

Go LEAN—Save Your Steps for the Gym: Improving Molecular Turnaround Time

Judy Benninghoff MT, Don Lair MT, Chris Kirt MT, Amber Valler MT, Nicole Dempsey MT, Melissa Mace MT, All Molecular and Support Services Staff

ABSTRACT:

PCL Alverno is continuously striving to be a center of excellence, by providing efficient quality testing, while eliminating waste within the process. We sought to improve turnaround times, further standardize processes and reduce errors by implementing our Problem Solving Process (PSP). With a goal of reducing unscreened specimens in our Molecular Department, we developed standardized specimen pick-up times, implemented job aids and considered specimen drop-off areas.

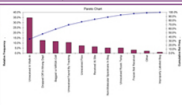
This resulted in:

1. Reduction in motion (40,320 steps per week)
2. Reduction in time (11.2 hours per week)
3. Increased staff satisfaction

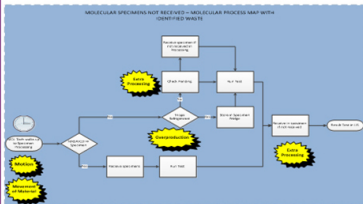
BACKGROUND:

The Molecular Department staff at Alverno were frustrated by the number of unscreened specimens seen in their department. This caused delays in verifying results and ultimately delays in production schedules and turnaround times.

There was also an instance of lost specimens that needed to be addressed to prevent a recurrence.



CURRENT STATE PROCESS WITH WASTE:



PROBLEM STATEMENT:

- The unscreened specimens rate in March of 2016 was 5%
- The target (goal) was 1.5%
- This created a gap of 3.5%
- There was a negative trend over the previous 3 months

KEY DELIVERABLES:

- Improvement in production schedule turnaround time
- Standardization of specimen pick-up schedules
- Reduction of wasted motion and time
- Decreased Batch Size

METHODS & TOOLS USED:

- Observation and Gemba
- Collection and review of data
- Process Map
- Staff Satisfaction Surveys
- Waste Identification
- Spaghetti Diagrams

PICK-UP TIMES:

Before: 36 Total

After: 14 Total



DAY SHIFT	PM SHIFT	MDN SHIFT
7:00	15:00	23:00
10:00	17:00	1:00
11:30	19:00	2:00
12:30	21:00	3:00
14:00		5:00

STAFF SATISFACTION SURVEYS:

Before:

Molecular Pre-Kaizen Survey

Question #	Shift Average		
	AM	PM	MDN
1	3.0	3.7	4.8
2	3.2	3.7	4.8
3	4.3	4.3	5.0
4	2.7	3.3	5.0
5	2.7	3.7	5.0
6	3.3	3.3	4.0

Shift Average: **3.20 3.67 4.77**

Overall Department Average: **3.88**

1. How often do you have to return specimens when labelling them? (5 = every time, 1 = not at all)
2. How often do you have to return specimens after you have already performed the test? (5 = every time, 1 = not at all)
3. How often do you waiting time for specimens to be returned? (5 = every time, 1 = not at all)
4. How would you rate the Molecular Department's appearance in the Specimen Processing Department? (5 = great appearance, 1 = not very organized)
5. How would you rate the Molecular Department's methods of picking up specimens? (5 = excellent, 1 = poor)
6. What is your emotional and intellectual reaction to the specimen picking process (returning specimens, unscreened specimens, waiting for equipment)? (5 = very happy, 1 = very sad)

After:

Molecular Post-Kaizen Survey

Question #	Shift Average		
	AM	PM	MDN
1	4.4	4.1	4.3
2	4.6	4.3	5
3	4.3	5	5
4	4.3	3.9	4.7
5	4.1	4.5	4.7
6	4	4.8	4.7

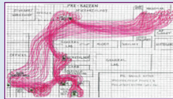
Shift Average: **4.28 4.43 4.73**

Overall Department Average: **4.48**

SPAGHETTI DIAGRAMS AND STEPS:

Before:

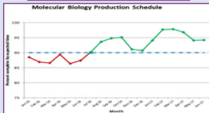
After:



MOTION/TIME	PRE-KAIZEN	POST-KAIZEN	TOTAL SAVINGS
STEPS/WEEK	59,724	19,404	40,320 steps/week
MILES/WEEK	29.9	9.7	20.2 miles/week
HOURS/WEEK	16.6	5.4	11.2 hours/week

-Reduction in % of unscreened specimens: 1.5%

-Production schedule improved: 7.8% (January 2016-June 2017)



SUMMARY AND CONCLUSION:

Item	Value	Target	Status
Unscreened Specimens Rate	1.5%	1.5%	Met
Production Schedule Improvement	7.8%	7.8%	Met
Specimen Pick-up Time Reduction	11.2 hours/week	11.2 hours/week	Met
Staff Satisfaction	4.48	4.0	Met
Steps Reduction	40,320 steps/week	40,320 steps/week	Met
Miles Reduction	20.2 miles/week	20.2 miles/week	Met
Hours Reduction	11.2 hours/week	11.2 hours/week	Met

Action Plan:
-15 total action items
-Completed within 30 days
-0 past due items

-Steps were reduced > 20 miles/week (Greater than the width of the Grand Canyon)

