Cincinnati Children's
James M. Anderson Center for Health Systems Excellence

Advanced Improvement Methods (AIM) Course Plan

Wave 9

1.25.13

Purpose

To enhance knowledge and skills to apply the science of improvement to the design, implementation, and study of quality improvement initiatives in clinical settings, and to apply improvement theory and methods to the leadership of projects involving research, clinical care and operations.

Target Audience

Faculty who lead improvement projects and already know the basics of quality improvement and clinical epidemiology and/or research methods.

Instructional Methods

Lectures, discussions, case studies, application exercises, computer simulation, conference calls.

Pre-Work

1. Read and have working knowledge of information contained in the following text:
   The Improvement Guide: A Practical Approach to Enhancing Organizational Performance: (2nd Edition) by Langley, Nolan, Nolan, Norman & Provost (please purchase a copy of this book, if you do not already have one).

2. Identify an improvement project to be completed through use of the theory and methods acquired in this course.

3. Obtain any necessary training in Microsoft Excel in order to reach a comfort level in working with intermediate spreadsheets, graphs, and charts.

NOTE: Each session will involve sharing progress on your project during the session, and students will report on project progress between sessions.

Additional Textbooks (these will be distributed the first workshop)

The Data Guide, Learning from Data to Improve Health Care: Lloyd Provost and Sandy Murray, Associates in Process Improvement, Austin, TX, 2010

Reading:

- At Workshop 1: Chapters 4, 5
- Before Workshop 2: Chapters 2 and 3
- Before Workshop 3: Chapters 4, 5, 7, 8, 9, 13 (case studies)
- Before Workshop 4: Chapters 10

Quality Improvement through Planned Experimentation: 2nd edition. Moen, Nolan, and Provost, McGraw-Hill, 1999.

Reading:

- At Workshop 1: Chapter 3
- Before Workshop 2: Chapters 4, 5, 6, and 8
- Before Workshop 3: Chapter 9, p. 297-299

Supplemental Book List
(Each student will read and review at least one of the following)

Book Title	Author
Democratizing Innovation	Eric Von Hippel, The MIT Press, Cambridge MA, 2006
The Goal	Eliyahu Goldratt and Jeff Cox, North River Press, Inc. NY, 1986
Crossing the Quality Chasm: A New Health System for the 21st Century	Institute of Medicine, National Academy Press, Washington, D. C., 2001
The Fifth Discipline	Peter Senge, Doubleday, NY, 1990
The Economic Control of Quality of Manufactured Product	Walter Shewhart, 1931, reprinted by ASQC, Milwaukee, WI 1980
Diffusion of Innovation	Everett Rogers, The Free Press, New York, 5th Edition, 2003
Getting to Yes: Negotiating Agreement without Giving In (Second edition)	Roger Fisher and William Ury, Penguin Books, 1991
Making Social Science Matter, Why Social Inquiry Fails and How it Can Succeed Again	Bent Flyvbjerg, Aalborg University, Denmark, Cambridge University Press, 2001
Judgment Under Uncertainty: Heuristics and Biases	Daniel Kahmann, Paul Slovic, and Amos Tversky, 1982
The New Economics for Industry, Government, and Education	W. Edwards Deming, MIT, 1993 (Second edition, 1995)
Out of the Crisis	W. E. Deming, MIT, Cambridge, Mass., 1986
Serious Creativity	Edward DeBono, Harper Business, New York, 1992
The Visual Display of Quantitative Information	Edward Tufte, Graphics Press, Cheshire, Connecticut, 1998

Articles (posted on website):

Before Workshop 1

- "The Ethics of Using Quality Improvement Methods in Health Care", Annals of Internal Medicine, Vol. 146, No. 9, pp. 666-673.
- "Journal Venues for Safety and Quality Improvement Publications", Adolfo Pena, MD, Benjamin Taylor, MD, MPH, Pat Patrician, RN, PhD, Carlos A. Estrada, MD, MS, Society of General Internal Medicine Newsletter, Jan 2012.
- "Study Designs for PDSA Quality Improvement Research", Jean Gayton Carroll, Quality Management in Health Care, Vol. 13, No. 1, pp. 17-32.
- "Quality Improvement, Clinical Research, and Quality Improvement Research – Opportunities for Integration", Peter Margolis, MD, PhD, Lloyd P. Provost, MS, Pamela J. Schoettker, MS, Maria T. Britto, MD, MPH, Pediatric Clinics of North America, Vol. 56, No. 4 (August, 2009): pp. 831-841.
- "The SQUIRE (Standards for Quality Improvement Reporting Excellence) Guidelines for Quality Improvement Reporting: Explanation and Elaboration", G. Ogrinc, S. E. Mooney, C. Estrada, T. Foster, D. Goldmann, L. W. Hall, M. M. Huizinga, S. K. Liu, P. Mills, J. Neily, W. Nelson, P. J.

Pronovost, L. Provost, L. V. Rubenstein, T. Speroff, M. Splaine, R. Thomson, A. M. Tomolo and B. Watts, Qual. Saf. Health Care 2008; 17; i13-i32-DOI: 10.1136/qshc.2008.029058.

- "Controlling Variation in Health Care: A Consultation from Walter Shewhart", Donald M. Berwick, MD, MPP, Medical Care, Vol. 29, No. 12, (December, 1991): pp. 1212-1225.
- "Framework for Design and Evaluation of Complex Interventions to Improve Health", Michelle Campbell, Ray Fitzpatrick, Andrew Haines, Ann Louise Kinmonth, Peter Sandercodk, David Spiegelhalter and Peter Tyrer, BMJ, 2000; 321; 694-696-DOI: 10.1136/bmj.321.7262.694.
- "Clinicians in Quality Improvement: A new Career Pathway in Academic Medicine", Kaveh G. Shojania; Wendy Levinson, JAMA 2009;301(7):766-768 (doi:10.1001/jama.2009.140).

Before Workshop 2

- Review MidState Brick handout from Workshop 1

Before Workshop 3

- "The One-Person Randomized Controlled Trial", Jesper Olsson, et al, *Quality Management in Health Care Volume 14, Issue 4, Oct-Dec, 2005.*
- "N-of-1 Trials: A New Future?", *Larson Eric, J. Gen Intern med 25(9), p891-2, July 2010*
- "Using N-of-1 trials to improve patient management and safe costs", Shuffham, P.A. et al, *J. Gen. Intern Med, 2010*
- "Improving the Reliability of Health Care", Thomas Nolan, PhD, Roger Resar, MD, Carol Haraden, PhD, Frances A. Griffin, RRT, MPA, *Institute for Healthcare Improvement Innovation Series 2004*; www.ihi.org.

Before Workshop 4

- Massoud MR, Nielsen GA, Nolan K, Nolan T, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change*. IHI Innovation Series white paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2006. Available on www.IHI.org
- Nolan, TW. *Execution of Strategic Improvement Initiatives to Produce System-Level Results*. IHI Innovation Series white paper. Cambridge, Massachusetts, Institute for Healthcare Improvement; 2007. (available on www.IHI.org)
- Planned Experimentation for Airline Boarding handout

• Overview of the AIM Program • The Science of Improvement • Using the Model for Improvement • Project Presentations • Understanding Variation and Shewhart Control Charts • Computer Simulation • Planned Experimentation • Assignments

• Agenda customized to the class need.
• Assignments
  • Project Presentations
  • Book Reports

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• One-Factor Experiments • Project Presentations • Computer Simulation • Factorial Experiments • Fractional Factorial Designs • Book Reviews • Advanced Experimental Designs • Assignments

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  • Book Reports

• Applications of Planned Experimentation • Project Presentations • Conjoint Analysis • Control Chart Selection • Book Reviews • Control Chart Applications • Change Concepts – reliability • Assignments

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• Advanced Control Charts • Project Presentations • Change Concepts - Lean • Airline Loading Case Study • Book Reviews • Spread of Improvements • Leadership of Improvement • Closing