most often used to monitor patients who are at risk of falling if they attempt to get out of bed unassisted or who may attempt to remove their nasal cannulas, IV lines, tracheal tubing, catheters, etc. PSM techs monitor continuously for signs of trouble and intervene by using the microphone to give instructions to the patient and call nursing staff for help. Since the program’s inception, the service has expanded significantly. A few examples of what PSM can and cannot monitor are:

PSM may be used to watch for...	PSM cannot be used for...
Falls risk	Patients who don’t respond to verbal cues <i>(some exceptions permitted based on use-case)</i>
Pulling IVs, lines, drains, etc.	Minors
Flight risk	Seizure watch <i>(may not be detectable by sight)</i>
Confusion	Safety of family members, friends or visitors
Physical aggression toward caregivers	

## Benefits

- **Clinical** - Nationally, researchers have found that PSM improves patient safety. One study showed the technology reduced patient falls by 35 percent. In another, there was a 100 percent decrease in patient falls through pilot studies on units with high fall-risk patients. Other studies showed that nursing staff and patients reported confidence that PSM was helpful in protecting patient safety.
- **Staffing** - A qualified PSM tech can monitor up to 12 patients at a time. Freeing even one employee from sitting duties can have a meaningful impact by reducing stress levels on nursing units and allowing staff to focus on additional patients. One study suggested a 47.1 percent decrease in sitter costs when video monitoring was used.
- **Patient and Family Satisfaction** - Anecdotally, staff at Intermountain facilities say that patients and families have expressed appreciation for the PSM program and say it provides a greater feeling of security during a hospital stay.
- **COVID-19** - Fewer caregivers in and out of patient rooms each day meant less risk of exposure to the virus for both. It also meant more staffing flexibility during the height of the pandemic, which placed tremendous burdens on hospital caregivers. One unexpected benefit was that PSM created work opportunities for caregivers who were unable to continue in-person care for a variety of reasons, including having a compromised immune system. The PSM program allowed them to continue working and caring for patients in a way that was safer for them.

## Keys to Success

- **Cautious Oversight** - As the PSM program has grown and demonstrated its value, nursing staff members have requested its use in more creative ways. In order to determine the appropriateness of each request, Intermountain Health created a Governance Council with input from diverse clinical leaders, compliance, and legal staff to ensure each proposal is evaluated for safety, ethical concerns, and practicality. This group sets protocols following best practices for each new use.
- **Ethical Considerations** - Privacy rights are balanced with the potential benefits of the PSM program in each case. Patients and their family members always know that continuous monitoring will occur, and the reason why it's needed. The camera units are placed where patients and visitors can clearly see them, and a sign is posted reminding visitors of remote monitoring. Techs work from a single protected location to ensure the videos cannot be seen by unauthorized individuals. And the system is unable to make recordings that could potentially be shared. The devices can also be programmed to view only the bed area.
- **Education** - PSM program managers have learned that education is necessary to ensure monitoring is implemented safely and so that staff understand appropriate use. Proper education not only reduces the occurrence of IT problems, it also gives nursing staff an understanding of best practices. For example, nursing staff sometimes request continuous audio monitoring of patient rooms, which is not practical or safe as one tech cannot hear everything happening in each room simultaneously.

## Outlook

Intermountain Health will continue to evaluate novel uses for possible expansion. One potential use being considered now is monitoring patients who are considered to be at low to moderate risk for suicide. The PSM Governance Council is creating a proposal that evaluates current literature, appropriate cases, environmental considerations, necessary education and more as they create guidelines for suicide-risk monitoring. This proposal will be evaluated by the Intermountain Policy Administration, which can approve a pilot project, or send it back for further work. PSM staff is optimistic that monitoring will soon add another layer of safety for these patients.

## About Intermountain Health

Intermountain Health is a team of nearly 60,000 caregivers who serve the healthcare needs of people across the Intermountain West, primarily in Utah, Idaho, Nevada, Colorado, Montana, Wyoming, and Kansas. We are an integrated, non-profit health system based in Salt Lake City, with clinics, a medical group, affiliate networks, hospitals, homecare, telehealth, health insurance plans, and other services, along with wholly owned subsidiaries including SelectHealth, Saltzer Health, Castell, Tellica, and Classic Air Medical.

