GUIDE

IHI Open School Faculty Guide: Best Practices for Curriculum Integration

February 2017

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Acknowledgements: Special thanks to the members of our faculty network for their contributions and feedback through individual survey responses and interviews with our team.

Access this guide online at any time at:
http://www.ihi.org/education/IHIOpenSchool/Courses/Pages/OSInTheCurriculum.aspx

Part I: Introduction to the IHI Open School and Curriculum Integration

About this Guide

Before we begin, here's a quick overview of how we hope this guide will help you:

Who is this guide for?

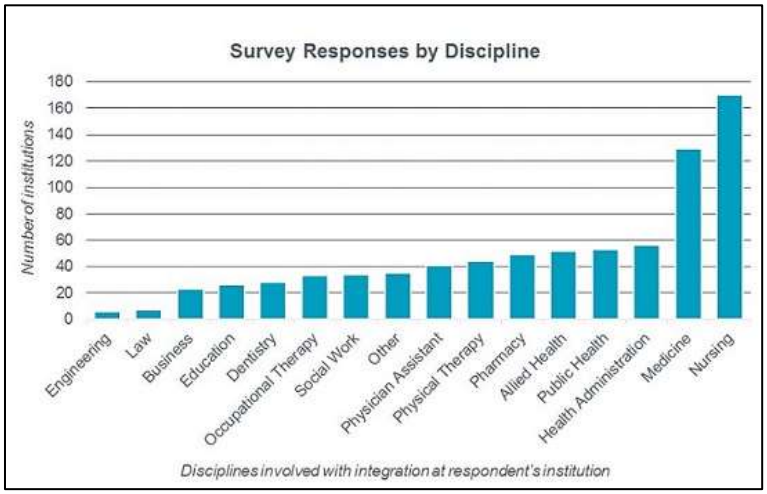
This guide is for educators in health care who would like to take advantage of content from the IHI Open School to help teach quality improvement and patient safety. We created the guide with the hope that anyone interested in using the Open School as a teaching tool would find it valuable. University faculty, leaders of residency programs and other graduate or post-licensure programs, and trainers in hospitals and health care organizations should find plenty of relevant and actionable advice.

Why have a guide to curriculum integration?

More than 1,000 universities and hospitals have used Open School courses in some capacity. Over the years, the Open School has heard from many educators who are interested in teaching quality and safety or are inspired by the Open School, but who aren't always sure how to integrate the courses into their teaching. In other cases, educators who are already teaching with the Open School have asked how to improve or sustain their teaching of this material.

What does this guide cover?

In 2016, the Open School surveyed hundreds of faculty who use the Open School courses in their teaching. These educators represented a diverse set of health professional programs from 16 countries, and this guide brings together their collective expertise and experiences.



This guide touches upon the following aspects of teaching with the Open School: typical approaches to integration, strategies for supplementing the courses with other learning tools, tips for securing approval from critical stakeholders, and advice on sustaining changes over time once an effective program is in place. Whether you are associated with a university, post-licensure or graduate training program, or a professional organization, this guide will help you use the Open School to pursue your unique educational goals.

A Brief History and Overview

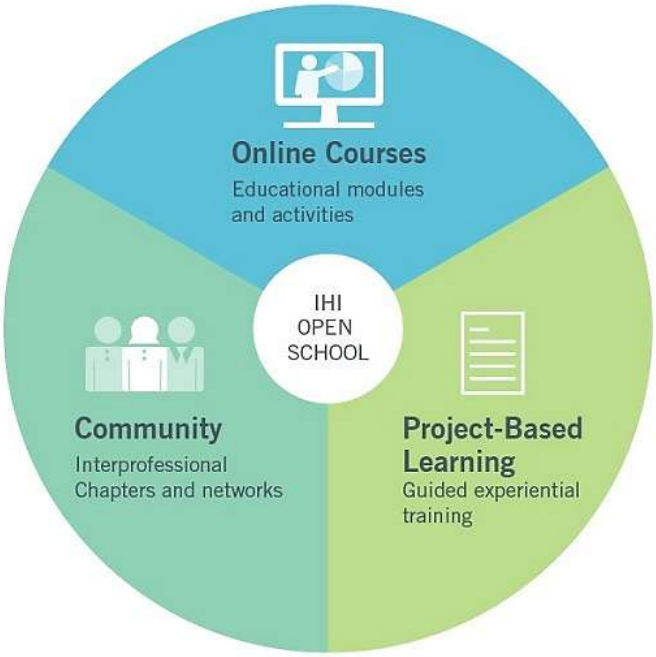
The IHI Open School began as a handful of online courses, first published in September 2008, designed to provide a basic education in quality and safety for all health professions students.

Since then, the online course catalog has grown to include more than 30 courses, including courses designed for Graduate Medical Education (GME) faculty and professionals.

Meanwhile, the scope of the Open School has also evolved to include a large and vibrant interprofessional Chapter Network, which is comprised of more than 830 local Chapter groups that meet face-to-face at university campuses and organizations around the world. Chapter activities include learning together about the principles of quality improvement, teaching others on campus or at a health system about quality improvement, and working on quality improvement projects.

Today, there is also a third arm of the Open School, which helps learners gain practical experience with improvement in their local settings. Through project-based learning opportunities, the Open School provides expert guidance and coaching to help learners achieve real results in improving health and health care.

The tireless efforts of university faculty and other educators around the world have been instrumental to the Open School's success in each of these three areas. These individuals have been vital in bringing the skills of improvement, safety, system design, and leadership to the next generation of health care professionals.



When learners engage with the Open School's online education, local Chapters, and guided improvement projects, they join more than 5000,000 interprofessional students and residents from universities, organizations, and health systems around the world.

A Closer Look at the IHI Open School Courses

For educators who are unfamiliar with the Open School courses, here is a brief overview of what they include and how you might use them.

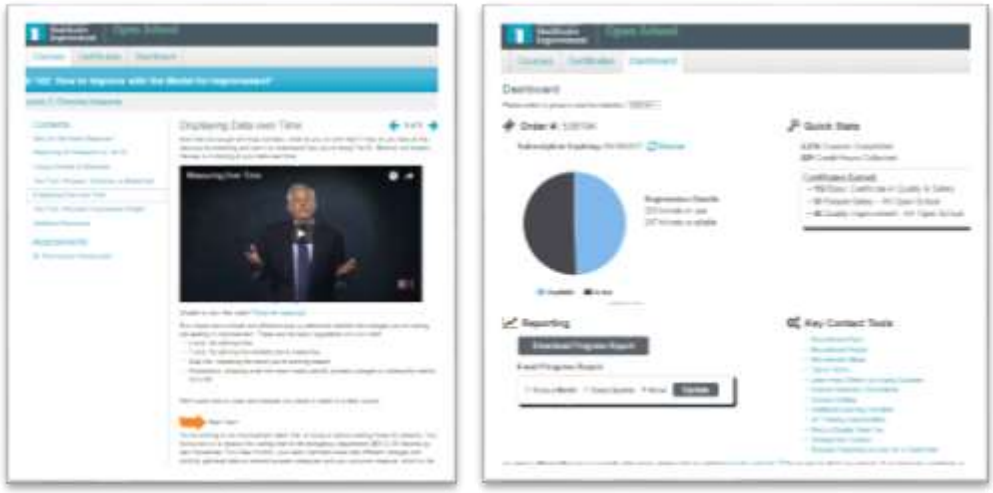
The Open School offers more than 30 online courses in quality, safety, leadership, the Triple Aim, and patient-centered care. Thirteen of the introductory level courses (QI 101–Q105, PS 101–105, TA 101, PFC 101, and L 101) comprise the Open School's Basic Certificate in Quality and Safety. (When you enter the catalog, look for the courses indicated with an asterisk.)

Beyond the Basic Certificate, there are other 100-level courses that teach introductory concepts for all health professions. There are also 200-level courses, which teach intermediate concepts and specialized topic areas, and there is a 300-level course — a project-based learning module, which we will discuss later.

The courses incorporate mixed media, including video and interactive discussion, to engage learners and cater to different learning styles. Courses are grouped into catalogs and broken down into lessons, which take 15–45 minutes to complete. As you are thinking through what to assign to learners in your program, keep these different options for "chunking" material in mind.

Educators are often surprised to learn the Open School courses are free for students, residents, and faculty to access. We provide open access to these audiences because we are committed to making quality and safety education available to future health professionals. Please note that when learners or faculty make use of Open School materials, we ask that they credit us appropriately, including throughout course materials such as assessments or syllabi. (For guidance on the preferred language to acknowledge the Open School, see page 21 in the Appendix.)

To provide free access to health professionals in training, IHI offers individual and group subscriptions to professionals, who can earn continuing education credits. Academic and professional groups can purchase subscriptions that provide access to the Team Tracking Tool. These tools help educators teach the content and monitor learners' progress.



Open School courses can help faculty and organizations achieve several goals:

- Introducing learners to the fundamental concepts and importance of quality improvement and patient safety worldwide.
- Meeting structural or accreditation standards.
- Creating a shared understanding of improvement and a common language within an organization or a class.
- Helping prepare students or staff members to be leaders in their careers.

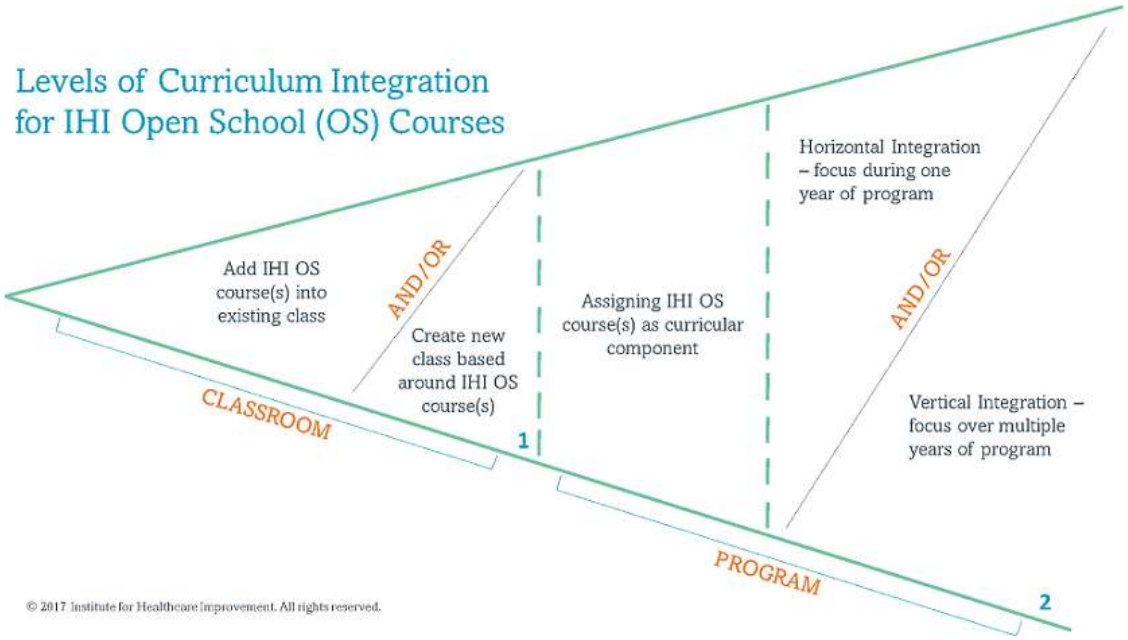
We'll share many strategies to help accomplish these goals throughout this guide.

Introduction to Curriculum Integration

For this guide, "curriculum integration" is the intentional inclusion of one or more Open School courses within a broader educational experience.

When we talk about "curriculum integration," we are referring to the intentional inclusion of one or more Open School courses within a broader educational experience. As far as what a "curriculum" entails, that is up to you, the educator, to define. The Open School courses may be included by one professor in the curriculum for a single class; or, they may be a central curricular component of a multi-year clinical program. For example, an institutional committee may assert that Open School courses should be covered incrementally, at multiple points throughout a student's training.

For simplicity, we will describe two levels of integration, which we will call "classroom integration" and "program integration." Although this depiction should not limit you (on the contrary, we welcome you to go outside the lines), we hope that understanding common approaches, and some of their benefits and challenges, will give you a place to start as you think about integrating the courses in your own way.



As you begin to envision how you will integrate the Open School courses into your curriculum, consider two key questions:

How deep will the learning experience be?
Experts have defined five levels of competency in quality improvement: novice, advanced beginner, competent, proficient, and expert (see the article "Designing Education to Improve Care" on page 22 in the Appendix). On the simpler side, the goal may be basic exposure to a few key concepts — perhaps the Model for Improvement or the fundamentals of patient safety. On the more ambitious side, some educators choose to weave the Open School courses with other forms of content and applied learning opportunities. Consider: What level of proficiency do you want learners to achieve?

How broad will the integration be?
Integrating the Open School courses may begin and end with one faculty member and a single course. Or, the integration may span a year of training or more, as an integral component of

program-level requirements. Consider: To what extent will the education be a coordinated effort, taking place across different classes, semesters, or years of training?

As previously mentioned, there are two main levels of integrating the Open School courses into the curriculum: the classroom level and the program level. This section of the Guide will provide some description of each of these levels — including where they will naturally overlap — and successful models within them.

Level 1: Classroom integration

Adding Open School courses to the curriculum of an individual class can be a simple way to bring quality and safety training to a select group of learners, especially in situations that require little or no involvement from administration or more than one faculty member. Depending upon the existing infrastructure, here are two common forms of classroom-level integration.

A. Embed IHI Open School courses into existing teaching material.
Understanding quality and safety can enhance health professionals' effectiveness in virtually every area of work, so opportunities to weave the courses into existing teaching material should be easy to find. At the classroom level, "integration" in its simplest form is the step of adding a few Open School courses (or even part of one course, perhaps a lesson) to the syllabus, teaching material, or homework for an existing class.

With this approach, look for ways to anchor the content to existing material. As part of a class on maternal health, for example, you might include one or more Open School courses on person- and family-centered care, and relate the learning back to the clinical topic area. If you already teach quality improvement concepts, classroom integration can be as intuitive as adding Open School courses to the relevant discussion.

B. Create a new class inspired by the IHI Open School courses.
With more than 30 online courses (comprising more than 80 more narrowly focused lessons), the Open School can easily serve as the foundation for learning about quality and safety; the courses provide excellent building blocks for educators who want to design from the ground up. The courses could be the primary source of learning about quality and safety concepts or could play a key supportive role.

Although tied to a specific classroom, this form of curriculum integration requires coordination at the program level. For example, programmatic leadership will likely want to establish how a new class will factor into overall learning goals and requirements. This model of classroom integration therefore overlaps with our next discussion, which focuses on program-level integration. (Note: For advice on making the case for inclusion of a new class in a competitive curricular environment, see pages 15–18.)

Level 2: Program integration

Integration at the program level means the Open School courses are a central component of program-wide curricular goals. The education may still be tied to the classroom setting or may be entirely independent of classroom learning. For example, Graduate Medical Education programs often rely on the courses to introduce quality and safety concepts to residents, which faculty then reinforce in the clinical setting. Compared to classroom-level integration, the educational design may be more or less complicated; however, more people will likely need to be involved in approving, coordinating, and perhaps teaching the material. This need for coordination can create a challenge at the outset, but the collaborative effort helps ensure the Open School integration will

last. As with classroom-level integration, there are different ways to approach integration at the program level.

A. Assign IHI Open School courses as a stand-alone requirement.

The Open School online courses can offer a stand-alone introduction to key topic areas, and many organizations rely on them as a way to provide this training independent of classroom learning or everyday work responsibilities. For example, many programs ask trainees or staff to complete the Basic Certificate in Quality and Safety (the Open School's pre-packaged curriculum of 13 foundational courses) outside of their clinical duties, and learners submit their certificates of completion as proof of their work. Other programs assign a hand-picked selection of courses and subscribe to the Open School's Team Tracking Tool to monitor learners' progress.

Although this option does not provide the depth of learning of the approaches we'll describe next, assigning Open School courses as independent learning is effective for programs that wish to introduce some fundamental concepts without significant changes to the existing structures. It's a good place to start for hospitals who want to create a common language in patient safety and quality improvement across the organization. It's also a good place to start for academic programs that aren't yet able to invest significant time or resources into teaching quality and safety.

B. Assign IHI Open School courses as part of a broader effort to teach quality and safety.

Including the Open School courses as part of a centralized curriculum to teach quality and safety requires significant coordination among educators and program leadership, but the result can be worth the effort. Teaching Open School content in multiple encounters across classes or program years can help learners understand its ongoing connection to their primary studies. Two ways institutions can structure a coordinated, multi-faceted Open School integration effort include:

- *Horizontal program integration:*

  Horizontal integration refers to teaching Open School content over multiple time frames within a program year. It is a coordinated effort among faculty so that learners are taking courses each semester or across planned didactic sessions that build upon each other over the training year.

  As with individual classroom integration, if the institution already has quality and safety programming in place, integrating the Open School courses can be as simple as making appropriate connections to existing subject matter.

- *Vertical program integration:*

  Vertical integration takes the use of the Open School courses a step further, spanning across multiple program years. In this approach, quality and safety may become a focus throughout the full health professional program or associated training. It is a highly coordinated effort, in which faculty and learners understand the education to be a core competency.

  Achieving this extensive level of integration requires bringing together a group of educators that represent each stage of training. This group, which may be interprofessional, must design a synchronized plan for presenting different aspects of

safety and quality over time. The potential payoff is a cooperative group of faculty and learners who share a common commitment to patient safety and quality improvement.

For more examples and models of curriculum integration, including the Six-Step Approach for Curriculum Development in Medical Education, see page 22 in the Appendix.

Part II: Planning for Success

Curricular Structure

The most common question educators have when they begin to think about teaching with the Open School is: "Where do I start?"

Visit the "How to improve" section on IHI.org for resources and general advice on leading improvement projects using the Model for Improvement as your guide.

Faculty around the world who have already integrated the courses respond with the same advice: Don't wait for a state of readiness — just dive in. And as you do, follow the same general advice you would give to others at the outset of an improvement project: Set an aim, establishing what you are trying to accomplish, for whom, and by when; create a list of the key measures you'll track; and start with a small test of change. Starting small — with one course, topic area, or small group of students (e.g., learners in one discipline) — can help secure buy-in across the institution and keep things manageable for individual faculty.

As with any improvement effort, you'll want to stay focused on outcomes, with the needs of your learners at the center. Planning will be a critical step that can make all the difference in your success. Be sure to answer the following questions at the outset of your integration effort.

How will I choose what to teach?

There is no need to assign all the Open School courses right away or at once. Instead, start small, and start with yourself. If you are a university faculty member, the courses are all free. Personally reviewing as many Open School courses as you can will allow you to note the most relevant topics or the ones you feel are most important to teach first. We also recommend two resources to help you and your colleagues identify the material you'd like to teach:

- The course catalog offers a high-level view of the entire curriculum.
- For greater detail, course summaries include lesson-by-lesson outlines of key learning content.

Taking time to get acquainted with the breadth of content available should help you envision your ideal curriculum. In your vision, be sure to keep overall program-level objectives in mind.

When you feel comfortable with the content, you may want to start by assigning the courses in one topic area (e.g., patient safety, quality improvement, or population health). Or start with just one introductory course, such as *PFC 101: Introduction to Patient-Centered Care*. After some early success (defined by positive feedback from students, for example), you can gradually expand to other content areas or more advanced coursework.

Will the content be required or optional?

There are many programs that require Open School courses for class credit, graduation, or certification. There are also many programs that offer the courses as a voluntary opportunity for

intrinsically motivated students or staff. Both of these are great options, but one may work better for your context.

If you are planning to require the courses, consider using the Open School's Team Tracking Tool to understand your learners' progress. Available by subscription, this tool captures overall course completions, names of participants, post-lesson assessment scores, and other useful data for faculty.

How will I ensure learners have time to complete the content?

As you envision your assignments, keep the time requirements in mind. Every course and course lesson include an estimated completion time, usually between 15–45 minutes per lesson, on the first page. If you are adding courses to an already packed curriculum or syllabus, try to think of what you can shorten or remove. In the professional setting, think of how you can help create time for staff to participate.

Access this guide online at any time at http://www.ihi.org/education/IHIOpenSchool/Courses/Pages/OSInTheCurriculum.aspx.

How will the Open School fit into the broader quality and safety curriculum, if applicable?

The Open School courses provide strong foundational knowledge in the areas of quality improvement, patient safety, and several other health care improvement topics. However, supporting the course learning with additional resources, group discussion, activities, and projects can raise learners' confidence and proficiency. Think of how you can connect the courses to classwork and these other types of learning opportunities — starting with some of the ideas below.

Curricular Design

Weaving different content types and teaching formats together can reinforce concepts and bring them to life. When it comes to selecting additional subject matter to pair with the Open School courses — whether for assignments, lectures, or group activities — consider supplemental content from within the Open School and beyond. The Open School offers many free educational activities on its website, outside of the courses.

You should also look beyond the Open School to find compelling content that's relevant to your group — perhaps in relation to the discipline of study, local current events, or a particular topic of interest. Here are a few formats you may want to include in your teaching and some ideas to get you started:

Reading materials

Many faculty assign academic papers and books, such as specific sections of *The Improvement Guide*, to dive more deeply into specific topics of interest. Check the "Additional Resources" pages within the Open School courses, usually included at the end of each lesson (prior to the post-lesson assessment). These resource pages list helpful books, articles, and other opportunities to further explore the topic area. We've listed a few reading recommendations in the Appendix as well.

To keep the content fresh and relevant to your particular setting, consider adding news articles into the mix. Current events can contextualize concepts and add urgency to the learning — especially if learners see a chance to make a difference.

Classroom activities or didactic sessions

Group activities — especially with instructor support — are important for learners' long-term retention of concepts. Just like with clinical skills, improvement methodology takes practice and requires mentorship. To give learners the opportunity to discuss new ideas and to practice new skills right away, consider these examples for classroom or group learning sessions:

Flipped classroom
Instead of waiting for learners to come together to introduce them to a new concept, ask them to do independent learning first. If you assign a course as pre-work, the group will have a head start when they meet. This can allow more time for richer discussion.

> *Example*: At the University of Colorado School of Medicine, students review *PS 105: Responding to Adverse Events* in preparation for a panel discussion about error disclosure. The panel presentation, which includes patients, providers, and hospital representatives who have been involved in adverse events, is followed by small group discussion and a role-play activity. Faculty lead Dr. Wendy Madigosky says using the Open School course as pre-work elevates the students' level of reflection and engagement during the discussion.

Learner-led presentations
As educators know, one of the best ways to master a topic is to teach it. With this in mind, some faculty use the teach-back method with the Open School courses. It's an effective way to both assess the presenter's learning and re-engage the audience in the topic (or introduce them to it, depending how the content is divvied up).

> *Examples*: At Universiti Tunku Abdul Rahman in Malaysia, faculty Nem-Yun Boo requires learners to take courses independently and then create their own presentations based on the material, in which they explain what they've learned. The presentations provide faculty with a face-to-face opportunity to identify and clarify important points learners may have missed.
>
> All residents at Boston Medical Center complete a selection of Open School courses as part of the core curriculum of their intern year. In their second year, internal medicine residents participate in a quality or safety initiative. Residents looking for additional learning complete the Open School's Basic Certificate and spend three weeks on rotation at the VA Boston Healthcare System. The VA provides opportunities for residents to join institutional improvement initiatives and present their work, learnings, and experience to their peers and the leadership team.

Games
Games are a fun way to break up didactic content and expand upon that learning. Look for games and exercises on the Open School website, including the following games that reinforce important improvement concepts and include instructional videos, learning objectives, and discussion questions for facilitators:

- Measurement — How Do You Measure the Banana?
- Systems Design — The Paper Airplane Game
- Plan-Do-Study-Act (PDSA) Cycles — The Coin Spinning Game
- Variation — Candy Counting Activity
- Leadership and Management — The Red Bead Experiment

Case studies

Also available through the Open School, case studies help learners understand how concepts relate to real-life situations. Case studies can put a human face on ideas in the abstract, engaging learners on a more personal level — and perhaps inspiring them to take action. The Open School's case studies include facilitator guides with learning objectives and discussion questions. (See page 23 in the Appendix for a list of the Open School's most popular case studies.) Faculty also use and discuss real-life examples and cases, which may be drawn from learners' own experiences, to create meaningful teaching moments.

> *Examples*: At Texas Woman's University School of Nursing, Master's students in the Nursing Health Systems Management track have to find a completed improvement project at their place of work (clinical or not) and describe how they'd sustain or continue to improve the results of that project.
>
> As part of the patient safety curriculum at Vanderbilt University's School of Medicine in Tennessee, students complete a reflection exercise about adverse events and near misses. They reflect on personal experiences as well as those of team members who are not physicians.

Simulated project work

Project-based work is necessary to master the skills and understand the idiosyncrasies of quality improvement. Learners with busy schedules may feel intimidated by the idea of finding time for larger projects, especially those that require teamwork. It can help to provide class time or protected time from clinical training for learners to create and work on team-based projects, whether real or simulated, especially when faculty and mentors make themselves available for coaching.

> *Examples*: At the University of Texas at Austin School of Nursing, students work in teams to plan a quality improvement project to tackle a theoretical problem, including writing a project charter, creating aims, and developing measurement plans. Assistant Professor Terry Jones, RN, PhD, says it's valuable to provide class time to practice this critical planning phase.
>
> During their rotation at the VA Boston Healthcare System, Boston Medical Center residents are expected to lead an interdisciplinary one-hour lunch session on a specific case, facilitating small groups to run rapid root cause analyses and propose potential interventions. Drs. Lakshman Swamy and Christopher Worsham, Chief Residents who supervise these sessions, bring the proposals to decision makers who often use them to effect real change.

Observation

Observing how quality and safety principles relate to the real world of health care (or even other high-risk industries) can contextualize and enhance learners' understanding.

> *Examples*: At the University of Colorado School of Medicine, students review *PS 104: Teamwork and Communication in a Culture of Safety* and attend a lecture reinforcing the importance of teamwork. Then, they shadow local hospital teams to see best practices in action.
>
> At East Carolina University in North Carolina, *PFC 201: A Guide to Shadowing: Seeing Care through the Eyes of Patients and Families* is pre-work before a half-day patient shadowing event. Students follow patients and families through their health care journey to better understand the care experience from patients' points of view.

Learning assessments

Generally, you will want to include some type of learning evaluation in your curriculum. Almost every Open School course includes a short assessment, usually consisting of five or six multiple choice questions, at the end of each lesson. (Learners must score 75 percent or higher to complete a course.) However, you may want to create additional assessments to track collective learning over time or evaluate specific outcomes that are important to you. Many GME faculty use the Accreditation Council for Graduate Medical Education (ACGME)'s Clinical Learning Environment Review (CLER) program to measure learning outcomes, for example. Other faculty create their own written assessments, and others opt for a face-to-face format, which allows instructors to identify and clarify misunderstandings in real-time. Improvement projects, which we'll discuss next, provide a more rigorous (and potentially even more valuable) opportunity to assess learners' ability to apply concepts and improve patient care. (For tools to assess training program outcomes, see page 22 in the Appendix).

> *Example*: At the University of Texas at Austin, educator Terry Jones, RN, PhD, administers a self-assessment at the beginning of her class to check students' knowledge of quality and safety (e.g., conducting root cause analysis, writing project charters, etc.). When the class is concluding, she asks them the same questions again, to see how far they've come.

Project-based learning

Reading, case studies, group activities, and observation can go a long way toward bringing concepts to life, but there is no replacement for the actual experience of setting up and leading a quality improvement project in the real world. Quality and safety experts and experienced faculty strongly recommend pairing didactic content with applied learning, such as project work or practical experience. These types of opportunities can take some work to set up, but the learning will be meaningful. Here are a few tips to get started:

Find projects that are institutionally supported

Your institution may already have improvement projects in progress that learners can join. Try starting there. If you are looking to design a new project, make sure it aligns with leadership-level goals. Keep in mind that Open School Chapters around the world are working on local improvement projects every day, so check for a Chapter in your area; they may be able to help you find a project or involve your learners in their efforts.

> *Examples*: The Duke University Chapter in North Carolina has developed a strong partnership with the Duke Health System. Alongside faculty, the Chapter helped build the Quality and Innovation Scholars Program (QISP). Now moving into its third year, QISP matches students from multiple professions with physicians and health system leaders, who immerse them in interdisciplinary, systems-level quality improvement and innovation. Learn more, including how students and faculty got the program off the ground, from the Open School Blog.
>
> The internal medicine residency program at Boston Medical Center follows a case-based model to teach quality improvement. During rotation at the VA Boston Healthcare System, residents have protected time to focus on quality improvement and patient safety. They review patient safety incidents and screen them for improvement opportunities, with the chance to begin a project or join an existing project during the rotation.

Build partnerships with service organizations or local hospitals

Look for local hospitals and organizations that are willing to accept help from students. Some potential partners may meet you with skepticism, but ask faculty and administrative colleagues for contacts who might be willing to build a relationship. Some schools have established student-run free health clinics, which create a perfect avenue for incorporating quality improvement in the clinic's standard work and processes. Forming a long-term relationship with a partner organization can create enduring opportunities for many learners to come.

Examples: The University of Dundee in Scotland invites small groups of medical students to work with clinical teams and learn how to gather information about patient experiences and feed it back to the clinical teams. These encounters begin in year one of the curriculum, and the students have the option for more in-depth work related to improvement and human factors science. Dr. Peter Davey, a lead faculty for the program, says it's a chance for the participants to establish meaningful relationships with patients and other providers. They learn about the people — instead of just the tasks — of medicine, and they can begin to incorporate a person-centered mindset into their improvement work.

The University of Cincinnati Open School Chapter in Ohio established an interprofessional student-run clinic that operates in partnership with St. Vincent de Paul, a local charitable organization. This collaboration helped establish numerous health services for patients and clients, as well as opportunities for students to meaningfully practice quality improvement.

Use the IHI Open School's project-based learning opportunities

Through two project-based learning opportunities, the Open School provides expert guidance and coaching to help learners achieve real results in improving health and health care. Refer to *QI 301: Guide to the IHI Open School Quality Improvement Practicum* (for learners) and *GME 207: Faculty Advisor Guide to the IHI Open School Quality Improvement Practicum* (for faculty advisors) in the main Open School course catalog. Also look for offerings of the semi-synchronous course *Leadership and Organizing for Change*.

Opportunities for students to learn about people – instead of just the tasks – of medicine help them incorporate a person-centered mindset into their improvement work.

Examples: At Pennsylvania State University School of Nursing, students who had completed Open School courses on leadership, quality, and patient safety in their leadership class suggested incorporating *Leadership and Organizing for Change* into the program's leadership practicum the following semester. Associate Professor Karen Wolf, PhD, was pleasantly surprised that her students were so enthusiastic to continue to advance their learning and leadership.

After learning the basics of quality and safety through other Open School courses, students of Frontier Nursing University take the Open School's Practicum to support them through their first improvement projects at local hospitals and rural health clinics. Lead faculty Diana Jolles, MSN, PhD, has seen her students develop greater mastery of the content, and many partner organizations have praised the level of skills her students bring to the work with their local teams.

Similarly, faculty at the University of Stirling in Scotland have integrated the Basic Certificate in Quality and Safety and the Open School Practicum into the nursing curriculum, and more than 600 students have completed improvement projects as a result. Teaching fellow Brian James reiterated how important it was for students to participate in projects outside the comfort of the classroom, to gain first-hand experience

with the challenges of leading improvement. He said although some students were deterred by initial setbacks, they often shared overwhelmingly positive feedback at the conclusion of projects — having observed the meaningful changes they helped create.

For three specific models for facilitating experiential learning at the point of care, see pages 23–28 in the Appendix or review *GME 205: A Roadmap for Facilitating Experiential Learning in Quality Improvement*.

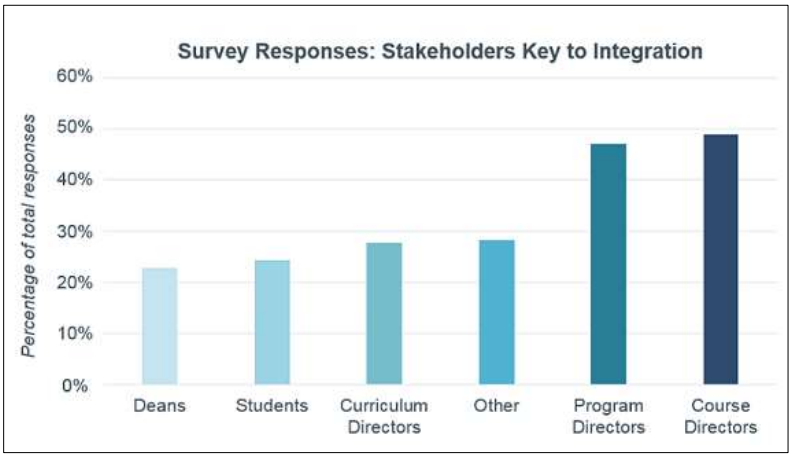
Part III: Securing Buy-in and Sustaining Your Efforts

Engaging Key Stakeholders

In addition to the tasks described in Section II, focused on structuring and designing your curriculum, you'll need to think about building support for your efforts. Adding Open School materials into educational programming may require approval from fellow faculty and leadership, depending upon what you are planning. In some cases, securing buy-in can be the biggest challenge you'll face, especially when you're starting a new class or planning program integration. However, the same advice for any improvement effort continues to apply: Start small and expand your efforts with each incremental success.

Familiarize yourself with our goals, mission, and work to inform your conversations with stakeholders. Take OS 101: Introduction to the IHI Open School.

As you progress further into integrating Open School courses into the curriculum, it's unlikely all your learners and colleagues will readily agree on exactly how the courses should be incorporated. (Frankly, some will feel they should not be added to a jam-packed curriculum in any form.) Faculty, students, administrators, and/or professional colleagues may not understand the importance of quality and safety training. And, very likely, they may feel overcommitted in their current responsibilities. All this can inhibit those around you from appreciating and supporting your vision.



How do you overcome these hurdles? Time and again, faculty and other leaders of Open School integration efforts have underscored the importance of gathering support from across their institutions: students, curriculum and program directors, faculty, and deans are all groups you can and should engage. You never know who will become your biggest champions, and, ideally, you should strive to develop a multi-tiered network of ongoing support.

Students and Learners

Learners who have taken an Open School course or two can speak to the importance of quality improvement and patient safety as part of their learning experience. Ideally, find learners within

your organization who can provide testimonials to help bring other faculty, administration, or students on board. Student champions can describe the relevance of the courses to their education, increasing peers' willingness to accept the courses as meaningful work. Here are a few tips to begin building your cohort of student champions:

Connect with the IHI Open School Chapter at your institution
Look for the Open School Chapter nearest to you. With luck, there may be one at your institution — in which case, be sure to involve them in your efforts to integrate the courses into the curriculum. You can also start your own Chapter.

> *Examples*: At the University of British Columbia, Chapter Leaders were instrumental in leading multiple efforts to integrate quality improvement into programming. With the support of Chapter Faculty Advisors, they led efforts to design a Quality Improvement Practicum Program that connects students with local improvement projects. They also spurred a successful initiative to add the Basic Certificate in Quality and Safety as an elective credit.
>
> At University of South Carolina School of Medicine, students are required to go to at least one Open School Chapter meeting as part of their training.

Be clear about how the courses will grow students' skills and provide long-term benefits
At all costs, avoid suggesting the courses are one more hurdle to jump or box to check for busy students and staff. Instead, explain that the science of improvement will help learners be better health care professionals and that it will contribute to greater success and satisfaction in their careers. For example, remind students they can add the Basic Certificate to their resumes and that the Open School offers chances to both learn about and practice health care leadership. Understanding patient safety concepts will help them prevent adverse events, and improvement methodology will help them be more efficient in their work.

Provide clear instructions to make taking the courses as easy as possible
Before you assign Open School courses to students, provide clear instructions to ensure they will have no trouble finding the online content. For example, institutional subscribers should distribute the log-in information they receive with their subscription. Making things as easy as possible for your learners will help reduce fears that assignments will be confusing or time consuming.

Align the course work with project work
As previously mentioned, there is nothing as motivating as seeing real results, especially those that benefit patients or colleagues. Working on local improvement projects can elicit buy-in as you help learners gain a deeper appreciation of quality improvement as a method to lead meaningful change.

Show that you value feedback
Don't be shy about asking for feedback. Soliciting feedback from learners helps them feel valued and personally invested, and improving your own curriculum shows that you practice what you preach.

Faculty

Oftentimes, a lack of trained faculty makes it difficult for programs to teach quality and safety and becomes a limiting factor for integrating the topics within a curriculum. If possible, help create opportunities for faculty to study quality and safety. The more they know, the better luck you will

have in building a network of educators who can promote and spread the Open School. Here are a few tips to grow a network of devoted faculty:

Develop your own background in quality improvement
Others will gain trust in you if you can point to your own quality and safety expertise or successful improvement efforts. Beyond that, you may find you can apply quality improvement to your course integration initiative. If you don't have the necessary experience to inspire others, join forces with someone who does. Adding an expert's voice will add legitimacy and can be persuasive.

Develop faculty awareness of the principles of quality and safety
If possible, bring together a group of educators, perhaps representing different disciplines or learning stages, to work together to develop capacity for teaching quality and safety across your institution. As a place to begin, the Open School offers seven courses for Graduate Medical Education faculty, listed in the Appendix of this guide, to support efforts to train residents in quality and safety and develop didactic curriculum on these topics.

> *Examples*: East Carolina University has not only integrated Open School courses into training for students and medical residents, but it has made the Open School's Basic Certificate a requirement for a year-long interprofessional fellowship program for faculty, called "Teachers of Quality Academy." As part of that program, faculty complete a quality improvement project, which they present at an annual quality symposium. According to Dr. Elizabeth Baxley, faculty development became a clear goal for her institution when they recognized a significant return on investment.

Introduce faculty to the IHI Open School and the benefits of using the courses
In addition to this guide, there are many Open School resources that explain its mission and value to educators. Refer colleagues to the Open School Overview, or, better yet, direct them to specific materials from the Overview that you think will be persuasive. For example, you can share an introductory course, *OS 101: Introduction to the IHI Open School: Join the Movement to Improve Health & Health Care*. We've mentioned the value of local testimonials. As you get started with your campaign, you can also point to user ratings on the course overview pages.

> *Examples*: During a faculty meeting, Connie Boerst, President and CEO of Bellin College in Wisconsin, proved to colleagues that the Open School was more than "busy work": She took the room through an Open School course, page by page. The demonstration opened their eyes to the high-quality, interactive learning experience the courses provide.

Administration and Organizational Leaders

Integrating the Open School courses, especially at the program level, requires program, curriculum, and administrative directors to carve out time for students, trainees, or other learners to complete the work. The support of leadership over time is crucial for long-term success of Open School course integration. Here are some ideas to get leaders interested in your work:

Show how the IHI Open School can fill an educational gap
Identify and highlight ways in which the Open School courses can help fill gaps in the curriculum, especially in meeting outside requirements from overseeing bodies, such as accreditation committees. Look to standard nursing requirements and to the ACGME's Clinical Learning Environment Review program, for example. Compare requirements to the course summaries, which you can also print and distribute.

> *Example*: Many organizations and schools identify interprofessional learning as a priority, but struggle to find ways to bring health care disciplines together. The Open

School courses and Chapter Network can help fill this gap. Advocates of the Open School have often emphasized the potential for quality and safety learning events and activities to build common ground and establish shared goals across health professions.

Partner early in the curriculum development process
Want to make sure administrators feel invested? Involve key partners in the development of the curriculum early on. Consider including deans, course and program directors, and other experts in quality and safety (at hospitals, this may include your quality improvement team staff or other clinical leaders).

Highlight your support network of student and faculty champions
Although support from leadership is critical, the reality is that it may come only after a critical mass of other stakeholders are onboard. As you identify and develop "early adopters," raise those people up, and help increase the volume of their voices.

These tips should help you begin using Open School courses in the curriculum. In addition to the integration examples throughout this guide, you can find other resources in the Appendix, including John Kotter's 8-Step Change Model on page 22.

Sustaining Local Integration

Once you've successfully integrated the courses into your curriculum — whatever that means to you, based on the definitions and aims you've set forth — be sure to celebrate! However, keep in mind that a crucial step remains: Developing a sustainability plan. Planning for how you will sustain the work in the future will help ensure many cycles of learners will continue to benefit from the Open School.

The sooner you can start thinking about long-term plans, the better. Here are few recommendations:

- Continue to look for opportunities to link Open School content to institutional priorities and/or program requirements and competencies.
- Keep reminding administrators of the value of the Open School for students, staff, and customers, and point to positive results (the more concrete, the better, so look for opportunities for long-term assessment and evaluation).
- Continue to grow dedication to improvement science from faculty and educators — if you leave your role, there should be others who will pick up where you left off.
- Join forces with your local Open School Chapter or start one. A local Chapter provides a ready-made cohort of learners eager to support the use of the Open School.
- Lastly, always practice what you preach! Use improvement science in the integration process every step of the way: Even after you have a successful curriculum, continue to gather feedback from students and other faculty, and run PDSA (plan-do-study-act) cycles to improve.

Ongoing Inspiration and Support

Remember, you are not alone in this work. Please look to the Open School for support, as well as to hundreds of faculty, students, and other leaders who are driving efforts to integrate the Open

School into institutions and organizations around the world. Here are a few key ways to stay connected:

Join improvement communities online
Online support networks give you access to a wide group of educators who are doing similar work all over the world. The Open School's Faculty Network, for example, is a place to connect and share ideas, experiences, and learning. You can also join the Open School Faculty Advisor listserv by emailing openschool@ihi.org.

Connect with the improvement community at conferences or events throughout the year
Nothing proves you're not alone like a large-scale event of like-minded people. IHI's annual world-class conferences, including the National Forum on Quality Improvement in Health Care, offer opportunities to learn the latest improvement ideas and best practices for generating change in your organization. Be sure to inquire about faculty scholarships, which are often available for conferences.

Keep in touch with the IHI Open School
The Open School regularly updates its courses and other content and is constantly adding new material. For example, changes in 2016 included redesigning the Basic Certificate, releasing a new suite of improvement games, and developing this guide. Provide a valid email address when you register on ihi.org to ensure you're aware of changes that can affect you and your learners. Consider, also, subscribing to the Open School newsletter for updates, coming events, and new content.

Join or start an IHI Open School Chapter at your institution
We cannot emphasize enough: Having an organized group of learners who are interested in quality improvement and patient safety — and are passionate about spreading the learning — offers a terrific advantage for sustaining and expanding course integration efforts. Learn more about the Chapter Network, including how to get a new Chapter started or become a Faculty Advisor.

And as always, please feel free to reach out to our team at openschool@ihi.org any time. We hope to hear from you, and we wish you the best of luck!

Part IV: Appendix and Additional Resources

IHI Open School Course List

Take one of our sample courses to familiarize yourself with our design and approach.

Improvement Capability

- QI 101*: Introduction to Health Care Improvement
- QI 102*: How to Improve with the Model for Improvement
- QI 103*: Testing and Measuring Changes with PDSA Cycles
- QI 104*: Interpreting Data: Run Charts, Control Charts, and other Measurement Tools
- QI 105*: Leading Quality Improvement
- QI 201: Planning for Spread: From Local Improvement to System-Wide Change
- QI 301: Guide to the IHI Open School Quality Improvement Practicum

Patient Safety

- PS 101*: Introduction to Patient Safety
- PS 102*: From Error to Harm
- PS 103*: Human Factors and Safety
- PS 104*: Teamwork and Communication in a Culture of Safety
- PS 105*: Responding to Adverse Events
- PS 201: Root Cause and Systems Analysis
- PS 202: Building a Culture of Safety
- PS 203: Partnering to Heal: Teaming Up Against Healthcare-Associated Infections
- PS 204: Preventing Pressure Ulcers

Person- and Family-Centered Care

- PFC 101*: Introduction to PFCC
- PFC 102: Dignity and Respect
- PFC 201: Seeing Care Through the Eyes of Patients and Families
- PFC 202: Basic Skills for Conversations about End-of-Life Care

Triple Aim for Populations

- TA 101*: Introduction to the Triple Aim for Populations
- TA 102: Improving Health Equity

Leadership

- L 101*: Introduction to Health Care Leadership

*To complete the Basic Certificate in Quality & Safety, one must complete this course.

Project-Based Learning

- QI 301: Guide to the IHI Open School Quality Improvement Practicum
- Leadership and Organizing for Change

Graduate Medical Education

- GME 201: Why Engage Trainees in Quality and Safety?
- GME 202: A Guide to the Clinical Learning Environment Review (CLER) Program
- GME 203: The Faculty Role: Understanding & Modeling Fundamentals of Quality & Safety
- GME 204: The Role of Didactic Learning in Quality Improvement
- GME 205: A Roadmap for Facilitating Experiential Learning in Quality Improvement
- GME 206: Aligning Graduate Medical Education with Organizational Quality & Safety Goals
- GME 207: Faculty Advisor Guide to the IHI Open School Quality Improvement Practicum

How to Appropriately Credit the IHI Open School

When Open School courses, lessons, videos, figures, text, assessment questions, or other materials are used for classroom or program integration, they must be appropriately referenced by learners and educators. Here is the format IHI requests:

For an IHI Open School Online Course:

Author(s). Lesson Title. In: Course Title [IHI Open School online course]. Boston, Massachusetts: Institute for Healthcare Improvement; year published:page number. www.ihi.org/onlinecourses. Updated date of last update. Accessed date.

> *Example*: Lloyd R, Murray S, Provost L. Lesson 1: An overview of the Model for Improvement. In: QI 102: The Model for Improvement: Your Engine for Change [IHI Open School online course]. Boston, Massachusetts: Institute for Healthcare Improvement; 2009:3. www.ihi.org/onlinecourses. Updated August 19, 2015. Accessed October 15, 2015.

For an IHI Open School Activity:

Author(s). Activity title. Institute for Healthcare Improvement Open School website. url. date accessed.

> *Example*: Hilliard R. An extended stay. Institute for Healthcare Improvement Open School website. http://www.ihi.org/education/ihiopenschool/resources/Pages/Activities/CaseStudyAnExtendedStay.aspx. Accessed November 6, 2015

If referring to content that is referenced within Open School resources, please include both Open School information as well as the original reference. If you're unsure how to reference content, please don't hesitate to email openschool@ihi.org.

Resources to Support Curriculum Integration and Curriculum Design Efforts

The following is just a sampling of the resources that faculty are using to supplement the courses and design quality and safety training programs. The Open School is beginning to develop a more comprehensive list of resources to assist educators, which will be available later this year.

Models to Support Program Development

- Armstrong G, Headrick L, Madigosky W, Ogrinc G. *Designing education to improve care*. *The Joint Commission Journal on Quality and Patient Safety*. 2012;38(1):5-14. https://ipecollaborative.org/uploads/S2-JQPS-0212_Armstrong.pdf. Accessed January, 24 2017.
- Thomas PA, Kern DE, Hughes MT, Chen BY. *Curriculum Development for Medical Education: A Six-Step Approach*. 2nd ed. Baltimore, Maryland: Johns Hopkins University Press; 2009.
- Kotter, JP. *Leading Change*. 2nd ed. Boston, Massachusetts: Harvard Business School Press; 2012.

Assessment Tools

There are a number of ways in which faculty measure program or class outcomes in addition to the Open School assessment questions at the end of each lesson. Here are a few assessment tools faculty shared with us:

All disciplines
Quality improvement curricular assessments used across disciplines include the Quality Improvement Knowledge Application Tool (QIKAT) and the Systems Quality Improvement Training and Assessment Tool (SQITAT).

Graduate Medical Education
Most GME faculty consider ACGME CLER guidelines in their program design. You can revisit the CLER goals and approach for strengthening clinical training for medical residents in *GME 202: A Guide to the Clinical Learning Environment Review (CLER) Program*.

Commonly Required Readings

- Langley GJ, Moen RD, Nolan KM, Nolan TW, Norman CL, Provost LP. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. Hoboken, New Jersey: John Wiley & Sons. 2009.
- Kohn LT, Corrigan JM, Donaldson MS, eds. (Committee on Quality of Health Care in America, Institute of Medicine). To Err Is Human: Building a Safer Health System. Washington, DC: National Academies Press; 2000.
- Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington DC: National Academies Press; 2001.
- Galt KA, Paschal KA. *Foundations in Patient Safety for Health Professionals*. Sudbury, Massachusetts: Jones and Bartlett Publishers, LLC; 2011.

IHI Open School Content

Top Case Studies:

- Code Blue — Where To (AHRQ)
- The Unfortunate Admission
- A Downward Spiral: A Case Study in Homelessness

Most Watched Videos:

- What Happened to Josie?
- How Do You Use a Driver Diagram?
- How Can We Define 'Quality' in Health Care?

Learning from Other Curriculum Integration Efforts

Through conversations with faculty in compiling this guide, the Open School gathered a multitude of examples of how organizations, faculty, and students are using our courses. Of course, we couldn't fit all of these stories here. For additional case studies and examples, we encourage you to visit our website, where you can find continued inspiration and ideas.

Facilitating Experiential Learning in Quality Improvement

The table below introduces IHI's adaptable three-model framework for supporting project-based learning. The guide for implementing this three-model framework with trainees at the point of care is available in *GME 205: A Roadmap for Facilitating Experiential Learning in Quality Improvement*.

	Team-Based Model	Unit-Based Model	Systems-Based Model
Definition	Focused on behavior change and limited process change to improve a workflow that is within the control of the interdisciplinary medical team	Focused on a workflow in a particular unit or clinic with aims that are tied to institutional priorities	Focused on a workflow that crosses multiple units/clinics with an aim to improve systems at the departmental or institutional level
Scenario	An inpatient team composed of an attending physician, two residents, medical students, nurses a pharmacist, and a social worker will spend the next two weeks together on service, integrating quality and safety into their daily routine of bedside interdisciplinary rounds (if in an ambulatory	A group of four to six trainees will be rotating at one-month intervals through an inpatient unit, working clinically with various attending physicians but assigned to a QI project with a single advisor	A group of six to eight trainees will be rotating through many units within a hospital during the period but conducting a QI project in a selected unit with a single advisor and a small team of involved attending physicians

	setting, the interdisciplinary team may have a slightly different composition)		
Improvement objective	Discover a new practice or innovation relating to team behavior/workflow, or solve a problem that pertains to routine patient care	To develop a new practice or innovation that serves the unit or clinic as a whole	To make system-level change that helps achieve institutional objectives around quality and safety
Educational objective	To motivate trainees to incorporate improvement principles and systems-based thinking into their daily clinical routines, and to move toward integrating QI/PS into clinical care rather than thinking of it as a separate activity	To demonstrate to the trainee that even with a limited amount of time in a unit, she or he can and should play a vital role in accelerating the progress of that unit's improvement initiatives	To integrate trainees into the larger institutional objectives for quality and safety; to make robust direct connections between clinical care trainees are providing at the bedside and the larger quality and safety aims of the institution in which they train
"Owned" by	The rounding team in an inpatient unit, or a clinical team in an ambulatory setting	The nursing leader and clinical director of the unit/clinic	The quality director/leader and a nursing director who oversee one or more units/clinics or the department as a whole
Required faculty leadership	Led by faculty members while they are working to clinically supervise trainees (for example, as attending physicians on an inpatient service or as preceptors in a clinic or emergency department); faculty should consider themselves "competent to proficient" in QI/PS, with basic knowledge in QI/PS and a clear understanding of the workflow and behaviors of the team/unit/clinic/ department	Led by faculty members who are "unit owners" (have QI/PS as a key aspect of their job description and are responsible for the quality output of their area); may be a clinical director of a unit, or the unit-specific quality leader; are proficient in QI/PS knowledge and skills; have a deep understanding of the unit's workflow and priorities; are in a position to influence changes in workflows and systems beyond the behaviors of a particular team of physicians; have the ability to influence the	Led by faculty members who are directors of quality or quality officers for a department, or clinical leaders such as Vice Chair for Clinical Services, with quality playing a central role in their job description; are in a position of leadership that allows them to influence multiple clinical leaders across units of their department; have a deep understanding of departmental priorities and functioning; are "proficient to expert" in their understanding of QI/PS

		culture of the attending physicians they oversee, and have strong links to interprofessional clinical leaders (nursing, pharmacy, social work, and case management)	
Scope of improvement(s)	Scope should be appropriate to the team structure/workflow and the available timeframe based on trainees' rotation schedule; the problem that becomes the focus for the improvement effort must be a "felt need" of the team	Scope of improvements or changes is appropriate for the unit/clinic setting; efforts focus on systems improvements that are mainly contained within the unit/clinic	Can involve systems and processes that cut across multiple units or clinics; larger systems are restructured
Duration	Can be as short as two weeks, or as long as a month or two	Flexible, but typically will last two to six months (or even up to a year, depending on local capability and whether the clinical experience is rotational or longitudinal)	Can last anywhere from several months to a year or more, depending on the time required for buy-in and the duration of each PDSA cycle
Interprofessionalism	Does not require significant modifications to the workflow of providers who are not on the improvement team	Interprofessional collaboration required among a group of care providers and staff in one particular unit or clinic (nurses, pharmacists, medical assistants, etc.)	Interprofessional collaboration is critical to success; requires buy-in from multiple stakeholders
Defining the problem to be addressed	The problem should be limited to something that the team can address; the problem should be a "felt need" of the team (not necessarily a unit or institutional priority); finally, the improvement efforts should target a problem of inconsistency in team's operations or processes or in its care delivery.	The problem should be a unit priority that is relatively focused and very achievable within the constraints of two to six months. You will likely determine your problem of focus based on your unit's particular weaknesses with respect to the overall organization's quality and safety strategy.	Due to the longitudinal nature of this project, the problem could be a sub-project of one of the stated hospital-wide aims. (For example, it could be related to reducing length of stay, hospital-acquired infections, mortality, readmissions, etc.) The aim is tied to a specific outcome measure.

Encouraging buy-in	Since the projects will have such rapid turnover, it is important to ensure that the clinical staff who are involved in each "new" project be supportive of the structure of rapid turnover of improvement teams and projects, which is why the team must determine the focus of the project and why the project must be based on an actual "felt need" of the team.	The team could use multidisciplinary rounds with nursing, social work, respiratory therapy, etc., as a venue to discuss quality and safety issues and suggest areas for improvement that could become a medium-term QI project.	Buy-in from the unit leadership will help facilitate buy-in from the clinicians and caretakers on the front lines.
Designing metrics	Metrics will be specific to the project and the timeframe. In such a short-term project, you should record measurements daily.	Metrics will be specific to the project and the timeframe. In unit-based projects, you should record measurements on a weekly basis.	Metrics will be specific to the project and the timeframe. In medium- to longer-term projects like these, the measurement system is likely to be more complex. You can review process measures every couple of weeks and outcome measures on a monthly basis. Institutional resources might be available to capture these measurements and report them.
Baseline data collection	You should collect baseline data (i.e., assess the current state of the problem) within the first 48 hours of the clinical team's assembling, selecting a topic, and starting their on-service time together.	You can collect baseline data over a week or two, depending on the scope of the project and the sample size of patients that will serve as the baseline population.	You can collect baseline data over whatever time frame you deem optimal to collect sufficient data. Institutional resources may be mobilized to help with data collection, analysis, and reporting.
Improvement cycles	Conduct tests of change on a daily basis over a span of two or three weeks, and evaluate the results of each test the following day or shortly thereafter.	PDSA cycles will vary from a few days to a few weeks each.	PDSA cycles require more planning to move forward than in the other models, and will vary from a few weeks to a month each.
Tracking changes	As part of the daily routine, perhaps at the beginning or end of	Track weekly summary statistics	This model lends itself to summary statistics every two to four weeks with a

	bedside rounds, the team can huddle to discuss progress since the prior day on their improvement initiative.	with a continuously updated run chart.	continuously updated run chart, with monthly to quarterly aggregated statistics and bigger-picture run charts to demonstrate perturbation of the system. (Updates may occur more often toward the beginning of the initiative, and less frequently over time.)
Pros	The rapid cycling inherent in this approach requires that the improvement work be completely integrated into clinical care rather than separate/superimposed. The ability to work on a problem that the team feels is important will achieve more buy-in. The goal here is not necessarily to transform the system, but to allow trainees to participate meaningfully in an improvement effort that matters to them. The change that happens provides instant feedback to the team on whether or not their interventions were successful. Opportunities for improvement are addressed in real time and immediately, as opposed to over a six to 12-month period.	This timeframe is quite flexible and may fit well with the rhythm of clinical schedules of trainees and their attending physicians. The team can collaborate and take turns moving the project forward as different trainees rotate through the same unit and address the same aim. The truly interdisciplinary nature of these unit-based projects is valuable for understanding teamwork and interprofessionalism. The greater alignment of these projects with institutional priorities may make resources available that are not available to smaller-scope projects.	Learners truly understand the iterative process of QI by monitoring key metrics over time with run charts. There is sufficient time to make significant changes to the system, which may lead to more profound improvements and more sustainability. The longer timeframe gives learners the chance to formally work through the steps of a mentored QI experience including a charter, a driver diagram, and a continuously updated run chart. Participants learn about institutional priorities in quality and safety, and they also learn how to work in interprofessional teams.
Cons	In such a short period of time, system transformation is neither likely nor possible. Altering workflows is the more likely outcome. There is real risk of "improvement fatigue" and substantial	The medium-term timeframe may be too short to accomplish significant system-level change or too long to accomplish rapid, real-time change. The trainees typically do not select the topic	This model requires commitment to a single aim over a relatively long period of time, so it may be difficult to sustain momentum. Team members will not receive as much "instant" feedback on whether their interventions were

	improvement burden among staff, as a new team with a new aim comes along every month or so. Those who work continuously in the unit or clinic may be less invested because of the rapid cycling involved. Tracking true change may be difficult if patient volume (i.e., the number of patients with the condition you are focusing on) is not sufficiently large in a two to four week period to conducts tests of change and draw conclusions.	or problem to work on. These are determined by institutional priorities, which may or may not be "felt needs" of the trainee. This may have the effect of decreasing trainee buy-in for the projects.	successful, because the tests of change are conducted over longer periods of time. It may take longer to change a system. The trainees typically do not select the topic or problem to work on. These are determined by hospital priorities, which may or may not be "felt needs" of the trainee. This may have the effect of decreasing trainee buy-in to the projects.
Examples of opportunities for experiential learning	Improving documentation of DVT prophylaxis for patients; improving medication reconciliation upon transfer out of the intensive care unit; removing urinary catheters as soon as clinically indicated; decreasing time to discharge after rounds for patients who are clinically ready for discharge; improving verbal communication of STAT orders to nurses once ordered in the electronic medical record	Consistent provision of Asthma Home Management Care Plans (AHMCP) to pediatric patients upon discharge; improving communication around direct admissions from outside the hospital; improving empanelment of patients with a primary care provider; reducing wait times to be seen with a new diagnosis of breast cancer; reducing the number of patients who have undergone a procedure who are transferred to a unit without verbal pass-off from the physician who performed the procedure	In both the pediatric and adult emergency departments, decreasing the time it takes for patients with sickle cell to receive their first dose of pain medication upon presentation for care; increasing the monthly rate of patients admitted for asthma who are discharged after a pharmacist delivers their medications to their hospital room and educates the family on their use; optimizing communication when a patient is transferred to a long-term care facility; implementation of the surgical checklist or central venous catheter bundle in the ICU