



## Lean in Healthcare vs. Industry

### Tim Clark Director Supply Chain Operations Virginia Mason Medical Center



#### AME**BOSTON**2017

AMEBOS Virginia Mason Health System

#### Virginia Mason (Seattle) 5,000 Team Members

5,000 Team Members 470 Employed Physicians 336 Hospital Beds 8 locations

- Integrated health care system
- 501(c)3 notfor-profit
- 2 hospitals
- Graduate Medical Education
- Research Institute
- 2 Foundations
- Virginia Mason Institute

#### Virginia Mason Memorial (Yakima) 2,700 Team Members 130 Employed Physicians 226 Hospital Bods

226 Hospital Beds 30 locations









### At every meeting





## **Management by Policy**



AVE Association for Manufacturing Set Priorities that Align to the Vision Share Learn Grow.

## GETENG/GED

### AME**BOSTON**2017

## **Our VMPS Journey**







## **Virginia Mason Quality Awards**









Association

Manufacturing

QUALIS HEALTH AWARD OF EXCELLENCE IN HEALTHCARE QUALITY 2016













Automating Systems: Scanning Autonomation Defect Reduction Cycle time reduction







## **Burning Platform - Uncontrolled Supplies**

#### **Mission items**



4 pallets of material orphaned during regulatory response Why change our material handling processes:

- **Patient Safety** 
  - Expired items could reach patients
- **Regulatory Compliance** 
  - Audit risk
- Respect our team members
  - Too much of the wrong material
- **Inventory Excess** 
  - 5-10% overstock
- Non-standard material presentation •
- 22,000 parts in >1000 locations!



### Needed a better method



## **Automated Systems - Challenges**



- Unplanned Kanban level
- Non-standard labels
- "Par Model" Healthcare unique
  - Required counting to order and put-away
- Hand written order process
- >160 locations all unique
- Weak reporting capability

#### Multiple material presentation models



Difficult to train, stock and Pull

Share • Learn • Grow.

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## Automated Systems -Building the solution

- Revised Standard Work:
  - Reviewed Rack Standards developed "Rack Rules" standard work
    - Read like a book, start at upper left corner
  - Supply Chain Principles
  - Reviewed label standard



CURETTE VAC STRL UTERINE DISP 12

Established Room Standard







### Becoming Process Dependent Share Learn Grow.

### 

### GFENG (GED Automated System -Implementation Plan Proj. Plan for each location:







Task Name	Duration	Resource
17 - Buck 2 - Schedule Stakeholder Meeting	1 day	Proj. Lead
17 - Communicate With Stakeholders Plan Of Action	1 day	Project
		Management
17 - Work With Unit Staff For Project	9 days	Proj. Lead
17 - Pull Nurse Unit Usage Report	1 day	Analyst
17 - Analyze Data - New PAR Proposals	1 day	ICC
17 - Configure New Bin Sizes	1 day	Team
17 - Order Bins / Metro Shelving	1 day	Team
17 - Stage Bins / Shelving	3 days	Team
17 - Upload New Data Sheet To Bartender	1 day	Team
17 - Order Labels	1 day	Team
17 - Label Bins	1 day	Team
17 - Swap Old Shelving For New	1 day	Team

#### Device

- **Provides home & away address** 
  - Eliminates
    - Searching
    - Hand written orders
    - Overstocking
      - **Batch ordering**
  - Autonomation:
    - Automatically flags inventory defects



### Structured implementation

## AMEBOSTON2017 Automated Solution –Visual Mgt.



- Improved Visual Management
  - Easier to navigate signage



- Visual locator
- Implemented SC Principles
  - Fixed Location
  - FIFO via 2bin Kanban
  - Fixed Quantity
  - No Counting
- 3% inventory reduction
- 2.8% footprint reduction

### **Easier work environment**



## **Automated Solutions -Results**



#### From this:



To this:

- Implemented scanning labels
- 5S Level increased to 3 out of 5
- Cycle time reductions:
  - 85% Ordering reduction
  - 20% Material put away
- Demand reporting capability





### Breakthrough improvement





# Automated Solutions: expanded rollout



- 9/10 planned locations complete
- Target: FW complete in Sept

### **Executing defined plan**

## G TENGÁGED





### Share results broadly/clearly Share Learn Grow





## **Supply Chain Principles**

- Fixed Location
- FIFO
- Fixed Quantity
- No Counting



Became a stable partner



## **Supply Chain Principles: Rack Rules**





### "This is going to be easy...."



## **SC Principles -What we found**

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## **Supply Chain Principles**

From 6 models to 2 models Clinics can choose



![](_page_18_Picture_5.jpeg)

### **Reduce variation**

![](_page_19_Picture_0.jpeg)

![](_page_19_Picture_1.jpeg)

## Lead Time reduction

#### Long Case cart lead times:

- High inventory levels
- Unbalanced staffing
- Pilfered carts before use resulted in delayed case starts
- Lack of trust between teams

![](_page_19_Picture_8.jpeg)

![](_page_20_Picture_0.jpeg)

![](_page_20_Picture_1.jpeg)

## Lead Time Reduction

- Using our standard operations tools
- Move from large batch process to flow

![](_page_20_Figure_5.jpeg)

![](_page_20_Figure_6.jpeg)

nufacturing

- >100 hours on gemba studying
  - Detailed time studies
  - Waste studies
- Cross trained staffing allowed us to respond to uneven demand

### Lean brings work back inhouse Share-Learn-Grow

![](_page_21_Picture_0.jpeg)

#### Updated VSM

Association or Manufacturing

![](_page_21_Figure_2.jpeg)

### VMPS Tools & KPO Support

#### Share • Learn • Grow.

Sterile

Linen

120 119

121

Sterile

Linen

![](_page_22_Picture_0.jpeg)

## GETENGAGED

## Cart picking journey

![](_page_22_Figure_3.jpeg)

![](_page_22_Picture_4.jpeg)

### Fitbit proving ground

![](_page_23_Picture_0.jpeg)

### **GETENG/GED** New ways of working

![](_page_23_Picture_2.jpeg)

Quality Checks: Standard Work, Visual Controls, Production Status

![](_page_23_Picture_4.jpeg)

- 50% Lead time reduction
  - From 6.6 hours to 3.25 hours
- 43% Travel Reduction

### Improved visual management

Share•Learn•Grow

## Work moved around the day

![](_page_24_Figure_1.jpeg)

![](_page_24_Picture_2.jpeg)

#### Share • Learn • Grow.

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![](_page_25_Picture_0.jpeg)

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anufacturing

![](_page_25_Picture_1.jpeg)

## **Procedure Card Defect Tracking**

![](_page_25_Figure_3.jpeg)

### Making our defects visible

![](_page_26_Picture_0.jpeg)

![](_page_26_Picture_1.jpeg)

## **Gone Well**

- Procedure card defects are *much* more visible
  - Enables fixing defects
  - Presented at Daily Management Huddle
  - >115 Defects Fixed
- Lead time improved 50% @ year end
- Partnership with Sterile Processing to manage instruments not avail. at pick time
  - Fixing locator data

![](_page_26_Picture_10.jpeg)

#### Current Project:

- Onboarding an outsourced kitting process
- VM now competitive in material handling.

![](_page_26_Picture_14.jpeg)

### **Increased capabilities**

![](_page_27_Picture_0.jpeg)

![](_page_27_Picture_1.jpeg)

## **Lessons Learned**

- Walking distance reduced
  - Procedure card complexity still requires many trips to Jones 3
- Limited time studies did not reflect distribution of cycle times to pick cases
  - Requires daily leadership involvement
- Pick in flow demands all operators in their cells
  - FMLA/Sick time, vacant positions must be planned for
- Demand variation:

![](_page_27_Figure_10.jpeg)

### Broader impact than planned Share Learn Grow.

![](_page_28_Picture_0.jpeg)

![](_page_28_Picture_1.jpeg)

## **Expired Stent**

#### Expired Stent Red PSA #94245

![](_page_28_Figure_4.jpeg)

![](_page_28_Picture_5.jpeg)

![](_page_29_Picture_0.jpeg)

![](_page_29_Picture_1.jpeg)

**Expired Stent** 

![](_page_29_Figure_3.jpeg)

Association or Manufacturing Established a sustainable process

![](_page_30_Picture_0.jpeg)

![](_page_30_Picture_1.jpeg)

Leveraged VMPS tool kit

#### Contained the problem

![](_page_30_Figure_4.jpeg)

![](_page_30_Picture_5.jpeg)

**Expanding span of control** 

![](_page_31_Picture_0.jpeg)

![](_page_31_Picture_1.jpeg)

## Lean tools

#### Heijunka Board

- Load leveling tool
- Visual signal to re-visit cells/racks to sweep for expired items
- Includes:
  - Standard work for process
  - Leader Standard work for audits

![](_page_31_Picture_9.jpeg)

![](_page_31_Picture_10.jpeg)

### Makes work visible

![](_page_32_Picture_0.jpeg)

![](_page_32_Picture_1.jpeg)

## Ready for next step

![](_page_32_Figure_3.jpeg)

#### Association for Manufacturing Excellence.

### Focused on procedural areas

![](_page_33_Picture_0.jpeg)

- Leaders require Lean/Six Sigma/Continuous improvement exp.
- Healthcare helpful not required
- Data Driven
- Process Oriented

FIFNGAGED

- Learners
- Team builders/Coaches
  - Engagement matters

Resume example

VMPS SPECIALIST

Results oriented professional with over 15 years' progressive leadership experience. Over two years leading and consulting as a VMPS specialist and six years as a Supervisor with admirable success. Strong decisive leader with excellent analytical, team building and organizational abilities.

#### CORE COMPETENCIES

- ✓ Skilled Communicator
- ✓ Organizational Development
- ✓ Empowering
- ✓ Critical Thinker
- Instructor / Facilitator
- Strategic Planning

- Motivator and Supporter
- ✓ Staff Training & Development
- ✓ Conflict Resolution Skills
- ✓ Setting and Achieving Goals
- ✓ Computer Literate
- ✓ Team Builder

#### PROFESSIONAL EXPERIENCE

#### Specialist I, VMPS

Virginia Mason Hospital, Seattle, WA

2013-Present

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![](_page_33_Picture_28.jpeg)

### Talent accelerates growth

![](_page_34_Picture_0.jpeg)

### Hiring Differently Cont.' Behavioral Interviewing:

### **Process Improvement Question**

### John

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**DEFINITION:** Identifies opportunities, uses a methodology to drive the project, has metrics they drive towards.

Lead Questions

- 1. Tell us about a time that you took the lead on a difficult project.
- 1. Tell me about something new or different that you initiated that improved customer service, productivity, quality, teamwork, or performance.

STAR Answer:

Situation/Task:

A specific example from the candidate.

Action:

Clearly communicated action

Result achieved:

A measured outcome

#### <u>Process</u>

- All candidates asked the same questions
- Compare apples to apples
- Standard scoring criteria
- Reduces HR risk

### Reduce chances for bad hires Share Learn Grow.

![](_page_34_Picture_21.jpeg)

![](_page_35_Picture_0.jpeg)

## GETENGAGED

## Hiring Differently: Engagement

#### <u>Nemawashi Training:</u>

Batch waste vs. 1 Piece Flow

![](_page_35_Picture_5.jpeg)

- Hired Leaders with >20 years of lean experience
- 74% of team members cross trained
  - Allows us to flex to demand
  - Cover FMLA/vacations
- Coaching as a way of leading
- Daily Management
  - 3 Huddles/day
  - Leader standard work

![](_page_35_Picture_14.jpeg)

![](_page_35_Picture_15.jpeg)

### **Engagement scores up 11%**

![](_page_36_Picture_0.jpeg)

- <u>Gaps to Industry /Next steps</u>
  - Production Planning
    - Sales Inventory Operations Planning
      - Current State -React to demand thought process
    - Level loading
  - Improved Material Control
    - Vendor alignment
      - Validation
      - ASL
      - Sales process direct to Clinical/MDs
  - Defect Free mentality
    - See defects as opportunities

![](_page_36_Picture_14.jpeg)

### Our journey continues

![](_page_37_Picture_0.jpeg)

![](_page_37_Picture_1.jpeg)

## **Thank You!**

## Your opinion is important to us! Please take a moment to complete the survey using the conference mobile App.

## Session No: ThS/66 Lean in Healthcare Tim Clark Virginia Mason

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