

Introduction to Quality Improvement Methods to Improve Research Impact

David Belson, PhD
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VA GREATER LOS ANGELES
HEALTHCARE SYSTEM



*A Division of VA Desert Pacific
Healthcare Network*



Overview

This seminar will present ways in which researchers can maximize the impact of their work.

There is a long history in the development of methods to improve quality and performance - and researchers can benefit significantly from them.

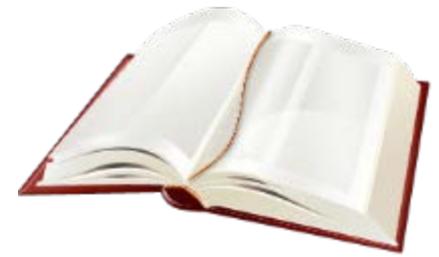
Outline

1. Purpose of this material, benefits
2. Summary of a few relevant methods
3. How the methods should be used
4. A web site to find best methods for you

Why QI is important

- Research funding is limited and we want to get the most from it.
- Improving clinical results is the goal, thus effort should be given to:
 - Getting the maximum impact from interventions
 - Be certain the problems are properly understood
 - Assure that changes will be spread and sustained
- Approval of proposals is more likely if the applicant has properly considered Quality Improvement methods as part of the plans

Quality Improvement Methods



v2

- For each method, the new handbook includes:
 1. A brief description of the method
 2. Literature sources
 3. Example application of each method
 4. Steps to implement
- Limitations :
 - This is not training, it only offers awareness of helpful tools that are available
 - Content is intentionally brief

Selecting QI Methods

- Which to use is also a challenge. A VA web site is now available to provide an intelligent assistance to select the best methods for your particular situation



- Considerations:
 - All methods are potentially helpful
 - Recommendations are only a starting point

More on the selection web site later ...

Methods to Analyze Problems or Test Hypotheses

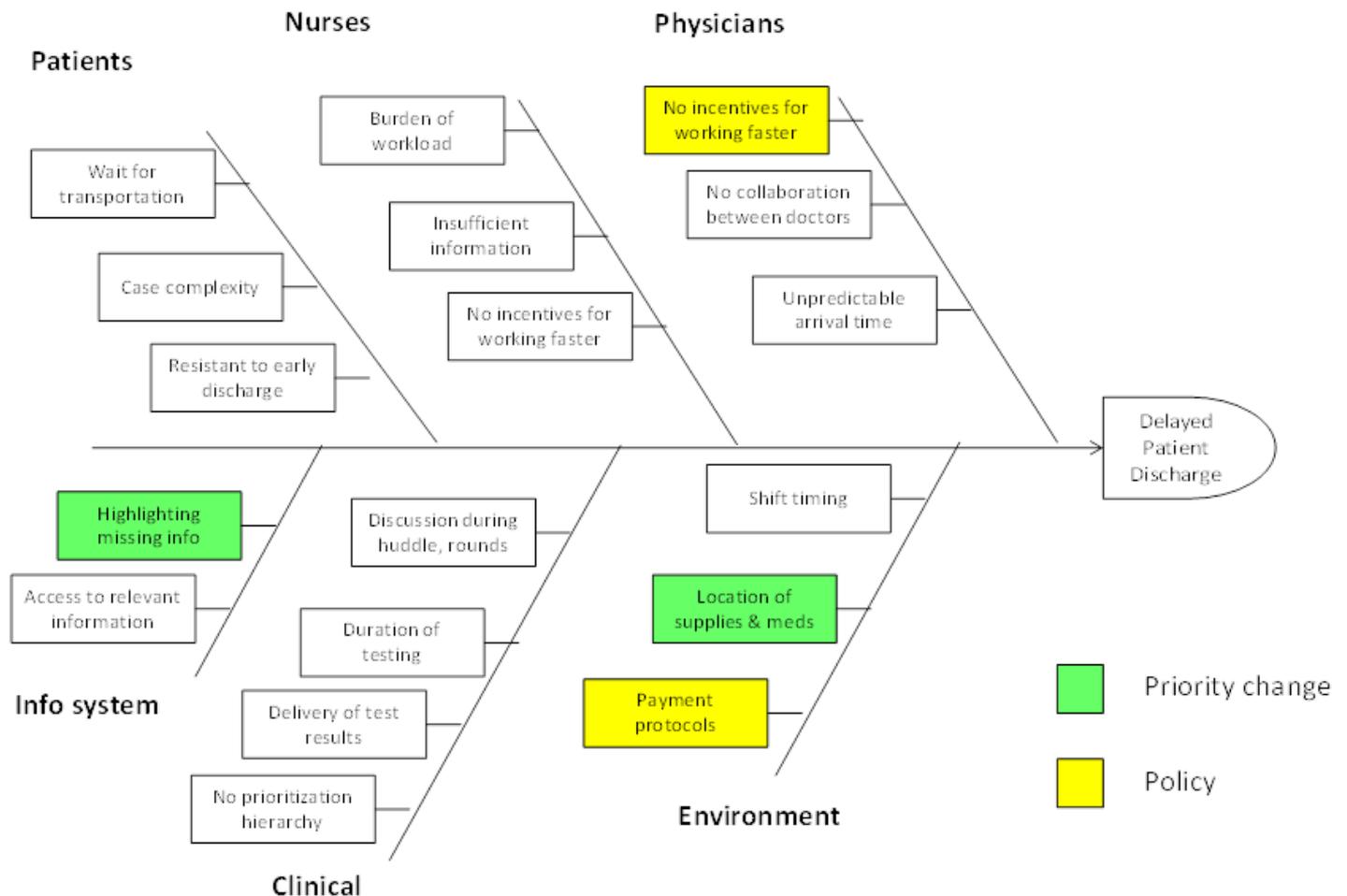
Affinity Diagram

- A collaboration & group discussion tool
- List the issues, then group logically, visually



Ishikawa/Fishbone Diagram

- Draw, key issue or problem at head
- Causes or related items are branches



Kaizan

- Focused group to make “change for the good”
- Identify and understand key issues
- Team participants directly involved, hands-on
- Not open ended
- A Lean method



Poll Question

What is your primary role in VA?

- clinician
- researcher
- student, trainee, or fellow
- manager or policy-maker
- other

Selecting QI Methods

- Which to use is a challenge. VA web site is now available to provide an intelligent assistance

U.S. Department of Veterans Affairs

VA > Health Care > QUERI > IMPLEMENTATION > QUALITY_IMPROVEMENT > Quality Improvement Methods Search Tool

QUERI - Quality Enhancement Research Initiative

Quality Improvement Methods Search Tool

Check the following to determine which methods are most useful for your situation. (You may select more than one of all available methods.)

The research will require (select one or more) <ul style="list-style-type: none"><input type="checkbox"/> Analyzing the problem or hypothesis<input type="checkbox"/> Developing an intervention<input type="checkbox"/> Analysis of data<input type="checkbox"/> Implementing an intervention or change<input type="checkbox"/> Sustaining change ongoing<input type="checkbox"/> Managing change currently<input type="checkbox"/> Planning or proposing future work	Problem or symptom to be addressed (select one or more) <ul style="list-style-type: none"><input type="checkbox"/> Improving patient outcomes<input type="checkbox"/> Physical environment or facility<input type="checkbox"/> Cost reduction<input type="checkbox"/> Patient quality<input type="checkbox"/> Poor productivity<input type="checkbox"/> High costs<input type="checkbox"/> Problem addressed is not well understood	Other aspects of the proposal <ul style="list-style-type: none"><input type="checkbox"/> Done at multiple locations<input type="checkbox"/> Involves totally new thinking<input type="checkbox"/> Organizational issues (vs. clinical) are involved<input type="checkbox"/> Economic issues (vs. clinical) are involved
Regarding data (select one or more) <ul style="list-style-type: none"><input type="checkbox"/> Need to develop new metrics<input type="checkbox"/> Trials or experiments to generate data for analysis<input type="checkbox"/> Evaluate data currently in use	Phase of work involved <ul style="list-style-type: none"><input type="checkbox"/> Initial investigation<input type="checkbox"/> New system development<input type="checkbox"/> Completion of prior work	

Clear Selections Search Now

75%

Check attributes describing your situation

Draft

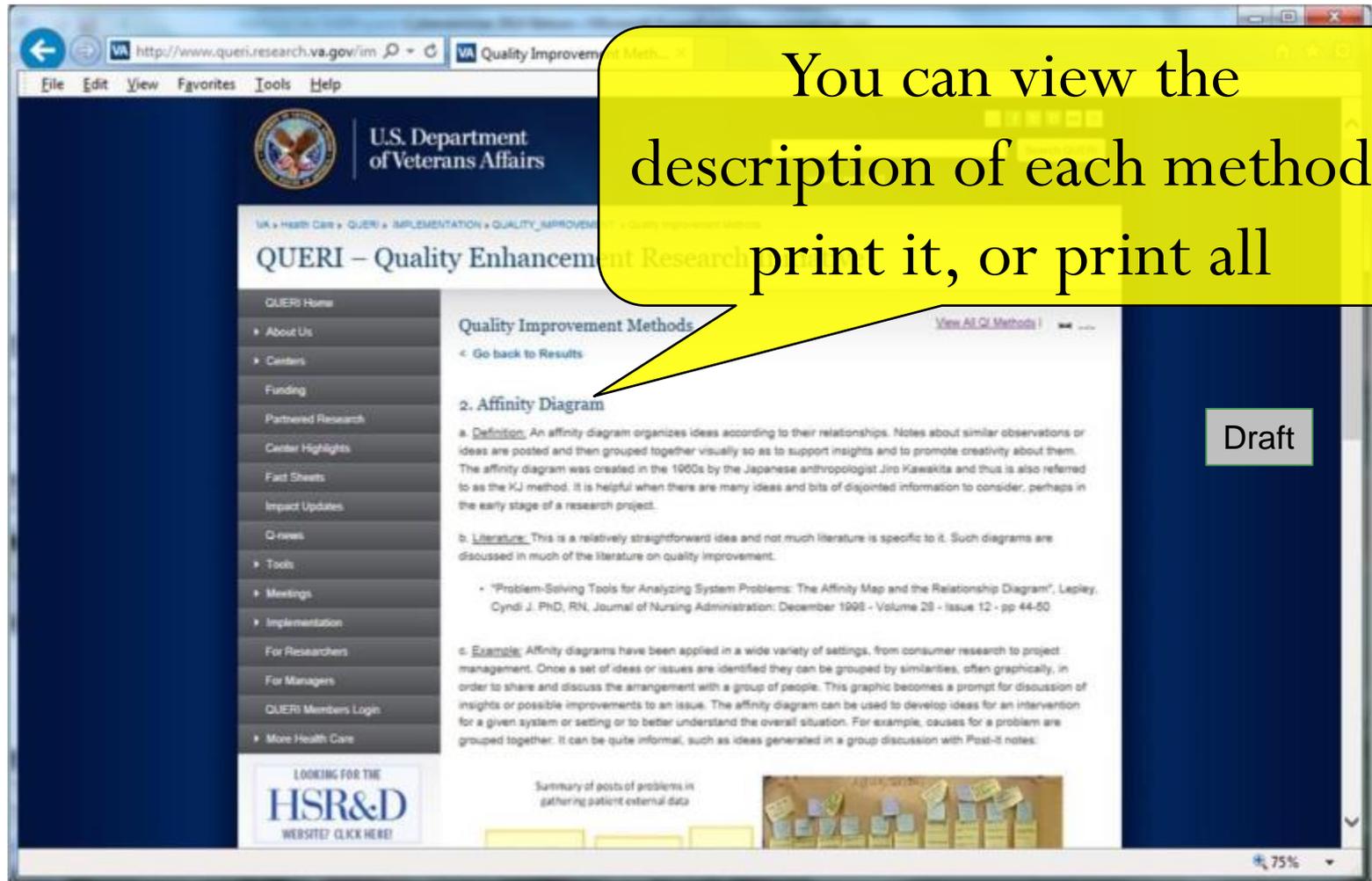
Web site Results

5 most relevant methods

Plus 4 methods generally useful for all projects

The screenshot displays the Department of Veterans Affairs (VA) Quality Enhancement Research Initiative (QUERI) website. The page title is "Quality Improvement Methods: Results". A search bar at the top right contains the text "Search QUERI". The main content area lists "The TOP 5 most relevant methods are (based on your selections):" followed by a bulleted list of five methods: 1. Design of Experiments/Statistical Process Control, 2. Time Study and Work Measurement, 20. Ishikawa Diagram, 14. Gemba and Genchi Genbutsu Exercise, and 33. SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers Model). Below this, a note states: "Note: All of the methods in the handbook are potentially applicable and should be considered." Further down, it lists "The following methods are generally useful for *most* projects:" followed by a bulleted list of four methods: 19. Lean Approach, 24. Six Sigma Approach, 17. Kaizen Events, and 28. Process Mapping (also known as Flowcharting and Workflow Diagramming). The website has a dark blue header and a left-hand navigation menu with categories like "About Us", "Centers", "Funding", "Partnered Research", "Center Highlights", "Fact Sheets", "Impact Updates", "Q-news", "Tools", "Meetings", and "Implementation". The Windows taskbar at the bottom shows the Start button and several application icons.

Web site results – read or print one method or all



The screenshot shows a web browser window displaying the QUERI website. The browser's address bar shows the URL <http://www.queri.research.va.gov/im>. The website header includes the U.S. Department of Veterans Affairs logo and the text "U.S. Department of Veterans Affairs". The main content area is titled "QUERI – Quality Enhancement Research Initiative" and "Quality Improvement Methods". A sidebar on the left contains a navigation menu with items like "QUERI Home", "About Us", "Centers", "Funding", "Partnered Research", "Center Highlights", "Fact Sheets", "Impact Updates", "Q-news", "Tools", "Meetings", "Implementation", "For Researchers", "For Managers", "QUERI Members Login", and "More Health Care". The main content area displays a list of methods, with the second method, "2. Affinity Diagram", selected. A yellow callout box with a pointer to the "View All QI Methods" link contains the text: "You can view the description of each method, print it, or print all". A "Draft" label is visible on the right side of the page. At the bottom of the page, there is a "LOOKING FOR THE HSR&D WEBSITE? CLICK HERE!" banner and a "Summary of posts of problems in gathering patient external data" section with a small image of sticky notes on a board. The browser's status bar at the bottom right shows a zoom level of 75%.

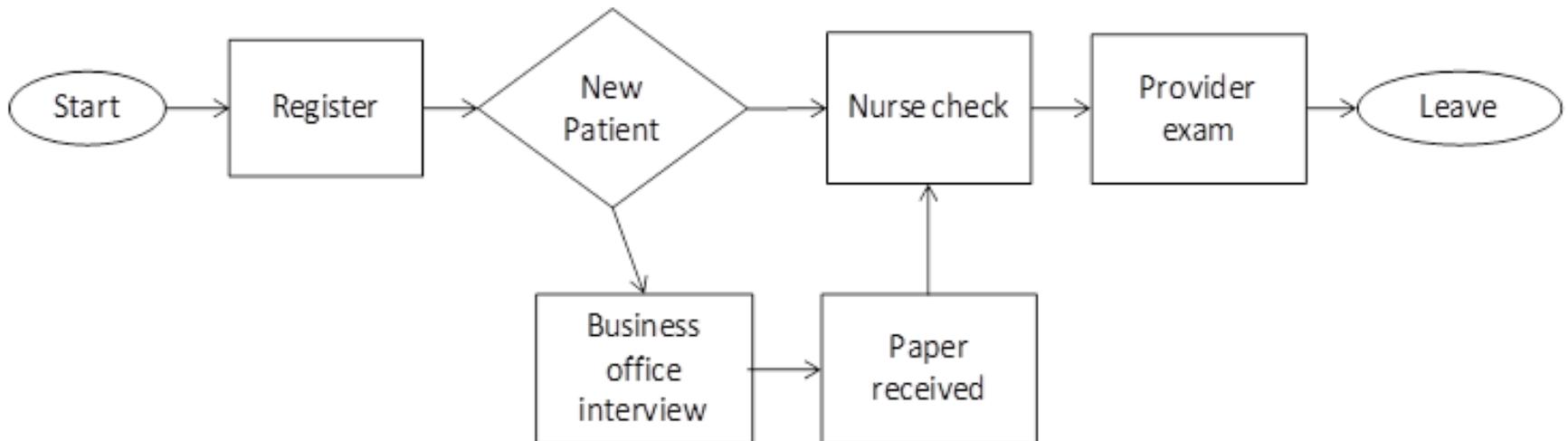
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Draft

Methods to Evaluate Current Practices or Alternatives

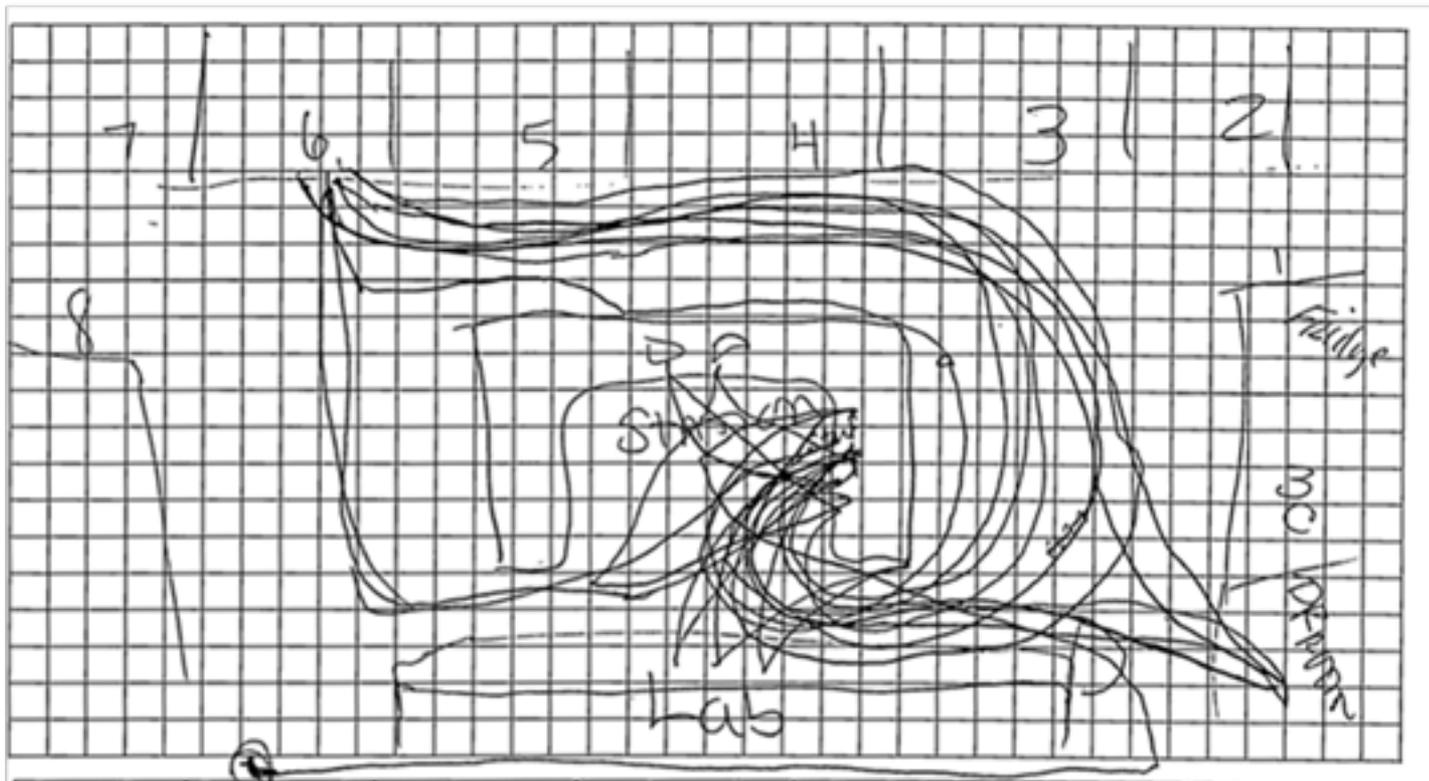
Process Mapping

- Provides understanding, identify problems, share understanding
- Standardized symbols used but can be informal
- Often a good first step



Spaghetti Diagram

- To understand actual movement and opportunities for improvement
- Simple but effective



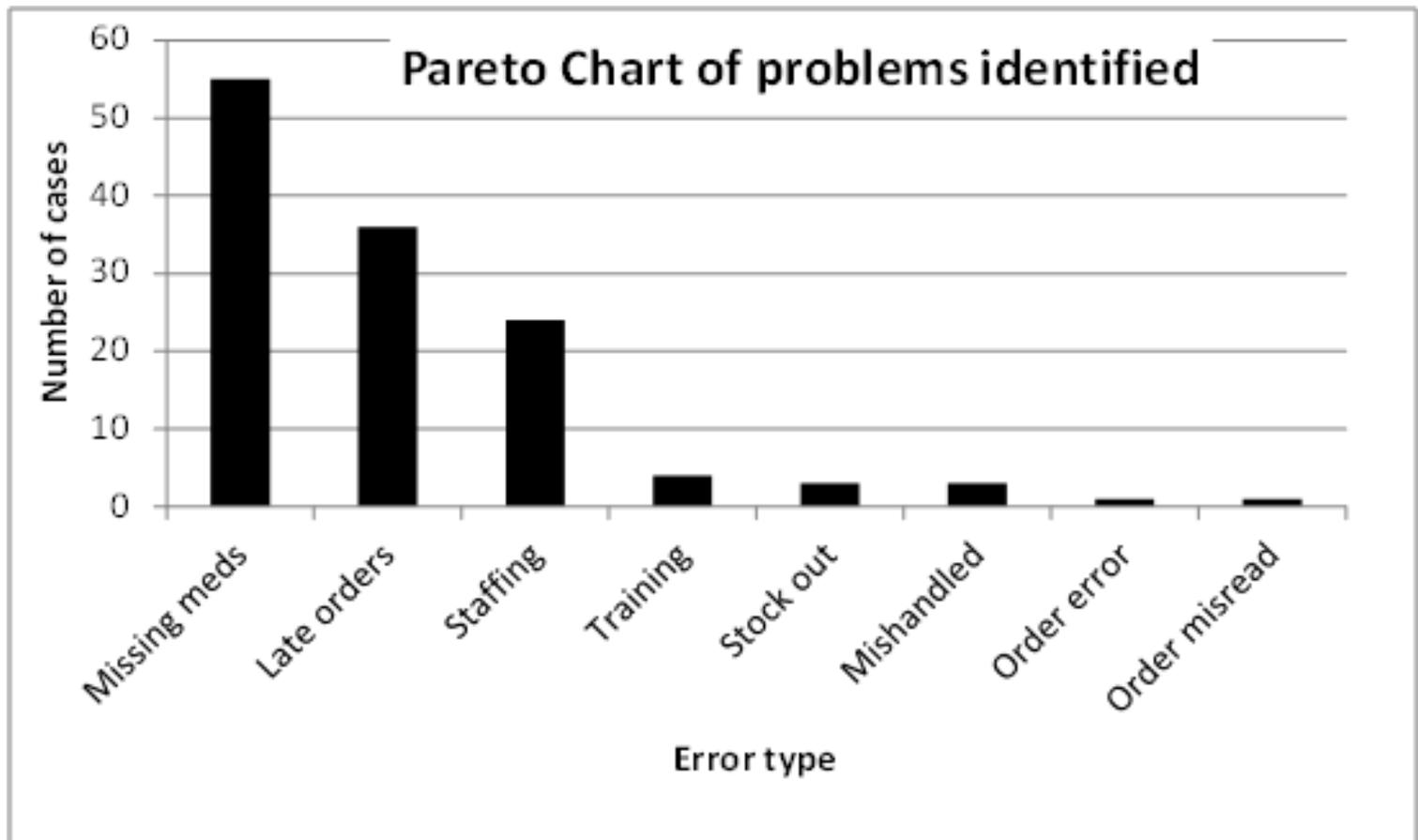
Responsibilities Matrix

- Developed by interviews, observation
- Find undesirable duplication, improvement opportunities
- Basis for new processes & assignments

	Physicians Order	Surgeons Order	Work-Ups	Surgery Consent	Blood Consent	Schedule Surgery	Receive Medical Record	Medical Record Audit	Check Paperwork	Check in Admitting	Get Patient from waiting room
Clinic Clerk	x	x	x	x	x	x	x				
Scheduler						x					
Pre-Op Nurse			x	x	x			x	x		x
Registration Clerk									x	x	
Pre-Op Clerk							x	x	x		x

Pareto Chart

- Identify issues, topics, problems
- Sort by frequency, then bar chart



Simulation Modeling

Discrete event simulation models can be programmed to:

- Identify opportunities for improvement
- Test alternatives without disrupting ongoing operations
- To understand and explain operations
- Simulation models of many clinical functions exist
- Specific software is available to facilitate programming



Other Methods to Evaluate Current Practices or Alternative Changes

- Scatter Diagrams
- SIPOC
- Failure Mode and Effects Analysis
- Theory of Constraints
- Maturity Model
- More ...

See the handbook

Methods to implement & sustain change

Lean

- Also referred to as the Toyota Production System
- Most popular overall approach adopted by hospitals
- Helpful in implementing change successfully
- Most of Lean's methods are described in the handbook
 - Waste
 - Gemba
 - Kaizen
 - Overproduction
 - Value Stream Mapping

A-3

- Single page for objectives, plans and status
- Shared throughout organization
- Standardized format

A-3		Description:	Value Stream ID:	Site / Location:	Event Number:	Revision:																																																																						
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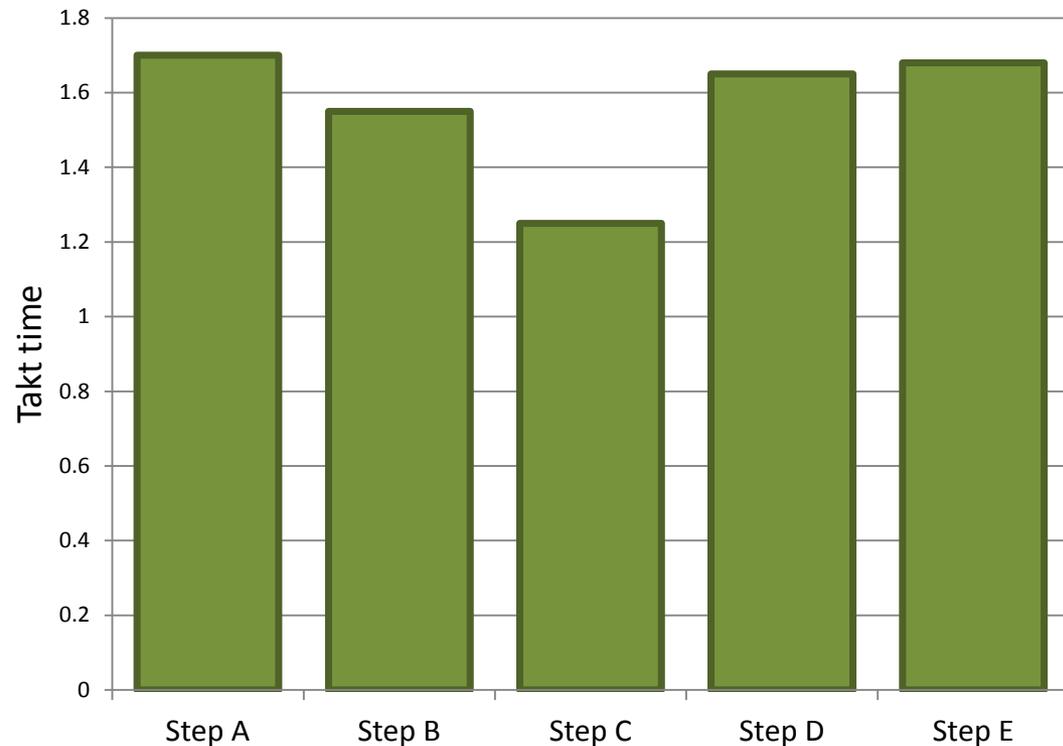
PDSA

- Plan, Do, Check, Act
- Implementation of change is a cycle, not completed in one step
- Small, incremental change is often a good first step



Takt time

- Continuous flow through balanced workloads
- Waiting by patients (customers) or waiting by staff is waste
- Throughput and available time can be used to create a desirable pace for all by load leveling



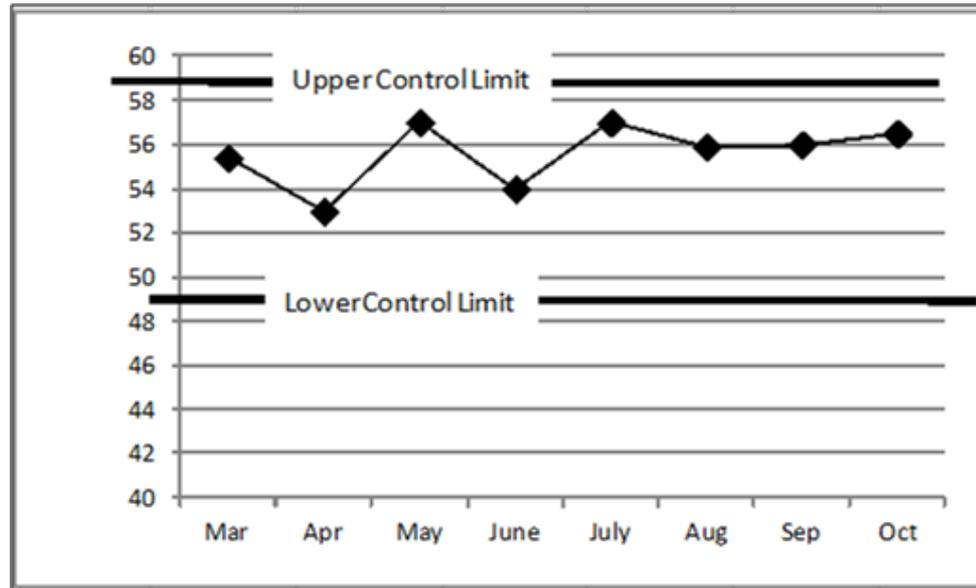
Poll Question #2

Which best describes your research experience?

- have collaborated on research
- have conducted research myself
- have applied for research funding
- have led a funded research grant
- have not done research

Six Sigma

- Measure and reduce variability
- Overlaps with Lean but more focus on Data and Quality than on Productivity
- Helpful in implementing change successfully
- Control charts



5-S

- Neatness supports effectiveness
- Sorting, Set in order, Systematic cleaning, Standardizing, and Sustaining
- Detail tools available

Before

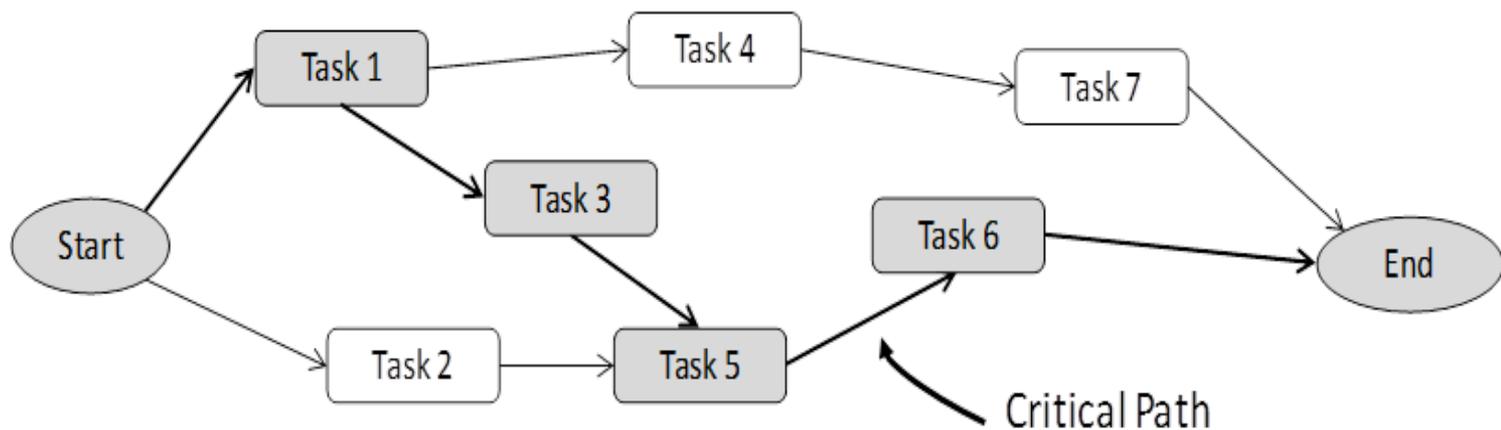


After



Project Management

- Significant body of knowledge exists regarding what works best to meet the time, budget and performance targets of a project
- Success is more likely in terms of time and budget with PM tools
- Challenge of being a project manager is recognized



Other Methods to Improve Current Practices or Develop Implement New Practices and Improve the Impact of Research

- Six Sigma
- SMART goals
- Design of Experiments
- Checklists
- Change Management
- Cost Effectiveness

See the handbook & selection web site

Additional sources

- Books and periodicals are listed in the handbook
- Professional organizations; VA's QUERI and VERC, AHRQ, IHI, IIE/SHS, SHIP, INFORMS & others
- Consultants, many specialize in such work
- Web sites for organizations as well as social networking discussions
- Colleges and universities, industrial engineering departments, MHA programs

Dissemination

- The referenced web site for selecting the best methods for your situation is available at

http://www.queri.research.va.gov/implementation/quality_improvement/tool.cfm

- The referenced new handbook is available at

http://www.queri.research.va.gov/implementation/quality_improvement/QI_Methods.pdf with

additional information at

http://www.queri.research.va.gov/implementation/quality_improvement/

Questions?

David Belson, PhD

USC, Viterbi School of Engineering

www.belson.org

david@belson.org