

# Quality Improvement Methods; a Revised Handbook and Reference for Researchers and Others

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June 25, 2016



# BACKGROUND

There is a long history in the development of ways to improve quality and performance - and healthcare benefits significantly from them.

There many methods applicable and it is important to select the proper ones & use them effectively.

# Outline

- Overview of the of QI methods & their use
- A selection algorithm and how an updated VA web site helps in selecting particular methods
- Feedback and discussion

# Are these things working?

*Exciting results.*

- Approaches such as Lean have become very widespread
- Improving healthcare operations is not easy, costs continue to rise and organizational barriers exist
- Research as well as all healthcare has an obligation to efficiently use its resources

# Why a QI Handbook for researchers?



- 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
- Research funding is limited and we want to get the most from it.
- Approval of proposals is more likely if the applicant has properly considered QI methods

# What improvement methods are available?



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**A new QI Handbook**

# Quality Improvement Methods



v2016

- For each method, the new handbook includes:
  1. A brief description of each method (55 of them)
  2. Literature sources for more on each method
  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
  - New version (2016) is on a web site

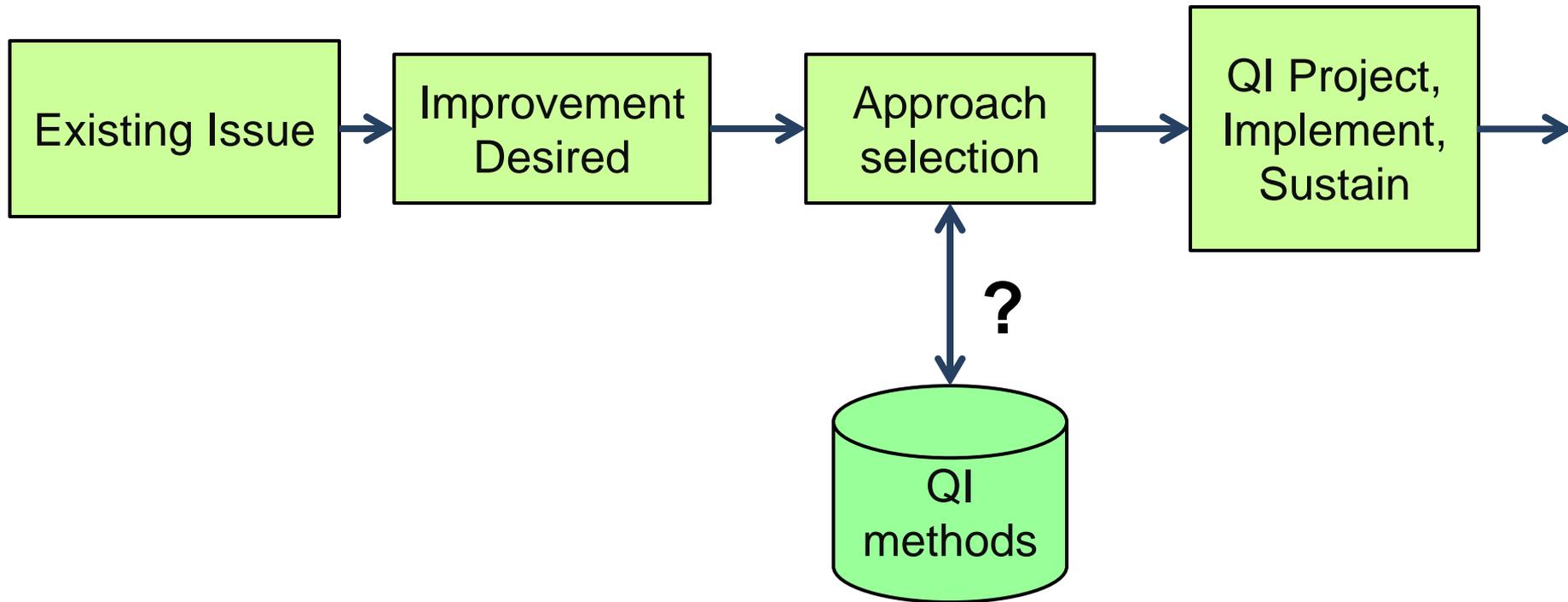
[http://www.queri.research.va.gov/implementation/quality\\_improvement/](http://www.queri.research.va.gov/implementation/quality_improvement/)

# Poll Question #1

Which best describes your QI experience?

1. have no QI training or experience
2. Have done improvement work but no formal training
3. have QI training but not used it
4. Have done QI work
5. Have done and led QI projects

# The improvement or change process



# Methods or Tools



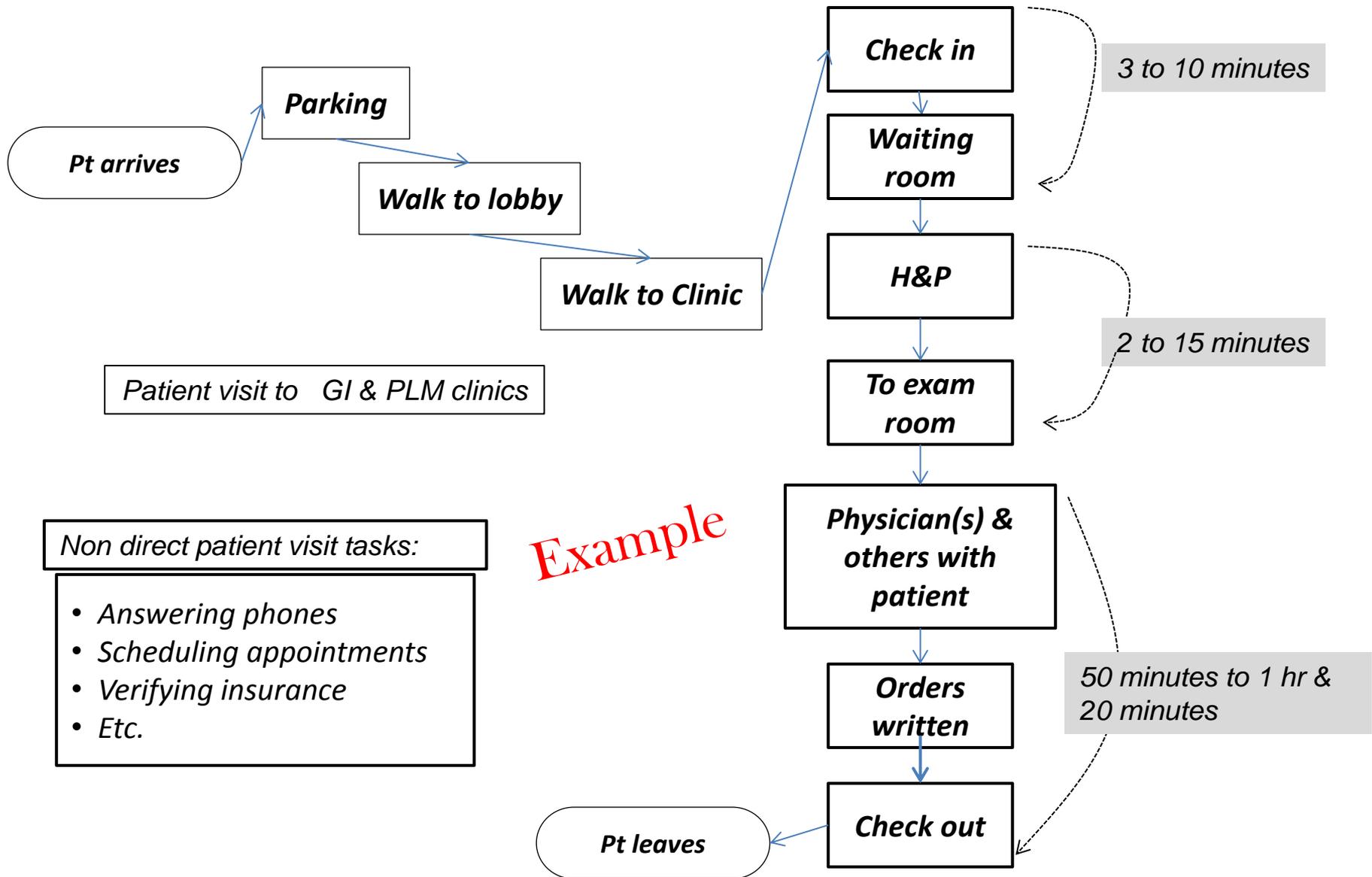
- Process mapping
- Spaghetti diagram
- Waste reduction
- Five whys
- Value-stream mapping
- Five Ss
- Poke Yoke
- Kanban
- Gemba
- Kaizen event
- Flow
- Pull
- Takt time
- Standardized work
- Andon
- Active Daily Management
- + & much more

# Inconsistent Names

Several healthcare versions are used

- **Kaizen**
  - Represent something maybe already done anyway
  - Idea adds useful elements
- **Observing**
  - Gemba (Japanese terminology)
  - Idea adds useful elements
- **Lean**
  - Overlap of other approaches; Six Sigma, QFD

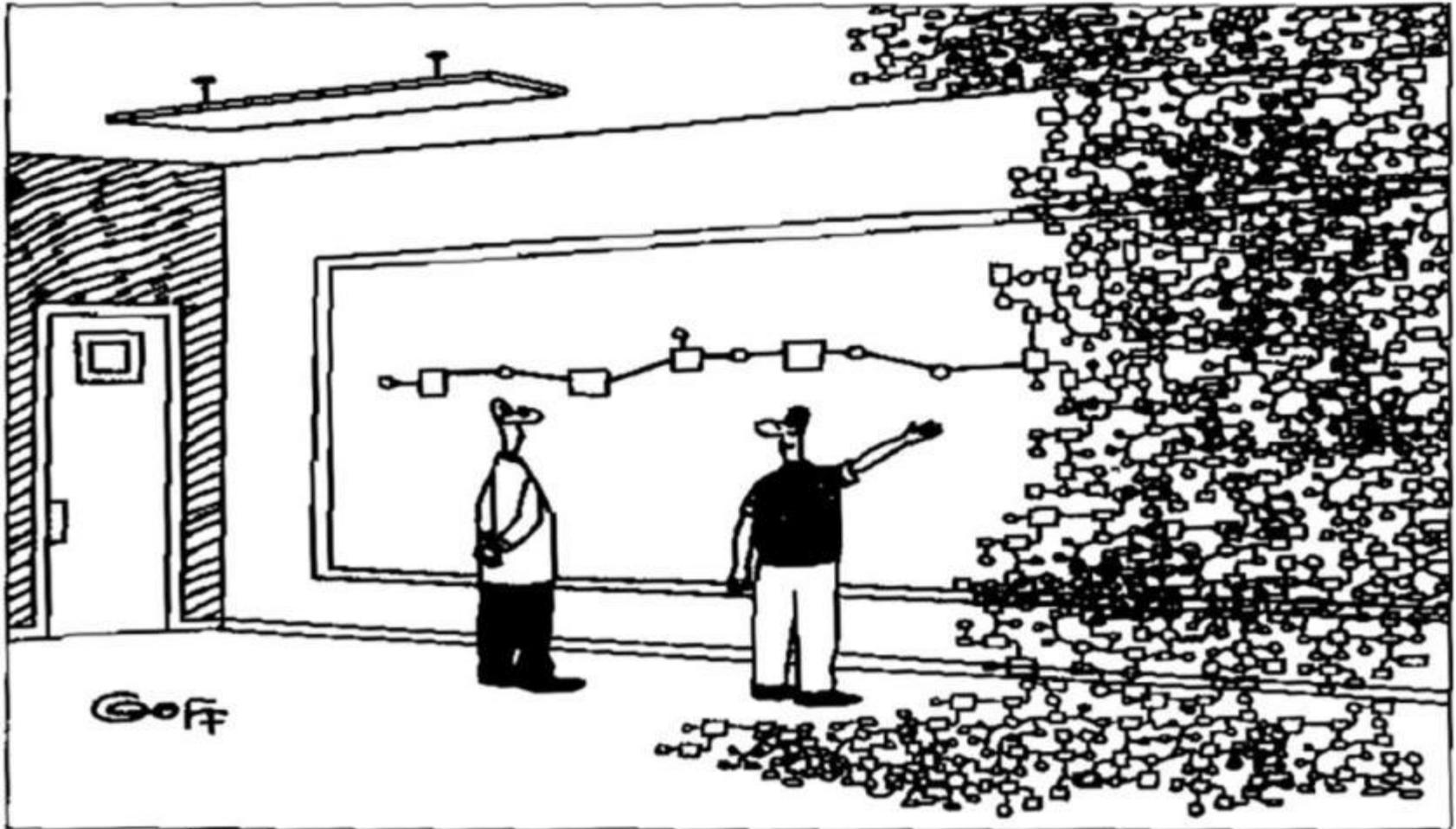
# Mapping, a method for studying a process





# Now This is Where it Gets a Little Complicated

[ LIGHTER SIDE ]

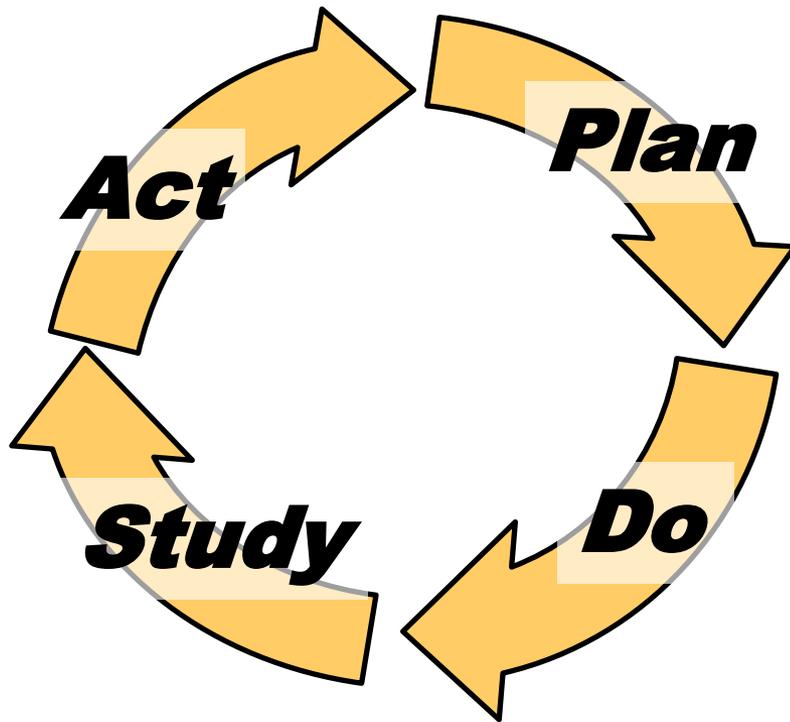


## A Kaizan event

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



# Implementing change (PDSA)



Or:

*Define*

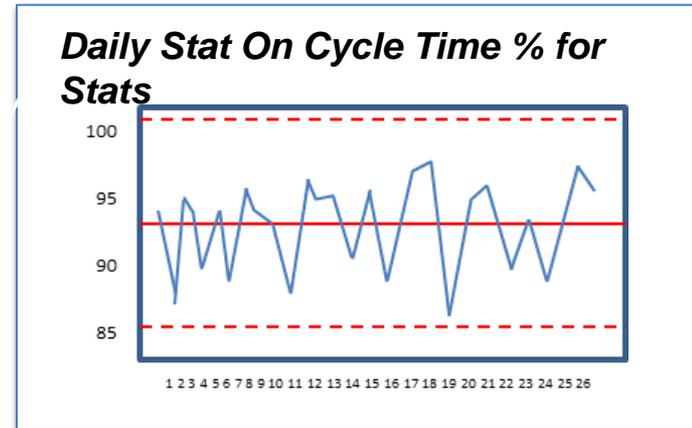
*Measure*

*Analyze*

*Improve*

*Control*

# Sustaining change; Departmental Performance Boards



- Department goals and performance metrics
  - Focus on process performance
- Updated weekly with stats and trended where indicated
- Identify Improvement opportunities
- Displays feedback from patients (i.e., staff recognition, and/or complaints, etc.)

*Is a huddle site.*

## Poll Question #2

What is your primary role?

1. QI/PI specialist
2. Clinician
3. Researcher
4. Student, trainee, or fellow
5. All the above

# QI Handbook including 55 methods

The screenshot shows the U.S. Department of Veterans Affairs website. The top navigation bar includes links for Health, Benefits, Burials & Memorials, About VA, Resources, News Room, Locations, and Contact Us. The main content area is titled "QUERI – Quality Enhancement Research Initiative" and "Quality Improvement Methods". A left sidebar contains a navigation menu with options like "About Us", "Programs", "Partners Evaluation Initiatives", "Veterans Choice Act Awards", "QI News", "QUERI Impacts", "Tools", "Quality Improvement (QI) Methods", and "More Health Care". The main text area discusses the importance of research in healthcare, lists various QI methods, and provides a selection tool for researchers. It also includes a list of acknowledgments for the website's creators and a disclaimer.

U.S. Department of Veterans Affairs

VA SITE MAP (A-Z)

Health | Benefits | Burials & Memorials | About VA | Resources | News Room | Locations | Contact Us

VA > Health Care > QUERI > IMPLEMENTATION > QUALITY\_IMPROVEMENT > Quality Improvement Methods

## QUERI – Quality Enhancement Research Initiative

### Quality Improvement Methods

Research in healthcare involves changing processes and creating better ones. There has been much developed on how to assure quality and effectiveness when making changes in clinical and non-clinical settings. A broad variety of such improvement methods exist. This website provides information on some of the more widely used quality improvement (QI) methods or tools that a QUERI researcher may find useful.

Most of the improvement methods described in this website have a long history of their development and their literature. Some of these were initially developed by industries other than healthcare, but are applicable to healthcare nonetheless. Moreover, some of them are referred to by more than one name and, in some cases, different methods share the same label. The most common names used in healthcare are used here.

Further information will be needed to implement any of these methods but this website can be used as a starting point. The intent here is to give the researcher the basic idea and describe common uses of these methods. The exact approach for using the method varies by the practitioner using them or the institution where they are used.

This website does not include information on the following:

- Statistical analysis of data and testing of hypotheses. These are the methods needed by the clinical researcher when comparing outcomes of an intervention.
- Clinical research issues and specific clinical practice methods
- Finding available best clinical practices

Depending on the particular research proposed or the phase of research, the most useful set of methods will vary.

- The [Quality Improvement Methods Selection Tool](#) asks for the attributes of your research project and based on that response, presents the methods which offer the most capabilities relevant to the research.
- Of course, the researcher is free to peruse [all the QI methods](#) because unique aspects of certain situations may be helped by any of these methods.
- This website also provides [an example of how QI methods could be used in a QUERI project](#)
- Furthermore, this website is available in [Handbook](#) form for downloading and printing.

We acknowledge the dedicated work of the following people in creating this website:

David Belson, PhD  
Daniel J. Epstein Department of Industrial and Systems Engineering  
Viterbi School of Engineering, University of Southern California

Lisa Rubenstein, MD, MSPH, Director  
David Ganz, MD, PhD, Associate Director  
Center for Implementation Practice and Research Support (CIPRS)

Please note that links to websites and other resources are not endorsements of the site, the organization, or content on those sites. They are provided to assist you in identifying potentially useful information, ideas, or additional resources.

Questions about the QUERI website? Email the Web Team.

LOOKING FOR THE HSR&D WEBSITE? CLICK HERE!

VA | Building EXCELLENCE in the Care of Our Veterans

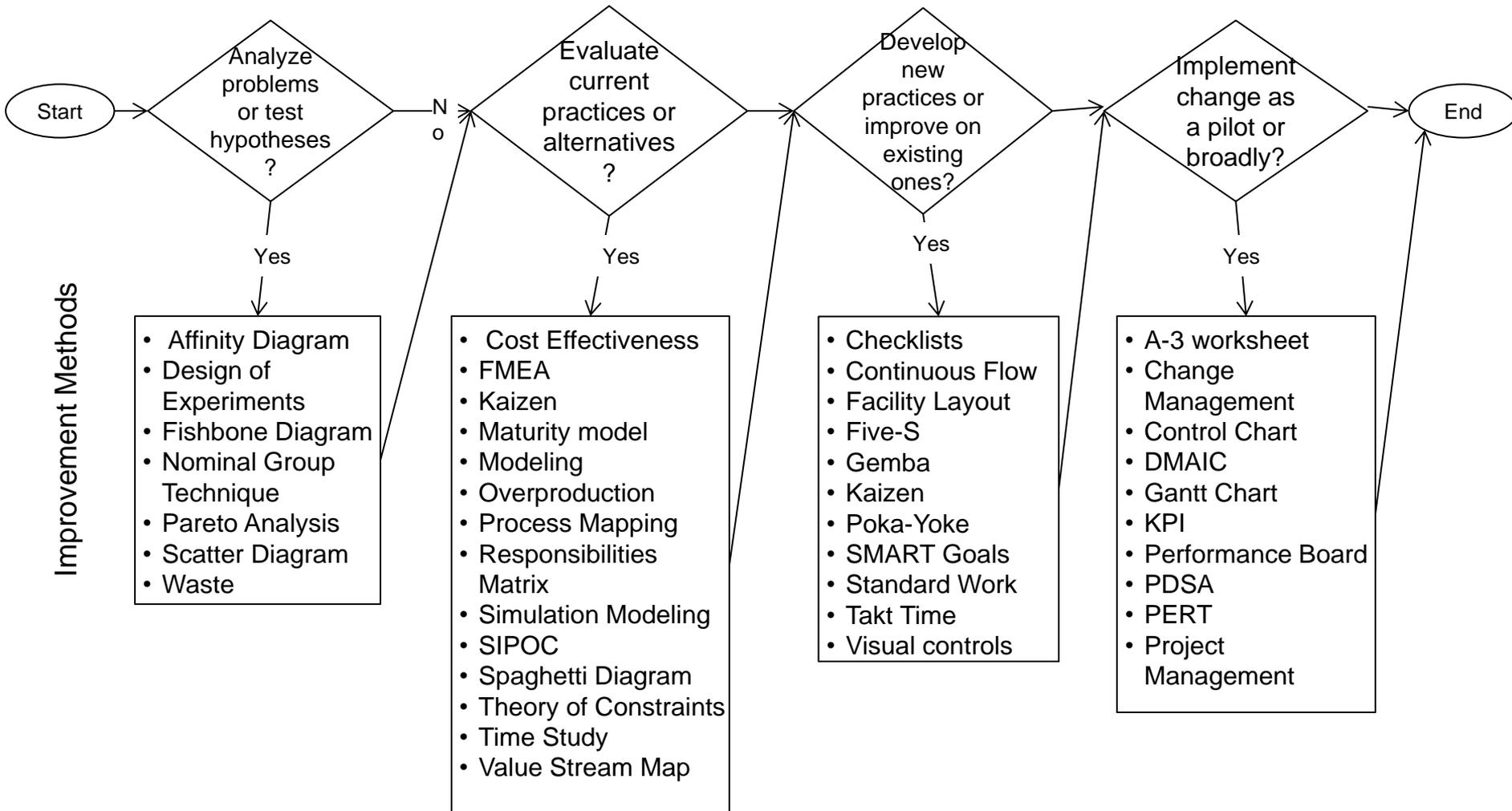
[http://www.queri.research.va.gov/implementation/quality\\_improvement/](http://www.queri.research.va.gov/implementation/quality_improvement/)

# Selection algorithm

Research & Analysis

Evaluation & Improvement

Implementation



# Selection algorithm

- ✓ Project attributes affect relevance to each method
  - Type of problem
  - Phase of the work
  - Data requirements
  - Other
- ✓ Categorize your problem or hypothesis (high costs, ...)
- ✓ Methods are sorted by score and top five are shown
- ✓ Plus, certain methods are nearly always applicable
  1. Lean method (in general)
  2. Six Sigma method (in general)
  3. Kaizen
  4. Process mapping

# Selecting QI Methods

Which to use is a challenge.

The screenshot shows the 'Quality Improvement Methods Search Tool' on the QUERI website. The page is titled 'QUERI – Quality Enhancement Research Initiative' and is part of the U.S. Department of Veterans Affairs. The search tool is designed to help users determine which QI methods are most useful for their situation based on several attributes. A yellow callout bubble points to the 'Problem or symptoms to be addressed by research' section, which includes options like 'Improve clinical outcomes', 'Physical arrangement or layout', 'Cost reduction', 'Peer quality', 'Peer productivity', 'High costs', and 'Problem addressed is not well understood'. Other sections include 'The research will require', 'Regarding data', and 'Phase of work involved'. The interface also features a navigation menu on the left and a search button at the bottom.

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 (or view a list of available methods).

**The research will require (select one or more)**

- Analyzing the problem or hypothesis
- Developing an intervention
- Analysis of data
- Implementing an intervention or change
- Sustaining change ongoing
- Managing change currently
- Planning or proposing future work

**Problem or symptoms to be addressed by research (select one or more)**

- Improve clinical outcomes
- Physical arrangement or layout
- Cost reduction
- Peer quality
- Peer productivity
- High costs
- Problem addressed is not well understood

**Regarding data (select one or more)**

- Need to develop new metrics
- Trials or experiments to generate data for analysis
- Evaluate data currently in use

**Phase of work involved**

- Initial investigation
- New system development
- Completion of prior work

**Other attributes: The proposed research:**

- Multiple locations
- Involves totally new thinking
- Organizational issues (vs. clinical) are involved
- Economic issues (vs. clinical) are involved

Clear Selections Search Now

75%

Check attributes describing your situation

# Selecting QI Methods

- Associated to the handbook is a VA web site 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. Selections are generalized
  - This web tool is particularly helpful at the start of a project



# Web site Results

File Edit View Favorites Tools Help

U.S. Department of Veterans Affairs

Quality Improvement Methods: Results

Quality Enhancement Research Initiative

Quality Improvement Methods: Results

Download QI Handbook

The **TOP 5** most relevant methods are (based on your selections):

- 8. Design of Experiments Statistical Approach
- 40. Time Study and Work Measurement
- 36. Spaghetti Diagram
- 4. Gemba and Genchi Genbutsu Exercise
- 35. SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers) Model

Note: All of the methods in the handbook are potentially useful for your project.

The following methods are generally useful for research projects:

- 19. Lean Approach
- 34. Six Sigma Approach
- 17. Kaizen Events
- 28. Process Mapping (also known as Flowcharting or Process Mapping)

5 possibly most relevant methods

Plus 4 methods generally useful for all projects

Start

75%

# Web site results – read or print one method or all

The screenshot shows a web browser window displaying the QUERI website. The address bar shows the URL <http://www.queri.research.va.gov/im>. The page title is "Quality Improvement Methods". The main content area is titled "2. Affinity Diagram" and includes a definition, literature, and an example. A yellow callout box with a black border is overlaid on the page, containing 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. The browser's status bar at the bottom right shows "75%".

U.S. Department of Veterans Affairs

QUERI – Quality Enhancement Research Initiative

Quality Improvement Methods

2. Affinity Diagram

a. **Definition:** An affinity diagram organizes ideas according to their relationships. Notes about similar observations or ideas are posted and then grouped together visually so as to support insights and to promote creativity about them. The affinity diagram was created in the 1960s by the Japanese anthropologist Jiro Kawakita and thus is also referred to as the KJ method. It is helpful when there are many ideas and bits of disjointed information to consider, perhaps in the early stage of a research project.

b. **Literature:** This is a relatively straightforward idea and not much literature is specific to it. Such diagrams are discussed in much of the literature on quality improvement.

- "Problem-Solving Tools for Analyzing System Problems: The Affinity Map and the Relationship Diagram", Lepley, Cyndi J. PhD, RN, *Journal of Nursing Administration*, December 1995 - Volume 25 - Issue 12 - pp 44-50

c. **Example:** Affinity diagrams have been applied in a wide variety of settings, from consumer research to project management. Once a set of ideas or issues are identified they can be grouped by similarities, often graphically, in order to share and discuss the arrangement with a group of people. This graphic becomes a prompt for discussion of insights or possible improvements to an issue. The affinity diagram can be used to develop ideas for an intervention for a given system or setting or to better understand the overall situation. For example, causes for a problem are grouped together. It can be quite informal, such as ideas generated in a group discussion with Post-it notes.

Summary of posts of problems in gathering patient external data

LOOKING FOR THE HSR&D WEBSITE? CLICK HERE!

Draft

75%

Or, just use the entire handbook.

# Training to Improve Current Practices or Develop & Implement New Practices

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- Internal provider programs
- Long & Short courses
- Certificate programs
- Literature
- Simulations

# Sources

- Books and periodicals are listed in the handbook
- Professional organizations; VA's QUERI and VERCs, AHRQ, IHI, IISE/SHS, ASQ, SHIP, INFORMS & others
- Consultants, many specialize in such work
- Web sites & blogs for organizations as well as social networking discussions
- Training; many venues are available including professional organizations, schools, hospital systems, etc.
- Colleges and universities, industrial engineering departments, MHA programs provide training and interested interns

# 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](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](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/](http://www.queri.research.va.gov/implementation/quality_improvement/)

# Thank you, Questions?

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