MEMORIAL UNIVERSITY
FAMILY MEDICINE RESIDENCY PROGRAM

Quality Improvement Scholarly Project

Protocol

A step-by-step instruction manual for completing the 2025 QI scholarly project

Developed by the PRIIME Network & the Family Medicine Evidence Based Medicine Curriculum Committee

PRIIME

MEMORIAL UNIVERSITY

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Overview

At Memorial University, the Family medicine residents' scholarly project includes a focus on quality improvement (QI) in order to ensure the evidence based medicine curriculum meets new QI learning objectives from the College of Family Physicians of Canada (CFPC).

The **QI Scholarly Projec**t is an **applied learning activity** intended to achieve CFPC's learning objectives. The QI learning objectives can be found in the CFPC's 2021 document entitled: A Guide to Integrating Quality Improvement Into Family Medicine Residency Programs.

https://www.cfpc.ca/CFPC/media/Resources/Health-Policy/RES_QI-Guide_ENG_final_REM.pdf

The activity includes all 6 types of learning strategies: acquisition, investigation, practice, production, collaboration and discussion to provide a rich learning experience for QI.

The topic and parameters for the 2025 QI Scholarly Project are as follows:

- **Project topic:** Reducing no-show appointments
- **Project planning:** The EBM Curriculum Committee in partnership with the PRIIME Network have developed a protocol and supporting materials for each resident to follow
- **Project supervision:** The EBM Curriculum Committee are the project supervisors

Since this is the first year for this QI project, the project aims to:

1. Build an understanding of the problem (i.e., the size of and reasons for the no-show problem)
2. Build an understanding of possible strategies to target the reasons identified
3. Recommend a strategy that is acceptable, appropriate and feasible to implement in practice
4. Describe how to implement a strategy and assess if it is working

*We envision that identified strategies could then be implemented and tested by the next year's resident(s) at participating clinics.

The Protocol

TOPIC

The 2024-2026 cohort will complete a QI scholarly project on the topic of reducing no-shows as selected by Memorial University's Discipline of Family Medicine EBM Curriculum Committee. A patient appointment is marked as a no-show if the patient fails to attend their appointment without notifying the clinic. Residents should ask their preceptor if this definition is accurate for the clinic they are working in; they may define no-show appointments differently. The definition should be clearly identified in the final report.

ETHICS

As this is a QI project (i.e., we are not seeking to create generalizable knowledge but rather to improve quality related to an outcome within a specific practice setting) ethics approval is **not required by the Health Research Ethics Board (HREB) in Newfoundland**. Completion of this project will involve collecting EMR data and some interaction with patients regarding this issue but those factors do not indicate the need for research ethics approval by the NL HREB. It is important to note that this may not be the case for sites outside the jurisdiction of the HREB.

Please see the HREB website for more information https://hrea.ca/how-to-apply/ethics-review-required/

AIM

The aim of this quality improvement QI project is to document the size and scope of the no-show problem in different family practice clinics in NL. Specifically, for this project we will:

- Document the size of the problem (the number of no-shows per month, over a six-month period January-June 2025)
- Determine and report any shifts, cycles, or trends that may be evident in the no-show data from each FP
- Assess potential reasons for no-show appointments
- Suggest potential strategies for reducing no-shows for each FP

METHOD

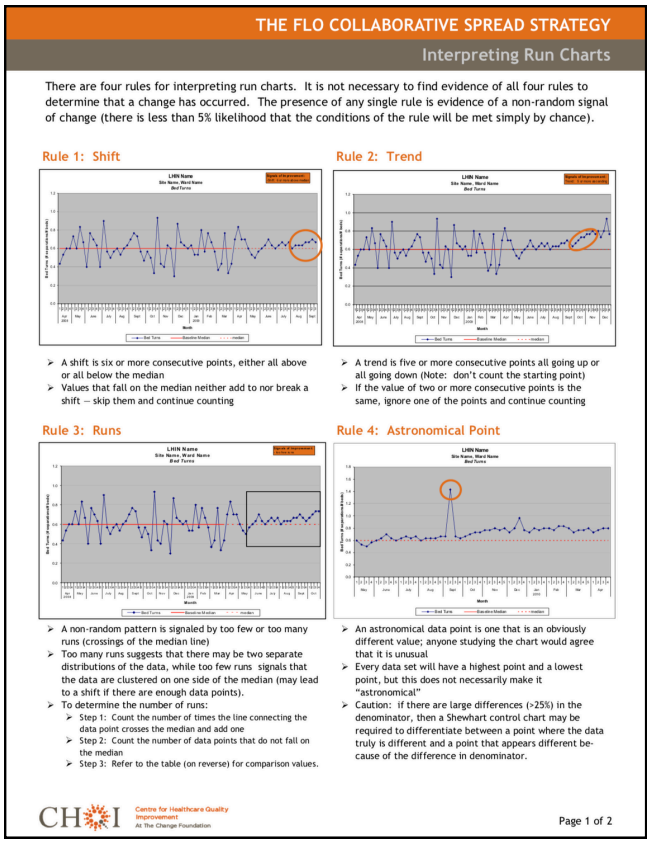
OBJECTIVE 1. ASSESS THE SIZE OF THE PROBLEM

To assess the size of the no-show problem for each family physician, residents will complete an audit to collect baseline data on the number of no-shows per month for a six-month period (January to June 2025) as recorded in the physician's EMR. The EMR will plot these data on a run chart. More information on run charts can be found on D2L.

SHIFTS, CYCLES, OR TRENDS IN THE DATA

Once you have your run chart, it must be interpreted to help determine whether or not any variation within the dataset is random or whether there are any shifts, cycles, or trends in the data that may provide additional information about the problem of no-shows. This will require application of the four run chart rules for interpretation (shift, trend, runs, astronomical point).

For more information on run charts and their interpretation, please review the 2 page document "Interpreting Run Charts" that is recommended by Health Quality Ontario.



THE FLO COLLABORATIVE SPREAD STRATEGY

Interpreting Run Charts

There are four rules for interpreting run charts. It is not necessary to find evidence of all four rules to determine that a change has occurred. The presence of any single rule is evidence of a non-random signal of change (there is less than 5% likelihood that the conditions of the rule will be met simply by chance).

Rule 1: Shift

- A shift is six or more consecutive points, either all above or all below the median
- Values that fall on the median neither add to nor break a shift – skip them and continue counting

Rule 2: Trend

- A trend is five or more consecutive points all going up or all going down (Note: don't count the starting point)
- If the value of two or more consecutive points is the same, ignore one of the points and continue counting

Rule 3: Runs

- A non-random pattern is signaled by too few or too many runs (crossings of the median line)
- Too many runs suggests that there may be two separate distributions of the data, while too few runs signals that the data are clustered on one side of the median (may lead to a shift if there are enough data points).
- To determine the number of runs:
  - Step 1: Count the number of times the line connecting the data point crosses the median and add one
  - Step 2: Count the number of data points that do not fall on the median
  - Step 3: Refer to the table (on reverse) for comparison values.

Rule 4: Astronomical Point

- An astronomical data point is one that is an obviously different value; anyone studying the chart would agree that it is unusual
- Every data set will have a highest point and a lowest point, but this does not necessarily make it "astronomical"
- Caution: if there are large differences (>25%) in the denominator, then a Shewhart control chart may be required to differentiate between a point where the data truly is different and a point that appears different because of the difference in denominator.

CHOI Centre for Healthcare Quality Improvement At The Change Foundation

Page 1 of 2

The link is below:

https://www.hqontario.ca/Portals/0/modals/qi/en/processmap_pdfs/tools/interpreting%20run%20charts.pdf

METHOD

OBJECTIVE 2. ASSESS REASONS FOR NO-SHOW APPOINTMENTS

To assess reasons that patients fail to attend their scheduled appointments without notifying the clinic, we will complete a fishbone diagram using three methods.

1. **Review of scientific literature.** A review of recent qualitative and/or quantitative studies reporting on the reasons for no-show appointments. The EBM curriculum Committee and HSC Librarian identified relevant studies available on D2L. The PRIIME Network will provide a summary infographic of the papers for March 2025.


Lindsay et al. BMC Medicine (2024) 22:235
https://doi.org/10.1186/s12916-024-03456-2

BMC Medicine

RESEARCH Open Access

Understanding the causes of missingness in primary care: a realist review

Calum Lindsay[1*], David Baruffati[1], Mhairi Mackenzie[2], David A. Ellis[3], Michelle Major[4], Catherine A. O'Donnell[1], Sharon A. Simpson[5], Andrea E. Williamson[1] and Geoff Wong[6]

2. **Observation and anecdotal reports.** Clinic staff may provide insight into what they believe are the main reasons for no-shows. You may also observe possible reasons during the AFM/RFM rotations that may provide insight into the reasoning for this type of missed appointment.

3. **Data checking.** A subset of 10 patients who did not attend their appointments without notifying the clinic will be contacted directly using a script to assess reasons for the no-show appointment.
A sample script developed by the EBM committee is below. **Residents are required** to review the script with their preceptors for approval.

Sample Script for data checking exercise (confirm with preceptor):

Hello, I am Dr. _____, calling from Dr. _____'s clinic.

We are conducting a project specifically for our clinic's quality improvement purposes to understand why patients sometimes miss appointments without advance notice as a means of figuring out if there is anything we can be doing at the clinic to support attendance. Our records show that you were scheduled for an appointment at the clinic on [date] at [time] that you did not attend.

We are calling today to ask why you missed your appointment? Please note, nothing about this call or your response will affect your care or your relationship with Dr. _____. As mentioned, we are just trying to see how we may be able to improve within the clinic.

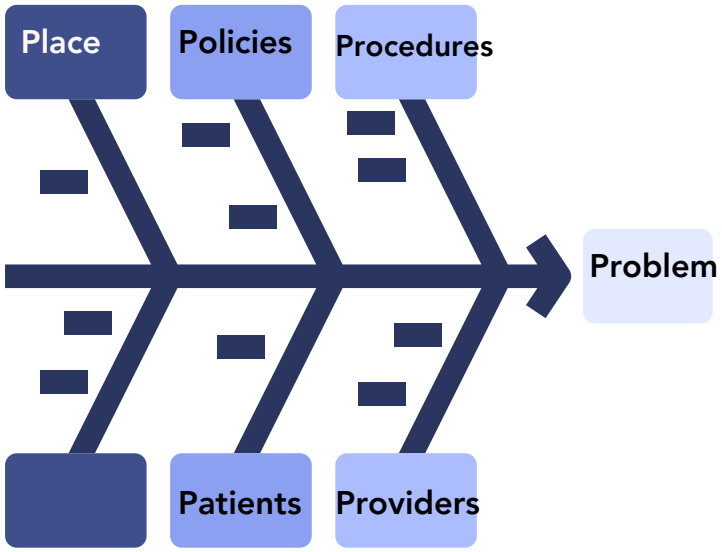
METHOD

OBJECTIVE 2. ASSESS REASONS FOR NO-SHOW APPOINTMENTS

Steps for completing the Fishbone and Check Sheet

1. Use data collected from **methods 1 Review of the literature and 2 Observation and anecdotal reports** to complete an initial fishbone diagram.

Fishbone Diagram Instructions and Example



2. Add all reasons from the fishbone diagram **to a check sheet.**

3. As you collect patient reported reasons from the **method 3 - data checking,** add any additional reasons reported by patients to the reasons column. Under "count" enter one tick each time a patient reports one of the reasons. This will allow you to calculate the frequency of each of the reasons.

Check Sheet

Potential Reasons	Count	Total count	%
Reason 1	IIIII	5	50%
Reason 2	II	2	20%
Reason 3	III	3	30%

METHOD

OBJECTIVE 3. SELECT QI STRATEGIES

After determining how often each FPs patients fail to attend their appointments without notifying the clinic, interpreting the data for possible patterns, and assessing reasons for no-show appointments, it is time to consider and recommend potential strategies to improve the no-show problem.

Step 1. Choose a reason you think the clinic can reasonably address

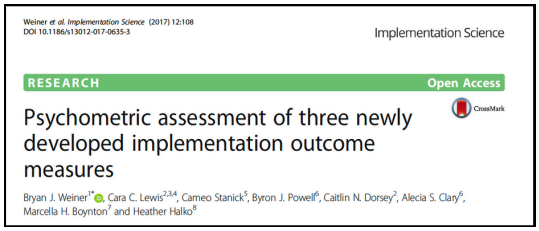
Step 2. Develop a list of potential strategies by:

- Reviewing the scientific literature reporting on effectiveness of strategies to address the reason you selected.
- Reviewing a curated annotated bibliography of relevant QI strategy papers prepared by the PRIIME Network in partnership with the HSC Librarian (available May 2025).
- Assessing local expert opinions of clinic staff and/or patients on ways that the clinic and/or physicians might help prevent future no-show appointments.

Step 3. Selecting a strategy to recommend in your final report. To do this, you will consider each potential strategy you identified Step 2, one-by-one for its acceptability, appropriateness, and feasibility for implementation. To assess these factors, you will apply the following outcome measures to each strategy in your list:

1. Acceptability of Intervention Measure (AIM)
2. Intervention Appropriateness Measure (IAM)
3. Feasibility of Intervention Measure (FIM)

https://implementationscience.biomedcentral.com/articles/10.1186/s13012-017-0635-3


Weiner et al. Implementation Science (2017) 12:108
DOI 10.1186/s13012-017-0635-3

Implementation Science

RESEARCH Open Access

Psychometric assessment of three newly developed implementation outcome measures

Bryan J. Weiner, Cara C. Lewis, Cameo Stanick, Byron J. Powell, Caitlin N. Dorsey, Alecia S. Clary, Marcella H. Boynton and Heather Halko

Please see the next page for a sample table you can use to complete the AIM, IAM and FIM for each strategy you think could be used to target the reason for no-show in your clinic.

Important

Deciding which strategy to choose using the AIM, IAM and FIM scores may not always be obvious. For example, you may have a strategy that is acceptable and appropriate but not feasible or a strategy that is feasible but not acceptable or appropriate. The final decision may require you to balance the pros and cons of what you find.

Method

Strategy Assessment

Please complete the table below. Each of these measures include only four items, take 5 minutes or less to apply, and do not require specialized training to administer, score, or interpret.

Completion Instructions:

1. Add the name of each strategy to the appropriate column header
2. Answer each question for strategy 1, then move to strategy 2 and so on
3. For each question, place the score of the response option you want to select in the answer box, example below

Acceptable (AIM)	**reminder system**	**penalty fee**	....
1. (**The** STRATEGY) meets my approval.	**3**	**2**	

1	2	3	4	5
Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree

Acceptable (AIM)	Strategy 1	Strategy 2	....
1. (INSERT STRATEGY) meets my approval.			
2. (INSERT STRATEGY) is appealing to me.			
3. I like (INSERT STRATEGY).			
4. I welcome (INSERT STRATEGY).			
TOTAL			
Appropriate (IAM)	Strategy 1	Strategy 2	....
1. (INSERT STRATEGY) seems fitting.			
2. (INSERT STARTEGY) seems suitable.			
3. (INSERT STRATEGY) seems applicable.			
4. (INSERT STRATEGY) seems like a good match.			
TOTAL			
Feasible (FIM)	Strategy 1	Strategy 2	....
1. (INSERT STRATEGY) seems implementable.			
2. (INSERT STRATEGY) seems possible.			
3. (INSERT STRATEGY) seems doable.			
4. (INSERT STRATEGY) seems easy to use.			
TOTAL			

Scoring Instructions:

1. The total score is sum of item scores for each measure. Higher scores indicate higher levels of acceptability, appropriateness, and feasibility.

METHOD

OBJECTIVE 4. RECOMMENDING A QI STRATEGY

Once you have chosen a strategy to recommend, its time to describe the strategy for implementation in the clinic and how to measure its success.

Step 1. Describing the QI strategy. Describe the QI strategy in sufficient detail to allow someone to understand exactly what it is required to develop and implement the strategy in the clinic.

Box 1 on page 12 of this document provides recommendations to guide intervention description.

Step 2. Measuring success. Please include recommendations for outcomes that should be assessed in order to determine the effectiveness of the strategy. This includes your main outcome measure as well as process (strategy implementation) and balance (unintended consequences) measures. For more information, please review resources posted on Brightspace.

Additionally, you will find information about measuring success in:

- **Health Quality Ontario's Quality Improvement Guide**
  - Section 3.4 IDENTIFYING THE MEASURES: HOW WILL WE KNOW IF A CHANGE IS AN IMPROVEMENT?

https://www.hqontario.ca/portals/0/documents/qi/qi-quality-improve-guide-2012-en.pdf

Protocol Modifications

Preface:

The topic of "no shows" was identified by multiple family physicians in NL as a good topic for a QI initiative for the resident QI scholarly project. Consequently, we have assumed that there is indeed a "no show" problem in many family medicine clinics but do not know much about it (e.g., the size of the problem, nature of the problem, and why it is happening), each of these questions are important to address before selecting a QI strategy. Our current QI Project Protocol aims to gain information about these initial, pre-QI questions in numerous clinics around the province. As it turns out, "no shows" may not be an issue in all clinics. If you find that you have few "no shows" in the dataset you have collected, please see below for an alternate series of steps you can follow for your QI project.

1. "No Show" proportion

What is the proportion of no-shows (the number of no shows/the total number of appointments) in your data set?

If you find the number of "no shows" is low, you should first consider if the proportion of no shows is also low. For example, many academic family docs do not practice full-time and might be expected to have a lower total number of missed appointments. Therefore, the total number of missed appointments may not be telling you the whole story. You are advised to determine the total number of appointments the physician you are working with had scheduled during the data collection period and calculate the percentage of total appointments that were missed. If the proportion is still less than 5%, please continue to recommendations below.

2. Data accuracy

It is important for you to consider the accuracy of the data you have collected. Some things to consider to determine accuracy:

- What is the clinic's definition of a "no show", does this match what was described in the QI project protocol?
- Are the clinic staff reliably collecting/coding "no shows" in their EMR?
- Do administrative staff agree with your data findings (do they match their experience)?

If you cannot determine the accuracy of the data, you can collect more data.

Collecting more data

If you need to collect more data to determine data accuracy, you will need to develop a reliable way to collect data on "no shows" for a 1 month period (at a minimum) to see if you are getting accurate data. If your prospective study indicates that "no shows" were not being accurately captured and there are indeed a larger number (greater proportion of no-shows) than your previous dataset indicated, then you can proceed to collect data on the reasons for no shows as per the protocol using the new month of data only.

If you are convinced the data is correct, and there does not appear to be a "no show" problem for the physician you are working with, you will proceed as follows:

1. **Describe how the clinic is handling no shows**

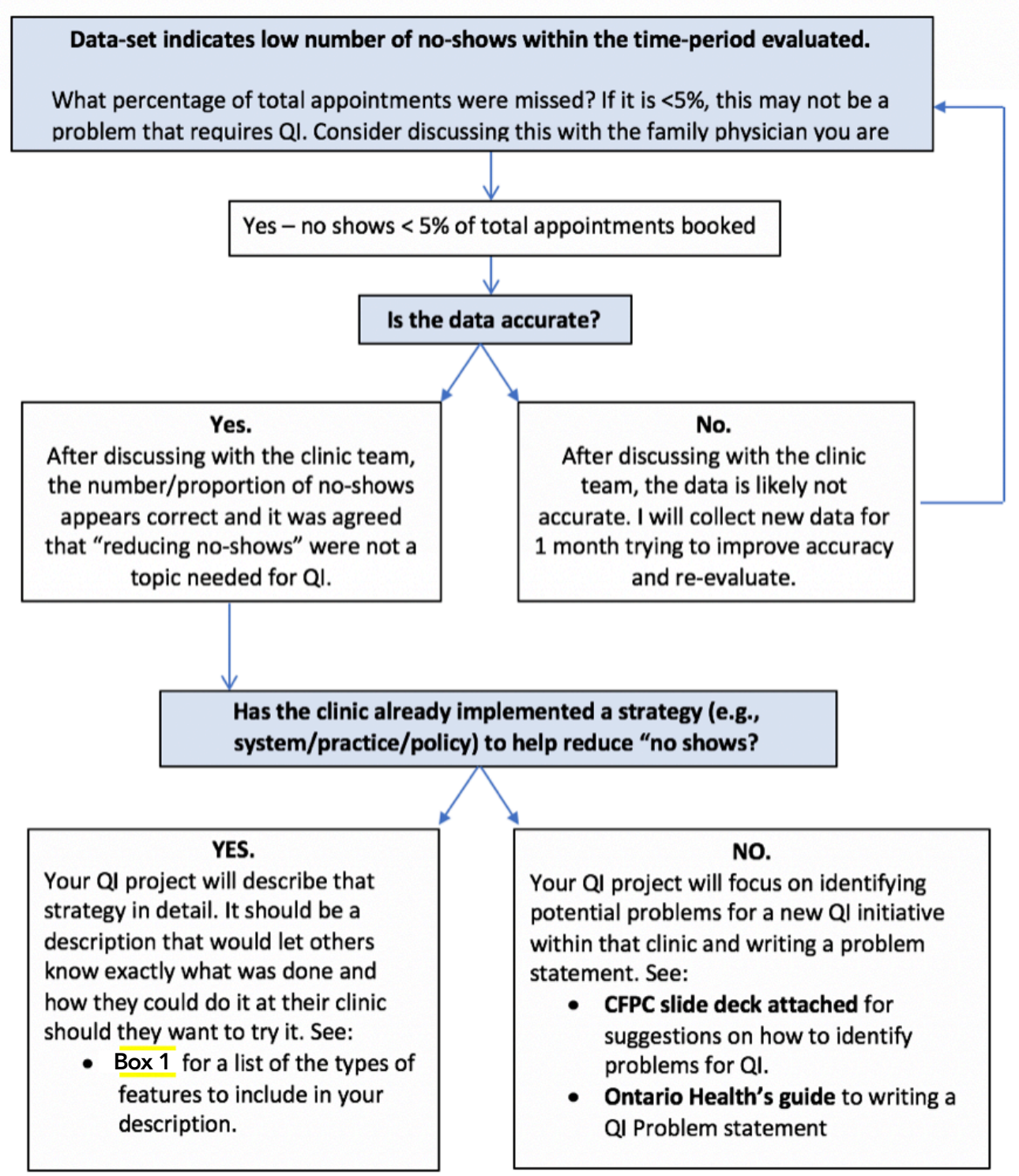
    a. Does the clinic engage in or have special policies or practices for no shows?
    b. Have they already put a system in place to help reduce no shows?
    c. If yes, explain the strategy in detail and how the clinic implements it
    d. Discuss any literature on the strategy and discuss its effectiveness (based on the evidence reported in the literature).

If the clinic is not employing any specific strategy, you may instead:

- initiate discussions with your preceptor and other clinic staff to identify up to three areas in that clinic that would benefit from a QI initiative.
- Please, develop a problem statement for at least one area using module 4 of the CFPC's Quality Improvement Training guide which discusses how to identify and choose a problem for QI and write a problem statement (slides on Bright Space learning platform). Or you can use the 1-page summary for developing problems statements produced by Health Quality Ontario. link below

https://quorum.hqontario.ca/Portals/0/QI-Tools-and-Resources/Problem-Statement-Tool.pdf

Protocol for low "no show" - flow chart



Box 1. How to describe a QI strategy/activity for replication?

The **Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0)** Checklist provides guidance on how to report aspects of quality improvement projects including describing any quality improvement strategy referred to as a quality improvement intervention.

The **SQUIRE checklist** can be found at:

https://www.equator-network.org/wp-content/uploads/2012/12/SQUIRE-2.0-checklist.pdf

The SQUIRE checklist intervention item is:

item # 8 - interventions

1. Description of the intervention(s) in sufficient detail that others could reproduce it
2. Specifics of the team involved in the work

The explanation of this item can be found in the paper:

Goodman D, Ogrinc G, Davies L, et al. Explanation and elaboration of the SQUIRE (Standards for Quality Improvement Reporting Excellence) Guidelines, V.2.0: examples of SQUIRE elements in the healthcare improvement literature. BMJ Quality & Safety 2016;25:e7.

https://qualitysafety.bmj.com/content/25/12/e7

Essentially, it advises us to describe the QI intervention in sufficient detail for replication at another clinic. It provides a few examples of how you may write about it. However, the exact details are not well described. So for the scholarly project written report, please feel free to use the Goodman et al paper as a guide and/or the following general items listed below to inform your description:

- What types of new strategies/activities were introduced to the clinic to bring about a change to decrease no shows?
  - What is involved in implementing the strategy/activity?
  - What exactly was needed to implement the strategy/activity?
  - Was there any special training or personnel changes required to implement the strategy/activity? If so, please describe.
  - How much did the strategy/activity cost?
  - Did anyone take a lead on implementing it in the clinic or was it a team approach?