

# DRIVING EXCELLENCE & IMPACTING PATIENT CARE THROUGH CONTINUOUS PROCESS IMPROVEMENT

Partnering with Beckman Coulter for Lean Process Implementation

## OUR PARTNER, ALVERNO LABORATORIES

Community-based Alverno Laboratories is a joint venture of Franciscan Health and AMITA Health, consisting of 26 hospital laboratories which serve patients within a 250-mile radius in Indiana and Illinois. The award-winning organization operates with a team of more than 1,600 associates, overseeing 6,000 patient beds and 45,000 square feet of central laboratory space. Rapid growth and network consolidation have led the company to seek solutions to promote standardization to help manage costs and ensure fast, consistent results.

### Alverno Laboratories Profile

- Performed over 45 million tests each year
- Owns 26 hospital laboratories
- Serves 250-mile radius in Illinois and Indiana
- Holds prestigious ISO 15189 accreditation

## ADDRESSING GROWTH AND CONSOLIDATION

Alverno Laboratories remains focused on their mission to deliver quality results by eliminating waste and gaining as much process efficiency as possible. Since beginning its partnership with Beckman Coulter Diagnostics in 2014 and gaining exposure to Performance Partnership methodologies and Danaher Business System (DBS) tools, the organization has adopted an industry-leading culture of continuous improvement. In 2016, it launched the Alverno Business System (ABS), a program focused on driving excellence at all organizational levels. Over a four-year period, Alverno Laboratories has improved quality and increased workflow efficiency in several key areas, significantly shortening turnaround times, while reducing workload burden and lowering costs in key areas.

## EMERGING AS A CENTER OF EXCELLENCE

Alverno Laboratories' expansiveness, wide range of services and drive towards continuous improvement were matched by Beckman Coulter's broad product portfolio, services and efficiency-enhancing Danaher Business System. Together, the companies set out to help Alverno Laboratories meet its quality and efficiency goals by applying Lean processes to daily management practices and problem-solving techniques.

## PROBLEM STATEMENTS



**Inconsistency**  
in communication



**Lack of**  
of standardized  
procedures



**Unclear**  
problem-solving  
structure



**GOAL #1**  
Facilitate transparency,  
accountability, and  
empowerment within  
the team



**GOAL #2**  
Focus on change  
management with  
standardized policies  
and procedures



**GOAL #3**  
Transform generalized  
issues into actionable,  
targeted, and well-  
defined tasks

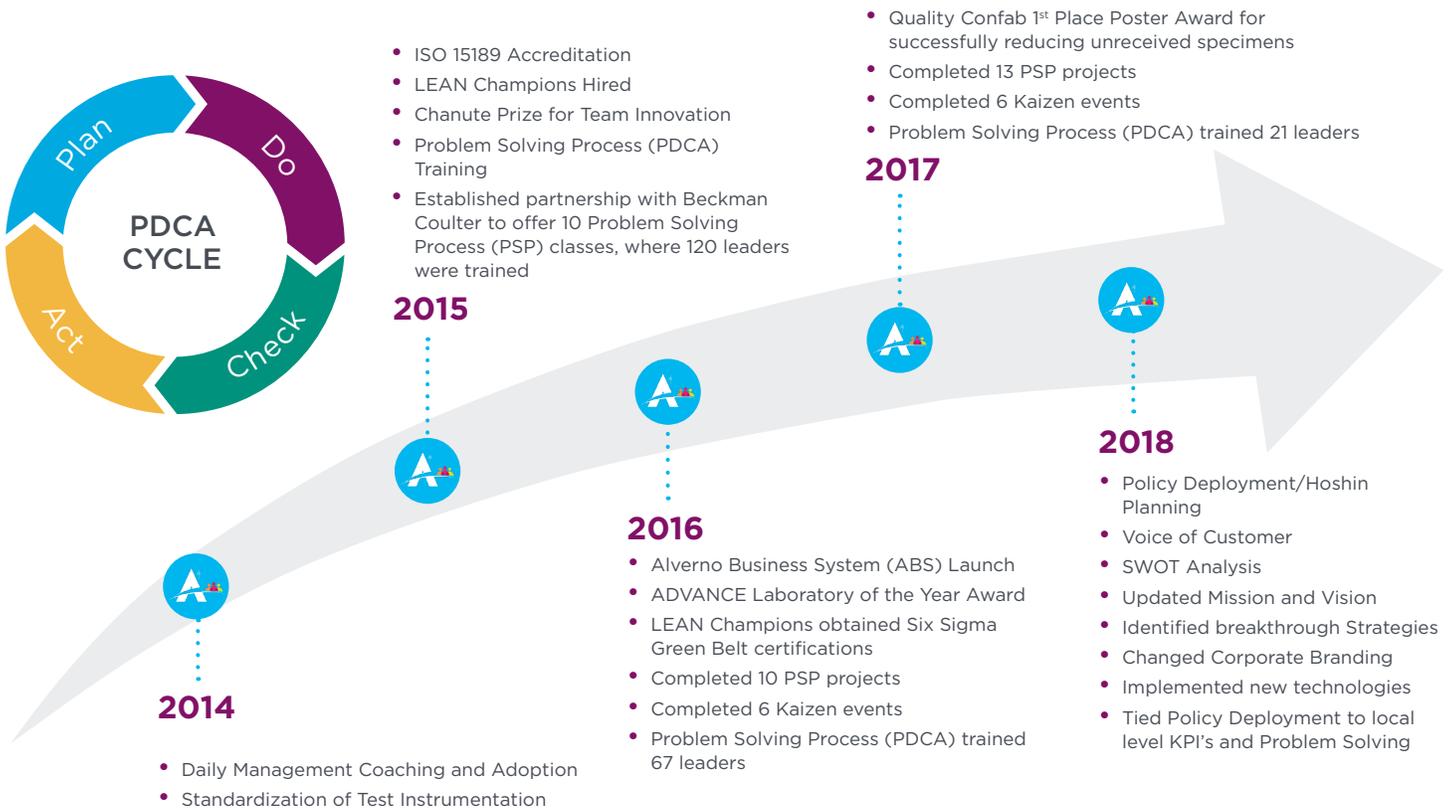
## CULTIVATING A CULTURE OF CONTINUOUS IMPROVEMENT: STEPS TO SUCCESS

Daily management of key performance indicators (KPIs) provides a team-based visual approach with a regular cadence to ensure process discipline and drive improvements around the most critical metrics. In short, daily management techniques help to ensure that Alverno Laboratories' foundation stays strong. These strategies facilitate transparency, accountability, communication, engagement and empowerment within the team. They help to overcome previous gaps in unity within the organization, such as inconsistency in communication and a lack of urgency. Simple and repeatable, these KPIs focus on customer expectations and offer tools that promote action to produce results. In addition, daily huddles allow the team to raise and address issues before they become larger problems.

Alverno Laboratories also focused strategically on change management. To address areas within the organization where there was resistance to change, the network involved senior leadership and appointed "Lean Champions" who conducted leadership sessions on a regular basis. The company created mandatory web-based learning and placed into effect standardized policies and procedures to ensure everyone remained on the same page. To support their efforts, a new review tool was also implemented in order to keep working groups on track.

## BRIDGING THE GAP WITH PROBLEM SOLVING PROCESS (PSP)

PSP involves identifying a problem and then creating a problem statement. The problem statement acts as a tool to transform generalized issues into actionable, targeted and well-defined items, around which activities can be oriented. Problem-solving activities can take as little as two hours, and teams are encouraged to improve their problem-solving skills through practice. The company has also established problem-solving classes, holding ten within the first year, which resulted in 120 trained leaders.



## REAPING THE REWARDS OF ABS AND PSP

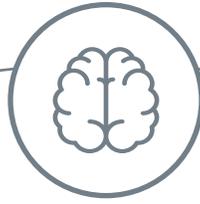
Alverno Laboratories' main objective was to incorporate their 26 hospital laboratories into use of Daily Management and PSP. Through the implementation of the Alverno Business System (ABS) and Lean processes, the organization saw significant improvements in targeted areas of the business.

### IN ORDER TO ACHIEVE THEIR GOALS, ALVERNO LABORATORIES:



#### DEVELOPED TRAINING MATERIALS

to work with DML (Daily Management Liaisons) which built an on-site structure to help work groups drive the improvements and use of the DM and PSP tools more effectively



#### DEVELOPED COURSE

to better associate Daily Management and associated KPI performance concerns to team based problem solving and root cause counter-measure



#### USED POLICY DEPLOYMENT GOALS

to measure implementation. Moved from "0" to 38 onsite DMLs across all hospitals and Central Lab Departments in 2018. Increased initial 7 PSPs in 2017 to 85 PSPs performed in the organization in 2018

## METRICS-BASED IMPROVEMENTS FROM 2018-2019 SHOWED:

### 02/01/18 ED CODE FAST TAT

- Decreased pre-analytical processing time
- Decreased tech time spent programming analyzers and entering results
- Overall decrease in total TAT for Code Fast testing
- Initial: 40% unordered
- Goal: ≤ 5% unordered
- Actual: < 1% unordered

### 04/19/18 MULTIPLE DRAW REDUCTION

- 57% reduction of multiple draw on patients
- 6.6 hours/month saved in time getting redraws
- 2.9 miles/month saved in steps getting redraws
- Increased patient satisfaction
- Reduction of iatrogenic blood loss

### 05/01/18 CHEMISTRY DOWNTIME IMPROVEMENT PROCESS

- More efficient and streamlined process
- Improved utilization of staff
- Standardized work
- Initial: 3 hrs
- Goal: ≤ 1 hr
- Actual: ≤ 1 hr (2 hr improvement)

### 05/16/18 PHOSPHOROUS TAT IMPROVEMENT PROJECT

- Reduction in TAT from order to received
- Improved Patient/MD/RN satisfaction
- Increased efficiency and productivity
- Increased awareness of current process
- Initial: 1 hr 46 min
- Goal: 1 hr
- Actual: ≤ 1 hr (46+ min improvement)

### 05/16/18 TROPONIN RECEIVED TO VERIFIED < 35 MINUTES

- Standardized work development
- Increased efficiency and productivity with 7% improvement
- Increased awareness of current process
- Troponin TAT: 6% improvement, currently at 97%
- Average Troponin TAT: 21 minutes (Goal < 35 minutes)

### 05/24/18 BLOOD CULTURE CONTAMINATION REDUCTION

- 2.3% reduced to 1.9%
- 12 BC contaminations/month reduction
- Approximately \$1 Million/year cost savings (for patient/hospital/pharmacy/lab)
- Approximately \$96,000/month

### 06/01/18 BLOOD BANK REDESIGN PSP

- Approximately 3 miles of unnecessary walking/month saved
- 90 minutes of Blood Bank techs' time/month/saved which can be spent on productive activities
- Goal: 10% step savings (100 steps)
- Actual: 17% step savings (175 steps)

### 06/15/18 DECREASING BLOOD CULTURE CONTAMINATION RATE

- Standardized work development for Phlebotomy and RN Staff
- Increased efficiency and productivity by reducing number of duplicate orders
- Increased awareness of current process and training
- Initial: 3.1%
- Goal: < 2.5%
- Actual: 1.8% after improvements

### 06/26/18 OUTPATIENT WAIT TIME

- Averaging 95% wait time ≤ 10 Minutes, an improvement of 18% since January 2017

**07/16/18**

**REDUCTION OF HAND-RECEIVED SAMPLES AT THE CORE LAB**

- Decreased pre-analytical processing time
- Decreased tech time spent programming analyzers and entering results
- Overall decrease in total TAT for Code Fast testing
- Initial: 40% unordered
- Goal: ≤ 5% unordered
- Actual: < 1% unordered

**09/30/18**

**PT/PTT RECEIPT TO RESULT < 35 MINUTES**

- Increased efficiency and productivity
- Met expected TAT for stroke patients
- Operator confidence on new instrumentation
- Physician satisfaction
- Initial: 85%
- Goal: ≥ 92%
- Actual: 95%”

**04/16/19**

**LACTATE TAT**

- Trend: erratic
- Actual: 17 minute TAT order to verify minimum, average 25 min order to verify
- Gap: 15 minute improvement minimum required
- Standard or Goal: <5 minutes
- Met 2 min TAT

**07/16/18**

**BLOOD CULTURE WASTE TUBE COLLECTION**

- Standardized Blood Collection process
- Initial: 77%
- Goal: 90% compliance
- Current: 93%
- Impact: 16% improvement (Goal met)

**10/03/18**

**REDUCTION OF PHONE CALLS FOR TRANSPORT TUBES**

- Initial: 31% calls for transport tubes
- Calls reduced by 20.8% after countermeasures were implemented
- Reduction of approximately 10% in tube station phone calls
- Phone calls reduced by approximately 165 minutes/week (3 hours/week) with the average phone call lasting approximately 1 minute

**09/30/18**

**ED BLOOD CULTURE CONTAMINATION REDUCTION**

- Initial: 2.5% BC Contamination Rate
- Goal: 1.5% BC Contamination Rate
- Current BC Contamination Rate = 1.3%
- Impact: 1.2% improvement (Goal met and exceeded)

**01/31/19**

**MISORDERED MTP'S**

- Initial: 22 misordered MTP's/month
- Goal: 11 misordered MTP's/month
- Actual: 2 misordered MTP's/month (Goal met and exceeded from July 2018 to January 2019)
- Potential savings in wasted products if Blood Bank not notified of error in time total over \$6000.00

**Equipment standardization and use of Lean processes through ABS** have helped us realize a 20% savings in operating costs.

- Sam Terese, President and Chief Executive Officer

## UPON IMPLEMENTATION OF THE NEW PROGRAMS AND PROCESSES, OVERALL SUCCESS WAS SHOWN THROUGH:

### Faster Turnaround Times

Approximately  
**117,000**  
additional tests met  
turnaround time  
metrics in 2018

**97%**  
of results met their  
targets in 2017

**92%**  
of troponin results were  
turned around in under  
40 minutes, up from  
87.8% in 2016

**92%**  
of Franciscan Health  
Crown Point creatinine  
results were turned  
around in 35 minutes, up  
1% from the  
previous year

### Reduced Costs

**20%**  
savings in  
operating costs was  
seen due to equipment  
standardization and use  
of ABS

Potentially  
**\$1.2M**  
million was saved annually  
due to improvements  
in blood culture sample  
integrity

### Increased Efficiency and Staff Satisfaction

**40,320**  
steps, or approximately 20  
miles, were eliminated per  
week - a distance greater  
than the width of the  
Grand Canyon

**11.2**  
hours of time was saved  
per week through  
standardization of  
specimen management  
in the molecular  
department

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