FOCUSING ON THE PATIENT: USING LEAN TO IMPROVE WAIT TIMES AND FASTER TEST RESULTS

Rita D'Angelo MS, Ruan C. Varney CT, Cathy Rawlings MT, Anjna Gandhi MT ASCP, Denise M. Smith MT ASCP
Jennifer Swarthout, Frederick A. Meier MD., Richard J. Zarbo MD., Pathology and Fairlane Process Improvement Teams

"Every well thought-out process is simple. We can at least save the waste of human labour in handling and transportation."
- Henry Ford

ABSTRACT

Introduction

Now in our 3rd year of the Henry Ford Production System LEAN Quality Initiative, we have extended our LEAN work culture to improve the outpatient clinical laboratory testing environment in the 26 regional medical centers that span across 40 miles wide with a courier service to the core laboratory. We began LEAN-ing out the Fairlane Medical Center laboratory that is the most complex testing center supporting the largest free-standing emergency room in the USA. Our goal was to improve the laboratory's interaction with the patient and service to the clinician by identifying opportunities for improvement as we follow the processes for real time defect and waste detection.

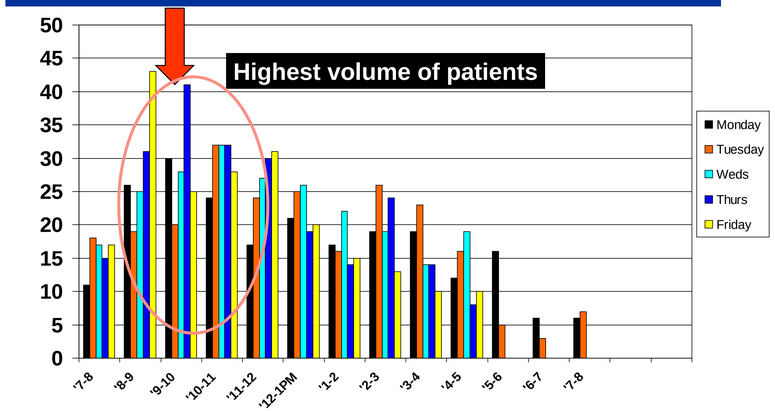
Materials & Methods

After careful observation, we developed standardized processes and a template approach to redesign by focusing on the following streams:
1) Standardization and work simplification of phlebotomy processes; 2) Patient throughput to eliminate waste; 3) Specimen streams from clinic to local and remote core lab test result; 4) Specimen batch reduction, load leveling & courier route redesign

Results & Conclusion

1. Patient waiting for phlebotomy down from 31 minutes to 16 minutes by redesigning and incorporating LEAN techniques for calling patients to the lab.
2. Courier schedules redesigned to halve routine test processing time aligning courier pick-up times with the patient flow levels the loads of processed specimens cutting routine CBC result reporting in half from 10 to 5 hrs and Chemistry from 10 to 6 hrs.
3. Introduction of specimen boxes recessed in outer clinic walls to eliminate 'missed' specimens collected by streamlining specimen pick up.

PATIENTS PER HOUR



REASSIGNING STAFF TO MATCH DEMAND

48 % improvement-phlebotomy wait time

APRIL

Avg Patient Wait Time= 31 min

Time	Receptionist	Phlebotomist
7:00-8:00	1	2
8:00-9:00	2	2
9:00-10:00	2	3
10:00-11:00	2	3
11:00 -12:00	2	3
12:00-1:00	2	3
1:00- 2:00	2	3
2:00-3:00	2	3
3:00 -4:00	2	1
4:00-5:00	1	1
FTE's = 7		

MAY

Avg Patient Wait Time= 16 min

Time	Receptionist	Phlebotomist
7:00-8:00	1	2
8:00-9:00	2	3
9:00-10:00	2	4
10:00-11:00	2	4
11:00 -12:00	2	4
12:00-1:00	2	4
1:00- 2:00	2	4
2:00-3:00	2	4
3:00 -4:00	1	1
4:00-5:00	1	1
FTE's = 7		

SPECIMEN PICKUP: LEVELING THE LOAD

Time	0744	1240	1625	1750	2210
Blood	3	285	152	29	47
Micro	5	4	13	12	19
Cyto	0	8	14	2	11
Surg	0	4	9	2	2
Frozen	29	0	0	0	0
Total	37	301	264	45	79

Time	0725	0930	1120	1310	1545	1630	1915
Blood	4	58	109	105	122	93	45
Micro	7	2	4	7	14	9	2
Cyto	0	0	8	6	12	24	4
Surg	0	0	2	9	5	3	1
Frozen	30	0	0	0	0	0	0
Total	48	68	121	127	148	129	52

Redesigned courier routes to level the large batches

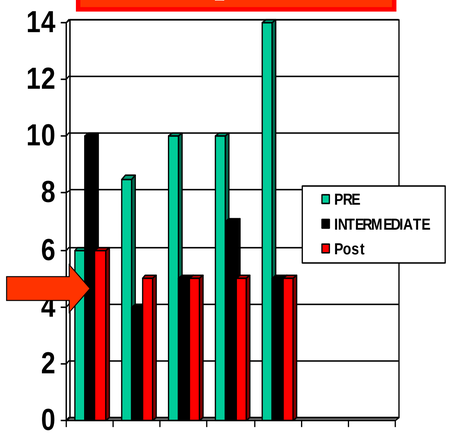
EXPEDITING SPECIMEN PICK-UP

Recessed boxes were installed outside each clinic to expedite the specimen pick -up process

TURN AROUND TIME IMPROVEMENT

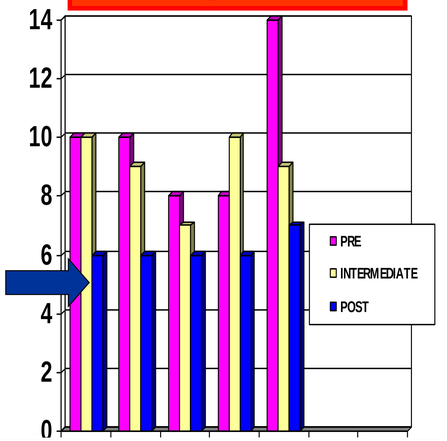
Core Lab CBC TAT

50 % improvement



Core Lab CHEM TAT

40 % improvement



Specimens received and tested sooner at Main Campus Core Lab

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