THERESA CALLAGHAN

In recent years, a growing dissatisfaction with the imaging wait times on PEI emerged. Diagnostic Imaging therefore established a committee, and using the LEAN methodology workflow analysis, identified several key issues contributing to excessive wait times (Graban, 2009). These included scheduling practices, issues around equipment and human resources, and radiologist staffing. The committee established priorities based on these three key issues and the primary initiative that resulted was a teleradiology project, which addressed staffing shortages. This project has had a positive impact on wait times for appointments as well as wait times for X-ray reports.

From January 2009 until July 2011 PEI's CT wait times diminished from 22 weeks to three weeks or less. MRI wait times decreased from 33 weeks to eight weeks for cases prioritized as routine, elective, or non-urgent. How did this incredible change occur?

In 2006 Prince Edward Island committed to Canada's National Wait Times Initiative (NWTI) (Health Canada, 2004). This initiative provided federal funding to the provinces to improve access to health care in five major areas, including diagnostic imaging [specifically, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI)]. In joining the NWTI, the province agreed to report its wait times to the Canadian Institute for Health Information for web publication.

Growing Discontent

Diagnostic Imaging Services on PEI operate from two acute care and five community hospitals; two CT scanners and one MRI scanner serve approximately 140,000 people province-wide.

In recent years, a growing dissatisfaction with the imaging wait times on PEI emerged. A physician/nurse practitioner referral satisfaction survey conducted in May of 2010 indicated dissatisfaction with wait times for CT and MRI appointments and report times. Diagnostic Imaging also received many direct complaints from patients and referring physicians/nurse practitioners with respect to the length of time required to access imaging services.

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Scheduling Practices

Prior to the use of a provincial diagnostic imaging model, each of the seven hospitals scheduled its own patients for diagnostic imaging exams through the Radiology Information System (RIS). This lack of a comprehensive provincial model resulted in discrepancies among the various hospitals' wait times and in time passing before requests were entered in the RIS. Reorganizing the scheduling practice to a provincial model meant that patients were offered the first available appointment, regardless of their location. Equipment and human resources began to be used more effectively.

Importantly, scheduling templates were also improved to better reflect patients' acuity levels. The scheduling process was evaluated and adjusted to ensure that each requisition was entered in the RIS system as soon as it arrived, so that the data being used to prioritize patients was consistent and accurate. The process for prioritizing requisitions was standardized as a quality improvement measure.

Equipment and Human Resources

The existing technical staffing model was inadequate, inefficient, and provided limited hours of operation and access for CTs and MRIs; as a result, expensive equipment was underutilized. Appointment times were often inconvenient for patients as non-emergency CT and MRI services were only provided between 8am and 4pm Monday through Friday.

After joining the NWTI, the MRI wait time was helped by the addition of a general/MRI technologist, a focused clerical staff person for MRI, and extended hours. The NWTI provided additional technologist resources for CT scanning and as a result, the service extended its operating hours and the number of appointments it could offer to patients.

An upgrade to the hardware and software of the MRI scanner also increased throughput. Furthermore, the MRI staff adjusted protocols, scanning parameters, and exam schedules to decrease the length of exams and the time required for room preparation. These factors decreased the length of time for performing exams by 25 to 30 per cent.

Radiologist Staffing

Despite these changes, a chronic shortage of radiologists still limited Diagnostic Imaging's ability to significantly increase the number of exams that were read/interpreted; keeping wait
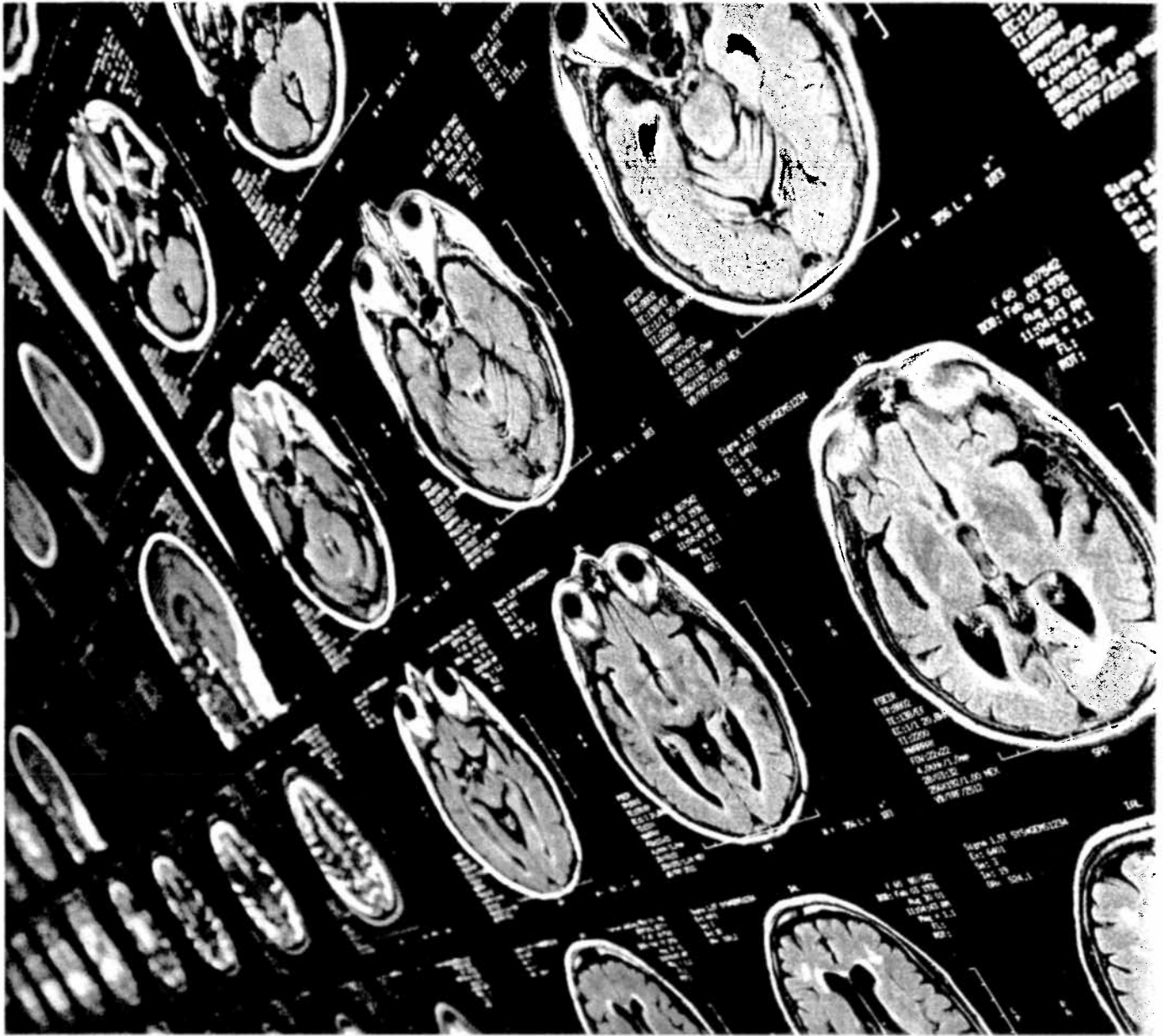
Teleradiology

times for reports at reasonable levels was a constant challenge. Although locum radiologists were hired as often as possible and provided good interim help, a long-term solution (i.e., consistent coverage) was necessary. There was also a shortage of radiologists who could interpret breast screening exams, and although breast screening was not a part of the NWTI, wait times for appointments were more than 12 months and needed to be addressed.

The committee established priorities based on the three key issues noted previously, and the primary initiative that resulted was a teleradiology project, which addressed staffing shortages. An agreement between the PEI Department of Health and a radiology group in the Capital Health region of Halifax, Nova Scotia has radiologists in Halifax providing temporary radiology services to PEI; the Halifax-based group needed to obtain licensing on PEI for this project.

*Note: Breast screening images were not part of the teleradiology agreement. A separate agreement with a radiologist from Ontario who was also licensed on PEI, provided on-site breast screening reports every three to four weeks for a period of two years. Though not part of the NWTI, this supported the reduction of breast screening wait times from 12 months to within three weeks.

In addition to the commitment of their daily workload, the Halifax-based radiologists interpreted a pre-defined number of studies each day for PEI and committed to a pre-determined turnaround time for reports. Their work included interpreting general X-ray, CT, MRI, and nuclear medicine images.* Physicians from PEI were given access to the radiologists in NS who had prepared their patients' reports if consultation was required.

The imaging performed on PEI was sent via a secure link to an on-site server in NS. Once the reports were transcribed, verified, and signed, they were returned to PEI for distribution. Images were deleted from the NS server once reports were completed; this ensured the security of patients' data and images. Furthermore, radiologists from NS had to be given permission to access the information from PEI.

This partnership enabled hospitals on PEI to increase the number of scans they performed and offered additional support to PEI's radiologists while recruitment efforts continued. This project has had a positive impact on wait times for appointments as well as wait times for X-ray reports.

Lessons Learned

In the course of these initiatives, our team of radiologists on PEI learned that:

1) There are usually many factors that contribute to a single problem. The time and attention that goes into determining what these issues are is time well spent. If five factors are contributing to a problem, and only one is addressed, the problem will remain. By determining exactly what was contributing to wait times, we were able to achieve dramatic results.

2) It is crucial to track data about your initiatives so you know whether your interventions are working.

3) It is imperative to remain flexible when initiating an improvement process; evaluation and changes were required at several stages of our process.

4) Finally – but perhaps most importantly – improvement initiatives require a number of dedicated professionals to provide their expertise in order to achieve decreased wait times, efficiency in the use of resources, and improved satisfaction for key stakeholders (e.g., patient, referring physician).

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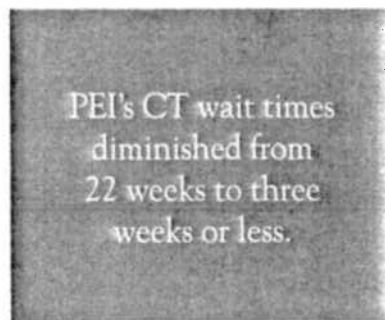
Results

A decrease in wait times for CT has been achieved and sustained since April 2009. A CT appointment can be requested and granted within a few days at sites that offer CT services. Staff satisfaction at these sites has increased as their workday is less compressed and workflow has improved.

MRI wait times gradually improved and have now leveled off at approximately eight weeks. This success requires constant monitoring to ensure that wait times do not climb as other pressures are exerted on the system. Q

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REFERENCES

Graban, M. (2009). Value and Waste. Lean Hospitals: Improving Quality, Patient Safety and Employee Satisfaction. New York: NY, Productivity Press.

Health Canada. (2004). National Wait Time Initiative. Retrieved from www.hc-sc.gc.ca/hcs-sss/finance/hcepep-pcpss/nwti-inrta-eng.phpealth