

Supplemental Digital Appendix 1

Detailed Overview of the Quality Improvement Curriculum in the Department of Family Medicine at Queen's University

Start

Monthly interactive group monitoring progress, recalibrating projects & one-on-one mentoring sessions

Stage 1: Engaging (Topic selection, literature review, clinical audit, stakeholder identification & engagement)

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| <p>a) Assign team roles starting with team leader (other roles might include literature & ethics, data extraction/audit, stakeholder engagement, Qi tools, presentations, handover etc.)</p> <p>b) Choose a topic that is aligned with the local quality improvement plan and does not reproduce existing initiatives.</p> <p>c) Formulate a question about your topic, developing the rationale and hypothesis. Keep the focus narrow in scope and feasible for time allotted.</p> | <p>d) Identify and liaise with key stakeholders. Seek input early, often, and widely in collaborative manner.</p> <p>e) Determine from literature what is currently known about your question? What is the criterion standard? Or, what guidelines or standards can be used to determine best practices.</p> <p>f) Submit application for Research Ethics Board approval</p> <p>g) Submit Phase 1 Quality Improvement Project Charter</p> |
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- h) Audit Methods & Baseline assessment**
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| <p>i. What is the best way to audit your topic to determine a baseline (i.e. where we are now). Is data extractable electronically from EMR? Is a manual extraction required, or combination?</p> <p>ii. Determine sample size, inclusion & exclusion criteria, data</p> | <p>collection design. Meet with data analyst if applicable.</p> <p>iii. Conduct a mini-audit to verify your collection design.</p> <p>iv. Start to interpret meaning of baseline audit results. How does the baseline compare with standards and guidelines?</p> |
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- Start working on the first 2 blue boxes*

Pause and recalibrate:

Seek feedback from inter-professional audience through presentation of early work

Stage 2: Understanding (Interpret results, understand problems, and apply QI tools)

- 2a) **Verify & analyze baseline results:** Do the results make sense and seem to be correct in your eyes and for other stakeholders? Look for outliers, errors, trends, & comparators.
- 2b) **Interpret** your baseline results. What do they indicate? What are the limitations? Should you collect more data? Are the results 'good' or 'bad' and more importantly, why...
- 2c) **Understanding the problem:**
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| <p>i. Observe & reflect on clinical factors influencing your results. Think in terms of systems, processes and root causes rather than individuals. Be cautious of a blame culture – this is about observing systems and not critiquing individual performance.</p> <p>ii. Identify and liaise with stakeholders: Identify concurrent complementary work, opportunities and barriers for improvement.</p> <p>iii. Engage stakeholders and, consider:</p> | <ul style="list-style-type: none"> • Surveying clinic members (perform face validation of surveys before distributing) • Engage in "hallway huddles" soliciting opinions • Conducting focus group meetings with different staff roles (e.g. clerical, nursing or IT) • Attending management meetings <p>iv. Apply QI tools such as Pareto charts, Ishikawa diagrams, 5 Whys, process mapping, swimming lanes, spaghetti diagrams.</p> |
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- 2d) **Develop ideas for implementing improvements:** Given the timeline these should be small in scope. PICK charts are very helpful here to identify which improvement idea is most feasible.
- 2e) **Develop clinical improvement goals or aims** that are reasonable for your clinical area.
- 2f) Submit **Phase 2 Quality Improvement Project Charter**. Recommended: submit abstract for poster at Family Medicine Forum

Stage 3: Improving and Translating (Develop and plan implementation of change ideas, knowledge translation, and handover)

- 3a) With management input, develop and initiate **implementation of change ideas** such as:
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| <ul style="list-style-type: none"> • Policies, or medical directive • Staff or patient education materials | <ul style="list-style-type: none"> • Content for patient newsletters or waiting room screens • Trial of a PDSA cycle <p>Liaise with key resource people for this phase.</p> <p>Write out your PDSA cycles if performed.</p> |
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- 3b) **Grand Rounds** presentation of your final project.
- 3c) **Tie up loose ends and handover:**
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| <p>i. Complete final tasks based on the feedback from Grand Rounds.</p> <p>ii. Recommend next steps for future residents or</p> | <p>committees to pick up where project left off.</p> <p>iii. Submit final copies of your data tables, completed QI tools, presentations, and Quality Improvement Charters</p> <p>iv. With guidance, these projects can be converted into PGY-2 research project</p> |
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End

Supplemental Digital Appendix 2
Completed Resident Quality Improvement Projects, Department of Family Medicine,
Queen's University, 2012-2013 and 2013-2014

Academic year project completed	Topic	Question	Presentation/Publication
2013-2014	Urine toxicology screening	What are provider perspectives on the use of urine toxicology screens?	Family Medicine Forum, Quebec City 2014
2013-2014	Screening for abdominal aortic aneurysms	What percent of at risk patients have had an abdominal ultrasound?	Family Medicine Forum, Quebec City 2014
2013-2014	After visit reports	How often are physicians using after visit reports and what are the barriers to using them?	Family Medicine Forum, Quebec City 2014
2013-2014	Processing of positive fecal occult blood test results	Are we meeting current guidelines with respect to timely follow-up of a positive fecal occult blood test?	Family Medicine Forum, Quebec City 2014
2013-2014	Timing of early newborn visits	What percent of newborn babies were seen by a qualified health care professional within the first week of life?	Family Medicine Forum, Quebec City 2014
2013-2014	Use of diabetic patient education materials	How often are physicians using patient education materials and what are the barriers to using them?	Family Medicine Forum, Quebec City 2014
2013-2014	Osteoporosis in men	What percentage of male patients age 65+ have been provided with a requisition for bone mineral density testing?	N/A
2013-2014	Tdap in teens	What percentage of teenagers age 14-16, are being immunized with their first Tdap booster?	N/A
2013-2014	Effect of missing items on office efficiency	What is the measured impact of missing items in office efficiency?	N/A
2013-2014	New patient file transfer	How long does it take for a new patient's past medical records to be documented in the	N/A

		electronic medical record system?	
2012-2013	Diabetic foot exams	What percentage of diabetic patients are overdue for a foot examination?	Family Medicine Forum, Vancouver 2013
2012-2013	Diabetic eye exams	What percentage of diabetic patients are overdue for an eye examination?	N/A
2012-2013	Childhood obesity	Do children age 4-6, who come in for a “well child check” have a BMI percentile recorded for that visit?	N/A
2012-2013	Elementary school vaccinations	How are we doing at keeping track of our immunization records for in-school Men-C-ACYW and HB immunization programs given through public health?	N/A
2012-2013	Breastfeeding	How can rates of breastfeeding be improved?	N/A
2012-2013	Chronic obstructive pulmonary disease (COPD) exasperations	How many patients are being seen within a timely manner after emergency room visits for COPD exacerbations?	N/A
2012-2013	Pneumococcal vaccination rates	How can pneumococcal vaccination rates be improved?	N/A
2012-2013	No show appointments	How can no show appointments be minimized?	N/A