Model For Improvement

Based on the IHI Improvement Methodology

Objectives:

- Participants will leave the workshop with a working knowledge of the Model for Improvement.
- Each DHB will agree to a Plan-Do-Study-Act (PDSA) cycle of improvement that they will complete prior to their next Regional Meeting.
- Participants will be able to implement a PDSA cycle.
- Participants will gain skill in entering and managing computer improvement data.

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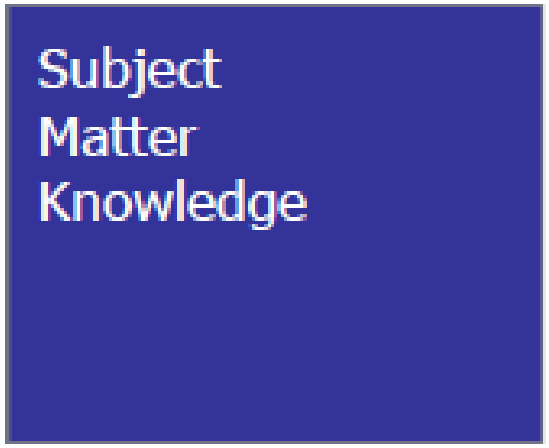
Two Types of Knowledge needed for Improvement



Subject Matter Knowledge:
Knowledge basic to the things we do in life. Professional knowledge.

Science of Improvement: The interplay of the theories of systems, variation, knowledge, and psychology.

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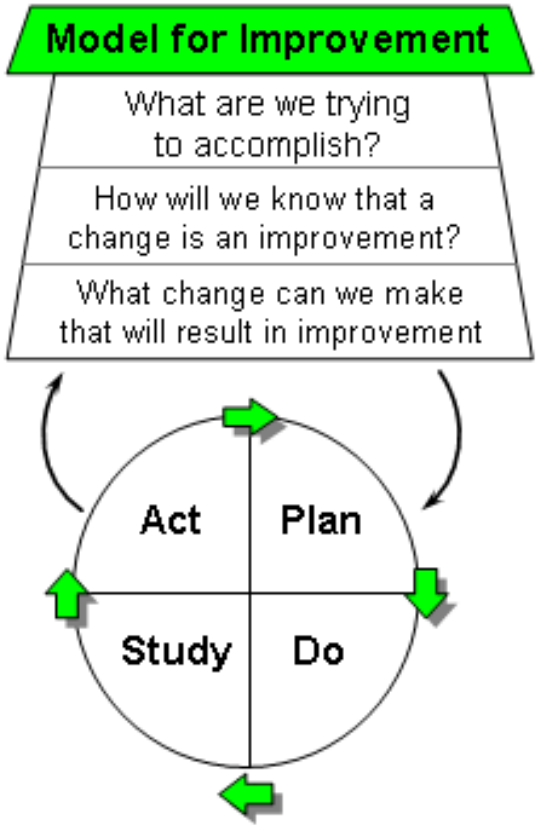
Model For Improvement



Improvement Guide, Chapter 1, p.24
Appendix C, p. 454

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Defining your aims

What are we trying to accomplish?

Important that:

- aims are clear and unambiguous
- they apply to something that the collaborative can make a difference to (e.g. increase the rate of disclosure) rather than too broad (solving world hunger)
- They are specific

"Some is not a number, soon is not a time"

Recommended elements in an aim statement

- What is expected to happen
- The timeframe for accomplishing the aim
- The system to be improved
- The patient population that change process is going to be applied to
- How much/by when

Breakout

Aim Statement	Good	Bad	Ugly
We aim to reduce harm and improve patient safety for all of our internal and external customers.			
By April of 2012 we will reduce the incidence of pressure ulcers in the critical care unit by 50%.			
Our outpatient testing and therapy patient satisfaction scores are in the bottom 10% of the national comparative database we use. As directed by senior management, we need to get the score above the 50th percentile by the end of the 1st Q of 2012.			
We will reduce all types of hospital acquired infections.			
According to the consultant we hired to evaluate our home health services, we need to improve the effectiveness and reliability of home visit assessments and reduce rehospitalization rates. The board agrees, so we will work on these issues this year.			
Our most recent data reveal that on the average we only reconcile the medications of 35% of our discharged inpatients. We intend to increase this average to 50% by 4/1/12 and to 75% by 8/31/12.			

Aim Statement

Aim Statement Worksheet

Team name:_____

Aim statement

(What's the problem? Why is it important? What are we going to do about it?)

How good?_____

By when? _____

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How will we know that a change is an improvement? (Measurement)

- Key measures are required to assess team's progress against the aim
- Balancing measures are required to ensure that improvement in one part of the system does not cause damage in another area
- Data (including from patients and staff) can be used to focus improvement and refine changes
- Specific measures can be used doing PDSA cycles to inform future cycles

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Methods of Measurement

- Chart review
- Observation of behaviour
- Surveys
- Questionnaires
- Coding data
- Checklists
- Sampling

Wisdom from Jim Clemmer

"Weighing myself ten times a day won't reduce my weight. No matter how sophisticated our measurements are, they're only indicators. What the indicators say are much less important than what's being done with the information. Measurements that don't lead to meaningful action aren't just useless; they are wasteful."

“Crude measures of the right things are better than precise measures of the wrong things.”

Improvement strategy: *More frequent samples* (over time) of “good enough” measures

Five Data Themes

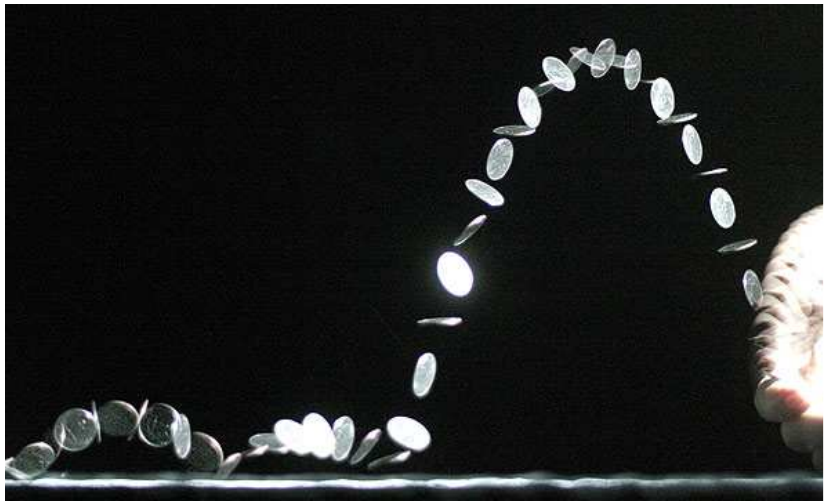
- Collect meaningful data
- Use data to identify root causes of problems
- Collect data over time
- Present data in a picture
- *ALWAYS ask:*
  - *“What was the state of the process that produced this data?”*
  - *“How were these data collected?”--Any data analysis must be appropriate for the way the data were collected*

Plot the dots

- Time series data gives more useful information
- Stops people seeing trends when there are none
- Allows us to determine whether common or special cause variation is present
- Can provide evidence of improvement

Why do we need 6 data points?

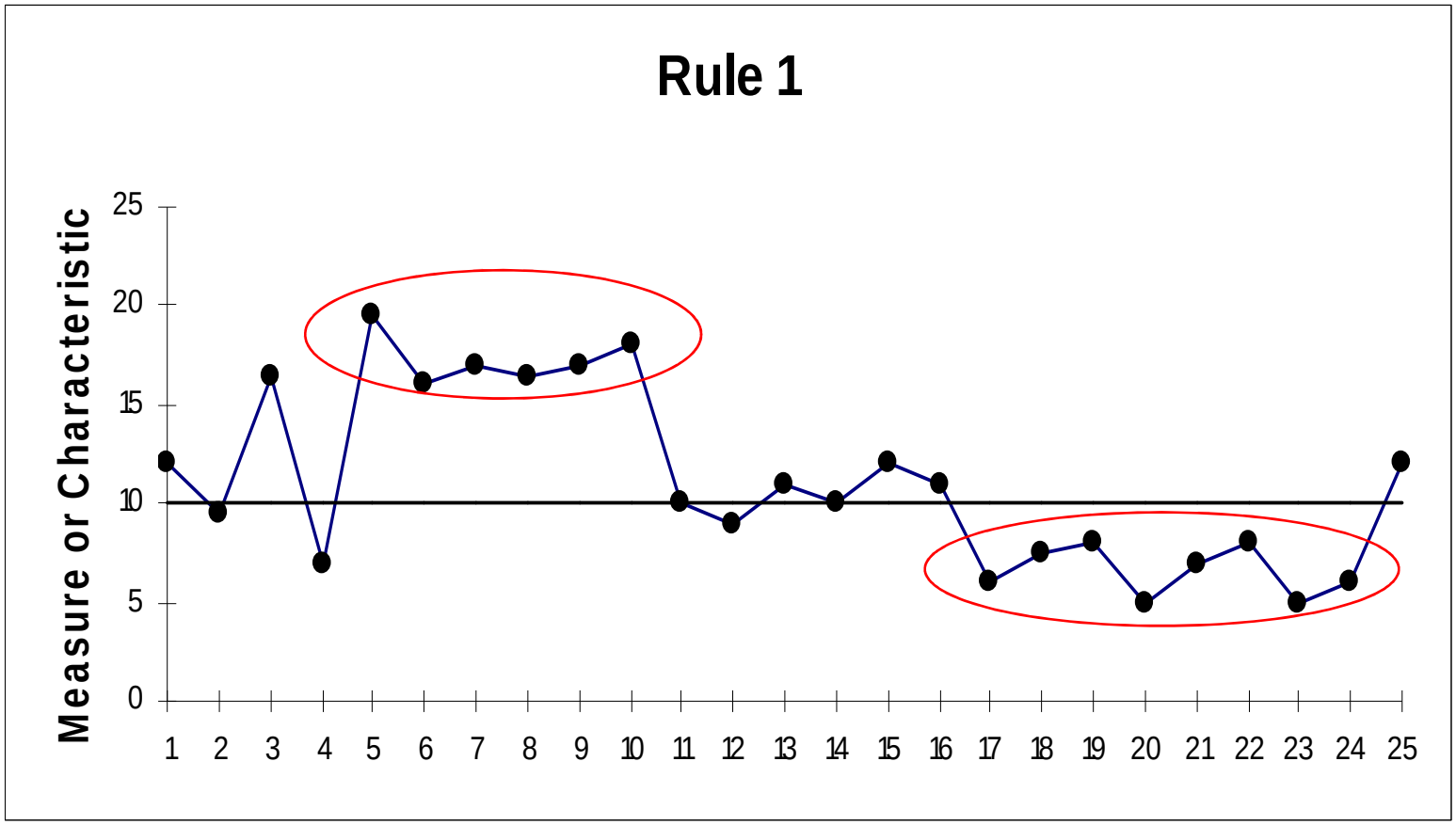
What is the probability of a coin landing heads or tails?



	.5
.5 x .5 =	.25
.5 x .5 x .5 =	.125
.5 x .5 x .5 x .5 =	.0625
.5 x .5 x .5 x .5 x .5 =	.03125
.5 x .5 x .5 x .5 x .5 x .5 =	.015625

Shift Rule: Six or more consecutive data points either all above or all below the median

(skip values on the median and continue counting data points. Values on the median DO NOT make or break a shift.)



Murray and Provost, 3 (11-15)

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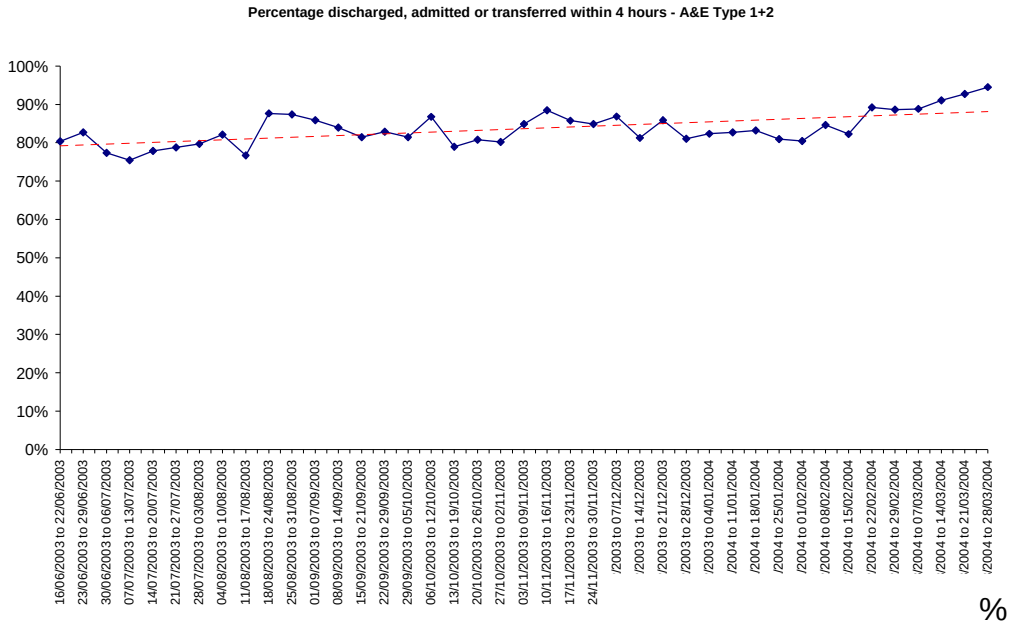
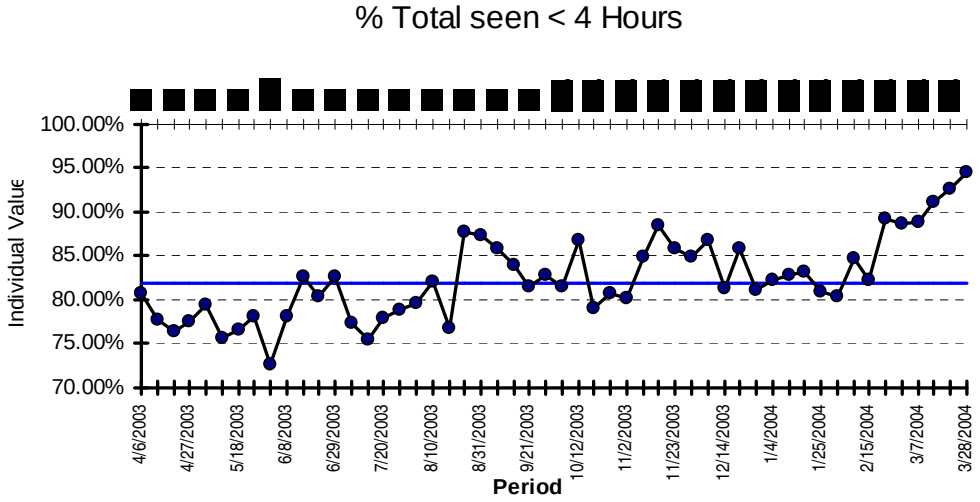
TREND?!



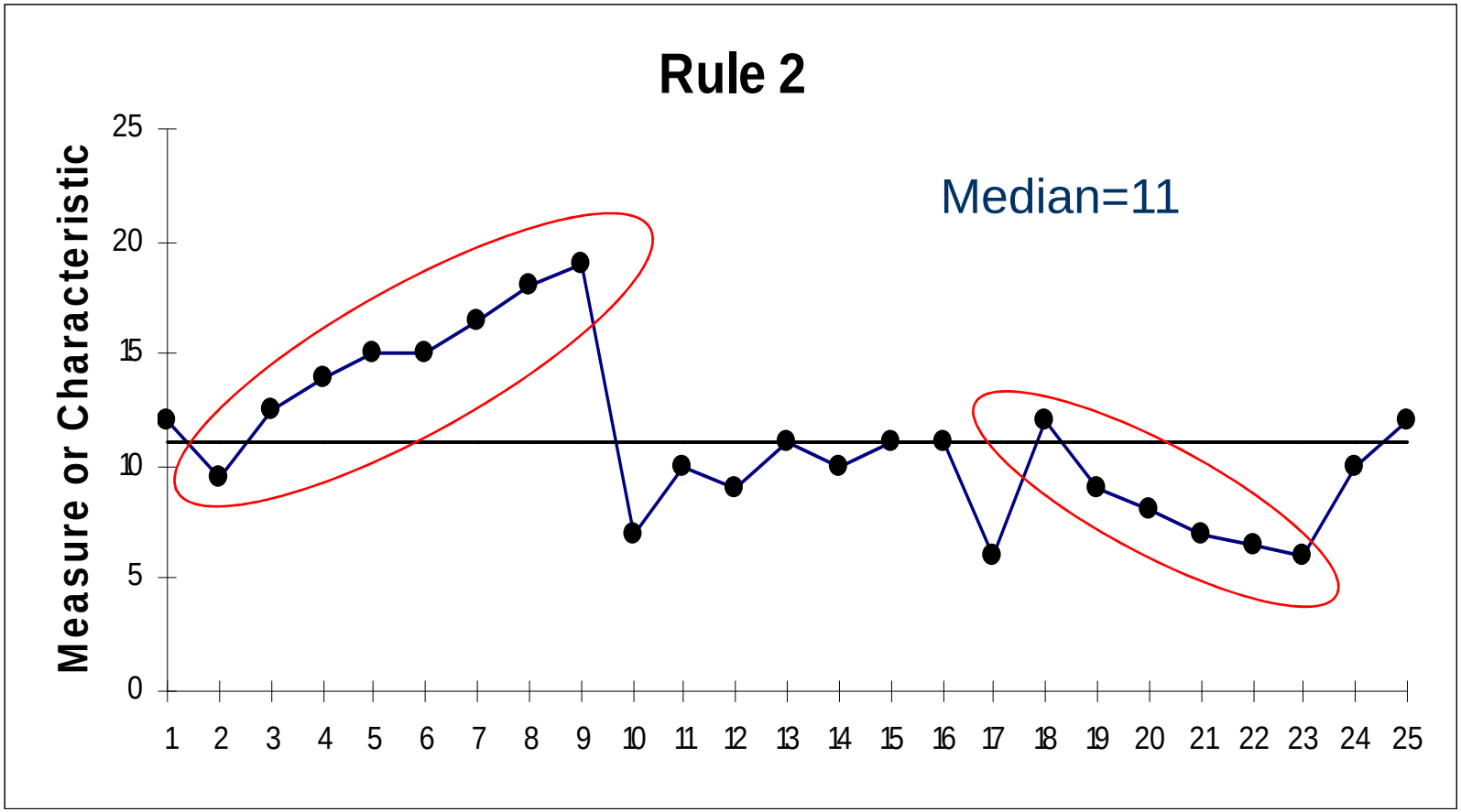
Five or more consecutive points All going up or down. If the value of two consecutive points is the same ignore one; like values do not break or make a trend

Are you sure?



Trend Rule: Five or more consecutive data points either all going up or all going down.

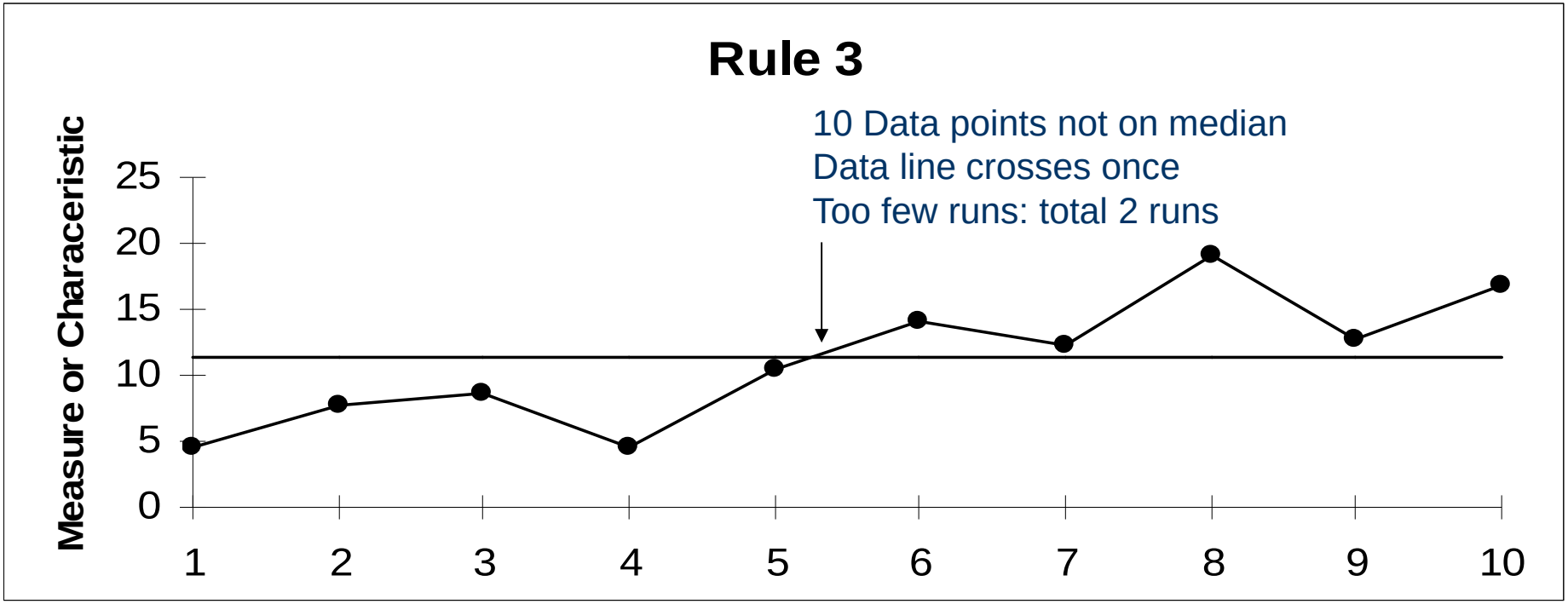
(If the value of two or more consecutive points is the same, ignore one of the points when counting; like values do not make or break a trend.)



Murray and Provost, 3 (11-15)

Run Rule: Too many or too few runs

(A run is a series of points in a row on one side of the median. Some points fall right on the median, which makes it hard to decide which run these points belong to. So, an easy way to determine the number of runs is to count the number of times the data line crosses the median and add one. Statistically significant change signaled by too few or too many runs).



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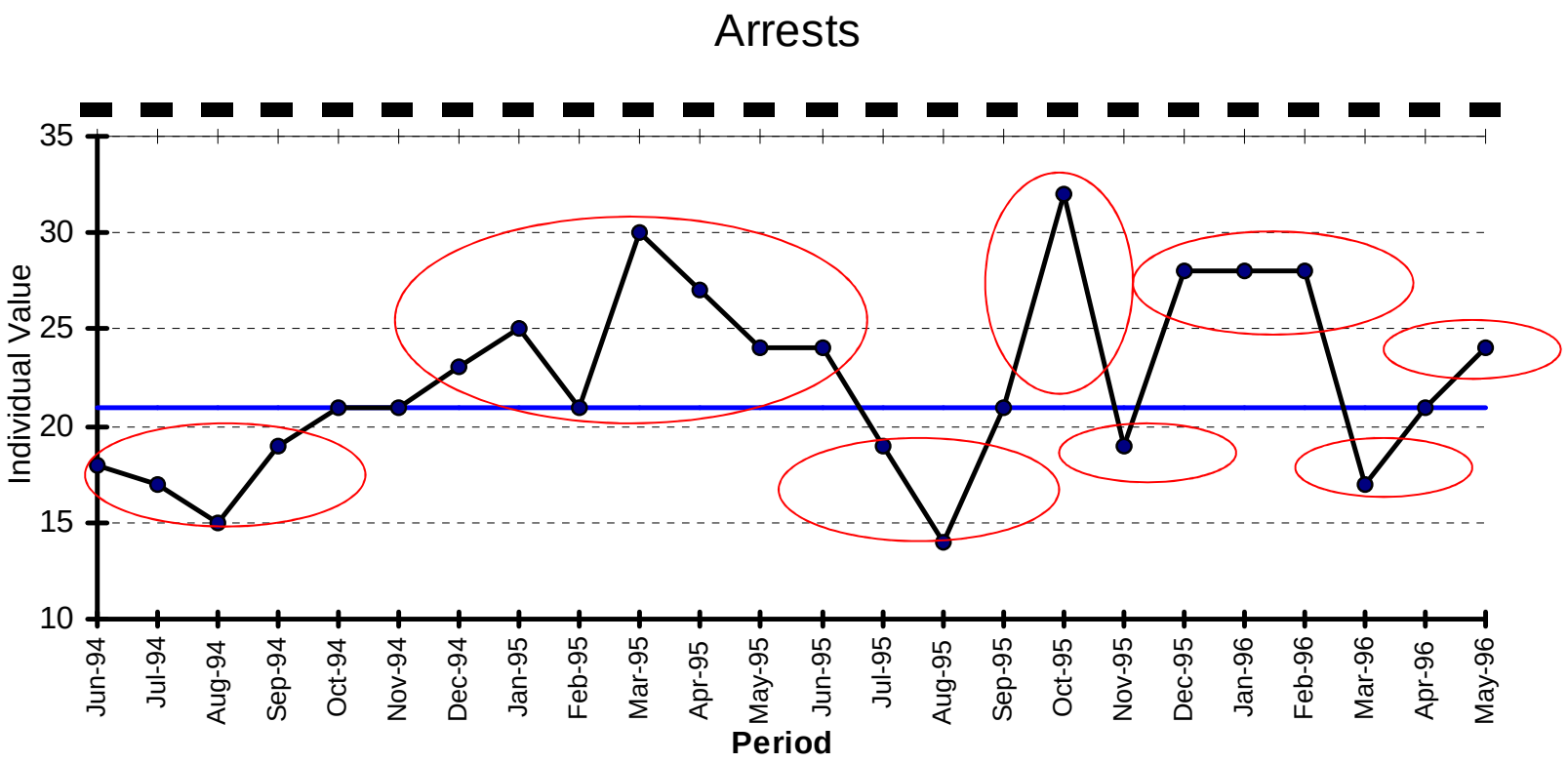
QA Report



- **No trends**
- **Runs: 4 (2 on median), 6 (1 on median), 2 (1 on median), 1, 1, 3, 1 (1 on median), 1**
- **No runs of length > 8**

Common cause

Run Rule Reference Table

Table for Checking for Too Many or Too Few Runs on a Run Chart

Total number of data points on the run chart *that do not fall on the median*	**Lower limit for the number of runs** **(< than this number of runs is "too few")**	**Upper limit for the number of runs** **(> than this number of runs is "too many")**
10	**3**	**9**
11	**3**	**10**
12	**3**	**11**
13	**4**	**11**
14	**4**	**12**
15	**5**	**12**
16	**5**	**13**
17	**5**	**13**
18	**6**	**14**
19	**6**	**15**
20	**6**	**16**
21	**7**	**16**
22	**7**	**17**
23	**7**	**17**
24	**8**	**18**
25	**8**	**18**

Table is based on about a 5% risk of failing the run test for random patterns of data.

Murray and Provost, 3 (11-15)

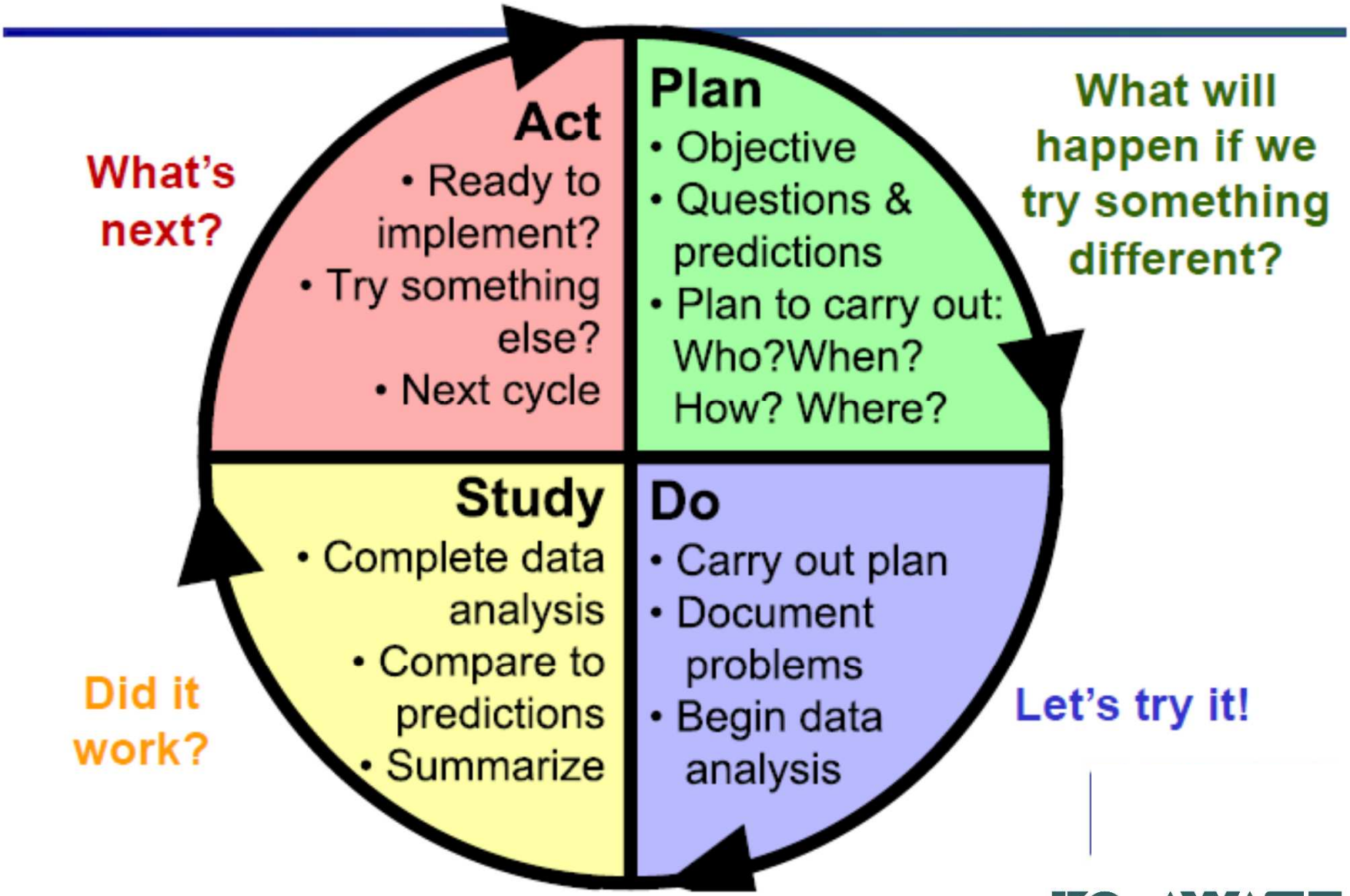
Adapted from Swed, Feda S. and Eisenhart, C. (1943). "Tables for Testing Randomness of Grouping in a Sequence of Alternatives. Annals of Mathematical Statistics. Vol. XIV, pp.66 and 87, Tables II and III.

Astronomical Data Point

(For detecting unusually large or small numbers: Data that is a Blatantly Obvious different value. Everyone studying the chart agrees that it is unusual. Remember: Every data set will have a high and a low – this does not mean the high or low are astronomical).

Murray and Provost, 3 (11-15)

The PDSA Cycle for Learning and Improvement



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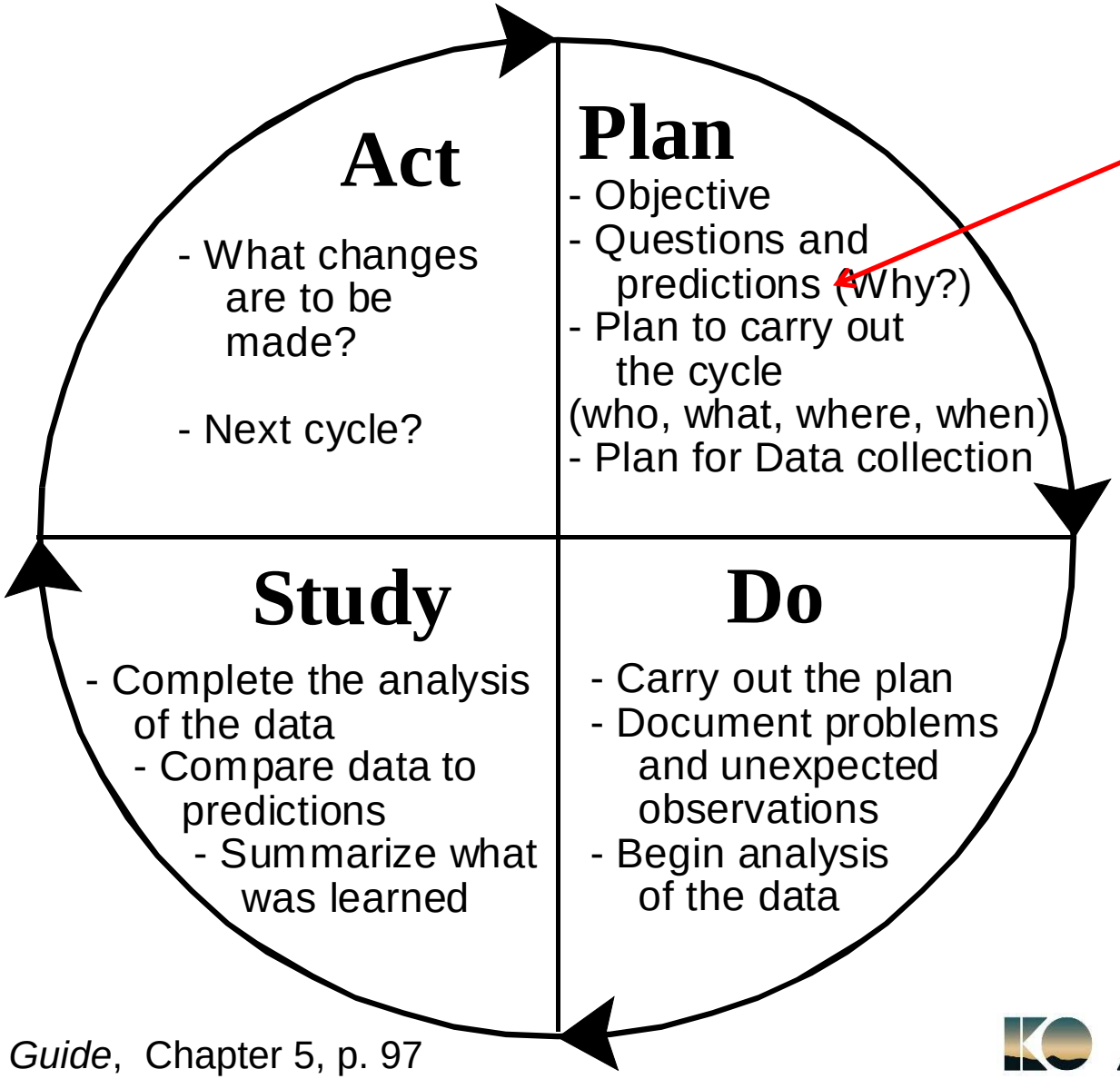
The Plan-Do-Study-Act Cycle



Most Important Part of a PDSA cycle

Because with out it we don't have a comparison for the purpose of learning -

Improvement Guide, Chapter 5, p. 97

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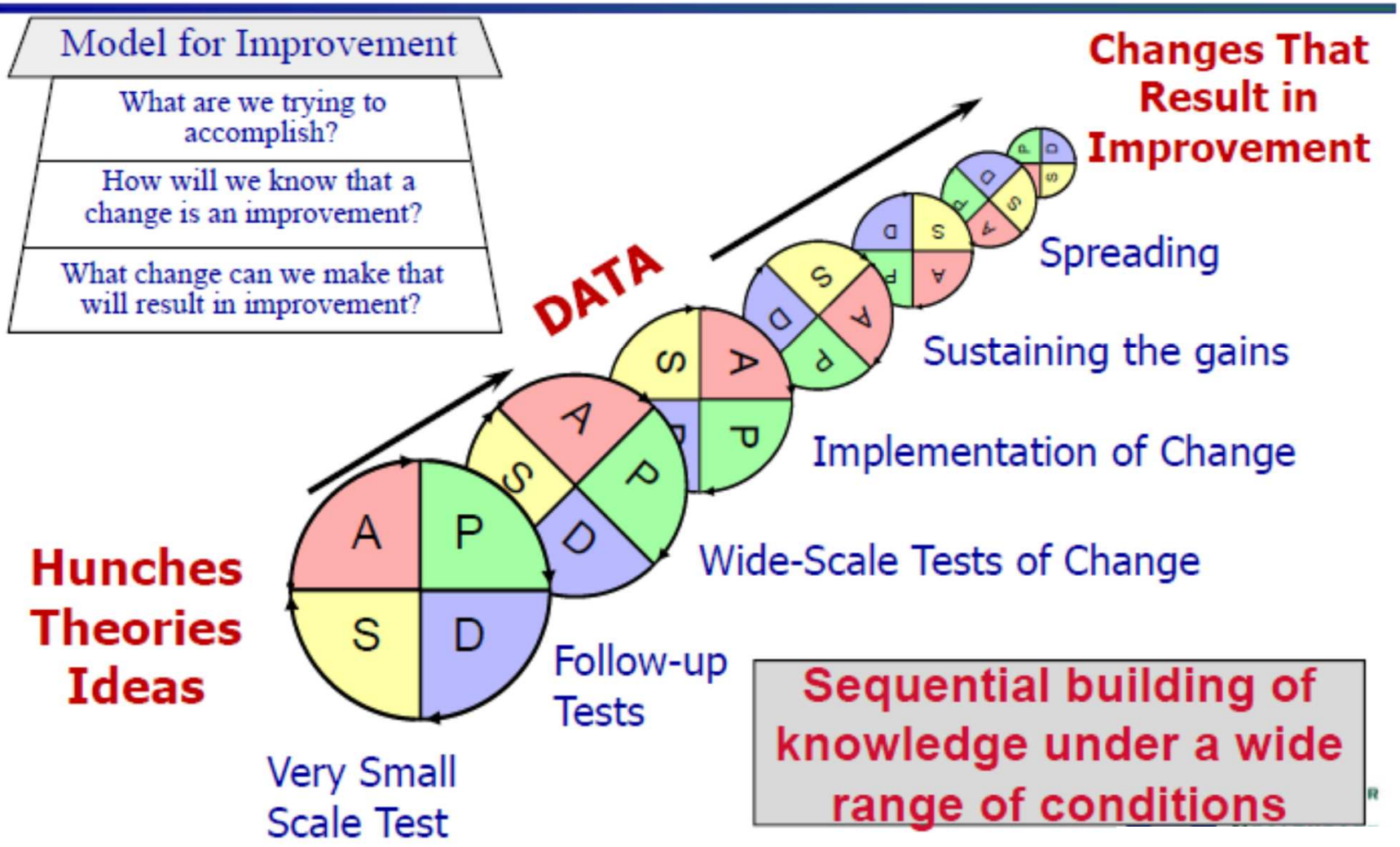
Why prediction?

- Prediction combined with a learning cycle interrogates our understanding of a system.
- It reveals gaps in our knowledge and provides us a starting place for growth.
- Without it our learning is accidental at best but with it we are able to direct our efforts toward building a more complete picture of how things work in the system.

Repeated Use of the PDSA Cycle for Testing



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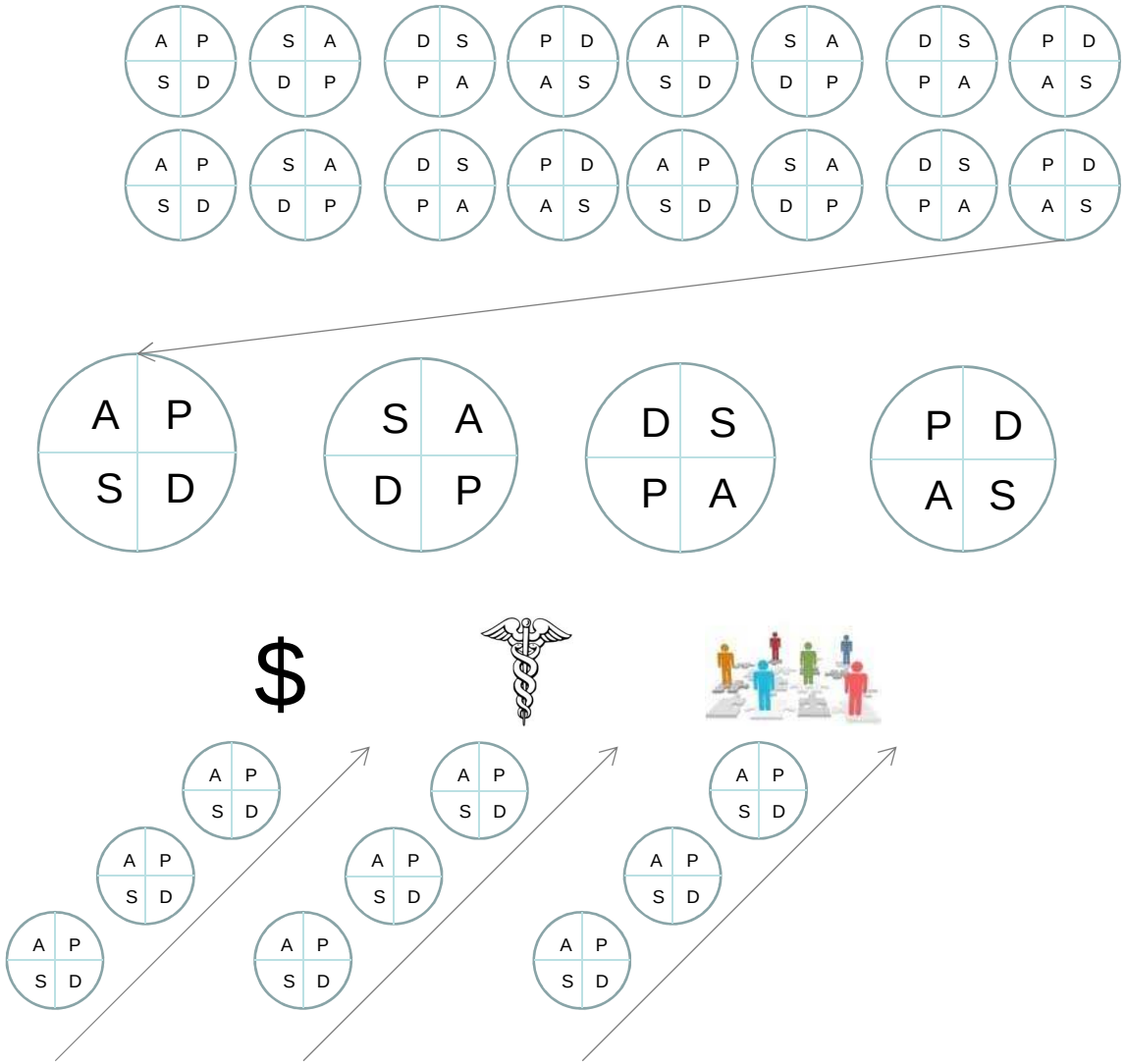
Scoping PDSA cycles

- Learn/Develop
  change ideas
- Test under multiple conditions
- Implement/make permanent



Appropriate Scope for a PDSA Cycle

Staff Readiness to Make Change

Current Situation		Resistant	Indifferent	Ready
Low Confidence that change idea will lead to Improvement	Cost of failure large	Very Small Scale Test	Very Small Scale Test	Very Small Scale Test
	Cost of failure small	Very Small Scale Test	Very Small Scale Test	Small Scale Test
High Confidence that change idea will lead to Improvement	Cost of failure large	Very Small Scale Test	Small Scale Test	**La**rge Scale Test
	Cost of failure small	Small Scale Test	Large Scale Test	**Implement**

Improvement Guide, pg 146

Uses of the MFI

- Developing a change – initial investigation and refinement in one setting
- Testing a change – checking the robustness of a change under multiple conditions and in multiple settings
- Implementation of a change – making a change, known to drive desired results, a permanent part of our system

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MFI for Implementation addresses

- **Standardization** – changing from what we currently do, all the time, to a new way of doing things, all the time (Policy and Procedure redesign)
- **Documentation** – job descriptions, data collection, etc.
- **Training** – Orientation of new employees – retraining of existing employees
- **Measurement** – how will information change in flow, monitoring and feedback
- **Resourcing** – procurement and logistics

Improvement Guide, chapter 8

Summary of Key Points

Model for Improvement

- What are we trying to accomplish? (the aim)
- How will we know the change is an improvement? (data)
- What change can we make that will result in an improvement? (theory of change)

The PDSA cycle

- Start small
- Build knowledge through sequential and rapid testing
- Test – Implement – Spread

Focus on the patient

Thank you

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