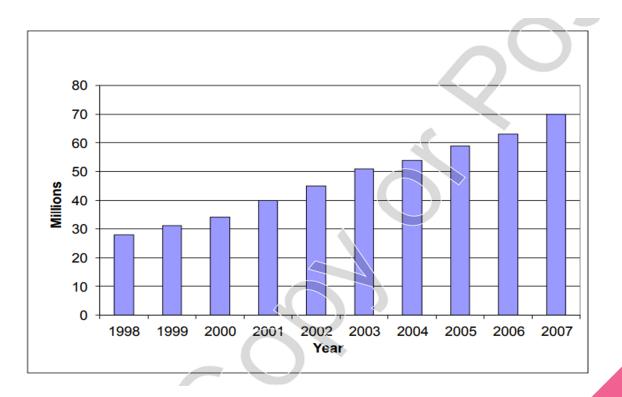
IDS 506 - CASE STUDY *Body Scans and Bottlenecks*

Statistical raise in Count of CT Scans per year

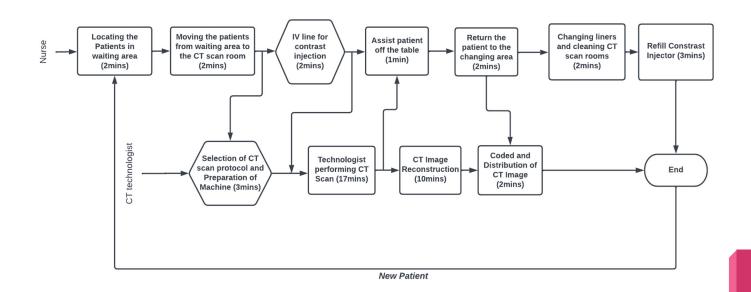


Introduction

- The case is about body scan process flow using CT Scanners with single detector units and Multi detector units.
- After the increase in hospital's scanning capacity, Dr Foster's goal was to
 - 1. Improve the process
 - 2. Maximize utilization of the hospital.
- The single detector units scanned approx 55K Patients.
- The new scanners were 5 times faster than the older ones.
- The number of CT Scans performed increased gradually from 1998 to 2007.

Original Process Flow

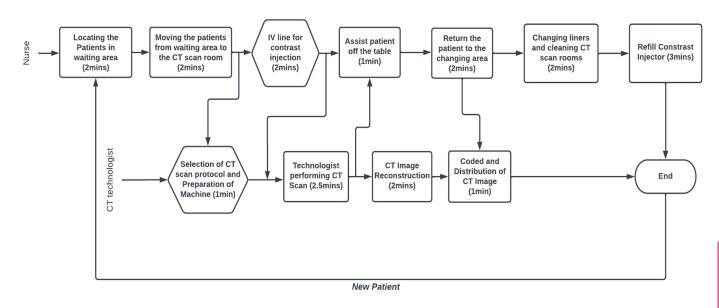
Figure 1.1 - Process flow of a Single Detector CT Unit



BottleNeck - Performing CT Scan - 17 mins

Current Process Flow

Figure 1.2 - Process flow of a Multi Detector CT Unit



BottleNeck - Post Scanning tasks of Nurse - 10 mins

Factors for ROI

Factors that need to be taking into consideration:

- → Activity time or throughput time
- → Expenses including employee expenses, hourly expense (including operating expenses and supplies costs)
- → Hourly revenue
- → Hourly Margin

\mathbf{OID}	PRO	CESS
ULD	\mathbf{I}	

- ➤ Each CT scanner can perform 1.875 scans/hour
- \triangleright 6 scanners = 11.25 scans/hour
- ➤ Hourly revenue/scanner = \$937.50
- \rightarrow Hourly cost/scanner = \$178.75
- ➤ Hourly margin/scanner = \$758.75

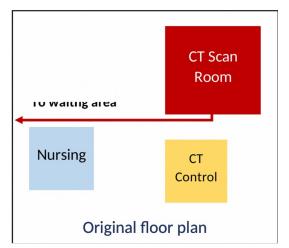
NEW PROCESS

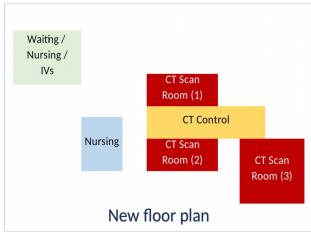
- Each CT scanner can perform 4.29 scans/hour
- \rightarrow 3 new scanners = 12.87 scans/hour
- ➤ Hourly revenue/scanner = \$2,145
- \rightarrow Hourly cost/scanner = \$299.50
- ➤ Hourly margin/scanner = \$1,845.50

Recommendations

3 scanner units were placed in 3 rooms that were in proximity to each other

- Allowing the use of 1 central control room to monitor all.
- Scanning rooms were moved nearer to the patient waiting room
- Shortened the walk, saved more than a minute in transit time





- ❖ With this new setup, the throughput process time is reduced to 11.5 minutes
- Scanning throughput=5.2 patients per hour per machine Hourly Margins=\$2262.84

Recommendations

• If we can use 3 single detector CT scanners (old) along with the 3 Multi detector CT scanners we can raise the percentage of hourly margin

Improvement from 6 Single Detector Machines to 3 Multi detector Machines = (4659-4552.5)*100/4552.5=2.3%

Improvement from 3 Multi Detector Machines to 3 Multi detector and 3 Single Machines =(6935.75-4552.5)*100/4552.5=52.35%

Thank you!