Introduction to Colonoscopy Quality Improvement

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

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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

Institute for Healthcare Improvement. *How to improve (Model for Improvement)*. 2015.
Why Engage in QI activities?

“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.”

Model for Improvement: Aim

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 an improvement?

Aim

Measures

Changes

Act

Plan

Study

Do

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 $\geq 95\%$
  - Adequate bowel preparation rate $\geq 85\%$
  - Adenoma detection rate (ADR) $\geq 30\%$ in men and $\geq 20\%$ in women
  - Repeat colonoscopy in $< 10$ years after a normal examination rate $< 20\%$
Model for Improvement: Measures

- **Aim:** What are we trying to accomplish?
- **Measures:** How will we know that a change is an improvement?
- **Changes:** What change can we make that will result in an improvement?

Institute for Healthcare Improvement. *How to improve (Model for Improvement)*. 2015.
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

What are we trying to accomplish?

How will we know that a change is an improvement?

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Institute for Healthcare Improvement. *How to improve (Model for Improvement).* 2015.
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

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

Specific Ideas, Actionable Result

Example Changes: Split-Dose Bowel Preparation

<table>
<thead>
<tr>
<th>Change concepts</th>
<th>Ideas for change</th>
</tr>
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<tbody>
<tr>
<td>Offer most effective bowel preparation method</td>
<td>• Adopt split-dose bowel preparation as the default evidence-based choice and offer alternative when appropriate</td>
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</table>
| 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

Aim

How will we know that a change is an improvement?

What are we trying to accomplish?

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

Measures

Changes

Act

Plan

Study

Do


Model for Improvement:
PDSA Cycle Steps

**Act**
- Decide what changes are to be made
- Proceed to next cycle

**Plan**
- Objective
- Questions, predictions
- Plan to carry out a cycle
- Plan for data collection

**Do**
- Carry out the plan
- Document problems and unexpected observations
- Begin analysis of the data

**Study**
- Complete the analysis of the data
- Compare data to predictions
- Summarize learning

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

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

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

**Hunches, Theories, & Ideas**

Very small scale test: Two physicians offer split-dose preparation for two procedures.

Follow-up tests: Two physicians offer split-dose preparation for all patients during two sessions.

Wide-scale tests of change: All physicians offer split-dose preparation for two sessions then for one week.

Implementation of change: All providers offer split-dose preparation at all sessions.

Change That Results in Improvement

**DATA**

One Change is Rarely Sufficient

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

**Example: PDSA Cycles Improve Bowel Prep Quality**

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

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Time Period</th>
<th>Intervention</th>
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| 1     | Q4 2012     | • Remove outdated preps from the BMC intranet and the Internet  
          • Institute new split-dosing preps and monitor for compliance  
          • 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 |
| 2     | Q1 2013     | • Monitor sources of incorrect preps and replace as needed  
          • New prep made available in multiple languages and distributed  
          • Second full-time navigator hired |
| 3     | Q2 2013     | • Continue to monitor compliance with prep procedures with referring health centers  
          • Two navigators working full time |
| 4     | Q3 2013     |              |

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

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 III = observation.

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


2. Institute for Healthcare Improvement. *How to improve (Model for Improvement).* 2015; [http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx](http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx).

