

Improve the monitoring of residents living in a nursing home to enable more effective oversight and timely intervention of residents in distress or need assistance

A. Problem Statement (Current State)

Nursing homes care for vulnerable residents (children, young adults with disabilities, and the elderly including frail residents with chronic complex illnesses) requiring different levels of medical and nursing care. These residents are monitored continuously to ensure that they remain as healthy and independent as possible, yet safe and achieve the quality of life they desire. Monitoring everyone requires a great deal of effort and time from the nursing care team. With the increasing number of residents to manage, and the various administrative follow-ups to fulfill, the ability to constantly have visibility and oversight of all residents is stretched as nurses are not always able to be physically around all residents or even always have a direct line of sight.

Having to juggle multiple residents and administrative tasks at hand, coupled with the shortage of manpower, there is risk of slow responses or even oversight of residents who might have been injured or in adverse predicaments. Furthermore, the risk of nurses' burnout rate is high, which may lead to higher turnover rates and increased expenses related to recruitment, retention, and training.

Currently, the challenges faced when monitoring residents:

1. High usage of restraints needing monitoring: Currently the nursing home has approximately 43 to 48 residents in each ward with 8 nurses working the AM shift, 5-6 working the PM shift, and 2+2 for the night shift, an average ratio of 1 nurse : 6-8 residents for the shifts. Of these residents, up to 48% of the residents are on different types of restraints (e.g. mittens, body, pelvic) and require a higher amount of supervision and monitoring.
2. Lack of visibility: Any resident, whether frail or otherwise, incapable or disabled, may find themselves in situations of distress and need for assistance – e.g. bed exit falls, stuck in a stressful bed position – and may not always be able to call for assistance as the nursing staff may not be nearby. Consequently, in the event a resident encounters an unfavorable situation, the nurse on duty may not be aware as they may not be triggered and alerted to the event. Also, other residents may necessitate continuous attention (full 1:1 nursing care and attention). This adds on to the strain of manpower and reduces the supervision of other residents. Moreover, a 1:1 nurse ratio to resident care may not be always sustainable.
3. "Roaming" residents: Ambulating dementia residents may accidentally 'roam' to places where they should not. It's common for people living with dementia to wander or become lost or confused about their location, even in familiar areas. They may wander at least once; many do so repeatedly and lose themselves. These 'roamers' require monitoring to ensure they do not go astray and could return to their beds.

B. Challenge Statement

How might we effectively monitor the safety of our residents so that we could render timely intervention assistance in times of need?

C. What are we looking for? (To-Be State)

1. Join us on this discovery and collaborative journey through HealthX to explore and build newer, valuable technology-enabled solutions to:
 - a) Enhance nurses' ability to monitor residents more effectively – enhance resident monitoring efficiency so that nurses are able to manage and balance resident monitoring with other essential and critical tasks
 - b) Alleviate the need for constant physical supervision – assist nurses to monitor residents without the need to be physically present
 - c. Improve the quality of resident care – enable nurses to be triggered and alerted to incidents of distress, need for assistance, wayward roamers, etc.

2. Overall performance requirements:
 - a) Intuitive User Experience: Solution should be low-complex and user-friendly with minimal guidance and support
 - b) Scalable: The proposed solutions must be easily scaled for similar use cases across other institutions
 - c) Secured: Any recommended solutions must undergo regular risk assessment and adhere to the cybersecurity standards to ensure compliance with any privacy requirements
 - d) Cost-effective: The proposed solutions must be cost-effective to support the solution to scale across hospitals and other potential healthcare settings. To support time motion study (if needed) to justify/support the business case and ROI
 - e) Integration with other health systems and applications: If needed, the solution may need to be able to integrate with other healthcare systems and applications.