Objectives

1. Describe the reasons you would use a value stream map
2. Show how to waste and delays are quantified in a value stream map
**Value Stream:** A sequence of processes connected by a common customer, product or service request

<table>
<thead>
<tr>
<th>Patient and Family</th>
<th>Medical Equipment Supplier</th>
<th>Drug Companies</th>
<th>Dietary</th>
<th>Linen Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Triage ED RN MD Pharmacy Spec-</td>
<td>Behavioral Health</td>
<td>Quality &amp; Regu-</td>
<td>Environmental Services</td>
</tr>
<tr>
<td></td>
<td>Radiology Specialists</td>
<td>Lab</td>
<td>latory</td>
<td></td>
</tr>
</tbody>
</table>

**Value Stream Definitions**

An entire set of activities that encompasses the transformation of a patient or product from beginning to end

A sequence of processes connected by a common customer, product or service request
Common Value Streams in Healthcare

- Patient Care
  - Same Day Surgery Throughput
  - Outpatient Chemotherapy Care
  - Inpatient Discharge Process
  - Emergency Department Throughput
- Transactional/ Financial
  - Revenue Cycle – Denials Management
  - New Hire Process

The Value Stream Includes All Steps, Even Those That Do Not Add Value

- Value is defined by the customer
- Includes all of the value creating and non value added steps in the process
- In the ideal state, value flows without barriers, and is pulled from step to step
Value Stream Goal

Continuous flow of value from the first to last step in the value stream, without delays, rework or defects…

the first time through

Reason to Build a Value Stream Map

<table>
<thead>
<tr>
<th>Quality Issues:</th>
<th>Need to Grasp the Root Cause:</th>
<th>Common Vision:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with safety, cost, effectiveness and/ or timeliness of a set of related processes</td>
<td>Need to “drill down” to understand the root cause of a problem and see what is actually happening</td>
<td>The value stream map is a roadmap which aligns everyone in a course of action</td>
</tr>
</tbody>
</table>
Use the Value Stream Map to See Waste and Improve

- Defines relationships between steps by showing how information and material move
  - See re-work & waste
    -> where defects or lack of standardization causes re-work within and across departmental boundaries
    -> See how value flows to the customer and the locations where it varies, slows or stops
  - See opportunity
    -> where to create signals for action, where to standardize, which loads need leveling, where to allocate resources to match capacity and demand

The RIE Team Is Responsible for Creating the Value Stream Map

- Quality Improvement Committee selects the target value stream
- RIE Team meets to discuss goals of the process and plan observation prior to creating the VSM
Start by Identifying the Subject of the Story

Follow either a person (e.g. patient), or a type of information (e.g. provider order) through a process.

A Value Stream Map begins with Process Map “Swimlanes”
Practice On Paper

- Describe the value stream that brought you to this education session
  - Subject (Person or item)
  - VOC (What’s important to you)
  - Start (First step)
  - Stop (Last step)
  - Steps between first and last
  - Goal
  - % Value added time

Complete Teamwork Prior to Creating the Current State Value Stream Map

1. Understand VOC/CTQs
2. ID Process Start & Stop
3. High Level Process Flow
4. Review A3 & Data
5. Go to Gemba to Observe the Process
6. Create Current State Value Stream Map

- Learn about the problem and current process as a team
- Observe the current process
- Create current state value stream map
Current State Flow Steps

Add Cycle Time, Delays, Process Barriers
Team Evaluates the Value of Each Step from the Perspective of the Patient

- Patient selects food for the meal
- Dietary calls unit to say “we’re out of Jello”
Value Added or Non-Value Added

The Value-Added Test
- Does the task contribute to meeting customer needs?
- Is the customer willing to pay for the task?
- Does the task transform the product/service?
- Does the customer want or need the transformation?
- Is the task done right the first time?

If you answer ‘No’ to any of the questions, is the task value-added?

Value Stream Data

Data boxes indicate:
- Task description
- Cycle time (task duration)
- Number of staff/ machines doing the job (if greater than one)
- Delays/ barriers within the segment of work
- Delays/ barriers between segments of the process
- Value Added or Non-Value Added (step/ time)

Additions:
- Communication method (electronic, telephonic, in person)
- Timeline at base of diagram showing value added time and non-value added time
- Value Added (% of Time or Steps that are Value-Added)
- Yield (% Complete and Accurate)
Additional “Storytelling” Features: Communication Method, Timeline

Identify the Issues in the Value Stream Map

- How many steps are involved?
- How many staff-staff interactions (handoffs)?
- What is the time for each step (cycle time) and between each step?
- What is the total time between start and finish (lead time)?
- How many non-value added steps?
- What do patients complain about?
- What are the problems for staff?
- Is there any duplication of work?
- Are there any bottlenecks?
- What are the sources of delay?
- How much error correction / rework is being carried out?
- Do we have the best sequence of steps? Signal for the next step?
- Is the right/best person doing each task?
- Opportunity to cross train?
- Could some tasks be carried out by one person instead of several people?
- What information do we give to patients at what stage and is the information useful?
- Are the steps in the process leveled, to enable flow?
Eliminate the Non-Value Added Steps First

**Value Added**
- Continuously Improve
- Emphasize

**Non Value-Added Business Required**
- Minimize these wastes as much as possible

**Non Value-Added**
- Eliminate the wasted activity

Countermeasure to Address Each Identified Waste

- **Access Issue**
  - Advanced Access scheduling template

- **Excess Motion**
  - Labs drawn in clinic, not hospital

- **Unused Talent**
  - Med assistant trained in phlebotomy

- **No Signals**
  - Vertically positioned chart in view of physician desk indicates patient is ready for provider
Future State Map
Complete and accurate, on the first pass through

Quantitative VSM Measurements - % VA

% Value Added: Percent of steps or time that is value added (compare “current state” to “future state”)

<table>
<thead>
<tr>
<th></th>
<th>Steps</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value Added Steps</td>
<td>Total Steps</td>
</tr>
<tr>
<td>Current State</td>
<td>23</td>
<td>178</td>
</tr>
<tr>
<td>Future State</td>
<td>23</td>
<td>114</td>
</tr>
</tbody>
</table>


Preserving & Sharing the Value Stream Map

To Create the Electronic VSM, Group Steps Vertically by Process “Phase”
Value Stream Shapes Indicate Action and Value

Add Cycle Time and Task Data to Process Flow to Begin to See the Trouble Spots
Add Up the Time Categories to Capture Baseline

Eliminate the Barriers and Rework to Create the Future State Value Stream Map
Ensure Long Term Success

- Standard work
- Gemba walks
- Daily staff huddle
- Weekly data feedback; control chart
- Plan for addressing variances
- Report progress/ data/ next steps to QIC monthly

Accelerate the Effort and Commitment

Add a patient or patient’s caregiver to the improvement team
Short Term Intense Effort, Big Rewards

- Decisions based on data
- Cross continuum improvements in flow
- Increased capacity
- Strengthened teamwork
- Sustained improvement

Value Stream Mapping Resource

(page 175)
Summary of Key Points

- A value stream allows you to understand the flow of information and material, and creates a common vision for all people who are part of those care processes.
- A rapid improvement event must include subject matter experts when creating value stream maps.
- To identify the problems in a value stream, ask what the root causes of delay are for that segment of the process. Ask: Can any of these steps be done in parallel rather than series? Are the right people doing the work? Is there an opportunity to cross train?

Questions
Supporting Tools and Information

Evolution of a Value Stream Map

- Learn voice of the customer
- Identify the start, end and sequence of the high level process steps
- Observe process several times
- Create a map of the observed steps (current state)
- Add data
- Describe characteristics of the process & identify wastes/barriers to flow
- Use Lean tools to remove waste
- Create future state map
- Summarize and consolidate in electronic format (optional)
Value Stream Mapping Within the RIE

A SIPOC List Can Identify All Involved Staff & Services

Patient Meals to Unit by 11am

Suppliers
- Patient Care Unit/Provider
- Grocery store

Inputs
- Order for lunch

High Level Process
- Organize and prioritize orders
- Prepare and heat lunches
- Package lunches
- Deliver to unit

Outputs
- Meal
- Interaction/Services

Customer
- Patient Nursing Unit

Work from right to left
Quantitative VSM Measurements - Yield

Yield Measurements: Assess the probability that a process will be complete and accurate the first time through

- First pass yield = Yield for one step/unit or the overall process
  \[ \text{FPY} = \frac{\text{# units complete/accurate}}{\text{all units entering the process}} \]

- Rolled throughput yield = Yield for a set of steps
  \[ \text{RTY} = \frac{\text{# units complete/accurate}}{\text{count of all units entering step 1}} \times \frac{\text{# units complete/accurate}}{\text{count of all units entering step 2}} \times \frac{\text{# units complete/accurate}}{\text{count of all units entering step 3}} \]

Use Impact Map to Prioritize Interventions

- Teach Med Asst to Enter History in EHR
- Daily Open Block for Same Day Schedule
- Create Visual Cue to Inform Physicians
- Daily Teach Med Asst to Draw Blood
- Lab Draws in Clinic
- Group Visits for Chronic Care

Impact Map:
- High Impact
- Low Impact
- Easy to Implement
- Difficult to Implement