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Improving Patient Care by Making Small Sustainable Changes: A Cardiac Telemetry Unit's Experience

Executive Summary

- ▶ With the introduction of each new drug, technology, and regulation, the processes of care become more complicated creating an elaborate set of procedures connecting various hospital units and departments.
- ▶ Using methods of Adaptive Design and the Toyota Production System, a nursing unit was able to redesign work systems to achieve sustainable improvements in productivity, staff and patient satisfaction, and quality outcomes.
- ▶ The first hurdle of redesign was identifying problems, to which staff had become so accustomed with various work arounds that they had trouble seeing the process bottlenecks.
- ▶ Once the staff identified problems, they assumed they could solve the problem because they assumed they knew the causes.
- ▶ Utilizing root cause analysis, asking, "why, why, why," was essential to unearthing the true cause of a problem.
- ▶ Similarly, identifying solutions that were simple and low cost was an essential step in problem solving.
- ▶ Adopting new procedures and sustaining the commitment to identify and signal problems was a last and critical step toward realizing improvement, requiring a manager to function as "teacher/coach" rather than "fixer/firefighter."

IN SEPTEMBER 2004, A 36-BED medical/telemetry unit at Porter Adventist Hospital in Denver, Colorado began learning how to make small improvements in the course of their work using the scientific method. The unit's starting condition, its learning process, hurdles along the way, and importantly, results are reviewed.

The Unit's Condition at the Start

As the initiative began, the unit's nurse manager had resigned recently and the staff were planning for a temporary move to another unit while their "home" unit was renovated. Some physicians who used to send their patients to the unit had either experienced or heard of incidences on the unit that damaged their confidence in the staff, and opted to send their patients to other units instead. Staff were discouraged and wanted to reestablish the physicians' confidence in their ability to care for

patients. Other hospital departments viewed the unit as disorganized and chaotic. In fact, they said it was about time someone worked to improve the unit.

Learning a New Way to Work

Amidst interim leadership and moving to a temporary home, the unit began learning to work differently. The learning was supported by a new nurse educator, the unit's nursing director and, significantly, the CEO of the hospital.

The method the staff learned to improve their work, Adaptive Design® (Kenagy, 2005), embodies the principles of disruptive innovation (Christensen, Bohmer, & Kenagy, 2000) and the Toyota Production System (TPS). TPS is often characterized as "lean," but is more accurately understood through application of the "Rules in Use" (Spear & Bowen, 1999). The first three rules call for activities to be specified, and for connections and pathways to be spec-

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Figure 1.
60-Minute Observation of a RN

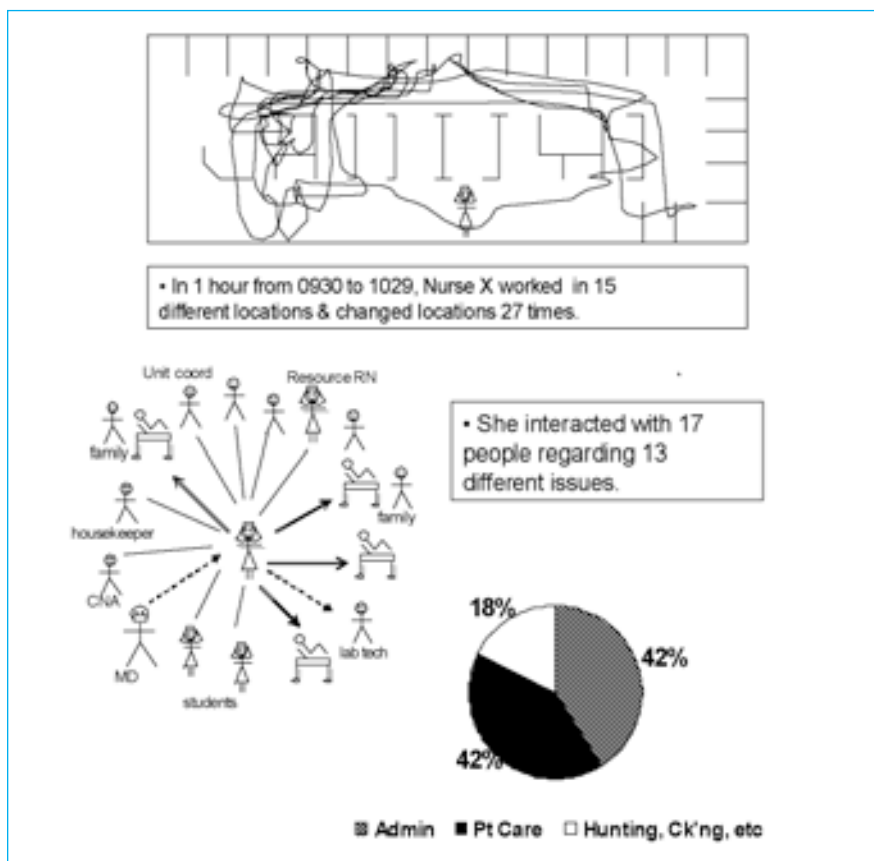
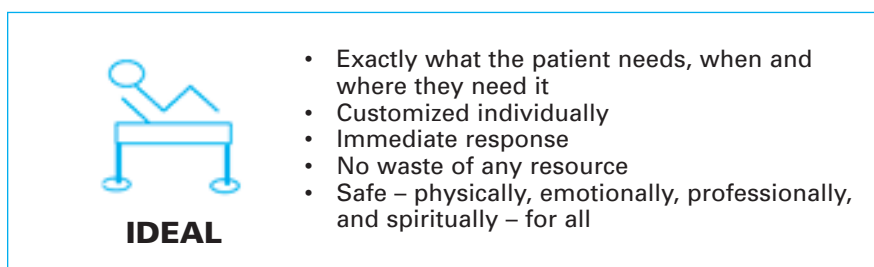


Figure 2.
Ideal Patient Care



ified, simple and direct. The key fourth rule specifies that any improvement to the work should be made under the guidance of a teacher/coach using the scientific method. Staff members learned to problem solve at the bedside under the guidance of a teacher/coach. They solved problems whenever they lacked needed to

tools and abilities to deliver high-quality care to their patients.

Hospital Culture: Surmounting Five Giant Hurdles

The first step was to learn how the work happened on the unit. Under the guidance of a teacher experienced in Adaptive Design, designated staff from the hospital

and the corporate (Centura) office spent 2 weeks learning from staff how work happened on the unit. The learning occurred by directly observing staff. Detailed drawings were made depicting staff's work (activities) as well as how patients were admitted, discharged, received medications, went for testing, got their therapies, etc. (connections and pathways). All the drawings were validated by staff (see Figure 1). The work observation period also helped to familiarize the unit staff with the teacher and coaches and decreased suspicion and fear of what was going to happen.

As the unit began its journey to problem solving at the bedside, it became apparent that learning to work differently would not be easy. Although Adaptive Design brought decision-making to the staff that would be most affected by the decision, it defied the accepted culture of how the hospital traditionally worked. The switch to implementing small changes at the bedside affected all areas of the hospital. The reverberations of this project were felt everywhere.

The first hurdle – The problem with identifying problems: “We get used to them!” Primary to improving care was to increase staff awareness of when conditions were not *ideal*. The definition of ideal patient care was specific (see Figure 2). The specificity of the ideal definition made it easy for staff to tell if the conditions were met. The conditions were purposefully binary. Staff members knew whether the patient received what he or she needed, if it was customized, if there was any waste, and so on.

Identifying problems seemed simple at first; however, staff had grown so accustomed to working around problems that they were nearly blind to their existence. Hospital staff members can become accustomed (even rewarded) for patching things together, or first-order problem solving (Tucker &

Edmonson, 2003). First-order problem solving can be defined as doing what you need to do now to get a patient what he or she needs, or “working around the system.” However, these work-arounds never get to the root cause of the problems, so they instead become part of the work.

One example was ordering supplies on the computer. The process included placing the order, waiting an unspecified amount of time, calling central supply (CS), checking in all the different places that delivery might have occurred, calling CS again and describing the product, and finally obtaining the needed supply. When a supply was needed for patient care, staff had neither the time nor energy to problem solve the ambiguous process. All they could do was be grateful that it arrived this time. Ordering supplies the next time was a problem for another day.

As staff learned the definition of ideal patient care, they began to recognize that this process was cumbersome and not ideal. They began to see that working around the system to get the supplies they needed week after week took valuable time away from patient care. They also experienced a feeling of dissatisfaction with their previous acceptance of the non-ideal. By gaining a new perspective on what would be best for their patients, staff could say with authority, “This process does not lead to ideal patient care.”

Solving the problems surrounding a system that does not deliver what staff members need to provide ideal care to their patients began chipping away at longstanding, chronic work-arounds on the unit. The Adaptive Design methodology harnessed the knowledge, creativity, and problem-solving ability of all the staff to improve their work by problem solving non-ideal situations. However, this was not typical to the culture of the hospital, and bucking the culture was difficult.

As problems began to be acknowledged, the next hurdle appeared: Discovering how the problem happens.

The second hurdle – The problem with observing the current condition: “We already think we know the answer!” As staff learned to recognize problems, they became keenly aware that they had lived with the problems for a very long time. Thus they felt that they knew how problems occurred, why they occurred, and how to solve them immediately. However, process problems are rarely simple to solve and have multiple factors in their creation. This was one of the reasons why process problems like ordering supplies had become chronic and were not addressed previously.

The Adaptive Design method helped make looking at processes much easier. The first step in the process was observing the current condition. This learning through observation was not easy for the staff. Observing required actually watching the process with no distraction and literally drawing the process out as it occurred. Until staff actually watched the supply acquisition process, they had no idea what was causing the problem. After drawing out the process on paper, the real problem emerged. In this case, the problem was that the computer-generated order did not contain enough information for the supply tech to know what supply was being ordered and when it was needed. The process also did not specify the time and place of delivery, or whom to call if there was a problem. Observing the process was the first step in actually solving the problem. Without observation, staff may have never discovered the real problem and might have spent time on solutions that were not pertinent.

The third hurdle – Examining the root cause: “This is so hard!” The next step in the Adaptive Design method was to find the root cause of the problem. The method

forced the problem solver to ask “Why” five times. This required staff to analyze and ask questions. In the example of the supply delivery, the “whys” looked like this:

Problem: The process to obtain needed supplies is cumbersome and takes time away from patient care.

Why?: The supply doesn’t arrive when they need it.

Why?: CS didn’t know when the unit needed it.

Why?: The ordering process does not specify the time and place of delivery and what the CS staff need to do to troubleshoot if the supply order is not clear.

Why?: The connection between CS and the nurse needing the supply was not specified.

Why?: The entire process to obtain supplies in a timely manner is not specific enough.

Asking the five “whys” led to the root cause of the problem.

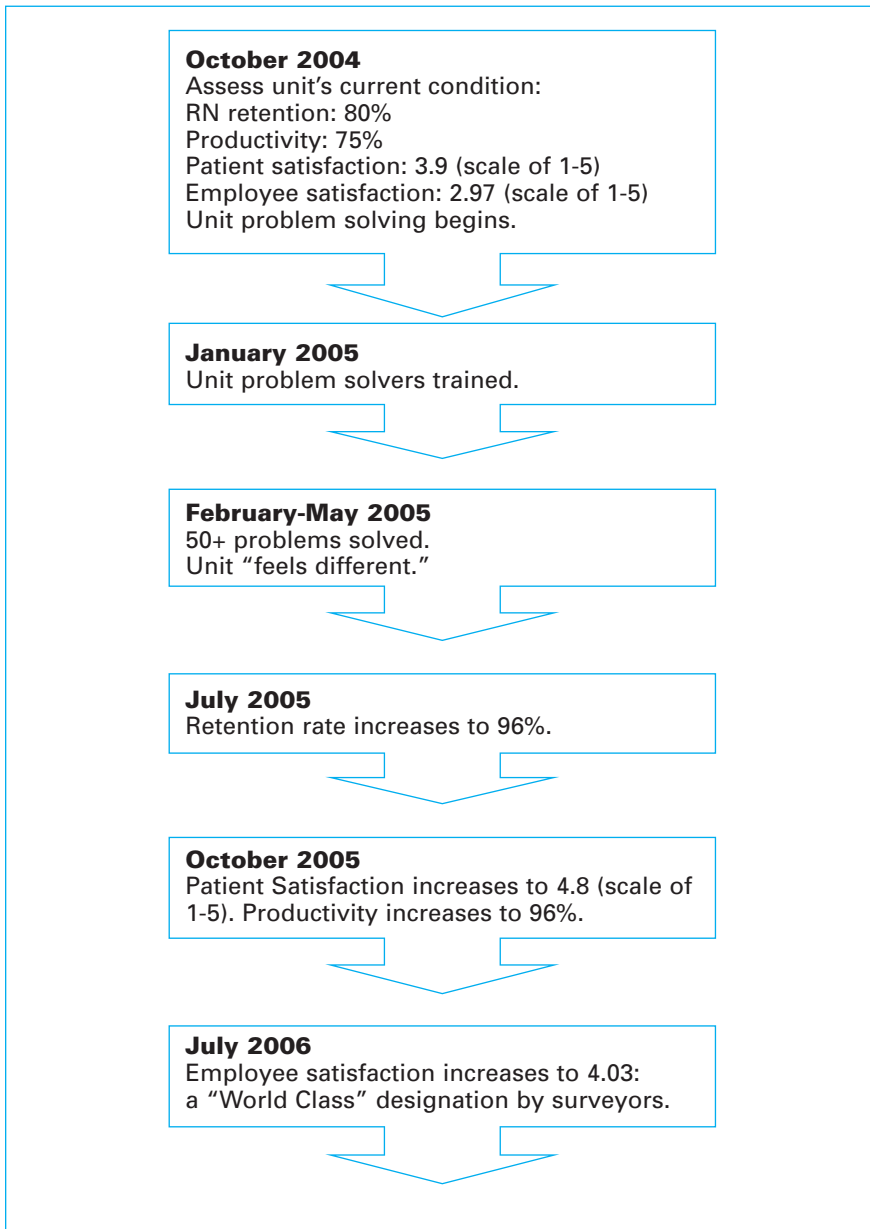
The fourth hurdle – Identifying possible solutions and creating a more ideal way to work: “Can’t we just buy a new system?” The next step required identifying possible solutions to the problem and envisioning a target condition that would be more ideal. The challenge in this step was to choose a solution that was simple, used little or no extra resources, and was the least costly. Broad, expensive solutions were not considered (Liker, 2004). Only solutions that the unit staff could implement were considered so that the solution would not become someone else’s problem.

In the case of the supply delivery, the target condition counter measure stemmed directly from an understanding of the root cause: specify the process for obtaining supplies. Counter measures taken to move work from the current condition to the target condition included specifying details such as exact time needed and place of delivery when placing the order in the computer. It also listed how and who to signal if the process

Table 1.
Examples of Problems Solved and Time Spent on Work-Arounds

	Work-Around	Adaptive
Supply delivery	20 minutes	0
Nursing report	45 minutes	20 minutes

Figure 3.
Timeline and Measurable Outcomes



January 2005
 Unit problem solvers trained.

February-May 2005
 50+ problems solved.
 Unit "feels different."

July 2005
 Retention rate increases to 96%.

October 2005
 Patient Satisfaction increases to 4.8 (scale of 1-5). Productivity increases to 96%.

July 2006
 Employee satisfaction increases to 4.03:
 a "World Class" designation by surveyors.

was not working. The CS coordinator was to be notified and his name was listed at the nurses' station. In addition to improving the unit's experience ordering supplies, these changes helped CS learn how to improve their work throughout the hospital.

The fifth hurdle – Bucking the traditional hospital culture: "It's easier not to." The steps outlined previously were very different from how the hospital operated. Porter Hospital (like many other organizations) did not typically reward employees for continually signaling problems. General hospital culture had been to reward those resourceful employees who over the years have figured out how to work around the system. Also, a method that requires direct observation of the work at the bedside and improving the work at the point of care over and over again was not familiar to most of the hospital staff. More often than not, patient care methods are improved through broad, hospital-wide initiatives.

The one concept that was easily accepted by the hospital was the concept of ideal patient care. This rang true for everyone. When other departments saw how a process made an impact at the bedside, they were eager to help and improve.

This change, however, forced the managers of the departments to work differently. Managers now needed to be open to hearing all of the conditions that were not ideal. This was a change because staff had rarely brought the work-arounds to the manager's attention. The manager then needed to change her perception of her job as a "fixer" or "firefighter" to "teacher/coach," assisting staff to problem solve to root cause. This was not easy. Staff felt a certain comfort level when they could give away problems to the manager and some managers viewed their worth by their ability to rescue staff from problems.

Figure 4.

10 Tips for Achieving Ideal Patient Care Through Adaptive Design®

1. Do not substitute assumption for direct observation at the point of service.
2. When faced with a challenge, always ask, "Is this ideal patient care?" and use ideal to clarify your direction.
3. There is no life without learning and change.
4. Higher core values need to rule: integrity, courage, and character.
5. Lower core values will not last without the higher ones: productivity, outcomes, etc.
6. Do not be discouraged when something fails. It is all part of the learning, and an opportunity to redesign.
7. Process improvement on this level is hard work! But that's why it works for the long term.
8. Go for the simple solution first. Technology often isn't the answer.
9. Map out your process on paper. Sometimes the obvious is not clear until you see it drawn out.
10. Do not give up! Patient care is depending on you.

The End Result

As the staff became problem solvers instead of "victims" of the problem, many things began to occur. The first change noticed was the increased productivity when time is not wasted on "hunting and fetching." As problems were identified and solved, the time saved was significant (see **Table 1**).

This time saved was reflected in productivity, staff satisfaction, patient satisfaction, and quality indicator gains. Although cost savings were not formally measured, by increasing nurse retention rates, the unit avoided the expenses associated with hiring and orienting new staff, or bridging the staffing gaps with agency personnel. Figure 3 shows the progression of improvement through the course of the project. The biggest difference on the unit was summed up succinctly by one staff RN: "We are constantly learning and coaching our team. With such a focus on continual learning and improvement, we can become even better nurses, which in turn improves our patients' comfort and satisfaction with care."

When asked to reflect on how the changes were sustained, the unit manager had difficulty naming one specific intervention that caused the unit's dramatic improvements. She compared it to

the Toyota employees' difficulty in explaining their successful process. "This is the way we work now. The unit culture has changed."

Sustainability

As the time approached for the unit to move back to their newly renovated space, two nurse problem solvers used what they had learned to specify every detail of the move. Locations for equipment were outlined in storage areas. The outlined locations not only helped during the move, they made it very clear to staff what should be stored where. The timing and sequence of the move were also clearly specified. The nurses detailed who was moving what or whom and when. The result was that the move into their new home went much more smoothly than previous moves and routine care for patients barely skipped a beat.

As the unit staff developed mastery in the method, the external problem solvers were reduced and designated staff from the unit were trained as problem solvers. This included the new unit manager, the nurse educator, resource (charge) nurses, and key frontline staff. As more and more problems were solved, staff noticed that the unit was working differently. One morning when the manager

arrived at work, one of the night shift staff remarked that the unit was different. She noted that "...things are better around here." Float staff in particular noticed a difference from their last experience floating to the unit. By making small improvements in their work every day, staff were changing the culture of their unit (see Figure 4).

Conclusion

As Spear (2005) indicates, it is possible to score big gains through small changes. One year after the unit staff started learning how to work differently, they solved more than 100 problems and their patients' satisfaction had increased concomitantly with significant staff productivity improvement. Previous efforts at productivity improvement often led to dips in patient satisfaction. The unit's success was obtained without meetings, project teams, or task forces. Using the creativity, knowledge, and problem-solving ability of all staff on the unit to continually solve problems whenever care is not ideal, creates a culture of improvement that is sustainable. \$

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