

ESRD Network of New England

The Model for Improvement: Simple Methods, Powerful Results

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***Special Acknowledgement for
Content Contributions:***

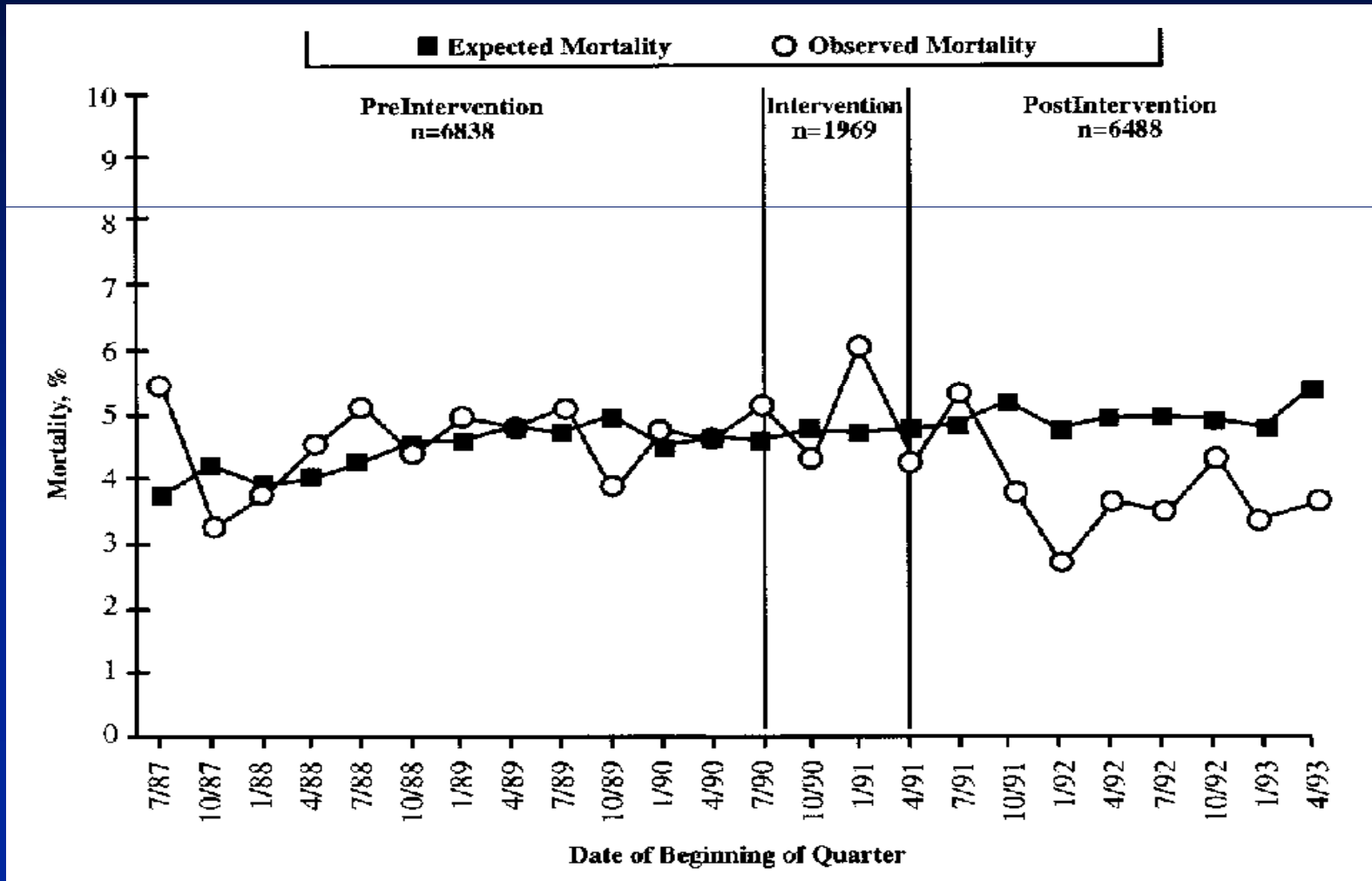
***Institute for Healthcare Improvement
Associates in Process Improvement
Paul Plsek and Associates***

It's Not the Lack of Good Ideas...

Northern New England Cardiovascular Disease Study Group

- Utilized a process of “field trips” --learning from each other
- Mortality rate from coronary artery bypass graft ↓ 24% in 18 months
- Improvements have been sustained and remain among the lowest in the nation

Dartmouth-Hitchcock Medical Center – Cardiac Bypass Mortality



What The Northern NE Group Learned

- Four actions that dramatically reduce mortality:
 - Use pre-operative aspirin
 - Maintain adequate control of the heart rate
 - Use the internal mammary artery as the harvest site
 - Avoid excessive dilution of the blood during surgery

The cost of these = \$1.38 per patient!

From: <http://www.nnecdsg.org>

Aims to Action

What is The Model for Improvement?*

- **Variant of process improvement that:**
 - **relies on existing knowledge**
 - **dramatically shortens discovery process**
 - **works on “rapid trial & learn” method**
 - **relies heavily on action**

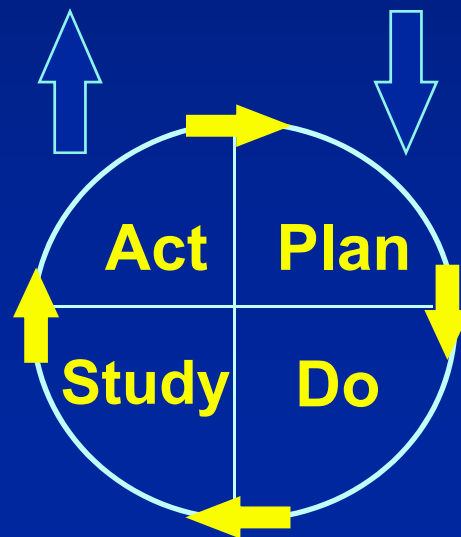
Also known as the “Rapid Cycle Improvement”

Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What changes can we make that will result in an improvement?



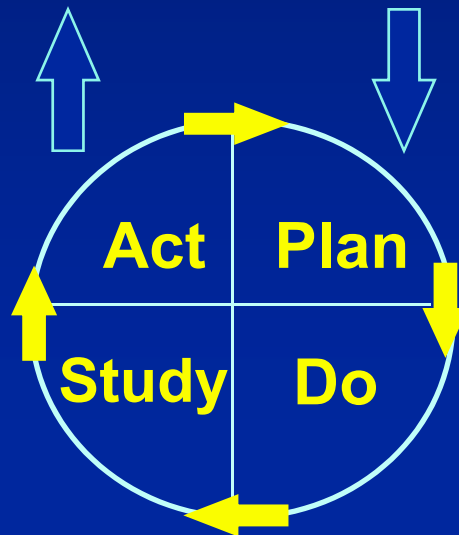
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Aim



Developing Your Aim

- **Write a clear statement of aim--make the target for improvement unambiguous**
- **Include numeric goals**
- **Set “stretch” aims**
- **Focus on issues that are important to your organization - choose appropriate goals**

Developing Your Aim

- Improvement relies on *intention* to improve
 - Senior leaders set & align aim with strategic goals
 - Agreement on aim is critical
- Include a specific time frame for accomplishing your aim

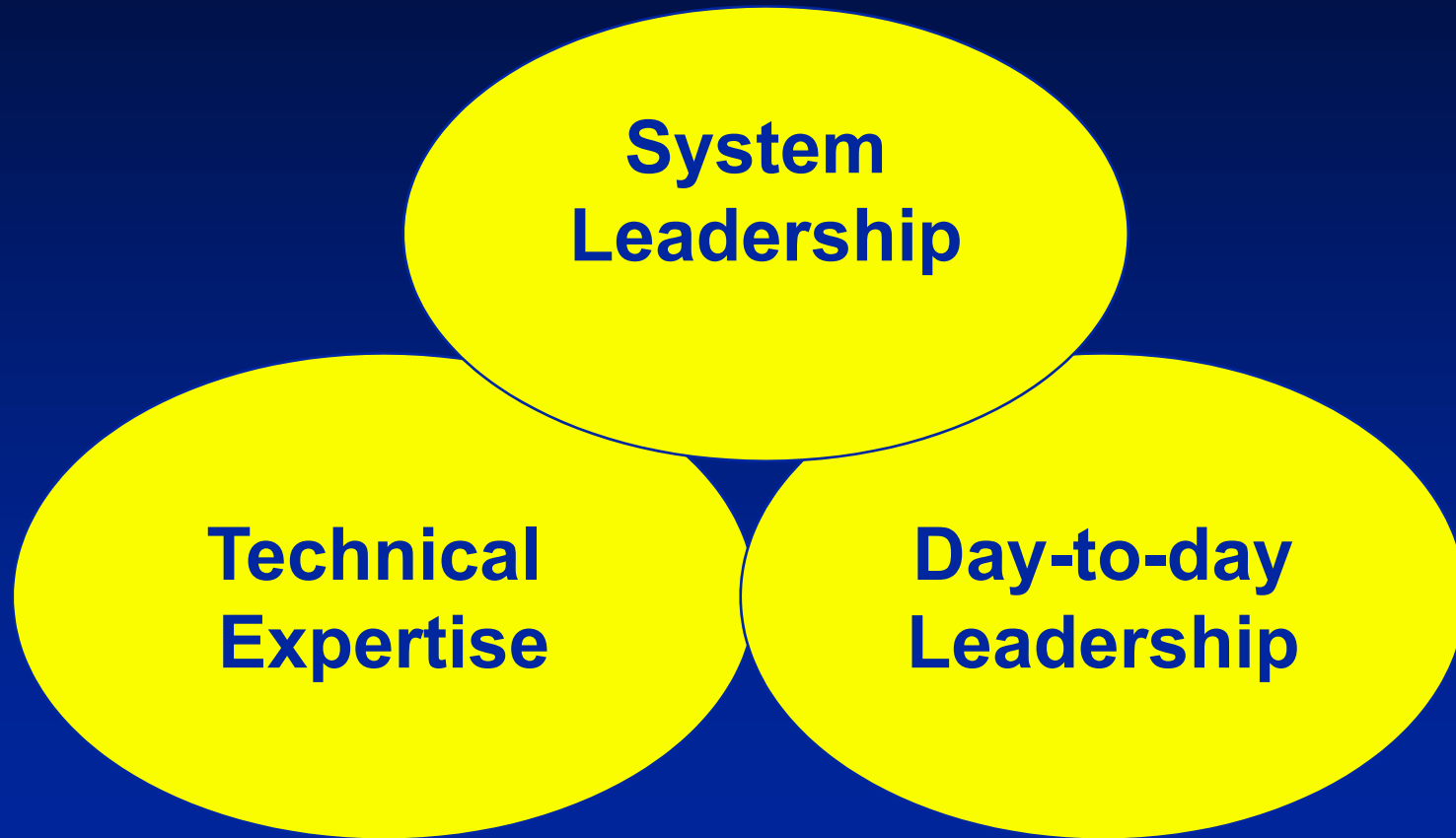
Examples of Aims

■ **To decrease length of stay by 1.7 days by January 31, 2009**

100% of patients will self-report a “5” on a scale of 1-5 for confidence in caring for their sites

■ **Reduce peritonitis episodes/patient/year to zero by March 31, 2009**

Three Ingredients of an Effective Team



Establishing Your Team

- **Have day-to-day, system, and technical expertise**
 - **Day-to-day leader gives at least 20% (loses sleep)**
 - **System leader can arrange for the resources to do the work**
 - **Technical experts know the subject matter-- often bedside people**
- **Use multidisciplinary teams**

Using Data for Improvement

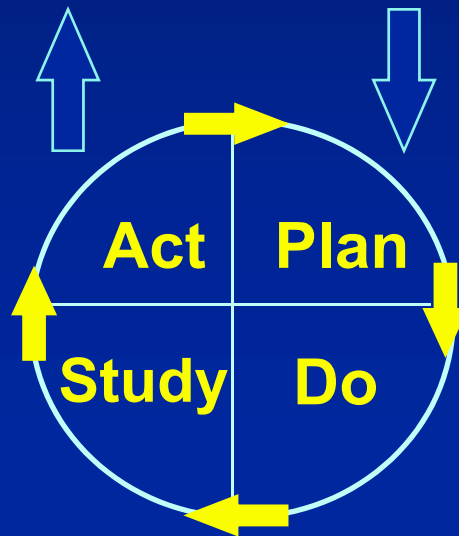
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Measure

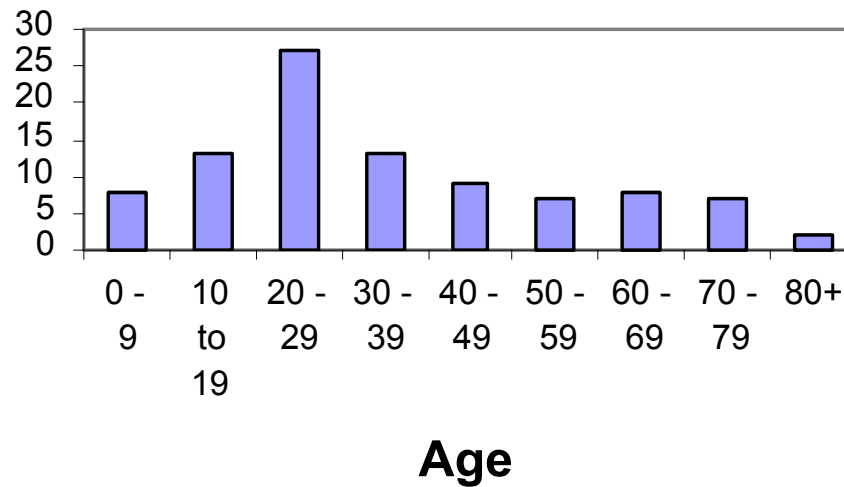


Measurement Guidelines

- **The key measures should clarify the aim and make it tangible**
- **Use outcome and process measures**
- **Integrate measurement into the daily routine**
- **Use qualitative as well as quantitative data**
- **Seek usefulness, not perfection**

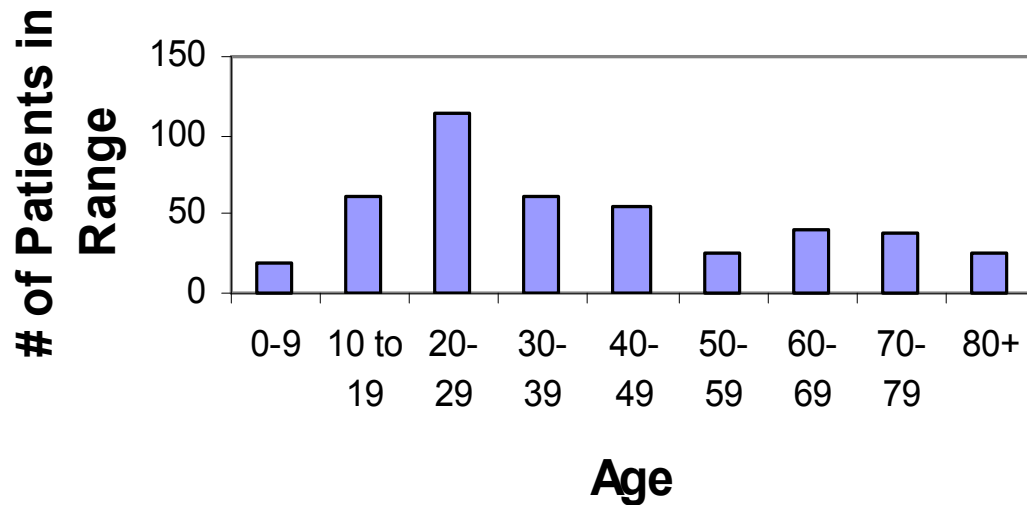
Seek Usefulness Not Perfection

**Age Distribution of Asthma ED Patients
(n = 94 patients)**



Seek Usefulness Not Perfection

**Age Distribution of Asthma ED Patients
(n = 437 patients)**



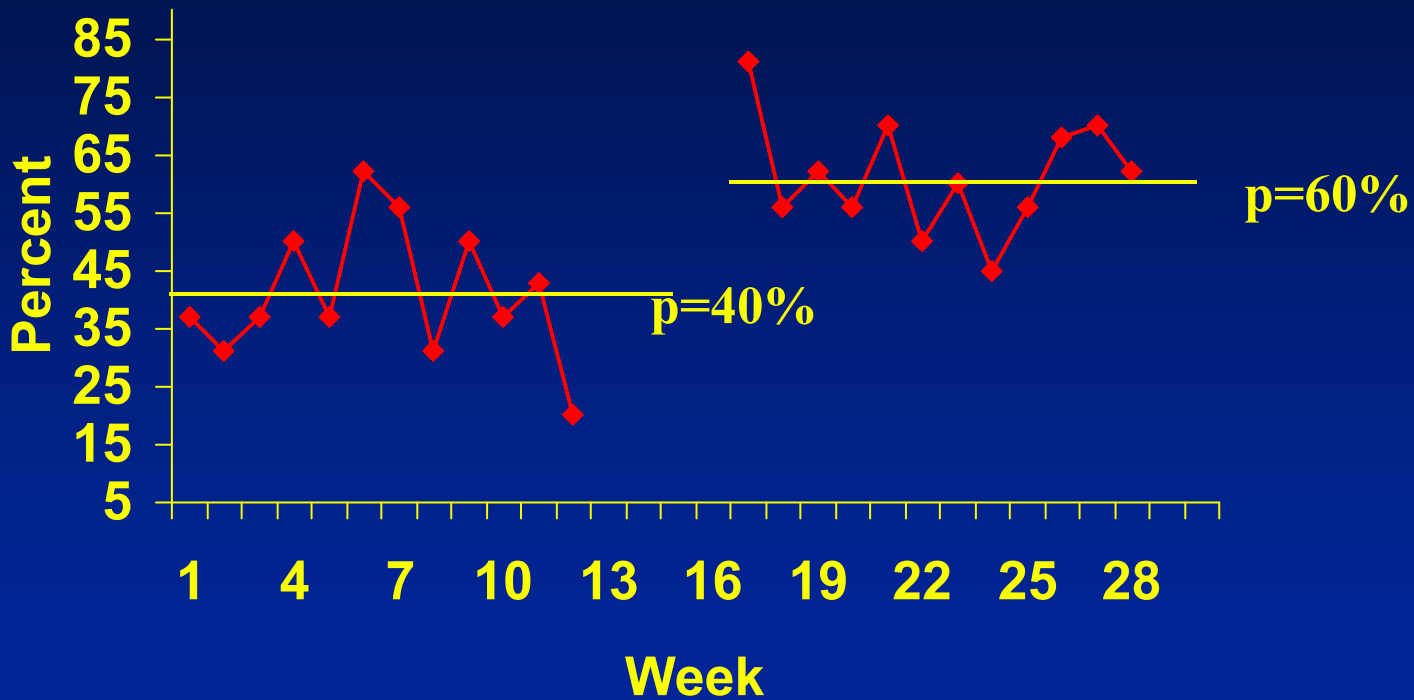
Measurement Guidelines

- Use sampling to make measurement efficient
- The question - *How will we know that a change is an improvement?* usually requires more than one measure. Balancing measures help to assure that the *system* is improved.
- Plot data on the measures *over time*

Examples of Sampling Plans Using Satisfaction Surveys

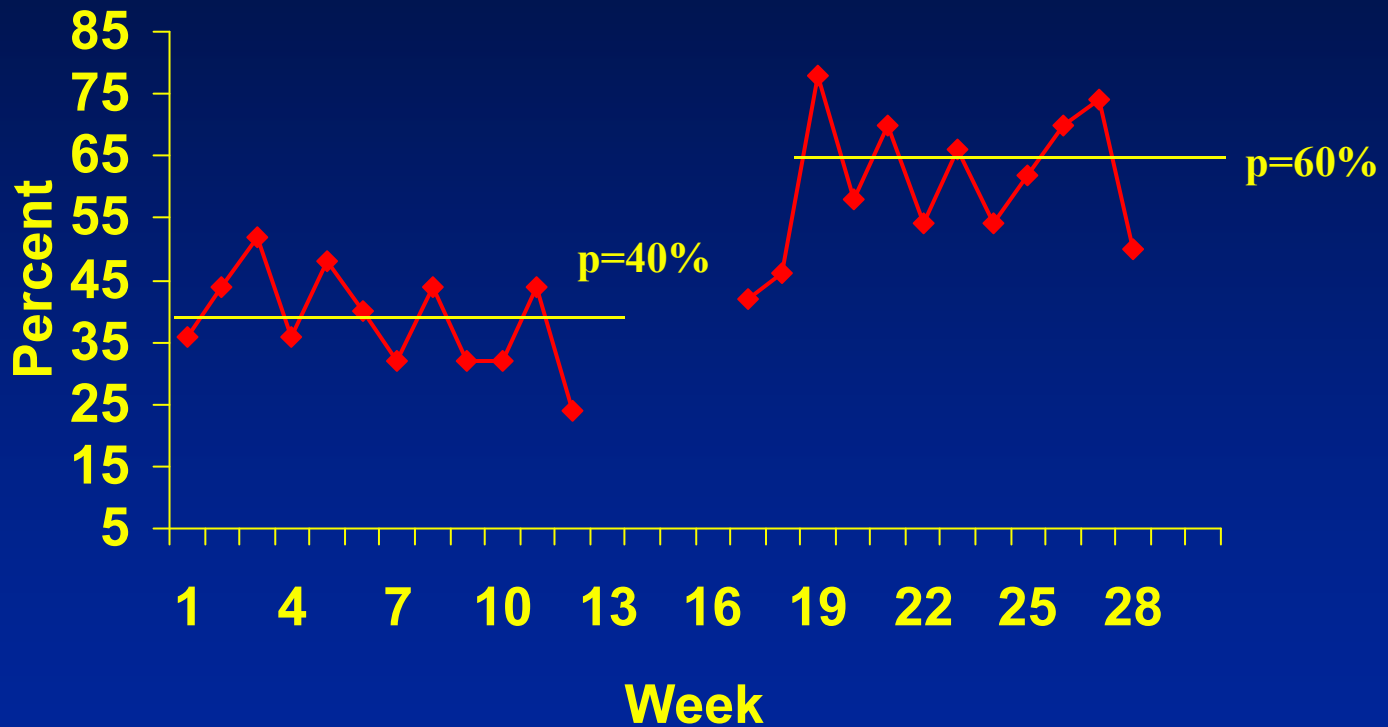
- **Call approximately 50% of patients (usually about 15) discharged from the unit each week. Information Systems provides list of all discharges each week.**
- **Patients are given a short survey and asked to place it in a sealed box before leaving the center. Twenty surveys are randomly selected each week.**

Sampling Example: Percent 5's on "Likely to Recommend" n=16 per week



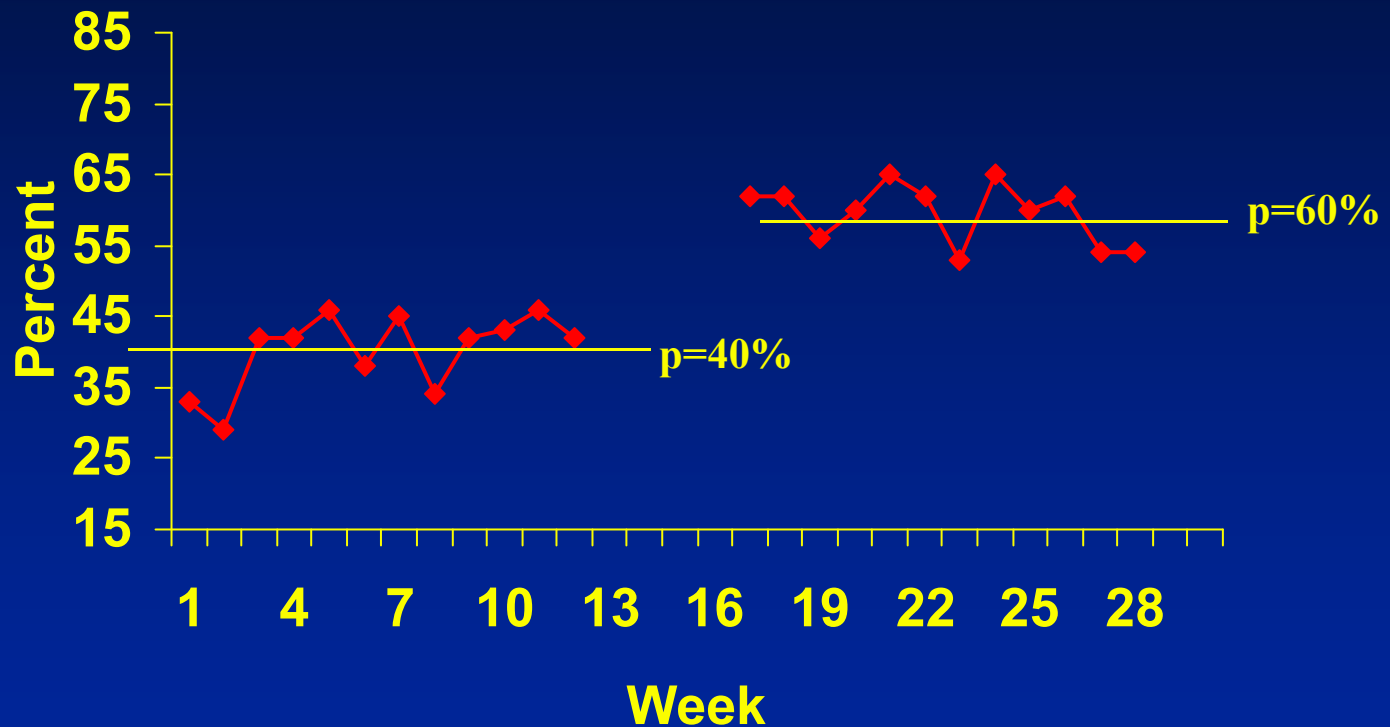
Percent 5's on "Likely to Recommend"

n=25 per week



Percent 5's on "Likely to Recommend"

n=64 per week



Using Balancing Measures: Medicaid Prescription Costs

Problem: Prescription cost overruns for elderly Medicaid patients in New Hampshire.

Plan: Limit patients to three drugs.

Results:

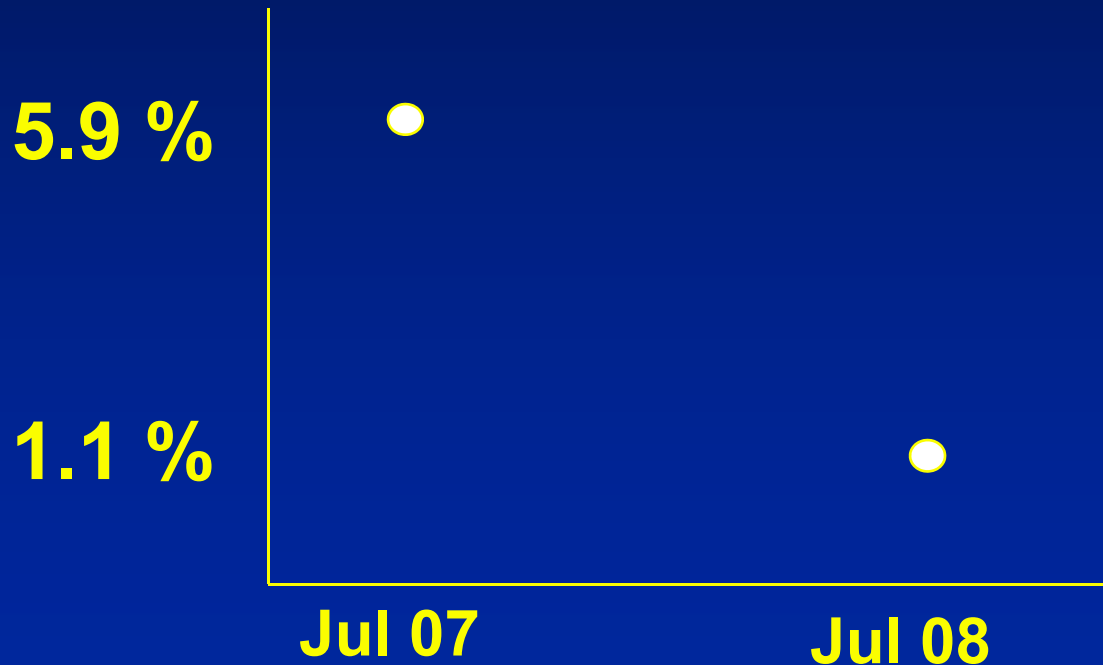
- prescription drug costs down 35%
- nursing home admits up 120% (to 2.2x)
- hospitalizations up 20% (to 1.2x)

After 11 months, the plan was abandoned:

- rates returned to their old levels
- those institutionalized stayed institutionalized

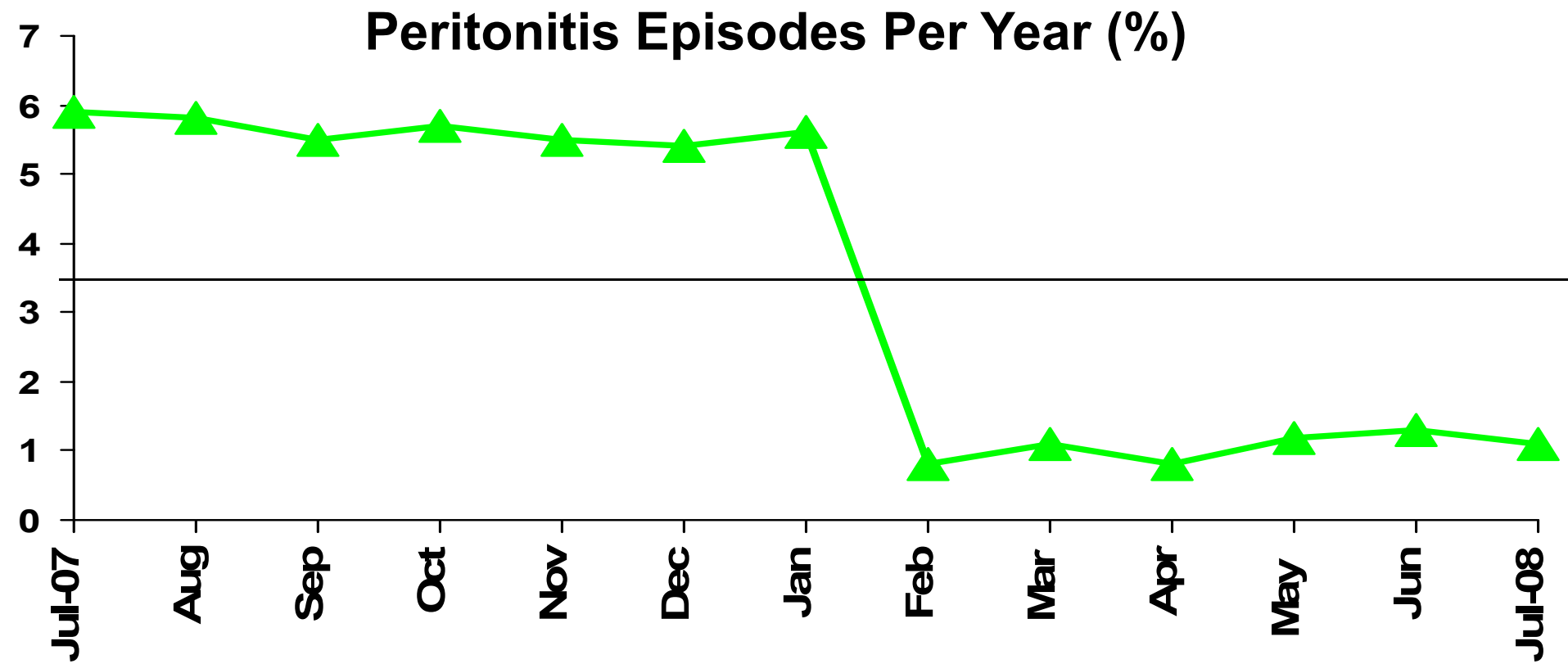
The Danger of Comparing Two Data Points!

Peritonitis Episodes/Year

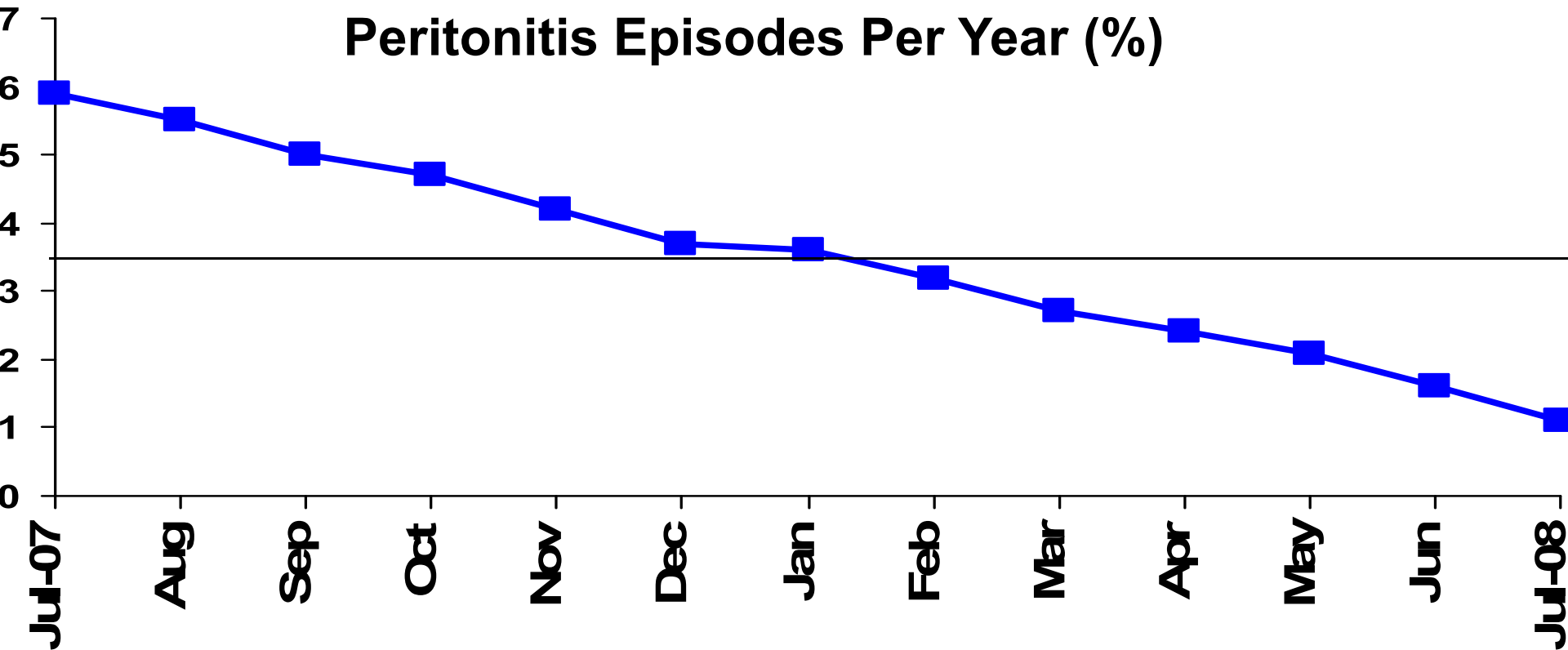


Average = 3.5%

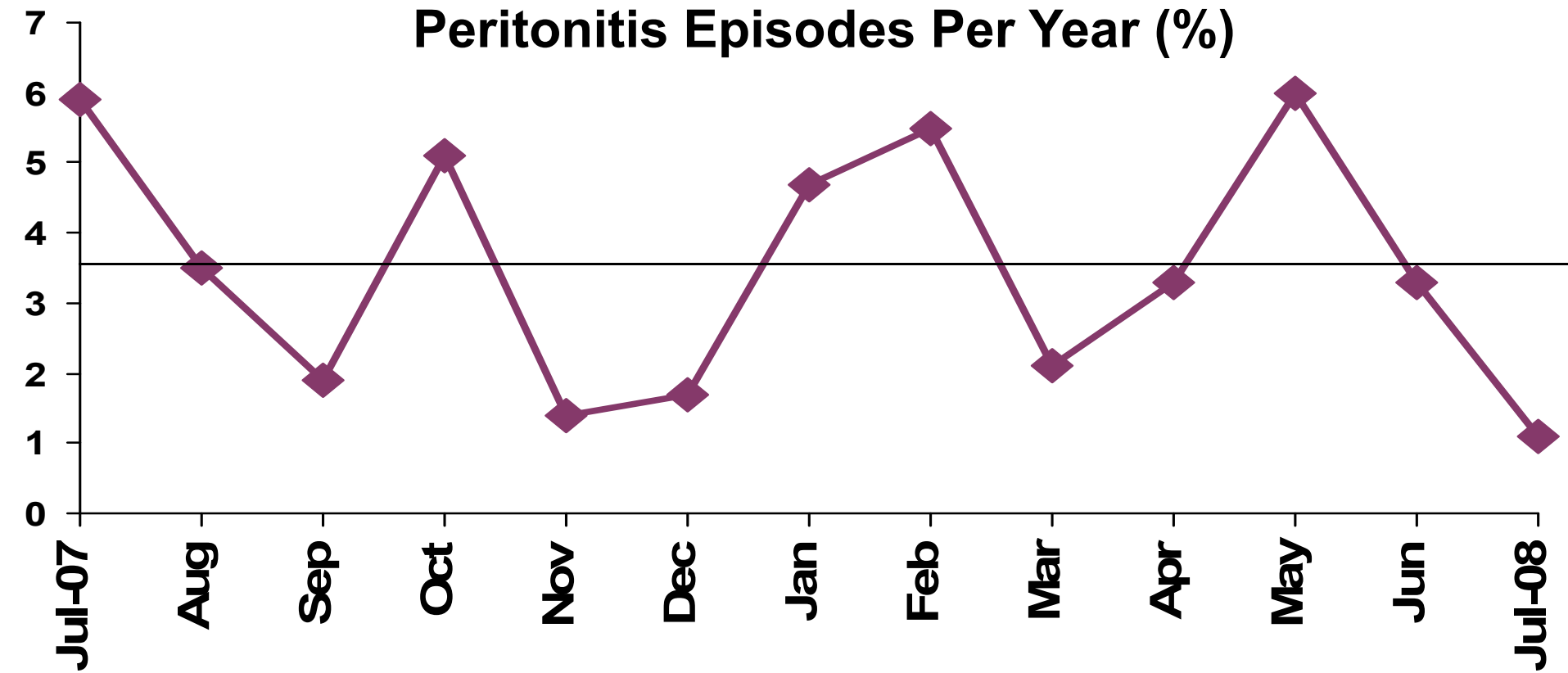
Facility A: Peritonitis Episodes Per Year



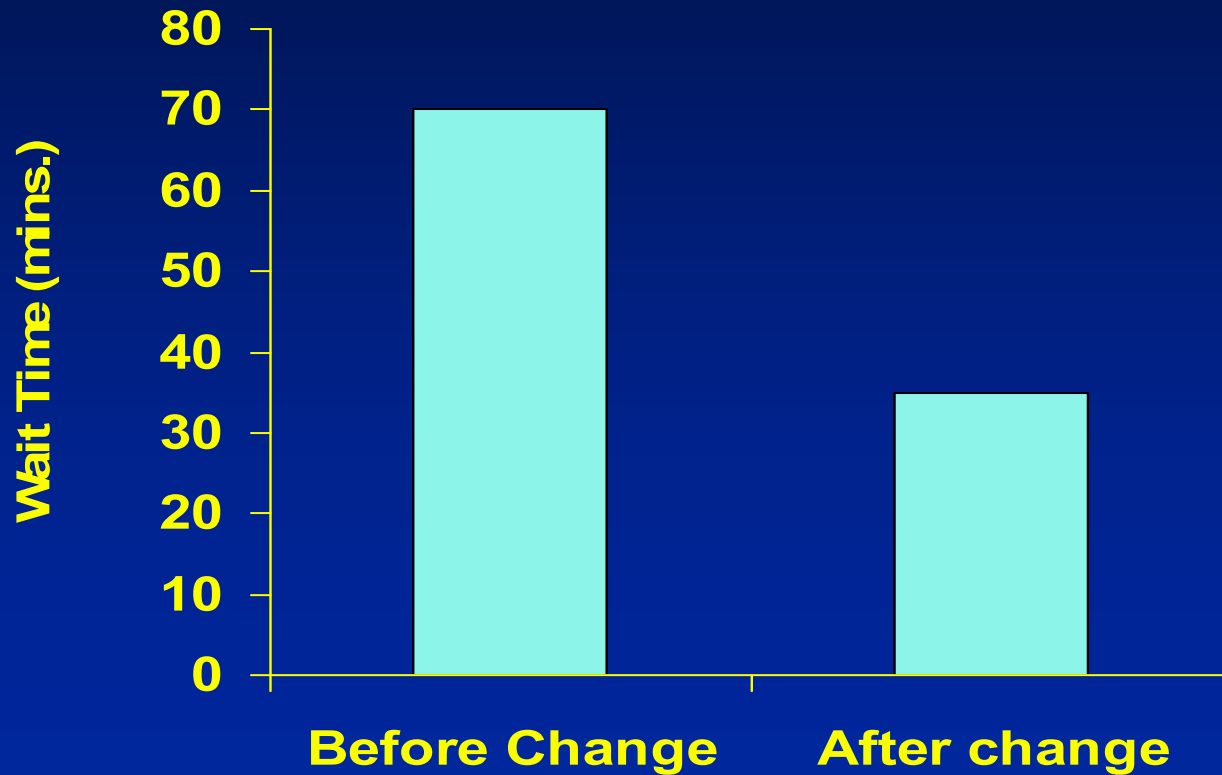
Facility B: Peritonitis Episodes Per Year



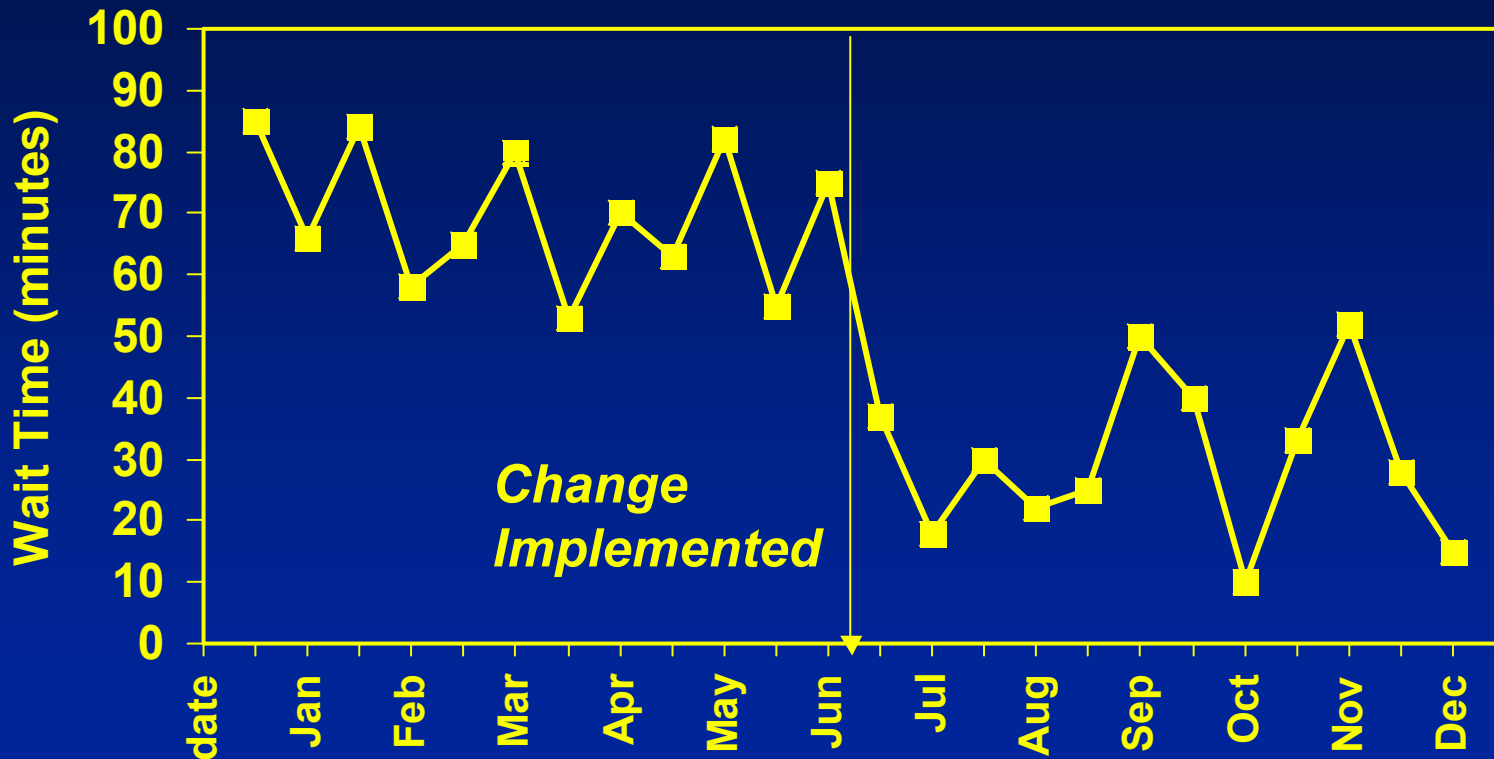
Facility C: Peritonitis Episodes Per Year



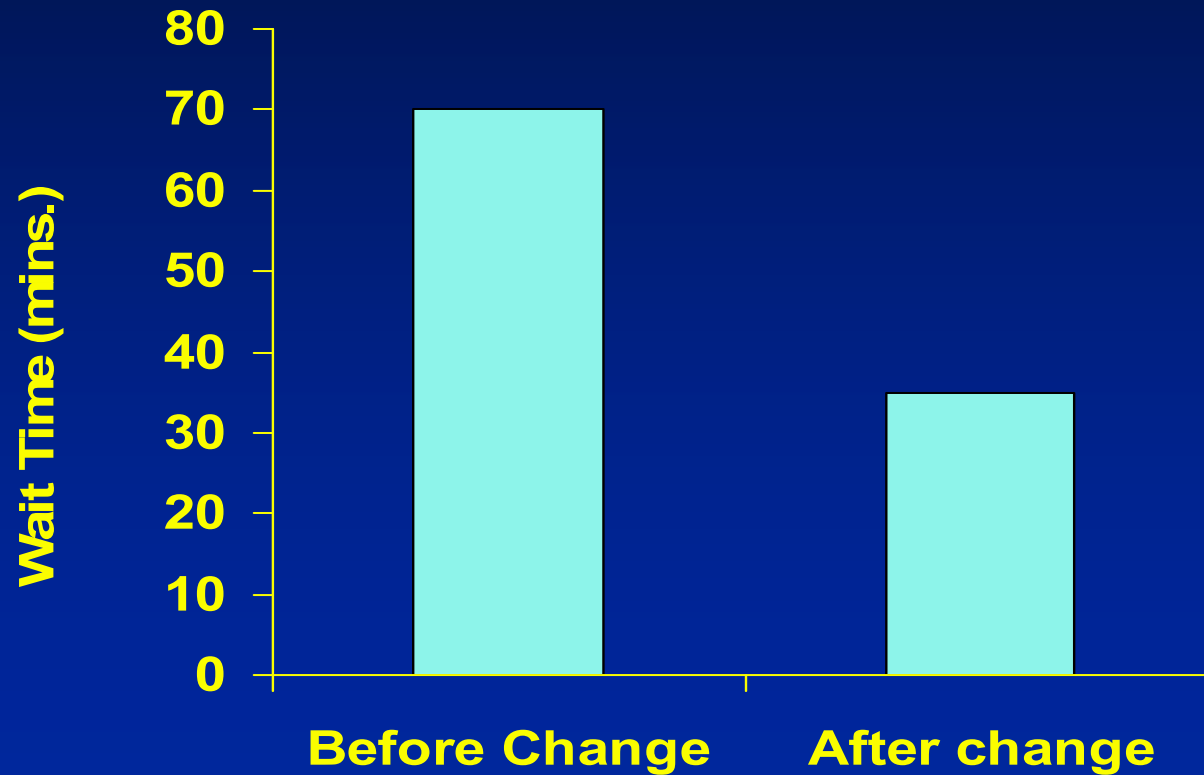
Improvement in Wait Time (Team A)



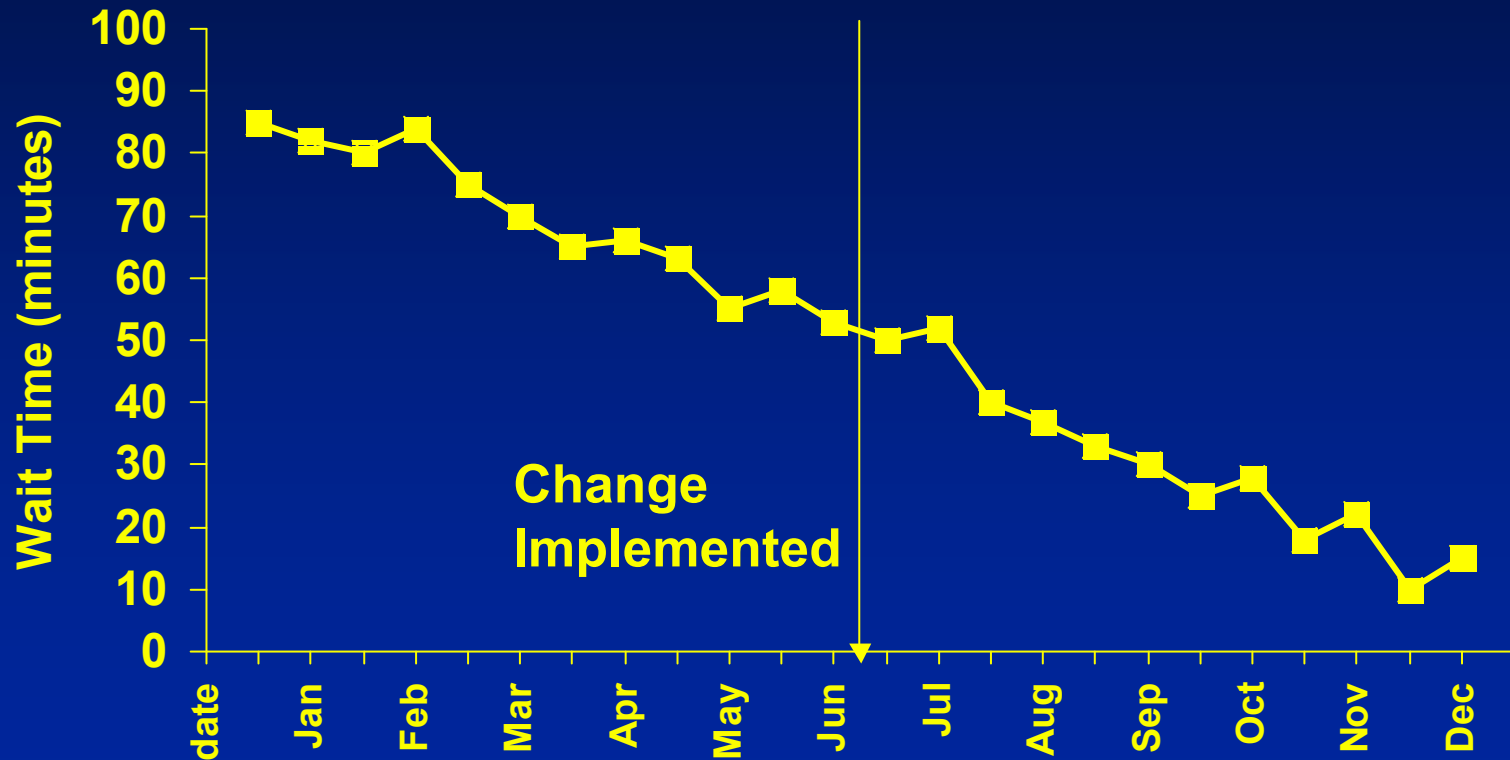
Improvement in Wait Time (Team A)



Improvement in Wait Time (Team B)



Improvement in Wait Time (Team B)



***Conducting Small-Scale
(Rapid Cycle) Tests of Change***

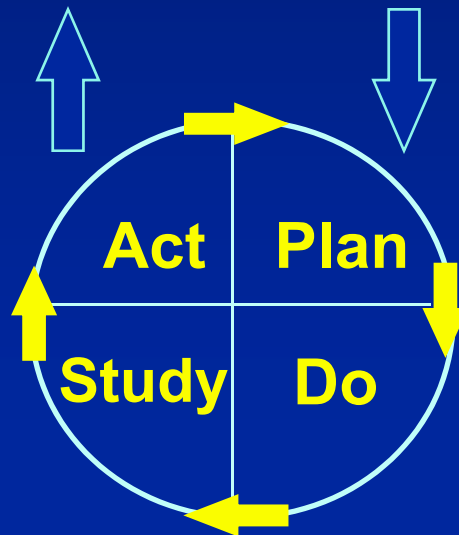
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**Select
Changes**



Selecting Changes

- ***Blatantly steal***: Use the literature, the experience of others, hunches and theories
- **Be strategic**: Set priorities based on the aim, known problems, and feasibility
- **Avoid low impact changes**

Capitalize on Good Ideas...

Resources Abound—

Steal Shamelessly and Start Testing!

Example: Hypertension

- **Go to:**

<http://www.ihl.org/IHI/Topics/ChronicConditions/AllConditions/ImprovementStories/AFocusonHypertensionFourYearsofImprovement.htm>

- **Find a team's report of 4 years of learning:**

- **Aim**

- **Results (from 35% to 70%)**

- **The Team**

- **Lessons Learned/Barriers**

- **Measures**

- **Next Steps/Contact Information**

- **More than 20 changes they tested**

Objective of the Test: Change or No Change?

Probably Change

Test

Redesign

Eliminate

Reduce

Deliver

Implement

Probably No Change

Recruit

Distribute

Continue

Examine

Discuss

Teach

Selecting Changes

- **Test the changes on a small scale**
 - **“By next Tuesday”**
 - **Capitalize on curiosity**
 - **Have a bias for the “doable”**
- **Use change concepts**
 - Simplify**
 - Error-proof**
 - Minimize the hand-offs**

Using the Change Concept of Simplicity The Probability of Performing Perfectly

No. Elements	Probability of Success, Each Element			
	0.95	0.99	0.999	0.999999
1	0.95	0.99	0.999	0.9999
25	0.28	0.78	0.98	0.998
50	0.08	0.61	0.95	0.995
100	0.006	0.37	0.90	0.99

Worksheet For Testing Change

Aim: (Overall goal you would like to reach):

(Remember, every goal will require multiple smaller tests of change)

Describe your first (or next) test of change	Person Responsible	When to be done	Where to be done

Plan

List the tasks needed to set up this test of change	Person Responsible	When to be done	Where to be done
1- 2- 3- 4- 5-			

Predict what will happen when the test is carried out	Measures to determine if prediction succeeds
1- 2- 3- 4-	1- 2- 3- 4-

Do: Describe what actually happened when you ran the test:

Study: Describe the measured results and how they compared to the predictions:

Act: Describe what modifications to the plan will be made for the next cycle from what you learned

To Be Considered a *Real* Test

- Test was planned, including a plan for collecting data.
- Plan was attempted and data was collected.
- Time was set aside to analyze data and study the results.
- Action was taken, based on what was learned.

Two Key Points

- Small scale \neq small change
- Success (or failure) in one PDSA cycle \neq success or failure of the project

The Value of Small Scale Tests of Significant Changes

- Moves us to action and learning
- Promotes “real time science”
- Reduces the need for buy-in during the early phases of testing a change
- Allows us to test multiple changes at one time
- Respects experiential learning
- Is faster and more reliable than “just try this”

Some Model for Improvement Resources

- Audet AM, Doty MM, Shamasdin J, Schoenbaum SC. Measure, Learn, and Improve: Physicians' Involvement in Quality Improvement. *Health Affairs*. 2005;24(3):843-853.
- Berwick, DN, Nolan, T., “Developing and Testing Change in Delivery of Care”, *Annals of Internal Medicine*”, Vol. 128 no. 8, April 15, 1998 pp. 289-292.
- Berwick, DM, “Harvesting Knowledge From Improvement”, *JAMA* 3/20/96, vol. 275 No. 11, pp. 877-888.
- Langley, Gerald, Nolan, K., Nolan, T, Norman, Clifford, and Provost, *The Improvement Guide: A Practical Approach to Enhancing Organizational*. San Francisco: Jossey-Bass Publishers: 1996.