Continuous Value Improvement: Beyond Episodic Gains
Exercise Packet

Contents

Exercise 1 Organizing Care in Value Streams

Background

As presented in today's session, a ***value stream*** is a family of patient care processes with similar flows and resource requirements.

To ***organize*** a family of patient care processes as a value stream means that there is a management team and direct care staff who have the responsibility and "span of control" to operate and improve these patient care processes. If the management team cannot align work flow and decisions with the costs and revenue associated with the care processes, they cannot easily manage and improve value for their patients.

Here's a key step in organizing as a value stream: the people, equipment, and facilities needed to provide the care (the "resources") are all assigned to the value stream, so the responsible people can operate the value stream as its own business.

Ideally, the resources work ***exclusively*** in the value stream; exclusive assignment of resources then allows a clear connection among revenue, costs, and care process activities.

Reminder: As Brian told us, "There are very few perfect value streams." However, the closer you are to the ideal value stream organization, the easier it will be to apply the tools we will discuss next.

Part 1: Organizing a Service Line in Value Streams

The orthopedics service line at Brockmenter Medical Center functions as a "hospital within a hospital", with dedicated administrative and clinical staff, operating suites and in-patient rooms.

Surgeons: One community group of orthopedic surgeons provides more than 85% of the surgical volume. A second community group provides the remainder. Thus, there are no employed orthopedic surgeons performing joint replacements at the hospital.

Insurance mix; private insurance 50% and Medicare 50%

Market position: regional specialty center in central Pennsylvania, midway between specialty orthopedic centers in Pittsburgh and Philadelphia that are starting to market services to central Pennsylvania.

The Medical Center: a 400 bed hospital, this is the anchor of Brockmenter Health System, which has three smaller community hospitals and a recently acquired primary care practice.

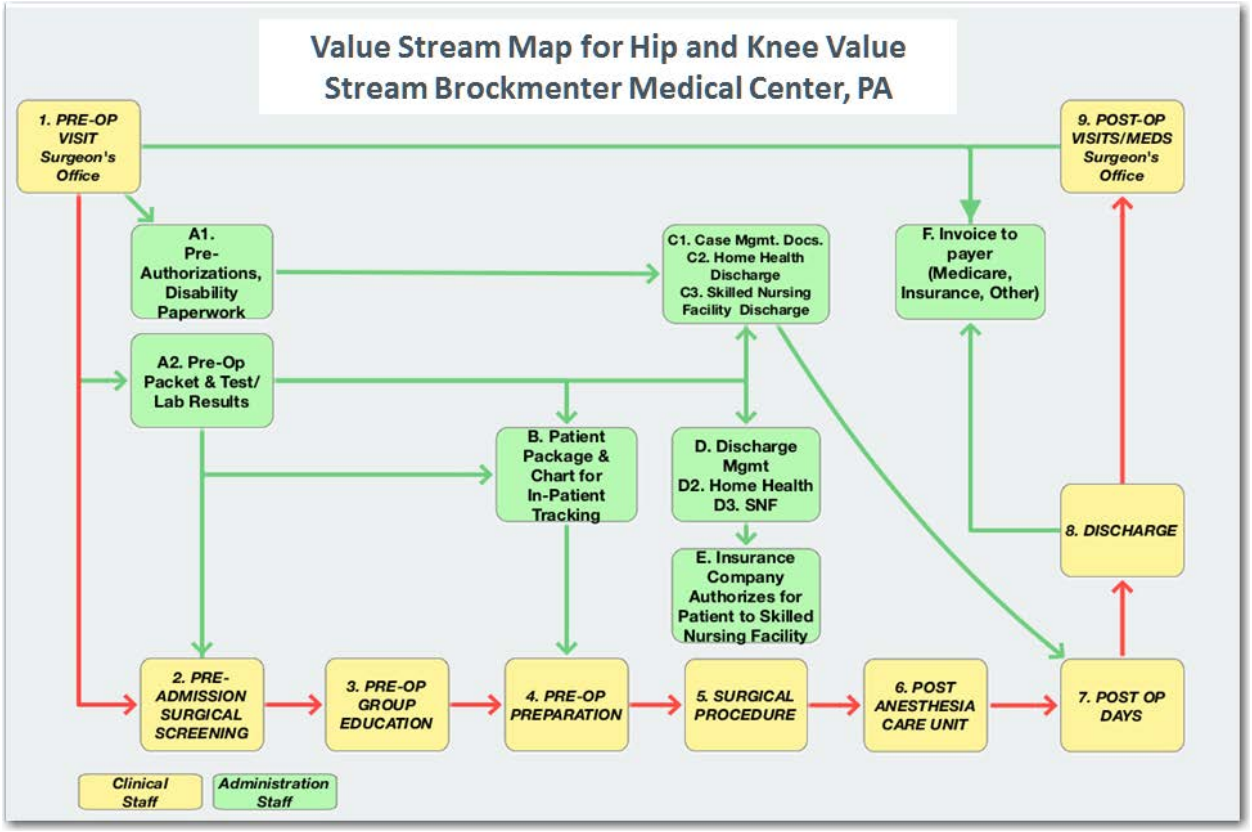
The service line focuses on surgery for primary elective hip and knee replacement (90% of case volume and revenue); the other cases are divided among shoulder replacements (about 5%) and revisions of hip and knee replacements (5%). More than 90% of elective hip and knee patients are discharged directly to home.

At Brockmenter Medical Center, the procedures for primary in-patient hip and knee replacements have work flows and resource requirements that are similar. Typically, the surgical teams that work on primary knee replacements also do primary hip replacements.

Discuss with your colleagues: What are advantages and disadvantages of organizing the orthopedic service into **three** value streams?

1. Elective primary hip and knee replacement
2. Other surgeries
3. Administration

Part 2: Start and End of the Value Stream



Brockmenter Medical Center is early in its effort to improve the value delivered by the orthopedic service line.

In the case example presented in the learning lab, we focus on part of the value stream shown in the value stream map: the in-patient care steps 4-8 rather than the entire set of steps 1-9.

Discuss with your colleagues: What are the advantages and disadvantages of defining the hip and knee value stream as the inpatient steps 4-8 rather than the steps 1-9?

Reflection Time

What questions do you have about organizing and managing your care processes as value streams?

Take Home Tasks

If you do not now view care processes in your organization as value stream(s), consider these tasks:

1. Sketch a value stream map for one set of care processes that share similar flows

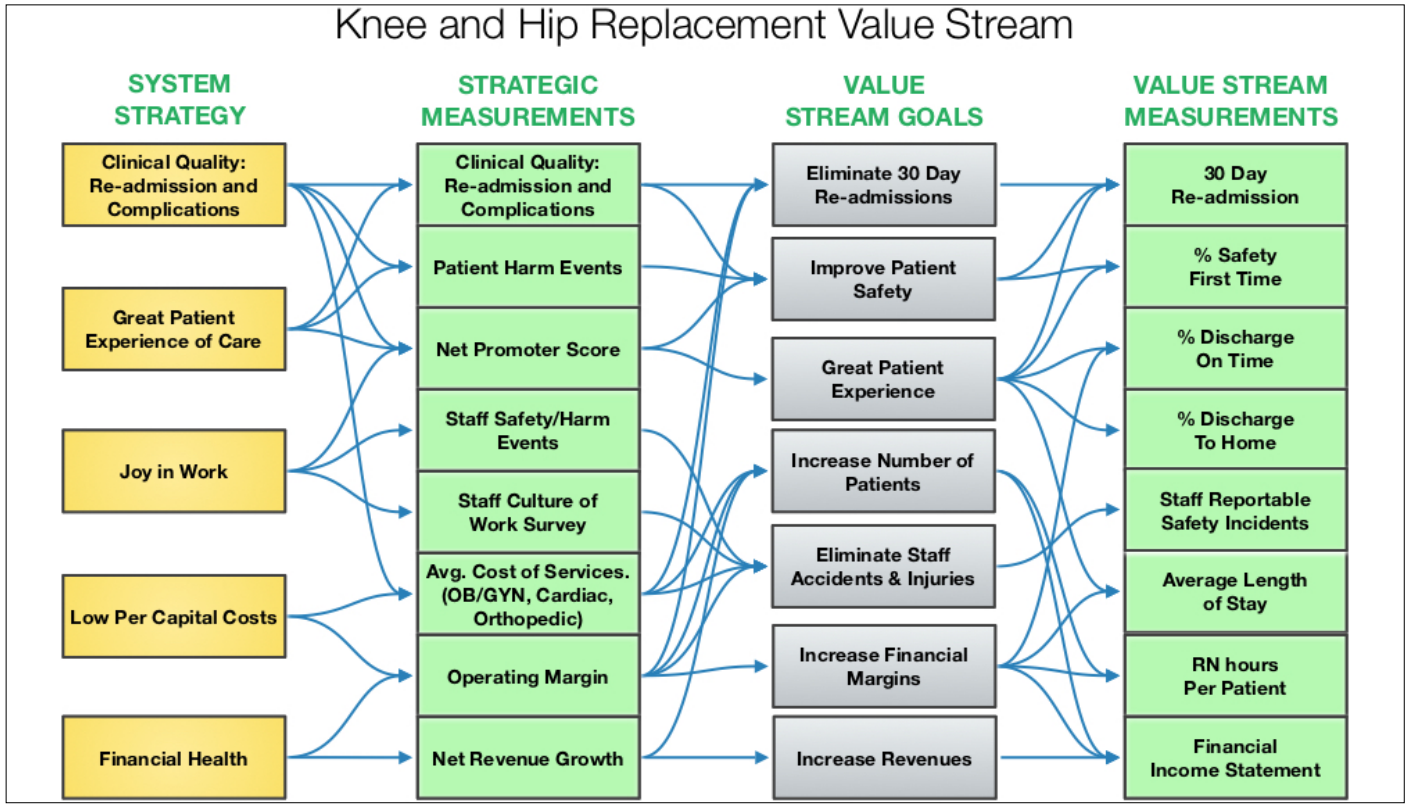
Tip: Avoid going into detail of tasks and processes; focus on the flow of the large steps, similar to the Brockmenter Medical Center example

2. Identify who could fill the role of value stream manager for the value stream sketched in task 1.
3. Discuss the slides 17-34 with the candidate value stream manager identified in task 2. What do you and the potential manager see as the benefits and barriers to organizing care by value stream?

If you already view at least some care processes as value streams, how strong is the position of value stream manager? What could you test to get the value stream manager's role better aligned with the criteria on slide 25?

Exercise 2: Linkage Chart and Value Stream Performance Measures

Introduction Version 1.0 of the linkage chart for Brockmenter Medical Center's Knee and Hip Replacement value stream shows connections between the system strategy and the value stream.



Like every health care organization, Brockmenter Health System and the orthopedic service wrestle with a multitude of measures. Some measures are generated internally; some are required by regulators and payers.

Here's a major challenge in determining performance measures for the Box Score: keep the number of performance measures to six or seven.

More measures are not necessarily better. Beyond a small number of measures, it's hard to focus attention and actually improve performance.

Part 1 Rate the proposed performance measures on the criteria. Based on your rating, would you advise the value stream management team to keep the measure in the Box Score set? We've rated the **% Safe First Time** measure as an example.

Relationship to Criteria: Strong  Medium  Weak 

Criteria	% Safe First Time	30-day Readmission	Length of Stay	Discharge on-Time	RN hours/Patient
Linked to Value Stream Goals	●				
Easy to Understand by Staff and Patients	○				
Value stream manager accountable for performance and improvement	●				
Measure reflects current week's operation	●				
Measurement already being tracked and summarized	○				
Keep?	yes				
Notes on your rating					

Our Rating Explanation: *% Safe First Time* (percent of patients during the week with **no** patient safety events: no sentinel events, no adverse events, no no-harm events, no close calls, and no hazardous conditions; reference: Joint Commission article on Sentinel Events, https://www.jointcommission.org/assets/1/6/SE_CAMH_2016Upd1.pdf, p. 4).

Linked to Value Stream Goals?
Strong: Direct and strong relationship with patient safety goal
Easy to Understand by Staff and Patients?
Medium: The current measure name does not convey the intent of the measure. Change to "% All Safe"?
Value stream manager accountable for performance and improvement?
Strong: The value stream manager, working with process supervisors and staff has the responsibility to organize and operate the value stream safely.
Measure reflects current week's operation?
Strong: the events are monitored/documented as part of the required documentation
Measurement already being tracked and summarized?
Medium: while the current measurement system exists, audits reveal inconsistent use, requires shoring up so we can believe the scores

Advice: Yes, keep the *% Safe First Time* measure but rename to "% All Safe".

Part 2

The *Joint Commission Advanced Certification Program for Total Hip and Total Knee Replacement Technical Advisory Panel* has identified four measures, now in pilot testing.

- THKR-1 Neuraxial Anesthesia
- THKR-2 Postoperative Mobilization on Day of Surgery
- THKR-3 Discharged to Home
- THKR-4 Preoperative Functional/Health Status Assessment

(reference: https://www.jointcommission.org/total_hip__total_knee_replacement_/ accessed 11 November 2016).

In preparation for the certification program, the system chief operating officer asked that the hip and knee value stream track all four measures.

In this exercise, consider THKR-2 Postoperative Mobilization on Day of Surgery.

In terms of the value stream map, postoperative mobilization on day of surgery occurs in process step 7: post-op days.

Question: Do you think THKR-2 should be included in the small set of value stream performance measures? Why or why not?

Reflection Time

What questions do you have about choosing performance measures to be part of a Box Score?

Take Home Tasks

If you do not yet have a set of measures for your value stream, consider drafting a Linkage Chart.

1. Identify the strategies and strategic measurements of your organization.
2. Use Post-its and markers to draft the first two columns of the Linkage Chart, drawing arrows to show connections.
3. Identify goals of your value stream (column 3 of the Linkage Chart).
4. List candidate measures that will help you monitor progress toward your goals.
5. Rate the measures on the five criteria given in Part 1. Can you get to a useful set of six or seven measures? If so, complete your first draft.

Exercise 3 Value Stream Financial Measures

Here's simplified version of the Brockmenter Orthopedic Service line weekly Profit and Loss statement, organized by value stream for one week:

Week of 20 June 2016	H&K Value Stream	Other Surgery Value Stream	Support Value Stream	Totals
REVENUE	$1,080,000	$110,000		$1,190,000
IMPLANTS	$405,000	$32,000		$437,000
DRUGS	$32,500	$4,500		$37,000
MEDICAL SUPPLIES	$94,500	$11,500		$106,000
LABOR	$200,000	$30,000	$8,000	$230,000
OVERTIME	$5,000			$5,000
CONTRACT EMPLOYEES		$5,000		$5,000
OTHER COSTS	$50,000		$7,000	$50,000
SQUARE FOOTAGE	$30,000	$3,000	$2,000	$33,000
PHYSICAL THERAPY				$0
PROFIT	$263,000	$24,000		$287,000
Profit as % of Revenue	24%	22%		24%

Part 1

As of June 2016, surgeons are not employees of the service line and hence are not compensated by the service line; they bill for services directly to the payers

How would the profit and loss statement change for the hips and knees value stream if orthopedic surgeons are employed by the value stream?

Assumptions

- Surgeons are paid $9,500 per week (salary and benefits).
- the service line covers cost of malpractice insurance at $500 per dollar per week per surgeon.
- procedure volume for the week requires six surgeons each doing nine procedures a week; the hired surgeons will cover the entire case load of 54 procedures.
- Each surgeon's charge is $1500 per procedure to the payer.
- No additional staff or office space charges are necessary at this time for value stream steps 1, 2, 3 and 9.

Week of 20 June 2016 (54 procedures)	**H&K Value Stream as is**	**H&K Value Stream with Surgeons as employees**
REVENUE	$1,080,000	
IMPLANTS	$405,000	
DRUGS	$32,500	
MEDICAL SUPPLIES	$94,500	
LABOR	$200,000	
OVERTIME	$5,000	
CONTRACT EMPLOYEES		
OTHER COSTS	$50,000	
SQUARE FOOTAGE	$30,000	
PHYSICAL THERAPY		
PROFIT	$263,000	
Profit as % of Revenue	24%	

Part 2: A monument problem

As part of in-patient care, physical therapy begins on the day of surgery and continues on the next day during in-patient care.

Brockmenter Medical Center's physical therapy department helps patients throughout the hospital; it also provides out-patient clinical services at offices and a gym on the Medical Center campus. The physical therapy department acts as a monument.

In the income statement summary, we should enter a cost number for the physical therapy services. We calculate a cost by "allocation." Unfortunately, allocated costs depend on assumptions that are often questionable. More importantly, allocated costs are not costs that the value stream manager can directly manage or improve. The ultimate aim in value stream management is to "right size" the monument facility and services so that the profit and loss statement includes direct costs only.

Allocation Example if the Physical Therapy Department has weekly costs of $24,000 and the Hip and Knee value stream on average requires 25% of the PT Department's appointment slots, we can define an allocated cost per week for physical therapy as $6000. This number is entered into the cost cell for physical therapy in the profit and loss statement. The profit is reduced by $6000 and the profit as % of revenue goes from 24.4% to 23.8%.

Week of 20 June 2016 (54 procedures)	H&K Value Stream
REVENUE	$1,080,000
IMPLANTS	$405,000
DRUGS	$32,500
MEDICAL SUPPLIES	$94,500
LABOR	$200,000
OVERTIME	$5,000
CONTRACT EMPLOYEES	
OTHER COSTS	$50,000
SQUARE FOOTAGE	$30,000
PHYSICAL THERAPY	$6,000
PROFIT	$257,000
Profit as % of Revenue	24%

Question

Suppose the Hip and Knee value stream manager can bring physical therapy service into the value stream. For example, the manager can plan for a small physical therapy space in the present hip and knee value stream facility; physical therapy staff will work full time for the value stream. In this situation, we no longer need the separate line for physical therapy in the profit and loss statement. Which elements in the profit and loss statement could be affected by the change that brings physical therapy into the value stream?

Week of 20 June 2016 (54 procedures)	**H&K Value Stream current situation: Physical Therapy Outside the value stream, allocated cost**	**Mark by X the elements of the value stream profit and loss statement that could change if physical therapy is a direct part of the value stream**
REVENUE	$1,080,000	
IMPLANTS	$405,000	
DRUGS	$32,500	
MEDICAL SUPPLIES	$94,500	
LABOR	$200,000	
OVERTIME	$5,000	
CONTRACT EMPLOYEES		
OTHER COSTS	$50,000	
SQUARE FOOTAGE	$30,000	
PHYSICAL THERAPY	$6,000	x (Separate line item not needed)
PROFIT	$257,000	
Profit as % of Revenue	24%	

Reflection Time

What questions do you have about the development and contents of a value stream profit and loss statement?

Take Home Tasks

For a candidate value stream (e.g. the value stream identified in Exercise 2), think about two value stream profit and loss statement elements

1. revenue generated by the value stream in one week;
2. salary and benefit costs of staff who work in the value stream for the same week as part 1.

Who has this information in your organization?

Are the weekly numbers available in reports that already exist?

Exercise Answer Notes

Exercise 1

Part 1

Advantages 3 value streams as defined in the exercise	Disadvantages 3 value streams
Elective Hip and Knee replacement have traditionally shared steps, resources and people—e,g, surgeons perform both and RNs and support staff work with both kinds of patients.	"Other surgeries" as a separate value stream (revisions and shoulder surgeries) is a small portion of the volume and work. A pure value stream approach would have dedicated OR, beds and staff servicing these "other" surgeries. This is not possible yet at Brockmenter. Some costs for the Other surgeries value stream may be dominated by "allocated" costs (allocated costs discussed in section 5, value stream financial accounting)
H &K is the dominant service of the orthopedic service line and specific focus allows targeted management and faster improvement.	There are differences in implant costs, LOS, and details of recovery for H and K patients. In Pareto analysis, differences between H and K cases will be a required stratification, adding a little complexity to data display and analysis.
H&K are often grouped together by payers and regulators, so an H&K value stream aligns with outside expectations.	
Good value stream practice splits out the support (admin) from the direct value stream to better see costs and improvement opportunities to improve value for patients. Support (admin) is very different in the nature of work,	

deserves its own value stream so that's an advantage of the three stream division.	

Part 2

Advantages steps 4-8 in-patient steps vs 1-9	**Disadvantages 4-8 vs 1-9**
4-8 In-patient service is one business entity so no business boundaries to overcome; reports, staffing contracts, cost structure already known for the in-patient service	1-9 is the value stream as experienced by the patient, who doesn't care that the surgeons and hospital are separate business entities
4-8 in patient management structure exists, needs reorganization to determine a value stream manager.	1-9 is the value stream payers may want to recognize and evalueate (e.g. current CMS model program)
4-8: can get started right away and work to extend the value stream to 1-9	

Exercise 2

Part 1 One reviewer's opinion!

Criteria	% Safe First Time	30-day Readmission	Length of Stay	Discharge on-Time	RN hours/Patient
Linked to Value Stream Goals	●	●	●	●	●
Easy to Understand by Staff and Patients	○	●	○	●	○
Value stream manager accountable for performance and improvement	●	○	●	○	●
Measure reflects current week's operation	●	△	●	●	●
Measurement already being tracked and summarized	○	●	●	●	△
Keep?	yes	yes	yes	yes	yes
Notes on your rating		Significant surgeon involvement in performance and improvement; critical to keep top of mind		In patient and discharge steps control the discharge on time	Easy to get the ratio from accounting system

Part 2

The Post-Op mobilization on day of surgery is under control of the in-patient staff and it makes sense to monitor and improve the measure at the in-patient unit level. Recommend that the measure not be added to the Box Score.

Exercise 3

Part 1 Step 1: calculate changes to the revenue and costs. Step 2: show the new predicted profit and loss statement

Week of 20 June 2016 (54 procedures)	H&K Value Stream "as is"	H&K Value Stream with Surgeons as employees Step 1	H&K Value Stream with Surgeons as employees Step 2
REVENUE	$1,080,000	54 x 2000=108000	$1,260,000
IMPLANTS	$405,000	-	$405,000
DRUGS	$32,500	-	$32,500
MEDICAL SUPPLIES	$94,500	-	$94,500
LABOR	$200,000	6 x 9500 = 57000	$257,000
OVERTIME	$5,000	-	$5,000
CONTRACT EMPLOYEES		-	-
OTHER COSTS	$50,000	6 x$500 = 3000	$53,000
SQUARE FOOTAGE	$30,000	-	$30,000
PHYSICAL THERAPY		-	-
PROFIT	$263,000	108000 – 60000=48000	$311,000
Profit as % of Revenue	24.4%		24.7%

Part 2

Week of 20 June 2016 (54 procedures)	H&K Value Stream current situation: Physical Therapy Outside the value stream, allocated cost	Mark by X the elements of the value stream profit and loss statement that could change if physical therapy is a direct part of the value stream
REVENUE	$1,080,000	x
IMPLANTS	$405,000	
DRUGS	$32,500	
MEDICAL SUPPLIES	$94,500	
LABOR	$200,000	x
OVERTIME	$5,000	x
CONTRACT EMPLOYEES		x
OTHER COSTS	$50,000	x
SQUARE FOOTAGE	$30,000	x
PHYSICAL THERAPY	$6,000	x (Separate line item not needed)
PROFIT	$257,000	x
Profit as % of Revenue	24%	x

Aside from the costs associated with implants, drugs and medical supplies, all other items in the profit and loss statement might be affected by the change in physical therapy service.

The primary benefit of bringing physical therapy into the value stream as a direct resource: more flexibility to manage flow of patient recovery. In most hospitals, provision of physical therapy for in-patient elective joint replacement patients typically requires inter-departmental negotiation about schedule, performance expectations, etc. This complexity can be eliminated if physical therapy is a direct resource.

Note that some orthopedic services have explored the use of nurse assistants to become “mobility technicians” who provide some mobilization support that is less than full physical therapy, which requires specific training and licensure. The technicians work in

the value stream and can be assigned, cross-trained, and easily included in value stream improvement efforts. This is a first step to reducing dependency on the monument service.

Questions or comments about these exercises? Please let Kevin Little, klittle@iecodesign.com know!