

**Becky Fox, MNS, RN-BC**  
**Atrium Health, Charlotte, NC**

**The Implementation of a Patient Virtual Observer Solution for Safety and Cost Reduction**

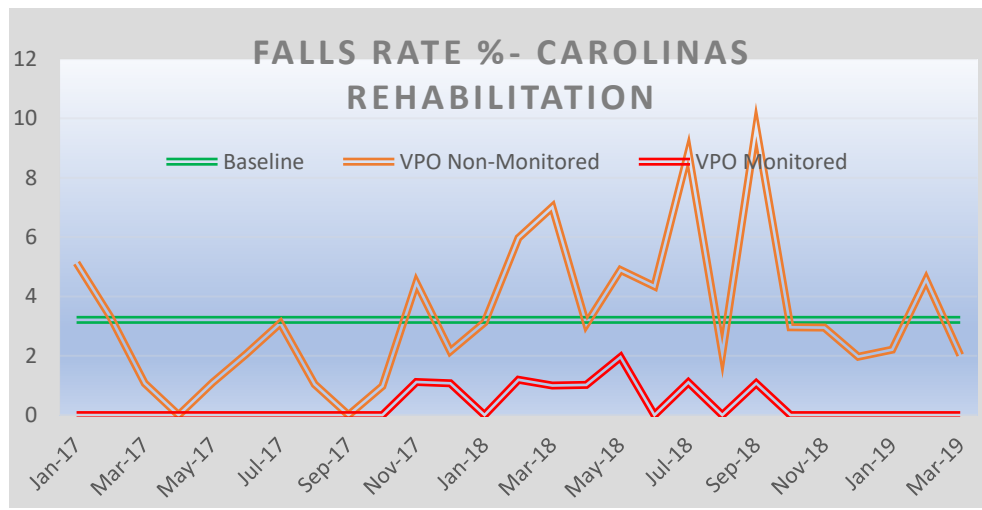
Implementing a clinical care re-design process to focus on fall prevention led Atrium Health down the path of virtual care technology. Atrium Health utilizes a 3-D motion-tracking camera and falls prevention solution to keep a watchful eye on patients. The health system implemented a virtual patient observation solution (VPO) at Carolinas Rehabilitation hospital as a pilot during October of 2016. The goal was to reduce the patient fall rate, decrease the number of 1:1 sitter hours, decrease the rental of fall preventing specialty beds, and lower restraint utilization. Within 6 months of the pilot period and building upon their best practices, Atrium Health experienced only 1 fall in 2847 patient days; realization of a 60% reduction in bed rental; staff were able to observe 10 times more patients at risk for falls; avoided 80+ private sitters that would have been required in prior state, saving \$85K in sitter fees; and decreased restraint use from 260 days to 190 days. One-year post implementation of the pilot and expansion, Atrium Health's Carolinas Rehabilitation hospitals saw its unassisted falls rate drop from 4.36 to 2.10.

The right technology was only part of the recipe for success to ensure Atrium Health would improve outcomes and costs with the virtual sitter program. The redesign of the workflow was dependent on being patient centric and clinically driven. The transition to the virtual sitter program took an interdisciplinary team approach, as patient care technicians (PCTs) who monitor the workstations relied on new technology and clinical workflows to keep their patients safe. The new workflows also helped to free up additional PCTs to be on the units and this had a positive impact on other care team members, patients, and families. Cross training and job rotation further advanced the skills and utilization of the technology leading to expansion into other areas outside of the pilot unit, which began in the rehabilitation setting, and has since moved into pediatric and acute care.

The implementation of the virtual sitter program succeeded beyond the pilot unit. The success was based on the utilization of data to identify the opportunities for further advancement, understanding the patient population for monitoring as every patient will not be a good fit for virtual monitoring, working with both fixed and mobile cameras to identify the technology to best fit the workflow, and evaluating the clinical workflows for continued improvements. The team expanded the utilization into the pediatric area and are the first organization to implement the solution to monitor in this space assessing for eating disorder behavior and non-accidental trauma. Virtual observation across state lines is part of the current journey to offer this service to multiple care facilities within the organization. The virtual care team at Atrium Health is a key reference site for the solution, the workflows, and the governance, and are willing to share their story with other organizations.

## The results are both compelling and reproducible:

- \$276,019 Cost Savings obtained, ROI in < 10 months for Carolinas Rehab
- 50% ↓ in Patient Falls
- 60% ↓ in Use of Restraints/Net Beds (decreased need for additional restraint documentation)
- ↓ Triggering of Aggressive Behaviors in Patients
- ↑ Patient and Family Satisfaction
- ↑ Staff Satisfaction



## In Summary:

- Virtual Patient Observation can be used to lower costs, in person sitter utilization and improve patient safety.
- The focus on the reducing utilization required the coordination of a “people, process, and technology” approach to ensure clinical workflows were aligned with technical requirements. An observation technician at the central monitoring station acts as a virtual room sitter to watch for and proactively alert nurses and other care givers if the following potential adverse events are about to occur.
- The technology included the use of Microsoft Kinect cameras with the unique ability to see in 3D, track human skeletons, recognize verbal commands, and send video streams to a central monitoring station. Orders are entered into the EHR, and workflows are driven by the patient’s response to the re-directions of the staff.
- There is a significant financial and safety ROI. Sitter costs were drastically reduced, falls were decreased, the utilization of restraints decreased, staff and patient satisfaction was positive; pediatrics patients have been added as a new use case.
- Atrium Health is accepting phone calls and site visits as a means of collaboration to provide assistance in replicating their best practices in workflow, governance, and technology requirements.