

Reducing the Time Female Patients Spend Waiting For Diagnostic Mammogram Results



**Submitted by Joe DeFeo, President, Juran Institute, Juran Health Care,
and J. Er Ralston, VP & Client Relationship Executive, Juran Health Care**



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About the Organization

- Small, nonprofit acute care hospital
- Client of Juran Health Care



The Project Team

- Six Sigma Black Belt (leader)
- Multidisciplinary project team selected by hospital leadership.
- Support team identified by core team:
 - Physicians
 - Diagnostic imaging staff
 - Transcription
 - Scheduling
 - Finance
 - Information services



The Problem

- The discovery of a breast lesion is a potentially life-changing occurrence for a woman, and it can be frightening and upsetting for her.
- The uncertainty and fear that accompany this finding are significant, and the time in between the initial detection and the diagnosis can be extremely difficult and stressful.
- To reduce its patients' stress and anxiety, a small nonprofit hospital set the goal of decreasing the amount of time that women had to wait to receive mammogram results.



The Problem (cont'd.)

- A review of 263 charts revealed that fewer than 15 percent of women reporting a lesion received a diagnosis within seven days.
- In addition, only 45 percent of women received their test results from a diagnostic mammogram within two days of the procedure.
- This lag in information was unacceptable and needed to be improved for the sake of the women involved.



Project Goal

Reduce the number of “sleepless nights” a woman spends waiting for a diagnostic appointment and its corresponding results.

- Increase the percentage of women receiving diagnostic mammogram results within two days of an appointment, from 45 to 80 percent.
- For women with a suspicious lesion, increase the percentage receiving diagnostic results within seven days, from 15 to 80 percent.



Project Goal

Other positive impacts were also anticipated:

- Improved patient satisfaction with mammography services.
- Reduced cost per exam through improved scheduling efficiency.
- Reduced dollars paid in overtime, which can run high because of a schedule that underestimates mammography volume.
- Increased diagnostic and surgical volume for breast cancer cases, resulting in increased revenue.
- Adjusted pricing and established profit margin for digital mammograms, resulting in increased revenue.



Root Cause Analysis

Using the Six Sigma define, measure, analyze, improve, control (DMAIC) process, the Juran-facilitated team identified five key areas for improvements:

1. Scheduling block too long. The basic unit of scheduling was 15 minutes. Screening tests take 20 minutes but needed to be scheduled over three blocks. With each exam, valuable minutes were lost during the day.

2. No dedicated appointments for diagnostic mammograms. Schedule slots were not dedicated to either screening or diagnostic tests. Because screening tests are booked months in advance, those slots filled first, leaving fewer openings to schedule diagnostic appointments on shorter notice.



Root Cause Analysis (continued)

Using the Six Sigma DMAIC process, the Juran-facilitated team identified five key areas for improvements:

3. Standard set at 14 days. Scheduling staff was told to book diagnostic appointments within 14 days before calling to obtain something on shorter notice. Voice of the customer data from patients and physicians indicated a desire for a two-day turnaround on diagnostic appointment scheduling.

4. No confirmation/reminder system. There was no system to confirm screening appointments that were often set months in advance. Often these patients were no-shows, tying up valuable slots and resources more than 11 percent of the time.

5. Alignment of diagnostic modalities. Aligning mammogram and ultrasound modalities was difficult since they are in different modules of the scheduling program.



Addressing Root Causes

Problems needed to be addressed in two main areas:

1. Cycle time between the initial suspicion to diagnosis.

Solutions:

- Align the diagnostic mammogram and ultrasound appointments.
- Shorten the 14-day window allowed for scheduling diagnostic mammograms.
- Separate the diagnostic mammogram slots from the screening appointments to ensure enough capacity.
- Adjust 15-minute block to 10 minutes.



Addressing Root Causes

Problems needed to be addressed in two main areas:

2. Between the diagnostic exam and the time the patient receives her corresponding results.

Solutions:

- Radiologists typically do not devote specific time increments to reading diagnostic mammograms. There must be an urgency for them to do so.
- Referring physicians must be aware that test results are available in Meditech and monitor the situation accordingly.
- A lag of time for vital information to be disseminated to patients occurs because radiologists do not have time to communicate with patients and rely on referring physicians to do so. This method is inefficient and a standardized process must be implemented to decrease lag time.



Return on Investment

- **Patient satisfaction** – Mean scores for mammography on Press Ganey patient surveys increased from 91.2 to 95.1, with an increase in national percentile ranking from the 17th to 99th percentile.
- **Cost per exam** – Efficiencies in the new process should reduce the cost per exam.
- **Overtime expenses** – For the first six months following project completion, overtime expenses ran \$5,380, as compared to a prior six-month period when overtime expenses were \$12,500.
- **Exam volume** – There was no increase in the volume of diagnostic mammograms over the same time period in the previous fiscal year. However, there was a 29 percent increase in the volume of screening mammograms.
- **Pricing** – Under the old pricing structure, the hospital showed a net loss of \$387,454 between October 2006 and May 2007. During the same period in the current fiscal year, there was a net gain of \$47,693, largely due to the pricing adjustments and volume increases that resulted from the project team's work. ***Net revenue gain: \$435,147.***



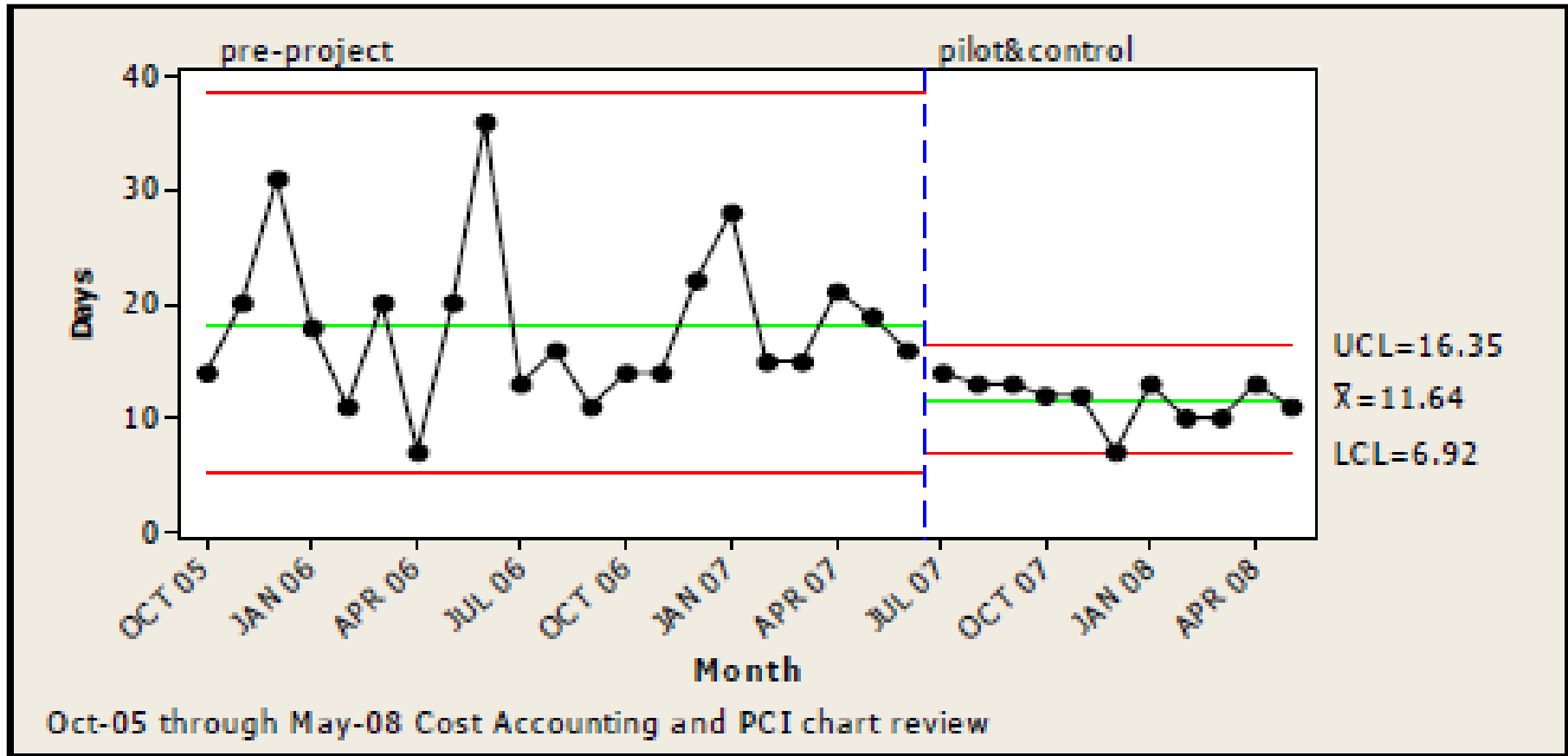
Monitoring and Evaluating Over Time

A short-term pilot consisted of 12 recruits from the active medical staff. The process focused on two key features that provided solutions for an array of the root causes.

- Developed if/then standing orders that expedited a diagnostic mammogram if something suspicious was found on the screening mammogram. Developed a Breast Health Navigator, a person whose sole responsibility was to steer the patient quickly through the diagnostic process, providing rapid communication, assistance with exam scheduling, and services as a liaison.
- Established a Woman's Imaging Center that allowed upgraded tracking of data, better troubleshooting of issues, and the platform to allow constant modifications within the two key features of implementation.



Median Days from Diagnostic Exam to Pathology Report



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- Learn more about the Juran Institute and Juran Health Care: www.juran.com.
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