The RITE Program: Use of a Team-Based, Project-Based Multidisciplinary Quality Improvement Course to Facilitate Improvement in an Academic Medical Center

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Stanford MEDICINE | Realizing Improvement through Team Empowerment

BACKGROUND

In summer of 2014, radiology was tasked with 55 major improvement projects. At the time, the department had no structured mechanism to accomplish them. Projects included a variety of categories:

1. Ongoing improvement initiatives that had not reached their objectives
2. Projects motivated by patient safety events
3. Projects to increase efficiency
4. Patient and referring clinician dissatisfaction

Front line staff had limited training and no formal structure to effectively solve these problems.

HYPOTHESIS

Multiple intra- and inter-departmental improvement initiatives could be successfully completed by training and empowering front line teams to work together to solve meaningful problems within an organized improvement framework.

PURPOSE

The purpose of this project was to develop and implement an academic departmental program that could simultaneously 1) facilitate the successful execution of quality improvement (QI) projects and 2) provide an effective practical education in QI methods using a team- and project-based model.

The program had three primary objectives:
1. Provide practical education in quality improvement
2. Empower front line teams to make change
3. Produce sustainable results and processes

MATERIALS AND METHODS

A 10-session, 20-week, course was developed and implemented in the radiology department, with strong support from both the hospital and medical school leadership. The program was initially given the name Radiology Improvement Team Education (RITE), but the name was changed to Realizing Improvement through Team Empowerment (RITE) to better reflect its mission and its inclusion of teams outside Radiology.

Candidate projects were nominated based on identified needs from department leaders and staff. Projects were submitted and preliminarily evaluated prior to a project prioritization meeting.

A project prioritization matrix (**Fig. 1**) was developed to projects' likely feasibility and impact on the organization, with an emphasis on patient safety.
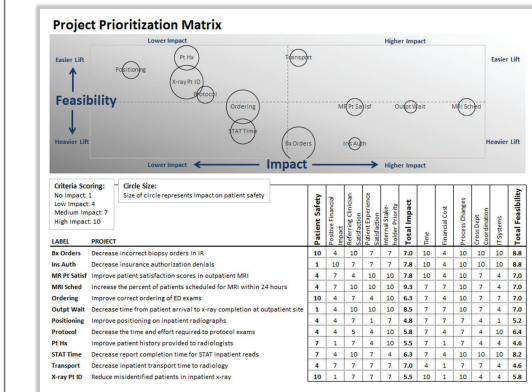

Figure 1. Project Prioritization Matrix. See Larson DB, Mickelsen LJ. AJR 2015;205:W470-W477.

8 projects and teams were selected. Each team included a leader, 3-7 participants, a sponsor, and a QI coach. Each session lasted 2 hours. Lunch was provided for all participants. Didactic material was presented in a "flipped classroom" style, with 28 short videos (5-15 minutes) made available online prior to each session and with 30 minutes of discussion and review during the session (**Fig. 2**). Each team was also expected to share a book report chosen from a selection of Improvement-related books. Teams were instructed in framing their problem in an "A3" format (**Fig. 3**).
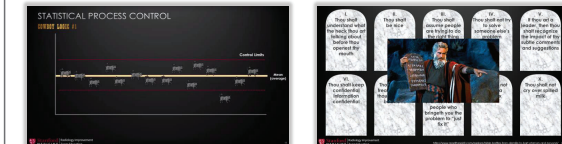

Figure 2. Screen captures of didactic videos (www.youtube.com/user/StanfordRadQuality).

At each session, teams provided a project update, received feedback, and provided feedback to others. Project progress was tracked using a project progress scale (**Fig. 4**). Team coaches met separately with the course director and with department leaders weekly to review project progress and identify and remove barriers as needed.
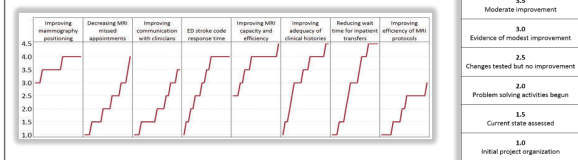

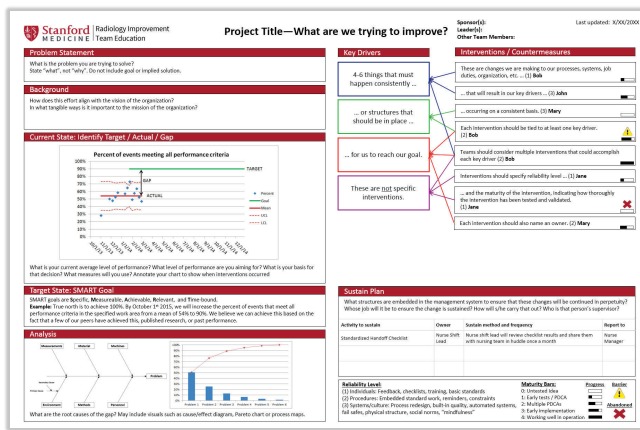**Figure 4.** Project Progress Scale and results by team.

Figure 3. A3 template used in the RITE program

RESULTS

A total of 41 individuals participated in cohort 1:
- 9 administrative leaders
- 9 residents/fellows
- 7 technologists
- 6 faculty physicians
- 5 administrative staff
- 5 nurses

The course was led by a radiologist (associate department chair) and two QI coaches. Projects included 1) improving mammography positioning, 2) decreasing MRI missed appointments, 3) improving communication with clinicians, 4) ED stroke code response time, 5) improving MRI capacity and efficiency, 6) improving adequacy of clinical histories, 7) reducing wait time for inpatient transfers, and 8) improving efficiency of MRI protocols

The average project progress score increased from 1.4 (out of a possible 5) to 4.0/5, with 5 projects achieving substantial improvement and 3 projects achieving sustained substantial improvement by the completion of the course (**Fig. 4**). Run charts of 3 selected projects are shown in **Figure 5**.

A survey of was administered at the end of the course in which participants provided a self-assessment of their skills prior to and at the end of the course on a 1-6 scale (1=no knowledge, 2=basic knowledge, 3=basic application, 4=analysis and application, 5=highly experienced, and 6=expert) (**Fig. 6**). Average self-assessment scores for each skill increased from a median of 2.53/6 to 4.45/6, with the greatest improvements in the ability to develop a SMART goal, use of A3 thinking, and effectively using a key driver diagram.
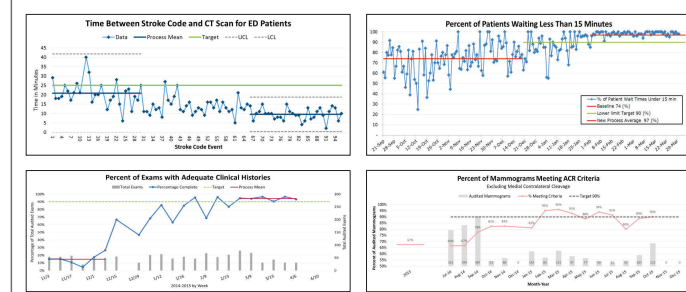

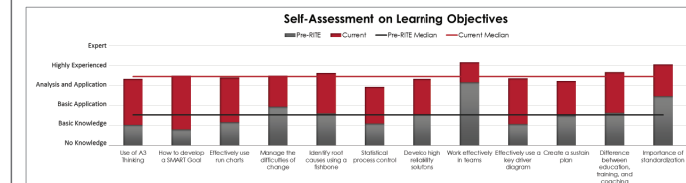
Figure 5. Run charts of 4 selected projects.

Figure 6. Results of self-assessment of achievement of learning objectives.

CONCLUSIONS

The multidisciplinary RITE course was effective in simultaneously facilitating the successful completion of multiple departmental improvement projects and improving participants' self-assessed skills in QI methodology. Total time spent in class was 20 hours, with half of that time occurring during the lunch hour. Participants reported a high level of satisfaction, though trainee satisfaction was lower than that of other participants. The authors identified 10 key elements that were believed to contribute to the success of the program:

10 keys to a successful QI education program

1. People who do the work teamed up to solve meaningful problems
2. QI coaches to assist the teams with QI methods and tools
3. Physician director with QI expertise and organizational authority
4. Program director who can orchestrate program and projects
5. Supportive department leaders who mentor, protect time, remove barriers
6. Weekly "walk the wall" sessions to ensure project progress
7. Applicable, timely, and focused QI education material
8. Structured problem solving methods (A3, run chart, Pareto diagram, process map, etc.)
9. Environment where projects are done simultaneously to promote team to team learning and peer recognition
10. Frontline teams given authority to test and develop significant departmental changes

RITE