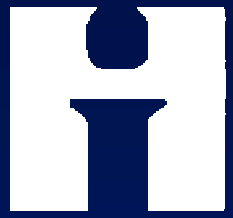

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The PDSA Cycle

Testing

Objectives

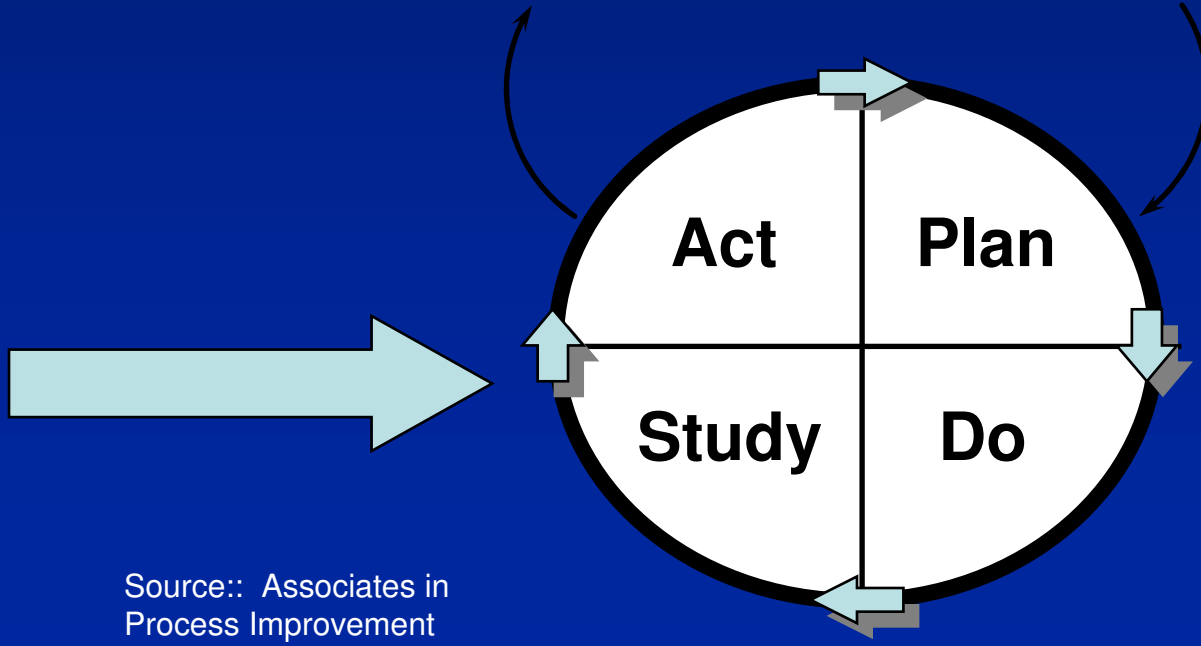
- Identify parts of a complete PDSA cycle
- Plan a test of change
- Identify ways to accelerate the rate of testing

Model for Improvement

What are we trying to accomplish?

How will we know that a change is an improvement?

What change can we make that will result in improvement?



Source:: Associates in Process Improvement

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The PDSA Cycle
Four Steps: Plan, Do, Study, Act

Also known as:

- Shewhart Cycle
- Deming Cycle
- Learning and Improvement Cycle

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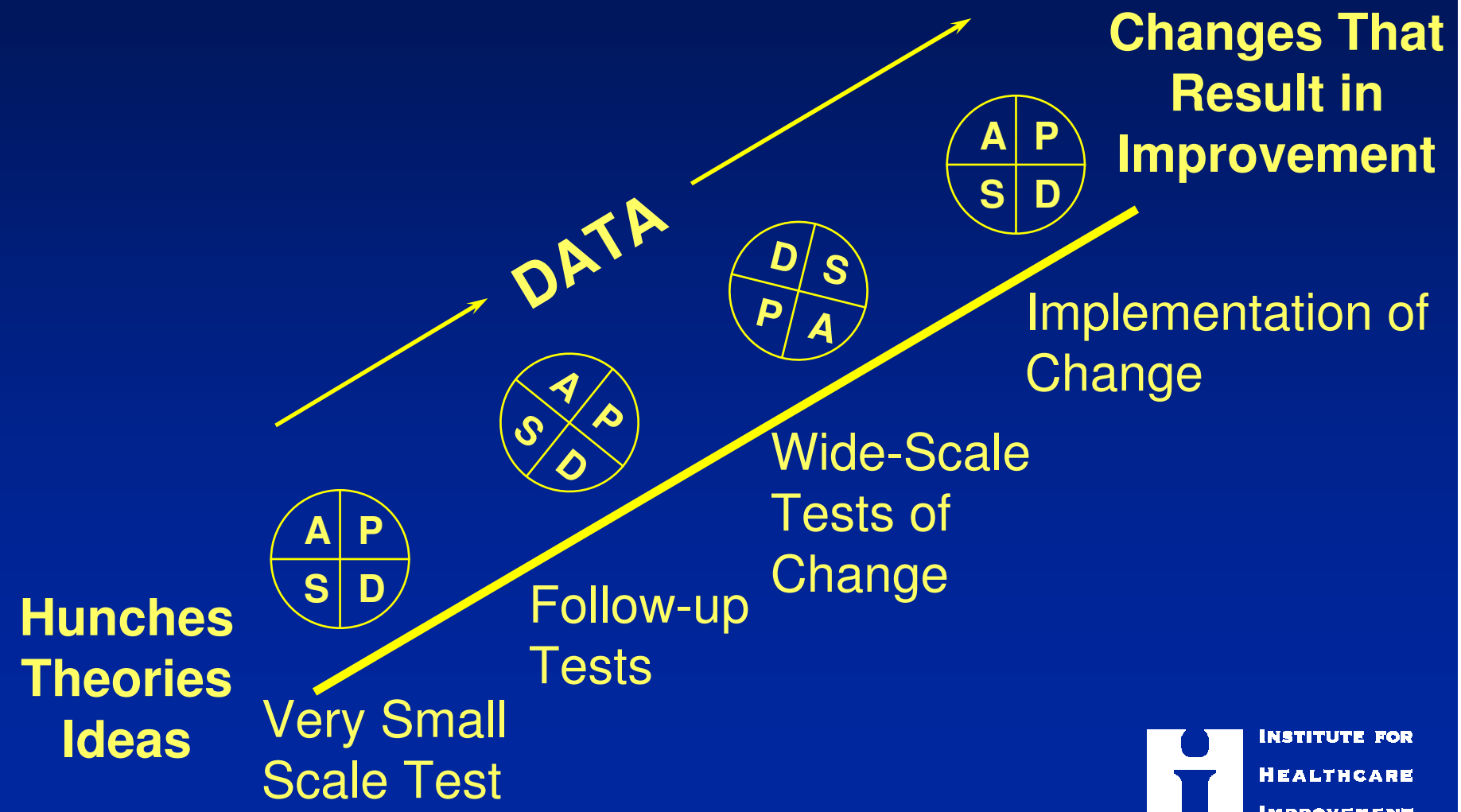
Principles for Testing a Change

- Principle 1: Build knowledge sequentially
  - Test on a small scale
  - Use multiple cycles
- Principle 2: Increase the ability to predict from the results of the test
  - Collect data over time
  - Test under a wide range of conditions

IG: p.106

Repeated Use of the PDSA Cycle



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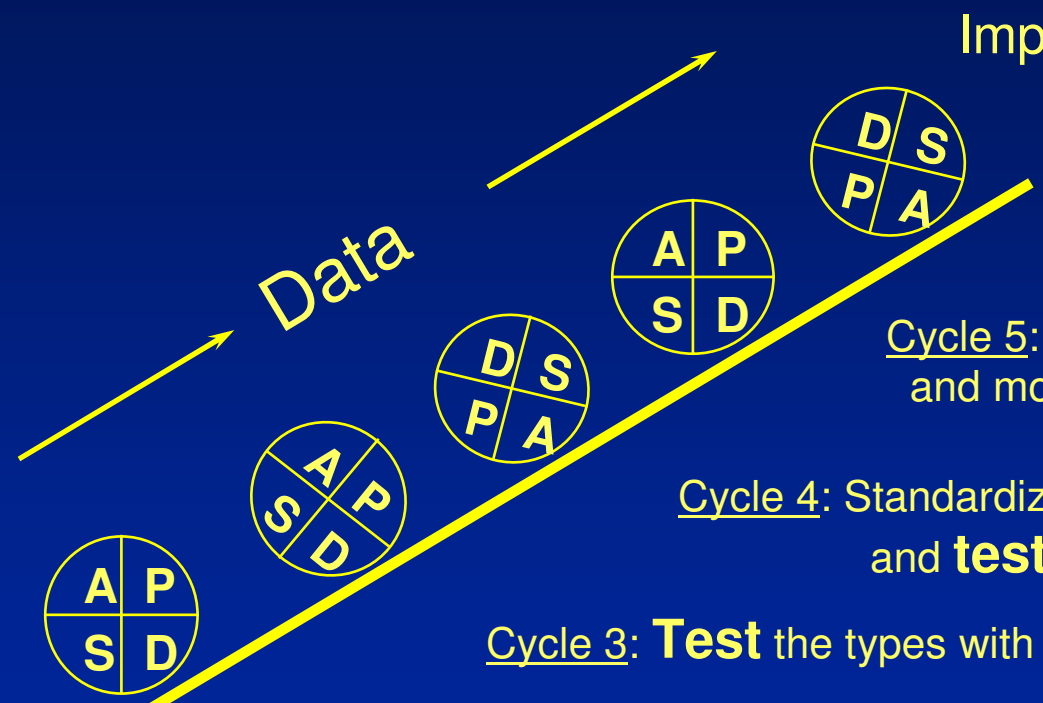
Series of PDSA Cycles to Improve Access



Cycle 5: Implement standards and monitor their use

Cycle 4: Standardize appointment types and **test** their use

Cycle 3: **Test** the types with 1-3 MDs' patients

Cycle 2: Compare requests for the types for one week

Cycle 1: Define a small number of appointment types and **test** with staff

Reduction of appointment types will increase appointment availability

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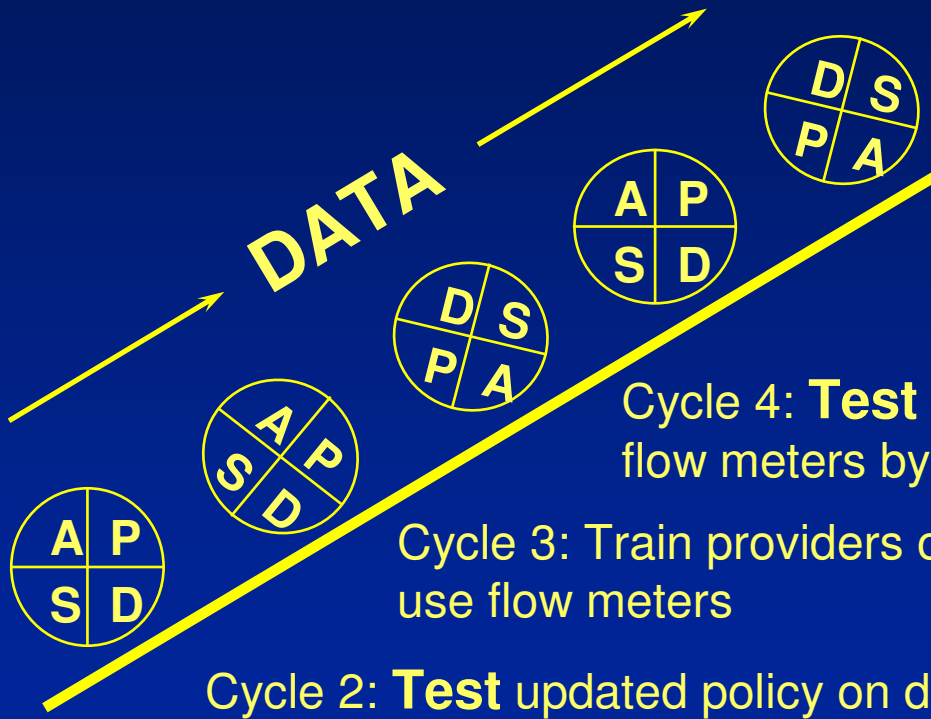
Series of PDSA Cycles to Improve Routine Assessment & Care of High-risk Asthma Patients



Routine use of flow meters by high-risk patients

Cycle 5: Monitor communication and use of flow meters with high-risk patients

Cycle 4: **Test** understanding of use of flow meters by patients

Cycle 3: Train providers on teaching patients to use flow meters

Cycle 2: **Test** updated policy on distribution of flow meters

Cycle 1:**Test** communication on use of flow meters with providers

Peak flow meters for high-risk patients

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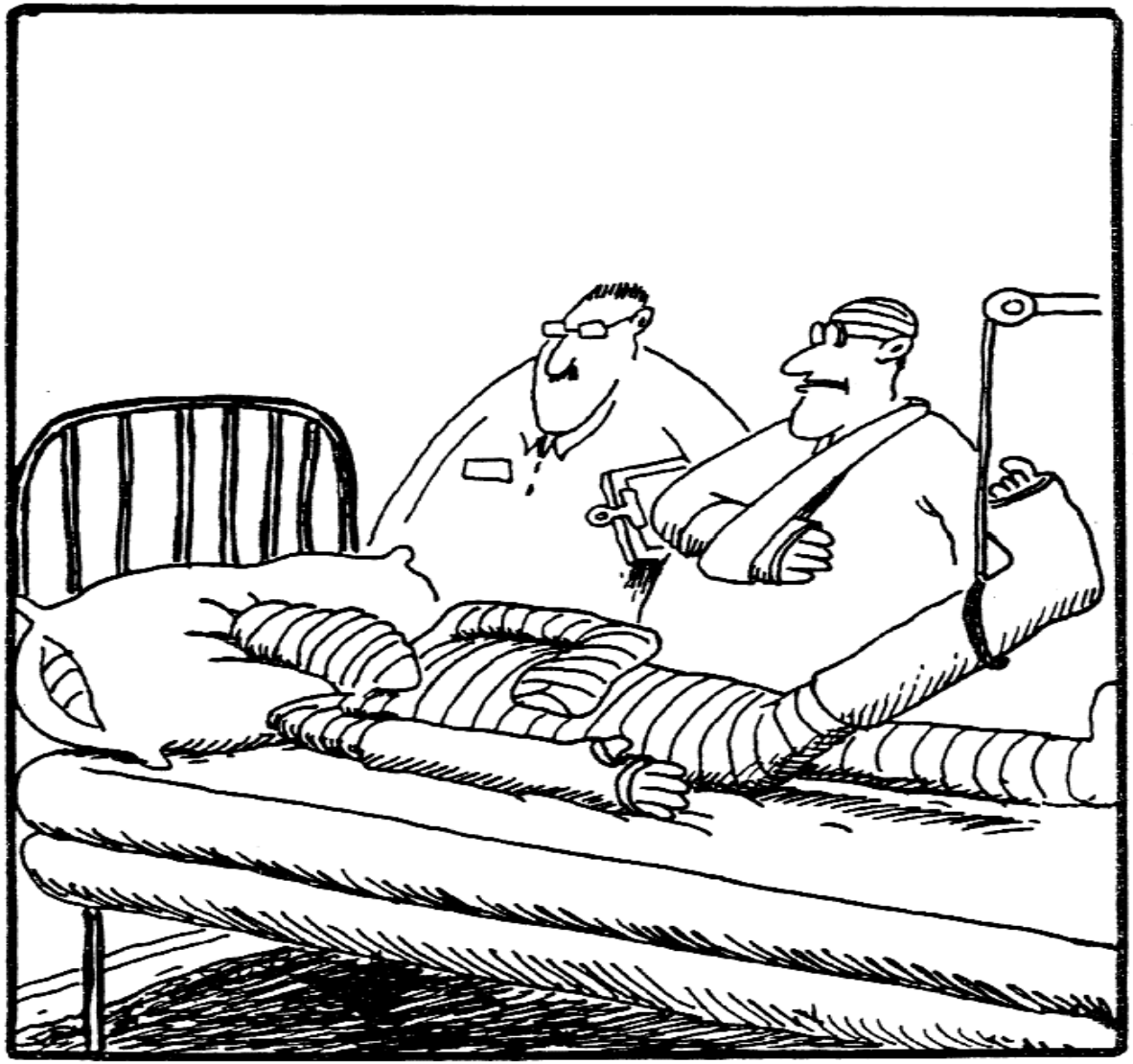
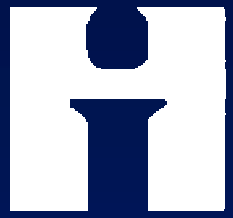
Why Test?

New concept for many teams:

- **Increase belief that the change will result in improvement**
- **Document how much improvement can be expected from the change**
- **Learn how to adapt the change to conditions in the local environment**
- **Minimize resistance upon implementation**
- **Evaluate costs and side-effects of the change**



"So there he was — this big gorilla just laying there. And Jim says, 'Do you suppose it's dead or just asleep?'"



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Model for Improvement Exercise

The Sequence Exercise

- What rule generated the sequence?
- What tests should we run?
- How will we know if we have succeeded?
- How do we learn?

What Did We Learn?

- We want failures during testing…not during implementation!!
  - We want to learn reasons for failed tests
    - Change not executed well - or at all!
    - Support processes inadequate
    - Hypothesis/hunch wrong:
      Change didn't result in local improvement
      Or local improvement didn't impact global measures
- Need to collect data while testing so can differentiate
- Sharing saves time!

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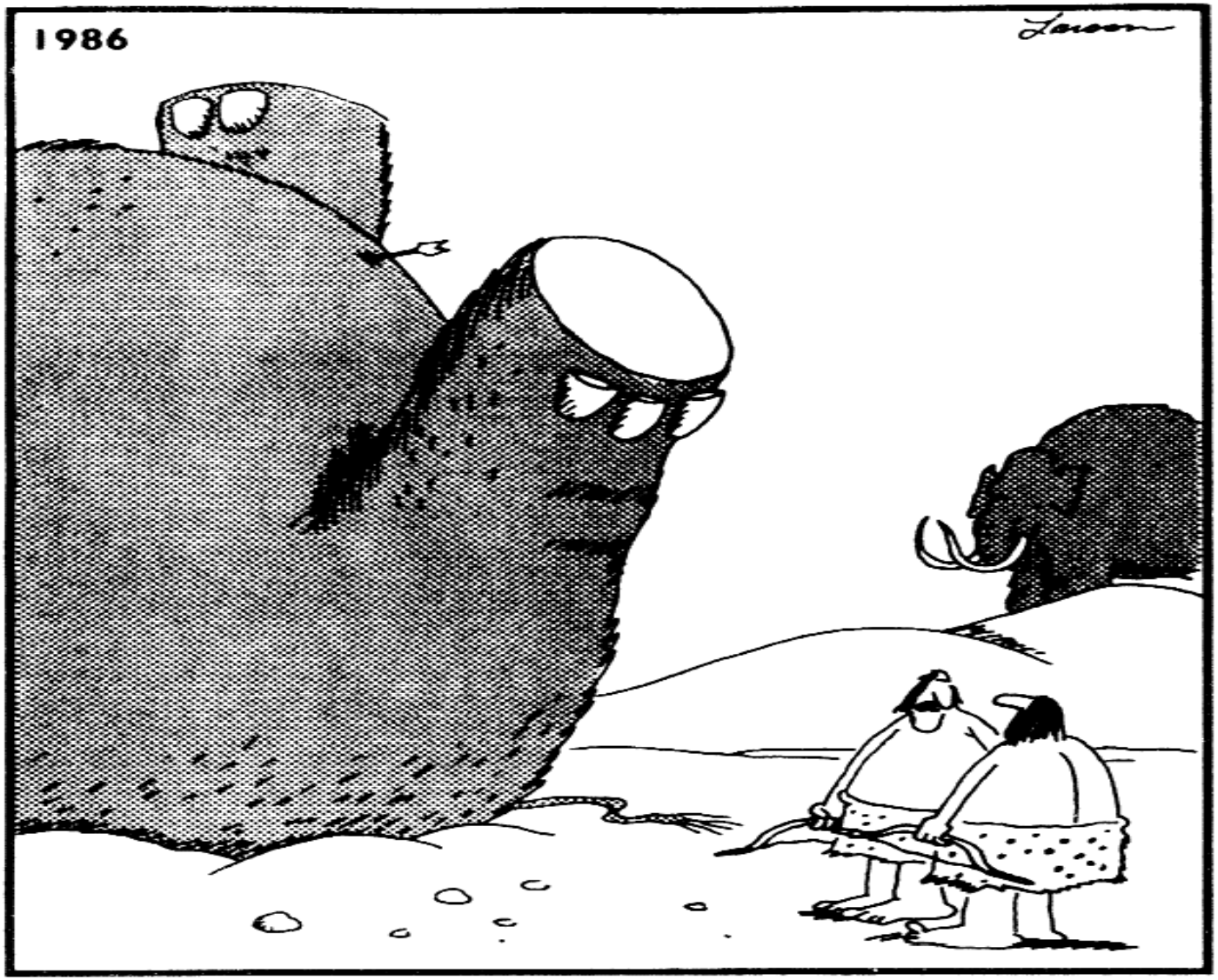


"Maybe we should write that spot down."

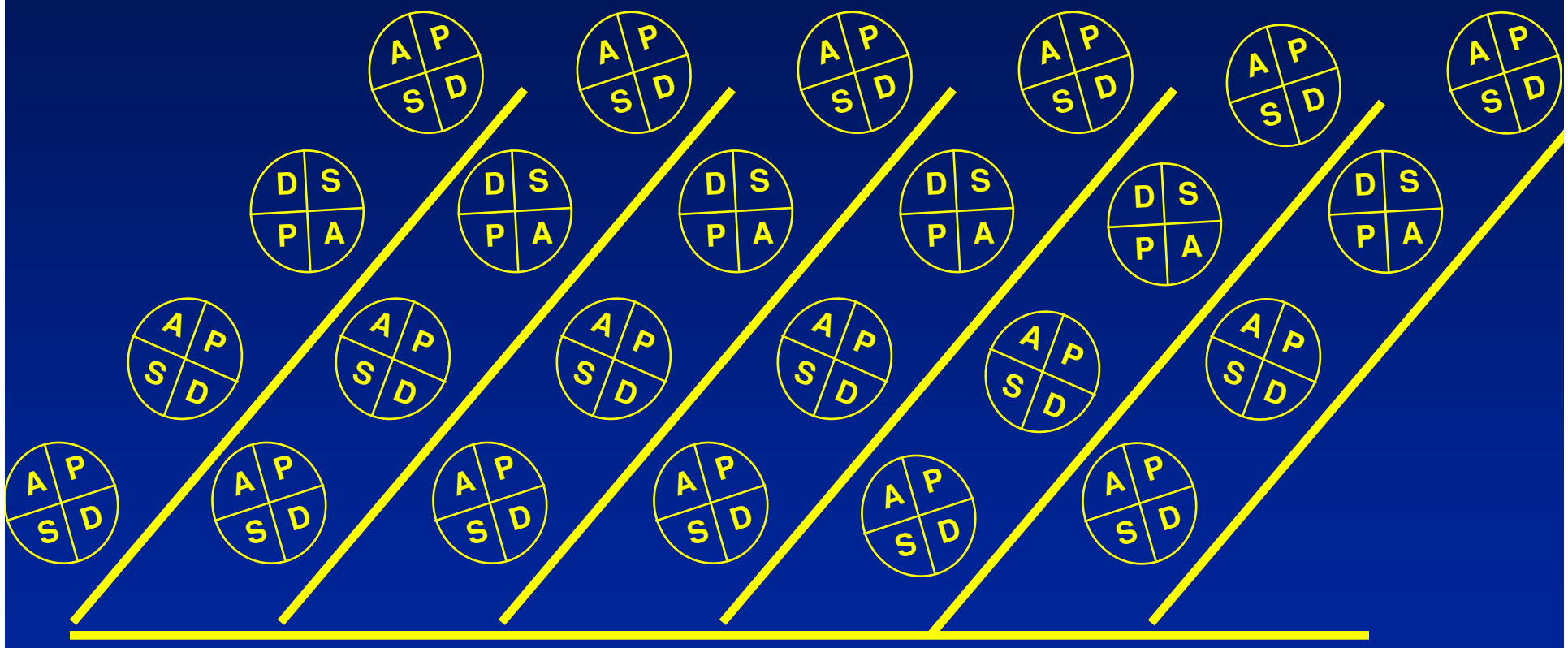
Application of the PDSA Cycle

- Planning requires prediction
- Prediction requires a theory
- A single observation may require us to modify our theory
- Multiple PDSA cycles can accelerate the learning process
- Choice of plan depends on our “degree of belief” about the change

Techniques to Accelerate Testing

- **Plan multiple cycles for a test of a change**

Concept Design to Implement the CCM for a Specific Chronic Population



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Techniques to Accelerate Testing

- **Plan multiple cycles for a test of a change**
- **Think a couple of cycles ahead**
- **Initially, scale down size of test (# of patients, location)**

"Okay, okay, okay . . . Everyone just calm down and we'll try this thing one more time."

Decrease the Time Frame for a PDSA Test Cycle

- **Years**
- **Quarters**
- **Months**
- **Weeks**
- **Days**
- **Hours**
- **Minutes**

Drop down next "two levels" to plan Test Cycle!

Techniques to Accelerate Testing

- **Plan multiple cycles for a test of a change**
- **Think a couple of cycles ahead**
- **Initially, scale down size of test (# of patients, location)**
- **Test in parallel rather than sequentially**
- **Test with volunteers**
- **Do not try to get buy-in or consensus for test cycles**
- **Be innovative to make test feasible**
- **Collect useful data during each test**

Early experiments in transportation

Measurement and Data Collection During PDSA Cycles

- **Collect *useful* data, *not perfect* data - the purpose of the data is learning, not evaluation**
- **Use a pencil and paper until the information system is ready**
- **Use sampling as part of the plan to collect the data**
- **Use qualitative data (feedback) rather than wait for quantitative**
- **Record what went wrong during the data collection**

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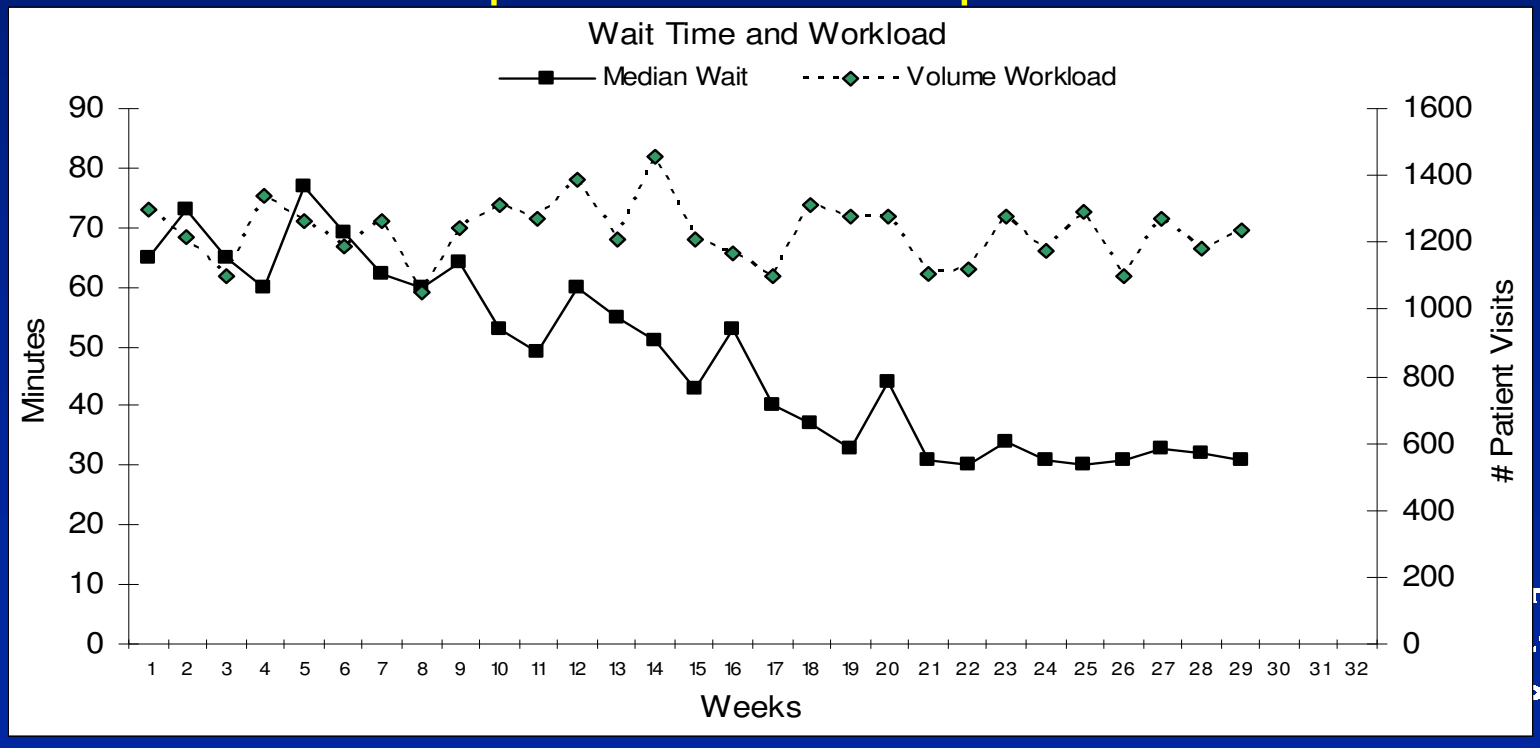
Test Under Wide Range of Conditions

- **Purposefully test the changes under a wide range of conditions (robust design)**
  - **Day shift/night shift**
  - **Weekdays/weekends**
  - **Regular staffing/short staffed**
  - **Experienced/ inexperienced staff**

Improving Our Confidence In The Test

- Remove change, then reintroduce
- Stagger change in multiple time series
- Add a control group
- Document rival explanations for improvement



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Remember!

- Small tests
- Quick tests
- Test now (versus waiting to get it right)
- Test failures (the null hypotheis)
- Consensus (Ba Hum Bug)
- Don’t confuse tasking with testing
- Testing is a team sport! Enjoy it!