HRSA Ryan White HIV/AIDS Program
CENTER FOR QUALITY IMPROVEMENT & INNOVATION

Process Flow: Mapping & Analysis

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Learning Objectives

At the end of this presentation, you will have a better understanding of:

- Understanding the difference between process and flow
- How to map a process
- Distinguish between Flowcharts, Gemba Walks, and Value Stream Map

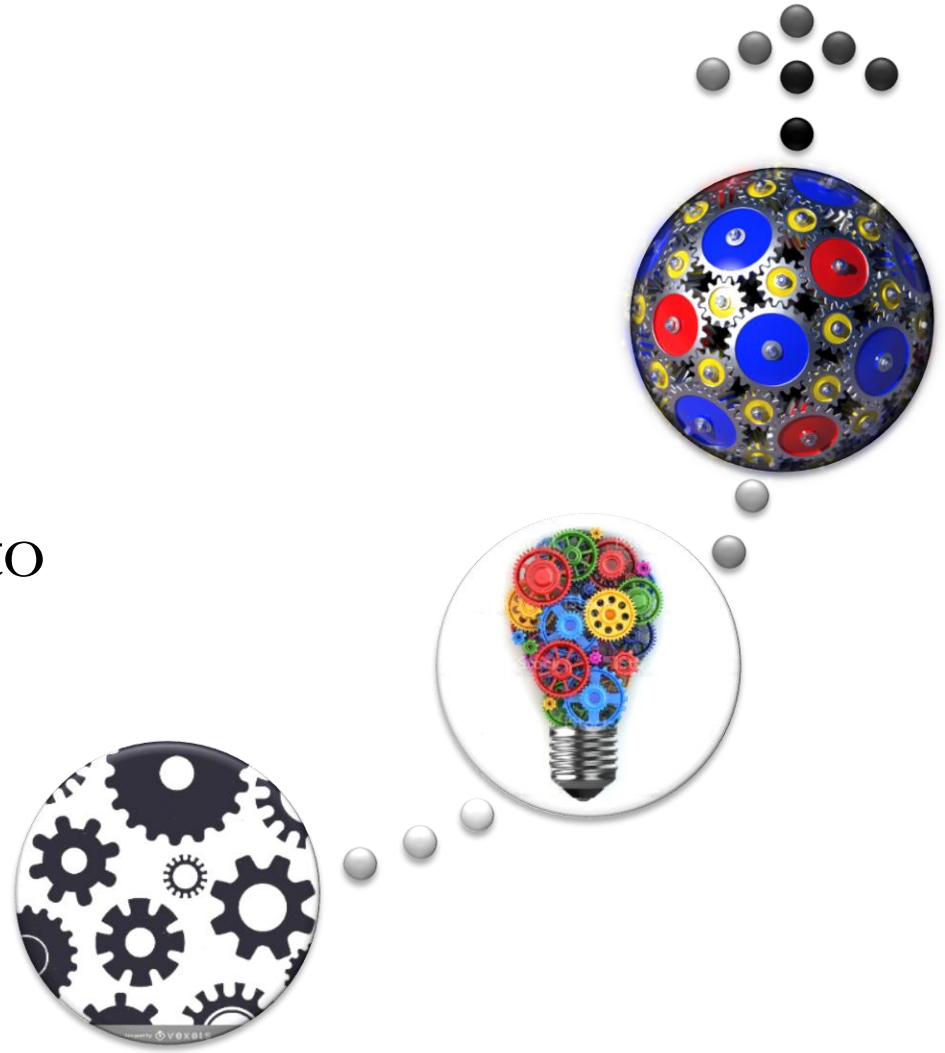
What is a Process?

proc·ess

/ˈprä ˌses, ˈprō ˌses/

noun

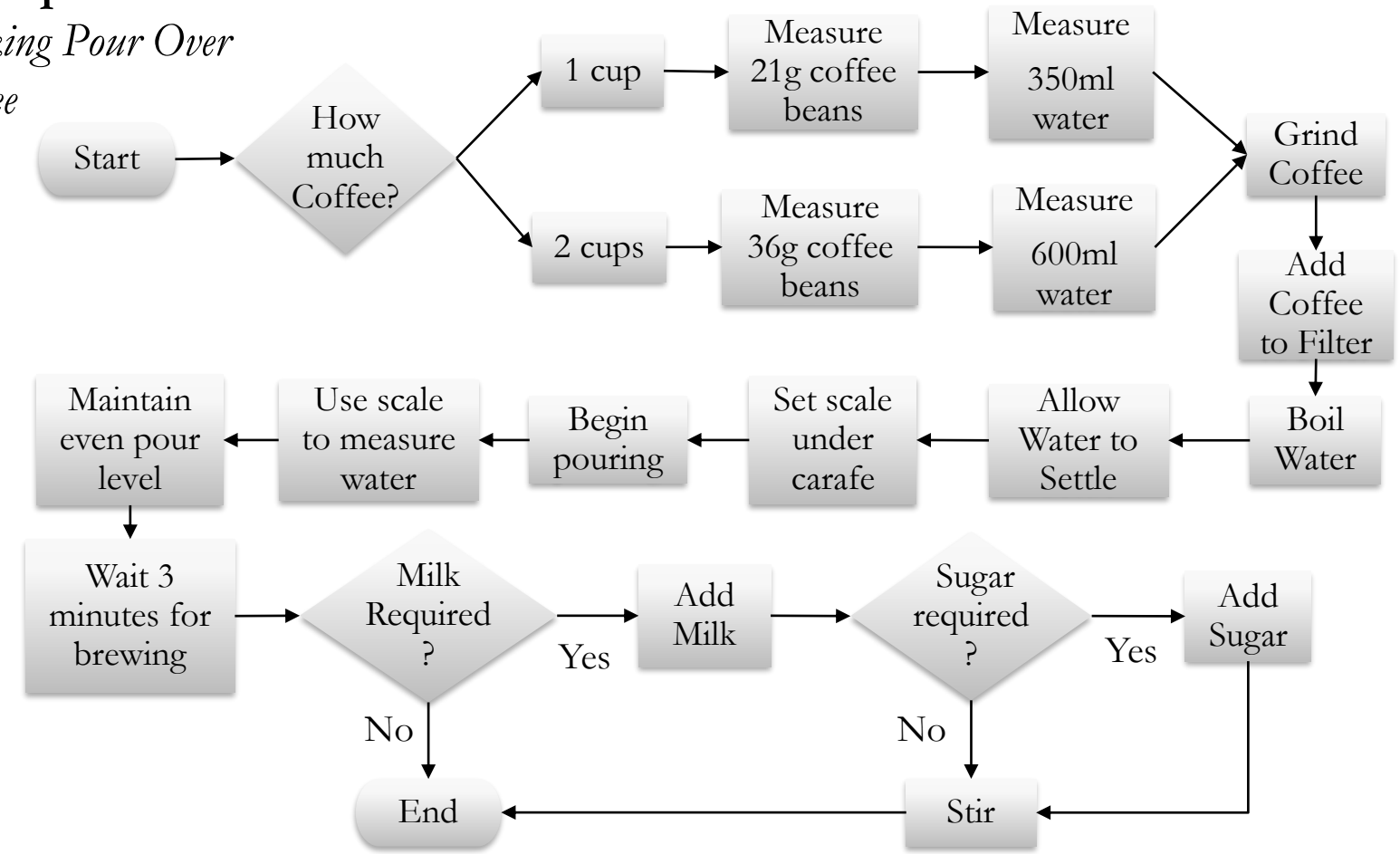
a series of actions or steps taken to transform inputs into outputs in order to achieve a particular end.



Everything is a Process!

Example:

Making Pour Over Coffee



The Model for Improvement was founded on developing methods and capability to improve processes. Improvement is not about implementing interventions until you understand the process and the underlying problems within.

Process States in Improvement Projects

- **Current State**
  - The way things actually are in a process at the beginning of an improvement activity
- **Ideal State**
  - In a reasonably perfect world, what could this process look like?
- **Improved State**
  - After a clearly defined changes have been implemented, what the process looks like now.
- **Future State**
  - This is the plan for the next 1-3 months to get closer to the ideal state

How Do We Map a Process?

- There are several tools for mapping a process, including:
  - Procedure list
  - Spaghetti Diagrams
  - Swim Lane Maps
  - Decision Trees
  - **Flowcharts**
  - **Gemba Walks**
  - **Value Stream Maps**

Why Map a Process?

- A picture is worth 1,000 words
  - QI tools distill a complex process into a visual
- Mapping a process gives us a baseline of the current situation
- Mapping processes helps understand them, and understanding processes to improve them is the goal of QI

How Do We Start?

"..I wish to make an apple pie from scratch, you must first invent the universe."

Sag N. D. (2013). *Cosmos*. New Yor
NY: Ballantin
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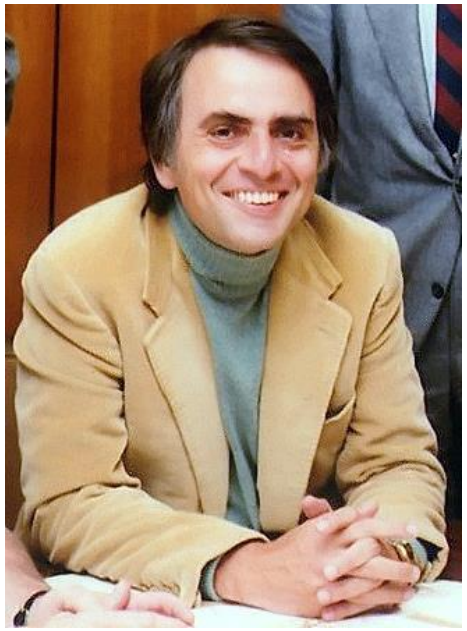


Carl Sagan
-Scientist &
Astronomer

Identifying Boundaries

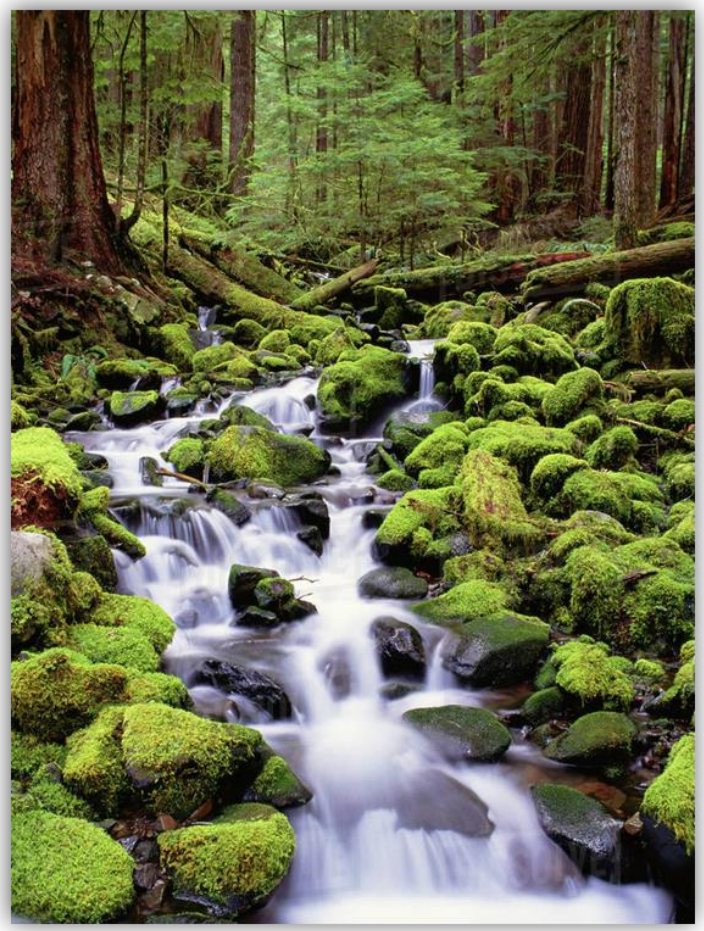
- *START* simple: "door to door" within one function or facility—*nothing less, or you are sub-optimizing*
- *Brainstorm the first and last steps before filling in the middle.*
  - *First: what triggers the rest of the process?*
  - *Last: End with value creation*
- Pick ONE process or service, that is "representative" or "typical". The waste you find will also be "typical"!
  - A service category family: normally defined as "use of several common processes to deliver multiple services "
    - Intake is always a good one to try because it affects so many other processes

The Concept of Flow

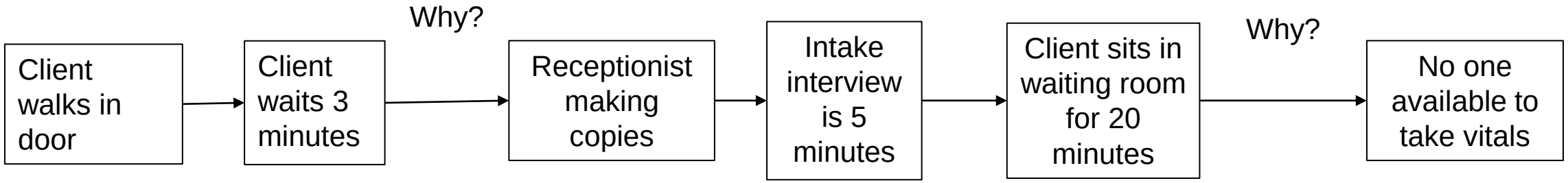
Flow

- The movement of people, materials, or information through a process or system towards accomplishment of a goal.
  - Uninterrupted flow is what we want for efficient, value-driven processes
  - Interrupted flow means a process or product has to wait for the next step or material

Our processes are just like a stream flowing through a forest, with rocks and fallen trees in it's path impeding flow.

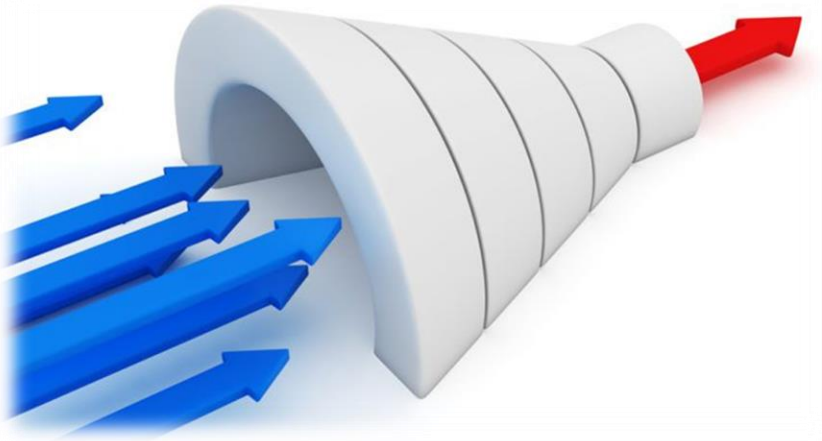


Lets See the Idea of Flow in Action



- While this is a hypothetical scenario it's also a realistic one
- The "completion" of this process is to have the consumer meet with a prescriber
- One can imagine other steps in this process where bottlenecks can occur
- Any of these bottlenecks or inefficiencies affect the flow of a consumer through the process to meet a prescriber

Push



- In manufacturing, this means *make and put into stock*
- In Ryan White
  - Building up a supply of ingredients to get better deals
  - A Ryan White funded food pantry that stocks too much food
- Usually based on models or forecasts - which can be unreliable
- In service industry, our clients are "inventory", and pushing them to one function to another causes waiting
- In quality improvement this could be staffing a quality improvement team with no real project on which to work

Pull

- Performing work as it is needed, when the whole system is ready
  - Working on tasks Just-In-Time (JIT)
    - Requires exacting forecasting and strategic planning
    - Triggered by demand
  - Pull in Home Delivered Meal Provider:
    - Meals are prepared, packed, and staged for delivery and delivered without any defects, waiting, bottlenecks,

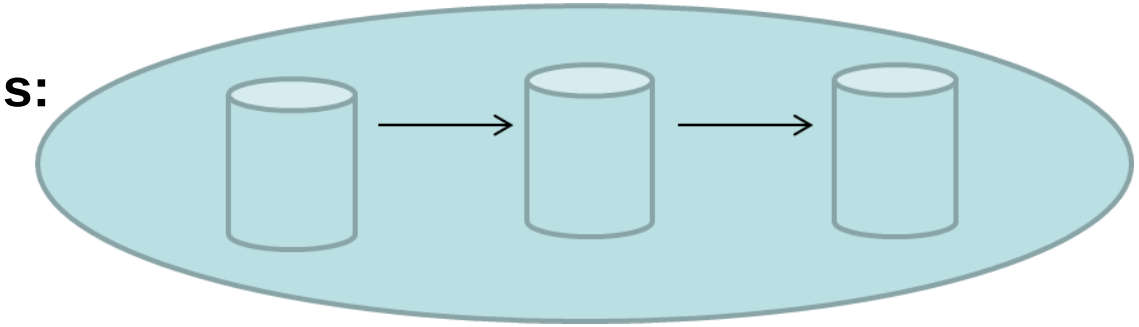
What Constrains Flow?

- The "completion" of this process is to have the meal delivered to the patient
- Where bottlenecks can occur?
- Any of these bottlenecks or inefficiencies affect the patient/client?
- Any of lean wastes will cause interrupted flow
  - 8 Wastes: Overproduction, Transportation, Excess Inventory, Waiting, Defects, Rework, Motion, Wasted Human Potential.
  - Unevenness
  - Overburden

Flow & Wastes

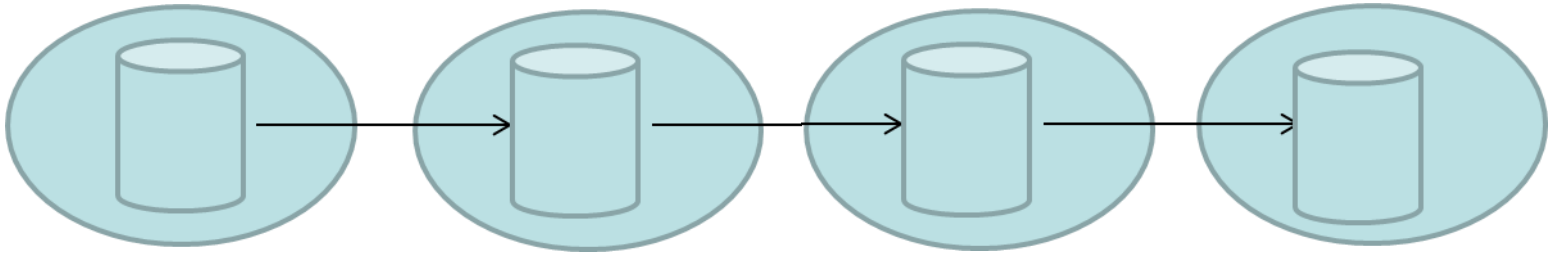
- Waste is easiest to identify, when you connect a process from start to finish between functions.

Think this:



GOAL:
Deliver nutritionally-tailored, delicious meals direct to clients

Instead of this:



TASKS: Develop Menus | Prepare Meals | Pack Meals | Deliver Meals

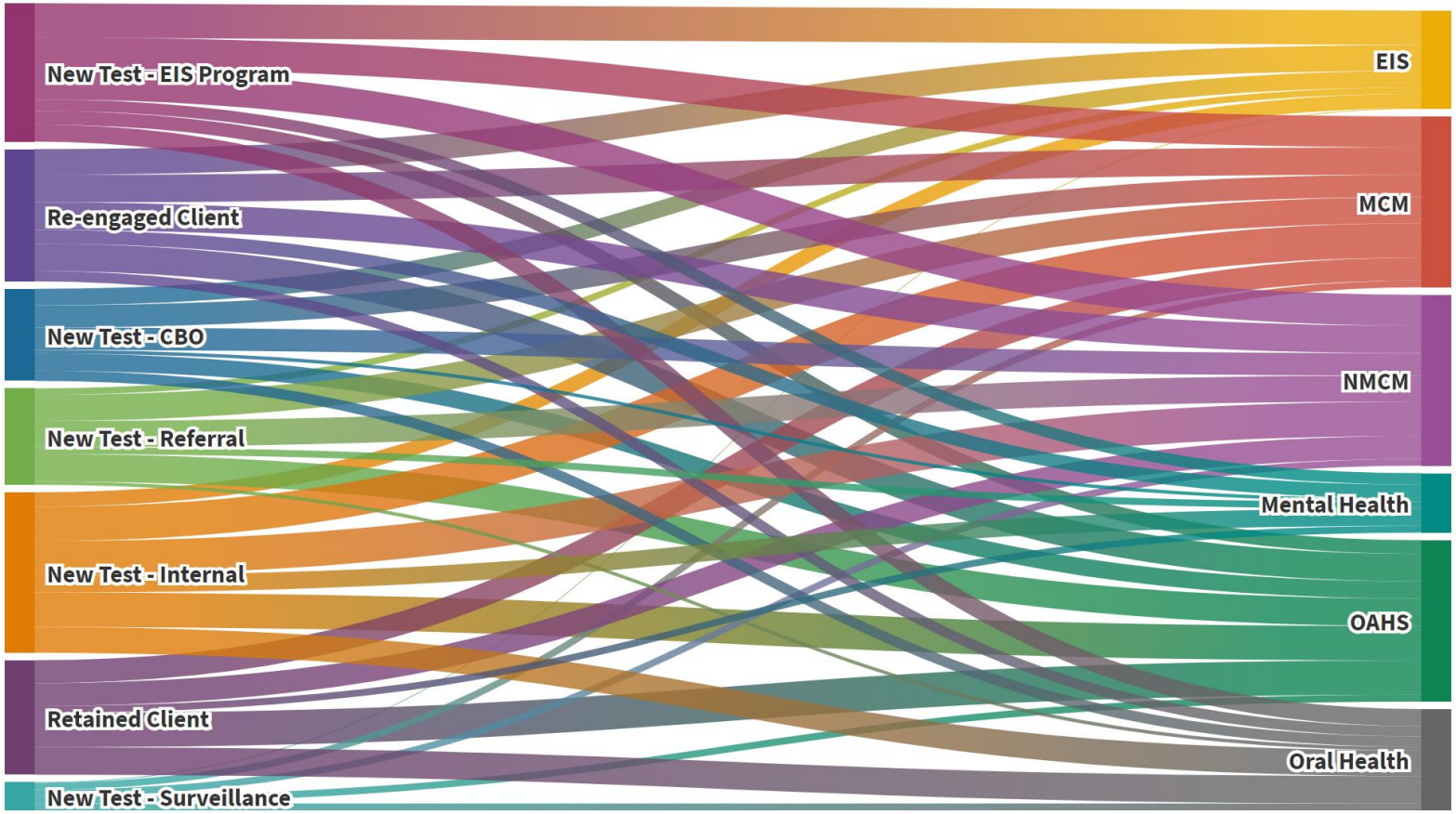
Measuring Flow & Contraints

The Idea of Flow in Our Measurements

- Shows volumes or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.
- Commonly displayed in:
  - Sankey Diagram
  - Waterfall Chart
  - Chord Diagram
  - Network or Node Maps
  - Funnel Charts
  - Stacked Area Charts
  - Control Charts

Let's Look At A Few Examples!

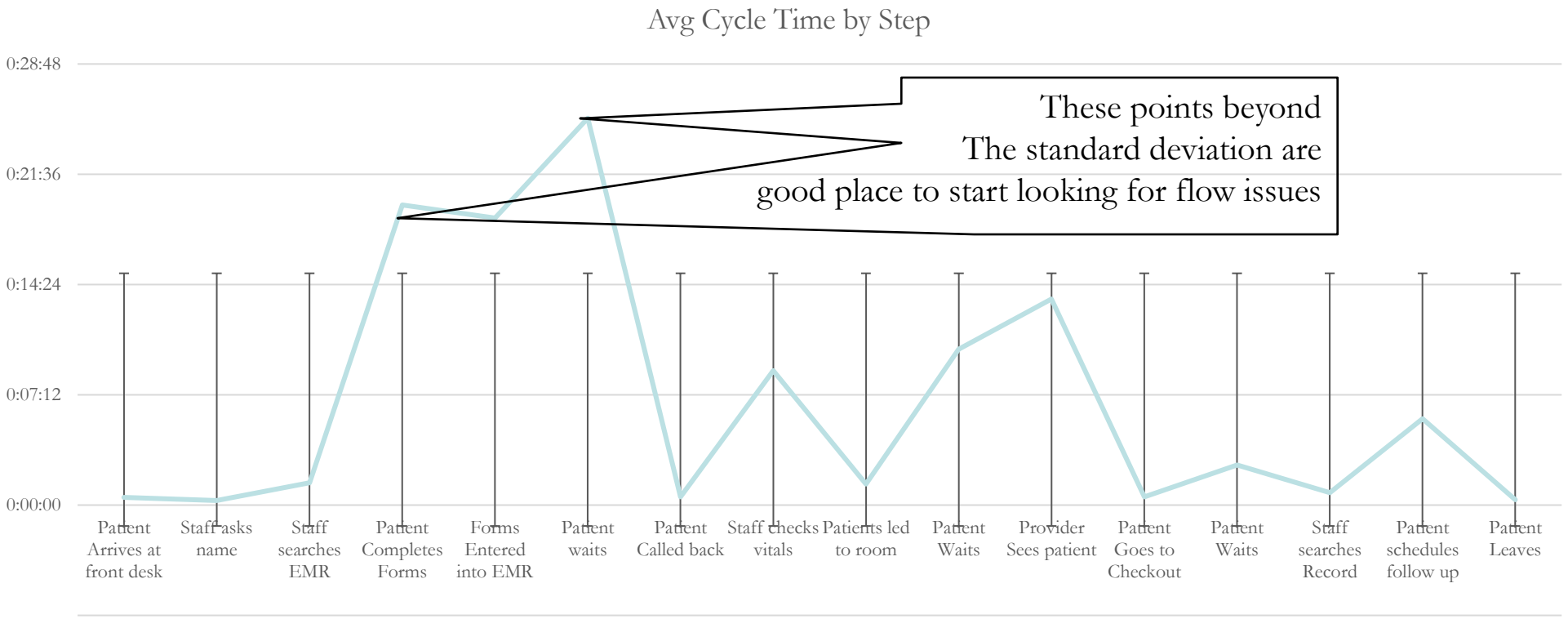
Flow Across A System



This Sankey diagram is showing flow across a system. It is looking at the source of entry for unsuppressed patients, and what services they access.

Even Flow

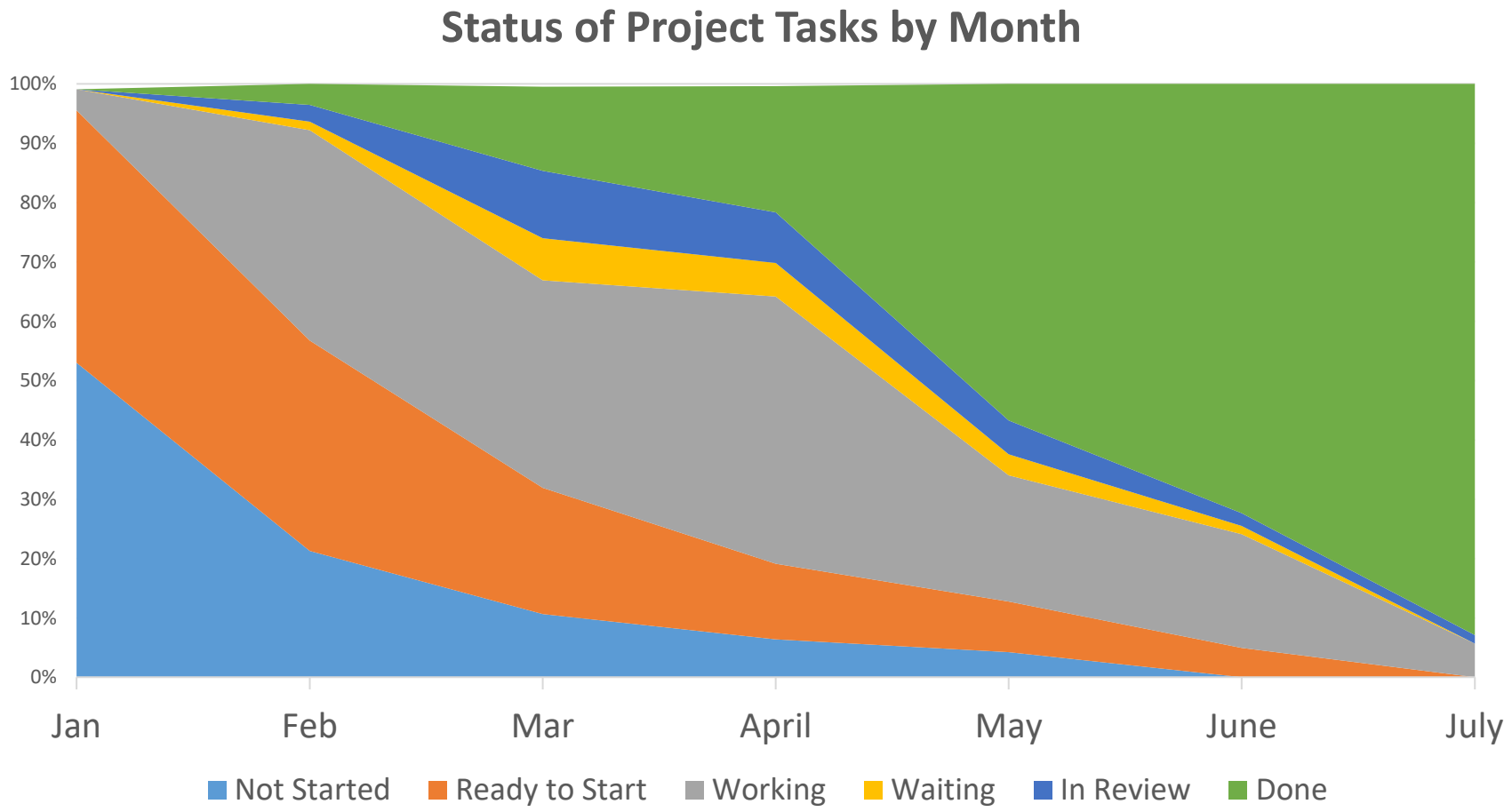
- High levels of variation can indicate that there are issues with flow in a process
  - Let's consider the flow of patients through the clinic each day



Total Lead Time:

1hr 50 mins

Cumulative Flow

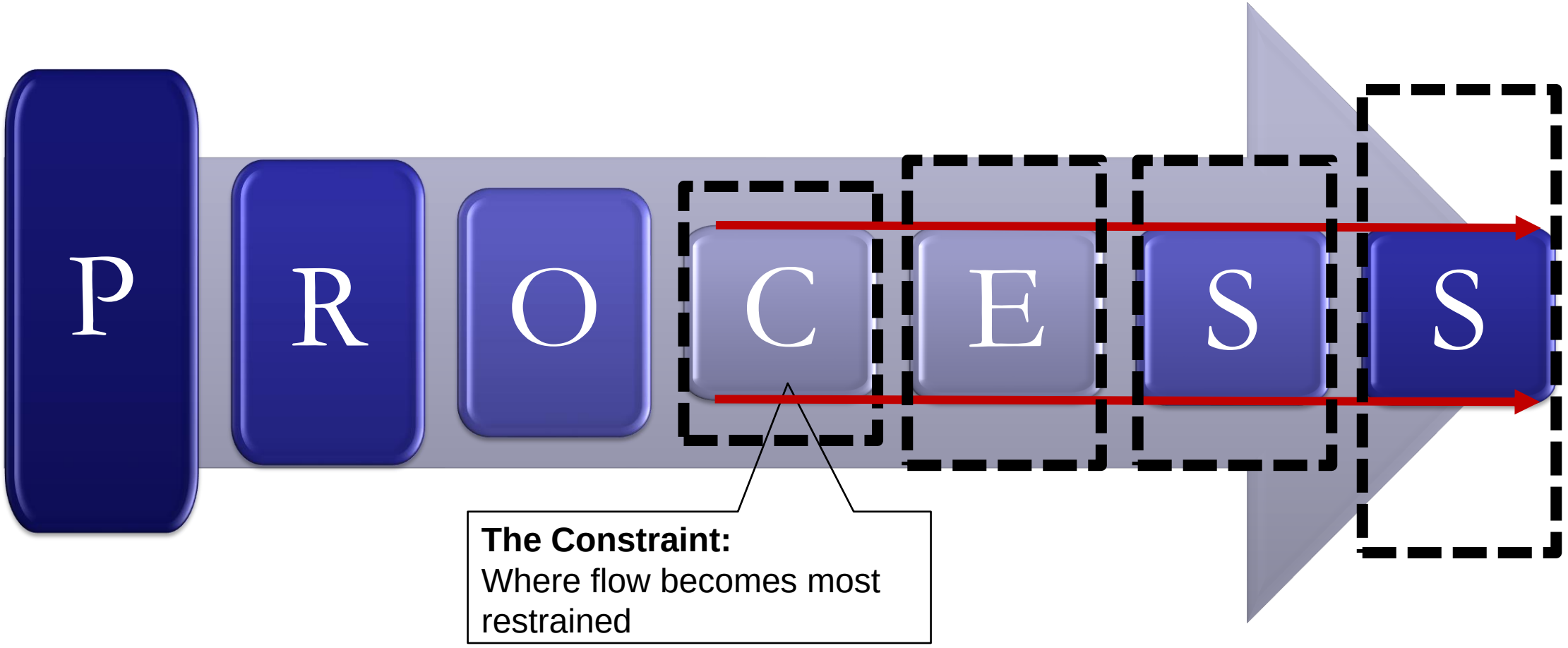


This is a stacked area chart is similar to the funnel, but where that is a linear snapshot, this shows flow overtime. You get the great visual of one color spreading across the vertical axis over the project period

Identifying Constraint

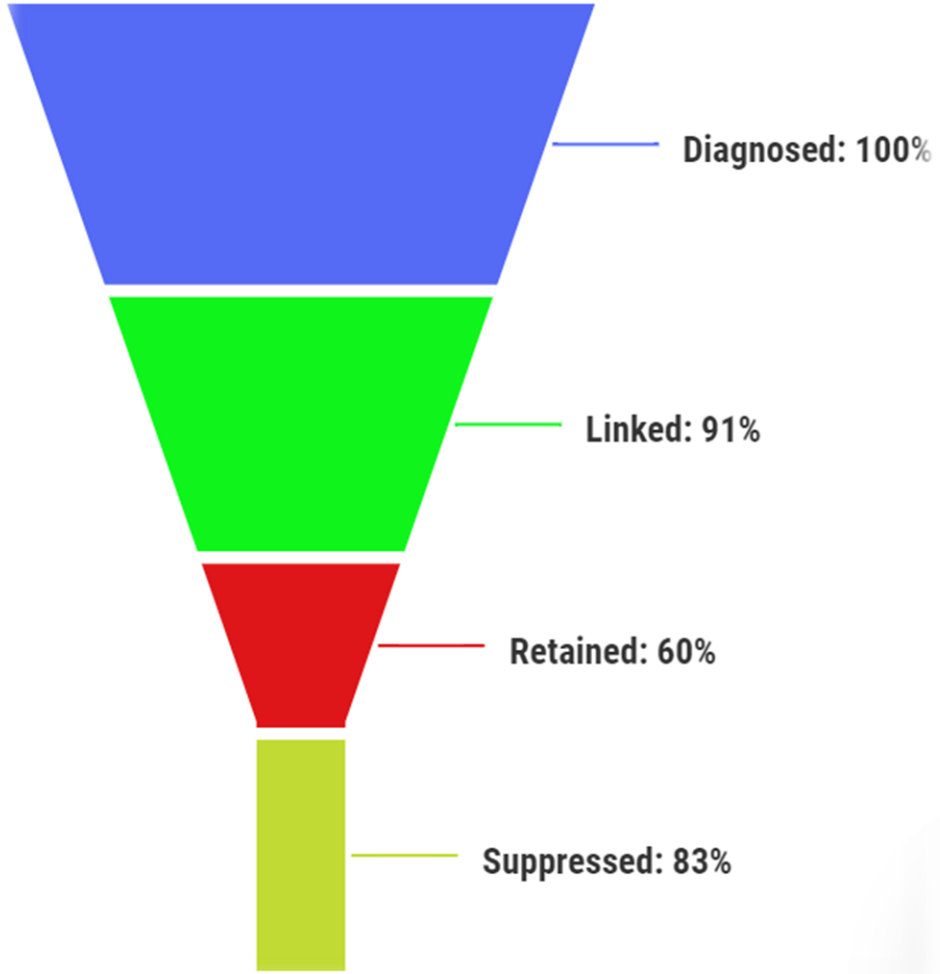
- Every system has one – even efficient processes still have a slowest step
- Throwing resources anywhere else, is a waste because they are throttled by the constraint – in fact, you often make it worse!
- Use a value stream map to see the entire system
- **Examples:**
  - working overtime a lot of times is just an action bias that is throwing more throughput in a system that it is not designed to handle it.
  - Implementing innovative interventions on top variable processes can lead to instability and burnout long-term.

Finding Constraints in Flow



Funnel Chart

- A **funnel chart** helps you visualize a linear process that has sequential connected stages.
- The **funnel** that tracks flow through stages, such as this one showing progress in project tasks
- They are valuable to showing constraints in linear progressions through processes

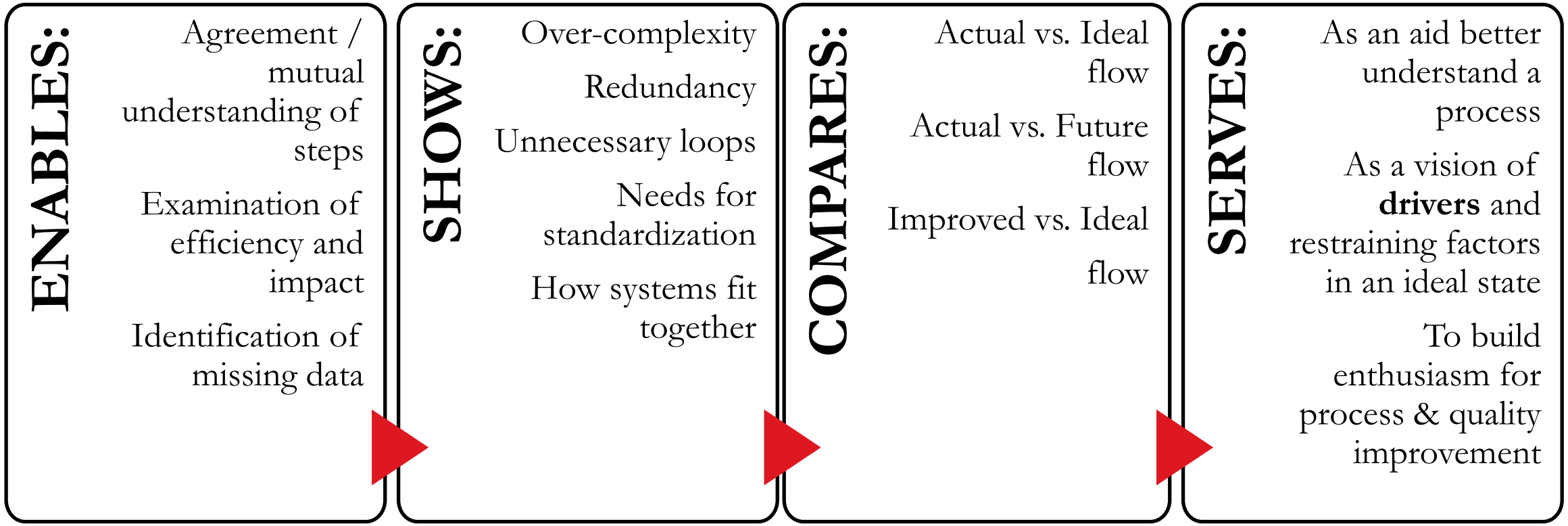


What is a Flow Chart?

What is the value of Flowcharting?

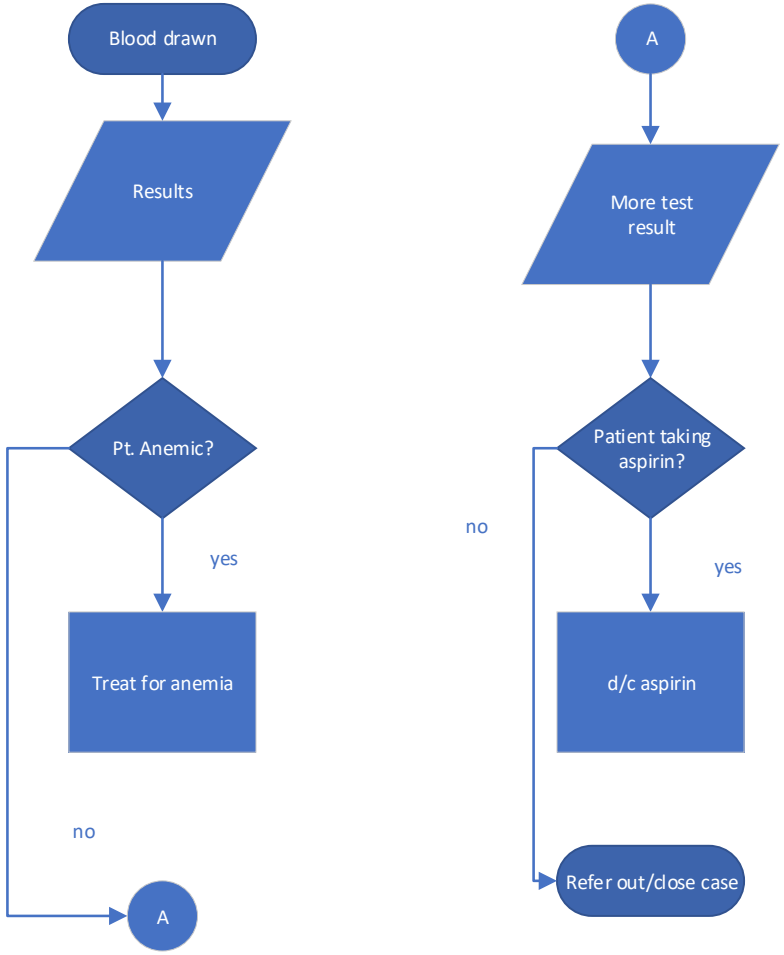
- Flowcharting can help a team determine…
  - "What is going on?"
  - "Do we even all agree on a the current process"?
  - "Where are there delays?"
  - "What are the next steps?"
  - "How can we improve this process?"

Flow Charting:

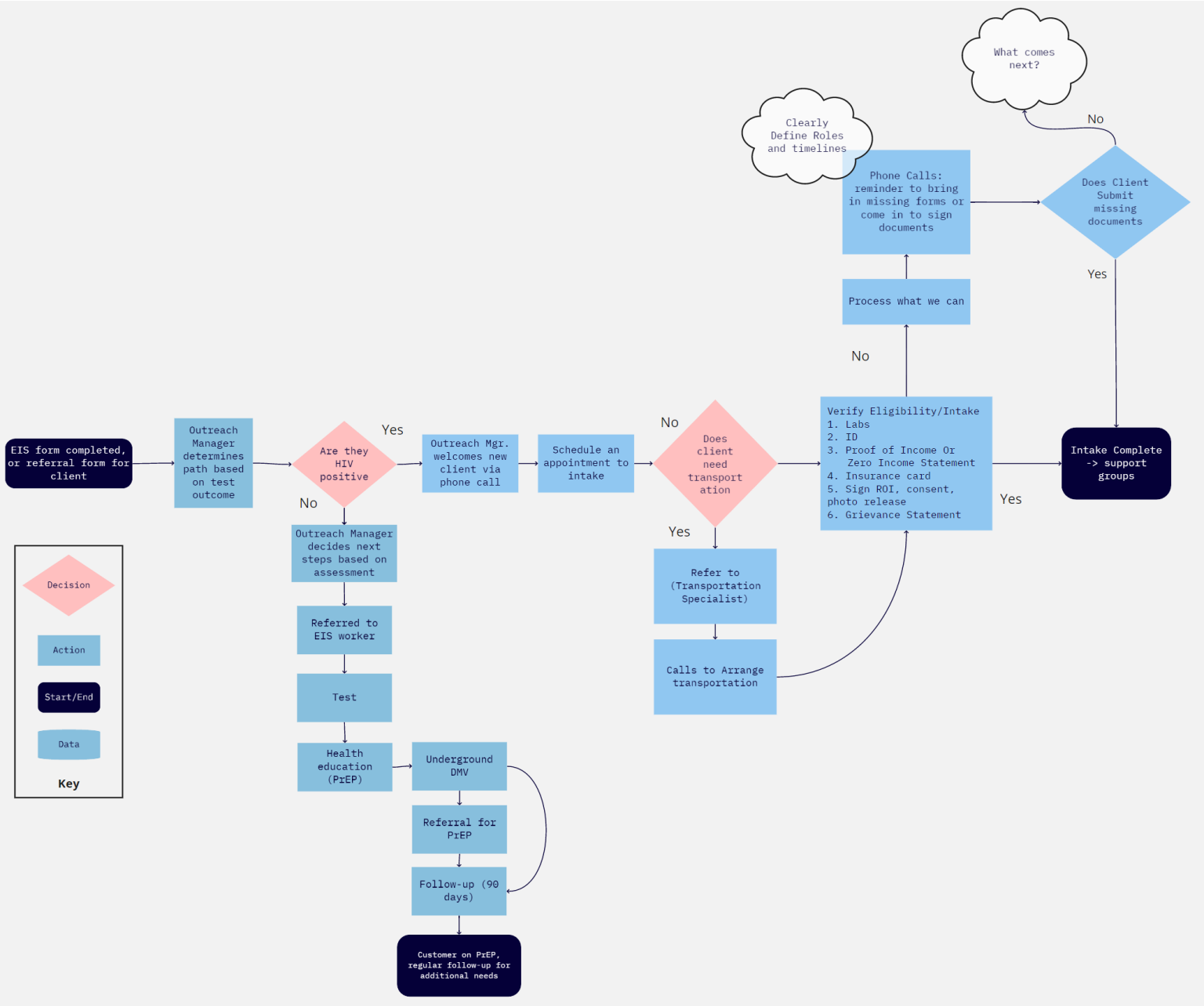


Let's Look At A Few Examples!

Flowchart Highlighting Decisions in a Process



Current State Map Highlighting Improvement Ideas



Analyzing A Flowchart to Improve a Process

Examine each:

- Activity symbol – value/cost?
- Decision point – necessary/redundant?
- Choke Points – bottlenecks?
- Rework loop – time/cost?
- Handoff – is it seamless?
- Document or data point – useful?
- Wait or delay symbol – why?/reduce/eliminate
- Transport Symbol – time/cost/location?
- Data Input Symbol – right format/timely?
- Document/Form Symbol – needed/cost/value?

Limitations of Flowcharts

- Drawing intricately detailed flowcharts can exhaust the quality improvement team's time, energy and resources
  - Creating a perfect flowchart shouldn't become the ultimate goal of your project
- Flow charts are sometimes created without experiencing a process from all angles
  - They treat each step the same whether they are valuable or not
- They are fantastic for seeing a process, but don't lend themselves to including quantitative analysis.

Walking A Process

Go To The Gemba

Go See

Ask Why

Show

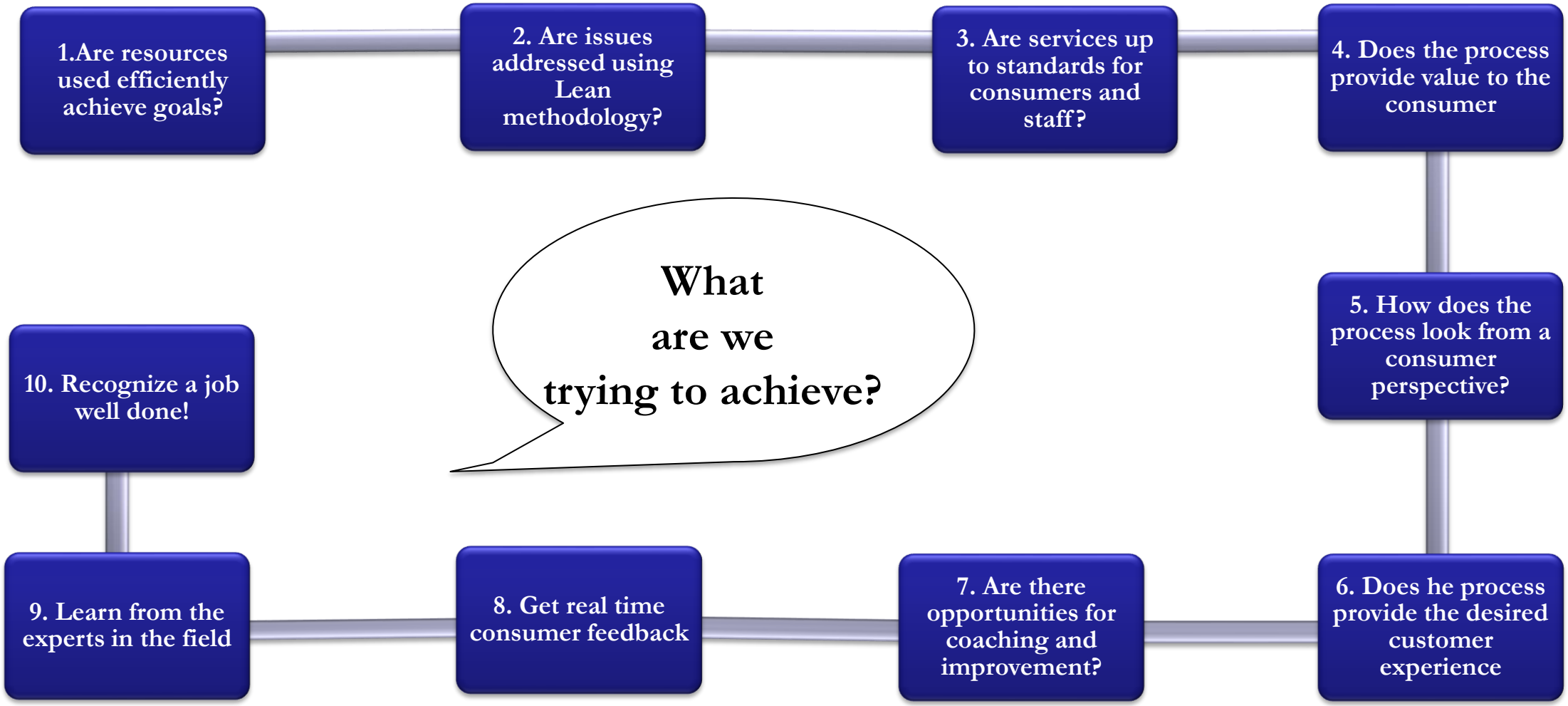
Respect

The gemba walk will be the basis of your VSM in the measurement phase!

What is a Gemba Walk?

- **Go See:** "Go to where the work happens"
  - Be observant as to how work is done in under real daily circumstances. Notice how successfully work activities between departments and between work-groups are aligned with goals
- **Ask Why:** Get a deeper understanding of why activities are done the way they are.
- **Show Respect:** QI leaders can better appreciate the barriers that inhibit the ability to do great work
  - Quality is everyone's responsibility and front line workers are the experts at their activities.
  - Gemba Walk is also an opportunity to recognize excellent work

Gemba Walk Activities: **GO SEE**



Gemba Walk Activities

Ask Why

- Evaluate the patterns of thinking and actions used for improvement and to achieve goals
  - Utilize the 5 Why Method to drill down root causes
- Look at alignment between process and people
  - Are processes designed consistently to achieve the purpose?
  - Are people engaged and supported in this work by the processes?

➢ Use "**what**", "**how**", "**where**" to grasp the situation

➢ Use "**Why**" later to understand root causes

Gemba Walk Activities

SHOW RESPECT

- Develop a coaching routine supporting continuous improvement and learning
- Work to eliminate disrespect towards:
  - **Workers** – overburden, imbalance
  - **Customers** – variations from high quality service

Gemba Walk Checklist

- ✓ Use the stop watch on your smart phone
  - ➢ Capture times of each, step, process, wait time, and total time from start to end
- ✓ Pay close attention to flow coming into the process, staff, consumers
- ✓ Think system-wide to create value and banish waste
- ✓ It's not enough just to observe—think critically about what needs to be done as a result of what you've seen
- ✓ Think about what you will look for on the next gemba walk in response to the current one
- ✓ What, as a quality leader, can you do to help?