A Guide to Measurement for Improvement and Quality Indicators
Accreditation Canada is an independent, not-for-profit organization that accredits health organizations in Canada and around the world. Its comprehensive accreditation program uses evidence-based standards and a rigorous peer review process to foster ongoing quality improvement. Accreditation Canada has been helping organizations improve health care quality and patient safety for more than 55 years.
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The measurement for improvement standard

Introduction

In January 2014, Accreditation Canada introduced the measurement for improvement standard into almost all service excellence sets of standards in the Qmentum accreditation program. The criteria associated with this standard will be assessed during on-site surveys starting in January 2015.

Although this standard looks new, it expands on long-standing expectations in the standards around quality improvement and the use of data for team-based improvement activities. The Governance and Leadership standards already contain expectations about using indicators to measure quality at other levels of the organization; the measurement for improvement standard outlines the steps in team-based quality improvement.

Purpose of this guide

This guide was created to support clients who are unfamiliar with measurement for improvement and to help teams meet the requirements of this updated standard. It contains practical information about how to use indicators to identify, design, plan, implement, and evaluate quality improvement activities. This guide is not an exhaustive resource, though it does introduce basic principles in quality improvement and using indicator data for quality improvement. It provides the reader with links to accessible and comprehensive references and resources.

As all members of an organization are responsible for participating in the development and implementation of indicators, this tool is designed to be understood and used by front-line care and service providers as well as managers in all types of health organizations.

This guide includes several helpful appendices

- Appendix A provides links to other useful quality improvement resources
- Appendix B contains measurement for improvement case studies
- Appendix C lists examples of indicators from different sectors
Quality improvement and the Qmentum accreditation program

Quality

Organizations define quality differently (Raleigh & Foot, 2010). Accreditation Canada defines it using eight quality dimensions that are the foundation of the standards (see Figure 1). Each dimension has its own tag line to clarify its intent.

Figure 1. Eight quality dimensions and tag lines

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>TAG LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Keep me safe</td>
</tr>
<tr>
<td>Client-Centred Services</td>
<td>Partner with me and my family in our care</td>
</tr>
<tr>
<td>Worklife</td>
<td>Take care of those who take care of me</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Make the best use of resources</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>Do the right thing to achieve the best results</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Give me timely and equitable services</td>
</tr>
<tr>
<td>Population Focus</td>
<td>Work with my community to anticipate and meet our needs</td>
</tr>
<tr>
<td>Continuity</td>
<td>Coordinate my care across the continuum</td>
</tr>
</tbody>
</table>
Quality improvement and Qmentum

Accreditation Canada released the Qmentum accreditation program in 2008. The foundation of Qmentum is its national, evidence-based standards that outline how organizations can deliver quality and safe services. Qmentum is meant to be integrated into the daily quality improvement work at all client organizations. The new measurement for improvement standard fits within the outcome-oriented nature of Qmentum and raises the bar for quality improvement by asking teams to focus on indicators, data collection, and the formal steps in quality improvement initiatives.

No matter the approach selected for a quality improvement initiative, the critical ingredient for successful and sustained improvements is measurement. Indicator data is needed to 1) determine which activities require improvement; 2) design an appropriate improvement activity; and 3) measure whether the activity leads to an improvement.

There is no single exhaustive list of indicators from which to choose. Indicators should be chosen to reflect the specific objective of a quality initiative. For example, a team in an acute care setting studying a high incidence of falls may choose to measure the number of patients wearing appropriate footwear over a three week period, while a team providing home care services may choose to measure the number of patients screened with a newly introduced falls risk assessment tool.

Your quality improvement initiative

As your team reflects on the new measurement for improvement standard, begin by establishing a plan or framework to help chart your course. The measurement for improvement standard is based on Langley’s model for improvement (Langley et al., 2009), which focuses teams on three fundamental questions:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?

Change and improvement are intertwined in this model. It is important to demonstrate improvements for clients, the work environment, or the organization after a change is introduced. The measurement for improvement standard drives teams to use data to develop, plan, and implement changes, and to demonstrate that an improvement has been made.

* In this document, the term client refers to patients, clients, or residents.
Change has led to an improvement when:

- The work or activity is done more efficiently or effectively (process improvement)
- There is a positive change in client outcomes
- The effects of the change are enduring

A case study is woven throughout this guide to illustrate how to approach the three fundamental questions of the model for improvement. Falls prevention was selected for this case study as it is a topic that resonates with many providers across a variety of sectors (e.g., acute care, long-term care, rehabilitation, home care).
Define your objective, choose your team, and select your indicators

Define the objective

Before the team can begin its improvement work, it must be clear about what it is trying to accomplish. Having a clear and specific objective (sometimes referred to as an aim in the literature) sets the stage for developing a plan and choosing appropriate indicators. Use the SMART acronym to identify an objective that is:

- **S**pecific: It should be explicit and include an absolute (as opposed to a proportional) target. The examples below illustrate the difference between vague, poorly written objectives and ones that are specific with clear targets.

- **M**easurable: Teams should capture change through a measurable indicator that answers the question “How will we know if a change is an improvement?”

- **A**chievable: Identify a stretch goal that sets the bar high enough to motivate people, but not so high that achieving it seems impossible. If the goal is perceived as unrealistic, it will be difficult to engage staff in the improvement initiative. It is helpful to consider best practices and benchmarks when setting your objective.

- **R**ealistic: It is important to have the authority, time, and resources (financial, physical, and human) required to meet the chosen objective.

- **T**ime-bound: Give yourself a firm deadline to help move things along.

<table>
<thead>
<tr>
<th>Poor objective</th>
<th>Good objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>We will reduce the number of falls.</td>
<td>We will reduce the proportion of residents who had at least one fall in the last 30 days on 4A to 14% over the next six months.</td>
</tr>
<tr>
<td>We will improve access to our primary care services.</td>
<td>Over the next eight months, we will reduce the time to the third next available appointment to two days.</td>
</tr>
</tbody>
</table>
Provost and Murray (2011, p. 5) encourage teams to take the necessary time to develop a clear objective. They say having a clear objective:

- Provides leaders a mechanism to think through all aspects of the proposed effort
- Aids in selection of the team to make the improvements
- Reduces variation in activities from the original purpose
- Helps in the selection of particular processes or products for study
- Empowers individuals to make changes in health care systems
- Clarifies the magnitude of improvement expected from this project
- Defines the time frame for the improvement work

As identified above, part of creating a clear objective is being specific about the magnitude of improvement expected from the project. When establishing the team’s objective, consider whether there is literature available about best practices in the chosen area. Or, find out what is defined as “best performance” at other organizations and learn how they achieve that level of performance (benchmarking). This background work will also help establish a stretch goal.

**Case Study**

The nurse manager on 4A reviewed the latest data on falls from the organization’s Quality Committee. She noted that in the last year there was an increase in the proportion of residents who fell on the unit. The rates were 18% one month ago, 16% six months ago, and 14% at the same time last year. The falls indicator was defined as the proportion of residents who had at least one fall in the last 30 days. The nurse manager raised this report at a staff meeting and staff members were surprised at the trend. Recognizing that this needed to be a focus of their quality improvement efforts, the staff at the meeting agreed on the following objective:

“We will reduce the proportion of residents who had at least one fall in the last 30 days on 4A to 14% over the next six months.”

**Comment**

At this initial stage, the team addresses the first fundamental question in any quality improvement initiative: “What are we trying to accomplish?” The team develops a very clear objective to guide its work.
Select the team

A key factor in successful quality improvement initiatives is the membership on the implementation team. These people assume responsibility for the design and evaluation of the quality improvement initiative. Key considerations include determining what expertise is required to provide relevant input into the initiative and trying to include members who influence the areas that will be involved in the quality improvement initiative. Measurement or data sharing alone will not motivate individuals to change, especially if the change involves their personal practice or the processes by which they work. When meeting with the implementation team, think about how to position the quality improvement initiative to appeal to people’s emotions. Health care providers want to provide the best possible care for their clients and if the initiative does not appeal to this basic common denominator, the improvement initiative may fail. Good communication is essential to the quality improvement process (NHS Institute for Innovation and Improvement, 2008).

Once the implementation team is established, create a strong link to the organization’s leadership. This is important to ensure support for the initiative and to help mobilize any resources that may be required to accomplish the objectives.

Case Study

Once the objective was clearly articulated, the nurse manager established an implementation team to lead the initiative to reduce falls on the unit. She recognized that expertise from several disciplines involved in client care was needed because each discipline had its own scope of knowledge. She asked the following individuals to be part of the team: the physiotherapist, the occupational therapist, a nurse representative, the rehabilitation assistant, the pharmacist, and the unit porter. The most responsible physician for the unit was approached about the quality improvement initiative and agreed to participate as required. The nurse manager sought support from the program’s director to ensure that the organization’s leadership was aware of and supportive of the initiative. The director requested progress reports every two weeks about the initiative.

Comment

The nurse manager followed key principles in establishing the implementation team. She gathered expertise from the various professions, knowing that any suggested changes as a result of the initiative would eventually require buy-in and compliance across the disciplines. She also secured the buy-in of the most responsible physician and engaged the appropriate leader for support.
As the team is brought together, it is important that all members have a shared understanding of the current state of affairs and the impact the initiative will have on their clients and the organization. They should also determine what literature, policies, and procedures need to be reviewed to begin the quality improvement journey. The team then needs to choose an approach to quality improvement; the organization may already have chosen one, or the team may have to look at the literature to select an appropriate approach. Identifying and following a systematic approach to quality improvement ensures a clear goal, direction, and process, which tends to lead to greater success (Agency for Healthcare Research and Quality, 2013). While a detailed analysis of approaches is beyond the scope of this guide, a few are mentioned below. Appendix A contains additional resources.

**Plan, Do, Study, Act (PDSA)**

PDSA is a quality improvement approach that strives for learning and improvement through doing or testing. This methodology incorporates multiple repeated cycles of testing changes and assessing their impact. Each change moves the team closer to achieving its objective.

**Six Sigma**

This methodology was developed by Motorola to reduce defects. By analyzing data, Six Sigma works at reducing process variation to improve quality. The Six Sigma approach generally requires champions or people who have training in this methodology.

**Lean**

Lean is also referred to as the Toyota Production System. Health care organizations use Lean to reduce waste at the point of care; staff providing care are empowered to identify and fix problems. Tools commonly employed in the Lean methodology include process mapping, process redesign, and standard operating procedures with continuous audits against those procedures to ensure compliance.

No matter which approach a team chooses, ultimately it needs to focus on the questions that are fundamental to quality improvement; they bear repeating:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in improvement?

The planning and implementation phases of a quality improvement initiative will depend on the systematic approach selected by the organization or the team. Use the resources in Appendix A to help you choose a quality improvement approach. The next section focuses on choosing and defining indicators, a key component of the new measurement for improvement standard.
Choose indicators

When there is clarity around its objective, the team will need to decide which indicators will be monitored and why. Indicators can be monitored to help identify areas for improvement. The example in the case study is the proportion of residents who had at least one fall during the last 30 days; this number is monitored by the Quality Committee to identify when a problem occurs in that area. Indicators are monitored in quality improvement initiatives to determine whether a change was successful (i.e., whether the change helped the team achieve or get closer to achieving its objective) (Safer Healthcare Now!, 2011).

Selecting the right indicators is critical to success in quality improvement. Indicators should not be pre-identified; they should be selected based on the quality improvement objective. Once a team establishes a clear and specific objective, the appropriate indicators should be simple to identify. If teams are struggling to identify an appropriate indicator they should revisit and refine their objective.

Definition
Choosing indicators to measure and monitor is a core component of the quality improvement model. Accreditation Canada defines an indicator as:

*A single, standardized measure, expressed in quantitative terms, that captures a key dimension of individual or population health, or health service performance. An indicator may measure available resources, an aspect of a process, or a health or service outcome. Indicators need to have a definition, inclusion and exclusion criteria, and a time period. Indicators are typically expressed as a proportion, which has a numerator and denominator (e.g., percentage of injuries from falls, compliance with standard procedures, staff satisfaction). Counts, which do not have a denominator, may also be used (e.g., number of complaints, number of clients harmed as a result of a preventable error, number of policies revised). Tracking indicator data over time identifies successful practices or areas requiring improvement; indicator data is used to inform the development of quality improvement activities. Types of indicators include: structure measures, process measures, outcome measures, and balancing measures.*

Types of indicators
Below are descriptions of how indicators for quality improvement are commonly classified (Mainz, 2003); these may be helpful when considering which to use:

- **Structure indicators:** These inform us about the context within which clients receive care. They describe aspects of the care setting or the service providers who deliver client care. They include human or material resources.
Examples
- Ratio of nursing staff to residents
- Number of influenza vaccines

- **Process indicators**: These inform us about the elements of care received by a client. They track whether ongoing system components, interventions, or services are performing as intended.

Examples
- The proportion of clients with a falls risk assessment completed on admission
- The proportion of clients discharged from hospital with a home care consult who received a visit within 48 hours of discharge

- **Outcome indicators**: These tell us what happened to a client as a result of the care they received. They measure the impact of the system, interventions, or services on a client’s values, experience, health, or well-being.

Examples
- The level of satisfaction of the client or population after completing a service or program
- Client’s rating (1-10) on the Numerical Rating Scale for pain intensity and relief

- **Balancing measures**: These ensure that interventions or services designed to improve one area of the system are not creating problems in other areas. They point to the unintentional negative consequences of quality improvement activities.

Example
If a team tries to reduce the average length of stay, it should also monitor the percentage of client readmissions within 30 days. It is not desirable to have the length of stay decrease, only to have the number of readmissions within 30 days increase. The number of readmissions is therefore a balancing measure.
For a comprehensive approach to monitoring quality and safety, a balanced approach to measurement is recommended. Selecting and monitoring indicators of various types is important because structure impacts processes, which in turn impact outcomes. When teams choose their indicators, it is important to distinguish between the concept they want to understand (e.g., falls prevention) and the actual measure of that concept (i.e., an indicator) (Lloyd, 2004).

Selecting a specific indicator

The following are examples of specific indicators that could be measured in the falls prevention process:

1. The number of mobility aids available on the floor (structure)
2. The proportion of clients receiving a falls risk assessment (process)
3. The proportion of patients who fall (outcome)
4. The proportion of injuries from falls (outcome)
5. The proportion of clients who are mechanically restrained (balancing)

The table in Appendix C has various examples of quality indicators from different services, and demonstrates how they fit within the Qmentum quality framework. It is not an exhaustive list; teams should select indicators based on their unique quality improvement objective.

Why measure?

Just as there are different types of indicators, there are also different approaches to measurement. Data can be used in three broad ways (Provost, 2011).

1. For **quality improvement**: Indicators are used to learn more about a care process or to understand where there are issues and how they can be resolved. When an improvement initiative is tested, indicators help clarify whether an improvement has taken place, and if it is sustained. Using data for quality improvement is the focus of the measurement for improvement standard.

2. For **judgement or accountability**: Indicators are used to measure the attainment of various goals or outcomes (performance). This is usually done in comparison with internal or external reference points.

3. For **research**: Indicators are used to learn about a care process or system. Unlike the quality improvement approach to measurement, which can evolve over improvement cycles, research measurement is more structured and adheres to strict protocols.
Consider the following suggestions when using data collection processes for quality improvement initiatives:

- Focus on a few concrete indicators that make it clear what you are improving.
- Do not overly rely on process measures. It is important to pair these with outcome and balancing measures.
- Regularly collect and plot the data visually. Make this information available routinely to team members.
- Try to integrate data collection into work processes that already exist.
- Remember, to answer the question “How will we know that a change is an improvement?” you will probably need to look at several measures (between three and eight) (Provost, 2011).

Key points to remember about indicators
Whether or not the team is new to working on quality improvement initiatives and selecting indicators, it is helpful for the team to review the following:

Four things to know and accept about indicators
(NHS Institute for Innovation and Improvement, 2008, p. 6)

1. **Indicators only indicate:** As mentioned previously, structure, process, and outcome indicators impact each other. Therefore, it would be simplistic to think that a single indicator tells a complete story. Indicators should be treated as important clues or guides rather than as definitive answers.

2. **Indicators encourage explicitness:** To define an indicator, it is essential to clearly state what is being measured (inclusion criteria) and what is not being measured (exclusion criteria), as well as when and why it is being measured. This clarification can save a lot of time and effort over the course of an improvement initiative.

3. **Indicators usually rely on numbers and numerical techniques:** In order to properly collect, understand, apply, or question indicator data, it is important to familiarize yourself with basic statistical processes and the structure of an indicator. Appendix A includes valuable resources to assist with this.

4. **Indicators should not just be associated with fault-finding:** Remember, this is about improvement, not performance! When teams look at indicators it should be with the understanding that they are learning about and working toward improvement. Measurement for improvement can help identify areas that are doing well (for knowledge exchange purposes) and those that need a closer look.
Case Study

During the first meeting of the Falls Prevention quality improvement team, members reviewed the data related to falls on their unit and the draft objective the nurse manager brought forward. The nurse manager reviewed the trend in falls and pointed to the serious negative impact to clients on the unit. Staff were concerned as they prided themselves on the care they provided to their mostly elderly clients. All agreed that the objective was appropriate and achievable. They began to brainstorm how to decrease falls on the unit. Many felt that staff education was needed. Others felt there was poor compliance with the falls prevention protocol. While these were all important considerations, it seemed that staff felt the major problem occurred during the night shift. Anecdotally, staff believed that when clients fell, it was mostly during the night. The staff decided to review all the incident reports from the last six months and look at falls and time of day. If this relationship existed as they hypothesized, it would help direct their plan. The manager continually emphasized that if such a relationship did exist, the staff on the night shift were not to be blamed. In fact, all staff rotated through the night shift. The nurse manager continually focused on fixing processes. This put the staff at ease and they were eager to participate in addressing the issue in order to improve the care provided to their patients.

Comment

In this example, the team brainstormed various ideas and possible causes of client falls. Any one of these ideas could have turned into an indicator (e.g., compliance with the falls prevention protocol, staff knowledge related to falls prevention). All these indicators may be important to examine eventually, but often, brainstorming can lead to a single hypothesis that most people agree with, and it can serve as a starting point for the quality improvement initiative. The team chose to go back and study the incident reports to look for a relationship between two indicators—the time of day and falls. Another key point in this case is the importance of a no-blame culture. It was important for staff to feel supported by the nurse manager and not blamed for the trend in the fall rate. Once reassured, they were eager to turn their attention to the quality improvement initiative.
Collecting and presenting data

As teams work through a quality improvement initiative, consider the following tips from Safer Healthcare Now! (2011) to help support and accelerate the change initiative:

- **Collect data and plot it over time.** By tracking a few indicators and plotting this data over time, your team can examine trends and determine if positive changes are occurring and if not, adjust the strategy as required.

- **Use a sample.** Collecting indicators on all patients every day for the entire 24 hours may be daunting. Your team may decide to collect data on a sample of days, from a sample of clients.

- **Make data collection a part of your regular activities or processes.** Whether using existing or new tools to collect data, ensure the tools are user friendly and can be integrated into the daily routines of the staff involved in data collection or the service measured. This will yield better compliance with the data collection process.

- **Collect what is meaningful and useful.** Don’t get caught stockpiling data that may be useful. Stay focused on what will inform your improvement initiative.

> “For teams doing improvement work measurement should be used to speed things up not slow them down.”
> (Safer Healthcare Now!, 2011, p. 19)

As you collect data, think of ways of displaying it so trends are easily identified. Run charts and process control charts illustrate change in a way that helps identify and interpret change.

### Run charts

A **run chart** is an example of a tool that plots an indicator’s performance over time. It is a useful way to visually display the performance of the indicator you are measuring. You can use run charts to identify areas in need of improvement and to evaluate the impact or effect of your quality improvement initiative (IHI, n.d.).

> “Because improvement happens over time, a run chart is a great tool for displaying and learning from improvement data.”
> (IHI, n.d., p. 15)
A run chart is simple to plot and interpret. You can do it by hand on graph paper or using a spreadsheet program such as Microsoft Excel. Software and various templates are available (see Appendix A for a list of resources). The elements of a run chart include:

1. **X axis (horizontal):** The X axis is usually a measure of time (e.g., minutes, hours, days, weeks, months, quarters) and sometimes represents patients, appointments, or procedures.
2. **Y axis (vertical):** The Y axis is the quality indicator you are measuring over time.
3. **Median line:** The median is the middle point (50th percentile) in your set when data are ranked from lowest to highest. The median provides a visual reference point when you are reading your chart.
4. **Annotations and other visual guides:** Flag significant events, improvements, baseline, or target measures to contextualize your data.

Figure 2 is an example of an annotated run chart of compliance with a standard procedure (such as falls risk assessment for all new clients).

**Figure 2. Example of an annotated run chart (Perla, Provost, & Murray, 2011, p. 47)**

Significant changes can be identified by analyzing the run chart and looking for patterns like the following:

- Six or more consecutive points above or below the median (shift)
- Five or more consecutive points moving upward or downward (trends)

For more interpretation rules, look at the resources in Appendix A.

Teams should note the direction of the change to determine whether it is an improvement. In Figure 2, we can see that after changes were implemented in week 13 (i.e., falls risk assessment training for staff) the level of compliance with risk assessments for new clients increased.
Now the team needs to sustain this progress and continue to improve! Statistical process control (SPC) and control charts (or Shewhart charts) should be used when there are more than 11 points on a run chart.

**Statistical process control**

Statistical process control focuses on understanding variation. As teams measure an indicator over time, there will always be variation in the data. However, there are different types of variation and it is important to understand which type of variation is taking place to assess whether further action is required, or if the variation is considered normal. There are two kinds of variation that affect quality:

- **Common cause variation** is the normal, everyday variation that is natural to a system or a process.
- **Special cause variation** indicates that something is happening beyond the norm and it requires further investigation and possibly action to correct the trend.

Quality improvement teams should be concerned with special cause variation. If special cause variation is in the desired direction, it can help teams identify structures or processes that can help them achieve their improvement goals. If special cause variation is not in the desired direction, it can help teams identify structures or processes that need improvement. Once a team can identify special causes of variation it can continue its quality improvement work and redesign the processes so the system is improved, outcomes for clients are improved, and waste is eliminated (Schmaltz, 2009).

Control charts (also called Shewhart charts after Dr. Walter Shewhart who developed them) are similar to run charts, but are used to differentiate common cause variation from special cause variation in a practical, visual, and convincing format. An understanding of basic statistics and comfort with spreadsheet software is needed to plot and interpret control charts, though many software tools exist to facilitate the task.

Like a run chart, the control chart is a graphic representation of an indicator measured over time. Key elements include the centre line (CL), which is usually the mean; and lines called the upper (UCL) and lower (LCL) control limits, which run above and below the CL and are calculated based on the standard deviation. These lines are used to distinguish between common and special cause variation. Different control charts are used for different purposes and adopt different methods to calculate the UCL and LCL. For more details and references, see Appendix A under Presenting Data and Data Analysis.

Teams should look to their control chart to find special cause variation. Special cause variation tests can include (Benneyan, 2003):

- Any data point that is outside the UCL or LCL
- Eight data points in a row that are on the same side of the CL
- Four out of five data points in a row that are more than one standard deviation above or below the CL
- Two out of three data points in a row that are more than two standard deviations above or below the CL
- Six data points in a row that show an increasing or decreasing trend

Figure 3. Example of a control chart displaying falls per 1,000 patient days (adapted from Arthur, 2008)

Figure 3 shows a fairly stable process, although the team may wish to understand the special cause variation circled for May-June 2005 and October 2005 to March 2006. Perhaps a new floor wax was introduced prior to the spike in falls after April, or maybe a falls prevention protocol was implemented in October.

When the process is stable and does not indicate special cause variation, teams should not forget to consider what the average value (CL) and variation around it (UCL/LCL) mean (Health Quality Ontario (HQO), 2012; NHS, 2008). For example, if the night-time falls rate is stable at 40 per 1,000 patient days, but higher than the recognized average for this type of organization, it would signal a need to improve. The same would apply to the range between the UCL and LCL. If the night-time falls rate on the unit meets the provincial benchmark, but the UCL and LCL indicate that the rate can vary by as much as 50% on some occasions, the team needs to investigate why there is such variability in the conditions that lead to falls on its unit.

“Control charts are ideally suited to monitoring improvement project outcomes and process measures and helping to determine whether a change is actually an improvement.”

(HQO, 2012, p. 38)
Analyzing your indicators to develop, test, and implement changes

Testing and retesting

This guide has focused on measurement and the role of indicators in quality improvement. In this phase of the quality improvement journey, teams need to develop ideas, test them, implement change, and evaluate. There are multiple sources for improvement ideas, including observation, focus groups, literature searches, researching evidence-informed protocols such as the tools available through Safer Healthcare Now!, benchmarking, asking other units or organizations, and asking experts for their opinion.

“All improvement requires change but not every change is improvement.”

(Langley et al., 2009, p. 109)

Once a team is satisfied with an idea, testing is an important next step. Tests often fail, but that information is important and needed to adjust the plan or strategy. A test that does not yield optimal results is simply part of the quality improvement process. Teams should choose another idea from one of the sources mentioned and try again. This step is critical in building new knowledge and ensuring that whatever change is chosen, wider implementation has a stronger chance of success.
Case Study

Staff reviewed the data from the incident reports and discovered that most falls occurred between 11 p.m. and 5 a.m. While the staff brainstormed ideas for next steps, they further hypothesized that clients were waking up to use the washroom and falling while attempting to reach the washroom. A literature review identified that regular toileting during the night was a proven intervention to decrease falls. Staff worried about the workload associated with waking clients and taking them to the washroom. They decided to test the approach.

First test: They chose four patients with a history of falls, and tested a toileting program with one nurse on the night shift. Every four hours clients were woken and accompanied to the washroom. After two weeks, none of these patients had suffered a fall and the nurse reported that the workload was manageable.

The second test: The intervention was then expanded to one half of the unit. Staff quickly realized they needed a way to identify which clients needed the protocol. Staff developed inclusion criteria for the target population (any patient with a history of falls, dementia, or mobility issues). It was noted on these clients’ care plans that the toileting protocol was to be adhered to during the night. Staff explained the protocol to the clients and their families and the rationale behind it. They chose a night to test this change and in the morning, staff reported that getting the patients up every four hours led to a lot of activity and noise during those specified times. While results were positive with respect to fall rates, some aspects of the process needed to be tweaked.

The third test: The personal support worker assigned to the unit at night worked with the nursing staff to assist with the toileting of the patients and the times were staggered so not all patients were wakened at the same time.

Comment

The testing, retesting, and evaluation continued until the team had enough new knowledge and data related to the change that it was comfortable suggesting a full implementation of the toileting protocol on the unit. Staff eventually conducted a full pilot over three months, at the end of which it evaluated the following indicators:

- Proportion of clients who sustained a fall pre- and post-intervention (outcome indicator)
- Compliance with regular toileting protocol (process indicator)
- Staff satisfaction (via survey) with the use of the protocol (balancing indicator)
- Client satisfaction (via survey) (outcome indicator)
While testing involves working through various ideas using indicators to measure and evaluate the outcomes of the test, implementation is the next step and it involves putting the tested change idea into permanent practice.

There is a tendency to relax data measurement and data collection once a change for improvement has been fully implemented. It is important for teams to consider what data they will periodically monitor to ensure that their change is sustained over time. Indicator monitoring is important at all phases—planning, implementation, evaluation, and sustaining the change over time.

It is also important to publicize results and congratulate the team. Take time to acknowledge the team’s efforts and the contribution of those involved in the change. This encourages those involved to assist in sustaining the change, and helps to spread the results by encouraging others to get involved in future initiatives.
Accreditation Canada introduced the measurement for improvement standard into almost all service excellence standards in the Qmentum program in January 2014. This updated content will be assessed during on-site surveys starting in January 2015. This guide was created to familiarize readers with the concepts embedded in the new standard, namely, the notion of teams driving quality improvement, identifying indicators, and looking at data to evaluate quality improvement initiatives. The concept of using indicators to guide quality improvement is not new to the Qmentum program. The updated measurement for improvement standard strengthens this intent and focuses teams on choosing relevant indicators and measuring for improvement.

More references are available in a list in Appendix A; they are arranged by topics of interest with respect to quality improvement and the concepts touched on in this guide. This list is not exhaustive, but introduces the reader to more detail in important areas. Appendix B contains case studies from different sectors that illustrate how teams can implement the measurement for improvement standard. Appendix C provides examples of indicators that are linked to Qmentum and could be used for measurement for improvement activities.

In addition to these references, readers may contact their respective provincial Quality Council for specific information related to provincial indicators, as well as tools to support the quality improvement process.
References


Appendix A

Links to other resources by topic area

**Quality improvement tool kits**

**Plan-Do-Study-Act tools**
- IHI. (n.d.). How to improve. [www.ihi.org](http://www.ihi.org)
- IHI. (n.d.). PDSA worksheet. [www.ihi.org](http://www.ihi.org)

**Six Sigma**

**Lean**

**Creating a QI team**
Setting objectives (aims)

Indicators

Presenting data and data analysis
- Patient Safety Metrics. Web based data submission and reporting system. https://psmetrics.utoronto.ca
- Saskatchewan Quality Council. Improvement and measurement resources. www.hqc.sk.ca

Using results to make improvements
Appendix B

Measurement for improvement case studies

Case study: Measurement for improvement in a long-term care setting

<table>
<thead>
<tr>
<th>Description of the problem</th>
<th>Key measurement for improvement steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff on unit 4C realized from various internal reports that the incontinence rate for their residents was higher than the provincial average and also higher than other units at their own long-term care facility.</td>
<td>Identify the improvement opportunity</td>
</tr>
<tr>
<td>The unit administrator established a team that included RPNs and personal support workers from the unit, a physician champion, the unit’s occupational therapist, and a member of environmental services.</td>
<td>Select the team</td>
</tr>
<tr>
<td>The team looked at the data and established a goal to decrease the incontinence rate to 12%, the provincial benchmark, within one year.</td>
<td>Set a stretch target</td>
</tr>
<tr>
<td>The team met to brainstorm ideas and at the end of the first session it was apparent that team members did not know how well a new continence assessment program was working. The team chose the following indicators to measure:</td>
<td>Choose an appropriate indicator</td>
</tr>
<tr>
<td>▪ Compliance with continence assessment protocol (process indicator)</td>
<td>Collect the data</td>
</tr>
<tr>
<td>▪ Proportion of residents who are incontinent (outcome indicator)</td>
<td>Present the data/Analyze the indicators</td>
</tr>
<tr>
<td>▪ Time spent by staff assessing and supporting continence (balancing indicator)</td>
<td>Test and retest</td>
</tr>
<tr>
<td>The team developed a tool to audit charts over a three-week period to measure the indicators.</td>
<td></td>
</tr>
<tr>
<td>The team plotted this information on a run chart which clearly demonstrated poor compliance with the assessment protocol.</td>
<td></td>
</tr>
<tr>
<td>Furthermore, there was lack of evidence that the assessment translated into interventions in care plans. The team therefore redesigned the process to improve compliance with the assessment protocol and to increase the documentation of interventions in client files. Within a six-month period, the team was well on its way to meeting the target.</td>
<td></td>
</tr>
</tbody>
</table>
### Case study: Measurement for improvement in a community care setting

<table>
<thead>
<tr>
<th>Description of the problem</th>
<th>Key measurement for improvement steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A substance misuse agency noticed that clients from ethnically diverse backgrounds participated less in individual and group counselling sessions. Staff members were frustrated and felt that clients were not committed to the program.</td>
<td>Identify the improvement opportunity</td>
</tr>
<tr>
<td>The team leader decided to assemble a quality improvement team that included a case manager, a counsellor, a social worker, and a client representative to examine this issue. As a starting point, the team compiled participation and attendance data from the previous six months. This revealed that 1) on average, staff rated 40% of clients as somewhat to very engaged in their individual or group sessions on a three-point Likert scale (not engaged, somewhat engaged, very engaged); and 2) the average attendance rate for individual and group sessions was 60%. When the team looked at client experience results, it learned that: 1) clients felt staff members were disrespectful towards them; and 2) clients did not understand the available services.</td>
<td>Select the team</td>
</tr>
<tr>
<td>The team used the Registered Nurses’ Association of Ontario (RNAO) best practice guideline (BPG) Embracing Cultural Diversity in Health Care: Developing Cultural Competence(^1) to help plan the project. Based on the BPG, the team decided to focus on communication as a strategy to improve client involvement in services. Over the next six months, it aimed to increase client participation to 75% (rated as somewhat to very engaged) and average attendance at individual and group sessions to 80%.</td>
<td>Set a stretch target</td>
</tr>
<tr>
<td>Pre- and post-communication surveys from the BPG were conducted with staff and clients to better understand the relationship between communication and client care. Staff completed a self-assessment checklist and patients completed a communication climate assessment tool. Pre- and post-survey results were plotted on run charts and compared to participation and attendance rates for the six months prior to the initiative and six months following the initiative to determine if participation increased after improved communication was introduced.</td>
<td>Choose an appropriate indicator</td>
</tr>
<tr>
<td>The team implemented interventions to address barriers to communication. Staff learning sessions focused on communicating with diverse populations to promote collaborative decision making. Patient resources were offered in the three languages most commonly spoken</td>
<td>Collect the data</td>
</tr>
<tr>
<td></td>
<td>Present the data/Analyze the indicators</td>
</tr>
<tr>
<td></td>
<td>Test and retest</td>
</tr>
</tbody>
</table>

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Case study: Measurement for improvement in a community care setting

by clients and interpreters were made available to clients and staff. Staff also collaborated with clients to schedule sessions at times that did not conflict with cultural or religious occasions.

At the end of the six months, staff and clients completed post-intervention surveys and these were compared to the participation score sheet. Results indicated that clients were more satisfied with their care and felt more comfortable around staff. Similarly, staff felt that clients were more engaged in the program. Participation improved significantly. The success of the project created momentum to start planning the next quality improvement initiative.
**Case study: Measurement for improvement in a community care setting**

<table>
<thead>
<tr>
<th>Description of the problem</th>
<th>Key measurement for improvement steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A newly established Family Health Team in a growing urban community was frustrated with six months of a busy, overcrowded waiting room. New clients were frustrated, appointments were not readily available, and staff regularly worked overtime.</td>
<td>Identify the improvement opportunity</td>
</tr>
<tr>
<td>The team decided this was unsustainable and the clinic manager assembled a quality improvement team including the clinic’s receptionist, the physician, nurse, and social worker.</td>
<td>Select the team</td>
</tr>
<tr>
<td>The team reviewed some of the experiences of other Family Health Teams and realized it needed to improve the third next available appointment from the current 30 days to two days. This was based on the practices of gold standard teams across the province. The team planned to do this over the next eight months.</td>
<td>Set a stretch target</td>
</tr>
<tr>
<td>The team needed to understand which process indicators to study in order to achieve the outcome of two days for the third next available appointment. It decided to study the principles of supply and demand, and over the next two weeks considered two indicators: the volume of appointments needed, and the time available for appointments.</td>
<td>Choose an appropriate indicator</td>
</tr>
<tr>
<td>The team quickly realized it had to increase the availability of clinic appointment slots to better match demand. It instituted a one-month trial of new afternoon appointments.</td>
<td>Collect the data</td>
</tr>
<tr>
<td>After one month, the team reviewed data on the following indicators: patients who left without being seen, and time to third next available appointment.</td>
<td>Present the data/Analyze the indicators</td>
</tr>
<tr>
<td>These indicators were plotted on two separate run charts. When the data was reviewed one month after implementation, both indicators were trending downward, the desired effect.</td>
<td></td>
</tr>
<tr>
<td>The team decided to continue the pilot for the next three months before any further changes were made to the schedule. The team planned to add staff and client experience surveys after the next pilot, and decided to include the results of these surveys along with an assessment of “third next available appointment time” and the “left without being seen” rates in their overall assessment. Analyzing the data from all of these indicators helped the team establish the next step in its quality improvement initiative.</td>
<td>Test and retest</td>
</tr>
</tbody>
</table>

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## Case study: Measurement for improvement in an acute care setting

<table>
<thead>
<tr>
<th>Description of the problem</th>
<th>Key measurement for improvement steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>A surgical quality improvement team in a large tertiary care hospital noted that the surgical site infection rates were higher than provincial benchmarks. When the team dug further into the data, the trend was most pronounced in the orthopaedic surgery patient population.</td>
<td>Identify the improvement opportunity</td>
</tr>
<tr>
<td>To examine this further, the quality improvement coordinator established a team to lead the quality improvement review. The team included the team’s pharmacist, an operating room (OR) nurse, an anesthetist, a general surgeon, a staff nurse from the pre-op and post-op units, and a member of the infection prevention and control team.</td>
<td>Select the team</td>
</tr>
<tr>
<td>The team brainstormed several possible contributing factors, and, after consulting the literature, chose to focus on “time for pre-operative antibiotic administration” as there is a link between the administration of the pre-operative antibiotic and post-operative infections. The team determined that over one year it would decrease surgical site infections to five out of every 1,000 hip and knee surgery patients.</td>
<td>Set a stretch target</td>
</tr>
<tr>
<td>First, the team reviewed the actual time from antibiotic administration to incision for all the elective total joint replacements in the following two weeks. The review revealed significant variations from the recommended one-hour target.</td>
<td>Choose an appropriate indicator</td>
</tr>
<tr>
<td>The team called upon its quality department for help using “Lean” to examine and map the current process, identify where time was wasted, and recommend a revised process.</td>
<td>Collect the data</td>
</tr>
<tr>
<td>After it analyzed the results of the process mapping, the team determined there were several wasteful steps in the current process. A new process was created in which the pharmacy delivered pre-made syringes to the pre-operative area and the nurse administered the antibiotic as the patient was being wheeled into the OR.</td>
<td>Present the data/Analyze the indicators</td>
</tr>
<tr>
<td>The team trialled the new process over two weeks and altered some steps in the process based on staff feedback. After two weeks, the team reviewed data related to the process indicator “time antibiotic administered to time of incision” and determined it had reached the one-hour goal.</td>
<td>Test and retest</td>
</tr>
<tr>
<td>The team implemented the new process for all elective hip and knee surgery and continued to monitor the process indicator (time antibiotic administered to time of incision). The outcome indicator (proportion of patients with surgical site infection following hip and knee replacement) was plotted on a run chart</td>
<td></td>
</tr>
</tbody>
</table>
Case study: Measurement for improvement in a home care setting

Description of the problem

A home care team in a rural setting was concerned with the frequency of medication errors and mix-ups its clients experienced. Many of the clients were elderly and were being treated for multiple co-morbidities. Home care workers discovered that some clients had a stash of medications that had been discontinued for more than a year, some clients did not understand the instructions for taking their medications, and some were using over-the-counter medications that were not divulged and therefore not reviewed.

The home care team decided this was unsafe and the client services manager assembled a quality improvement team that included a physician, a pharmacist, an occupational therapist, a nurse, and a client support worker.

The team wanted to create accurate medication lists for clients, families, and home care workers to reduce potential adverse drug events. It reviewed some of the experiences of other home care teams and decided to initiate medication reconciliation on admission for clients in the home care setting. The team accessed the Medication Reconciliation Getting Started Kit from Safer Healthcare Now!3 to guide it through the process. The objective was that by the end of 18 months, 95% of eligible home care clients would receive a best possible medication history (BPMH) upon admission. They determined that clients for whom medication management was a component of care were eligible to receive medication reconciliation. Any discrepancies that could not be resolved by the home care team would be communicated to the client’s health care practitioner.

The team decided that several indicators would be used to assess whether the quality improvement activity led to an improvement:

1) The percentage of eligible clients with a completed BPMH (process measure) would be collected. The percentage would be tracked on a monthly basis.

2) The percentage of eligible clients with at least one discrepancy (outcome measure) would be collected. This would be collected for one week at the beginning of the implementation and then intermittently at three-month intervals. Any discrepancies were to be communicated to the health care practitioner within the home care worker’s first two visits.

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Case study: Measurement for improvement in a home care setting

3) The percentage of medication discrepancies identified by type (outcome measure) would be collected. Using the tool developed by Safer Healthcare Now! the team would categorize the discrepancies and then determine their frequency and compare them. The discrepancies would be tracked monthly.

4) Time (in minutes) required to complete a BPMH (balancing or structure measure) would be collected to evaluate the additional time needed to complete a BPMH.

Indicator measurement began with the baseline measurement of data for current processes and then the new initiative was introduced for one month.

After three months of implementation, the team reviewed the data for all four indicators. Run charts were used to illustrate the team’s progress. The core measure of “percentage of eligible clients with a BPMH” had increased from a baseline of 55% to 70%. This result indicated improvement toward the 95% objective.

The measure of “percentage of eligible clients with at least one discrepancy” had decreased from the first week of implementation, but still indicated that home care clients needed medication reconciliation.

The third measure of “percentage of medication discrepancies identified by type” indicated that fewer clients were taking medications not currently prescribed. This was a positive development for the team. It also found that clients were continuing to have issues self-managing the dosage and frequency of their medications.

The team observed that the average time required to complete a BPMH was 15 minutes. Given the time needed to complete a BPMH, the team decided to use data about the benefits of medication reconciliation to justify more staffing hours.

The home care team was very pleased with the results of the BPMH initiative. To address further quality improvement it decided to focus on reviewing and educating clients, families, and caregivers about dosages and administration times. Repeat measurements of all three indicators were taken at the sixth month of implementation. Analyzing the data from the combination of these indicators helped the team establish the next steps in its quality improvement initiative.
## Appendix C

### Illustrative table of indicators

This table provides examples of indicators that are linked to Qmentum and could be used for measurement for improvement activities. This is not an exhaustive list and teams are encouraged to identify their own indicators based on their quality improvement objectives.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Link to Qmentum Standards (ROP or criteria)</th>
<th>Standards Set</th>
<th>Quality Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of clients for whom an identified safety risk has been addressed following a safety risk assessment</td>
<td>ROP Home Safety Risk Assessment</td>
<td>Home Care</td>
<td>SAFETY</td>
</tr>
<tr>
<td>Number of days within which 90% of clients referred from an inpatient hospital setting receive their first home care service visit after discharge</td>
<td>The organization identifies, and removes where possible, barriers that prevent clients, families, and referring organizations from accessing services.</td>
<td>Home Care</td>
<td>ACCESSIBILITY</td>
</tr>
<tr>
<td>% of clients who had a fall in the last 30 days</td>
<td>ROP Falls Prevention</td>
<td>Home Care</td>
<td>SAFETY</td>
</tr>
<tr>
<td>% of staff reporting a positive work environment</td>
<td>★ Worklife Pulse Tool</td>
<td>Leadership</td>
<td>WORKLIFE</td>
</tr>
<tr>
<td>Number of client complaints per calendar year that are resolved to the client's satisfaction</td>
<td>! The organization educates clients and families about their rights, and investigates and resolves any claims that these rights have been violated.</td>
<td>Home Care</td>
<td>CLIENT-CENTRED SERVICES</td>
</tr>
</tbody>
</table>
## Long-term Care

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Link to Qmentum Standards (ROP or criteria)</th>
<th>Standards Set</th>
<th>Quality Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of staff who have received infusion pump training in the calendar year</td>
<td>ROP Infusion Pumps Training</td>
<td>Long-term Care</td>
<td>SAFETY</td>
</tr>
<tr>
<td>Number of workplace violence incident reports per quarter</td>
<td>ROP Workplace Violence Prevention</td>
<td>Leadership</td>
<td>SAFETY</td>
</tr>
<tr>
<td>Overall family ratings of care at long-term care facility</td>
<td>Client Experience Tool</td>
<td>Leadership</td>
<td>CLIENT-CENTRED SERVICES</td>
</tr>
<tr>
<td>Number of injuries per 100 long-term care workers per year</td>
<td>The team has a process for identifying and reducing risks to team members while delivering long-term care services.</td>
<td>Long-term Care</td>
<td>SAFETY</td>
</tr>
<tr>
<td>Median number of days to long-term care home placement</td>
<td>ROP Client Flow</td>
<td>Leadership</td>
<td>CONTINUITY</td>
</tr>
<tr>
<td>% of residents with a new pressure ulcer (stage 2 to 4)</td>
<td>ROP Pressure Ulcer Prevention</td>
<td>Long-term Care</td>
<td>SAFETY</td>
</tr>
</tbody>
</table>

## Primary Care

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Link to Qmentum Standards (ROP or criteria)</th>
<th>Standards Set</th>
<th>Quality Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of two-year olds with up-to-date immunizations</td>
<td>The clinic maintains a comprehensive and up-to-date medical record for each client.</td>
<td>Primary Care</td>
<td>APPROPRIATENESS</td>
</tr>
<tr>
<td>% of urgent and semi-urgent clients seen by community mental health services within 30 days</td>
<td>The clinic tracks clients' ability to access services and uses this information to make improvements to its services.</td>
<td>Primary Care</td>
<td>APPROPRIATENESS</td>
</tr>
<tr>
<td>% of clients diagnosed with diabetes whose glycemic or sugar control is not in the optimal range of 7% or less</td>
<td>The clinic screens clients at risk for preventable health conditions and provides timely follow up on the results.</td>
<td>Primary Care</td>
<td>CLIENT-CENTRED SERVICES</td>
</tr>
<tr>
<td>Medicine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Indicator</strong></td>
<td><strong>Link to Qmentum Standards (ROP or criteria)</strong></td>
<td><strong>Standards Set</strong></td>
<td><strong>Quality Dimension</strong></td>
</tr>
<tr>
<td>30-day readmission rate to Medicine (risk adjusted rate)</td>
<td>ROP Information Transfer</td>
<td>Medicine</td>
<td></td>
</tr>
<tr>
<td>Staff perceptions of patient safety at the unit level (% very good or excellent)</td>
<td>Canadian Patient Safety Culture Survey Tool</td>
<td>Leadership</td>
<td></td>
</tr>
<tr>
<td>Daily average census for clients coded as Alternate Level of Care (ALC)</td>
<td>ROP Client Flow</td>
<td>Leadership</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical Care</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator</strong></td>
<td><strong>Link to Qmentum Standards (ROP or criteria)</strong></td>
<td><strong>Standards Set</strong></td>
<td><strong>Quality Dimension</strong></td>
</tr>
<tr>
<td>% of patients whose primary care provider did not receive discharge report</td>
<td>ROP Information Transfer</td>
<td>Critical Care</td>
<td></td>
</tr>
<tr>
<td>Rate of health care-associated cases of Methicillin-resistant <em>Staphylococcus aureus</em> (MRSA) infection</td>
<td>ROP Infection Rates</td>
<td>Infection Prevention and Control</td>
<td></td>
</tr>
</tbody>
</table>
### Surgery and Perioperative

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Link to Qmentum Standards (ROP or criteria)</th>
<th>Standards Set</th>
<th>Quality Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-day readmission rate for surgical patients</td>
<td><img src="#" alt="ROP" /> Information Transfer</td>
<td>Perioperative Services and Invasive Procedures</td>
<td><img src="#" alt="CONTINUITY" /></td>
</tr>
<tr>
<td>Rate of in-hospital mortality following major surgery</td>
<td><img src="#" alt="⚠️" /> The team identifies, reports, records, and monitors in a timely way sentinel events, near misses, and adverse events.</td>
<td>Perioperative Services and Invasive Procedures</td>
<td><img src="#" alt="SAFETY" /></td>
</tr>
<tr>
<td>Hand hygiene adherence rate before and after patient contact</td>
<td><img src="#" alt="ROP" /> Hand Hygiene Compliance</td>
<td>Infection Prevention and Control</td>
<td><img src="#" alt="SAFETY" /></td>
</tr>
<tr>
<td>Proportion of patients with hip replacement surgery within 26 week benchmark (90th percentile)</td>
<td>The team responds in a timely way to requests for services and information.</td>
<td>Perioperative Services and Invasive Procedures</td>
<td><img src="#" alt="ACCESSIBILITY" /></td>
</tr>
</tbody>
</table>

### Obstetrics

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Link to Qmentum Standards (ROP or criteria)</th>
<th>Standards Set</th>
<th>Quality Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of planned vaginal births after caesareans</td>
<td>The team reviews its guidelines to make sure they are up to date and reflect current research and best practice information.</td>
<td>Obstetrics</td>
<td><img src="#" alt="APPROPRIATENESS" /></td>
</tr>
<tr>
<td>Caesarean section rate</td>
<td><img src="#" alt="⚠️" /> To help them make informed choices, team members provide the client and family with timely, complete, and accurate information about services and service delivery.</td>
<td>Obstetrics</td>
<td><img src="#" alt="CLIENT-CENTRED SERVICES" /></td>
</tr>
<tr>
<td>Breastfeeding initiation rate</td>
<td><img src="#" alt="⚠️" /> The organization has an infant feeding policy.</td>
<td>Obstetrics</td>
<td><img src="#" alt="APPROPRIATENESS" /></td>
</tr>
<tr>
<td>Indicator</td>
<td>Link to Qmentum Standards (ROP or criteria)</td>
<td>Standards Set</td>
<td>Quality Dimension</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>% of patients who leave the emergency department without being seen</td>
<td>The team tracks and benchmarks data on wait times for services, the length of stay in the emergency department, and the number of clients who leave without being seen.</td>
<td>Emergency Department</td>
<td>ACCESSIBILITY</td>
</tr>
<tr>
<td>% of patients who had a Best Possible Medication History (BPMH) completed in the emergency department prior to admission</td>
<td>ROP Medication Reconciliation at Care Transitions</td>
<td>Emergency Department</td>
<td>SAFETY</td>
</tr>
<tr>
<td>Average wait time by Canadian Triage and Acuity Scale (CTAS) levels 1 through 5</td>
<td>! The team completes and documents a triage assessment for each client within CTAS timelines.</td>
<td>Emergency Department</td>
<td>APPROPRIATENESS</td>
</tr>
</tbody>
</table>