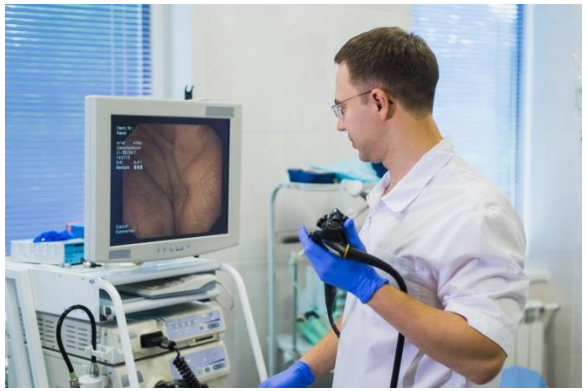
Introduction to Colonoscopy Quality Improvement

New York City Department of Health and Mental Hygiene
New York Citywide Colon Cancer Control Coalition



New York Citywide Colon Cancer Control Coalition

NYC Health

About This Presentation

- Target Audience
  - Gastroenterologists and trainees
  - Allied health professionals specializing in endoscopy
- Objectives
  - Engage physicians and staff in a conversation about use of quality improvement methods
  - Develop and implement activities to improve practice performance and patient outcomes

Colonoscopy Quality Improvement Toolkit Origins

- From 2011 – 2015, 260 New York City (NYC) endoscopists practicing at 21 ambulatory surgical centers submitted data for more than 95,000 colonoscopies to the New York City Health Department.
- Health Department program staff analyzed these data and disseminated performance reports.
- The Health Department piloted educational strategies focused on quality improvement (QI) methods and surgical technique to support improvement.
- This toolkit shares lessons learned and tools developed during that initiative.

Acknowledgements

- This presentation was developed by the following group of experts in colorectal cancer (CRC) screening:
  - **Benjamin Lebwohl, MD**. Assistant Professor of Medicine and Epidemiology, Celiac Disease Center; Director of Quality Improvement, Division of Digestive and Liver Diseases, Columbia University
  - **Brett Bernstein, MD**. Medical Director of Eastside Endoscopy, Assistant Professor and Chief of the Division of Gastroenterology, Mount Sinai Beth Israel
  - **Elaine Fleck, MD**. Associate Professor of Clinical Medicine, Columbia University Medical Center
  - **Joslyn Levy & Associates (JLA),** Quality Improvement consulting firm
- This presentation was developed with support from the New York City Health Department

What Is Quality Improvement (QI)?

- Implementing systematic changes that lead to measurable improvement in reducing the practice gap by:
  - Understanding how the gap between current practices and best practices impacts variation in performance
  - Setting measurable improvement goals for closing the practice gap
  - Changing individual knowledge and behavior as well as the care delivery system to achieve intended results

Langley GJ, *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition)*. 2009.
Institute for Healthcare Improvement. *How to improve (Model for Improvement).* 2015.

Why Engage in QI activities?

The American Journal of Gastroenterology

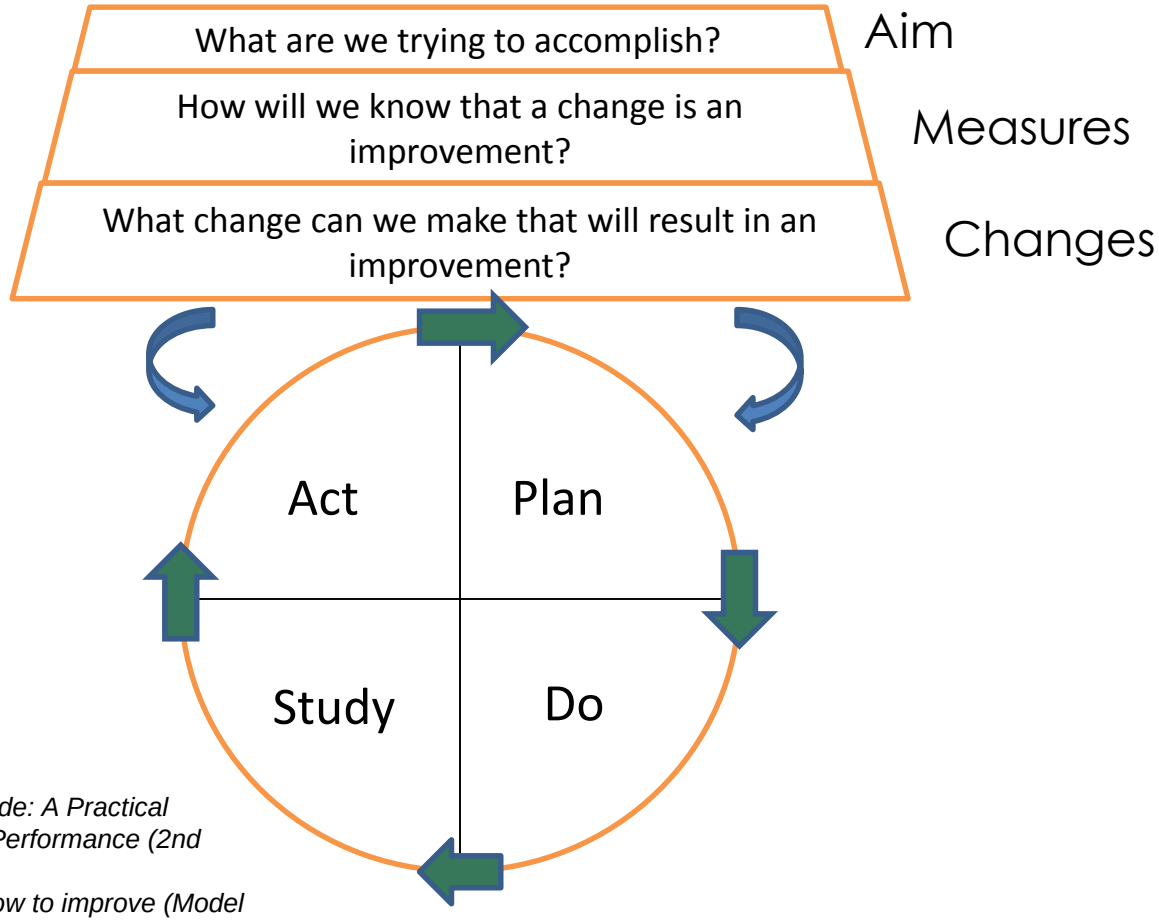
Quality Indicators for Colonoscopy

Douglas K Rex MD; Philip S Schoenfeld MD, MSEd, MSc (Epi); Jonathan Cohen MD; Irving M Pike MD; Douglas G Adler MD; M Brian Fennerty MD; John G Lieb MD; Walter G Park MD, MS; Maged K Rizk MD; Mandeep S Sawhney MD, MS; Nicholas J Shaheen MD, MPH; Sachin Wani MD; David S Weinberg MD, MSc

"The performance of a high quality colonoscopy and its documentation in a quality improvement program is the most important role of the colonoscopist in the multi-specialty effort to reduce CRC incidence and mortality."

Rex DK, et al. *The American Journal Of Gastroenterology.* 110:72-90. 2015.

Model for Improvement



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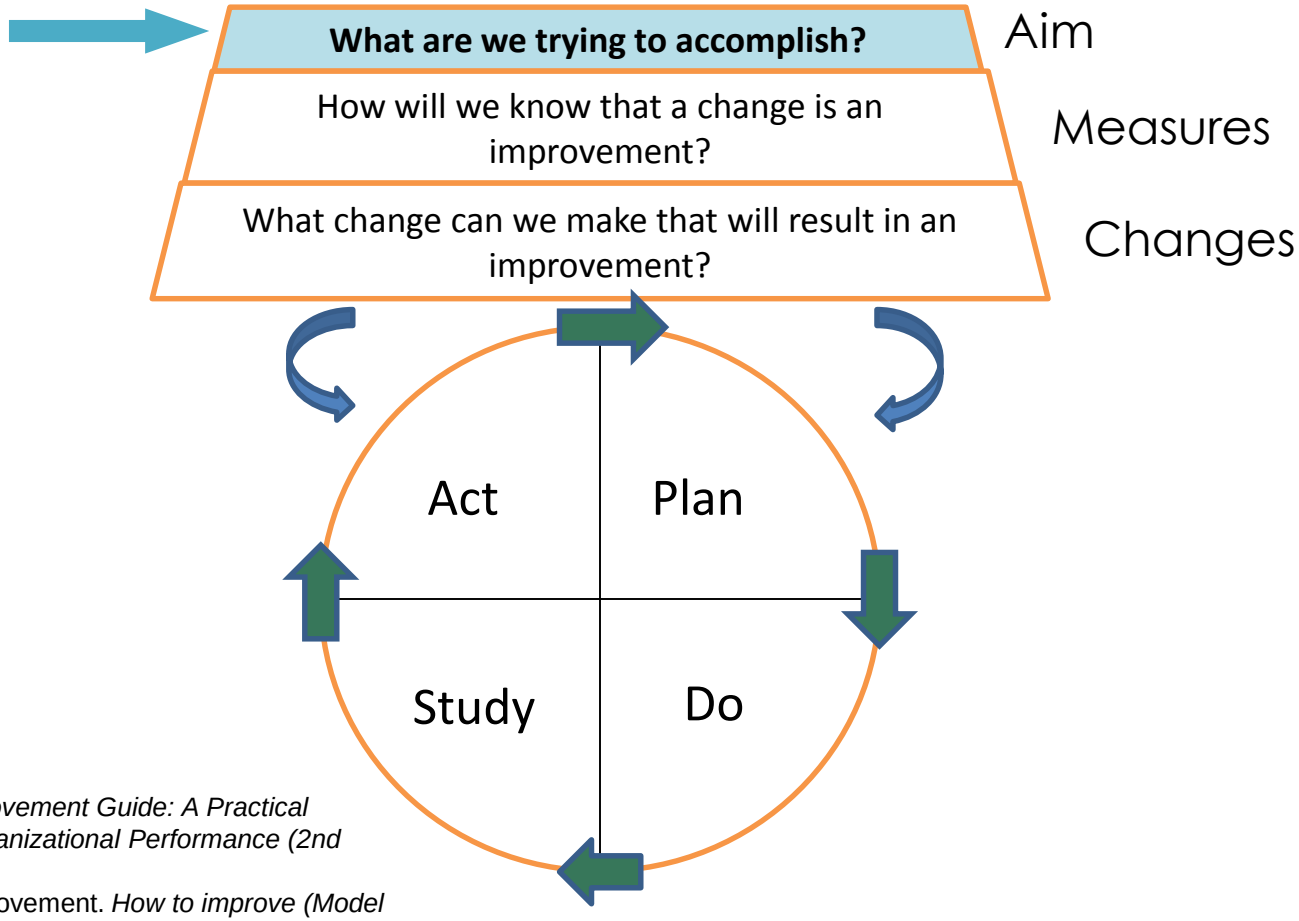
Model for Improvement: Aim



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Why Create an Aim Statement?

- Creates a shared language to communicate about the QI project
- Provides a commitment to achieve measurable improvement in your system within a definite timeline and with numeric goals
- Clarifies and sets expectations for your accomplishments

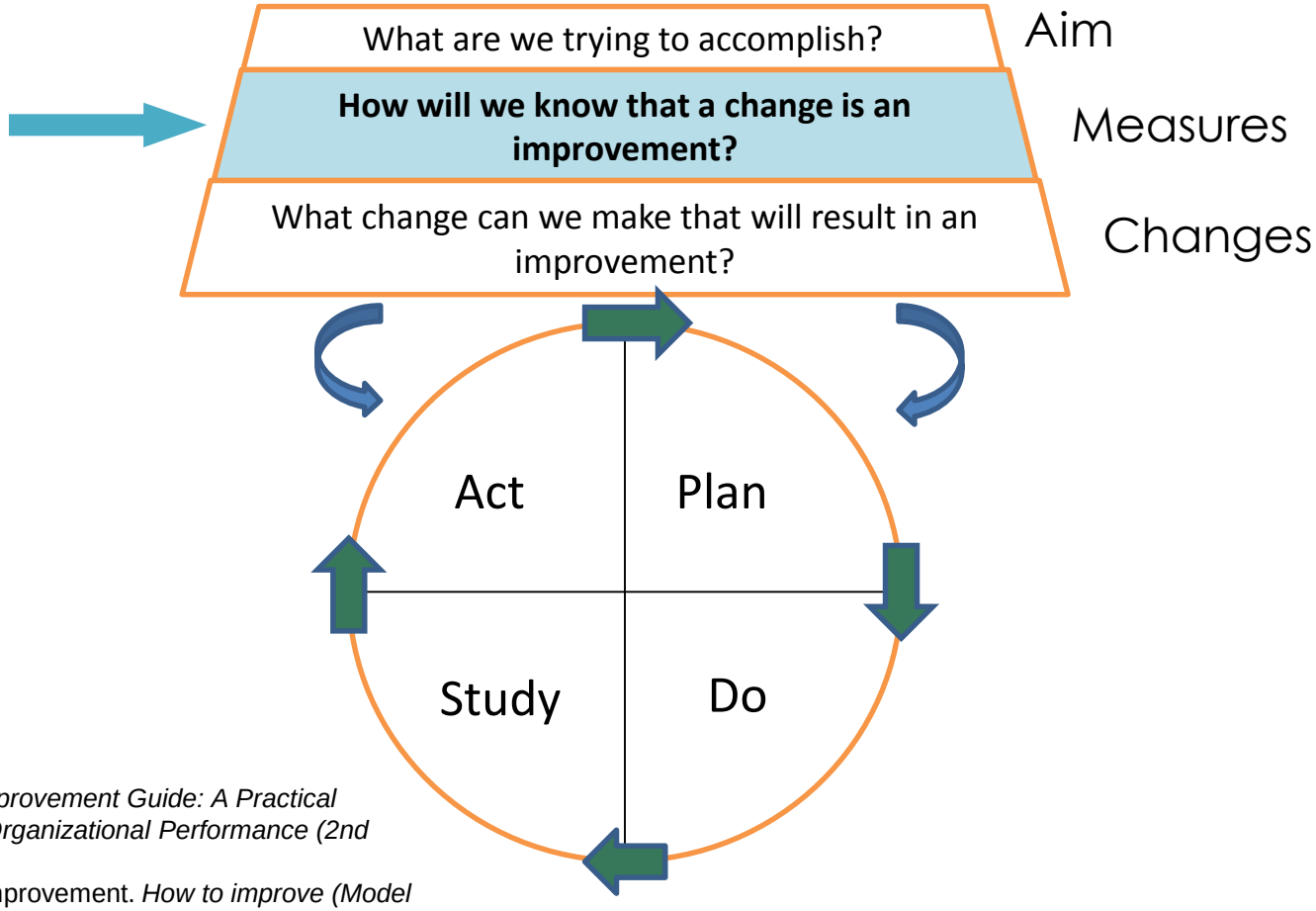
A Good Aim Statement Is “SMAART”

- S → Specific
- M → Measurable
- A → Actionable
- A → Achievable
- R → Relevant
- T → Time-bound

Example Aim Statement: Screening Colonoscopy

- Our center will take steps to improve the quality of screening colonoscopy procedures for asymptomatic, average-risk patients so that by December 2018 our practice will achieve:
  - Cecal intubation with photography rate ≥ 95%
  - Adequate bowel preparation rate ≥ 85%
  - Adenoma detection rate (ADR) ≥ 30% in men and ≥ 20% in women
  - Repeat colonoscopy in < 10 years after a normal examination rate < 20%

Model for Improvement: Measures



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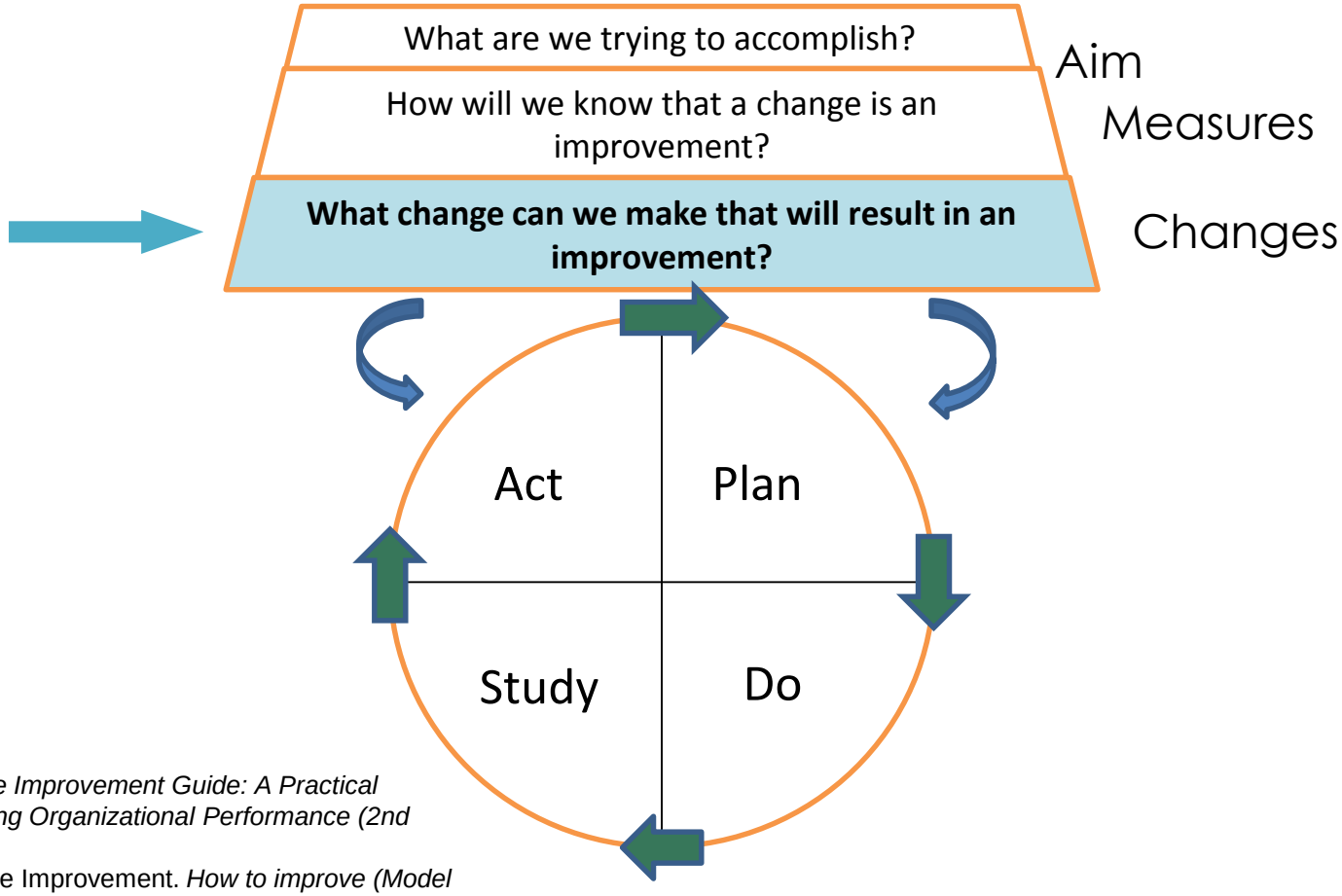
How Will We Know a Change Is an Improvement?

- Improvement is about making changes to systems, not measurement. Just measuring doesn't count as improvement. But measurement plays an important role.
  - Key measures are required to assess progress on team's aims
  - Specific measures are needed to assess whether the system as a whole is being improved
  - Data from the system (including patients and staff) can be used to focus improvement and refine changes

Example Measures: Adequate Bowel Preparation

- Process measures
  - Percent of patients receiving split-dose bowel prep instructions
  - Percent of patients offered split-bowel preparation unless contraindicated
- Outcome measures
  - Percent of patients electing split-bowel preparation
  - Percent of all patients with optimal bowel preparation
  - Number of repeat colonoscopies due to inadequate bowel preparation
- Balancing measures
  - Patient satisfaction with split-dose preparation

Model for Improvement: Changes



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Model for Improvement: Changes

- Changes for improvement should be based on:
  - Available evidence
    - Primary sources
    - Guidelines issued by professional organizations
    - Successes of other organizations
  - Experiences of experts in the field
  - Knowledge and creativity of front line workers and patients
    - Identify a process that everyone is excited about
    - Identify a process that bothers everyone
    - Identify bottle necks in a process
    - Ask the patient and family members

From Change Concepts to Ideas for Change

Vague, Strategic, Conceptual

↓

Specific Ideas, Actionable Result

Make an improvement in colonoscopy quality by improving bowel preparation

↓

Improve bowel preparation quality

↓

Recommend evidence-based split-dose bowel preparation

↓

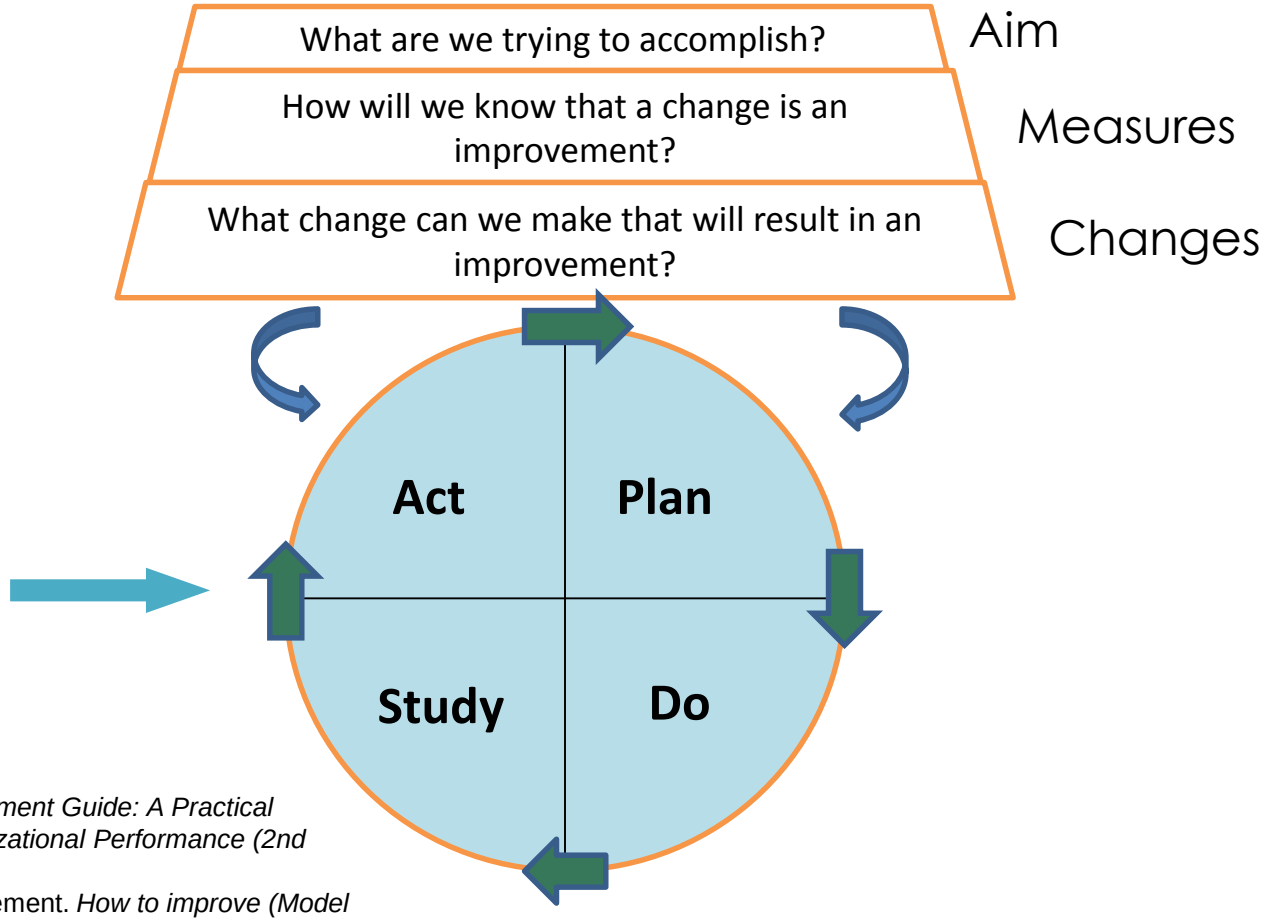
Standardize patient education for split-dose bowel preparation
Deliver provider education for split-dose bowel preparation

Langley GJ, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition)*. 2009.

Example Changes: Split-Dose Bowel Preparation

GOAL: Assure optimal patient bowel preparation	
Change concepts	**Ideas for change**
Offer most effective bowel preparation method	• Adopt split-dose bowel preparation as the default evidence-based choice and offer alternative when appropriate
Use linguistically and culturally appropriate multi-modal preparation instructions	• Train preparation counselors/staff (at private offices and centers) • Update bowel preparation instruction educational materials including link to instructional video • Make a follow-up call to patient the day before procedure
Engage in individualized problem-solving with patients	• Assess and address patient learning needs and barriers to preparation
Adopt endoscopy suite standards	• Set clear expectations, policies, procedures and workflows • Review the literature and recommendations on split-dose bowel preparation methods as best practice with providers and staff • Teach staff goal setting techniques they can use to help patients to anticipate and address barriers to effective preparation

Model for Improvement: PDSA Cycle



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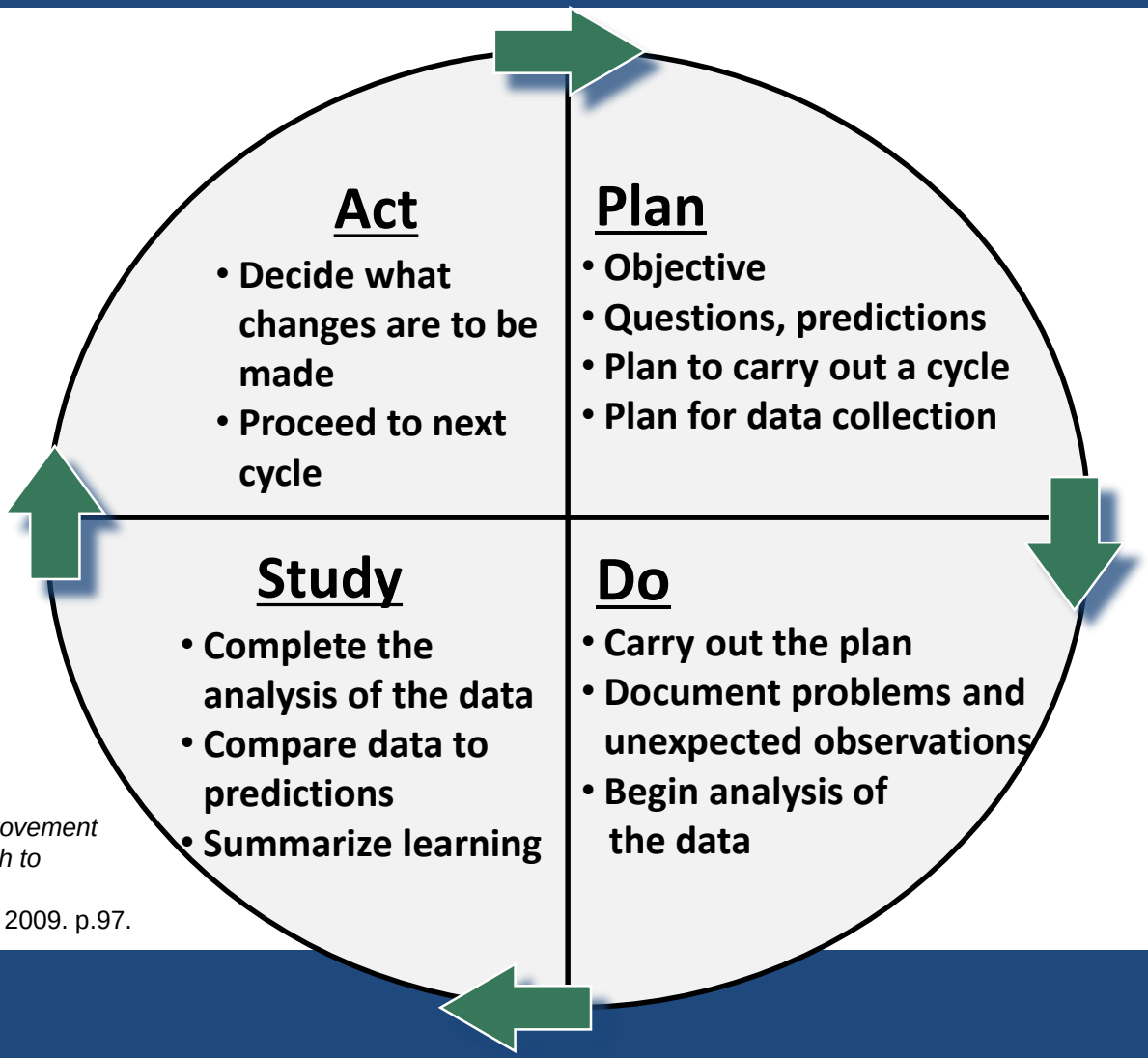
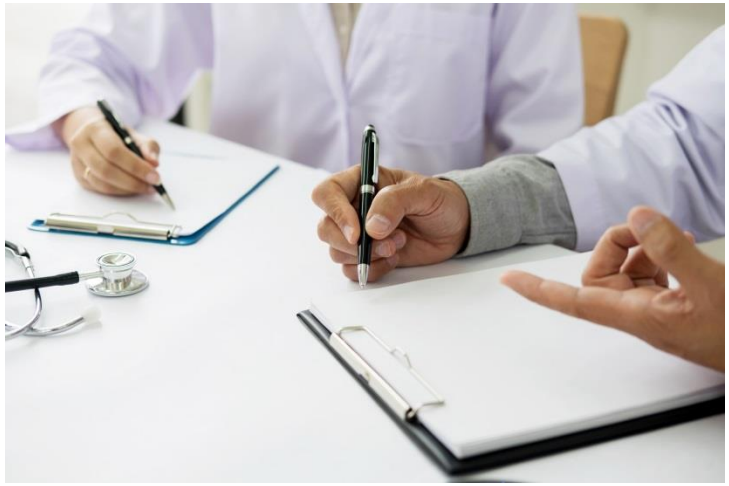
Model for Improvement: PDSA Cycle Steps



Langley GJ, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition)*. 2009. p.97.

PDSA Cycle: Objectives

- Decide if change will achieve the intended results
- Decide on combination of changes to reach desired effect
- Evaluate cost, social impact and side effects
- Evaluate how much improvement we can expect
- Increase belief that the change will work



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PDSA Cycle: Learning From Failed Tests

Reasons a test may have failed:

- Change was not executed well
- Support processes were inadequate
- Hypothesis/hunch was wrong
  - Change was executed but did not result in improvement
  - Improvement did not impact larger measure

Langley GJ, et al. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition)*. 2009.

PDSA Cycles Example: Split-Dose Bowel Preparation

Plan

- Questions
  - Will patient choose to use split-dose bowel prep if we offer it?
  - Will offering split-dose bowel prep take more time and result in a longer visit?
- Predictions
  - Fifty percent of patients will choose split-dose preparation when offered
  - Educating patients about split-dose bowel prep will increase visit length because patients will have more questions
  - The time required for prep discussion may be different from typical

PDSA Cycles Example: Split-Dose Bowel Prep Plan

Plan (con't)

- Plan details
  - Two physician champions will offer split-dose prep with next two patients next Tuesday
  - Physicians will share simple educational materials summarizing benefits of split-dose prep
  - Physicians will address patient concerns, if any
- Plan for data collection
  - Note if split-dose preparation offered
  - If not offered, note if patient is not an appropriate candidate for split-dose
  - Physicians will provide feedback on offering split-dose prep and suggest changes to the process for the next test as needed
  - Note patient decision regarding type or preparation chosen
  - Track the time required for prep discussion

PDSA Cycles Example: Split-Dose Bowel Preparation (con't)

Do

- Two physician champions offered split-dose bowel prep as planned
- Both patients elected split-dose bowel prep—one readily, the other after more lengthy discussion, which extended the visit time
- Easy-to-understand information on split-dose bowel prep was not on hand, so the physicians needed to find materials

Study

- Both patients elected split-dose bowel prep (better than predicted)
- Instruction took longer for just one patient (better than predicted)
- Rooms were not stocked with needed educational materials (unanticipated challenge)

PDSA Cycles Example - Act: Split-Dose Bowel Preparation

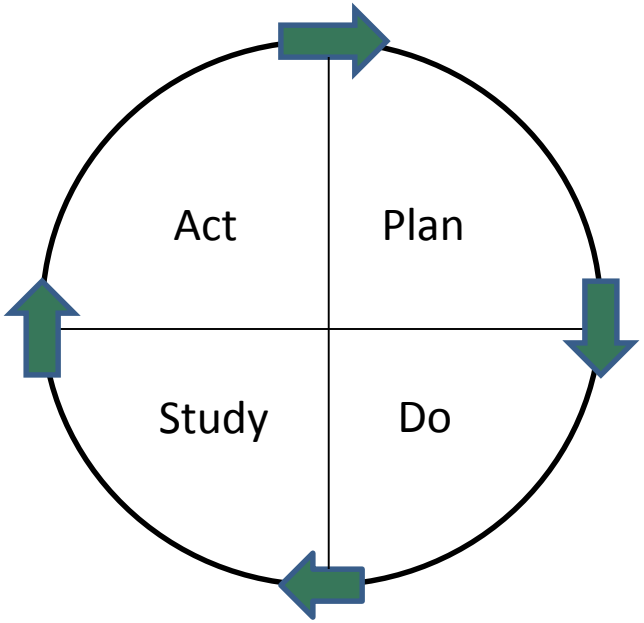
Act

- Revise test for next cycle to include stocking consultation room with needed educational materials
- Provide some information on split-dose bowel prep in advance of MD consultation to prepare patient for conversation
- Test with more patients and with the same physicians
- If successful, begin testing with other physicians

Accelerate Improvement Using the Model for Improvement

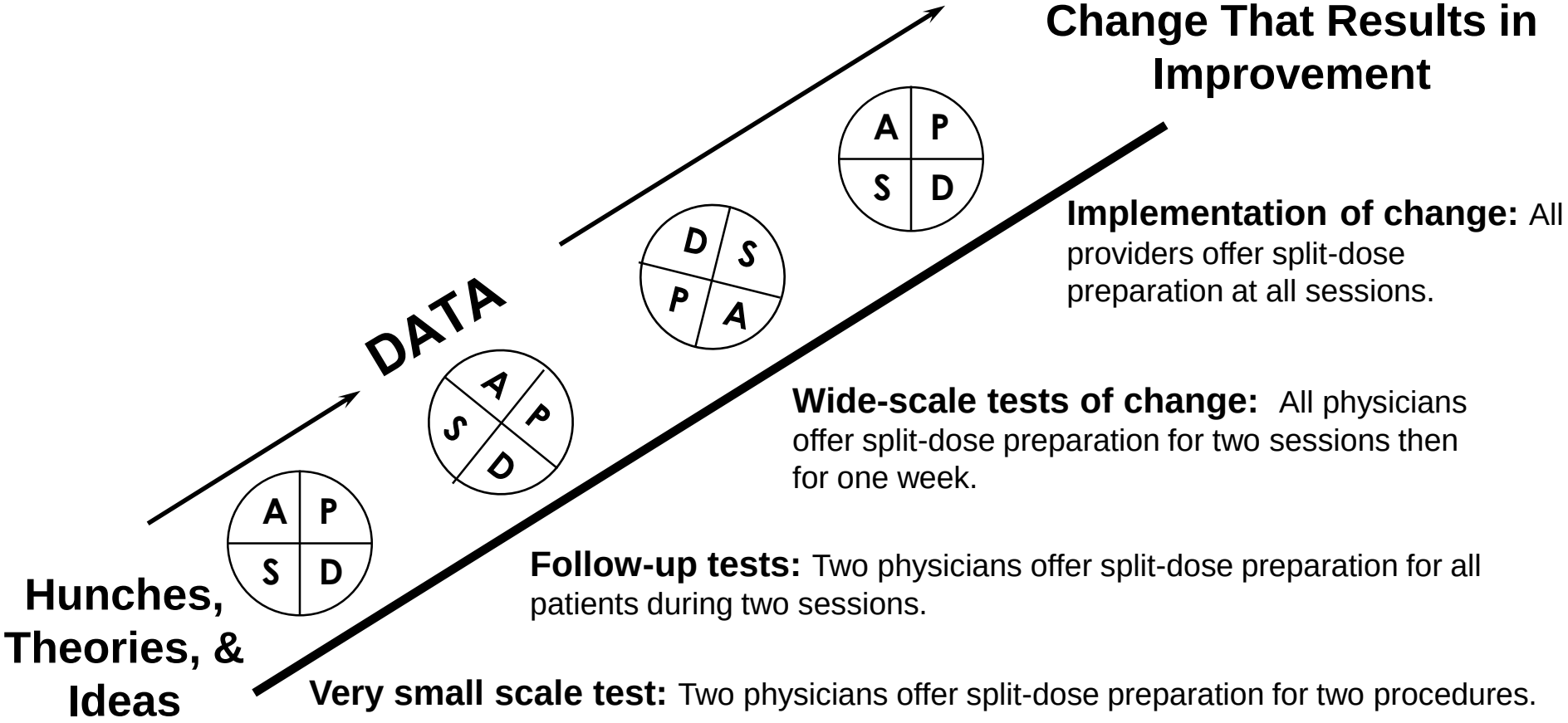
"What cycle can we test next Tuesday without harming a hair on the head of a patient?"

-Donald Berwick, M.D.



Willing to compromise on scope, size, rigor and sophistication to complete the cycle by next Tuesday

Multiple PDSA Cycles are Usually Required



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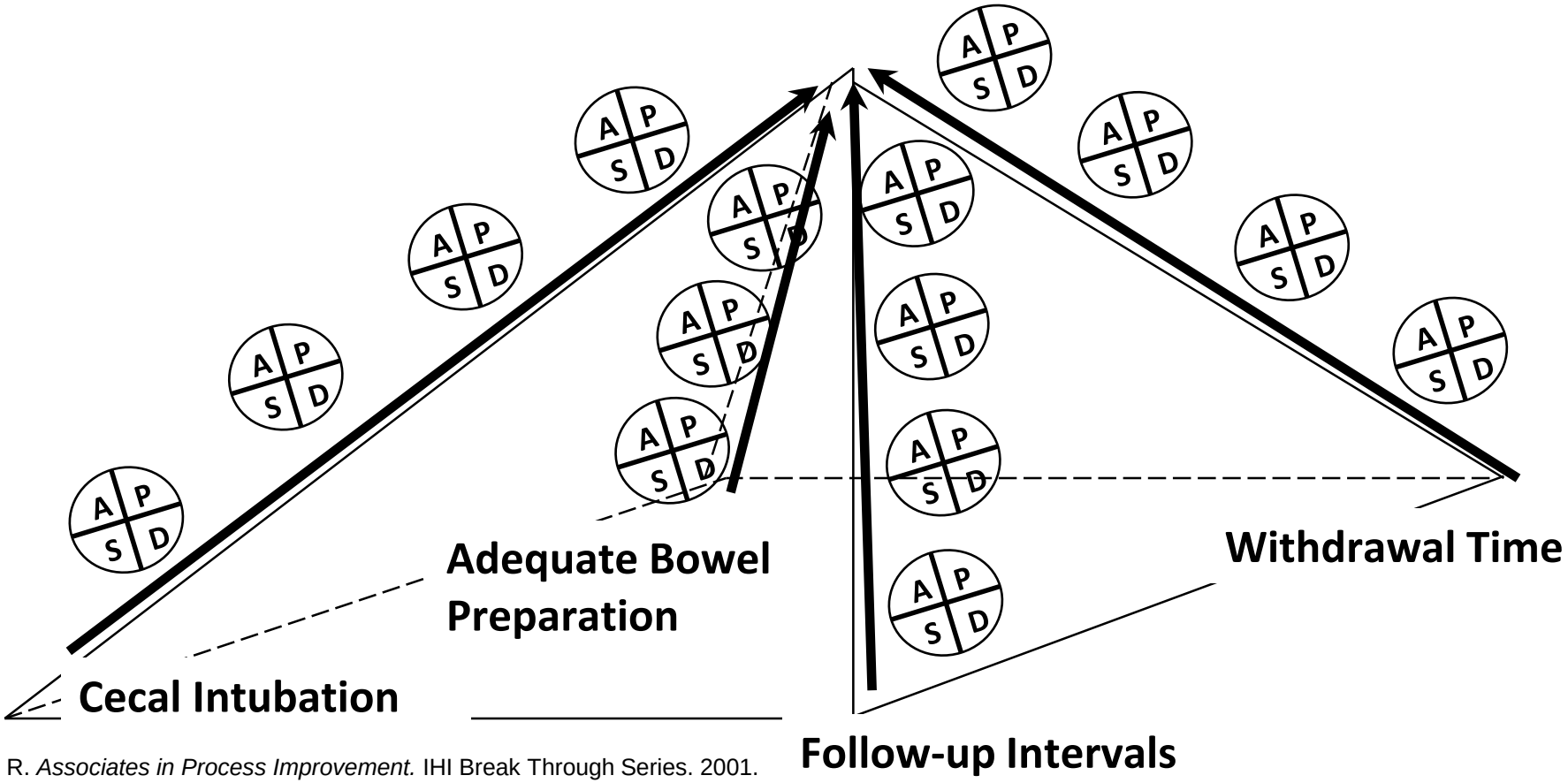
One Change is Rarely Sufficient

Aim: Improve the quality of screening colonoscopy procedures for asymptomatic, average-risk patients



Moen, R. *Associates in Process Improvement.* IHI Break Through Series. 2001.

Example: PDSA Cycles Improve Bowel Prep Quality

Table 2. Rapid-Cycle Plan-Do-Study-Act Experiments.

Cycle	Time Period	Intervention
1	Q4 2012	• Remove outdated preps from the BMC intranet and the Internet • Institute new split-dosing preps and monitor for compliance
2	Q1 2013	• Monitor sources of incorrect preps and replace as needed • Increase use of negotiated appointments • Scheduled 1-hour meetings with referring health centers about the rationale and importance of bowel preparation and use of proper prep instructions • One full-time navigator hired
3	Q2 2013	• Monitor sources of incorrect preps and replace as needed • New prep made available in multiple languages and distributed • Second full-time navigator hired
4	Q3 2013	• Continue to monitor compliance with prep procedures with referring health centers • Two navigators working full time

Abbreviations: BMC, Boston Medical Center; Q, quarter.

Calderwood AH, et al. *American Journal of Medical Quality.* 32:194-200. 2017.

Example: PDSA Cycles Improve Bowel Prep Quality (cont.)

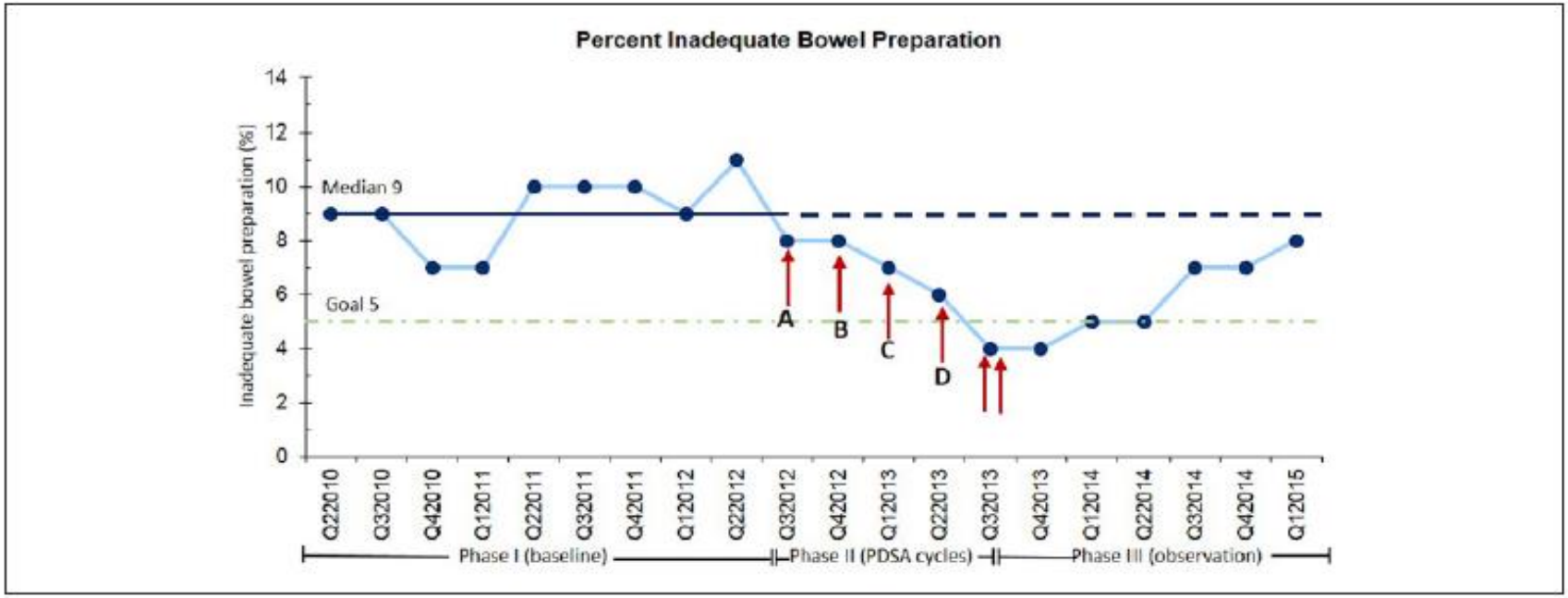


Figure 1. Frequency of inadequate bowel preparation.
The interventions are marked by the single arrows: A = removal of outdated preps and institution of split dose prep; B = meetings with referring health centers, increased negotiated appointments, first patient navigator hired; C = preps made available in multiple languages, second patient navigator hired; D = monitor compliance with prep procedures from referring centers, 2 navigators working full time. The end of the intervention is marked by the double arrow. The median rate of inadequate bowel preparation in the baseline period was 9%. A goal of 5% was set. Phase I = baseline; Phase II = Plan-Do-Study-Act (PDSA) experiments; Phase 3 = observation.

Calderwood AH, et al. *American Journal of Medical Quality.* 32:194-200. 2017.

Conclusions

- Incorporate QI as part of the routine work of your practice
- Use data to identify gaps in patient care
- Use available literature and best practices to determine what changes your practice needs to make to achieve improvements
- Start small and be specific to adapt changes to your context
- Focus on improving the system
- Use a team approach

References

1. Langley GJ, Moen RD, Nolan KM, Nolan TW, Norman CL, Provost LP. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance (2nd Edition).* San Francisco, California, USA: Jossey-Bass Publishers; 2009.
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