PUBH 716/MCH816/HPM716
Applied Quality Improvement for Healthcare and Public Health
3 credits
Spring 2017

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Room: Online

Office Hours: Synchronous online sessions TBD

Course URL: https://sakai.unc.edu/portal/site/304af11f-2527-40c7-b20c-96f48e637bed/page/553a6a5b-b4be-4ed6-9a0f-626f7a84e19e

Course Overview:

This is a three-credit hour, online graduate-level, interdisciplinary course in which teams of students apply quality improvement methods to improve processes of delivery of public health services.

Students will work in teams and use a systematic quality improvement method (the Model for Improvement) on a real life case study to analyze performance, identify sources of variability in performance, and develop and test improvement solutions. The skills gained in this course are applicable to a wide variety of health care and public health situations in the US and globally.

Course Objectives:

Through this course(s), students will:

1. Become familiar with Quality Improvement (QI) methods, especially the Model for Improvement;
2. Develop skills in using the tools of QI to solve a real-life improvement problem
3. Develop generalizable insights about use of QI to facilitate local and global improvements in health care and public health;

Competencies:

The course is designed to support student attainment of the following Global Health Core Competencies (ASPPH 2011):

1. Assist host entity in assessing existing capacity;
2. Conduct a situation analysis across a range of cultural, economic, and health contexts;
3. Develop monitoring and evaluation frameworks to assess programs;
4. Exhibit interpersonal communication skills that demonstrate respect for other perspectives and cultures;
5. Develop strategies that strengthen community capabilities for overcoming barriers to health and well-being;
6. Design context-specific health interventions based upon situation analysis;
7. Design program work plans based on logic models;
8. Develop context-specific implementation strategies for scaling up best-practice intervention;
9. Apply scientific evidence throughout program planning, implementation, and evaluation;

In addition, the course is designed to support student knowledge in the following content areas for the common core of the MPH degree (ASPPH 2015):

- Systems thinking regarding the dynamic interactions among sectors, organizations, and actors with which public health professionals interact to achieve health improvements
- Concepts of project implementation and management, including planning, budgeting, human resources, assessment, and evaluation
- The cultural context of public health issues and respectful engagement with people of different cultures and socioeconomic strata
- Principles of effective functioning within and across organizations and as members of interdisciplinary and interprofessional teams

Course Requirements:

Five requirements will be the basis for assigning grades for this course:

1. Completing reflective posts and question assignment
2. Successful completion of online quizzes associated with each module.
3. Participation in the online group case study which builds progressively through each module.
4. A group report describing the problem, analysis, solution, implementation, results and recommendations based on the case study.
5. A final exam.

As a member of a team, you are expected to participate in the case study. Participation does not only mean passively providing input – it also means reacting to what your peers have said and contributing to discussion online. Your participation grade will be based on faculty evaluation and on **peer assessments.** At the end of the course, you will have the

opportunity to evaluate your group members based on your perception of their level of participation and contribution to the group. We will use this feedback both for improving participation and for evaluation at the end of the course.

In addition, for each module, you will be asked for **one reflective post and one question**. These are not graded individually but are mandatory, and will count towards your participation grade in the course.

Grading:

The distribution of points for each course requirement is shown below:

Requirement	% of Grade	Points possible
1) Quizzes	15%	15
2) Case Study report and presentation	30%	40
3) Final exam	35%	35
4) Participation (reflection question and case study)	20%	20
Total	100%	100

The final report and presentation will be graded on the following dimensions:

- Logical, appropriate, evidence-based conclusions, analyses, and recommendations in both the presentation and paper (30 percent)
- Effectiveness of presentations (30 percent)
- Clearly written report with topics arranged logically. Well-designed tables and figures that convey relevant, important information (20 percent)
- Effective, appropriate application of course materials and other resources in the presentation and paper (20 percent)

Grading will be according to the following scheme:

Grade	**Explanation**
H	Clear Excellence
P	Entirely Satisfactory
L	Low Passing
F	Fail

Typically, H grades are given to those scoring 90% or above, P to scores of 70% and above and L to scores of 55% and above. These are guidelines, and are not meant to be absolute numbers.

A grade of H will indicate that you have gone beyond the expectations of the assignment and have produced an exceptional output. A P is completely acceptable and indicates that you met the expectations of the assignment. An L indicates that you have turned in passing performance, but that the effort is minimally acceptable.

Course Evaluation

Course participation includes completion of the UNC-CH's online course evaluation. Your responses will be anonymous, with feedback provided to the instructors in the aggregate. Open-ended comments will be shared with instructors, but individual students are not identified. Providing constructive course evaluative feedback is a professional responsibility. Feedback is critical for improving the quality of our courses.

Text Book:

The Improvement Guide, 2nd edition (2009) [referred to as TIG]

Course Outline:

Module 1: Introduction to Principles of Improvement

January 11-January 22

- **Learning Objectives:** To understand the principles of improvement in healthcare and public health
- **Readings:**
  - Dixon-Woods, M., Pronovost, P. and Marshall, M. What is the Science of Improvement ? Health Foundation Report, 2013.
  - Berwick, DM. A Primer on Leading the Improvement of Systems. BMJ 1996;312:619-22
  - Leatherman, S et al. The role of Quality Improvement in Strengthening Health Systems in Developing Countries. International Journal for Quality in Health Care 2010; 1–7.
  - Riley, W. J., Moran, J. W., Corso, L. C., Beitsch, L. M., Bialek, R., & Cofsky, A. (2010). Defining Quality Improvement in Public Health. *Journal of Public Health Management and Practice*, *16*(1), 5-7.
  - McLees, A. W., Nawaz, S., Thomas, C., & Young, A. (2015). Defining and Assessing Quality Improvement Outcomes: A Framework for Public Health. *American Journal of Public Health*, *105*(S2), S167-S173.
- **Assignments:**
  - Reflective post and question due January 18th

- Quiz#1 due Jan 22nd

Module 2: Beginning an Improvement Project
January 23-February 4

- **Learning objectives:**
  - Understand Deming's theory of profound knowledge
  - Describe the Model for Improvement
  - Develop the scope and charter for an improvement project
- **Readings:**
  - TIG Chapter 1: TIG Chapter 1: Changes that result in Improvement (pg. 15-25)
  - TIG Chapter 2: Skills to support improvement (pg. 27-47)
  - TIG Chapter 4: The science of improvement (pg. 75-88)
  - Courtlandt, C. D., Noonan, L., & Feld, L. G. (2009). Model for Improvement - Part 1: A Framework for Health Care Quality. *Pediatric Clinics of North America*, *56*(4), 757-778
  - Taylor, M., Mcnicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. (2013). Systematic review of the application of the plan-do-study-act method to improve quality in healthcare. *BMJ Quality & Safety*, 23(4), 290-298
- **Videos:**
  - Deming's System of Profound Knowledge Part 1 https://www.youtube.com/watch?v=xKv--YA8XJE
  - Deming's System of Profound Knowledge Part 2 https://www.youtube.com/watch?v=STTwZGNvLmM&t=18s
  - Model for Improvement Part 1 https://www.youtube.com/watch?v=SCYghxtioIY
  - Model for Improvement Part 2 https://www.youtube.com/watch?v=6MIUqdulNwQ
  - Red Bead Experiment https://www.youtube.com/watch?v=R3ewHrpqclA
- **Tools:**
  - Process GPS Project Charter
  - Pg. 445-448: Example Charter, Forms B1, B2, B3
  - Project Charter Template
- **Assignments:**
  - Reflective post and question due January 29th
  - Quiz # 2 Due Feb 5th
  - Case Study Part 1: Developing the Project Charter. Due Feb 5th

Module 3: Viewing Work as a Process

February 6-February 19

- **Learning objectives:** Creating a process map and a preliminary diagram for an improvement project.
- **Readings:**
    - Trebble, T. M., Hansi, N., Hydes, T., Smith, M. A., & Baker, M. (2010). Process mapping the patient journey: an introduction. *BMJ*, *341*(aug13 1), c4078-c4078.
    - Ramaswamy, R., Rothschild, C., Alabi, F., Wachira, E. , Muigai, F. and Pearson, N. (2016.) Using Value Stream Mapping to Improve Quality of Care in Low Resource Facility Settings (under review).
    - Colligan, L., Anderson, J. E., Potts, H. W. W., & Berman, J. (2010). Does the process map influence the outcome of quality improvement work? A comparison of a sequential flow diagram and a hierarchical task analysis diagram. *BMC Health Services Research*, *10*(1), 7.
    - Bennett, B., & Provost, L. (2015). Driver diagram serves as tool for building and testing theories for improvement. *Quality Progress*, 36-43.
    - Fathima, N. (2016). A quality improvement tool - driver diagram: a model of driver diagram to reduce primary caesarean section rates. *International Journal of Research in Medical Sciences*, 1339-1342.
- **Videos:**
    - Process Mapping Overview https://www.youtube.com/watch?v=tGzHRirL5-4
    - Swimlane Process Map Overview https://www.youtube.com/watch?v=wQxnzLu7TqU
    - SIPOC Process Map Overview https://www.youtube.com/watch?v=N9K2Sz0OCOw
    - Driver Diagram Overview https://www.youtube.com/watch?v=yfcE_Q-IRFg
- **Tools**
    - TIG Pg. 430-431: Figure B14-B16
    - SIPOC Template
- **Assignments:**
    - Reflective post and question due Feb 12th
    - Quiz # 3 due Feb 19th
    - Case Study Part 2: Developing Process Maps and Driver Diagrams due Feb 19th

Module 4: Collecting Data for Improvement

February 20-March 5

- **Learning Objective:** To develop a data collection plan to measure process performance
- **Readings:**

- Nelson EC, Splaine ME, Batalden PB, Plume SK. Building measurement and data collection into medical practice. Ann Intern Med. 1998;128:460-466
- Perla, Rocco, Provost, Lloyd, Murray, Sandra. Sampling Considerations for Health Care Improvement. Qual Manag Health Care. 2013;22(1):36-47.

- **Tools**:
  - Institute for Healthcare Improvement Simple Data Collection Planning Template 2004
- **Assignments:**
  - Reflective post and question due February 26th
  - Quiz#4 Due March 5
  - Case Study Part 3: Developing a data collection
    - March 5

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Module 5: Analyzing Baseline Data for Patterns and Trends

March 6-March 26 (Including Spring Break)

- **Learning Objective:** To analyze baseline process performance
- **Readings:**
  - TIG Chapter 5: Using the Model (pg. 89-108)
  - Deming, W.E. Out of the Crisis, Chapter 11: Common Causes and Special Causes of Improvement: Stable Systems (pg. 300-324;336-337)
  - Mohammed MA, Worthington P, Woodall WH. Plotting basic control charts: tutorial notes for healthcare practitioners. *Qual. Saf. Health Care* 2008;17(2):137-45.
  - Bamford DR & Greatbanks RW The use of quality management tools and techniques: a study of application in everyday situations. *International Journal of Quality &Reliability Management* Vol. 22 No. 4, 2005 pp. 376-392
  - Deming, W.E. Out of the Crisis, Chapter 12: More Examples of Improvement Downstream (pg. 371-387)
- **Tools**:
  - TIG Pg. 433-442: Figures B19- B25
  - TIG Pg. 426-431 Figure B9-B16
  - Six Sigma Control Charts: iSixSigma. *A Guide to Control Charts*. Available at http://www.isixsigma.com/tools-templates/control-charts/a-guide-to-control-charts/
  - Ishikawa K. 7 quality tools for process improvement. Hong Kong Hospital Authority. Available at www3.ha.org.hk/qeh/wiser/doc/7bqt.pdf
- **Assignments:**
  - Reflective post and question due March 19
  - Quiz#5 Due March 26
  - Case Study Part 4: Identifying Root Causes
    - March 26

Module 6: Generating and Evaluating Improvement Solutions

March 27 –April 9

- **Learning Objectives:** Learn how to identify and develop changes that will result in improvement
- **Readings:**
  - TIG Chapter 6: Developing a Change (pg. 109-137)
  - De Bono E. Ideas about thinking: Excerpts from Edward de Bono's "letter to thinkers." *J. Prod. Innov. Manag.* 1986;3(1):57-62.
  - Ellis J. All inclusive benchmarking. *J. Nurs. Manag.* 2006;14(5):377-83.
  - Waddington H, White H, Snilstveit B, et al. How to do a good systematic review of effects in international development: a tool kit. *J. Dev. Eff.* 2012;4(3):359-387.
  - Weinstein MC, Stason WB. Foundations of Cost-Effectiveness Analysis for Health and Medical Practices. *N. Engl. J. Med.* 1977;296(13):716-721.
- **Tools:**
  - TIG Appendix A (pg. 357-408)
  - VA Primer on Cost Effectives Analysis. Available at http://www.vaoutcomes.org/downloads/Cost_Effectiveness_Analysis.pdf
  - IHI Brainstorming, Affinity and Multivoting Tools. Available at http://nciph.sph.unc.edu/mlc/presentations/perf_imp/BrainstormAffinityMultivoting1.pdf
  - Impact Effort Matrix. Available at: http://asq.org/healthcare-use/why-quality/impact-effort.html
- **Assignments:**
  - Reflective post and question due April 2
  - Quiz#6 Due April 9
  - Case Study Part 5: Developing and Evaluation Solutions
    - April 9

Module 7: Testing and Implementing Solutions

April 10 – April 23

- **Learning Objectives**: To test selected solutions and to develop an implementation plan
- **Reading:**
  - TIG Chapter 7 : Testing a Change(pgs. 139-171)
  - Zimmerman – factorial design for influenza vaccination
  - Kotter JP, Schlesinger LA. Choosing Strategies for Change. *Harv. Bus. Rev.* 2008;86(7/8):130-139.
  - Hulscher MEJL. Process evaluation on quality improvement interventions. *Qual. Saf. Heal. Care* 2003;12(1):40-46.

- Smith ME, Mourier P. Implementation: Key to organizational change. *Strateg. Leadersh.* 1999;27(6):37-41.

- **Additional tools:**
  - Design for Experiments Tutorial
- **Assignments:**
  - Reflective post and question due April 16
  - Quiz#7 Due April 23
  - Case Study Part 6: Experimental Testing and Implementation Plan
    - April 23

Module 8: Adapting and Sustaining Solutions

April 24 – May 5

- **Learning Objectives:** To ensure that the change is sustainable
- **Reading:**
  - TIG Chapter 8: Implementing a Change(pg. 173-194)
  - Castro FG, Barrera, Jr. M, Martinez, Jr. CR. The Cultural Adaptation of Prevention Interventions: Resolving Tensions Between Fidelity and Fit. *Prev. Sci.* 2004;5(1):41-45.
  - Doyle K, Hungerford C. Adapting evidence-based interventions to accommodate cultural differences: where does this leave effectiveness? *Issues Ment. Health Nurs.* 2014;35(10):739-44.
  - Benneyan JC. Statistical process control as a tool for research and healthcare improvement. *Qual. Saf. Heal. Care* 2003;12(6):458-464.
  - Bray P, Cummings DM, Wolf M, Massing MW, Reaves J. After the Collaborative Is Over: What Sustains Quality Improvement Initiatives in Primary Care Practices? *Jt. Comm. J. Qual. Patient Saf.* 2009;35(10):502-508.
  - Van Tilburg CM, Leistikow IP, Rademaker CMA, Bierings MB, van Dijk ATH. Health Care Failure Mode and Effect Analysis: a useful proactive risk analysis in a pediatric oncology ward. *Qual. Saf. Health Care* 2006;15(1):58-63.
- **Tools:**
  - Pg. 443-444 Figure B26- Table B5
- **Assignments:**
  - Reflective post and question due April 30
  - Quiz#8 Due May 5
  - Case Study Part 7: FMEA analysis
    - May 5

Final exam date: May 8, 9 (Online Take Home)

UNC Honor Code

The principles of academic honesty, integrity, and responsible citizenship govern the performance of all academic work and student conduct at the University. Your acceptance of enrollment in the University presupposes a commitment to the principles embodied in the Code of Student Conduct and a respect for this most significant Carolina tradition. Your reward is in the practice of these principles.

Your participation in this course comes with the expectation that your work will comply fully with the Honor Code. Academic dishonesty in any form is unacceptable, because any breach in academic integrity, however small, strikes destructively at the University's life and work.

If you have any questions about your responsibility or the responsibility of faculty members under the Honor Code, please consult with someone in either the Office of the Student Attorney General (966-4084) or the Office of the Dean of Students (966-4042).

Read "The Instrument of Student Judicial Governance" (http://instrument.unc.edu).
