

Applying Best Practice in COPD

Outcomes

- In one year, 2008-2009, UPMC St. Margaret posted a **48% reduction in readmissions for COPD**, exceeding its aggressive goal of 40%
- An estimated savings to the hospital of over \$85,000
- Saved the equivalent of 1.3 FTEs, enabling the hospital to add just one FTE, not the predicted two
- Improvements were immediate, and have been sustained

When a chronic condition worsens to the point where the patient needs hospitalization, in all likelihood some aspect of care has already fallen through the cracks. Perhaps the diabetic patient did not receive enough information to manage his condition, or the asthmatic patient didn't realize that, by skipping her flu shot, she would risk not only getting the flu, but serious lung complications.

Once stabilized and released from the hospital, the last thing that should happen to those patients is readmission within days or weeks. Yet too often, it happens. And too often, readmission for patients with chronic disease can be considered "failure mode." It's bad for patients and expensive for hospitals and the health system.

UPMC St. Margaret Hospital in Pittsburgh, under the auspices of the Pittsburgh Regional Health Initiative (PRHI), decided to zero in on one broadly defined condition—chronic obstructive pulmonary disease or COPD—to see whether they could reduce readmissions by 40%. The COPD umbrella generally includes emphysema, chronic asthma, and chronic bronchitis. About a third of readmissions for COPD occur in people under 65.

Applying some relatively simple and well established clinical guidelines (below) often results in dramatic improvements for patients. The key word is "applying." The guidelines are known: their application is inconsistent.

A team at UPMC St. Margaret began improving their COPD protocol, with the objective of having each patient, by discharge, achieve full

understanding and mastery of the steps and medications to be taken. But even with a perfect protocol, how could they be sure that its benefits would reach every patient, every time?

PRHI called on its partner, Healthcare Performance Partners (HPP) to introduce Lean Healthcare into the implementation.

"This is a typical situation, in which Lean works so well," said PRHI's President Karen Feinstein. "Often, clinicians know 'what' to do: Lean provides the 'how.'"

Why Kaizen ?

Ideally, Lean thinking is applied hospital-wide by every person every day. Issues and problems that surface can be dealt with, one by one, collaboratively, in the course of work using Lean thinking, training and tools—even if an issue involves other units. However, when a single, intractable problem is felt across many units, a Kaizen event is often the most efficient means of dealing with it rapidly.

COPD readmission was the type of problem that can be untangled in a Kaizen event, a focused, dedicated activity to improve one process (or "value stream") quickly. With full support and participation by managers and people from every affected department and unit, the concentrated effort and experimentation can be condensed into a few days.

Initial findings

During the initial workshop, the team discovered that most patients did not know how to use their inhalers properly— and figuring it out was not as

CLINICAL GUIDELINES FOR LONG TERM TREATMENT FOR STABLE COPD*

1. Avoidance of risk factors; influenza vaccination
2. Add rapid-acting bronchodilator when indicated
3. Add short- or long-acting bronchodilators and pulmonary rehabilitation
4. Add medium- to high-dose glucocorticosteroids or antibiotics when indicated
5. Add long-term oxygen; consider surgical referral.

*Adapted from Global Initiative for COPD, www.goldcopd.org



Inhale slowly



Inhale quickly



Inhale quickly

Using inhalers isn't that simple. Some need to be inhaled quickly, some slowly. Patient education was falling between the cracks.

easy as it sounds. For example, some inhalers need to be inhaled quickly, some slowly. Patients were not receiving adequate training on their use.

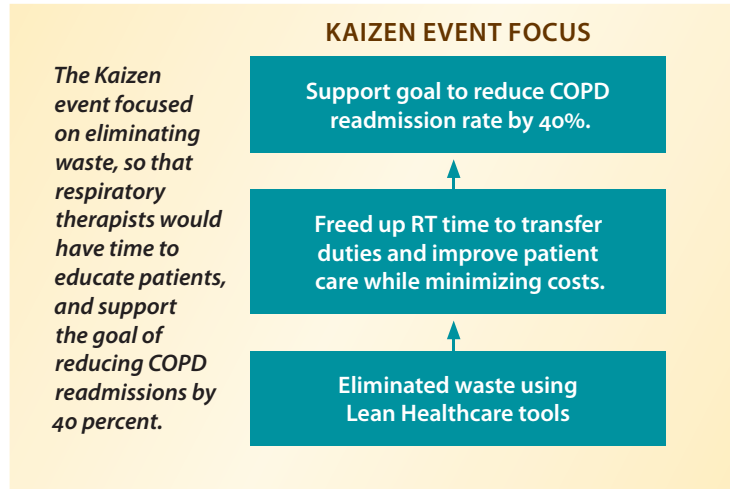
When they mapped their current condition, team members discovered why the current method of patient education was falling through the cracks: respiratory therapists and nurses each believed the other was providing it. The team agreed that patient education on issues like inhaler use and smoking cessation could best be given by respiratory therapists rather than nurses, and that it would take multiple sessions with each patient to ensure competence. This model would represent a big shift in traditional roles and responsibilities, but all involved agreed to try it.

Although such a change would be in the patient's best interest, for the respiratory therapists to take on so much more work would require more personnel. If nothing changed, the team estimated that the hospital would need to hire two full time employees (FTEs).

This specific issue provided the pivot point for the Kaizen event: Could we find enough time, through work efficiencies, to halve the required number of new FTEs—hiring one instead of two—and allowing the respiratory therapists to educate COPD patients, helping to reduce readmissions? And could the cost savings of the improvements cover the cost of the FTE, making the change revenue-neutral?

Kaizen work summary

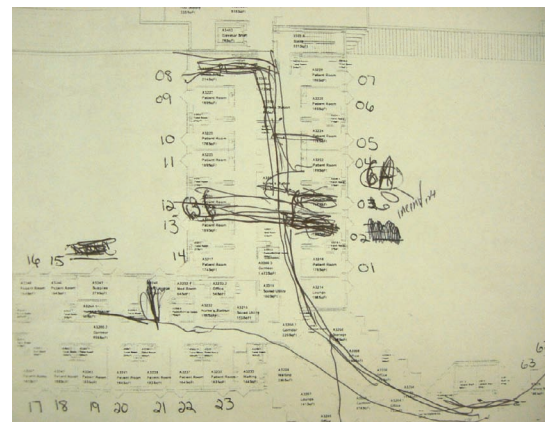
Lean efficiencies implemented during the event halved the expected number of required FTEs from two to one. The efficiencies involved doing more work in real time, and standardizing equipment, supplies and processes among respiratory therapists.



CONTINUOUS FLOW

Initially, staff members had tried to treat and educate three or four patients at one time, in the mistaken belief that it would save time. The clinician would start with one patient, then leave to start the next one. If a patient were in isolation, the therapist moving from patient to patient had to wash, gown and glove repeatedly. The travel time between patients added up. Not every patient received all necessary information.

Here was a big and counter intuitive discovery: not only did batching treatments fail to save time, it denied the therapist time to observe and evaluate the patient's understanding and proper use of the therapy.



Batching—that is, educating several patients at a time—did not save time, and in fact, resulted in poorer care. Seeing patients one by one worked better and saved time.



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“People thought they were being more efficient by ‘multitasking,’” said HPP’s Dwayne Keller. “Actually, they realized they were providing poorer quality care and weren’t saving time at all.”

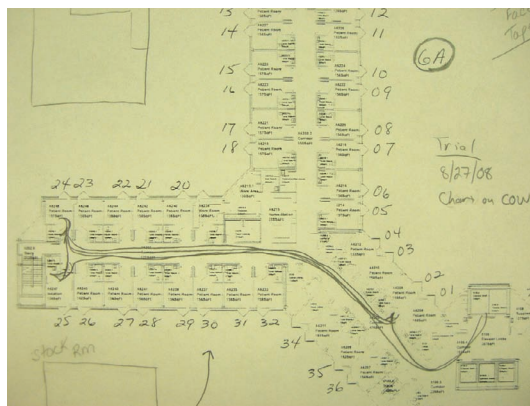
Respiratory therapists began treating and educating patients one by one, staying at the bedside to make sure each patient understood the instructions and was using each therapy properly. In the end, it actually saved time.

REAL-TIME CHARTING

Related to the batching of treatment and education was the batching of chart notation. After a series of encounters, therapists would have to rely on their memory to chart them all. Mapping out their “future state” made the case for the efficiency that could be achieved with a computer on wheels. Now, therapists start and finish a treatment, educate the patient, and chart the encounter before moving on.

Continuous flow and real-time charting saved over two minutes per treatment, which translated, over a year, to one FTE.

A computer on wheels made one-by-one treatment and education more efficient and accurate.



WORK ASSIGNMENTS

Because work assignments were made at beginning of each shift, respiratory therapists coming to work had to wait for their assignments. Now, assignments are made on the preceding shift, and people can immediately start to work. The change saved 10 minutes per respiratory therapist on each day and evening shift, or .3 FTE.

STANDARDIZED CARTS

To eliminate searching for laptops, supplies, medications and labels, the team standardized and labeled each cart using the discipline of 5S. They also arranged for each cart to be filled before the start of each shift. This change saved two minutes per person, per shift.



(Top, before; bottom, after) Each drawer in each cart was standardized and labeled. Anyone can easily find (or stock) items in the cart now.

Having all items in a predictable place, always at the ready, means less confusion for workers and more safety for patients. However, the team discovered and corrected an even more critical patient safety problem in one drawer. The drug Xopenex, used to treat wheezing, was found in identical containers that contain two dosages: .63 mg and 1.25 mg.

Manufacturers are not required to provide radically different labels for differing dosages, making it all too easy for a clinician to grab the wrong dose. Until drug manufacturing rules change,

hospitals must make accommodation through human factors engineering, using graphic labels and distinctive placement of look-alikes to call out and avoid this potentially deadly confusion.

To address the Xopenex issue, the team moved the different doses to different drawers with highly distinctive labels to call special attention to the dosages.



The team discovered and corrected a potential patient safety issue, when different doses of the same drug, in identical containers, were discovered side-by-side.

SUSTAINING

The last of the 5S's is "sustain," and it's usually the most difficult to achieve. Without commitment from everyone on the team, and support from leadership, things have a way of drifting to a less ideal state. However, at UPMC St. Margaret, an impromptu check after one year revealed that the respiratory therapy carts remain standardized, clean and reliably stocked. Additional improvements have been made. The commitment remains high.

Results

In one year, 2008-2009, UPMC St. Margaret posted a 48% reduction in readmissions for COPD, exceeding its aggressive goal of 40%. In human terms, 16 fewer people required readmission, at an estimated savings to the hospital of over \$85,000.

Significantly, the Lean improvements saved the equivalent of 1.3 FTEs, enabling the hospital to add just one FTE, not the predicted two. The

added staff member helped to improve the quality of patient encounters with respiratory therapists.

While the Kaizen lasted just three days, the improvements were immediate, and have been sustained. Employees have begun spreading Lean thinking throughout the organization, and Lean is becoming part of day-to-day work at UPMC St. Margaret.

IMPACT OF COPD READMISSION REDUCTION PROJECT AT UPMC ST. MARGARET

30-Day Readmission Rates	Jan-May 2008	Jan-May 2009	Change	Readmissions Prevented (5 mos.)	Savings @ \$5,400/Admit
% of Discharges with Primary COPD Diagnosis, Readmitted within 30 Days for COPD or Pneumonia	12.4%	6.4%	(48.2%)	16	\$85,579