# Department of Medicine
# Internal Medicine Residency Program

Stanford University School of Medicine

## *Elective in Quality Improvement, Patient Safety, and Organizational Change*

Syllabus and Reader
**2014-2015**

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# PART I: GUIDELINES AND REQUIREMENTS FOR THE ELECTIVE

## About the Elective in QI, Patient Safety & Organizational Change

This elective is a 4-week training and mentorship experience at Stanford University Hospitals and Clinics. **The overarching goal of the elective is to provide mentored practice and growth in residents' knowledge, skills, and attitudes in quality improvement, patient safety, and organizational change**. The resident will engage in directed readings in quality, patient safety, and organizational change, attend sessions with experienced "QI Champions", learn about quality improvement projects and processes at Stanford University, participate in ongoing quality and patient safety activities within the Department of Medicine and Stanford Hospital & Clinics, and design and begin a quality improvement /patient safety/organizational change project. Residents should receive regular verbal feedback.

The quality improvement elective is also designed to allow the resident to develop mentoring relationships with "QI Champions" who will serve as role models, mentors, and educators.

### Goals of the quality improvement elective

At the end of the quality improvement elective, residents should be able to see increases in:

- Knowledge of key components of reflective practice
- Skill in applying reflective practice
- Knowledge in the definition of quality improvement (QI)
- Knowledge of key steps in a QI project
- Knowledge of criteria for selecting a QI project team
- Knowledge of practice-based learning and improvement
- Knowledge of systems-based practice
- Familiarity with QIPS infrastructure at Stanford Hospital and Clinics
- Familiarity with publicly reported core measures, national data on quality/patient safety
- Appreciation of QI as part of the physician's professional role
- Confidence in participating in a QI project
- Ability to communicate with peers about QI principles, as well as specific projects and resources at Stanford
- Ability to synthesize QI concepts from key readings
- Ability to apply knowledge to a QI project at Stanford

## Course Contacts

Rotation Directors and Educators:
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## List of Roles and Responsibilities

***What are the responsibilities of the resident?***

- Learn and follow all guidelines in this syllabus.
- Satisfactorily complete of **all** quality improvement elective requirements:
  - Complete required online IHI modules (see pgs.7, 8)
  - Complete required readings (see pg. 9)
  - Attend departmental and hospital QI/PS meetings (see calendar)
  - Meet regularly with the rotation team (see calendar)
  - Complete a PDSA project plan (see pg. 10)
  - At the end of the rotation, the resident should present their project and/or key learning from their rotation experience to colleagues through the following three activity areas:
    - Lead a QI M&M noon conference (see pg. 12)
    - Lead a QI Project Presentation noon conference with 5 minute overview of Visibility Wall data (see pg. 14)
    - Complete an end-rotation status report through a handoff video (see pg. 15)
  - Complete a final course evaluation (see pg. 16)
- Meet with individuals as relevant to project area
- Seek ongoing evaluative feedback and incorporate suggestions for improvement into ongoing assignments and projects.
- Adhere to academic and professional standards.
- Contact the rotation team if there are concerns about resident responsibilities.
- Serve as "QI Ambassadors" to resident colleagues.

***What are the responsibilities of the QI elective team?***

- Orient and instruct the resident regarding QI elective academic program requirements, professional behavior and evaluation procedures.
- Be available to the resident on a formal or informal basis to facilitate the progress of the resident.

**Timeline of Roles and Responsibilities**

Each Monday afternoon during weekly check-in, there will be time for your reflections and questions about QI meetings attended and IHI modules.

<table>
<tr><td colspan="2">Week One: Introduction to QI at Stanford</td></tr>
<tr><td>Activity<br>Literature review on topic area<br>QI meetings<br>Online IHI modules:<br>- Introduction to QI (QI 101; QI 102)<br>- Introduction to PS (PS 102)</td><td>Outcomes due Friday<br>PDSA plan: topic area and outcomes (e.g. scholarship) defined<br><br>Summary of literature review for presentation on Monday next week</td></tr>
<tr><td colspan="2">Week Two: Project Development and Peer Education</td></tr>
<tr><td>Activity<br>Review and prep for QI M&M<br>QI meetings<br>Online IHI modules:<br>- Methodology (QI 103; PS 105)<br>- Culture change (PS 106; QI 104)</td><td>Outcome due Friday<br>PDSA plan: progress plan defined<br><br>M&M outline for feedback</td></tr>
<tr><td colspan="2">Week Three: QI implementation and data collection</td></tr>
<tr><td>Activity<br>Review of handoff video assignment<br>Finalize two noon conferences; invite stakeholders<br>QI meetings<br>Online IHI modules:<br>- Methodology (QI 106)<br>- Teams (PS 103)</td><td>Outcome due Friday<br>PDSA plan: project underway, data collected<br><br>Project presentation outline for feedback<br><br>Visibility Wall updated for peers</td></tr>
<tr><td colspan="2">Week Four: Summarizing and Handing off</td></tr>
<tr><td>Activity<br>Present QI M&M (Wed)<br>Present QI Project (Fri)<br>QI meetings<br>Develop end-rotation status report through handoff video<br>Course feedback</td><td>Outcome due Friday<br>PDSA plan: project completed, data analyzed, findings summarized, next steps<br><br>Handoff video<br><br>Course evaluation</td></tr>
</table>

**Required activities: IHI Open School modules**

The IHI Open School is located online http://www.ihi.org/lms/onlinelearning.aspx

Login registration for the IHI Open School should be set up as "student" or "resident" role to access the curriculum. The following modules are required during the rotation (see pg. 7 for schedule):

- *Patient Safety:* 102: Human Factors and Patient Safety; 103: Teamwork and Communication; 105: Root Cause and Systems Analysis; 106: Introduction to Culture of Safety

- *Quality Improvement:* 101: Fundamentals of Improvement; 102: The Model For Improvement; 103: Measuring for Improvement; 104: How QI Works in Real Health Care Settings; 106: QI Tools

We encourage you to participate in any additional IHI Open School Modules for self-directed learning.

## Required activities: Readings

1) **Before the rotation, please purchase the book "Understanding Patient Safety" by Robert Wachter.**

2) **Before the rotation, please watch:** http://www.ted.com/talks/atul_gawande_how_do_we_heal_medicine.html

3) **For the first day of the rotation, residents should come prepared to discuss 3 articles (see pg. 32 for readings):**
   - Quality: The Mayo Clinic Approach.
   - Involving Residents in Quality Improvement: Contrasting "Top-Down" and "Bottom-Up" Approaches (ACGME, 2008).
   - Physicians' Professional Responsibility to Improve the Quality of Care (AMJ 2002).

4) All other course readings are available as resources (see reading list pg. 21), and can be found online on MedHub; PDFs available upon request.

**Required activities: PDSA Project Plan/ IRB**

The project plan should be completed each Friday of the rotation for review/ modification with rotation team each Monday. Complete IRB if publishing work.

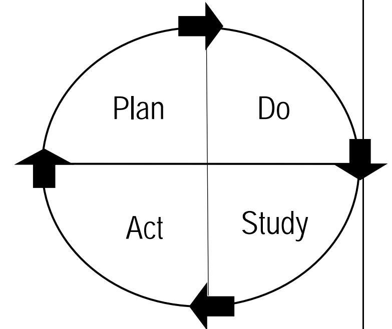
**Overall aim:**

**Test population:**

**Team members:**

**PLAN:**

Briefly describe the test:




How will you know that the change is an improvement?

What driver does the change impact?

What do you predict will happen?

Plan for change or test: who, what, when, where

| Test start date: | Target test completion date: |
|---|---|

| List the tasks necessary to complete this test (what) | Person responsible (who) | When | Where |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

Plan for collection of data:

**DO:** Test the changes.

Was the cycle carried out as planned?

Record data and observations.

What did you observe that was not part of our plan?

**STUDY:**
Did the results match your predictions?

Compare the result of your test to your previous performance:

What did you learn?

**ACT:** Decide to Adopt, Adapt, or Abandon.

☐ Adapt: Improve the change and continue testing plan.
Plans/changes for next test:

☐ Adopt: Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability

☐ Abandon: Discard this change idea and try a different one

**Required activities: QI M&M Noon Conference**

QI M&M goals:

- Educate housestaff in practice based learning and improvement and systems based practice
- Gain housestaff input and involvement in ongoing systems improvement
- Partner with housestaff to better understand contributing factors that impact patient care
- Provide follow up on cases and action plan

QI M&M learning objectives:
By the end of the M&M Conference, participants will have increased …

1) Confidence and competence in utilizing QI methodologies ( including, but not limited to: Root Cause Analysis, Healthcare Failure Modes and Effects Analysis, and Just Culture)
2) Knowledge in the definition of quality improvement (QI)
3) Knowledge of key steps in a QI project
4) Knowledge of practice-based learning and improvement
5) Knowledge of systems-based practice
6) Familiarity with QIPS infrastructure at Stanford Hospital and Clinics
7) Familiarity with publicly reported core measures, national data on quality/patient safety
8) Appreciation of QI as part of the physician's professional role
9) Confidence in participating in a QI project
10) Ability to communicate with colleagues about QI principles, as well as specific projects and resources at Stanford
11) Ability to identify QI opportunities in case presentations and day-to-day patient care

QI M&M Educational Format:
(60 mins, but formatted for 45 since it starts late)

- Review of goals (3-5 mins)
    - What are we learning today? (These can be case-specific or system-specific, but should map onto our overall goals and objectives above)
- Case presentation (10-15 mins)
- Explanation of methodologies used in the case review (5 mins)
    - What is the framework? (Just Culture, RCA, processing mapping, FMEA)
- Identify systems issue(s) in small groups (5 mins)
- Discuss with large group (10 mins)
- Background/data (3-5 mins)
    - Literature/best practices on topic for benchmarking

    - Any Stanford or national data we can show for this clinical or systems issue (compare?)
    - Review slides with project selection criteria
- ACTION PLAN: Where are we now and what happens next? (15 mins)
    - Action plan developed with large group
    - Identify where we are in the QI infrastructure slide to show process of systems improvement at Stanford (identify resources, etc)
    - Identify where we are in the10 steps of QI project to show where we are in process
        - QI resident does steps 1-3; group does steps 4-6 for the most part

For examples of previous presentations, please speak with Kambria H. Evans, M.Ed.

**Required activities: QI Project Noon Conference**

Your QI Project presentation's purpose is to gather peer input on your intervention idea and to communicate with peers about QI principles, as well as specific projects and resources at Stanford. *Part of your presentation will be a 5 minute overview of the Resident Performance Dashboard on the Visibility Wall, which you will have updated by the Friday before.*

For examples of previous presentations, please speak with Kambria H. Evans, M.Ed.

**Required activities: End-rotation Status Report through a Handoff Video**
At the end of the rotation, the resident should complete an end-rotation status report in Powerpoint. This is intended to summarize progress to date and outline steps to keep the initiative going, even in the resident's absence.

The report should include specific resources needed for ongoing data monitoring and evaluation. Think about what you would want to know if you were next month's QI resident coming into this project.

This will be videotaped/ recorded as a virtual handoff in LKSC with EdTech. Prepare for about a 30 minute handoff video.

Request through SMILI: http://smili.stanford.edu/consultation/index.html

For more specific instructions, please speak with Kambria H. Evans, M.Ed.

## Required activities: Course Evaluation

*Your responses on this instrument are entirely confidential. They will be used for programmatic evaluation research purposes only and will be reported only as grouped data. We appreciate your cooperation in completing every item.*

**Rate yourself on each of the following BEFORE participating in the rotation (as viewed retrospectively) and CURRENTLY.**

| | BEFORE ROTATION | | | | | CURRENTLY | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low | | | | High | Low | | | | High |
| Knowledge of key components of reflective practice | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Skill in applying reflective practice | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Knowledge in the definition of quality improvement (QI) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Knowledge of key steps in a QI project | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Knowledge of criteria for selecting a QI project team | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Knowledge of practice-based learning and improvement | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Knowledge of systems-based practice | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Appreciation of QI as part of the physician's professional role | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Confidence in participating in a QI project | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Familiarity with QIPS infrastructure at Stanford Hospital and Clinics | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Familiarity with publicly reported core measures, national data on quality/patient safety | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Ability to communicate with peers about QI principles, as well as specific projects & resources at SU | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Ability to synthesize QI concepts from key readings | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| Ability to apply knowledge to a QI project at Stanford | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

**What worked well in the rotation?**

**What can be improved in the rotation?**

## Optional activities

If you'd like skill development in (1) creating curriculum and teaching in patient safety topics to nurses at the VA or (2) participating in a rapid improvement project (RPIW), please contact:

**Nazima Allaudeen, MD**
Hospitalist, Department of Medicine
Veterans Affairs Palo Alto Healthcare System

VA- Palo Alto Healthcare System
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Palo Alto CA 94304
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Fax: 650 849 1213
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# PART II: NATIONAL AND STANFORD QI RESOURCES

## Resources

| | |
|---|---|
| JCAHO National Patient Safety Goals | http://www.jointcommission.org/PatientSafety/NationalPatientSafetyGoals/ |
| AHRQ | http://www.ahrg.gov/qual/ |
| JCAHO Core Measures | http://www.jointcommission.org/PerformanceMeasurement/PerformanceMeasurement/default.htm |
| UHC Core Measures & Mortality | http://www.uhc.edu/ |
| Society of Hospital Medicine | http://www.hospitalmedicine.org/AM/Template.cfm?Section=Quality_Improvement |
| Institute for Healthcare Improvement | http://www.ihi.org/IHI/Programs/StrategicInitiatives/TransformingCareAtTheBedside.htm |
| HHS Hospital Compare | http://www.hospitalcompare.hhs.gov/Hospital/Search/Welcome.asp?version=default&browser=IE%7C7%7CWinXP&language=English&defaultstatus=0&pagelist=Home |
| Cal Hospital Compare | http://www.calhospitalcompare.org/ |
| Leapfrog | http://www.leapfroggroup.org/ |
| Picker Institute | http://www.pickerinstitute.org/index.html |
| 3M Consulting Group | http://solutions.3m.com/wps/portal/3M/en_US/3M_Health_Information_Systems/HIS/Services_Support/Consulting/ |
| Health Grades | http://www.healthgrades.com/ |

Thompson Reuters Top Hospitals http://www.100tophospitals.com

CMS Value Based Purchasing http://www.cms.hhs.gov/Acute InpatientPPS/downloads/hospital_VBP_plan issues_paper.pdf

Additional online module and resources

- Mayo Clinic Quality Academy Educational Resources: http://qiresources.mayo.edu/
- IHI Open School Modules: http://www.ihi.org/lms/onlinelearning.aspx
- Vanderbilt: www.improvementskills.org (small fee to register)
- Interprofessional Healthcare Informatics (online course) https://www.coursera.org/course/newwayhealthcare

Research and survey design

- Manuscript guidelines http://www.aacc.org/publications/clin_chem/ccgsw/Pages/default.aspx#
- Survey design
  - http://www.keene.edu/crc/forms/designingsurveysthatcount.pdf
  - http://www.sagepub.com/upm-data/14496_Chapter5.pdf
  - http://www.socialresearchmethods.net/kb/survey.php
- Writing in the Sciences (online course) https://www.coursera.org/course/sciwrite

## Resource Readings

*Course readings can be found online on MedHub, and are available as PDF upon request.*

**Reflective Practice: Concepts and Applications**

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**Patient Safety**

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833.

Milch CE, Salem DN, Pauker SG, Lundquist TG, Kumar S, Chen J. Voluntary electronic reporting of medical errors and adverse events. An analysis of 92,547 reports from 26 acute care hospitals. *J Gen Intern Med.* Feb 2006;21(2):165-170.

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Wachter RM, Shojania KG. *Internal bleeding : the truth behind America's terrifying epidemic of medical mistakes*. 2nd ed. New York City, NY: Rugged Land; 2005.

AHRQ: Quality and Patient Safety http://www.ahrq.gov/qual/

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Fischer MA, Mazor KM, Baril J, Alper E, DeMarco D, Pugnaire M. Learning from mistakes. Factors that influence how students and residents learn from medical errors. *J Gen Intern Med.* May 2006;21(5):419-423.

Gaba DM. Anaesthesiology as a model for patient safety in health care. *Bmj.* Mar 18 2000;320(7237):785-788.

Gandhi TK, Weingart SN, Borus J, et al. Adverse drug events in ambulatory care. *N Engl J Med.* Apr 17 2003;348(16):1556-1564.

Hofer TP, Hayward RA. Are bad outcomes from questionable clinical decisions preventable medical errors? A case of cascade iatrogenesis. *Ann Intern Med.* Sep 3 2002;137(5 Part 1):327-333.

Ilan R, Fowler R. Brief history of patient safety culture and science. *J Crit Care.* Mar 2005;20(1):2-5.

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Kachalia A, Johnson JK, Miller S, Brennan T. The incorporation of patient safety into board certification examinations. *Acad Med.* Apr 2006;81(4):317-325.

Leape LL, Berwick DM. Five years after To Err Is Human: what have we learned? *Jama.* May 18 2005;293(19):2384-2390.

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Mazor KM, Fischer MA, Haley HL, Hatem D, Quirk ME.Teaching and medical errors: primary care preceptors' views. Med Educ. 2005 Oct;39(10):982-90.

McCarthy D, Blumenthal D. Stories from the sharp end: case studies in safety improvement. *Milbank Q.* 2006;84(1):165-200.

Millenson ML. *A brief history of the patient safety movement.* Available at *http://*www.healthjournalism.org/qualityguide/pdf/timeline.pdf
“History of Patient Safety Timeline”

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**Quality Improvement**

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**Facilitating Change through Leadership and Teams**

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**Organizational Development and Process Planning**

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Resident QI Project Themes

- Alcohol withdrawal treatment best practices
  - *February 2011: Judy Ashouri*
- Discharge process improvements
  - *November 2010: Marianne Yeung; March 2011: Hugh Keegan; July 2011: James Wantuck; August 2011: Mai Shiota; November 2011: Rena Patel; October 2012: Shanshan Bond; May 2012: Jane He; August 2012: Emilee Wilhelm; September 2013: Molly Kantor; September 2013: Shobha Stack; January 2014: Ping Wang; August 2014: Mala Mandyam*
- EPIC: utilization for documentation and BPAs
  - *July 2008: Jason Adams; April 2009: Crystal Evey; November 2009: Roni Brar; December 2013: Daniel Fang; September 2014: Justin Lofti (nutrition)*
- Engaging housestaff in quality and core measures
  - *September 2008: Chris Eversull; November 2008:Manali Patel; January 2009: John Kim; August 2009: Dan Brennen; September 2013: Wendy Caceres; December 2013: Daniel Fang; June 2014: Kirsten Brandt*
- Goals of care
  - *December 2008: Zach Koontz; January 2010: Sarah McGill; October 2011: Tyler Johnson; February 2012: Becky Chase*
- Hand hygiene compliance
  - *July 2009: Sidharta Sinha; August 2012: Wendy Caceres*
- Handovers and transfers (e.g. ICU, day to night team, outside records)
  - *May 2010: Chanu Rhee; November 2012: Annie Katz; September 2013: Wendy Caceres; March 2014: Robert Fairchild; July 2014: Thomas Lew; August 2014: Mike Turken; October 2014: Brian Dietrich*
- Impact of resident call schedules
  - *November 2013: Nathaniel Myall; James Barnes*

- MD-RN communication/ MD-RN rounding
  - *August 2008: Prateeti Khazanie; May 2009: Lily Kao; April 2011: Aaliya Yaqub; May 2011: Tyler Johnson; September 2011: David Iberri*
- Outpatient diabetes improvement
  - *August 2009: Ellen Eaton; April 2010: Kat Cheung*
- Patient satisfaction and experience
  - *December 2009: Troy Leo (teamcards); January 2012: Marilyn Tan (whiteboards); January 2013: Neera Narang (language placards); January 2014: Anna Postolova*
- Procedures: increasing resident confidence
  - *February 2009: Azar Mehdizadeh; June 2012: Jason Bartos*
- Sepsis identification and treatment best practices
  - *September 2009: Vickie Kelly; June 2010: Steve Pan; October 2010: Jessica Zhou; April 2012: Janet Leung*
- Value and Cost
  - *October 2009: Andy Samuelson; March 2012: Gurmeet Sran*

<u>Resident QI Publications</u>

M. Tan, K. Hooper, C. Braddock, L. Shieh, "Patient Whiteboards to Improve Patient Centered Care in the Hospital", Postgrad Med J; 89(1056): 604-9, Oct 2013

J. Chen, D. Fang, L. Goodnough, K. Evans, M. Porter, L. Shieh, "Why providers transfer blood products outside recommended guidelines in spite of integrated electronic best practice alerts", J Hospital Medicine, Jul 7, 2014

D. Fang, G. Sran, D. Gessner, P. Loftus, A. Folkins, J. Christopher, L Shieh, "The Effect of Cost and Turn-Around Time Display on Inpatient Ordering of Reference Laboratory Tests", BMJ Qual Saf. Aug 27, 2014

K. Evans, W. Daines, J. Tsui, M. Strehlow, P. Maggio, L. Shieh, "Septris: A novel, mobile, online, game improves sepsis recognition and management", accepted to Academic Medicine Innovation Jul 2014

M. Kantor, K. Evans, L. Shieh, “Pending studies at hospital discharge: A pre-post analysis of an electronic medical record tool to improve communication at hospital discharge”, accepted to JGIM, Sept 2014

T. Garg, J. Lee, J. Chen, K Evans, L. Shieh. “Development of a best practice discharge checklist for hospital patients using the electronic medical record.” Accepted to Jt Comm J Qual Patient Safety, Oct 2014