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IHI Open School Quality Improvement Practicum
Faculty Advisor Guide

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INTRODUCTION

Welcome to the IHI Open School Quality Improvement Practicum Faculty Advisor Guide! We are excited that you will be advising a health professions student (or a team of students) about how to set up and conduct a quality improvement project in a clinical setting. The work that you do will enhance their ability to successfully plan and carry out a project – one that is valued by their health professions school as well as future educational and workplace environments.

This guide will provide you with information about IHI Open School Quality Improvement Practicum requirements as well as tips for you as a Faculty Advisor.

It's important that you be familiar with the IHI Open School Quality Improvement Practicum components and requirements in your role as Faculty Advisor. Learners will be taking an online IHI Open School course (*QI 201: Guide to the IHI Quality Improvement Practicum*) to learn about and complete practicum components. You are welcome to take the course, too!

Faculty Tip:

QI 201 is designed to ask learners to submit Practicum documents at the end of several lessons. Since you, as the Faculty Advisor, will not be submitting documents, simply click the link on the last page of each lesson to move on in the course. As always, the course is free for university faculty who teach courses. If you are a Faculty Advisor and you are having difficulty accessing the course, please email openschool@ihi.org.

PRACTICUM REQUIREMENTS

- Projects need to be clinically focused.
- Interprofessional teams (medicine, physician assistant, dental, nursing, pharmacy, physical therapy, public health, health management, etc.) are encouraged to work on projects together, but that's not required.
- QI 101, 102, and 103 are prerequisites for QI 201.
- Completion of the practicum through QI 201 includes submission of a teacher/learner agreement, a charter, a cause and effect diagram, at least two PDSA cycle forms, at least one run chart, and one summary report.
- Projects count even if there is no successful improvement, as long as learning using the Practicum forms is documented.

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Overview of Forms

Teacher-Learner Agreement: This will ensure that expectations – and potential time commitments – are clear for the learner and you, the Faculty Advisor, before the project begins.

Charter: This is the basic description of the improvement project. What is the aim? Does the scope need to be narrowed? Who should be on the project team? A charter should not be a thesis; it should be a one-page document.

Charter Assessment: The charter assessment is a tool you will use to review a charter as a Faculty Advisor. You will use a scoring system and comment boxes to provide feedback. Learners should revise their charter in response to your feedback prior to submission.

Cause and effect diagram: Also known as an Ishikawa or fishbone diagram, this tool will help learners capture, display, and classify various theories about the causes of a problem. When complete, the cause and effect diagram will yield several ideas for changes to test using PDSA cycles.

Plan-Do-Study-Act (PSDA) Form: This form is used to carry out the tests. Learners need to submit a PDSA form for each of the specific small tests of change they do. Learners should turn in at least two PDSA forms for their project so they can see how to modify an idea based on the first test of change.

Run Chart: This is a graphical display of data, showing changes over time; teams use run charts of their key measures to tell them if the changes they are testing are leading to improvement. Learners need to submit at least one run chart at the end of the project.

Summary Report: This form will serve as a summary of the project and encourage learners to reflect on the process. With permission, the IHI Open School will share the project publicly. We want to openly share completed projects to demonstrate how learners can help improve care for patients.

Faculty Advisor Benefits/Responsibilities

There are benefits and responsibilities to being a Faculty Advisor.

As a Faculty Advisor, you will:

- Work closely with learners/mentees interested in quality improvement.
- Develop a relationship with the health system sponsor, the health care professional who will help connect the student with the system.
- Improve care in an area of interest.

You will be responsible for:

- Reviewing this Practicum Faculty Advisor Guide.
- Becoming familiar with IHI Open School's online course content in quality improvement.
- Committing to mentoring/advising a learner or team of learners.
- Setting aside time to meet regularly, review Practicum forms, and provide ongoing feedback/guidance.
- Supporting the learner by identifying available resources, including forms, data analysis, and tools.
- Advocating for the project within your local health system.

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Faculty Tip:

If you, as faculty advisor, are not regularly engaged in QI work, you may want to connect with local QI experts who are using QI to improve care in your local health care setting. (They can often be found in clinical divisions or within "clinical effectiveness" or "quality" departments within hospitals.) You can also connect with IHI resources, such as improvement advisors. If you are a QI expert but not regularly engaged in teaching, you may want to connect with local educators. (They can often be found within the learner's professional school.)

FACULTY ADVISOR CHECKLIST

Here is a checklist that will guide you as an IHI Open School Quality Improvement Faculty Advisor:

- ☐ Ensure that the learner completes IHI Open School courses QI 101, QI 102, and QI 103.
- ☐ Help the learner identify a project.
- ☐ Help the learner identify a health system sponsor (in some cases, this may be you).
- ☐ Sign the teacher-learner agreement.
- ☐ Review the first draft of the project charter and give feedback using the charter assessment form.
- ☐ Meet with the learner to give feedback on their project charter.
- ☐ Review the cause and effect diagram and give the learner feedback.
- ☐ Review the learner's PDSA cycles and run charts, and give feedback as needed.
- ☐ Review and sign the final summary report, ensuring the data and narrative are accurate.
- ☐ Provide permission (if possible) for the project to be featured on the IHI Open School Practicum website.

HELPING THE LEARNER IDENTIFY A PROJECT

Although the IHI Open School Quality Improvement Practicum is designed to be a learner-driven project, you will likely be helping your learner(s) in selecting an appropriate project.

Here are some suggestions for students on how to identify something to change:

1. Critical thinking about the current system
Sometimes, simply reflecting on problems within a system can generate some good ideas for change. If you make a flow chart of your current process – say, how medications are delivered to patients in a timely fashion – it may be possible to identify parts of the system that aren't working or are needlessly complex. Another way to go about critical thinking is to gather and analyze data on the way your system currently works – which can then help you identify problems and develop changes to address them. For example, are patients being woken up at 3 a.m. for morning labs and then again at 7 a.m. for IV catheter replacement? Would it make more sense to wake the patient up once instead?

2. Benchmarking
Comparing your own process to "best practice" can help you identify where your own system falls short. Based on that analysis, you can develop ideas for improving your performance. This is known as benchmarking. For example, is there a hospital across town that had 50% fewer falls than your facility last year? Why is that? What are they doing in their hospital that you adopt and integrate into your own local setting?

3. Using technology
Technology – such as automation, new equipment, or new information systems – can lead to improvement. But be careful – technology that isn't reliable, or that simply makes a bad system more accessible via the Internet, isn't necessarily the fix you're looking for. For example, computerized physician order entry (CPOE) is increasing patient safety by alerting clinicians to duplicate orders and drug-drug interactions. However, because there are so many alerts (the phrase "alert fatigue" is used in the literature), clinicians often ignore and override them. How can this process be improved?

4. Creative thinking
Where do new ideas come from? You can spur creative thinking in various ways, including simply taking the time to do this sort of thinking; exposing yourself to situations (such as taking the role of a patient) that can spark new ideas; identifying the boundaries that limit the changes you can make and then finding ways to dismantle those boundaries; and temporarily considering unrealistically ambitious goals ("No patient will ever fall in this hospital again") that can prompt you to break out of your old way of thinking. For example, can you reduce the ER waiting time at your facility to 15 minutes or less? What barriers stand in the way? Students are fresh observers of a system. Turn lack of knowledge into a strength.

5. Take the patient's perspective
When you see the care system from a patient's perspective, you'll see opportunities for improvement that might not be apparent as a caregiver. Is it too loud when you're trying to sleep? Do bright lights give you a headache? Do you have to wait too long to get your test results? Patient shadowing and interviewing are useful techniques when coming up with good ideas to change.

6. Reaching out to other professionals
Another way of finding a project is to talk with the care providers in your organization about their on-going quality and safety efforts. They may have a project or topic already being worked on that you could explore. In past tests of the IHI Open School Quality Improvement Practicum, we've found that projects that are already high priorities in a local organization have a much better chance of success – especially in the long run. As we've mentioned, you won't really learn quality improvement by just collecting data, but there are likely important changes that need to be tested and are just waiting for the will and energy of a student like you!

It is important that the project is realistic – not too large in scope or aim. Learners may have big ideas about what to change, and it is your job as the advisor to guide them to what can be done in reality. The goal is hands-on experience with testing changes to lead to improvement.

For example, learners may come to you wanting to decrease ED utilization for asthma patients seen by several clinics. This is important, but driving down ED utilization for this population will be an enormous undertaking. Instead, help the learner(s) think critically about what drives ED utilization for asthma patients. Perhaps a more focused and practical approach will be to improve the prescription process for inhaled corticosteroids for asthma patients from one clinic. In the end, having a more focused and practical approach will increase the probability that the improvement project being led by the learner(s) will actually lead to improvement.

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Although learner-initiated projects may be more interesting and stimulating to a learner than site-determined projects, learner-initiated projects often only last as long as the learners are around – which can be frustrating for the learners, faculty, and the clinical site. So, it is important that you as a Faculty Advisor help learners select projects that are more likely to lead to sustained improvement even after the learner moves on. The questions below can help to encourage learners to be critical in selecting a project.

If learner-initiated project, consider:

- What part of the organization is involved?
- Who are the leaders?
- Whose support is needed for progress to be made?
- Who will be the project champion (and team) after the learner moves on?
- What is needed to ensure improved patient outcomes and system performance, in addition to the learner's professional development?

If site-determined project, consider:

- What are the improvement efforts already in place?
- What are the core issues leadership has identified as needing improvement?
- What part of this can become a subproject for learners?

WORKING WITH HEALTH SYSTEM SPONSORS

Many Faculty Advisors will find themselves in a situation where they can serve as both the advisor and the health system sponsor, helping the learner navigate the project through a particular health system.

If that's not the case, you may need to assist your learner(s) in identifying a sponsor, or advocate, within the health system where they will be doing their project. This may be the director of quality in the department where the project will be taking place. Or, it may be a nurse manager, a clinical director, or a quality leader for the health system itself.

Here are some strategies to help you get buy-in for learner involvement in quality improvement projects at your local facility:

- Reach out to quality leaders in clinical settings where ongoing quality improvements might have room for students. (We're sure they'll want some help!)
- Have one-on-one conversations with quality leaders, focusing on how excited students are about making improvements – and how well prepared they are, having completed three online QI courses in preparation for the Practicum.
- Emphasize the benefits to the health system sponsor of having learners involved in QI. (Benefits include having an additional workforce to move a project forward, increasing the number of health professionals equipped to do QI as part of their daily work, and working closely with enthusiastic learners who value QI.)

Faculty Tip:

Health system partners may be helpful in providing feedback so learners are able to start with feasible projects and locate data to establish a baseline for the project. Encourage your learner to have conversations with the stakeholders in the process of developing the charter.

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GIVING FEEDBACK ON THE PROJECT CHARTER

Your learner(s) will ask you to assess their charter using the charter assessment form. Giving constructive feedback to your learner(s) is one of the most important responsibilities you have as a Faculty Advisor. Here is an example of critical feedback on a charter given by a Faculty Advisor:

Project Title: Improving Hand Hygiene Compliance to Reduce Preventable Harm

What are we trying to accomplish? Aim statement

Our aim is to find new ways to help improve compliance with already established hand hygiene guidelines.

Problem to be addressed

Hand hygiene is extremely important because, when done appropriately, it can reduce the spread of disease in the hospital setting. At the University of Portage Medical Center, there is already a hand-hygiene policy in place.

Reason for the effort

The organization will benefit from higher hand washing compliance because there will be fewer hospital-acquired infections and complications. A potential downside is that the organization will have to spend more money to educate health care workers, to make sure supplies are never low, and to increase hand hygiene compliance for the future.

Expected outcomes/benefits

We will monitor health care professionals as they enter and leave rooms and determine if they use hand sanitizer or correctly wash their hands each time. We are measuring compliance by the percentage of times practitioners correctly wash their hands entering and exiting the room. As a result of the study, we hope to increase everyday hand sanitizer usage. By increasing usage, there will be fewer hospital-acquired infections.

How do we know that a change is an improvement?

… Finally, it is very unlikely that other health care requirements will be adversely affected by higher hand hygiene compliance. Hand washing is a short process that has been studied for a significant length of time, and there is no reason to believe that it causes new problems. However, we will keep an eye out for shortcomings or new problems in other processes to attain balancing measures.

What changes can we make that will lead to improvement?

Initial Activities: Existing UPMC hand hygiene standards require use of alcohol hand rub or soap and water any time a staff member enters or exits a patient room. For this project, we will test three changes using PDSA cycles:
1. We will increase the availability of hand sanitizer to see if that change improves the compliance rate.
2. A peer physician or nurse manager will follow up with any staff members who were found to be noncompliant and offer remediation training.
3. Based on our findings, we will improve signage within the units to see if that helps to change behavior.

Comment [DC1]: Make sure your aim statement contains how good, by when, and for whom. For example, you could say, "Our aim is to find new ways to help improve compliance with hand hygiene. Specifically, we want health care professional compliance with hand hygiene to be 80% or higher across all hospital units by June 1, 2012."

Comment [DC2]: The problem to be addressed is poor compliance with said policy. You need to make this clearer.

Comment [DC3]: It's important to make sure you specify the benefit to the patient.

Comment [DC4]: This explains the "how" of your project. It doesn't belong in this section.

Comment [DC5]: Please ensure that you specify the deliverables created from the improvement effort, including a standardized process and a better understanding of the importance of hand hygiene.

Comment [DC6]: It's important to define your outcome, process, and balancing measures in your charter. In this case, for balancing measures, you could include:

- Physician and nurse satisfaction
- Cost of hand sanitizer

Tip: Feel free to use bullets instead of writing full paragraphs.

Comment [DC7]: Education for the good of improvement will eventually fade away. A true improvement will be achieved only by changing the system.

Additionally, beware of using reprimand and blame as a strategy to improve hand hygiene compliance. Human error is only a problem 10-15% of the time. You want to focus on improving the system so that it's easier for staff to comply.

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To help the learner in the project above, the Faculty Advisor also asked the following questions about the data collection plan:

- **What is the learner trying to measure?** Is it hand-washing rates? Rates of infection?

- **What specific measure did the learner select for this purpose?** Maybe it's "percent of the time doctors and nurses wash hands before encounters with patients."

- **How is the learner defining the measure?** It pays to be very detailed during this step in the measurement journey. If the measure is a percent or rate, specify the numerator ("number of times doctors and nurses wash hands before seeing patients"') and the denominator ("total patient encounters"). If it is an average, identify the calculation for deriving the average. Include any special equipment needed to capture the data. If it is a score (such as a patient satisfaction score), describe how the score is derived.

- **What is the learner's data collection plan?** Again, be specific. Here are some good questions to ask:
    - Who is responsible for collecting the data?
    - How often will the data be collected (e.g., hourly, daily, weekly, or monthly)?
    - What are the specific data sources?
    - What is to be included or excluded (e.g., include only inpatients in this measure or include inpatients and outpatients)?
    - How will these data be collected (e.g., manually, by using a log, or by an automated system)?

- **What is the learner's baseline measurement?**
    - What's your starting point for the measurement?
    - How will you summarize the baseline data to get an overall baseline number?
    - And over what time period will you collect the baseline data?

- **What are the learner's targets or goals for this measure?** Specify the target or goal. Do you want to make sure compliance rates improve? Do you want to make sure staff satisfaction rates stay strong?

Faculty Tip:

You may need to help learners refine their charter several times before it is ready to submit.

Generally speaking, common areas for feedback include:

- *An aim statement that needs to be more specific*
- *A project scope that is too large to be completed during the timeframe*
- *An incomplete family of measures*
- *Measures that are not operationally defined*
- *Key stakeholders that aren't considered*

If you need additional guidance on charter elements, see the IHI Open School course *QI 102: The Model for Improvement: Your Engine for Change.*

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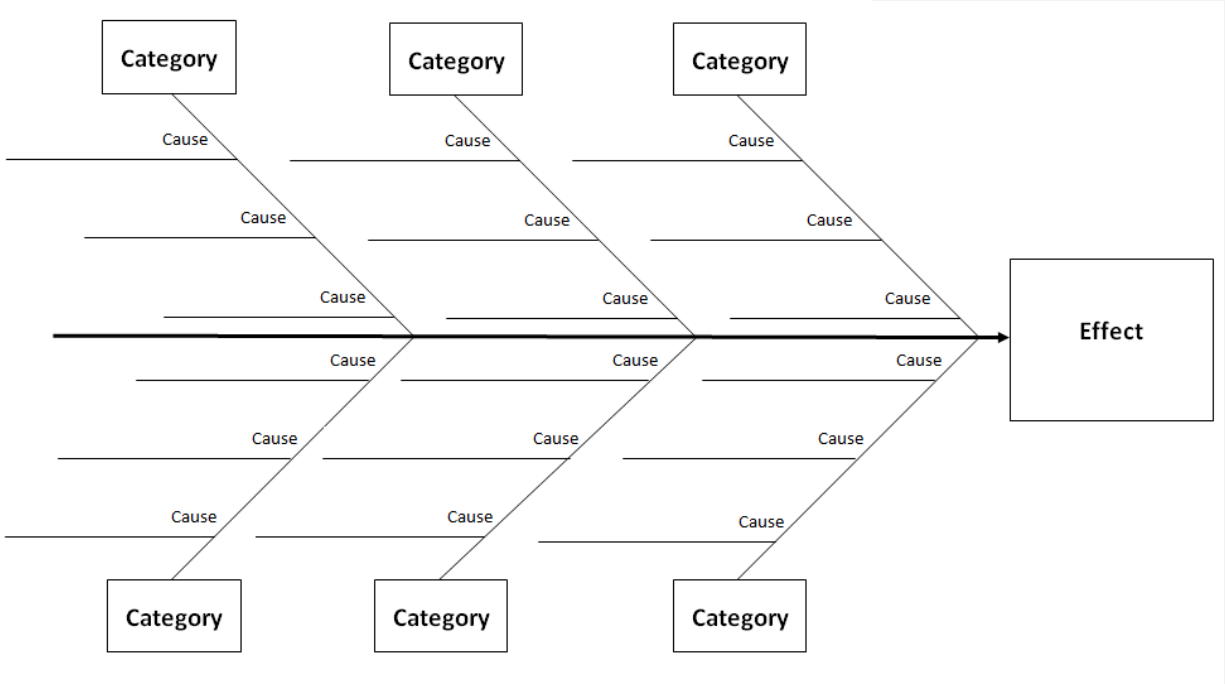
IDENTIFYING POTENTIAL CHANGES USING CAUSE AND EFFECT DIAGRAMS

A cause and effect diagram, also known as an Ishikawa (after its developer) or "fishbone" (after its shape) diagram, is a graphic tool used to explore and display the possible causes of a certain effect. It will help learners identify potential changes to test for their quality improvement project.

Why is it such a valuable tool to quality improvement teams?

1. It helps teams understand that there are many causes that contribute to an effect.
2. It graphically displays the relationship of the causes to the effect and to each other.
3. It helps identify areas for improvement within projects.

Here's a picture of a cause and effect diagram:



Causes are parts of a system and forces outside a system that directly influence the outcome, or aim, of a project. For example, one cause of a low hand hygiene compliance rate is provider behavior. In other words, getting providers to change their behavior (and wash their hands) directly influences the compliance level within the unit or hospital.

There are lots of causes that contribute to a certain effect. Take poor hand hygiene, for example. What are the contributing factors? Sometimes clinicians are too busy. Sometimes they wash their hands but they don't use proper hand-washing technique. Sometimes the gel dispenser is broken. Sometimes the gel dispenser is working, but it's empty.

Learners should consider these six categories as they think about all the causes of the problem they're trying to solve with their quality improvement project:

- **Materials** (supply, design, availability, and maintenance)
- **Methods and Process** (steps in care process and steps in supply chain)
- **Environment** (staffing levels and skills, workload and shift patterns, administrative and managerial support, and physical plant, policies, and regulations)
- **Equipment** (any equipment/tools needed to get the job done)
- **People** (staff knowledge and skills/training, competence, patient behavior, and supervision)
- **Measurement** (data collection, definition of measures, sampling issues)

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Learners also receive these instructions on how to construct a cause and effect diagram:

1. Write the effect (in other words, the thing you're trying to change) in a box on the right-hand side of the page.
2. Draw a long horizontal line to the left of the effect.
3. Decide on the categories of causes for the effect. As mentioned above, useful categories of causes in a classic fishbone diagram include Materials, Equipment, Methods/Process, Environment, Measurement, and People. Another way to think of categories is in terms of causes at each major step in the process. (Note: These categories can vary depending on the project. Manufacturing sometimes follows the "5 Ms," including man, machines, materials, methods, and measurement. Non-manufacturing systems sometimes use the "5 Ps," including patrons, people, provisions, places, and procedures. Just make sure the categories that have been chosen choose fit the project.)
4. Draw diagonal lines above and below the horizontal line (these are the "fishbones"), and label with the categories that have been chosen.
5. Brainstorm and collect a list of causes for each category.
6. List the causes on each fishbone. If a cause has a secondary cause (for example, under "pagers," you could list "hard to use" and "inadequate training") draw a branch bone to show relationships among the causes.
7. Develop the causes by asking, "Why?" until you have reached a useful level of detail – that is, when the cause is specific enough to be able to test a change and measure its effects.

A student can likely look at an improvement project and quickly identify three or four causes of the problem. But it's important to identify these causes as a team because everyone — a nurse, a physician, and other health care workers — has a different view of the system. In other words, everyone knows something different. Working together will also promote teamwork among your learners and lead to a deeper understanding of the system they are trying to change.

What's the best way to collaborate? Together with the quality improvement team, encourage students to find a quiet location and plan a 1- to 2-hour session where they can brainstorm causes related to the problem.

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COACHING LEARNERS THROUGH PDSA CYCLES

Coaching involves:

- Assisting learners in identifying specific goals.
- Providing learners with the tools, perspective, and structure to accomplish the goals they have set.
- Reframing beliefs and creating opportunities for focused reflection.

Coaching involves providing feedback to learners (or making sure that others provide this feedback) in order to help them develop an awareness of their own behaviors. Coaches focus less on telling and showing, and more on asking questions and involving learners in figuring out what needs to be done and the ways to do it.

As an IHI Open School Quality Improvement Practicum Faculty Advisor, you'll be coaching your learner(s) on their project through their PDSA cycles. Your feedback after each cycle will be helpful for them as they move forward with their next cycle.

Remember, the purpose of a PDSA cycle isn't to learn just if something is effective; it's to learn why or why not something is effective. Here are the four steps of the PDSA cycle; you can use these to guide your learners during their quality improvement projects.

1. Plan: Plan the test or observation, including a plan for collecting data.

- State the objective of the test.
- State the questions you want to answer and make predictions about what will happen and why.
- Develop a plan to test the change. (Who? What? When? Where? What data need to be collected?)

2. Do: Try out the test on a small scale.

- Carry out the test.
- Document problems and unexpected observations.
- Begin analysis of the data.

3. Study: Set aside time to analyze the data and study the results.

- Complete the analysis of the data.
- Compare the data to your predictions.
- Summarize and reflect on what was learned.

4. Act: Refine the change, based on what was learned from the test.

- Determine what modifications should be made.
- Prepare a plan for the next PDSA.

Faculty Tip:

Here are some tips for coaching PDSA cycles:

- *Avoid analysis paralysis. Begin testing changes as quickly as possible.*
- *Start small. Test with one patient, one nurse, one doctor.*
- *Emphasize to learners that PDSA cycles are for learning. A test that fails is sometimes more useful than a test that is successful.*
- *Don't forget to have learners make predictions. That's where the learning comes from!*
- *Make sure data collection methods are clear and accurate.*

Remember, at this point we aren't expecting improvement – although that would be great!

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Tips on Data Presentation and Project Summary

We ask learners to submit a run chart because it is a simple, effective tool for displaying and learning from improvement data. The chart needs to show a picture of data over time (not just pre- and post-change), be clearly annotated, have a clear title, and be simple to understand. The excel file in the practicum QI 201 course will make this easy for them! You can download the file – and all the forms that will be used in the IHI Open School Quality Improvement Practicum – here.

The project summary is essential as it pulls together all of the information from the project and asks learners to reflect on their experience and the project's impact on the health system. You may need to help learners think about how their project could be generalizable and sustainable.

Finally, we encourage you to help your learner(s) obtain the necessary authorization for publishing their project summary on the IHI Open School website.

Each institution will have a different way of determining whether the quality improvement project summary can be published. Your local IRB or the quality improvement director at your institution will be able to provide guidance.

Faculty Tip:

Please review the summary carefully to be sure that data presented is appropriate for publishing on the IHI Open School website. You may need to work with the learner and the health system sponsor to adjust what data is provided for publishing purposes.

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Sustaining Practicum Projects and Achieving Improvements

Your learner has completed the project. What do you do next?

- Consider this to be a pilot project for future learners and other health system sponsors.
- Identify ways to align the project with clinical setting priorities so encourage project to be sustained.
- Seek out venues to disseminate project results within your institution. This could be public poster/storyboard displays, articles in institutional newsletters, emails to educational/clinical groups, abstract presentations at local conferences, specialty/profession-based conferences, and quality improvement conferences – including the IHI National Forum.

Questions and Comments

If you have any questions or concerns about the IHI Open School Quality Improvement Practicum, please contact the IHI Open School team at openschool@ihi.org.

References

FAQS about the Practicum: http://www.ihi.org/offerings/IHIOpenSchool/Courses/Pages/PracticumFAQs.aspx

Standards for Quality Improvement Reporting Excellence: http://www.squire-statement.org/