Reliable and Variable Rounder
Care Delivery Model for
Nursing Assistants and Patient
Care Technicians

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Healthcare in its current state often experiences process breakdowns,
resulting in dissatisfied patients, disillusioned caregivers, care errors or omissions, and delays in meeting patient needs. Near-misses are often caught, not by standardized processes, but by hard-working caregivers. To reduce these problems, staff at the Donald D. Wolff, Jr. Center for Quality, Safety, and Innovation at the University of Pittsburgh Medical Center (the center) created the Reliable Rounder (RR) and Variable Rounder (VR) Care Delivery Model as a new structure for the work of the patient care technician/nursing assistant (PCT/NA). The goal of this model is to ensure that the right patient gets the right care at the right time, every time, by dramatically redesigning the role of the unit PCT/NA.
Traditionally, PCTs/NA are assigned specific patients and are expected to address a wide range of tasks for them. Although the PCT/NA knows at the beginning of the day that tasks, such as rounding, bathing, and taking vital signs, need to be done for each patient, there are also unpredictable tasks that arise. Multiply each patient’s needs by the typical PCT/NA caseload, and the workload is a considerable amount of routine care (predictable work) laden with many interruptions (unpredictable work). Because PCTs/NA cannot predict the volume or timing of their work, it is challenging to consistently complete all aspects of care.

The RR/VR model provides a new framework for PCT/NA work, categorizing all care tasks as either predictable or unpredictable. The fundamental principle in the redesign is that predictable and unpredictable work compete with (or in some cases directly oppose) one another for caregivers’ time, attention, and focus. The most pressing demand of unpredictable work is to do it immediately; a patient wants her call light answered right away. The most pressing demand of predictable work is doing it consistently; for example, turning and repositioning patients consistently is key to reducing pressure ulcers. By trying to respond to unpredictable work rapidly, the PCTs/NA undercut their ability to do predictable tasks reliably.

This model assigns work based on task predictability, rather than giving all PCTs/NA an equal number of patients. The RR completes predictable tasks, while the VR addresses unpredictable tasks. The model alleviates competing priorities and helps to ensure that critical tasks impacting patient care and outcomes are accomplished more reliably.

MODEL DESIGN AND EARLY TESTING

The model was designed and tested via simulation by a multidisciplinary team from the center. Groups of nurses were invited to observe and provide comments for further refinement. In December 2009, Magee-Womens Hospital of UPMC became the first hospital to volunteer to test the model on a 36-bed medical nursing unit. The unit staff observed the simulation, and center staff collected baseline data on the test unit, including shadowing PCT staff.

Figure 1 is a visual depiction of patient visits by a PCT in the traditional model. Yellow indicates gaps of time between visits.

Working collaboratively to adapt the RR/VR model concepts, the center staff and unit staff at Magee tested the model for several months. PCTs and unit leaders designed and redesigned a specific task schedule for the RR and a framework of tasks for the VR. At Magee, two PCTs serve as RRs, each assigned to 18 patients, and one PCT serves as the VR, covering all 36 patients on the unit. Although staff reported feeling ahead or in control of their workload in comparison to the traditional model, there was initially some resistance to change since the approach was untested and staff needed to alter how they thought about their work. With time and attention, the benefits surfaced, trust in the model grew, and staff became comfortable.

Data from the test unit were promising. Response time to call lights decreased from a range of 1 to 14 minutes to 0 to 2 minutes. Blood work turnaround decreased from a range of 10 to 150 minutes to 8 to 28 minutes. For patients coming back to the unit from testing, the time elapsed between returning to the unit and when they were seen by staff decreased from 9 minutes to less than 2. Additionally, as the VR managed interruptions, the design also increased reliability of tasks that had been previously missed (turning, rounding, passing water pitchers, etc.).

EARLY SPREAD OF THE MODEL

The first unit’s success led to the question of whether the model could be replicated. In December 2010, another unit at Magee, a 28-bed medical-surgical unit, requested to be a spread unit. Since the unit was temporarily closing for renovations, staff working on the unit rotated through the initial pilot unit. Their early response was that the model would never work on their unit. When the second unit reopened, they immediately began testing the RR/VR model using the same schedule and task separation as the initial pilot unit.

It became clear that the addition of surgical patients, with their specific needs, meant that adopting the operational guidelines from one unit onto another was not feasible.
However, these challenges presented an opportunity; the unsuccessful initial implementation achieved immediate staff engagement when they were asked to redesign the model to work for them. PCT brainstorming sessions were held to delineate unit-specific predictable and unpredictable work. Frontline staff designed the R.R. and VR. schedules, and in the end, both the schedule and tasks were customized.

Specific differences included the inclusion of three designated times for ambulation rounds, specified rounds to check sequential compression devices, and differences in volume of 4-hour vital sign checks. Training sessions were held for the entire unit so all staff understood the roles. The unit also identified several communication strategies, including using the same phone for the VR at all times.

The unit immediately implemented the model across the entire daylight shift. The focus was “How well will we adapt the model so it works here?” Leadership support was critical; the unit director consistently relayed the message that this was the new way that PCTs would provide care. The unit director also held staff huddles several times each week and worked with staff to solve problems as needed.

Outcomes on this unit included significant improvements in patient satisfaction and staff perception in the effectiveness of their care. Figure 2 shows improvements in Hospital Consumer Assessment of Health Providers and Systems (HCAHPS) scores around patient perceptions of receiving help toileting as soon as they wanted. Figure 3 shows improvements in Press Ganey responsiveness to call light scores. Figure 4 shows staff perception of whether the care tasks were done as often as they should.

SPREADING TO THE SYSTEM
During implementation at Magee, the center received many requests from other nursing leaders around the system for more information about the model. Pilot unit leaders gave presentations about the model in several internal and external forums. It became clear that there was interest in a larger spread. So, in April 2011, the pilot unit leaders met with the UPMC chief nursing officer to share results and discuss next steps. They created a plan to spread the model to one unit at every UPMC hospital. To do this, the center packaged the concepts, tools, and lessons learned into a toolkit/execution package for leaders of new spread units.

In June 2011, clinical directors from around the system came to a 2-hour kickoff meeting at which Magee leaders shared their stories and lessons learned from implementation. All leaders were given a toolkit and asked to choose a spread unit and to assemble a team of nurses, PCTs/NA, educators, health unit coordinators, and unit leaders to bring to a kickoff event.

The full-day Reliable and Variable Implementation Workshop was held in August 2011. On this day, 130 attendees from around the system gathered at Magee to learn how to implement this model on their unit. Magee leaders and pilot unit PCTs shared their stories of implementation and the model’s advantages and challenges. Center staff reviewed the toolkit in detail and gave a presentation on overcoming resistance to change. Unit leaders were given instruction on and time to practice shadowing staff. The PCTs/NA attended a breakout tailored to further engage them in the redesign. Staff worked as a team to begin designing the model for their unit. This meeting, which allowed teams to have uninterrupted, offsite time to come together and think differently, was extremely effective in engaging teams.

As the pilot sites began implementation, the system support structure was carefully designed to help them overcome barriers and keep the project moving forward. An e-mail listserve and a central SharePoint Web site were created to give all teams easy access to one another and each other’s
Figure 4. Staff Perception Of Whether Care Tasks Were Done As Often As Necessary

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>58.30%</td>
<td>70.80%</td>
</tr>
<tr>
<td>Turning</td>
<td>50.00%</td>
<td>91.70%</td>
</tr>
<tr>
<td>Feeding</td>
<td>66.60%</td>
<td>95.90%</td>
</tr>
<tr>
<td>Hourly rounding</td>
<td>33.40%</td>
<td>75.00%</td>
</tr>
<tr>
<td>Call lights/requests handled promptly</td>
<td>66.70%</td>
<td>95.80%</td>
</tr>
<tr>
<td>Providing fresh water to patients</td>
<td>58.30%</td>
<td>83.30%</td>
</tr>
<tr>
<td>Emptying urinals/hats/foleys</td>
<td>75.00%</td>
<td>87.50%</td>
</tr>
<tr>
<td>Emotional support</td>
<td>50.00%</td>
<td>70.80%</td>
</tr>
<tr>
<td>Hygiene/ADL’s</td>
<td>91.70%</td>
<td>95.80%</td>
</tr>
<tr>
<td>I+O documentation</td>
<td>66.70%</td>
<td>75.00%</td>
</tr>
</tbody>
</table>

Figure 5. Site-Specific Process Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Site</th>
<th>Baseline</th>
<th>Post 88/VR</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Boards updated</td>
<td>Shill 68</td>
<td>73%</td>
<td>100%</td>
</tr>
<tr>
<td>Turning and repositioning</td>
<td>Horizon</td>
<td>65-85%</td>
<td>100%</td>
</tr>
<tr>
<td>Bedside Commodities emptied</td>
<td>Mercy 30E</td>
<td>67-75%</td>
<td>73-89%</td>
</tr>
<tr>
<td>Fall reduction</td>
<td>MoFC</td>
<td>0 total/shift</td>
<td>100%</td>
</tr>
<tr>
<td>Patient hand washing compliance</td>
<td>3 Mansfield</td>
<td>2.52%</td>
<td>1.03%</td>
</tr>
<tr>
<td>HAI incidence</td>
<td>3 Mansfield</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Overtime</td>
<td>Magee 3000</td>
<td>PFT 11:30/3000</td>
<td>Actual: 704/22</td>
</tr>
<tr>
<td>Overtime</td>
<td>Magee 3002</td>
<td>PFT 11:30/3000</td>
<td>Actual: 704/22</td>
</tr>
<tr>
<td>Call bell response time (in calls meeting unit target)</td>
<td>Pfastair 6M</td>
<td>87%</td>
<td>96%</td>
</tr>
<tr>
<td>I+O completion</td>
<td>Hamot 75</td>
<td>55%</td>
<td>74%</td>
</tr>
<tr>
<td>Ambulance</td>
<td>Bedford MS</td>
<td>63-100%</td>
<td>100%</td>
</tr>
<tr>
<td>Fresh water passed</td>
<td>ShY 6M</td>
<td>62%</td>
<td>100%</td>
</tr>
<tr>
<td>New patients arrival to time seen by staff</td>
<td>ShY 7W</td>
<td>15.5 mins avg</td>
<td>4.4 mins avg (72% decrease)</td>
</tr>
<tr>
<td>Blue alarm ring time</td>
<td>PIM 5G</td>
<td>54-60 min</td>
<td>46-48 min</td>
</tr>
</tbody>
</table>

Project documents. An improvement specialist from the center was assigned to each team to help with problem solving and questions. Most effectively, current monthly all-team calls focus on issues, provide education and general knowledge, and allow sites a structured time to share stories, ask questions, and learn from each another.

INITIAL RESULTS OF SYSTEM SPREAD

By November 2011, 16 additional units across 10 UPMC hospitals implemented the RR/VR model. A unit director survey was distributed to assess perceptions of these frontline nurse managers regarding the model’s effectiveness. The survey showed that 73% of unit directors agreed or strongly agreed that essential predictable tasks were being completed on a routine basis, 93% agreed or strongly agreed that unpredictable work was being completed in a timely manner, and 93% would recommend this model to other units.

Top challenges include the need for PCT education, PCT/NA staffing issues, nurse cooperation, education on who to call for assistance, and the need to spread the model beyond the day shift. Top wins include better, more consistent patient care; better staff satisfaction and teamwork; better patient satisfaction; decreased call bells; and improved organization of work on the unit.

In addition, pilot units collected a set of change data related to individual process measures. These data show improvements in tasks, including frequency of ambulation, consistently providing fresh water, and regularly emptying bedside commodifies. Figure 5 shows other site-specific process measures.

Outcome data for all units are being collected for patient falls, pressure ulcers, PCT/NA staff turnover, and patient satisfaction. As of the writing of this article, most sites only had 2 to 3 months of outcome data. Although it is premature to draw meaningful conclusions, the initial data look promising. Spread is continuing; the medical-surgical unit at Magee has spread the model to 24 hours, other hospitals are beginning to spread to additional shifts on the pilot units, and eight hospitals have begun spreading the model to additional units.

PARALLEL SUPPORTING WORK

The testing, implementation, and spread of this model have helped to both uncover and solve many related problems. One problem that quickly arose during early testing was a lack of reliable report information for the PCT/NA.

Although UPMC had an electronic health record in place, there was no central location for a PCT/NA to access the information he or she needed. Units attempted to solve this problem through various strategies, but none of these methods were able to consistently, reliably, and efficiently provide the needed information. It became clear that this problem needed to be solved, both to support implementation of the RR/VR model and to provide safe, reliable care more broadly. The electronic health record team at UPMC was engaged and agreed to build a PCT/NA report, which was implemented in December 2011.

Staffing challenges were a second problem the PCT/NA group faced. PCTs/NAAs are frequently pulled to other units or to be 1:1 sitters, which compromises the integrity of the care provided on the unit. The staffing problem is being handled a variety of ways. From a recruitment perspective, a screening tool is being used to help leaders better identify the right candidates. Applicants are given the opportunity to shadow current PCTs/NAAs in order to see firsthand what the job requires. A PCT/NA ladder has been created at UPMC to help retain and reward quality staff. Although some UPMC hospitals already had a PCT council in place, all the remaining sites were asked to implement a council to discuss/resolve specific PCT/NA issues.

Some sites are working to identify ways to provide sitters, including the possibility of training other staff to be a part of the sitter pool. Finally, sites are working to create contingency plans for the RR and VR model, for when staffing is inadequate. These contingency plans are highly specific, not only...
As we continue with NP onboarding expansion activities, NSLIJ has established system- and hospital-level NP councils, hired a corporate director of advanced practice nurses, and increased interprofessional continuing education. Plans are underway to develop an NP/PA critical care residency program.

Focused attention on NPs as team members is necessary in today’s healthcare environment. Using an interprofessional orientation program can provide a springboard for a successful NP onboarding process.

References

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about who will support the PCT/NA in getting work done, but also about what tasks will be done by others.

Because of the structure that the RR/VR model provides, work becomes very transparent; leaders can easily see whether staff are on track, ahead, or behind. In addition, opportunities for re-education become clear very quickly. These educational needs were always present but now have been exposed and can be addressed at the unit level. On a system level, curriculums for orienting new PCTs/NA to the role are being reviewed in an effort to standardize them and potentially centralize training to better use UPMC resources.

CONCLUSION
Implementation of the RR/VR model shows that, although challenging, a culture can be changed over time. The model represents a significant change in mindset for caregivers in that they no longer try to do “everything” for their patients but rather share the care of their patients with team members. Helping staff at all levels understand the design flaws in traditional work distribution, what it means to design for high reliability, and the implications if we do not succeed are key foundational elements for success.

Implementing this model requires a commitment from leadership to understand the details of the work, to support the PCTs/NA making the change, and to stay close to the work, especially during times of rapid change. Engaging the staff to understand the concepts of predictable and unpredictable work, to serve as leaders in adapting the model to their unit, and to stay focused and committed to the model until they establish “a new normal” are critical for successful implementation. Using the concept of building predictable work into a schedule and re-routing unpredictable work to a different pathway, the RR/VR Care Delivery Model can be used to solve many problems in healthcare today.

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