Lean in the Laboratory

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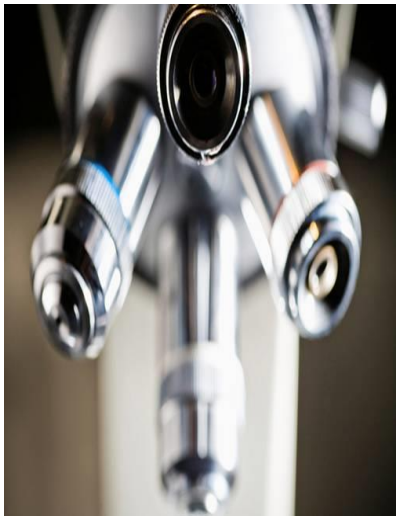
Beaumont® Laboratory

Objectives

Upon completion of this presentation, participants will be responsible to:

- Describe Lean Terminology
- State the Principles of Lean
- Understand Muda
- Utilize the 5 "S's"
- Identify Some Lean Tools
- Illustrate applications of LEAN in Royal Oak Anatomic Pathology



Lean – What Is It?

An operating philosophy for improving processes that focuses on the elimination of waste and process variation.

Lean – What Is It?

- Looks at the process; *not individuals*
- Helps to examine the process where there is:
  - Waste
  - Quality Issues
  - Work Flow Issues

Why Lean?

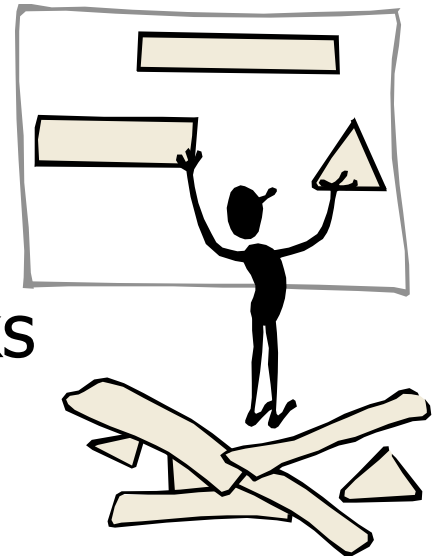
- Look at things that:
  - Have been done for 20 years
  - Don’t understand purpose for completion

Why Lean?

- If you don't improve you deteriorate
- Complacency ≠ HRO in healthcare
  - Can't play role

Why Lean?

- Error Reduction
- Identify Best Practices
- Balanced Distribution of Work
- Eliminate Bad Processes/Bottlenecks
- Reduce Unnecessary Inventory
- Single Piece Flow/FIFO
- National Recognition as a Laboratory of Excellence

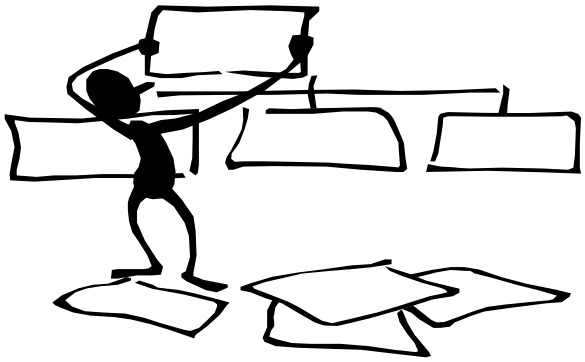


Lean Principles

Developed by James Womack

1. Specify value through the VOC
2. Identify the steps through the process
3. Make processes/value flow
4. Let the customer pull value from the producer
5. Pursue perfection

(ASQ)



Application of Principles

ANYWHERE!!!

- Lab Layout, Design & Set-Up
- Process Flows
- Machines
- Work Stations
- Inventory & Supplies
- Etc.

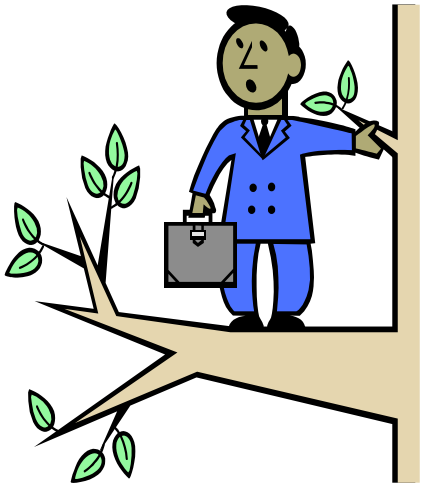
(Mahoney)

Simple Risk Assessment

SRA

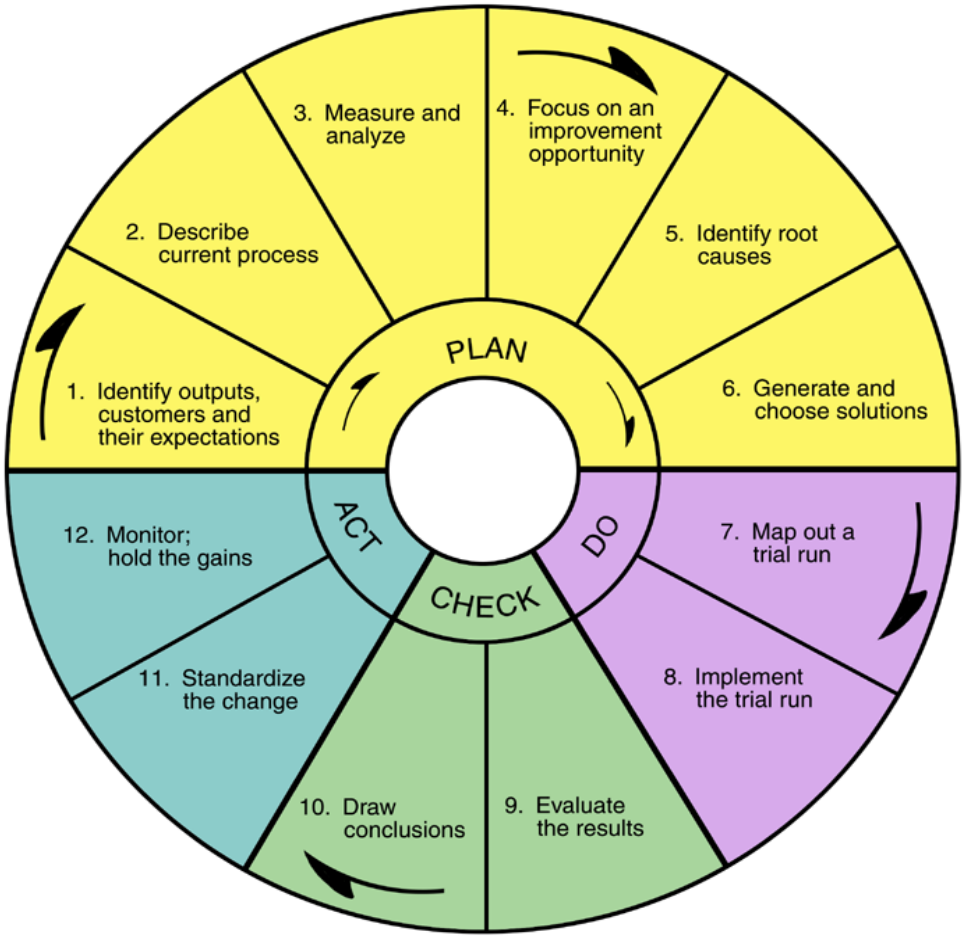
- Why am I doing it at all?
- What could go wrong?
- How could it affect me or others?
- How likely is it to happen?
- What can I do about it?

(Bird)



How

- PDCA Cycle



How

- Communicate in Safe Environment
  - Concerns
  - Near-Misses/Near Hits
- Brainstorm ideas to problem solve
- Empowers teams to:
  - Find Solutions
  - Work Together

How

Key Step:

Involve Everyone

Change

"It is not the strongest of the species that survive, nor the most intelligent,

but the ones most responsive to change."

Charles Darwin

Change

"I have to remember to tell the negative committee that meets in my head to sit down and shut up."

Kathy Kendall

Process Improvement (PI)

An addition or change
that makes the method of
doing something
better or more valuable.

Voice of the Customer (VOC)

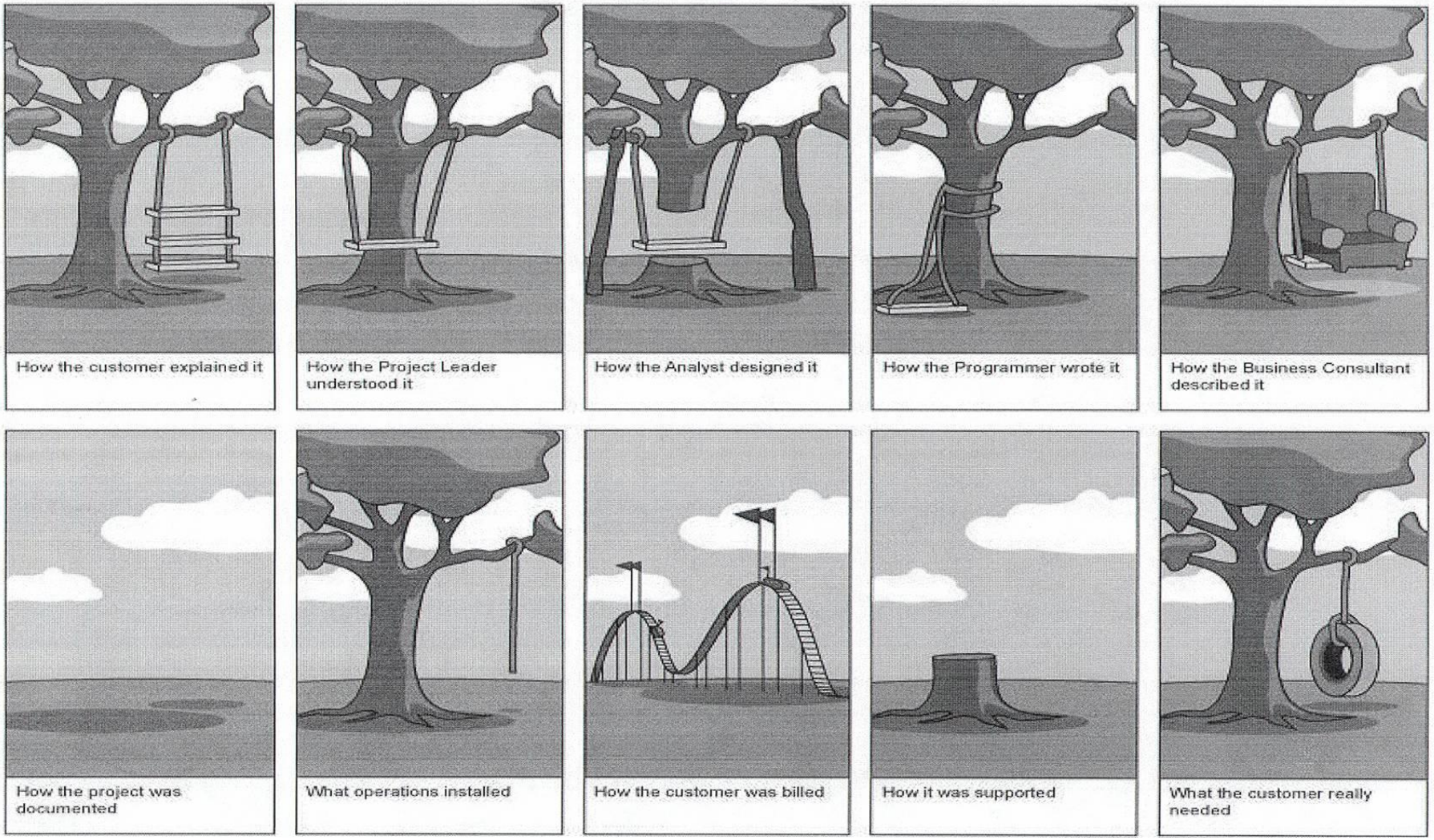
A listening process that comprises a set of continuous, strategically driven activities focused on establishing a relationship between the providers and the customer that drives business results.

VOC

- Know your customer

- Ask the 5 W's and 1 H:
  - Who
  - What
  - Where
  - When
  - Why
  - How

VOC – Are You Listening????



VOC – Value Added Vs. Non

- Maximize value added opportunities
  Ex. Client extra courier pick-up
- Minimize non-value added activities
  Ex. Unnecessary log books
- Make changes meaningful

View from the
eyes of the customer

VOC

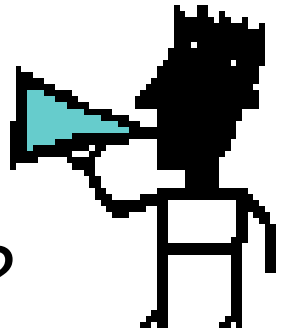
"If I asked people
what they wanted,
they would have said
faster horses."

Henry Ford

VOC

Goal:

- Fully achieve spoken needs of performance
  - Expected, typical needs
- Go beyond expectations
  - Surprise/Delight customers
  - Unspoken needs performance



What are they really saying???

VOC

- What do you want to achieve?
- What is the desired result?

"Begin with the end in mind."

Stephen Covey

Muda (Waste)

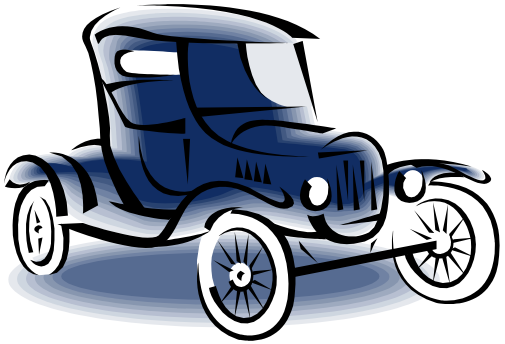
Eliminate Waste = DOWNTIME

- ✓ Defective Products
- ✓ Overproduction
- ✓ Waiting
- ✓ Non-Utilized People
- ✓ Transportation
- ✓ Inventory
- ✓ Motion
- ✓ Extra Processing

Lean in the Laboratory

"The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

Albert Einstein



Tools

- Next Step:

  Determine
  Tools to Utilize

Tools

- Possible Causes and Solutions
- SIPOC Chart
- Problem Solving Roadmap
- Kaizen / 5 S's
- Spaghetti Diagram
- Value Stream Map
- Process Improvement Summary

Possible Causes List & Solutions

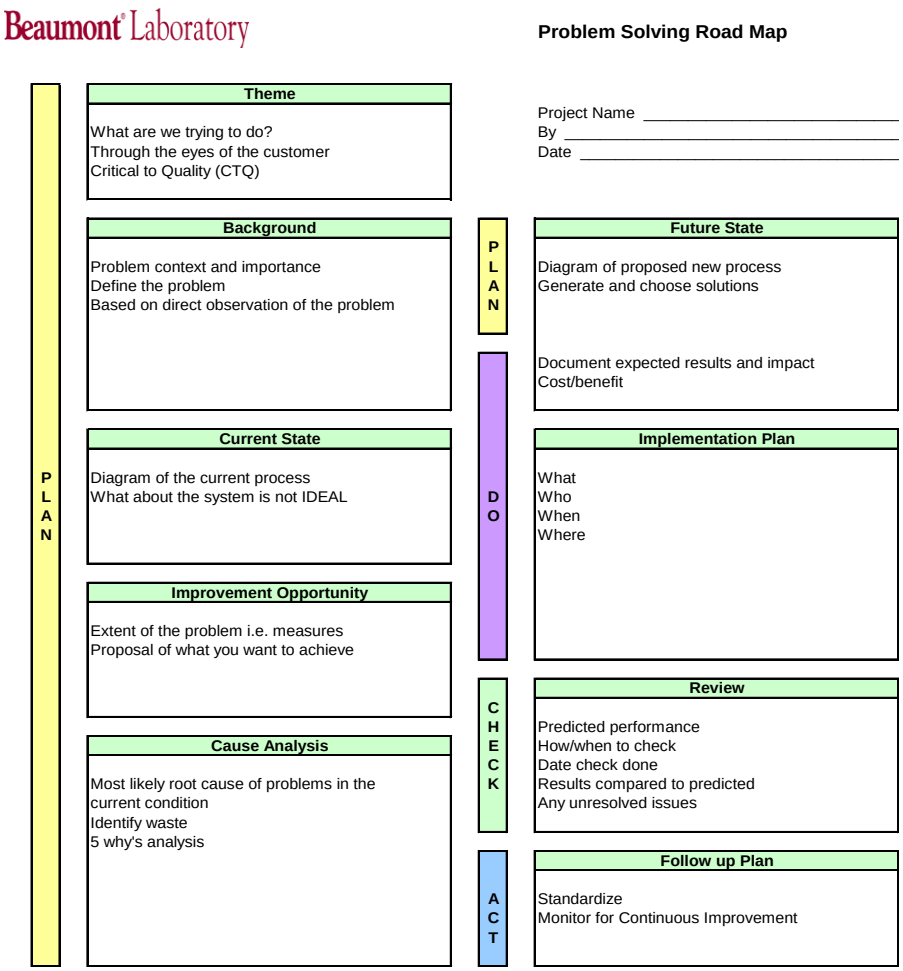
- Project Name
- List Causes
- Tag each cause with a number
- List identified possible solutions, remarks
- Process Owners
- Target Dates of Completion
- Completion Dates

SIPOC Chart

Suppliers → Inputs → Process → Outputs → Customers

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
Customer	Verbal Request	Order	Slip of Paper	Employee Assembly
Employee Assembly	Necessary Ingredients	Assembly	Completed Product	Employee Cashier
Employee Cashier	Completed Product and Charge Ticket	Payment (Must be Cash Only)	No Payment by Customer	Customer Angry

Problem Solving Road Map



Kaizen

1. Continuous Improvement
   - Focus on the overall value stream
   - Multifunctional teams
   - Value stream, current and future state maps used as road maps

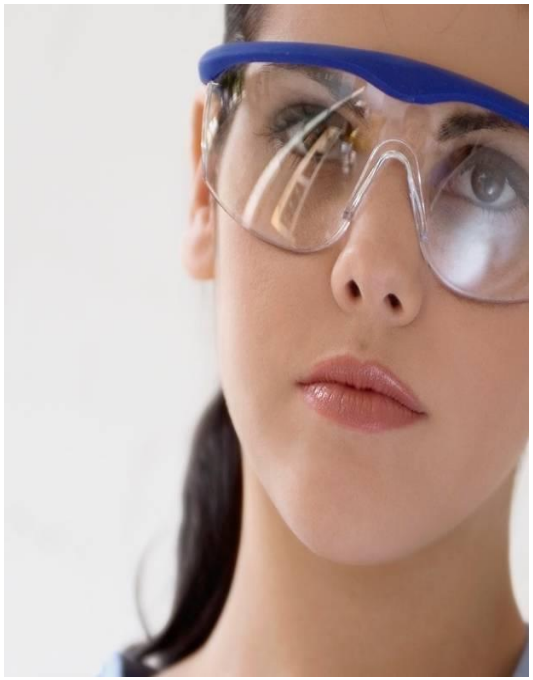
Kaizen

2. Kaizen Blitz
   - Focus is on individual processes
   - Improvements made in short fixed timeframes
   - Benefits to include immediate results and discovery of other improvement opportunities

- Kaizen Form

“Just Do It”

- Quick to try
- Low cost/no cost
- Low risk
- Easy to restore



Benefits:

1. ↑ Efficiency
2. ↑ Morale
3. ↑ Satisfaction

5 S's

1. Sort
2. Straighten
3. Scrub
4. Standardize
5. Sustain

RO AP: Autopsy Before

RO-AP: Autopsy After

Surgical Pathology/Histology Storage Closets - Before

SP/H Storage Closets - After

SP/H Storage Closets - After

SP/H Supply Storage

- Organization

SP/H Supply Storage

- Removed cabinet doors

SP/H Work Station Variability

- Clutter
- Disorganization
- Missing equipment, tools, supplies
- No standardization
- Misc. slides, blocks, solutions laying around

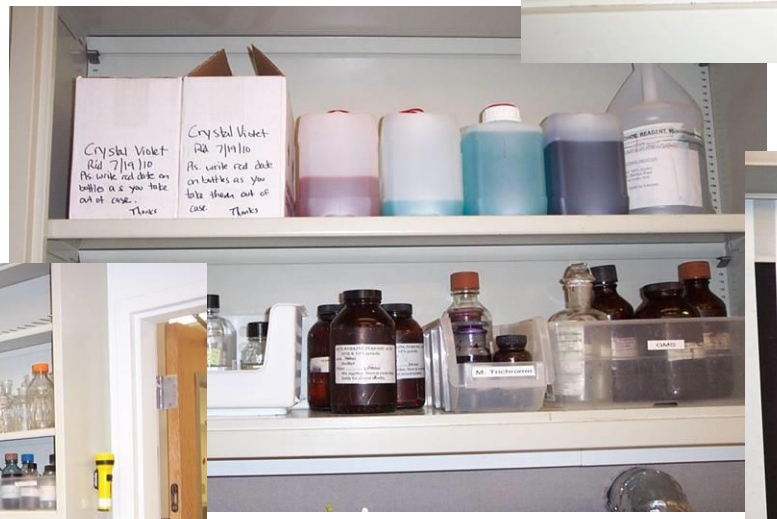
SP/H Work Station Variability - Before

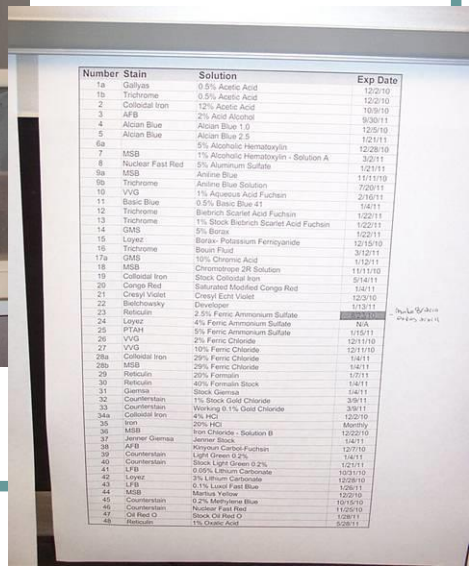
*Disclaimer: Photo does not depict an actual work station, it is a "close to reality" dramatization created for this presentation.

SP/H Work Station Variability - After

SP/H Other Work Stations

- Cabinet doors removed
- Organized
- Monitored

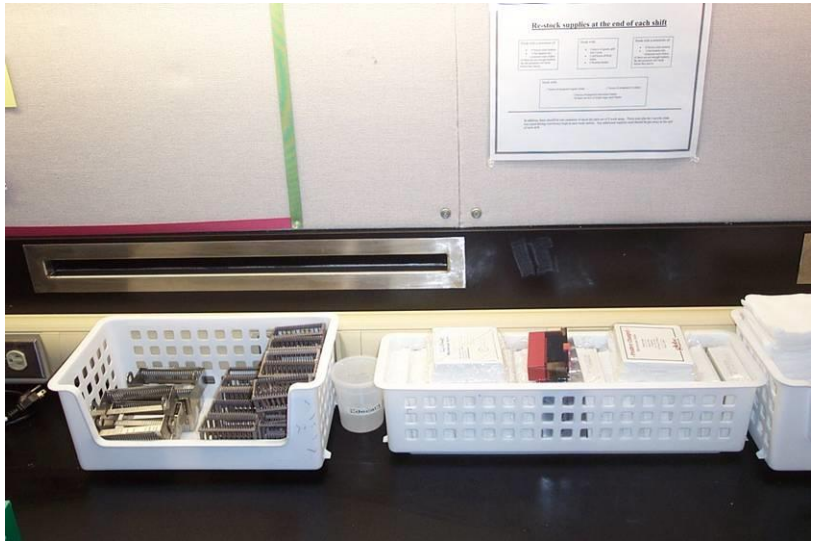




SP/H Other Work Stations

- Organization
- Patient Safety
- Flow Chart

SP/H Work Station Variability



SP/H Other Work Stations

- Clean
- Stocked

SP/H Specials and Recuts

- Removed cut-off time for requests
- Services available 24 hours a day
- Improved customer service
- Reduced turn-around time

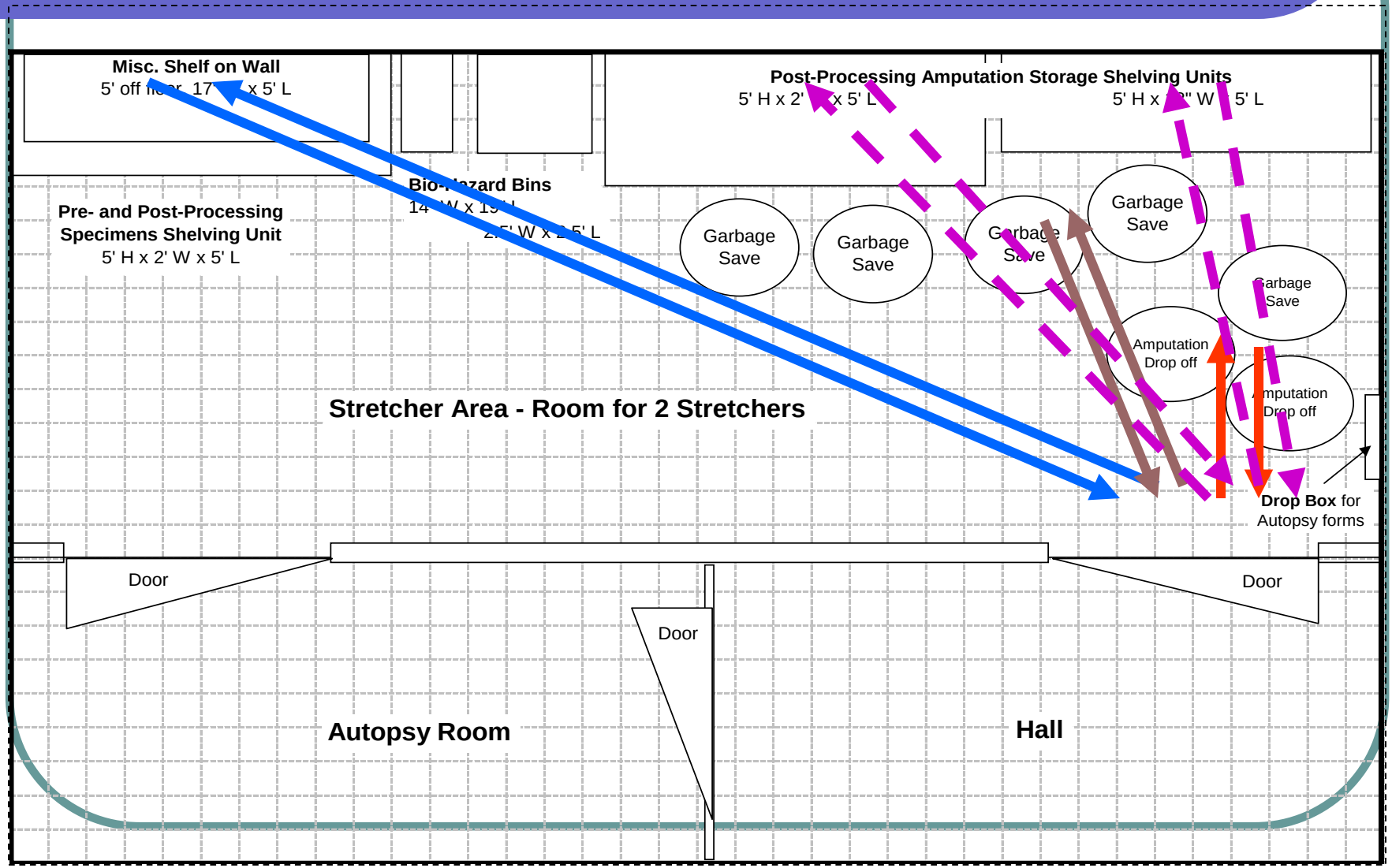
Bonus:

- Allowed all techs, all shifts to remain competent with staining techniques

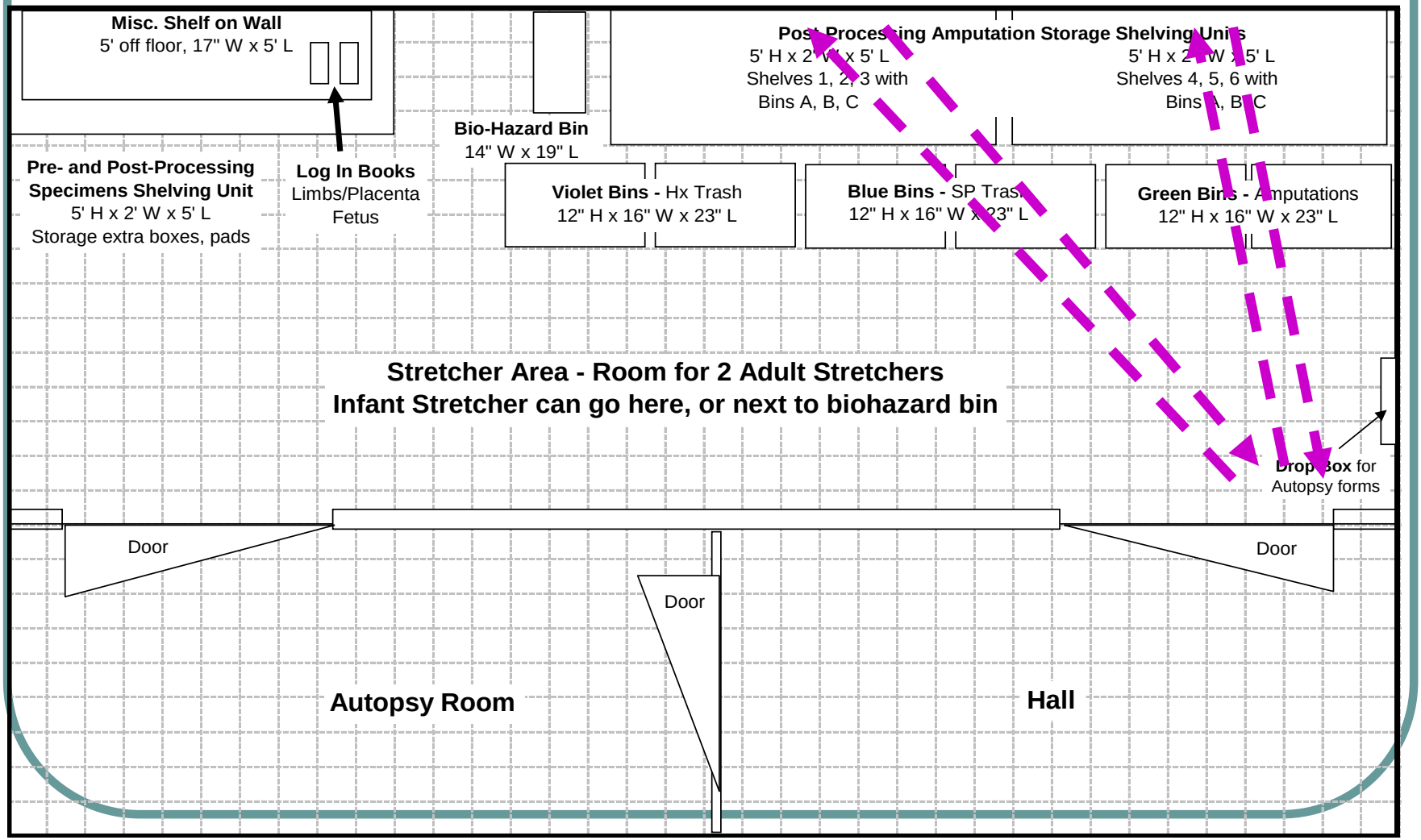
Spaghetti Map

- Map that demonstrates the movement in a process
  - People
  - What's moving (i.e. specimen)

Spaghetti Map – Autopsy Before

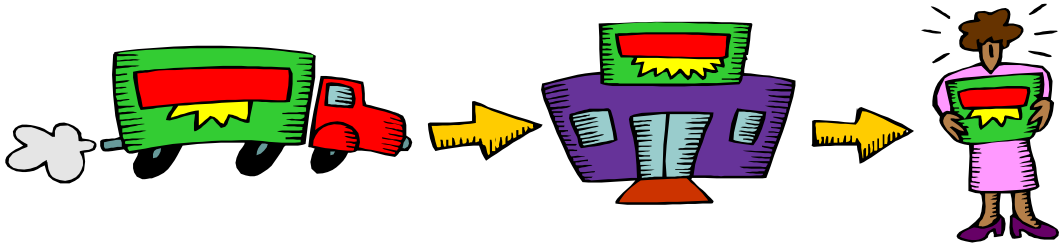


Spaghetti Map – Autopsy After

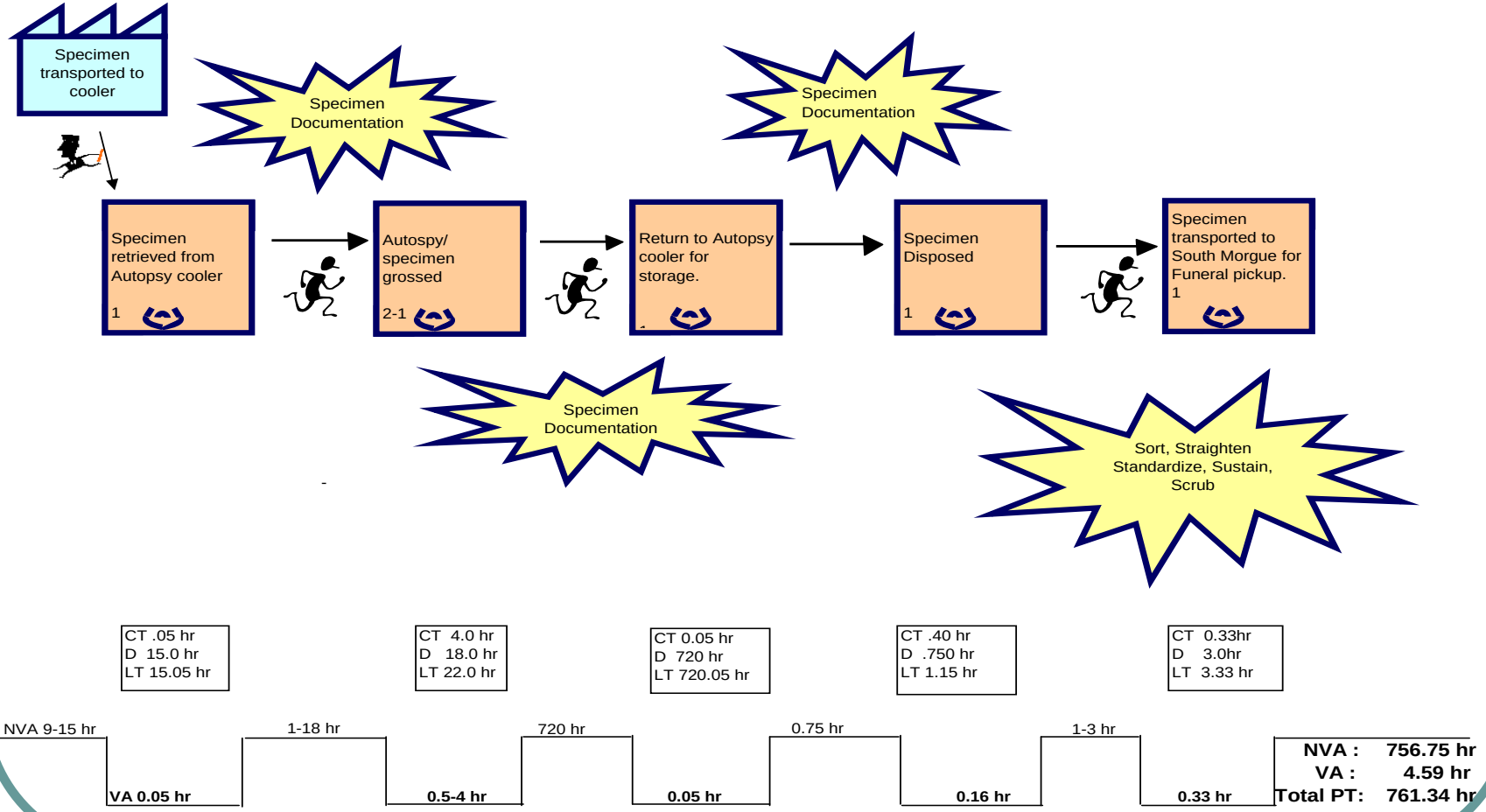


Value Stream Map

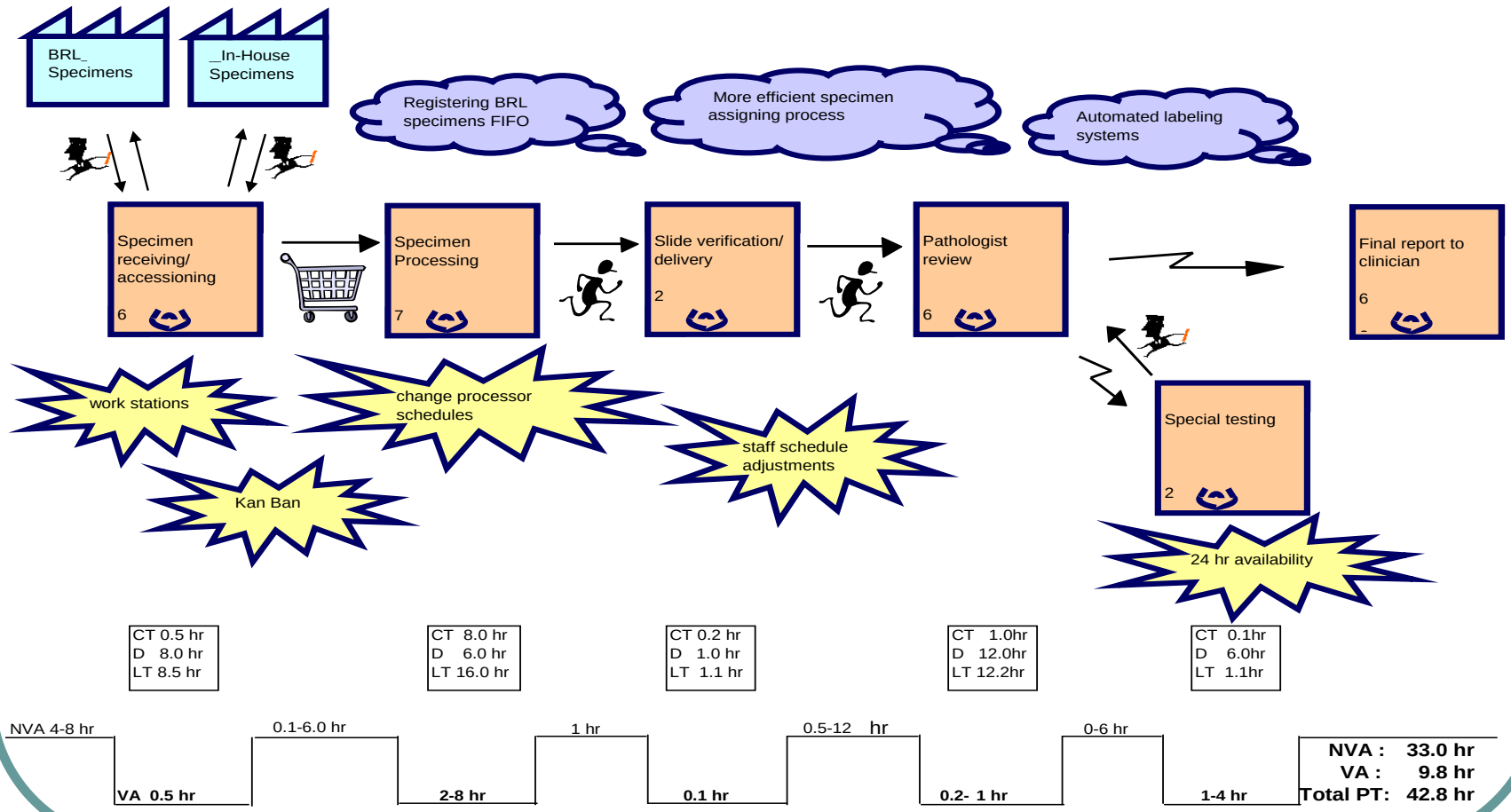
- High detail flow diagram
  - Documents every step of a process
  - Can be used to:
    - Identify waste
    - Reduce process cycle times
    - Implement process improvement



Value Stream Map - Autopsy



Value Stream Map – Surg Path/Hist



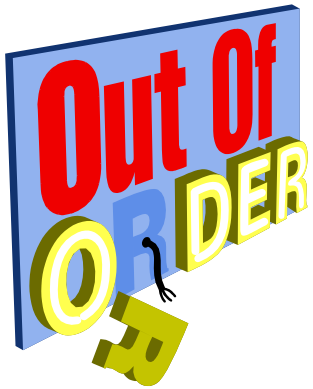
Project Improvement Projects/Plans

Two Form Examples

- Outreach
- Hospital

SP/H Inventory

- No one took ownership of stock
- Too many instances of running out of stock
- Storage issues
- Ordering issues
- Putting away stock
- Poor organization and unclear responsibilities
- Wasted time, negative affect on workflow

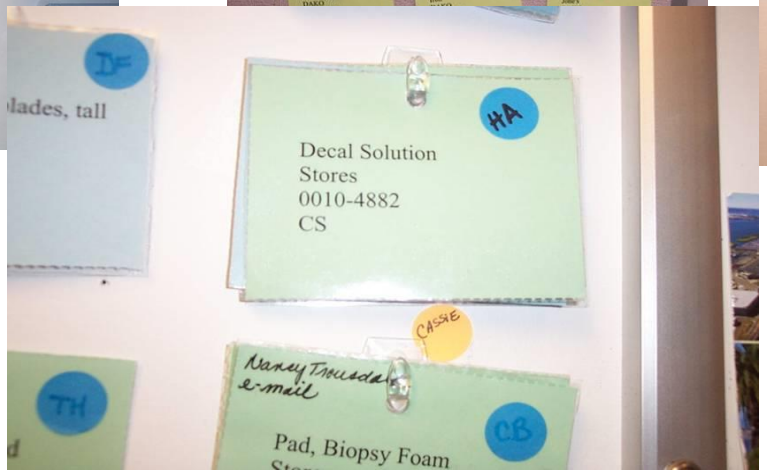


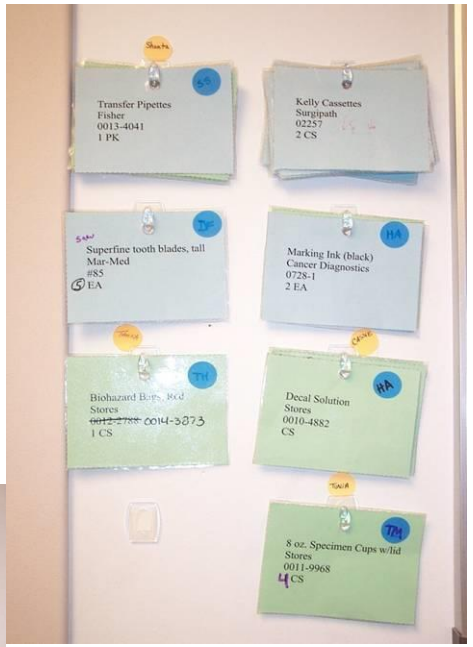
SP/H Inventory

- Kanban – Japanese for reorder card or ticket
- Not inventory system; scheduling system
- Just In Time (JIT) ordering is achieved
- Shared ownership with employees and supervisors

SP/H Inventory

- Kanban Cards



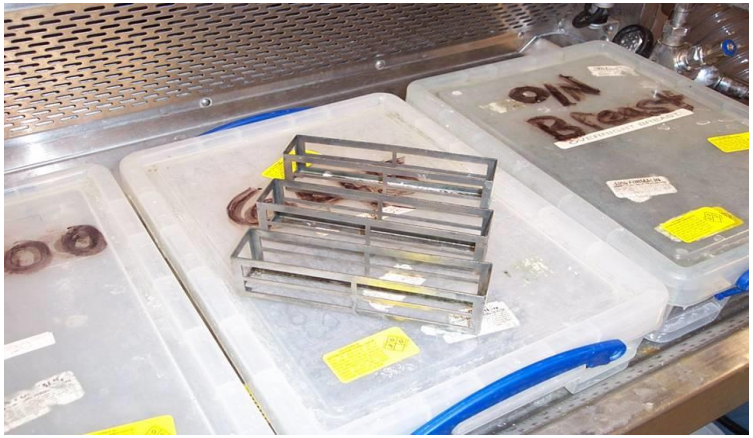


SP/H Processing Schedule

- Processing was in large batches
- Huge amounts of "waste"
- Every process downstream was affected: AKA the CUSTOMER!
- Staffing was affected (PA's, histotechs, etc.)
- Morale was affected

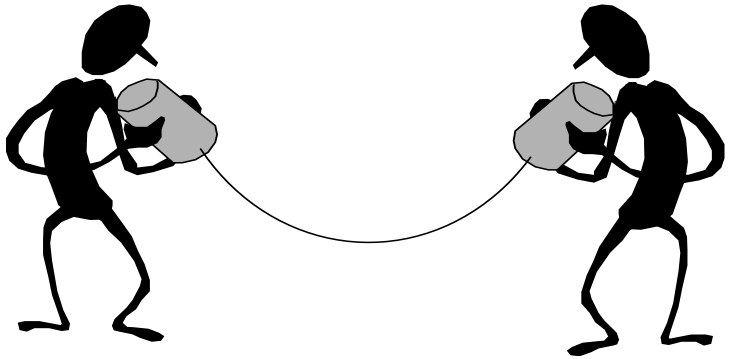
SP/H Processing

- Smaller batches
- Sleeves vs. baskets
- Multiple processing schedules available



SP/H Task Distribution

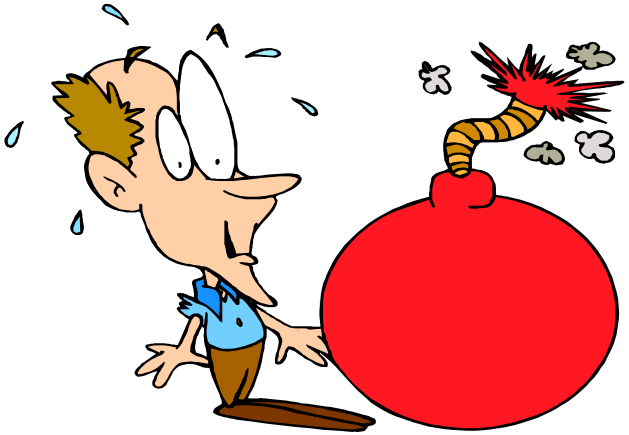
- All shifts took on all responsibilities
- Work was more evenly distributed
- Communication between shifts improved
- Improved customer service
- Reduced turn-around time



Questions?

"One of the true tests of leadership is the ability to recognize a problem before it becomes an emergency."

- Arnold H. Glasgow



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