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Assessing the Practice (Know-Do) Gap

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Learning Objectives

By the end of this chapter, readers will be able to:

- Identify the know-do gap as the starting point of knowledge implementation
- Use an integrated knowledge translation approach to involve relevant stakeholders in the process of identifying the know-do gap
- Apply principles of intersectionality in an assessment of the know-do gap
- Determine how to identify gaps in practice
- Select or develop quality indicators to assess identified gaps
- Develop a strategy to measure the practice gaps
- Understand why gaps may exist

CASE STUDY 2.1 IDENTIFYING THE PRACTICE GAP

Jessie is a nurse manager at a long-term care home (LTCH). She has been tasked with ensuring the LTCH at which she works minimizes the spread of COVID-19 infections among LTCH staff and residents. Jessie's first task is to create a plan to determine what needs to be done in the LTCH to minimize the risk of infections. To do so, she must work with LTCH stakeholders to compare infection prevention and control evidence to the practices currently happening at her LTCH. She must select relevant indicators and measurement strategies to determine the scope of the problem and to create her knowledge implementation plan.

In this chapter, we will discuss the knowledge to practice gap and will outline how this gap can be identified, measured, and understood. At the end of the chapter, we will return to this vignette to demonstrate how Jessie identified the know/do gap related to infection prevention and control of COVID-19 cases at her LTCH.

WHAT IS A GAP AND WHO SHOULD IDENTIFY IT?

Knowledge Translation (KT) is the science and practice of disseminating and implementing evidence into practice (Straus et al., 2009). The first step to implementing knowledge is to determine what the evidence says versus what is actually done in practice. This gap between evidence and practice is sometimes referred to as the "**know-do" gap** (Graham et al., 2006).

It is important to involve relevant stakeholders when identifying and assessing the know-do gap. **Integrated knowledge translation** is the process of involving stakeholders (such as decision-makers, clinicians and practitioners, policy makers, patients and members of the public) throughout the lifecycle of an implementation project (Gagliardi et al., 2015; Kothari & Wathen, 2013; Straus et al., 2013). In an integrated KT approach, stakeholders work closely with practitioners to guide the project from inception (i.e., identifying the problem or research question) to data analysis, interpretation, and support of the creation, evaluation, and dissemination of implementation plans (Gagliardi et al., 2015; Kothari & Wathen, 2013; Straus et al., 2013). The goal of integrated KT is to promote co-creation and collaborative decision-making to ensure the needs of end-users are being appropriately addressed. The use of an integrated KT approach can improve buy-in for implementation efforts, thereby improving evidence uptake, and may result in reduced research waste in the form of both time and resources (Gagliardi et al., 2015; Kothari & Wathen, 2013; Straus et al., 2013). Integrated KT is also sometimes referred to as collaborative research, action-oriented research, or co-produced research (Gagliardi et al., 2015; Jull et al., 2017).

It is important to consider the types of stakeholders that should be included in the identification and assessment of the know-do gap. In this context, we refer to **stakeholders** as individuals who have an interest in the project, either because it relates to them directly, impacts their practices, or because they are involved in the administration, finances or policies that may impact/be impacted by the project (Government of Canada, 2007). End-users are one type of stakeholder who will be directly impacted by the intervention (e.g., healthcare providers who will implement the intervention, patients, caregivers, family members who will be impacted by the intervention; Government of Canada, 2007).

Often, the know-do gap can (and should) be identified and assessed by integrating multiple stakeholder perspectives, including the patient/public, organization/administration,

healthcare provider, or policy maker perspectives to determine project priorities and needs (Kitson & Straus, 2010). Therefore, it is important to take time to consider which stakeholders should be included in the identification of the gap. As we consider engaging stakeholders, we should also ensure they reflect the diversity of the population or populations whom implementation will impact. Later in this chapter, we will present concrete steps on how to identify and assess the know-do gap.

Considering Equity When Identifying the Practice Gap

It is important for practitioners to identify their "blind spots" when assessing the know-do gap and reflect on how individual, organizational, and cultural factors impact stakeholder experiences and perceptions of the gap. Such considerations are necessary to ensure that interventions implemented to close the practice gap do not result in disadvantages or drive inequity among certain populations (Bowen et al., 2011). Building on the example presented in Case Study 2.1, as a nurse manager aiming to reduce infection spread in a LTCH, Jessie may be focused on identifying operational gaps in infection prevention and control (e.g., improper hand hygiene, improper use of personal protective equipment). However, by focusing on this practice gap, she may overlook other important problems such as staff burnout during the pandemic, the latter of which may be of greater priority to LTCH staff. If Jessie only addresses infection prevention practices in her know-do gap, she may develop solutions that fail to address stakeholder-important problems or may exacerbate existing problems. For instance, if she aims to reduce infections by minimizing entry into LTCH, she may preclude essential care partners (i.e., families and other caregivers) from supporting the care of residents in the home. This in turn might increase personal support workers' workloads, leading to increased staff burnout and, ultimately, reduced compliance with infection prevention and control practices.

Intersectionality is a concept rooted in Black feminist thought and the advocacy work of Black feminists in the 1980s (Collins, 2002; Crenshaw, 1989, 1991, 1998). Intersectionality underscores that an individual's experience is shaped by a combination of individual factors (e.g., gender, age, ability, race/ethnicity, social capital, religion) occurring within connected systems, cultures, and structures of power (e.g., sexism, ageism, racism; Collins, 2002; Crenshaw, 1989, 1991, 1998; Hankivsky et al., 2014; *Issue 15: Intersectionality—Learning Network—Western University,* 2015). At the beginning of a project, it is important for the research and implementation team to consider which intersecting categories compose their identity within a context of structures of power and oppression, and how these categories may impact their ideologies, internal biases, and overall perceptions of society. With respect to identifying the know-do gap, it is important to consider how identities relate to the project area, and how they may impact work on the implementation project. See **Exhibit 2.1** for an example of a reflective exercise that the implementation and stakeholder team can conduct prior to initiating a project. For more information on how to consider intersecting factors when planning KT work, see the Intersectionality and KT workbook available via the Knowledge Translation Program: https://knowledgetranslation.net/portfolios/intersectionality-and-kt/

When selecting stakeholders to involve in your identification and assessment of the know-do gap, consider the following questions: *What is this person's stake in the implementation process? What is their viewpoint? Can they affect implementation? Are they affected by implementation?*

EXHIBIT 2.1 Intersectionality Reflection Worksheet

Where Am I Situated?

- What intersecting categories make up your identity?[1]
- Reflecting on your response to the preceding question, how do your intersecting categories impact your place in society?[1]
- How do your identities relate to the project's topic area? How might your place in society impact your work on this project?[1]

Who Is on the Implementation Team?

- What does an inclusive approach mean to you?[1]
- What inclusive approaches have been used on your team, in your organization, or in other organizations? What is good or bad about these approaches? Note that not all teams or organizations take an inclusive approach.[1]
- Who is the patient, healthcare provider, and community population affected by the project topic area? What would they want to get out of the project topic area? How do you plan to get them involved?[2]
- What are the real and perceived power differences on the team?[2,3]
- Reflect on whether everyone who could be on the team has been asked if and how they would like to be involved. Think about how different perspectives that represent a range of intersecting categories have been examined.
- Does your team reflect the makeup of the patient, community, and healthcare providers that experience the project topic?[2]

Identifying the Problem

- Whose point of view is reflected when defining the problem? For example, is it the chief executive officer or the nurse who has prioritized a specific problem as the focus of the KT project?
- What are the information gaps in the problem area? How can these gaps be filled? Information gaps are areas where you do not have complete knowledge.

Defining the Evidence-to-Practice Gap

- Who decides which evidence-to-practice gap is prioritized?

Selecting the Practice Change

- Of the practice changes under consideration, who is expected to change their behavior and "do" the practice changes? This "who" could be a health professional, the patient, the community, and/or another group.
- Think about the group expected to change their behavior (e.g., nurses). What intersecting categories of group members can we reflect on? Think about the group affected by the practice change (e.g., patients). What intersecting categories of group members can we reflect on?

(*continued*)

EXHIBIT 2.1 Intersectionality Reflection Worksheet (*continued*)

Appraising Evidence

- What information do I have? What information do I wish I had? Who might have this information? Who should I talk to about this?
- Critically assess the data.

1. Hankivsky, O., Grace, D., Hunting, G, Ferlatte, O., Clark, N., Fridkin, A., Giesbrecht, M., Rudrum, S., & Laviolette, T. (2012). *Intersectionality-based policy analysis. An intersectionality-based policy analysis framework* (pp. 33–45). Institute for Intersectionality Research & Policy.
2. Arthritis Research Canada. (2018). *Workbook to guide the development of a patient engagement in research (PEIR) plan*. https://www.arthritisresearch.ca/wp-content/uploads/2018/06/PEIR-Plan-Guide.pdf
3. Shimmin, C., Wittmeier, K., Lavoie, J., & Sibley, K. (2017). Moving towards a more inclusive patient and public involvement in health research paradigm. *BMC Health Services Research, 17*(1), 539. https://doi.org.10.1186/S12913-017-2463-1
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Who Should Identify Gaps in Practice?

When defining the know-do gap, it is important to consider whose point of view is reflected in the definition. For instance, Jessie's perception of the problem may be quite different than the perception of Claire, a personal support worker. Personal support workers are often racialized women living in multigenerational households, and their perspectives are not typically included in LTCH intervention planning, which may result in inequities (Chamberlain et al., 2019; Estabrooks et al., 2015, 2020; Tannenbaum et al., 2016). It is also important to think about who gets to decide *which* know-do gap is prioritized. The implementation team should aim to ensure relevant and diverse stakeholders are invited to the planning table. Ideally, stakeholders should be selected to reflect the diversity and perceptions of the target population impacted by the know-do gap and targeted by the implementation interventions. This can help reduce information gaps, or "blind spots," which occur when one does not hold complete knowledge. Typically, the **implementation team** leads the process of identifying and assessing the know-do gap; this team will also be responsible for the day-to-day accountability, implementation, and scale up of the evidence-based practices identified. The implementation team is typically composed of a small group of individuals who have dedicated time to support the process of implementing evidence-based practices in response to the know-do gap (*Module 3: Implementation Teams, NIRN*, 2013). The implementation team should also involve additional stakeholders to provide insight throughout the process of identifying and assessing the know-do gap and implementing corresponding evidence-based practice. The key to engagement is ensuring the approach is tailored to stakeholder needs and circumstances.

How Do We Assess the Know-Do Gap?

Step 1: In partnership with your stakeholders, determine the priority practice gap areas.

The implementation team should consider key questions when determining whether the identified gap is a priority to stakeholders, and whether other priority gaps exist. Such questions could include, *Is this an issue of concern? If yes, who is it of concern to? Is there evidence that can be used to determine what should be done? Are there available data to demonstrate what is currently in practice?* In **Exhibit 2.2**, we present a worksheet that can be used to

prioritize gaps identified by stakeholders. For this exhibit, the focus is on clinical topic areas and provider practice know-do gaps, however the questions can be adapted to prioritize organizational or system gaps.

EXHIBIT 2.2 Questions to Consider When Prioritizing a Gap in Clinical Practice

Instructions: For each clinical topic area/problem your stakeholder group has identified as a practice gap, go through the following questions and answer either Yes, No, or N/A (not applicable). When all questions have been answered, identify the top five topics with the most "yes" responses. Next, critically reflect on whose opinions the top responses reflect—is there representation of diverse stakeholder opinions? If not, discuss with your team how the topic areas could be defined to ensure they also address the needs of these populations.

QUESTIONS

1. Is the area/problem of clinical concern to patients and/or their families?
2. Is the area/problem of concern to healthcare providers and other stakeholders?
3. Do clinical practice guidelines/evidence exist that you could use to identify best practices to address this area/problem?
4. Are there baseline data available to demonstrate what the practice currently is (at your site, or at the sites you wish to intervene)?
5. Is there sufficient interest from your stakeholders to work on this area/problem?
6. Is there sufficient interest from the frontline/end-users impacted by this area/problem for this implementation work?
7. Is there a local champion that can work on this area/problem?
8. Is there support from management for this area/problem?
9. Does this initiative align with other organizational, regional or national initiatives?
10. Would doing something about this area/problem be:
    a. Feasible?
    b. Practical?
    c. Desirable?
    d. Impactful?

Sources: Straus S.E., Tetroe, K., Graham, I. (2013) *Knowledge translation in health care: Moving from evidence to practice*. John Wiley and Sons; Kitson, A., Straus, S.E. (2010). The knowledge to action cycle: Identifying the gaps. *Canadian Medial Association Journal, 182*(2), E73–77. https://doi.org/10.1503/cmaj.081231

Step 2: In partnership with your stakeholders, identify the best available evidence.

Once priority practice gap areas have been determined, move to identify the best available research evidence for the practice/policy that will be used to address the gap (Graham et al., 2006). Aim to identify research evidence summarized in clinical practice guidelines and best practice recommendations. For instance, the Canadian Task Force on Preventive Health Care (Task Force) synthesizes available evidence to create guidelines for preventive healthcare (e.g., cancer screening; *Canadian Task Force on Preventive Health Care, Published Guidelines*, n.d.; *Recommendation Topics, United States Preventive Services Taskforce*, n.d.). The Task Force first invites key stakeholders, such as professional societies, health organizations, policy makers, and academics to work collaboratively to identify the priority gaps in an area of preventive health (Step 1). Next, the Task Force conducts a comprehensive systematic evidence review to inform the preventive health guideline. Throughout

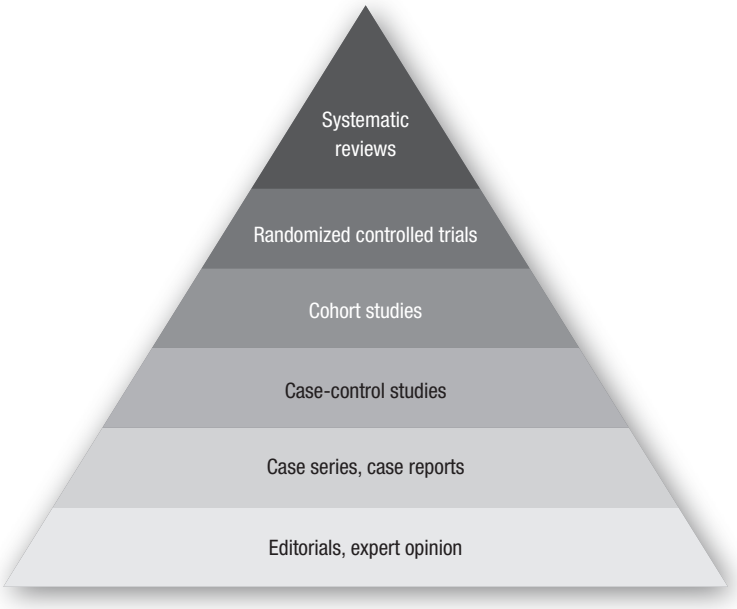

FIGURE 2.1 Evidence pyramid.
Source: Reproduced with permission from Centre for Evidence-Based Medicine. CEBM, Levels of Evidence (2014). https://www.cebm.net/wp-content/uploads/2014/06/CEBM-Levels-of-Evidence-2.1.pdf

the process of reviewing the evidence, the Task Force involves patients and other key stakeholders to select the outcomes and priorities that are of utmost importance to them (*Canadian Task Force on Preventive Health Care, Methods*, 2014). Following the evidence review, patients and other stakeholders (such as clinical experts and peer reviewers) are once again consulted to draft recommendations based on the identified evidence—these recommendations are used to draft and refine the guideline. Finally, the guideline and practice recommendations are disseminated using a variety of formats (e.g., manuscripts, evidence briefs, infographics) to target audiences such as practitioners, patients, or policy makers. Using the example from our case study, Jessie may want to review the World Health Organization (WHO) guidance on infection prevention and control for long-term care facilities in the context of COVID-19 to determine evidence-based practice recommendations for her site (*Infection prevention and control guidance for long-term care facilities in the context of COVID-19*, 2020).

Ideally, evidence to inform the practice/policy will come from high quality clinical practice guidelines, recommendations, or systematic reviews/meta analyses. However, sometimes such evidence is not readily available. In this case, it is important to use the **evidence pyramid** (see Figure 2.1) to determine which evidence is considered high quality. The evidence pyramid underscores that not all evidence is of the same strength; weaker evidence (e.g., expert opinions, case reports) are placed at the bottom of the pyramid while higher quality evidence (e.g., meta analyses, systematic reviews) placed at the top of the pyramid.

The goal is to ensure that only practices/policies with robust supporting evidence are implemented. If such evidence does not exist, or if the evidence-based intervention must be adapted to fit the context/setting, then proceed cautiously with your implementation efforts. It is important not to incorrectly utilize financial, time, or human resources to implement interventions that are not evidence based. If strong evidence does not exist to support the policy or practice, it is critical to plan for a robust process and outcome evaluation at project onset to learn about "what works" within different settings and "why."

Step 3: Assess what is currently happening in practice or policy.

In Step 2, practitioners aim to identify high-quality evidence to determine the practice ideal, or what "should" be implemented. In Step 3, practitioners complete the know-do gap by describing what is currently happening in practice or policy within the project context. This process requires the selection of quality indicators that will be measured to determine the scope of the gap.

A **quality indicator** is a process or healthcare outcome measure that provides a clear description on the measure of interest and how data should be collected and reported for this measure of interest. The description should include the ideal timing and frequency of data collection (how often, and when the measure of interest should be assessed), population of interest (among whom is the measure of interest being evaluated), method of analysis (how is the measure of interest assessed), and the format of results (how is the measure of interest presented and used; Stelfox & Straus, 2013a). Quality indicators are often standardized to allow for comparisons across healthcare settings. For instance, the Agency for Healthcare Research and Quality (AHRQ) provides quality indicators on inpatient care and patient safety that are used by hospitals across the United States (*AHRQ—Quality Indicators*, n.d.). In addition to comparing practices, quality indicators can be used in various quality improvement, research, and other contexts to compare current processes with evidence-based ideals.

It is often helpful to use a **quality improvement** or **implementation science** framework or model to guide the process of measuring the know-do gap. The Donabedian model is a commonly cited framework in the context of quality improvement (Donabedian, 2002). Donabedian highlighted that structures, processes, and outcomes are the three core components of quality as related to healthcare. *Structures* include the organizational and environmental contexts in which care is provided, *processes* refer to the channels and methods of providing care by providers to patients in the system, and *outcomes* refer to patient-important health measures. Donabedian outlined that structures impact processes, which in turn impact outcomes. As such, quality indicators and improvement efforts ought to focus on all three aspects (patient outcomes, processes impacting these outcomes, and the structures impacting these processes) when aiming to improve patient care. In implementation science, process models are descriptive overviews that aim to simplify a phenomenon. One commonly cited model in implementation science is the **Knowledge to Action cycle**, which outlines the iterative process of generating and synthesizing evidence to create evidence-based recommendations and then adapting, implementing, and evaluating that evidence to fit the implementation context, stakeholder needs, and implementation challenges. Notably, the first step in the Knowledge to Action implementation cycle is to connect knowledge syntheses (know) to the practice (do) gap (Graham et al., 2006).

While the origin of the fields of quality improvement and implementation science differs, there are many intersections with the ultimate shared goal of identifying gaps in order to improve patient outcomes (Koczwara et al., 2018). One key distinguishing factor between quality improvement and implementation science is that the latter aims to bring about the implementation of evidence-based interventions using theoretical approaches, while quality improvement aims to evaluate processes as related to structures and outcomes in order to optimize efficiency and quality (Kao, 2014). Yet, when conducting either quality improvement or implementation science, it is important to (a) have the buy-in of end users in order to identify stakeholder-important issues; (b) assess the organizational, environmental, and structural factors that, in addition to human behavior, impact behaviors, processes, and outcomes; and (c) iteratively measure and evaluate efforts to ensure the ideal/evidence-based practice is implemented as intended, over time.

How Do We Select a Quality Indicator?

When selecting a quality indicator, it is important to first review the evidence to identify existing indicators and then subsequently examine the strength and evidence of these indicators. Indicators can be identified using knowledge syntheses that include both peer-reviewed, published evidence (Campbell et al., 2003; Stelfox & Straus, 2013b; e.g., manuscripts, guidelines in academic journals) and the grey literature (e.g., websites such as *AHRQ—Quality Indicators,* n.d.) and established databases such as the Society of Thoracic Surgeons National Database for cardiothoracic surgery (n.d.). Quality indicators can undoubtedly be used to measure patient outcomes, but can also be used to assess organizational, system processes, and outcomes. For instance, using the example in our case study, Jessie could choose to focus on patient (i.e., LTCH resident) outcomes such as number of COVID-19–related infections, hospitalizations and deaths, and/or organizational outcomes such as rate of compliance with infection prevention and control recommendations such as entrance screening or masking.

When selecting an indicator, it is important to consider whether the measure is reliable (reproducible) and valid (whether it measures what it is intended to measure), but also acceptable to the needs of the project stakeholders and the goals of the gap assessment (Stelfox & Straus, 2013a). Creating a valid quality indicator is not simple, and practitioners are strongly encouraged to first ensure there are no existing indicators that can be used or enhanced/adapted to assess the gap. In the event that a valid indicator is not identified, one can be developed using high-quality evidence and a rating process (Monica & California, 1967; Turoff & Linstone, 1975). Developing a new indicator begins with a knowledge synthesis (e.g., via a systematic, scoping, or rapid review) to identify the factors that impact a measure of interest (Core Library of Qualitative Synthesis Methodology, 2021; Morton et al., 2018; *Research guides: Knowledge syntheses…*, n.d.; Tricco et al., 2017, 2018). *The Joanna Briggs Institute Manual for Evidence Synthesis* can be used to guide the conduct and reporting of scoping reviews (Peters et al., 2020). Rapid reviews are a form of knowledge synthesis that streamline components of the systematic review process, allowing stakeholders such as patients, clinicians, and policy makers timely access to evidence-based health information (Tricco et al., 2017). Tools such as Tricco et al.'s *What Review Is Right for You* web-based tool can guide practitioners to select the form of knowledge synthesis that may be most appropriate for their project (available at: https://whatreviewisrightforyou.knowledgetranslation.net).

Once potential process or outcome measures are identified during knowledge synthesis, a rating process such as a Delphi technique can be used to rank the importance of identified measures to inform the development of quality indicators. A Delphi study provides consensus on a topic by a group of experts (Hasson et al., 2000; Okoli & Pawlowski, 2004). Typically, Delphi studies put forth multiple rounds (at least 2–3) of questionnaires canvassing expert opinion, aiming to generate a minimum level of consensus (e.g., 70%) and allowing for discussions and revisions of answers following each round. Delphi studies can be used to prioritize, rate, or select topics and indicators for implementation. The Delphi panel should include relevant stakeholder experts (e.g., patients or individuals with lived experience) in addition to content experts. Once the Delphi process is used to create the quality indicator, the indicator should be piloted in a practice setting to ensure acceptability, feasibility, validity, and reliability. See **Box 2.1,** adapted from Stelfox's work (2013b), for key considerations when selecting a quality indicator (Stelfox, 2013). Practitioners may also choose to use a real-time Delphi as an alternative approach to the traditional Delphi method that aims to improve efficiency by forgeoing the use of multiple "rounds"

BOX 2.1 Considerations for Selecting Quality Indicators

When selecting a quality indicator, first determine if one already exists. If not, an indicator can be developed using knowledge syntheses, consensus generating processes, and evaluation of the indicator for implementation.

When selecting or developing an indicator, consider whether the indicator is:

- Important (will be of relevance to the target stakeholders, end users)?
- Evidence-based (the measure is reliable and valid)?
- Feasible (can be implemented in the project context)?
- Usable (the stakeholders and end-users understand the data and can use them to inform decision-making, intervention planning)?

Source: Adapted from Stelfox, H. T. (2013). *How to develop quality indicators?* (p. 28). Institute for Public Health: Innovation for Health and Health Care

of consensus ratings (Gnatzy, 2011; Gordon & Pease, 2006). Practitioners may also consider use of a Nominal Group Technique, during which a skilled facilitator presents questions, ideas, or options to participants and asks participants to share their ideas and reflections on these items. Following a group discussion, participants rank items using a Likert scale and multiple rounds of ranking are held until the top items emerge (Hugé & Mukherjee, 2018).

How Can We Measure the Know-Do Gap?

Once relevant quality indicators have been selected, assessors can proceed to measure the gap between current and ideal practice (which is informed by evidence). This assessment can be informed by a wide range of data sources including needs assessments with key stakeholders (e.g., interviews, in-depth discussions, focus groups), patient-level or clinical-level administrative datasets, direct observation, competency assessments, or chart/audit data. For questions to consider when beginning a chart audit, see **Exhibit 2.3**. Assessors should select quality indicators suitable to the goal of the assessment and the topic of interest (Kitson & Straus, 2010; Strifler et al., 2018). Additionally, different sources should be used to measure gaps at the population, organization, or care provider levels. If possible, multiple sources of data can be collected and triangulated to obtain a holistic understanding of the practice gap.

EXHIBIT 2.3 Questions to Consider When Beginning a Chart Audit

Questions About Comparing Actual and Desired Clinical Practice	Yes/No/Not sure
Before you measure: ■ Have you secured sufficient stakeholder interest and involvement? ■ Have you selected an appropriate topic? ■ Have you identified the right sort of people, skills, and resources? ■ Have you considered ethical issues?	

(*continued*)

EXHIBIT 2.3 Questions to Consider When Beginning a Chart Audit (*continued*)

Questions About Comparing Actual and Desired Clinical Practice	Yes/No/Not sure
What to measure: ■ Should your criteria be explicit or implicit? ■ Should your criteria relate to the structure, process or outcomes of care? ■ Do your criteria have sufficient impact to lead to improvements in care? ■ What level of performance is appropriate to aim for?	
How to measure: ■ Is the information you need available? ■ How are you identifying an appropriate sample of patients? ■ How big should your sample be? ■ How to choose a representative sample? ■ How will you collect the information? ■ How will you interpret the information?	

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Table 2.1 provides an overview of considerations, including strengths and limitations, on using various data sources to measure gaps at the population, organization, and care provider levels.

TABLE 2.1 Data Sources to Measure Practice Gaps

DATA SOURCE	EXAMPLE	STRENGTHS	LIMITATIONS	LEVEL OF GAP
Administrative/ clinical database	Health insurance claims databases (e.g., CMS, OHIP), DHIS2 platform commonly used in low-and-middle income countries	Objective measures Large sample, population-level trends	May not have information needed for the quality indicator Databases may have incomplete data, incorrectly coded data Database may not include all members of the population (specifically underrepresented groups—e.g., uninsured patients)	Can be used to assess the gap at the population level

(*continued*)

TABLE 2.1 Data Sources to Measure Practice Gaps (*continued*)

DATA SOURCE	EXAMPLE	STRENGTHS	LIMITATIONS	LEVEL OF GAP
Patient database	Database of patients in a certain organization, health authority, hospital and so forth	Objective measures Typically, a large sample Can be used to identify trends in certain populations (e.g., a hospital, a division)	May not have information needed for the quality indicator Databases may have incomplete data, incorrectly tracked data Database may not include all members of the population (specifically underrepresented groups—e.g., uninsured patients)	Can be used to assess the gap at the population or organizational level
Chart audit/local audit data	Paper-based or electronic patient record audit to identify documentation on patient outcomes (e.g., delirium in acute care hospitals) or process measures (e.g., clinician documentation of falls risk for frail, older adults admitted to acute care hospitals)	Can provide detailed, granular patient-related information Electronic patient records facilitate extraction of such data	Data may not be complete or legible (e.g., handwritten notes in paper charts) Require significant time to complete (particularly for paper charts)	Can be used to assess the gap at the organizational or care-provider level
Direct observation	Direct observations or recordings on routine processes or via simulation to demonstrate skills (e.g., standardized patients)	Objective assessment Can be tailored to assess the topic of interest	Resource intensive May be subject to Hawthorne bias May not capture actual practice	Can be used to assess the gap at the care-provider level

(*continued*)

TABLE 2.1 Data Sources to Measure Practice Gaps (*continued*)

DATA SOURCE	EXAMPLE	STRENGTHS	LIMITATIONS	LEVEL OF GAP
Competency assessment	Multiple choice examination to assess knowledge	Objective assessment Can be tailored to assess the topic of interest	May be resource intensive May not capture actual practice	Can be used to assess the gap at the care-provider level
Needs assessments with key stakeholders	In-depth discussions, key informant interviews or focus groups with stakeholders and/or end users	Can be used to elicit perceptions of participants. Can be used to contextualize the problem/needs and tailor solutions to these contexts.	May be resource intensive Limitations include subjectivity of participant perceptions	Can be used to assess gaps at the care-provider, organizational or system level (based on participant perceptions)

CMS, Centers for Medicare & Medicaid Services; DHIS2, District Health Information Software; OHIP, Ontario Health Insurance Plan.

Adapted from Kitson, A., & Straus, S. E. (2010). The knowledge-to-action cycle: Identifying the gaps. *CMAJ*, *182*(2), E73–E77. https://doi.org/10.1503/cmaj.081231

See **Case Study 2.2** for an example of how Jessie can identify practice gaps in LTCH at both the organizational and population levels.

CASE STUDY 2.2 IDENTIFYING GAPS AT THE ORGANIZATIONAL LEVEL

Jessie, a nurse manager at a LTCH, has been tasked with ensuring the LTCH at which she works minimizes the spread of COVID-19 infections among LTCH staff and residents. First, Jessie reviews the literature and identifies a current, WHO-developed, evidence-based guideline on how to prevent and control infectious disease outbreaks in LTCHs. Additionally, Jessie is able to identify corresponding KT tools to support the implementation of this guideline (e.g., a LTCH COVID-19 infection prevention and control [IPAC] checklist). Next, Jessie assembles a project steering committee and stakeholder panel, which includes various LTCH staff (e.g., physicians, nurses, personal support workers, housekeeping, and kitchen staff), resident family members and essential care givers, and the leadership of the LTCH. Together, they prioritize the IPAC practices that require immediate implementation, using a ranking exercise. The team selected the following practices:

- Improving screening assessments and entry into the LTCH
- Ensuring proper use of personal protective equipment (e.g., masking, gloves, gowns) and hand hygiene

(*continued*)

CASE STUDY 2.2 IDENTIFYING GAPS AT THE ORGANIZATIONAL LEVEL (*continued*)

- Improving processes of physical distancing while maintaining staff wellness and daily activities
- Implementing wellness initiatives to reduce burnout and improve morale among frontline LTCH staff, particularly personal support workers

The team worked together with implementation practitioners from the local university to identify appropriate quality indicators to assess the preceding areas and conducted direct observations, documentation audits using LTCH internal records and administrative databases to compare current practice gaps (e.g., related to behaviors, supplies, knowledge, and so forth) to guideline recommendations.

When determining which quality indicators to select, the team considered the following questions:

DEFINING THE PROBLEM

1. What local data do we have that tell us that we have a problem?
2. What do colleagues think about the problem?
3. How are we currently managing the issue?
4. What do our end-users and stakeholders think about this problem?
5. What research evidence exists about what best practice is?
6. Describe what "success" would look like if we addressed this problem.
7. What indicators are available for us to assess the problem?
8. How reliable are the sources of data?
9. Who needs to be on the team to make this work? Who else needs to provide buy-in?
10. Who is on the team? What skills do they have? What biases do they hold? Are there other perspectives/individuals that should be brought on to the team?
11. How will we keep team members and stakeholders interested in the work for the duration of the project?
12. What sources of funding do we have to conduct this work?
13. What is a reasonable timeline to implement the intervention(s)?
14. How can we begin to plan for sustainability of the intervention(s)?

Adapted from Kitson, A. L., Wiechula, R., Salmons, S., & Jordan, Z. (2012). *Knowledge translation in healthcare*. Lippincott Williams & Wilkins.

Why Do Gaps Exist?

Gaps may exist because new evidence needs to be implemented, de-implemented, or processes need to be improved. When assessing a gap, it is important to assess not only *what* is being done compared to the ideal practice, but also to assess *why* these actions exist. In addition to individual-level factors that determine behavior, there are organizational- and systems-level factors that impact why (or why not) evidence is implemented or de-implemented. A plethora of implementation science determinant frameworks, as found in Strifler et al. (2018), and Nilsen (2020), such as the Theoretical Domains Framework (Cane et al., 2012; Michie & Prestwich, 2010), and the Consolidated Framework for Implementation Research (Damschroder et al., 2009) can be used to assess these barriers and identify facilitators. Barriers and facilitators at the individual, organizational, systems, and policy

levels can be assessed to understand the "why"; these factors can be mapped to corresponding strategies to mitigate barriers and leverage facilitators.

In quality improvement, the Donabedian model similarly highlights that both structure and process factors can ultimately impact outcomes (Damschroder et al., 2009). Methods such as root cause analysis may be used to identify upstream problems leading to negative outcomes. Root cause analysis, while commonly used in science and engineering (e.g., aviation industry) has also been used in medicine (*Root Cause Analysis*, 2019). For instance, root cause analysis has been used to assess negative outcomes in surgery and use an "upstream" approach to identify and mitigate potentially preventive complications (Johna et al., 2012). Methods on the conduct of root cause analysis in a clinical context are provided by Charles et al. in *Patient Safety in Surgery* (2016). Another example is cascade analysis, which can be performed to evaluate the impact of various interventions that may have a cumulative impact on outcomes (for instance, evaluating the intensity of a treatment/intervention for HIV in the testing and/or treatment and/or follow up period). Through cascade analysis, practitioners can aim to assess the impact of the intervention at different stages to optimize strategies. Indicators in cascade analysis are often longitudinal or cross-sectional, to demonstrate impact over time. The WHO provides methodological guidance on cascade analysis methods using a 10-step approach (World Health Organization, Regional Office for the Eastern Mediterranean, 2017).

Practitioners should aim to clearly define challenges to identifying and addressing know-do gaps. For instance, lack of relevant or patient-important quality indicators or insufficient data to assess gaps are barriers to conducting a know-do gap analysis. Further, methods on how to incorporate an equity and intersectionality lens in the process of identifying, measuring, and assessing the gap is an area that requires additional research and development.

EXAMPLES OF KNOW-DO GAPS

Below are real-world examples of know-do gaps. Each of the following examples generally follows the same structure. First, the priority practice gap area (i.e., the problem) is identified in collaboration with key stakeholders. Next, evidence to inform these practice gaps is identified—where possible, use high-quality evidence (e.g., high-quality guidelines, systematic reviews, and meta analyses) to inform practice (the "know"). Finally, an assessment of what is currently happening in practice is completed (the "do"). This is often followed by a barriers and facilitators assessment to better understand why a practice gap exists and to identify strategies to close the gap.

Use of Misoprostol to Prevent Postpartum Hemorrhage in Low- and Middle-Income Countries

Postpartum hemorrhage (PPH), or extreme blood loss following childbirth, is the leading cause of maternal death and morbidity worldwide (Bazirete et al., 2021). In partnership with four low- and middle-income (LMIC) countries, the Guideline-driven, Research priorities, Evidence Synthesis, Application of evidence, and Transfer of knowledge (GREAT) Network used KT methods to implement evidence-based guidelines aimed at preventing maternal morbidity and mortality (Puchalski Ritchie et al., 2016; Vogel et al., 2016). First, local stakeholders (including frontline healthcare workers, senior administrators, researchers, and policy makers) from four target LMIC countries were engaged in a priority-setting

exercise to identify key priorities related to maternal health. During this exercise, stakeholders identified prevention and management of PPH as a key priority. The GREAT network team used the WHO guidelines on the prevention and perinatal management of PPH to provide evidence-based recommendations related to PPH in LMICs. The team held workshops and focus groups with stakeholders to determine (a) what was currently being done in practice to prevent and manage PPH, and (b) to prioritize PPH prevention guideline recommendations for implementation based on feasibility, importance and acceptability (*GREAT Network, Products*, 2011). This assessment demonstrated an underuse of misoprostol, a medication recommended in several WHO maternal health guidelines to prevent PPH (WHO, 2012). A barriers and facilitators assessment revealed that stakeholders were hesitant to use this drug out of fear that it would be misused to unsafely terminate pregnancy or induce labor; therefore, the medication was not approved for use in some countries (Puchalski Ritchie et al., 2016). In others, supply chain gaps created significant barriers, resulting in a lack of misoprostol availability to healthcare providers. To address the know-do gap of underuse of misoprostol to prevent PPH, the GREAT network focused on implementing strategies at the policy level (ensuring availability of misoprostol in the supply chain); organizational level (approval of misoprostol use for PPH in healthcare settings); and provider level (providing education about the medication, task shifting to determine whose role it is to prescribe misoprostol and when; *GREAT Network, Products*, 2011).

Mobilizing Older Adults in Hospitals

Typically, older adults admitted to hospitals are immediately put to bed, leading them to spend significant amounts of time lying down. This immobility is directly related to functional decline, leading to loss of muscle strength, increased inflammation, and decreased functional and cognitive status (Brown et al., 2004, 2009). An implementation team composed of clinicians, patient advocates, healthcare managers, and researchers conducted a study entitled *Mobilization of Vulnerable Elders (MOVE) to improve mobilization of older adults in 16 university-affiliated Canadian hospitals* (Moore et al., 2019). The research team identified the following evidence-based recommendations in which their implementation efforts were rooted: (a) all patients over 65 should be assessed for mobility within 24 hours of admission; (b) patients should be mobilized at least 3 times/day; and (c) mobilization should be progressive and scaled to each individual patient's ability (Callen et al., 2004; Liu et al., 2013, 2018). These recommendations were informed using randomized trial evidence and a Cochrane systematic review on use of exercise interventions for hospitalized older patients. The evidence demonstrated reduced hospital length of stay, functional decline, and reduced healthcare costs when patients were mobilized (de Morton et al., 2007). Despite this strong evidence, surveys across Canadian hospitals showed an underuse of early mobilization among older adults in various hospital units including cardiology, medical stepdown, orthopedics, and surgery (Finely et al., 2011; Liu et al., 2013). The MOVE team conducted a barriers and facilitators assessment among hospitals in Ontario, Canada, and identified barriers to mobilization at the patient ("I'm scared to fall if I move while in the hospital"), provider ("It's not my job as the physician to mobilize patients"), and organizational ("Where in the hospital should patients be mobilized?") levels. Facilitators that could be leveraged to support older adult mobilization were also identified during the assessment ("Once I encouraged my patients to move, many did it on their own and I saw improvements so quickly"). Therefore, to address the know-do gap of low rates of older adult mobilization while in the hospital, the MOVE team implemented education sessions

and materials for patients and providers and used reminders and mobility champions to increase rates of mobilization (*MOVEs Canada: Getting Ready*, 2011). These efforts were scaled up in a subsequent intervention called MOVE-ON across the country (Moore et al., 2014; *MOVEs Canada: Getting Ready*, 2011).

Discontinuation of Tight Blood Glucose Control in ICU Patients

The first two examples describe scenarios where evidence-based recommendations (e.g., use of misoprostol to prevent PPH, mobilization of older adults when in the hospital to reduce functional decline) were not being implemented into practice. However, the know-do gap can also arise when current implemented practices are not aligned with evidence-based recommendations—and efforts to address this are known as de-implementation (Norton & Chambers, 2020). Low-value or inappropriate care is a growing concern among the research and healthcare community; the discontinuation of low-value or potentially harmful medications is an example of an evidence-based de-implementation effort. For instance, clinical trials have shown the risks of using medications to achieve tight glycemic control in older adults with type II diabetes (ACCORD Study Group et al., 2011; Action to Control Cardiovascular Risk in Diabetes Study Group et al., 2008; ADVANCE Collaborative Group et al., 2008; Canadian Diabetes Association Clinical Practice Guidelines Expert Committee & Cheng, 2013; Duckworth et al., 2009; *Geriatrics—Choosing Wisely*, 2013). The hemoglobin A1c test can provide an indicator of a person's blood sugar, as people who have diabetes typically have A1c levels of 6.5% or higher. Physicians often use medications to bring glycated hemoglobin levels (i.e., blood sugar levels) down to below 7%. However, data show that among most older adults, tight glycemic control results in higher rates of hypoglycemia (low blood sugar), which can cause harm or mortality (*Geriatrics—Choosing Wisely*, 2013). This is especially true among adults with comorbidities or shorter life expectancies, such as patients in ICUs. Therefore, the know-do gap is that tight glucose control should be reduced among most older adults in hospital, particularly those in ICU (the "know"); however, providers continue to use medications to achieve this tight control, despite evidence of potential harm to patients (the "do"). Researchers are currently in the process of assessing the factors that prevent de-implementation of this low-value practice as well as evaluating the impact of strategies to guide de-implementation and promote appropriate medication use (Nilsen, 2020; Niven, 2015).

SUMMARY

This chapter reviews various approaches to identifying the "know-do" gap in practice including the use of relevant quality indicators. While understanding what the gap is, it is also critically important to understand why this gap exists to ensure that relevant implementation strategies are developed.

KEY POINTS FOR PRACTICE

1. Identifying gaps in practice compared to evidence (know-do gap) is the first step to knowledge implementation.

2. The process of identifying, assessing, and addressing know-do gaps should always be done in consultation with project stakeholders, keeping in mind an intersectionality

lens or other similar conceptual approach that allows reflection on biases and systems of privilege and oppression to facilitate emphasis on equity and inclusion.
3. Quality indicators to assess practice gaps should be rooted in high-quality evidence and should be assessed for validity, reliability, and appropriateness to stakeholder need and feasibility within the implementation context. If quality indicators are not readily available, they can be developed using evidence synthesis (e.g., scoping review, rapid review) and consensus processes (e.g., Delphi methodology).
4. Various data sources can be used to assess quality indicators to inform the gap assessment. Consider the advantages and disadvantages of each source and, when possible, aim to triangulate the gap assessment using multiple sources of data.
5. In addition to understanding *what* the gap is, it is also important to understand *why* the gap exists to develop corresponding implementation strategies. Various theoretically rooted implementation science determinant frameworks and/or quality improvement methodologies can be used to identify and address the *why.*

COMMON PITFALLS IN PRACTICE

1. Project stakeholders may prioritize gaps differently than the project team. It is important to include a diverse set of stakeholders at project onset and use an equitable and collaborative approach to determine which gaps will be prioritized for assessment and evidence implementation.
2. Quality indicators must be evidence based, valid, and reliable to provide an objective assessment of actual versus ideal practice. Taking time to select high-quality indicators at project onset is important to overall success.
3. Sometimes it is difficult to keep stakeholders and end-users engaged throughout a project. Develop trust by co-establishing regular communication and engagement strategies for the duration of the project period. Ensure sufficient funds are dedicated to support engagement and compensation for stakeholder/end-user time.
4. Be mindful that it takes time to build trust, navigate institutional/institutional review board processes, and implement an intervention. Ensure your timelines are appropriate and plan for sustainability from project onset.

DISCUSSION QUESTIONS

1. Who are the project stakeholders, and what perspectives do they bring to the table? Reflect on your own project team: Are any perspectives missing from the target population, healthcare provider, or administration/management team that should be included?
2. How do you tailor engagement of stakeholders to their needs across the duration of the project?
3. What quality indicators are appropriate for your intervention and will facilitate your assessment of the know-do gap? Is it feasible for your team to develop quality indicators using established methods?

FINAL NOTE

Identifying gaps in actual practice as compared to evidence-based ideals is the starting point for implementation. Often, we rush to implementation without spending sufficient

time understanding "what" it is that we are implementing. If we don't spend time clarifying this, our implementation efforts will fail. Practitioners should use evidence-based quality indicators and appropriate data sources to assess the practice gap, recognizing the limitations and advantages of each data source. Practitioners should also consider rooting their know-do gap assessment in an implementation science or quality improvement conceptual framework. Prioritization and assessment of the gap should be done in constant collaboration with project stakeholders who should reflect the diversity and perspectives of the target population or populations. Determinant frameworks to understand why practice gaps exist can be used to develop corresponding theoretically rooted, evidence-based solutions.

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