

# Using LEAN

*to redesign  
your team*



**A**s reimbursements fall and costs for services climb, organizations are forced to follow the painful motto of doing more with less. Toward that goal, the pediatric clinic for PeaceHealth Medical Group (PHMG) in Bellingham, Wash., implemented a cost-savings initiative to ensure that staff tasks were appropriate to licensure and to improve patient flow across clinics. The new approach reduced total patient visit time by 23 minutes, primarily through reduced time in waiting rooms and during handoffs between provider and clinic staff. It also decreased staffing needs and supply costs, and improved satisfaction for patients and caregivers.

As a faith-based multispecialty group of approximately 120 providers, PHMG was still able to abide by its mission that no patient will be turned away. Medicare, Medicaid and uninsured patients make up 54 percent of the payer mix at PHMG, which can make it challenging to meet budget expectations.

The pediatric clinic comprises 17 pediatricians, one nurse practitioner and one pediatric resident — a team that accounts for approximately 16.35 total full-time-equivalent (FTE) professionals. The pediatric group sees more than 250 patients a day, which requires evening and weekend hours. Patient volume continues to climb but the number of exam rooms is limited, which impacts patient flow. Pediatricians also provide hospital coverage that pulls 2.2 FTE pediatricians away from the clinic on weekly rotations, making coverage in the clinic burdensome for staff.

### Delineating nursing staff roles

The pediatric clinic's traditional staffing structure paired each provider with a registered nurse (RN), licensed practical nurse or medical assistant, who performed essentially the same tasks regardless of level of licensure. In addition to rooming patients, nurses were bombarded with medication refill requests, patient calls, referral requests and other tasks unrelated to patient care. These additional duties

interrupted patient flow, contributing to lengthy wait times, which led to disgruntled patients. Furthermore, the pediatric group is transitioning from paper charts to EHRs, which caused documentation redundancies. Despite these inefficiencies, the clinic staff resisted a new staffing model. Several providers had worked with individual nurses for years and were reluctant to change the relationship.

The pediatric department created a work group that included front-desk staff, nursing staff, physicians, a clinic manager, associate medical director and an internal process improvement expert from the PeaceHealth's Center for Process Improvement. The goal was to apply Lean strategies to develop a team approach for providing effective and efficient care. Lean is a management philosophy that began in the manufacturing industry through the Toyota Production System. A quick definition of "Lean" is to be as efficient and effective as possible in the workplace or to get more done with fewer resources in a timely fashion.

The first order of business at PHMG was to identify and reallocate tasks being performed by nursing staff members who were not directly involved in patient care ([Table 1](#)).

### Value stream mapping

After the work group identified tasks, members began evaluating clinic processes. The pediatric group chose to limit the scope of its patient flow project from the time immediately following registration to the moment a patient exited the exam room because this stage had significant delays. The project was also limited to one section of the clinic that had four of the busiest physicians. With the new hospitalist service, one of the pediatricians was likely to be out during the week, requiring additional coverage.

*see Using Lean, page 34*



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# USING LEAN

Table 1

Direct patient-related activities	Indirect patient-related activities
<ul style="list-style-type: none"> <li>• Triage/treat walk-ins</li> <li>• Triage phone calls as needed</li> <li>• Support hallway clinical staff</li> <li>• Provide patient education and counseling</li> <li>• Room patient</li> <li>• Retrieve chart/check well care packet</li> <li>• Conduct vision/hearing exams as needed</li> <li>• Complete intake notes on patient</li> <li>• Administer immunizations</li> <li>• Assist with procedures <ul style="list-style-type: none"> <li>- Lacerations</li> <li>- Ear washes</li> <li>- Circumcisions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Monitor temperature logs</li> <li>• Run morning controls</li> <li>• Maintain eye wash stations</li> <li>• Perform instrument management – clean/sort</li> <li>• Fax Rx refills</li> <li>• Check printers/fill with paper/distribute documents</li> <li>• Enter referral information/complete paperwork</li> <li>• Order clinical supplies/stock</li> <li>• Facilitate medical record releases for medical records department</li> <li>• Stock rooms</li> <li>• Manage messages for hallway providers and clinical staff</li> <li>• Refill medication</li> <li>• Process STAT authorizations and referrals</li> </ul>

The group first evaluated its current state using value stream mapping (VSM), which involves the following four-steps:

**Map the current process → Collect data → Analyze the data → Improve the process**

During this process, vital information is gathered to identify opportunities for improvement, including cycle time, roles of each staff member in the process, number of staff needed to complete the process, delay times, top reasons for delays and takt<sup>1</sup> time — a manufacturing tool derived from the German word *taktzeit*, which means “clock cycle.” Takt time can be used to identify the number of patients who can be seen in a given time span and the number of staff needed daily to accommodate the volume of patients. To calculate

staffing needs, the number of patients seen in a day is multiplied by the cycle time (seconds) and divided by staffing time (seconds) worked each day (excluding the lunch hour). High staffing needs indicate less efficient processes, which can result in staff overtime.

Based on the information gathered using VSM (Figure 1), PHMG cycle time from the point after registration to the point of exiting the exam room was 58 minutes. An average of 75 patients were seen in the hallway during eight hours of staffed work. The takt time for staffing this process was 9.06 FTEs. The three most common reasons for flow delays included full exam rooms, nurses who were busy in exam rooms so the next patient had to wait and nurses on the phone.

Table 2

Rooming Staff (LPN, MA)	RN Care Manager	Medical Office Assistant
<ul style="list-style-type: none"> <li>• Open rooms</li> <li>• Retrieve chart/check well care packet</li> <li>• Preview chart for completion (tests, etc.)</li> <li>• Monitor Wt/Ht/BP using standardized rooming procedures</li> <li>• Conduct vision/hearing as needed</li> <li>• Complete intake notes on patient</li> <li>• Administer immunizations</li> <li>• Prepare and assist with procedures <ul style="list-style-type: none"> <li>- Lacerations</li> <li>- Ear washes</li> <li>- Circumcisions</li> <li>- Stock rooms</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Manage messages for hallway providers and clinical staff</li> <li>• Complete medication refill requests</li> <li>• Triage/treat walk-ins</li> <li>• Process STAT authorizations and referrals</li> <li>• Triage phone calls as needed</li> <li>• Support hallway clinical staff</li> <li>• Perform patient education and counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor temperature logs</li> <li>• Run morning controls</li> <li>• Maintain eye wash stations</li> <li>• Perform instrument management – clean/sort</li> <li>• Fax Rx refills</li> <li>• Check printers/fill with paper/distribute documents</li> <li>• Enter referral information/complete paperwork</li> <li>• Order clinical supplies</li> <li>• Facilitate medical record releases</li> <li>• Back up front desk staff as needed</li> </ul>

## Revamp processes

The pediatric work group applied 5S, an approach derived from Japanese strategies, to standardize the workplace and improve efficiency. From a healthcare standpoint, 5S includes the following processes:

**Sort (Seiri):** Separate direct patient care from nondirect patient care activities. This applies to materials, supplies, paperwork and staff. While reviewing the VSM findings and analyzing staff roles, the work group sorted the nursing staff's nonpatient visit work and delegated it to the RN care manager, rooming staff and medical office assistant to streamline the work.

**Straighten/Systemize (Seiton):** Arrange necessary items neatly where they are most needed. The group rearranged exam rooms storing everything from otoscope covers to gauze in a logical place so staff knew where to find supplies and when to reorder them.

**Sweep (Seiso):** Keep the work area clean to eliminate redundant work. The work group assigned providers within the same hallway to cover for each other so the nursing staff could address patient issues with a provider on the same day and decrease tasks (clutter) for the next day.

**Standardize (Seiketsu):** Establish protocols and procedures. Rooming and discharge processes were standardized including obtaining the vitals, documenting the patient visit and providing discharge instructions.

**Sustain (Shitsuke):** Ensure that the first 5 S's are regularly performed. To date, the work group has sustained these processes and extended them to other areas of the clinic.

## Quality and performance indicators

After evaluating VSM results, redefining roles for the nursing staff and applying 5S techniques, the work group agreed on Key Performance Indicators (KPIs) — quantifiable measurements that determine success. Measures included decreasing total encounter time to 50 minutes and reducing staff overtime by 10 percent. Areas identified as critical to quality included improved patient satisfaction as well as

provider and staff satisfaction. Visit times were tracked using cycle times. The clinic manager tracked overtime using reports from Kronos, the group's electronic payroll system. Satisfaction metrics were tracked using questionnaires.

Once the measures were established, the clinic implemented the redesigned model, which has four providers, three clinical rooming staff, one medical office assistant and one RN care manager. Nursing duties were assigned by skill set and level of licensure (Table 2). Each member, including the provider, had clearly defined team roles.

*To see Figures 1 & 2, which illustrate patient flow before and after the redesign, visit [mgma.com/virtualconnexion](http://mgma.com/virtualconnexion) and click on the August 2011 issue.*

## Lessons learned

After six weeks of using the redesigned team approach, a new VSM was performed comparing the two models. With the changes, patient flow from the point immediately after registration to the point of exiting exam rooms and room discharge went from 58 minutes to 35 minutes (Figure 2). The staffing takt time went from 9.06 FTEs to 5.46 FTEs.

With increased efficiencies and redefined nursing roles, overtime related to patient flow was eliminated. Providers and staff completed their work at the end of each day. Patients and caregivers alike were happy with the team model redesign. One nurse said, "I truly appreciate being able to leave work on time and the efficiencies the system has provided." The work group is expanding the team model to other sections of the clinic.

To keep up with changing healthcare demands, clinics need to evaluate their processes and identify new methods of providing care. Applying lean strategies is a cost-effective method of improvement. To achieve real success, clinics should engage people in the evaluation process who will be directly affected by the changes in the lean projects. After all, they are the most knowledgeable of daily patient care challenges. 

### Notes:

1. Takt time — calculator, World Class Manufacturing [cited June 15, 2011]. [world-class-manufacturing.com/takt\\_time/takt\\_time.html](http://world-class-manufacturing.com/takt_time/takt_time.html).

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