COURSE SYLLABUS POPULATION HEALTH

Quality of Health Care
PH/ISyE 703

Fall 2018 – 3 Credits
Tuesday 4:30-7:00 p.m.
Room G5/152 Clinical Science Center, 600 Highland Ave.
University of Wisconsin-Madison

Course Organizer:	Maureen Smith, MD, MPH, PhD
Office address:	Rm. 210-31 UBOB (800 University Bay Dr. Madison, WI)
Office phone:	608-262-4802
Office fax:	888-263-2864
Email:	maureensmith@wisc.edu lecturer – Tola Ewers, MS, PHD (lmewers@wisc.edu)
Office hours:	Generally available following class, or by appointment
Prerequisites:	No formal prerequisites, but instructor consent is required to enroll
Instructors:	Maureen Smith, MD, MPH, PhD Edmond Ramly, PhD Chris Crnich, MD, MS

Course Learning Outcomes

At the end of the semester, students will be able to:

1) Understand and communicate the conceptualization and measurement of quality of healthcare and patient safety.
2) Illustrate basic concepts and methods in quality improvement as applied to current issues in healthcare.
3) Demonstrate an understanding of the diverse perspectives that can be used to address quality and safety issues in different healthcare organizations.

Course Administration and Readings

A course Canvas website is set up on the Learn@UW system. This is the electronic course home. The main purpose of this website is its function as a repository of downloadable copies of the course readings and for assignment resources. The readings will be organized by weekly reading assignments. Staying current with assigned readings and participation in class discussions is expected and will be reflected in the individual student component of the mid-semester and final faculty evaluations. Readings listed as "optional" are not required, but do provide supplemental information that may be helpful. Where appropriate, copies of presentation slides will also be uploaded to Canvas, although not all presentations will have slides, so good note taking will be important. Students may audio record lectures for their own personal use (i.e., not for distribution) with permission of the lecturer. In the event a student expects to be absent, prior arrangements may allow for a digital recording of the class conversation to be made and then posted in Canvas.

This is a 3-credit course. The credit standard for this course is met by an expectation of a total of 135 hours of student engagement with the course learning activities (at least 45 hours per credit), which include regularly scheduled instructor:student meeting times [Tuesdays, 4:30 p.m. to 7 p.m.], readings, mini-papers, a poster presentation, and other student work as described in the syllabus.

Course Environment and Academic Integrity/Misconduct

Collaborative Environment and Academic Misconduct: This course is designed to facilitate collaborative relationships, and as such, based on responses to the student survey questions submitted at the start of the semester, class members are placed into teams for the poster project.

Based on the survey answers, efforts are made to match students who: (1) share a common interest, (2) bring different training/professional/academic backgrounds to the group, (3) possess complementary skill sets/knowledge, and (4) represent various levels of academic development. While these are the ideal team composition guidelines, the variety of students who enroll may preclude the process from meeting all of them.

Effective communication is an invaluable asset for collaborative relationships, and this class will facilitate the development of students' communication skills. As noted below in the Course Requirements and Evaluation Section, students will be receiving a peer evaluation as a part of their grade; thus, it is recommended that team members decide the criteria they will be using to assess the efforts of team members at the start of the semester. Establishing mutual expectations among members is one strategy for a successful, collaborative relationship. While it is anticipated that there will be a range of academic development levels among students, each member is expected to actively engage in the team project and weekly class discussions, to the best of their ability, and to not rely on the merit of the participation of other team member(s).

Please refer to this campus website if you have questions about student misconduct.

Non-discrimination Policy: The UW–Madison is committed to creating a dynamic, diverse and welcoming learning environment for all students and has a non-discrimination policy that reflects this philosophy. Disrespectful behaviors or comments addressed towards any group or individual, regardless of race/ethnicity, sexuality, gender, religion, ability, or any other difference is deemed unacceptable in this class.

Special Needs or Disabilities: We wish to fully include persons with special needs or disabilities in this course. Please let Dr. Smith know if you need any special accommodations in the curriculum, instruction, or assessments of this course to enable you to fully participate.

Civility Policy: Members of the University of Wisconsin-Madison community are expected to deal with each other with respect and consideration. The civility policy for this course promotes mutual respect, civility and orderly conduct among the faculty, teaching assistants, and students. We do not intend this policy to deprive any person of his or her right to freedom of expression. Rather, we seek to maintain a safe, harassment-free work-place for the students, faculty, and teaching assistants. Positive communication is encouraged and volatile, hostile, or aggressive actions and language will not be tolerated. If the civility policy for this course is violated, then the individual is subject to removal from the class and possibly the course altogether. In addition, the proper authorities at the UW Departmental, School, and University levels will be notified of such behavior accordingly and further action may be taken if necessary.

Course Requirements and Evaluation

Course Modules (100 possible points for each of 3 modules = 300 possible points)

- The course is composed of three modules. Each module has one mini-paper worth 100 points (detailed below).
  Module 1 – Quality Measurement, Improvement, and Accountability
  Module 2 – Human Factors and Systems Engineering, Quality, and Technology
  Module 3 – Implementation of Quality Improvement Interventions
- 100 points per module: Your grade on a mini-paper.
  - ✓ For each module, you will choose a topic from the list of possible paper topics below. Using your knowledge gained from that particular module, write a mini-paper (~1,000 words) addressing the questions posed. Your paper should focus on 3 or 4 major principles highlighted in the module and demonstrate your ability to synthesize module content. Use the references provided or any other references of your choosing. Papers will be submitted under respective Assignments on Canvas.
  - ✓ For Module 2, your paper topic must be different from the topic for Module 1.
  - ✓ For subsequent modules, you may repeat topics or choose different ones.
  - ✓ No points will be given for papers received after the due date.

Final Group Project (300 possible points)

- The final group poster and presentation is an analysis of an attempt to improve the quality of health care. Groups of students will be determined by the course faculty and will consist of students from different academic disciplines (i.e., health care students paired with engineering students). During class, the groups are requested to exchange phone numbers and e-mail addresses and to schedule meeting times. The timeline and detailed information on the group project are located below.
- The objectives of the group poster and presentation are to:
  1. Identify course principles that apply to the problem
  2. Identify how different principles interact and conflict
  3. Identify alternative approaches to solving the problem
  4. Improve the ability to research the primary literature on a specified subject;
  5. Evaluate methodologies, technologies, and experiments serving as the basis of research;
  6. Determine how pertinent data and analyses lead to conclusions reached by experts;
  7. Equip students in the concise preparation of data for presentation in a poster format.
- Each poster should contain the following components (use charts or graphs when possible):
  1. Description of the problem that the process was targeted to address.
     - Demonstrate your knowledge of the problem by showing you understand its nature, rates, extent, diversity, and criticality, as applicable.
  2. Description of the process adopted by the organization or individual.
     - Demonstrate your understanding of the solution by showing that you understand what the solution is, how it is implemented, design considerations, implementation considerations, and ways it has been applied.
  3. Extraction of the core principles that appear to have informed the process. Describe as a bulleted list (with sufficient detail to allow someone who has not taken the class to understand your points). Avoid jargon. Reference supporting literature for these principles.
     - With regard to the solution proposed, provide a bulleted list of core principles ***from each module*** that apply to this solution. This can be tied to component #4 below or done separately. That is a stylistic decision for you to make.
     - Supporting literature should go beyond the references provided if you want a good grade. We will be looking for you to cite the most relevant studies. Having a long list of references that are not on point will do you no good.

4. Discussion of how these principles interact or potentially conflict with one another. Use the literature to support your discussion of how these principles interact or conflict.
    - Demonstrate you understand the pros and cons of each applicable principle.
    - Demonstrate you understand the extent to which the achievement of certain principles may be to the detriment of others. That is, show you understand the tradeoffs.
5. Discussion of other ways to approach the process for this problem. Reference these approaches in the literature.
    - State and explain alternative solutions, the pros and cons of those solutions, and back those with evidence as applicable.
6. Identification of core principles relevant to these other approaches. Describe as a bulleted list. Reference supporting literature for these principles.
    - For your alternatives, discuss them with respect to the principles and the tradeoffs the alternatives present.
7. Discussion of what you would have done if faced with this problem. Describe how your approach would differ. Reference supporting literature for your approach.
    - Tell us what you think would be a better solution and defend your answer using the principles and tradeoffs. If you think the solution proposed is the best answer, defend that in a similar way.
8. A complete bibliography of papers referenced in the poster should be included.

- The poster session will be held on December 13 during the usual class time in the HSLC atrium. Other faculty, staff, and students who are not involved in the course will be invited to view the posters for the first hour of class. After that, instructors will evaluate posters and ask group members questions about the poster.
- The final reporting of the grade is a simple total of two components (faculty evaluation of the poster and peer evaluation). Only the total grade is reported—since the peer evaluation is anonymous, we cannot reveal the grades for either of the components. Students strongly support this policy.
    - ✓ Faculty evaluation of poster: All faculty will evaluate posters and individual responses to questions for the purpose of assigning a group grade. Each faculty independently grades the posters on a basis of 0-150 points (with 150 being highest). The group grade for the poster is arrived at by consensus discussion and is awarded to each student in the group.
    - ✓ Peer evaluation: Each student is required to evaluate every other member of his/her group. This peer evaluation is worth 150 points. Each student must apportion a fixed number of points to her/his peers. It is the students' responsibility to determine what criterion to use in this apportioning of points. Some of the criteria students may use could be time spent, useful discussion, work on research, work on layout, and general organizational skills. The peer evaluation form will be posted on Canvas and must be completed and returned at the time of your poster presentation (it is your ticket to the presentation).

Mini-Paper and Group Project Topics

Important Note: References below are given only as a starting point for your research. You may use any references of your choosing to address the problem and evaluate the solution.

1) *Problem*: 31% of Americans who have hypertension are not receiving treatment.

   Organization involved: A local health plan.

   Possible solution: Medical record review and feedback of performance to individual primary care physicians, comparing the percentage of their hypertensive patients who are receiving treatment to the average percentage of hypertensive patients receiving treatment across the health plan.

   Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

   References:

   Sennett, C. Implementing the new HEDIS hypertension performance measure. *Managed Care*. 2000;9(4 Suppl), 2-17.

2) *Problem*: Test and laboratory results that return after discharge from the hospital are not being reviewed by physicians (hospitalist or primary care) and shared with patients.

   Organization Involved: A large integrated medical center with a tertiary care hospital and primary care and specialty clinics that use the hospitalist model of care.

   Possible solution: implementation of a "tracking system" for test & laboratory results

   Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

   References:

   Smith, P. C., Araya-Guerra, R., et al. Missing clinical information during primary care visits. *JAMA* 2005;293(5):565-71.

   Elder, N. C., Graham, D., Brandt, E., et al. The testing process in family medicine: problems, solutions, and barriers as seen by physicians and their staff: a study of the American Academy of Family Physicians' Research Network. *J Patient Saf* 2006;2(1):25-32.

   Hallock, M. L., Alper, S. J., and Karsh, B. A macroergonomic work system analysis of the diagnostic testing process in an outpatient health care facility for process improvement and patient safety. *Ergonomics*. 2006:49(5-6);544-566.

   Roy CL, Poon EG, Karson AS, et al. Patient safety concerns arising from test results that return after hospital discharge. *Annals of Internal Medicine.* 2005:143(2);121-128.

3) *Problem*: Information sharing among primary care, anesthesiology, and surgical team members is critical for optimal care in the ambulatory surgery setting, but a significant number of patients arrive on the day of surgery without complete information available to their surgical team.

   Organization involved: A local ambulatory surgery center

   Possible solution: Create an electronic template that must be submitted by the surgeon at least 24 hours in advance of the surgery.

   Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

   References:

   Carayon, P., Schultz, K. and Hundt, A.S. "Wrong site surgery in outpatient settings: The case for a human factors system analysis of the outpatient surgery process" *The Joint Commission Journal on Quality and Safety*, July 2004, vol.20, no.7, 405-410.

   Schultz, K., Carayon, P., Hundt, A.S. and Springman, S.R. "Care transitions in the outpatient surgery preoperative process: Facilitators and obstacles to information flow and their consequences" *Cognition, Technology and Work.* 2007; 9(4): 219-231.

4) *Problem:* Many patients hospitalized with a heart attack do not receive life-saving drug therapy on discharge.

   Organization involved: A local hospital.

   Possible solution: Develop and implement a guideline for heart attack patients in your hospital that includes the recommendation to discharge patients on these drugs.

   Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

   References:

   Mehta, R. H., et. al. Improving quality of care for acute myocardial infarction: The Guidelines Applied in Practice (GAP) Initiative. *JAMA*. 2002;287(10), 1269-1276.

5) *Problem*: Approximately two-thirds of kidney dialysis patients with hyperlipidemia do not receive hyperlipidemic drugs.

   Organization involved: A local kidney dialysis center.

Possible solution: Organize an in-house workshop for all physicians associated with the kidney dialysis center to educate them in the necessity of conducting laboratory testing to identify hyperlipidemia and the importance of drug therapy for kidney dialysis patients.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

References:

Fox CS, Longenecker JC, Powe NR, et al. Undertreatment of hyperlipidemia in a cohort of United States kidney dialysis patients. *Clinical Nephrology*. 2004;61(5):299-307.

6) *Problem*: 20% of all antibiotics prescribed for respiratory infections in nursing homes are unnecessary.

Organization involved: A community-based nursing home.

Possible solution: Informational brochures provided to physicians and advanced-practice nurse practitioners describing the differences between viral and bacterial causes of respiratory tract infections in the institutionalized elderly and minimum criteria for initiation of antibiotics in these individuals.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

References:

Vergidis P, Hamer DH, Meydani SN, et al. Patterns of antimicrobial use for respiratory tract infections in older residents of long-term care facilities. *J Am Geriatr Soc* 2011; 59(6): 1093-98.

Loeb M, Bentley DW, Bradley S, et al. Development of minimum criteria for the initiation of antibiotics in residents of long-term care facilities: results of a consensus conference. *Infect Control Hosp* Epidemiol 2011; 22(2): 120-4.

Loeb M, Carusone SC, Goeree R, et al. Effect of a clinical pathway to reduce hospitalizations in nursing home residents with pneumonia: a randomized controlled trial. *JAMA* 2006; 295(21): 2503-2510.

7) *Problem*: Four out of every 1000 drugs ordered in a hospital setting are administered inappropriately (wrong route, wrong dose, wrong patient, wrong time, wrong drug) (Lesar 1997).

Organization involved: A local hospital.

Possible solution: Implementation of a bar-coding medication administration system.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

References:

Bates DW, Cullen DJ, Laird N, et al. Incidence of adverse drug events and potential adverse drug events. Implications for prevention. ADE Prevention Study Group. *JAMA*. 1995;274(1):29-34.

Johnson CL, Carlson RA, Tucker CL, Willette C. Using BCMA software to improve patient safety in Veterans Administration medical centers. *Journal of Healthcare Information Management.* 2002;16(1):46-51.

8) *Problem*: 2-5% of hospitalized patients who require central venous access develop central-line associated blood stream infections (CLABSIs).

Organization involved: A local training hospital.

Possible solution: Web-based education focused on strategies for reducing contamination of central lines at insertion provided to incoming staff and trainees on an annual basis.

Question: What key factors should this organization consider when considering this solution from the perspective of Module (Fill in the Blank)?

References:

Marschall J, Mermel L, Classen D, et al. Strategies to prevent central line-associated bloodstream infections in acute care hospitals. *Infect Control Hosp Epidemiol* 2008; 29(Suppl 1): S22-30.

Pronovost P, Needham D, Berenholtz S, et al. An intervention to decrease catheter-related bloodstream infections in the ICU. *N Engl J Med* 2006; 355(26): 2725-32.

Schulman J, Stricof R, Stevens TP, et al. Statewide NICU central line-associated bloodstream infection rates decline after bundles and checklists. *Pediatrics* 2011; 127(3): 436-444.

Timeline for Group Project

Sun, Sept 9	Upload student survey assignment to Canvas.
Tue, Sept 11	Groups are announced. During class, the groups are requested to exchange phone numbers and e-mail addresses and to schedule meeting times.
Tue, Sept 18	Groups choose two potential poster topics from the available list of topics, and e-mail the chosen poster topics to Tola Ewers (lmewers@wisc.edu).
Tue, Sept 25	Groups are assigned faculty advisors and one of their two chosen poster topics. Students begin data collection; make appointments with library staff as necessary. Within the next few weeks, students analyze the project case and complete a literature search. Students are encouraged to contact their assigned faculty advisor with questions and for feedback as your group progresses through the project.
Tue, Nov 20	Students submit a rough draft of their poster and final bibliography to their advisor through Canvas. After submission, advisors provide written feedback on the final drafts.
Tue, Dec 11	The group poster session occurs. Each student presents their completed evaluation of fellow group members as a ticket to the presentation. **The peer evaluation form must be completed and returned at the time of the poster session.**

Mini Paper Due Date Summary

Tue, Oct 16	Module 1 mini paper due on Canvas site by 11:59 p.m.
Tue, Nov 20	Module 2 mini paper due on Canvas site by 11:59 p.m.
Thur, Dec 13	Module 3 mini paper due on Canvas site by 11:59 p.m.

Introduction

Sun, Sept 9 – Student Survey due

Submit your student survey in Canvas by 11:59 p.m.

Tue, Sept 11 – Introduction to PH703 Philosophy and Instructors

Chassin, M. R., & Galvin, R. W. The urgent need to improve health care quality. Institute of Medicine National Roundtable on Health Care Quality. *JAMA.* 1998;280(11):1000-1005.

Shi L, Singh DA. A Distinctive System of Health Care Delivery. *Delivering Health Care in America - A Systems Approach*. 3d ed. Sudbury, MA: Jones and Bartlett; 2004. (pp. 2-20 ONLY)

Dekker, S. W. and Leveson, N.G. (2015). "The systems approach to medicine: Controversy and misconceptions." BMJ Quality & Safety 24(1): 7-9.

Tue, Sept 11 – Poster assignment groups announced

Quality Measurement, Improvement, and Accountability
Module 1 - Maureen Smith

Tue, Sept 18 – E-mail your 2 preferred poster topics to Tola Ewers

Please choose someone from your group to email your group's 2 preferred poster topics to Tola Ewers (lmewers@wisc.edu) by midnight.

Tue, Sept 18 – Lecture – Quality Assessment and the Professional Model

Medical Professionalism Project – ABIM Foundation. Medical professionalism in the new millennium: a physician charter. *Annals of Internal Medicine.* 2002;136(3):243-6.

Shortell, S. M., T. M. Waters, et al. Physicians as double agents: maintaining trust in an era of multiple accountabilities. *JAMA.* 1998;280(12):1102-8.

Donabedian, A. The quality of care. How can it be assessed? *JAMA.* 1988;260:1743-8.

Tue, Sept 18 – Lab – Measuring the Quality of Care for a Heart Attack Patient

We will abstract structural, process, and outcome measures of the quality of care from the hospital chart of a patient discharged with a diagnosis of acute myocardial infarction.

CMRI. Improving care for acute myocardial infarction. 2002.

Review http://www.wchq.org/ reports

Tue, Sept 25 – Lecture – Performance Measurement

MacLean, C. H., Kerr, E. A., & Qaseem, A. Time Out – Charting a Path for Improving Performance Management. *New England Journal of Medicine*, 2018;378(19), 1757-1761.

Berenson, R. A., Pronovost, P. J., & Krumholz, H. M. Achieving the potential of health care performance measures. Princeton (NJ): *Robert Wood Johnson Foundation*, 2013.

Panzer, R. J., Gitomer, R. S., Greene, W. H., Webster, P. R., Landry, K. R., & Riccobono, C. A. Increasing demands for quality measurement. *JAMA*, 2013;310(18), 1971-1980.

OPTIONAL - *Improving America's Hospitals: The Joint Commission's Annual Report on Quality and Safety*. Joint Commission, 2013.

OPTIONAL - *Improving Quality and Patient Experience: The State of Health Care Quality*. National Committee on Quality Assurance, 2013.

OPTIONAL - Damberg, C. L., Sorbero, M. E., Lovejoy, S. L., Lauderdale, K., Wertheimer, S., Smith, A., ... & Schnyer, C. (2011). An evaluation of the use of performance measures in health care.

Tue, Sept 25 – Guest Lecture, Dr. Jonathan Jaffery – Accountable Care Organizations

Jonathan Jaffery, MD, is the UW Health Chief Population Health Officer and President of the UW Health ACO. He is a Professor of Medicine at UWSMPH, has worked for the US Senate Committee on Finance, and is a former chief medical officer for the Wisconsin State Medicaid program. He is also a board-certified nephrologist and maintains an active clinical practice in chronic kidney disease.

Davis, K. & Schoenbaum, S. C. Toward high-performance accountable care: Promise and pitfalls. *The Commonwealth Fund Blog.* Sept. 14, 2010.

Fisher, E. S., Shortell, S. M. Accountable Care Organizations: Accountable for what, to whom, and how. *JAMA* 2010;304(15):1715-16.

Tue, Oct 2 – Guest Lecture – Dr. Grace Flood, UW Health Quality, Safety & Innovation Department

Dr. Flood is the Medical Director for Clinical Analytics and Reporting at UW Health.

Review http://www.squire-statement.org/

Ogrinc, G., Mooney, S. E., et al. The SQUIRE (Standards for Quality Improvement Reporting Excellence) guidelines for quality improvement reporting: explanation and elaboration. *Qual Saf Health Care* 2008;17(Suppl 1):i13-i32.

Tue, Oct 2 – Lecture – Measuring and Improving Performance

OPTIONAL - England, E. How interrupted time series analysis can evaluate guideline implementation. *The Pharmaceutical Journal*. 2005;275:344-347.

OPTIONAL - Chan, P., Khalid, A., Longmore, L, et al. Hospital-wide code rates and mortality before and after implementation of rapid response team. *JAMA*. 2008;300(21):2506-2513.

OPTIONAL - Morgan, O., Griffiths, C., & Majeed, A. Interrupted time-series analysis of regulations to reduce paracetamol (acetaminophen) poisoning. *Public Library of Science: Medicine*. 2007;4(4):0654-0659.

Tue, Oct 2 – Group Project Topics and Faculty Advisors Assigned

Group project topics (one of the two that your group has selected) and faculty advisors for each group will be assigned and e-mailed to the class on this date.

Tue, Oct 9 – Lecture – Learning Health Systems

Greene, S. M., Reid, R. J., & Larson, E. B. Implementing the Learning Health System: From Concept to Action. *Annals of Internal Medicine*. 2012;157:207-210.

Kraft, S., Caplan, W., Trowbridge, E., Davis, S., Berkson, S., Kamnetz, S., & Pandhi, N. Building the Learning Health System: Describing an Organizational Infrastructure to Support Continues Learning. *Learning Health Systems*. 2017;1:e100134.

Forrest, C. B., Chesley Jr., F.D., Tregear, M. L. & Mistry, K. B. Development of the Learning Health System Researcher Core Competencies. *Health Services Research.* 2017 Aug. 4.

Tue, Oct 9 – Case Study – Creating a Learning Health System for High-need, High-cost Patients at UW Health

Bates, D.W., Saria, S., Ohno-Machado, L., Shah, A. and Escobar. Big data in health care: using analytics to identify and manage high-risk and high-cost patients. *Health Affairs.* 2014;33(7):1123-1131.

Blumenthal, D., Chernof, B., Fulmer, T., Lumpkin, J. & Selberg, J., Caring for high-need, high-cost patients—an urgent priority. *New England Journal of Medicine*, 2016.375(10), 909-911.

Woodward, J. & Rice, E. Case Management. *Nursing Clinics of North America.* 2015;50(1):109-121.

Human Factors and Systems Engineering, Quality, and Technology
Module 2 – Edmond Ramly

Tue, Oct 16 – Mini-Paper 1 due at 11:59 p.m.

Tue, Oct 16 – Guest Lecture – Dr. Christie Bartels – Clinic Protocols in Outpatient Clinics

Dr. Bartels will present the Connect Health project. Read the paper on BP Connect and download the toolkits on BP Connect and Quit Connect from the HIPxChange website: https://www.hipxchange.org/BPConnectHealth and https://www.hipxchange.org/QuitConnectHealth

Bartels, C. M., Ramly, E., Johnson, H. M., Lauver, D. R., Panyard, D. J., Li, Z., ... & McBride, P. E. (2018). Connecting Rheumatology Patients to Primary Care for High Blood Pressure: Specialty clinic protocol improves follow- up and population blood pressures. *Arthritis care & research.*

Tue, Oct 16 – Lecture – Systems Engineering and Quality: Structure and Process

Read the original SEIPS model paper (2006) and the 2014 paper that describes applications of the SEIPS model:

Carayon, P., Hundt, A. S., Karsh, B.-T., Gurses, A. P., Alvarado, C. J., Smith, M., and Brennan, P.F. Work system design for patient safety: The SEIPS model. *Quality & Safety in Health Care*. 2006;15(Suppl I), i50-i58.

Carayon, P., Wetterneck, T.B., Rivera-Rodriguez, A.J., Hundt, A.S., Hoonakker, P., Holden, R. and Gurses, A.P. "Human factors systems approach to healthcare quality and patient safety" *Applied Ergonomics*, 2014, 45(1): 14-25.

Dekker, S. W. and Leveson, N.G. (2015). "The systems approach to medicine: Controversy and misconceptions." *BMJ Quality & Safety* 24(1): 7-9.

Read the viewpoint by Levitt on the Dekker & Leveson's paper and the response by Dekker & Leveson:

Levitt, P. (2014). "Challenging the systems approach: Why adverse event rates are not improving." *BMJ Quality & Safety* 23(12): 1051-1052.

Dekker, S. W. and Leveson, N.G. (2014). "The bad apple theory won't work: Response to 'Challenging the systems approach: why adverse event rates are not improving' by Dr Levitt." BMJ Quality & Safety 23(12): 1050-1051.

Kaplan, G., Bo-Linn, G., Carayon, P., Pronovost, P., Rouse, W., Reid, P. and Saunders, R. Bringing a Systems Approach to Health. National Academy of Engineering and Institute of Medicine, July 10, 2013.

Tue, Oct 23 – Lecture – Team-Based Care

Klein, S. & Hostetter, M. (2014) In Focus: Integrating Behavioral Health and Primary Care. *The Commonwealth Fund* [Find It]

Cohen, D. J., Davis, M., Balasubramanian, B. A., Gunn, R., Hall, J., Peek, C. J., ... & Pollack, D. (2015). Integrating behavioral health and primary care: consulting, coordinating and collaborating among professionals. *The Journal of the American Board of Family Medicine*, 28(Supplement 1), S21-S31.

Cohen, D. J., Balasubramanian, B. A., Davis, M., Hall, J., Gunn, R., Stange, K. C., ... & Clark, K. (2015). Understanding care integration from the ground up: five organizing constructs that shape integrated practices. *The Journal of the American Board of Family Medicine*, 28(Supplement 1), S7-S20.

Davis, M. M., Balasubramanian, B. A., Cifuentes, M., Hall, J., Gunn, R., Fernald, D., ... & Cohen, D. J. (2015). Clinician Staffing, Scheduling, and Engagement Strategies Among Primary Care Practices Delivering Integrated Care. *The Journal of the American Board of Family Medicine*, 28(Supplement 1), S32-S40.

Gunn, R., Davis, M. M., Hall, J., Heintzman, J., Muench, J., Smeds, B., ... & Brown, J. (2015). Designing clinical space for the delivery of integrated behavioral health and primary care. *The Journal of the American Board of Family Medicine*, 28(Supplement 1), S52-S62.

Hall, J., Cohen, D. J., Davis, M., Gunn, R., Blount, A., Pollack, D. A., ... & Miller, B. F. (2015). Preparing the workforce for behavioral health and primary care integration. *The Journal of the American Board of Family Medicine*,28(Supplement 1), S41-S51.

Tue, Oct 23 – Lecture – Teams, Teamwork, and Team Performance

We will identify structural (work system) and process issues related to the implementation of team-based care and discuss strengths and weaknesses of team-based care.

Salas, E., K. A. Wilson, Murphy, C.E., King, H. and Salisbury, M. (2008). "Communicating, coordinating, and cooperating - When lives depend on it: Tips for teamwork." *The Joint Commission Journal on Quality and Patient Safety* 34(6): 333-341.

Salas, E., et al. (2008). "On teams, teamwork, and team performance: Discoveries and developments." *Human Factors* 50: 540-547.

Weaver, S.J., et al. (2010). "Does teamwork improve performance in the operating room? A multilevel evaluation." *The Joint Commission Journal on Quality and Patient Safety* 36(3): 133-142.

Tue, Oct 30 – Lecture – Health Information Technology Design, Implementation and Use

Carayon P, Wetterneck TB, Hundt AS, Ozkaynak M, DeSilvey J, Ludwig B, Ram P, Rough S. Evaluation of nurse interaction with bar code medication administration technology in the work environment. *Journal of Patient Safety*. 2007;3(1):34-42.

Institute of Medicine (2012). Health IT and Patient Safety: Building Safer Systems for Better Care. Washington, DC, The National Academies Press. (summary chapter)

Karsh, B.-T. (2004). "Beyond usability: Designing effective technology implementation systems to promote patient safety." *Quality and Safety in Health Care* 13: 388-394.

Wetterneck, T., Walker, J.M., Blosky, M.A., Cartmill, R., Hoonakker, P., Johnson, M.A., Norfolk, E. and Carayon, P. "Factors contributing to an increase in duplicate medication order errors after CPOE implementation." *Journal of the American Medical Informatics Association*, 2011, 18: 774-782.

Tue, Oct 30 – Guest Lecture – Kendra Kreutz – Health Information Technology in the Wild

Karsh, B. T., Weinger, M. B., Abbott, P. A., & Wears, R. L. (2010). Health information technology: fallacies and sober realities. *Journal of the American Medical Informatics Association*, 17(6), 617-623.

Holden, R. J., & Karsh, B. T. (2010). The technology acceptance model: its past and its future in health care. *Journal of biomedical informatics*, *43*(1), 159-172.

Tue, Nov 13 (4:30-5:45 pm) – Guest Lecture – Betsy Clough – Quality improvement and patient safety in a complex health system: Challenges and opportunities

Betsy Clough, MPH, is the Vice-President for Quality and Patient Safety at UW Health. She oversees quality improvement and patient safety activities across all components of UW Health, including primary care, inpatient care and specialty care. Betsy Clough will describe the overall strategy for quality improvement and patient safety at UW Health, and its future directions. She will also talk about the integration of industrial and systems engineering concepts and knowledge/skills in a health system such as UW Health.

Tue, Nov 13 – System and Process Redesign

Carayon, P., Li, Y., Kelly, M. M., DuBenske, L. L., Xie, A., McCabe, B., . . . Cox, E. D. (2014). Stimulated recall methodology for assessing work system barriers and facilitators in family-centered rounds in a pediatric hospital. *Applied Ergonomics*, *45*(6), 1540-1546.

Kelly, M. M., Xie, A., Carayon, P., DuBenske, L. L., Ehlenbach, M. L., & Cox, E. D. (2013). Strategies for improving family engagement during family-centered rounds. *Journal of Hospital Medicine*, *8*(4), 201-207.

Xie, A., Carayon, P., Cartmill, R., Li, Y., Cox, E. D., Plotkin, J. A., & Kelly, M. M. (2015). Multi-stakeholder collaboration in the redesign of family-centered rounds process. *Applied Ergonomics*, *46*(Part A), 115-123.

Xie, A., Carayon, P., Cox, E. D., Cartmill, R., Li, Y., Wetterneck, T. B., & Kelly, M. M. (2015). Application of participatory ergonomics to the redesign of the family-centred rounds process. *Ergonomics*, 1-19.

Implementation of Quality Improvement Interventions
Module 3 – Christopher Crnich

Tue, Nov 6 – Lecture – Implementation Theory

Kitson et al. Enabling the implementation of evidence based practice: a conceptual framework. *Qual Hlth Care* 1998; 7: 149-158.

Davidoff F. Heterogeneity is not always noise: lessons from improvement. *JAMA* 2009; 302: 2580-2586.

Peters et al. Implementation research: what is it and how to do it. *BMJ* 2013; 347: f6753.

Optional Readings:

Curran et al. Effectiveness-implementation hybrid designs: combining elements of clinical effectiveness and implementation research to enhance public health impact. *Med Care* 2012; 50: 217-226.

Tue, Nov 6 – Lecture – Contextual Influences on Implementation

Greenhalgh T et al. Diffusion of innovation in service organizations: a systematic review and recommendations. *Milbank Q* 2004; 82: 581-629.

Krein et al. The influence of organizational context on quality improvement and patient safety efforts in infection prevention: a multi-center qualitative study. *Soc Sci Med* 2010; 71: 1692-1701.

Flodgren et al. Local opinion leaders: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2011; 8: p. CD000125.

Dixon-Woods et al. Explaining Michigan: developing an ex post theory of a quality improvement program. *Milbank Q* 2011; 89: 167-205.

Optional Reading: Dixon-Woods et al. Explaining Matching Michigan: an ethnographic study of a patient safety program. *Implement Sci* 2013; 8: p.70.

Foy et al. The role of theory in research to develop and evaluate the implementation of patient safety practices. *BMJ Quality & Safety* 2011; 20: 453-459.

Tue, Nov 20 – Mini-Paper for Module 2 due in Canvas at 11:59 p.m.

Tue, Nov 20 – Lecture – Influence of Intervention Characteristics on Implementation

Cabana, M., Rand, S., et al. Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA.* 1999;282:1458-1465.

Squires et al. Are multifaceted interventions more effective than single-component interventions in changing health-care professionals' behaviors? An overview of systematic reviews. *Implement Sci* 2014; 9: p. 152

Damschroder et al. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci* 2009; 4: p.50.

Tue, Nov 20 – Lecture – Interventional Strategies for Changing Provider Behaviors

Cane et al. Validation of the theoretical domains framework for use in behavior change and implementation research. *Implement Sci* 2012; 7: p. 37.

Giguere et al. Printed educational materials: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2012; 10: p. CD004398.

Jamtvedt et al. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2012; 6: p.CD000259.

Flodgren et al. Local opinion leaders: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2011; 8: p. CD000125. *(See Nov. 13 readings on Canvas)*

Optional Reading: Grimshaw et al. Changing provider behavior: an overview of systematic reviews of interventions. *Medical Care* 2001; 39 (8 Suppl 2): II2-45.

Tue, Nov 20 – Poster Rough Draft and Bibliography Due in Canvas

Have one person from your group upload your poster rough draft and bibliography to Canvas by 11:59 p.m.

Tue, Nov 27 – Guest Lecture – Dr. Jay Ford – Facilitated Implementation, Lessons from the Field

Jay Ford, PhD, is an Associate Scientist at the University of Wisconsin Center for Health Systems Research and Analysis (CHSRA) with 33 years' experience as a health systems engineer and 12 years as a health services researchers. Dr. Ford has implemented practice improvement and sustainability projects in several areas of healthcare, including behavioral healthcare (mental health and addiction treatment), falls prevention and antibiotic stewardship.

Tue, Nov 27 – Where does the Intervention End and Implementation Start?

Proctor et al. Implementation strategies: recommendations for specifying and reporting. *Implement Sci* 2013; 8: p. 139

Eldh et al. Clinical intervention, implementation intervention, and the potential greyness in between – a discussion paper. *BMC Health Serv Res* 2017; 17: p. 16

Tue, Dec 4 – Bringing it Together: Approaches to Intervention Implementation

Davidoff et al. Demistifying theory and its use in improvement. *BMJ Quality & Safety* 2015; 24: 228-238.

Pronovost et al. Translating evidence into practice: a model for large scale knowledge translation. *BMJ* 2008; 337: p. a1714.

Michie et al. The behavior change wheel: a new method for characterizing and designing behavior change interventions. *Implement Sci* 2011; 6: p. 42

Bartholomew et al. Intervention mapping: a process for developing theory- and evidence-based health education programs. *Health Educ Behav* 1998; 25: 545-63.

Optional Reading: Steinmo et al. Characterizing an implementation intervention in terms of behavior change techniques and theory: the "Sepsis Six" clinical care bundle. *Implement Sci* 2015; 10: p.344

Optional Reading: Nilsen P. Making sense of implementation theories, models and frameworks. *Implement Sci* 2015; 10: p. 53

Tue, Dec 4 – Mini-Lab – Reducing Unnecessary Antibiotic Use in Skilling Nursing Facilities

Crnich et al. Optimizing antibioticstewardship in nursing homes: a narrative review and recommendations for improvement. *Drugs and Aging* 2015; 32: 699-716.

Conclusion

Tue, Dec 11 – Poster Session (during class)

Thur, Dec 13 – Mini-Paper 3 due at 11:59 p.m.