# Quality Improvement Project

vs

# Research

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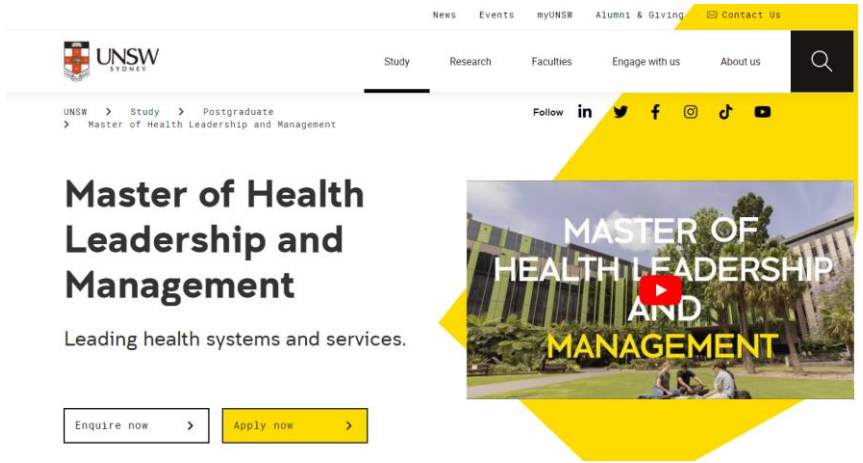

- What is the problem you are trying to address?
- What evidence is needed to inform decisions?
- What are the skills and resources available?
- What is the timeframe you are working within?

## 23.1.4 How Does Evidence Inform Decision-Making?

Health system problems are often complex and multifaceted, and so is decision-making in health systems. The policy theorist Vickers postulated that public policy decisions are driven

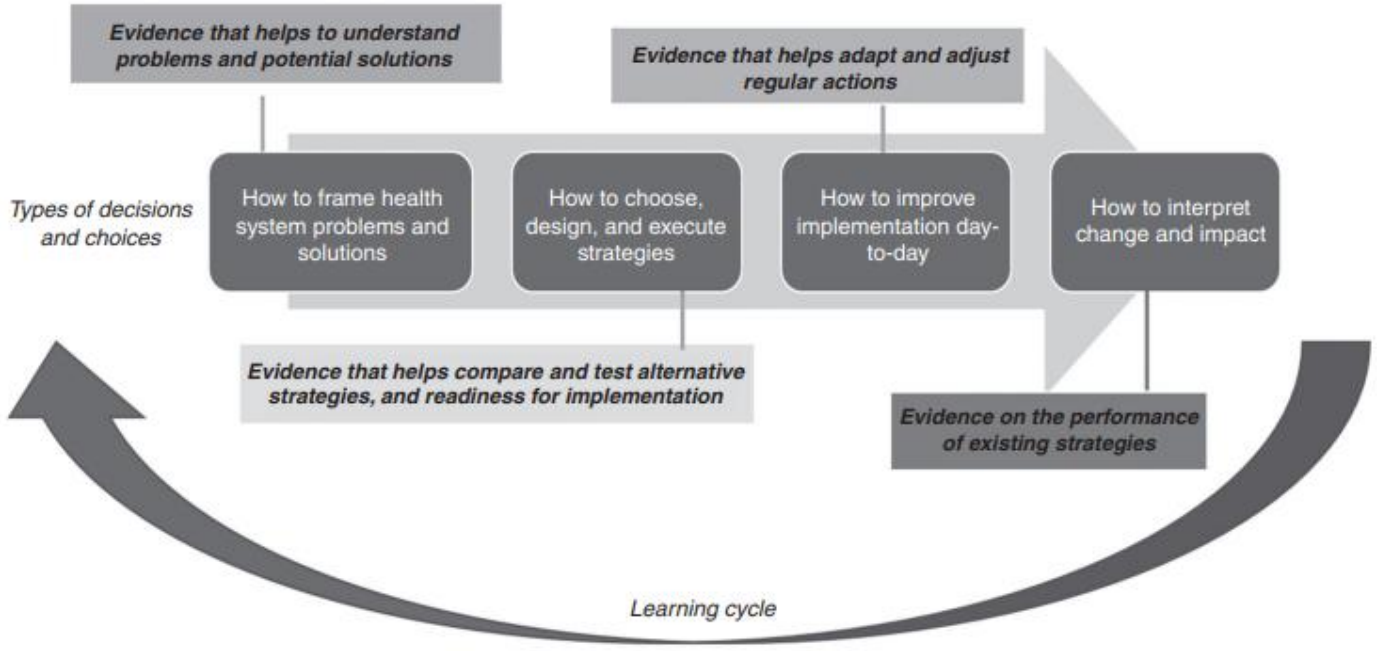


**Figure 23.1** Diverse evidence needs of health system decision-makers.

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Chapter 23

# Using Health Research for Evidence-Informed Decisions in Health Systems in L&MICs

Kabir Sheikh, Aku Kwamie, and Abdul Ghaffar

**Key Messages**

- Research evidence is one of the many diverse influences on decisions by different stakeholders at all levels of the health system.
- Decisions by stakeholders in health systems benefit from the use of different forms of evidence, drawn from heterogeneous research fields and disciplines – including epidemiology, clinical and basic biomedical research, and health policy and systems research.
- Out of these diverse forms of evidence, health policy and systems research (HPSR) is relatively underused and underfunded. Challenges associated with the use of HPSR in health systems in low- and middle-income countries (L&MICs) include lack of opportunities and resources, the need for greater capacity for the generation and use of evidence, and fundamental problems around how the research agenda is framed.
- As such, evidence-informed decision-making in L&MICs can be improved by better alignment of research with health system needs, institutionalizing the use of such evidence, and strengthening individual capacities to generate and use evidence.
- Several global, national, and local initiatives have helped take strides in these areas, but more work and investment is needed to strengthen the use of appropriate evidence, especially HPSR evidence, in health systems.

## 23.1 Background

### 23.1.1 Who Are the Decision-Makers in Health Systems?

Health systems have been described as the sum of all organizations, institutions, and resources that produce actions whose primary purpose is to improve health [1]. Health systems function as a result of decisions taken by stakeholders at different levels of the system. For instance, policymakers at the helm of health systems take decisions that might involve introducing or changing policies, undertaking reforms, setting up new schemes, allocating funds, and interpreting the change and impact that results from these actions. Similarly, program and health facility managers make decisions regarding a range of topics – from financing to human resources to general management – for their program or facility to function. And finally, frontline practitioners (e.g., community health workers, nurses, and physicians) make decisions about how best to serve users and treat patients, as well as how to implement policy and manage organizational imperatives [2].



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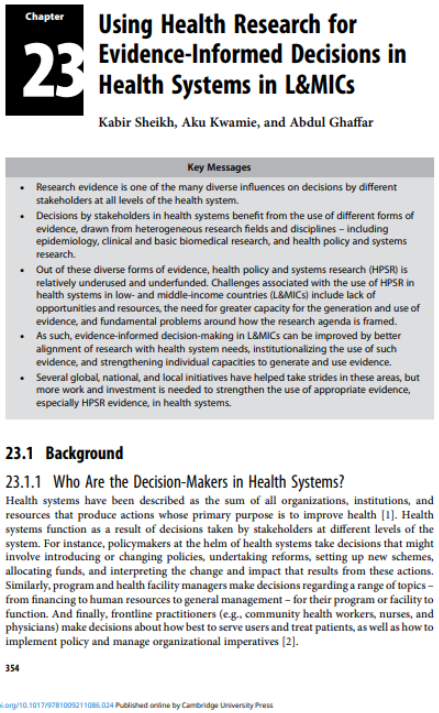
**Table 23.1** Fields of research that contribute to evidence needs of health systems

| | Contributing research field | Types of evidence | Purpose of evidence | Types of decisions informed |
|---|---|---|---|---|
| | Epidemiology, demography, social behavioral research, clinical and biomedical research | Evidence on the population, on the nature and scale of health concerns, and potential therapies and public health measures | | |
| | | Evidence on the nature and scale of health system and policy problems, and on potential measures to address them | Helping decision-makers understand health system problems and their potential solutions | Framing health system problems and solutions |
| Health policy and systems research | Health systems research, health economics, health policy analysis | Evidence on the nature and scale of health system and policy problems, and on potential measures to address them | | |
| | | Evidence on the effectiveness of policies, programs, and other health system interventions and their viability | Helping decision-makers compare and test alternative health systems strategies, and readiness for implementation | Choosing, designing, and executing strategies |
| | Implementation research | Context-specific evidence on policy/program implementation gaps and how to resolve them | Helping decision-makers adapt and adjust regular actions | Improving implementation day-to-day |
| | Evaluation research | Context-specific evidence on the processes and outcomes of health system interventions, reforms, and policies | Helping decision-makers assess the performance of existing strategies | Interpreting change and impact |

Quality Improvement



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# Implementing health system improvement: resources and strategies for interprofessional teams

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## INTRODUCTION

Health system improvement (HSI) in an organisation requires attention to the quadruple aim; that is, the cost of care balanced with enhanced positive patient care experience and staff experience of delivering care, and beneficial health outcomes.[1] The use

Understanding how information is accessed, and knowledge can be compiled, is essential to the process of translating evidence into practice. In healthcare organisations, an interprofessional approach to HSI requires representation from clinical, including medical, nursing and allied health disciplines, and corporate professionals, including executive, management and administration staff. Collaboration across professions, positions and levels ensures that clinical and operational aspects of improvement activities are simultaneously incorporated in their design, implementation and evaluation phases.[4 5]

Some health professionals hold the concern that the report of quality improvement (QI) initiatives can be very inward focused, without adequately revealing the contextual and process factors that enabled the improvement.[6] Conversely, some research projects are experienced by health professionals as problematic. Rapport *et al* state that they are not sufficiently grounded in implementation science theory with a shared understanding of terms and their meaning, leading to results that are not translatable into practice.[7] Finding ways of converting the insights from improvement initiatives into tangible, implementable solutions, with local, organisational and broad industry application, is critical for efficacy. When planned and executed well, HSI assists clinicians and managers to make evidence-informed decisions and directions

## Health Service Improvement Continuum


In deciding the type of activity, consideration should be given to the **outcome**, **resources**, **time** and **individual and team capacity**.

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# Health Service Improvement Continuum

## Quality Improvement

- Applied practices
- Ethics not required
- Assess lessons from changes in practices
- Short time frame
- Focus on particular setting and population

## Health Research

- Evidence-based practices
- Requires ethics review
- Grounded in academic literature
- Extended time period
- Contribution to knowledge base
- Outcomes generalisable within similar contexts or populations

## Translational Health Research

- HR +
- Translational emphasis: explicitly promotes further interprofessional collaboration through organisational and academic-researcher representatives working together in all phases of a study

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**Table 1** Health system improvement continuum

| Activity characteristics | Health system improvement activities | | |
|---|---|---|---|
| | Quality improvement (QI) project | Health management research | Translational health management research |
| Purpose | ▶ To assess or promptly improve a process, programme, or system; or improve performance as judged by an accepted set of standards.<br>▶ Apply known solutions to a problem or process, typically related to quality, safety, cost or productivity.[38] | ▶ Test concepts, theories or frameworks[28]; establish clinical practice standards where none are accepted. | ▶ Investigate issues important to organisations through stakeholder involvement.[28]<br>▶ Develop and apply evidence for ongoing improved practice.[7]<br>▶ Contribute to the evidence base through academic outputs. |
| Design | ▶ Uses established QI methodology, such as a Plan–Do–Study–Act model of change implementation.[38]<br>▶ Single method research, applied in a single setting or context.[38] | ▶ Researcher driven using a systematic process of data collection, analysis and reporting to improve evidence base.<br>▶ Single, multi or mixed methods research in single or multiple settings.[38] | ▶ Health organisation and university representatives' partner in research topic selection, design and implementation processes.[21 28]<br>▶ Systematic process of data collection and analysis. Single, multi or mixed methods research in single or multiple settings.<br>▶ Dissemination of findings includes a plan for translation of findings into practice and academic outputs.[7] |
| Ethical review | ▶ Ethical review and informed consent are not typically required.[38]<br>▶ May be required if consumers participate, or if staff act outside their usual scope of practice.<br>▶ Review conducted by organisation where project is conducted, specific to the setting. | ▶ Required as may place subjects at negligible, low or high-level risk. | ▶ Required as may place subjects at negligible, low or high-level risk. |
| Benefits and outcomes | ▶ Designed to directly benefit the participating organisation, service or team. Normally, focused on improving patient care.<br>▶ Findings are not easily translatable to other settings.[38]<br>▶ Promptly improve an organisation's programme, process or system linked to patient care. | ▶ Designed to benefit organisation, service or team participating.<br>▶ Informs the broader research community and health sector.<br>▶ Findings may be applicable to improving other contexts or organisations.<br>▶ Research questions or hypotheses are addressed. | ▶ Strategically designed to enable the organisation, service or team to make changes in an informed and systematic way.[7 28]<br>▶ Findings contribute to research literature and organisational/health management practice and inform policy.[40]<br>▶ Research questions are addressed.<br>▶ Translation/implementation is conducted and evaluated.[7 28] |
| Dissemination plan | ▶ Reporting to organisation, via internal forums or processes.<br>▶ Potential publication in QI-focused journal. | ▶ May report to organisation, via internal forums or processes.<br>▶ Dissemination through peer-reviewed research platforms. | ▶ Reporting to organisation, via internal forums or processes.<br>▶ Dissemination through peer-reviewed research platforms, including publishing recommendations and implementation evaluation. |





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**Table 2** Exemplar health management projects across the Health system improvement (HSI) continuum

| | HSI activities | | |
|---|---|---|---|
| **Topic** | **Quality improvement activity** | **Health management research** | **Translational health management research** |
| Communication practices | Improve communication practices between doctors, nurses and allied health in the Emergency Department (ED).[41] | Evaluating the effectiveness for improved communication framework between doctors, nurses and allied health in the ED.[42] | Develop a framework for improved communication between doctors, nurses and allied health in the ED.[43] |
| Service utilisation | Improve the current usage of diabetes services in the organisation.[44] | Effectiveness of diabetes services utilisation following an implementation of a programme.[45] | Examine how current diabetes service usage may predict future diabetes service usage in the organisation.[46] |
| Leadership development | Evaluate the leadership framework to understand if the framework has been effective.[47] | Effectiveness leadership in primary healthcare systems.[48] | Identify barriers and enablers to the effective use of the leadership framework.[2] |
| Patient centred care | Establish the current level of staff and patient satisfaction around patient centred care initiatives within the organisation.[49] | Evaluate patient centred care initiatives and the impact on patient and staff satisfaction.[50] | Interdisciplinary executive rounding is helpful for improving inpatient experience, with staff perceived to work together as a team.[3] |



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**Table 3** HSI decision making (HSI-DM) guide and checklist

| Step | Objective | Actions | Resources | Progress |
|---|---|---|---|---|
| 1. Define the HSI activity: QI, HMR, or THMR? | Local, national or international issue identified as an organisational priority. | Refer to table 1 Health system improvement continuum and table 2 Exemplar health management projects across the HSI continuum. | NA | |
| 2. Decide the outcome of the proposed activity | Contribution to local industry and or academic knowledge. | Review organisational material to identify priority issue. | Board minutes, strategic plans, policies and procedures, media releases, social media. | |
| | | Assess government resources to align with identified priority issue. | Annual reports, issues papers, proposal documents, websites. | |
| | | Establish a network with key stakeholders to create the research team. | Discussions with credible, knowledgeable persons within and associated with the organisation. | |
| 3. Define a clear aim | Activity aims or questions clearly defined. | Ensure link to organisation strategic vision, values and priorities. | Strategic, corporate and operational plans. | |
| 4. Ground the study in evidence | Combination of academic, organisational and industry evidence | Source peer reviewed evidence from multidisciplinary health and business databases to establish the academic base. | Databases including Scopus, Google Scholar, ProQuest, PubMed, Business Elite, Cochrane, CINAHL. | |
| | | Explore grey literature to ascertain emerging practice. | Think tanks, international bodies for example, WHO, international sources for grey literature including WorldCat, Bielefeld Academic Search Engine (BASE) and Open Grey. | |
| 5. Determine methodology | Plan how the improvement activity will occur, identify relevant stakeholders, resources required and anticipated timeline. | Design an achievable project with identifiable and accessible evidence. | Organisational data collection points, publicly available comparative data sources, validated data collection tools, QI or ethics processes. | |
| | | Engage appropriate stakeholders and steps to implement the activity and solutions. | Relevant staff, patients, consumer groups and external agencies in the planning, executing and reporting of the activity. | |
| | | Dedicate sufficient resources. | In kind and external resources to achieve the desired outcomes, within a mapped time frame. | |
| 6. Scope dissemination plan | Implementation strategies for improvement. | Disseminate the implications of findings across the various levels and stakeholders in the health system. | Determine the level of engagement with various stakeholders and ascertain appropriate communications methods. | |

HMR, health management research; HSI, health system improvement; QI, quality improvement; THMR, translational health management research.



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Quick guide

April 2021

# Quality improvement made simple

## What everyone should know about health care quality improvement

The Health Foundation

## Why does quality improvement matter?

Every health care system is built on a complex network of care processes and pathways. The quality of the care delivered by the system depends to a large extent on how well this network functions, and how well the people who provide and manage care work together.

The overall aim is simple: to provide high-quality care to patients and improve the health of our population. Yet, as every patient and professional can testify, for every process or pathway that works well, there is another that causes delay, wasted effort, frustration or even harm.

Quality improvement is about giving the people closest to issues affecting care quality the time, permission, skills and resources they need to solve them. It involves a systematic and coordinated approach to solving a problem using specific methods and tools with the aim of bringing about a measurable improvement.

Done well, quality improvement can deliver sustained improvements not only in the quality, experience, productivity and outcomes of care, but also in the lives of the people working in health



### Box 1: The dimensions of quality

**For people who use services**

**Safe** Avoiding harm to people from care that is intended to help them.

**Effective** Providing services based on evidence that produce a clear benefit.

**Experience**

- Caring. Staff involve and treat people with compassion, dignity and respect.
- Responsive and person-centred. Services respond to people's needs and choices and enable them to be equal partners in their own care.

**For those providing services**

**Well-led** They are open and collaborate internally and externally and are committed to learning and improvement.

**Sustainable** They use their resources responsibly and efficiently, providing fair access to all, and according to need of their populations.

**Equitable** They provide care that does not vary in quality because of a person's characteristics.

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**Q.** *What are the challenges to delivering quality improvement?*

**A.** In a review of 14 quality improvement programme evaluations funded by the Health Foundation, 10 key challenges were consistently identified from the programmes.[39] These were:

1. convincing peers that there is a problem
2. convincing peers that the solution chosen is the right one
3. getting data collection and monitoring systems right
4. excess ambitions and 'projectness' – treating the intervention as a discrete, time-limited project, rather than as something that will be sustained as part of standard practice
5. the organisational context, culture and capacities
6. tribalism and lack of staff engagement
7. leadership



8. balancing carrots and sticks – harnessing commitment through incentives and potential sanctions
9. securing sustainability
10. considering the side effects of change.

**Figure 1: The habits of improvers**


Source: *The habits of an improver: Thinking about learning for improvement in health care*. The Health Foundation; 2015.

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PRACTICE

CLINICAL UPDATES

# Quality improvement into practice

OPEN ACCESS

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**What you need to know**

- Thinking of quality improvement (QI) as a principle-based approach to change provides greater clarity about (a) the contribution QI offers to staff and patients, (b) how to differentiate it from other approaches, (c) the benefits of using QI together with other change approaches
- QI is not a silver bullet for all changes required in healthcare: it has great potential to be used together with other change approaches, either concurrently (using audit to inform iterative tests of change) or consecutively (using QI to adapt published research to local context)
- As QI becomes established, opportunities for these collaborations will grow, to the benefit of patients.

The benefits to front line clinicians of participating in quality improvement (QI) activity are promoted in many health systems. QI can represent a valuable opportunity for individuals to be involved in leading and delivering change, from improving individual patient care to transforming services across complex health and care systems.[1]

However, it is not clear that this promotion of QI has created greater understanding of QI or widespread adoption. QI largely remains an activity undertaken by experts and early adopters, often in isolation from their peers.[2] There is a danger of a widening gap between this group and the majority of healthcare professionals.

This article will make it easier for those new to QI to understand

## How is quality improvement defined?

There are many definitions of QI (box 1). The *BMJ*'s Quality Improvement series uses the Academy of Medical Royal Colleges definition.[6] Rather than viewing QI as a single method or set of tools, it can be more helpful to think of QI as based on a set of principles common to many of these definitions: a systematic continuous approach that aims to solve problems in healthcare, improve service provision, and ultimately provide better outcomes for patients.

**Box 1: Definitions of quality improvement**

- Improvement in patient outcomes, system performance, and professional development that results from a combined, multidisciplinary approach in how change is delivered.[3]
- The delivery of healthcare with improved outcomes and lower cost through continuous redesigning of work processes and systems.[4]
- Using a systematic change method and strategies to improve patient experience and outcome.[5]
- To make a difference to patients by improving safety, effectiveness, and experience of care by using understanding of our complex healthcare environment, applying a systematic approach, and designing, testing, and implementing changes using real time measurement for improvement.[6]

In this article we discuss QI as an approach to improving healthcare that follows the principles outlined in box 2; this may

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https://www.bmj.com/content/bmj/368/bmj.m865.full.pdf

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BMJ 2020;368:m865 doi: 10.1136/bmj.m865 (Published 31 March 2020) Page 1 of 6

PRACTICE

CLINICAL UPDATES

# Quality improvement into practice

OPEN ACCESS

Adam Backhouse *quality improvement programme lead*[1], Fatai Ogunlayi *public health specialty registrar*[2]

[1]North London Partners in Health and Care, Islington CCG, London N1 1TH, UK; [2]Institute of Applied Health Research, Public Health, University of Birmingham, B15 2TT, UK

**What you need to know**

- Thinking of quality improvement (QI) as a principle-based approach to change provides greater clarity about (a) the contribution QI offers to staff and patients, (b) how to differentiate it from other approaches, (c) the benefits of using QI together with other change approaches
- QI is not a silver bullet for all changes required in healthcare: it has great potential to be used together with other change approaches, either concurrently (using audit to inform iterative tests of change) or consecutively (using QI to adapt published research to local context)
- As QI becomes established, opportunities for these collaborations will grow, to the benefit of patients.

The benefits to front line clinicians of participating in quality improvement (QI) activity are promoted in many health systems. QI can represent a valuable opportunity for individuals to be involved in leading and delivering change, from improving individual patient care to transforming services across complex health and care systems.[1]

However, it is not clear that this promotion of QI has created greater understanding of QI or widespread adoption. QI largely remains an activity undertaken by experts and early adopters, often in isolation from their peers.[2] There is a danger of a widening gap between this group and the majority of healthcare professionals.

This article will make it easier for those new to QI to understand

## How is quality improvement defined?

There are many definitions of QI (box 1). The *BMJ*'s Quality Improvement series uses the Academy of Medical Royal Colleges definition.[3] Rather than viewing QI as a single method or set of tools, it can be more helpful to think of QI as based on a set of principles common to many of these definitions: a systematic continuous approach that aims to solve problems in healthcare, improve service provision, and ultimately provide better outcomes for patients.

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## Figure

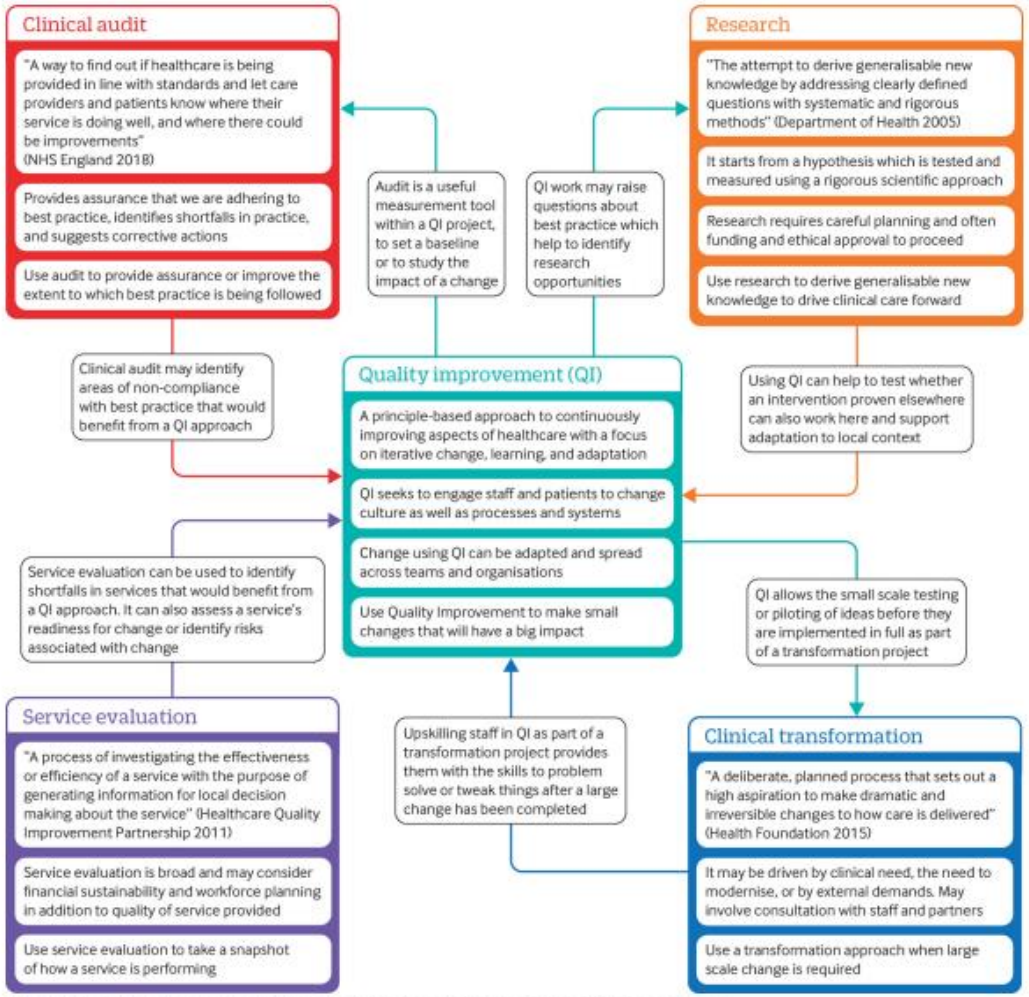


**Fig 1** How quality improvement interacts with other approaches to improving healthcare

https://www.bmj.com/content/bmj/368/bmj.m865.full.pdf

Chapter

26

# Improving the Quality and Safety of Health Care in Low and Middle Income Countries

## What Works!

Salma W. Jaouni, Mondher Letaief, Samer Ellaham, and Samar Hassan

**Key Messages**

- Improving quality and safety of health care will require several components, including:
  - application of quality improvement (QI) and patient safety principles in all aspects of care, with a focus on patients, team involvement, accountability, and use of data;
  - adoption of multimodal approaches, with attention to the proper selection of QI models as fit to the goal and situation;
  - use of approaches that ensure the sustainability and continuity of QI and safety in health care, such as external evaluation; and
  - a focus on the rationale, purpose, objectives, and outcomes of any approach or model and how to continuously expand and improve them.

## 26.1 Introduction

The concept of quality in health care includes several dimensions and has evolved over time. Quality improvement (QI) is a systematic process to optimize performance, which has evolved from lessons learned outside the health sector and has led to improvement in many settings while having limited impact in others. Patient safety has emerged as a critical and core objective of QI in the health sector. While quality can be considered as an end in itself, it is increasingly recognized as an integral component of health care reforms and an essential dimension of universal health coverage (UHC).

Improved quality of care can be achieved through a multitude of approaches, including institution-specific and health system-wide strategies; patient-centric and process-centric approaches; and external and internal quality assessment. While all approaches have merit, choosing an improvement strategy appropriate for a given setting is important to achieve optimal and sustainable benefits and avoid wasteful investment. This is especially relevant in low- and middle-income countries (L&MICs).

This chapter looks at the evolution of QI in health care over time; the types of health care QI approaches and their relation to patient safety and UHC; the opportunities to improve common health care quality and safety challenges in L&MICs; and what has and has not worked and how.



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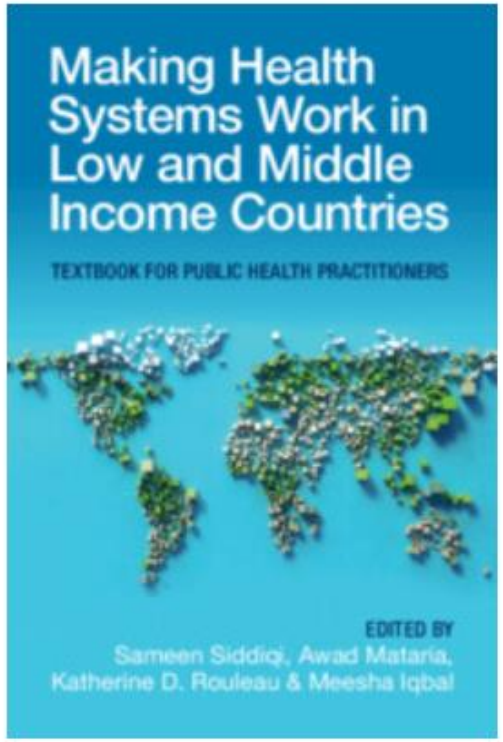


Jaouni, S., Letaief, M., Ellaham, S., & Hassan, S. (2022). Improving the Quality and Safety of Health Care in Low and Middle Income Countries: What Works! In S. Siddiqi, A. Mataria, K. Rouleau, & M. Iqbal (Eds.), *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners* (pp. 401-420). Cambridge: Cambridge University Press. doi:10.1017/9781009211086.027

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**Table 26.2** Quality improvement models

| Focus | Framework | Types | Description |
|---|---|---|---|
| Patient-centric QI models | | Plan–do–study–act (PDSA) | These are the backbone of QI in health care (Figure 26.4). QI teams study and analyze data and then design the PDSA cycles. These are repeated cycles of validity tests that help adapt and implement the QI model in the right context. At each cycle, the QI team assesses the success of the QI model/intervention. This goes on until an intervention is successfully designed and is ready to be implemented. |
| | Provide a framework to monitor processes and care results | IHI model | This model was developed by Associates of Process Improvement (API) and is based on the work by W. Edwards Deming (1900–1993). This model facilitates the application of QI by defining the aim of improvement, designing a specific idea/plan to bring out the improvement, and planning ways to measure improvement (Figure 26.4) [30]. |
| | | Six Sigma model | The define, measure, analyze, improve, and control model (DMAIC) is a data-driven quality strategy used to improve processes. The DMAIC approach is integral to the Six Sigma model. The model also uses the DMADV (define, measure, analyze, design, verify) approach to develop new processes [31]. |
| Process- and results-centric QI models | Provide a framework to improve patient care | Lean model | This model is based on what a patient wants. It maps out the value of patient needs and how it flows to the patient in a cost-effective and time-sensitive manner [32]. |
| | | Care model | This model is based on fundamental aspects of care to promote high-quality disease management and focuses on disease prevention. The model involves patients in their care and facilitates active interactions between patients and health care providers (Figure 26.5) [33]. |

Jaouni, S., Letaief, M., Ellaham, S., & Hassan, S. (2022). Improving the Quality and Safety of Health Care in Low and Middle Income Countries: What Works! In S. Siddiqi, A. Mataria, K. Rouleau, & M. Iqbal (Eds.), *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners* (pp. 401-420). Cambridge: Cambridge University Press. doi:10.1017/9781009211086.027

**Table 26.3** Model comparative analysis

| Model | Overview | Purpose | Rationale | How to use |
|---|---|---|---|---|
| PDSA | Cycles test change to assess impact, ensure that new ideas work, small scale before wholesale to avoid disruption | Introduce and test potential QI initiatives then refine on a small scale before expansion | When procedure, process, or system need to be introduced or changed | A procedure, process, or system is modified or newly designed, introduced in a specific timeframe, adjusted for improvements, and repeated in small cycles |
| IHI model [35] | Two phases: (1) pose three questions to define required changes and measurements; and (2) conduct the PDSA in live settings | Decide on measurable QI initiatives and test/refine prior to wholesale change | When procedure, process, or system needs to be changed or introduced with measurable elements | Form appropriate stakeholder team, define intended change – what is to be accomplished, how a change is actually an improvement, and what changes will result in improvement, specify its measurements, implement PDSA |
| Lean/Six Sigma [30] | Improve flow in a value stream and eliminate waste through statistical analysis to uncover and understand root causes and reduce them | Analyze health care systems to eliminate waste and redirect resources for improvement | When health care systems are inefficient, wasteful, and inconsistent | Use the DMAIC approach in a process-mapping form with associated stakeholders and statistical process control charts to compare current data with trends and analyze changes |
| Care model [31] | Consists of five core elements: health systems, delivery system, decision support, clinical information, and self-management | Promote high-quality disease and prevention management | At large scale to produce productive interactions between informed, activated patients and prepared proactive practice teams | Organized and planned approach focused on particular patient population ensuring optimal medical care by shifting from care delivered by physician to that by teams |

Jaouni, S., Letaief, M., Ellaham, S., & Hassan, S. (2022). Improving the Quality and Safety of Health Care in Low and Middle Income Countries: What Works! In S. Siddiqi, A. Mataria, K. Rouleau, & M. Iqbal (Eds.), *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners* (pp. 401-420). Cambridge: Cambridge University Press. doi:10.1017/9781009211086.027

Quality improvement neither promises nor guarantees error-free health care. Its ultimate goal is to build trust in the quality of the health care being rendered. Trust based on high-quality care is essential to drive demand and is foundational to person-centered care.

Internal QI programs are those implemented by organizations or systems. They can be integrated into ongoing patient care and adapted to the local environment. External programs for quality evaluation serve a broader social purpose and a wider range of stakeholders. They can help maintain the improvements achieved through internal QI efforts through mechanisms such as threat of exposure, financial sanctions, or withdrawal of status. They can also identify and address outliers, assess the quality of internal QI processes and, where appropriate, offer technical assistance [36].

Approaches to ensure quality and safety of health services can be categorized into two main groups: (1) system-wide approaches based on building quality management in the whole organization; and (2) specific approaches that focus on internal assessment of quality in specific areas of care. These are reviewed in further detail below.

(Jaouni et al 2022: 410)

Jaouni, S., Letaief, M., Ellaham, S., & Hassan, S. (2022). Improving the Quality and Safety of Health Care in Low and Middle Income Countries: What Works! In S. Siddiqi, A. Mataria, K. Rouleau, & M. Iqbal (Eds.), *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners* (pp. 401-420). Cambridge: Cambridge University Press. doi:10.1017/9781009211086.027

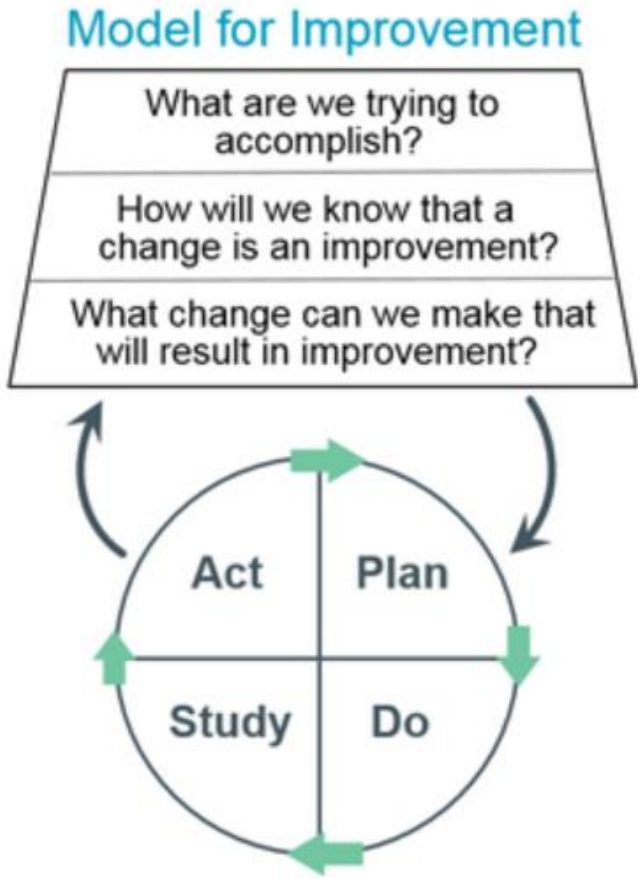
**Table 26.4** Specific approaches for quality assessment and improvement

| | Purpose | Overview |
|---|---|---|
| 1. Clinical audit [48] | To ensure that clinical care meets defined quality standards and monitor improvements to address identified shortfalls | Clinical audit can be described as a measurement of the effectiveness of health care against agreed and proven standards for high quality, followed by taking action to bring practice in line with these standards so as to assess and improve the quality of care and health outcomes.<br>Uses a tool that requires evidence-based clinical standards drawn from best practice and audit criteria and a clearly defined population of patients (or a sample from the population) whose care will be measured using defined audit criteria. |
| 2. Performance benchmarking [49] | To assess performance against local, national, and international performance targets, and finding and sharing best practice | Performance indicators are used as part of a benchmarking process to raise awareness of required standards and act as drivers for QI. Health care organizations and their departments strive to meet standards imposed, and those performing well demonstrate models of best practice that can be shared, becoming the benchmark against which performance is compared.<br>Uses local, national, and international performance targets, and data collection routines for monitoring and sharing systems and processes must be in place. |
| 3. Peer-to-peer assessment [49] | To cross-share best practices, discuss problems and actions needed in order to improve safety and quality in health care institutions | In order to create a robust and effective organizational peer-to-peer assessment process, health care systems need to: (1) establish or identify organizations, led by clinicians and supported by administrators and technical experts, to coordinate and oversee an independent, confidential, and external peer-to-peer assessment process; (2) develop and validate tools and a reliable process; (3) establish a training model and train peer evaluators; and (4) create a sustainable financial model. |

Jaouni, S., Letaief, M., Ellaham, S., & Hassan, S. (2022). Improving the Quality and Safety of Health Care in Low and Middle Income Countries: What Works! In S. Siddiqi, A. Mataria, K. Rouleau, & M. Iqbal (Eds.), *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners* (pp. 401-420). Cambridge: Cambridge University Press. doi:10.1017/9781009211086.027

# What is Quality Improvement?

The quality improvement cycle – the ‘PDSA cycle’, i.e.:




Source: How to Improve | IHI - Institute for Healthcare Improvement

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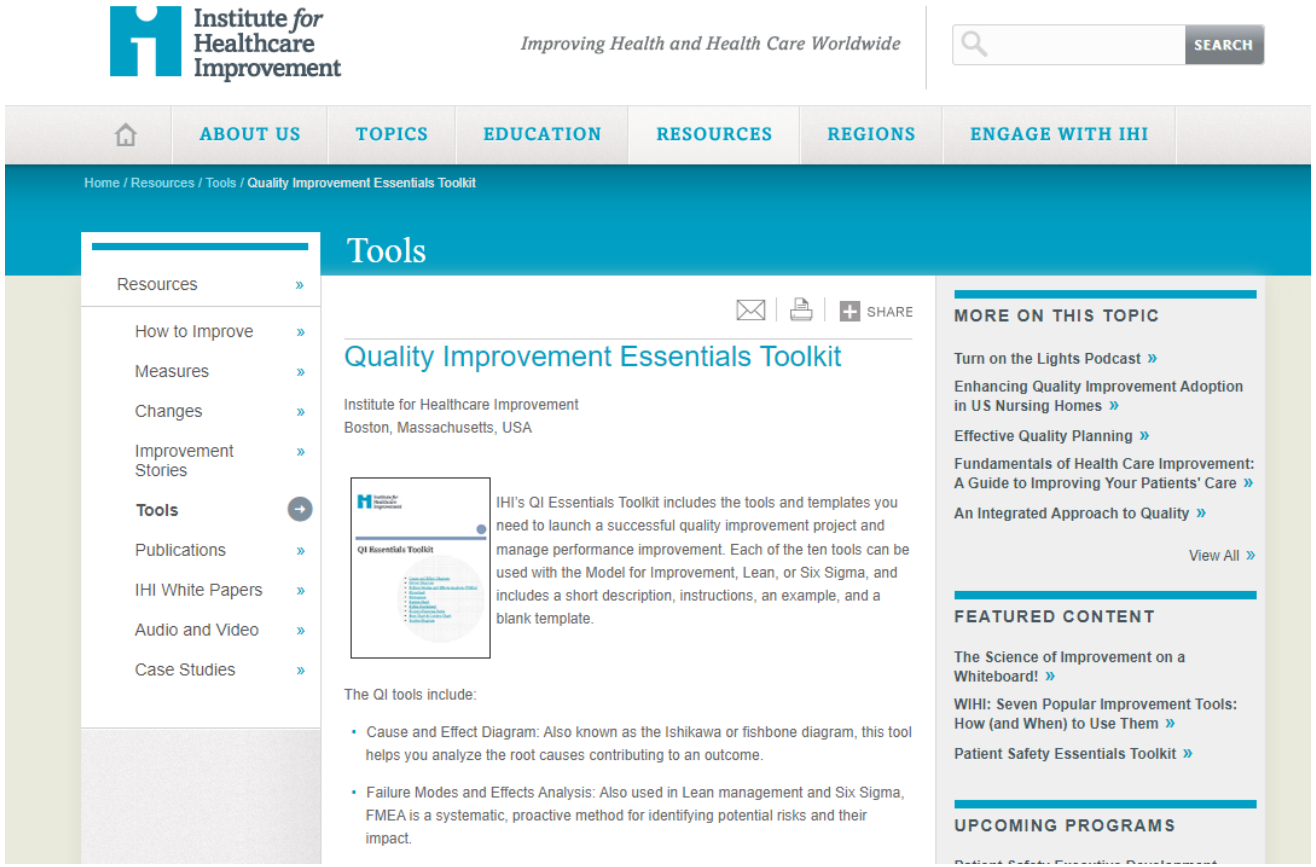


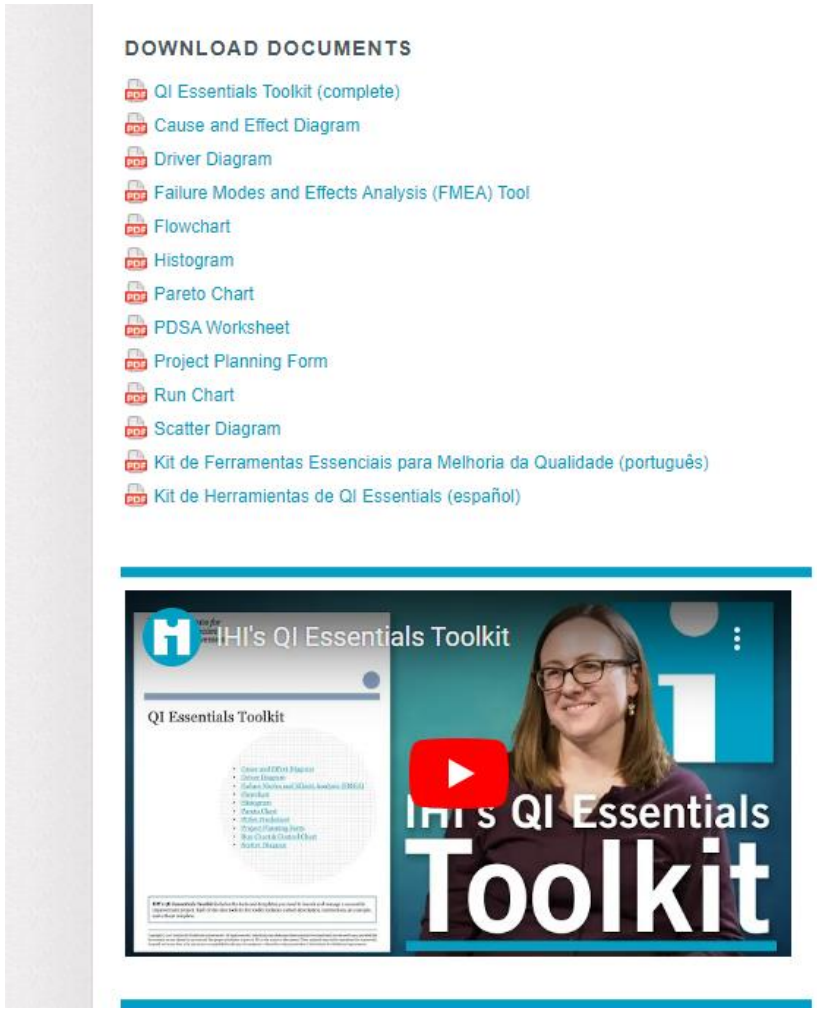


[Quality Improvement Essentials Toolkit | IHI - Institute for Healthcare Improvement]

https://www.ihi.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx

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QI Essentials Toolkit:

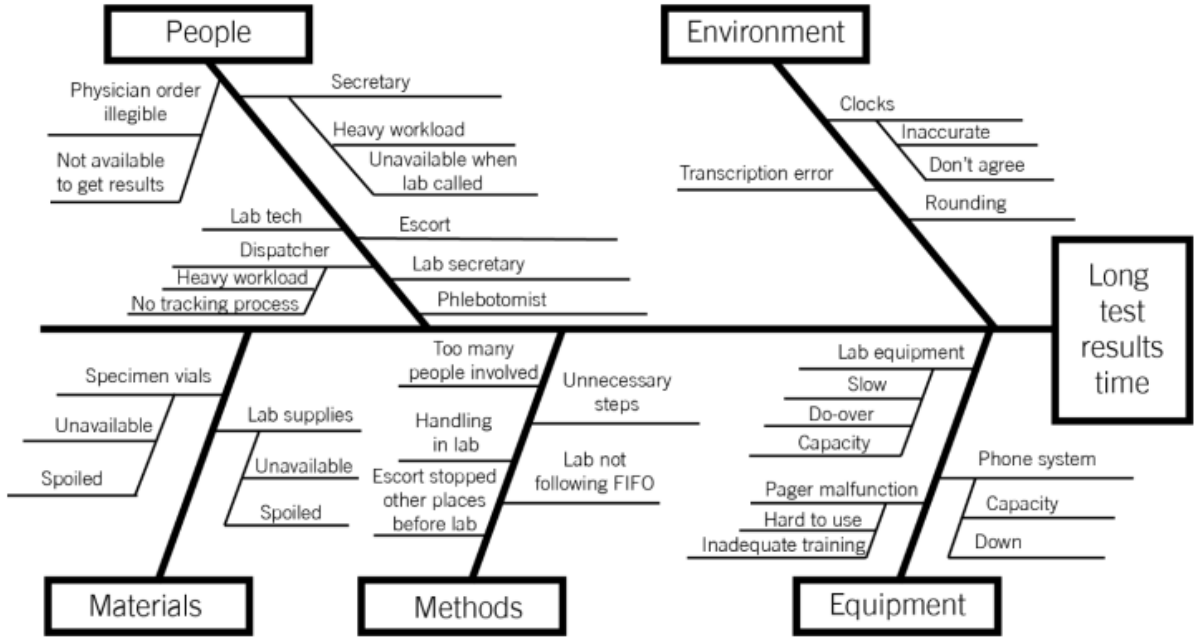
# Cause and Effect Diagram

A common challenge for improvement teams is determining what changes they can test to improve a process. A cause and effect diagram is an organizational tool that helps teams explore and display the many causes contributing to a certain effect or outcome. It graphically displays the relationship of the causes to the effect and to each other, helping teams identify areas for improvement.

The cause and effect diagram is also known as an Ishikawa diagram, for its creator, or a fishbone diagram, for its resemblance to the bones of a fish. Teams list and group causes under the categories of Materials, Methods, Equipment, Environment, and People.



## Example: Cause and Effect Diagram



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# Flowchart

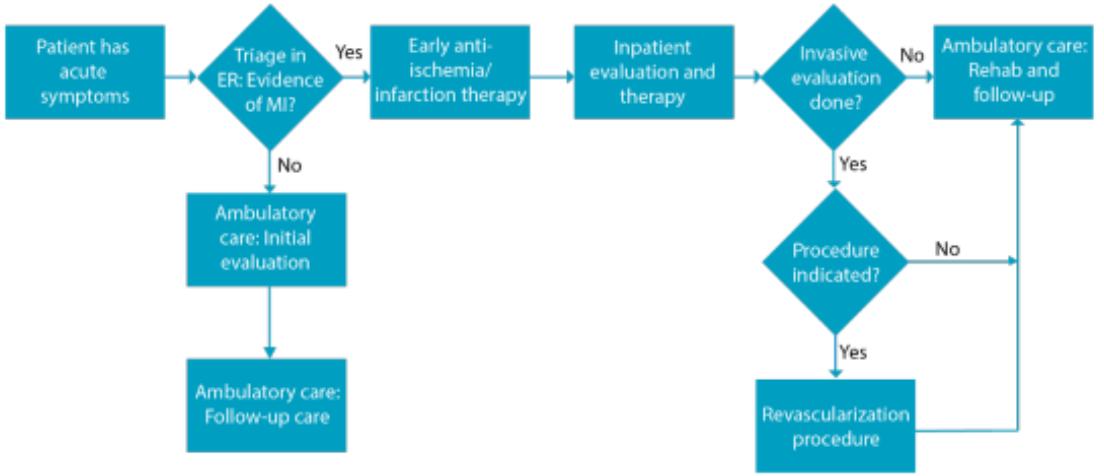
A flowchart — also known as a "process map" — is a visual representation of the sequence of steps in a process. Understanding the process as it currently operates is an important step in developing ideas about how to improve it. This makes flowcharts especially useful in the early phases of improvement work.

To create a flowchart, teams brainstorm all the steps in the process as it currently exists. Teams write each process step in a box (or on a sticky note). In addition to the steps themselves, they use a diamond shape (or sticky note turned on its corner) to indicate points in the process where a decision needs to be made. For decision steps, the team writes a yes/no question. Then they use lines to show the connections between the boxes and diamonds.

Having a shared understanding of the current process helps teams identify problems or bottlenecks, focus discussions, and identify resources. For example, teams can identify steps in the process that do not add value, such as delays; unnecessary work, duplication, or expense; and breakdowns in communication. It is at these points where the improvement work can start.



## Example: Flowchart

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QI Essentials Toolkit:

# Histogram

Often, summary statistics alone do not give a complete and informative picture of the performance of a process. A histogram is a special type of bar chart used to display the variation in continuous data like time, weight, size, or temperature.

A histogram enables a team to recognize and analyze patterns in data that are not apparent simply by looking at a table of data, or by finding the average or median.



## Example: Histogram

One team used histogram analysis to understand the patterns of variation in electrocardiogram (EKG) turnaround time. The team gathered data on EKG turnaround time in days, collecting 32 data points (see data table). The average turnaround time was 8.3 days, which revealed relatively little about the performance of the process. To get a better understanding of the data, the team then sorted the data, tallying the number of data points in each of 10 categories: 1-2 days, 3-4 days, and so on. The team then displayed the data in a histogram. The histogram provided the team valuable new information about the distribution of EKG turnaround times: the vast majority of turnaround times fall in the 1- to 2-day range, with a smaller clump in the 7- to 10-day range, and a third clump in the 13- to 20-day range.

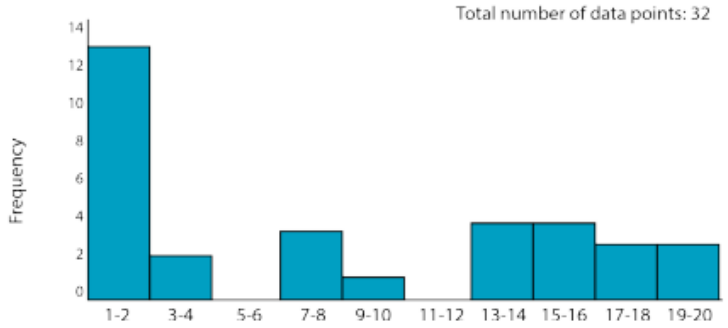
### Sample Data Table: EKG Turnaround Time

**EKG Turnaround Time in Days**

| | | | |
|---|---|---|---|
| 9 | 16 | 1 | 4 |
| 15 | 8 | 13 | 1 |
| 13 | 16 | 14 | 17 |
| 7 | 2 | 20 | 2 |
| 2 | 2 | 18 | 3 |
| 1 | 1 | 2 | 7 |
| 1 | 2 | 15 | 2 |

**Average = 8.3 Days**

### Sample Histogram: EKG Turnaround Time

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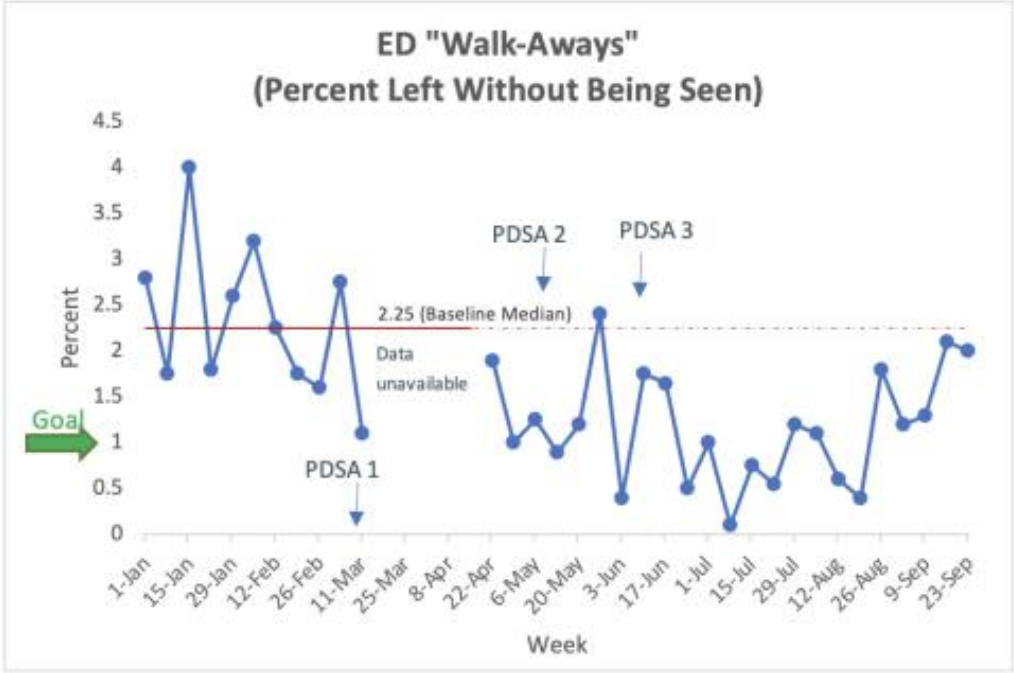
QI Essentials Toolkit:

# Run Chart

A **run chart** is a graph of data over time. It is a simple and effective tool to depict the current performance of a process and to help you determine whether the changes you are making are leading to improvement.



## Example: Run Chart

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OPEN ACCESS | April 29, 2016

# Developing a Quality Improvement and Patient Safety Toolbox: The Curriculum

Patricia Keefer, MD, Kelly Orringer, MD, Jennifer Vredeveld, MD, Kavita Warrier, MD, Heather Burrows, MD, PhD

https://doi.org/10.15766/mep_2374-8265.10385





## Abstract

**Introduction:** Quality improvement and patient safety are important elements of quality patient care. National medical boards and graduate medical education accreditation guidelines support integrating formal quality improvement and patient safety efforts into training and practice. In order to design and implement effective quality improvement projects, fundamental knowledge and tools are imperative. We sought to develop a formal quality improvement curriculum for house staff early in their training to give them insight and tools for longitudinal engagement. **Methods:** This curriculum contains guides for four facilitated sessions: introduction, value stream mapping, root cause analysis, and patient safety. Each session has a knowledge component to be delivered outside of class and a practice component whereby participants use their knowledge to participate in a group activity using a quality improvement tool. **Results:** This curriculum has been provided to more than 80 house officers over 3 years. Knowledge assessment showed improvement on all assessed categories of the training. Engagement in longitudinal quality improvement projects by trained residents has also improved. **Discussion:** This curriculum provides succinct fundamental tools to learners seeking to undertake longitudinal quality improvement projects. While initially designed for physician trainees, the tools and training are not specific to that group and can be used broadly for interested facilitators.

## Educational Objectives

By the end of this curriculum, learners should be able to:

1. Describe the value of quality improvement techniques in the greater context of health care quality and safety



## APPENDICES

A. QIPS Curriculum Facilitators Guide.docx
B. QIPS Toolbox Session 1 Guide.docx
C. QIPS Toolbox Session 2 Guide VSM.docx
D. QIPS Toolbox Session 3 Guide RCA.docx
E. QIPS Toolbox Session 4 Guide Patient Safety.docx
F. QIPS Introduction and 5S Module.pptx
G. QIPS VSM Module.pptx
H. QIPS RCA Module.pptx
I. QIPS Patient Safety Module.pptx
J. QI Knowledge Assessment Questions.docx
K. QI Pre and Post Survey.docx

*All appendices are peer reviewed as integral parts of the Original Publication.*

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## CITATION

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OPEN ACCESS | January 8, 2018

# Creating Change: An Experiential Quality Improvement and Patient Safety Curriculum for Medical Students

Christopher S. Bartlett, MD, Sergio A. Huerta, MD

https://doi.org/10.15766/mep_2374-8265.10660





## Abstract

**Introduction:** Medical students are the future drivers of change in health care. The AAMC encourages quality improvement and patient safety (QI/PS) education. Unfortunately, many schools do not have a formal QI/PS curriculum. To offer the patient-centered, safe, evidence-based, and high-value care patients deserve, students will be expected to have both knowledge of and experience in QI/PS. This extracurricular experiential QI/PS curriculum is designed to prepare medical students for this role. **Methods:** The curriculum includes six monthly didactic and work-group sessions that cover QI/PS fundamentals and facilitate the design and implementation of student projects. **Results:** Twenty-two medical students, with representation from academic years 1–4, completed the curriculum. The average Quality Improvement Knowledge Application Tool–Revised score increased from 5.61 to 7.75 ($p < .01$). Six projects were undertaken, with teams completing an average of 2.83 plan-do-study-act cycles. Projects decreased *Clostridium difficile* ordering, reduced discordance between documented and true intraoperative wound classification, and increased the quantity and quality of patient sleep. Responding "Agree" or "Strongly Agree," 80.9% of students felt their practice would change due to this experience, and 96.5% planned on participating in QI/PS in the future. Four students volunteered to continue as student leaders. Many students (96.5%) felt their experience was good or very good. **Discussion:** This ready-to-implement curriculum offers medical students an opportunity to obtain the knowledge and experience necessary to participate meaningfully in QI/PS now and throughout their careers.

## Educational Objectives

By the end of the curriculum, students will be able to:

1. Demonstrate understanding of quality improvement and patient safety (QI/PS) fundamentals.
2. Apply QI/PS skills through the design, implementation, and evaluation of a multidisciplinary QI/PS project.
3. Advocate for a culture of safe, high-quality, high-value, patient-centered care through QI/PS.

## Introduction

To affect positive change in health care, medical students need to develop a strong foundation in quality improvement and patient safety (QI/PS) during their undergraduate medical training. The AAMC



## APPENDICES

A. Student Recruitment Email.docx
B. Physician and Stakeholder Recruitment Email.docx
C. Information Meeting.pptx
D. Schedule.xlsx
E. Syllabus.docx
F. Session 1 Lecture.pptx
G. Session 2 Lecture.pptx
H. Session 3 Lecture.pptx
I. Session 4 Lecture.pptx
J. Session 5 Lecture.pptx
K. Session 6 Lecture.pptx
L. Session 1 Handout.docx
M. Session 2 Handout.docx
N. Session 3 Handout.docx
O. Session 4 Handout.docx
P. Session 5 Handout.docx
Q. Session 6 Handout.docx
R. Session 1 Driving Questions.docx
S. Session 2 Driving Questions.docx
T. Session 3 Driving Questions.docx
U. Session 4 Driving Questions.docx
V. Session 5 Driving Questions.docx
W. Session 6 Driving Questions.docx
X. Session Surveys.docx
Y. Monthly Team Meeting Guide.docx
Z. QIKAT-R Measure.pdf
AA. Project Proposal Instructions.docx
AB. Literature Review Instructions.docx
AC. Project Presentation and Panel Discussion Instructions.docx
AD. Curriculum Survey.docx
AE. References.docx

*All appendices are peer reviewed as integral parts of the Original Publication.*

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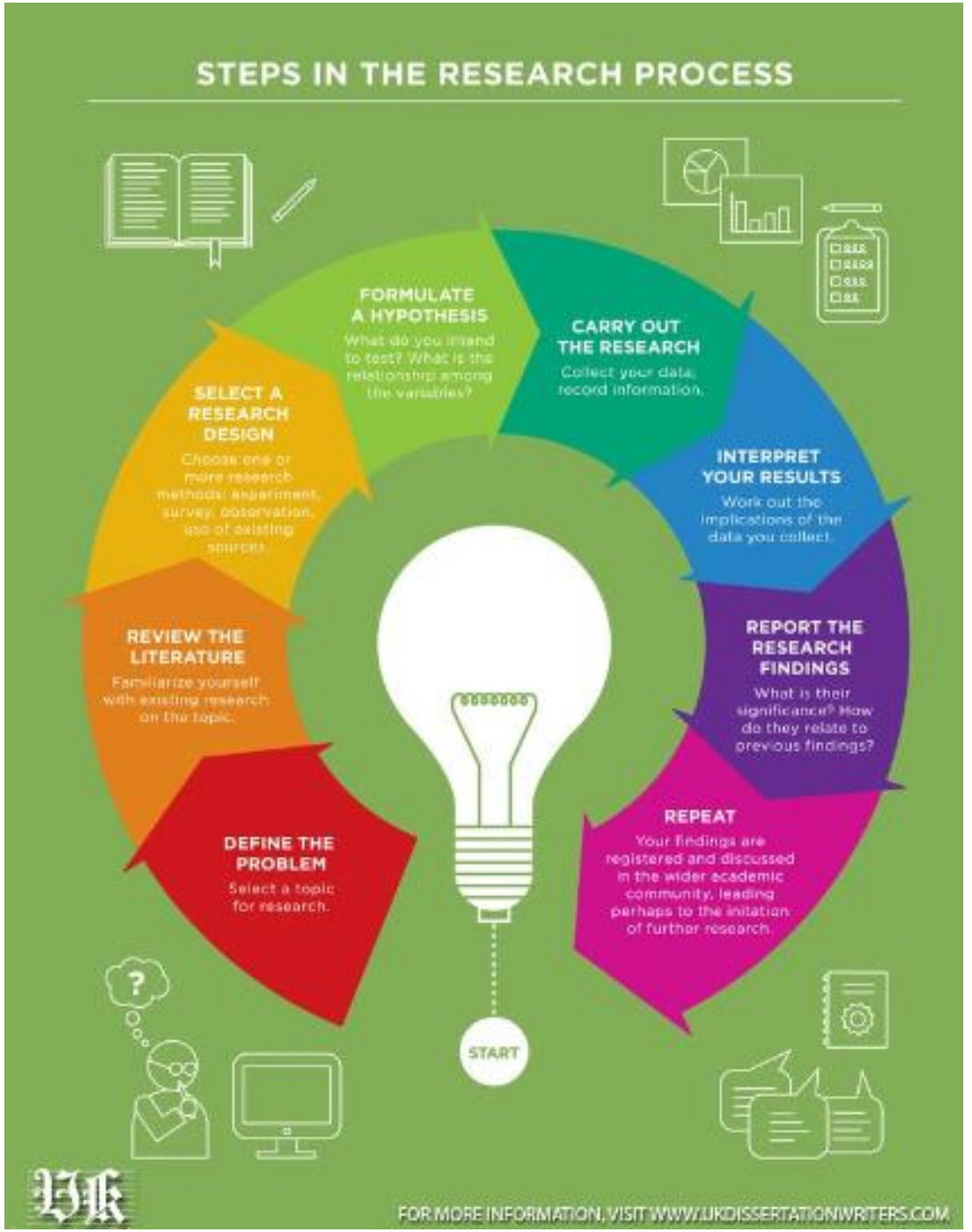
definition

# What is research?



The evidence-based studies pyramid provides a framework for evaluating the strength of evidence from different types of literature. By understanding the strengths and limitations of each type of study, healthcare professionals can make informed decisions about the best available evidence to inform their clinical, organisational and managerial decision making.

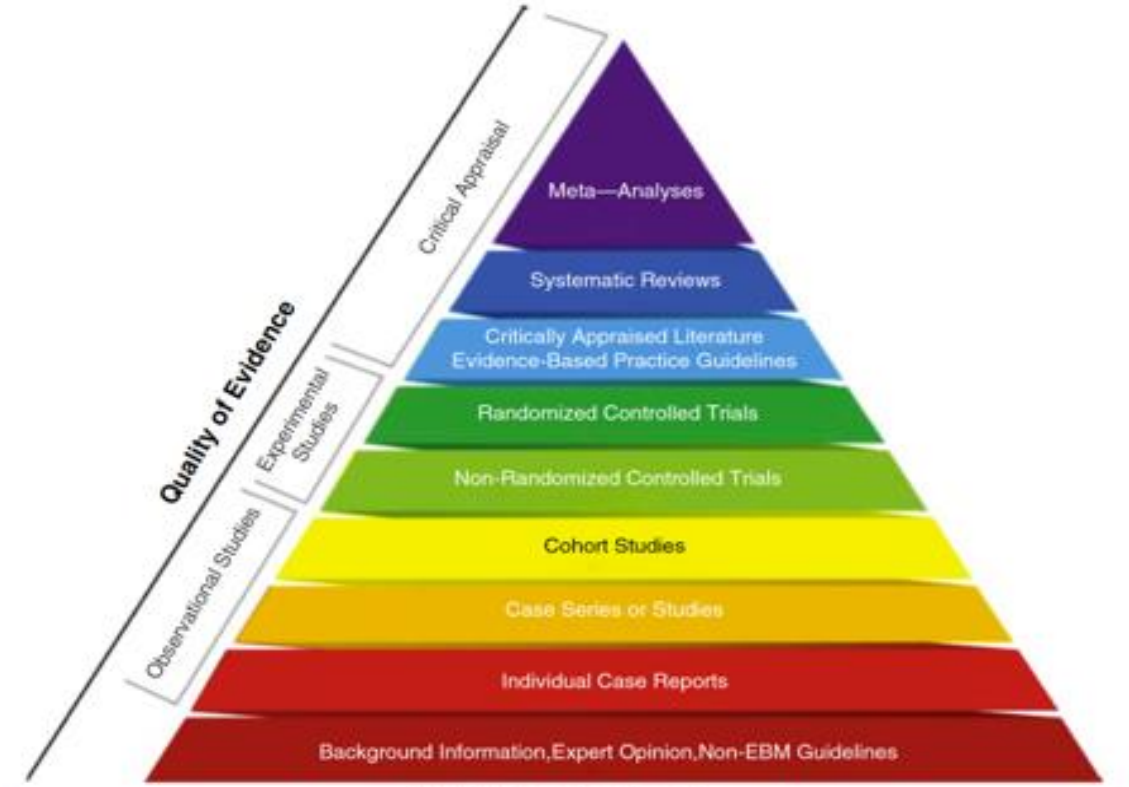



Fig. 90.1 The Evidence Pyramid.

Source: Miller's Anesthesia, Ninth Edition_ Chapter 90. Interpreting the Medical Literature _ Elizabeth L. Whitlock and Catherine L. Chen Miller's Anesthesia, 90, 2813-2824.e2; p. 2816

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Figure 1: Types of research publishing organizations across four sectors of the R&D system in Australia

Source: Amanda Lawrence, 2021. "Beyond the Grey Zone: Organization Research Publishing and Bibliodiversity in the Research Communication System." Pop! Public. Open. Participatory. no. 3. https://doi.org/10.54590/pop.2021.010.

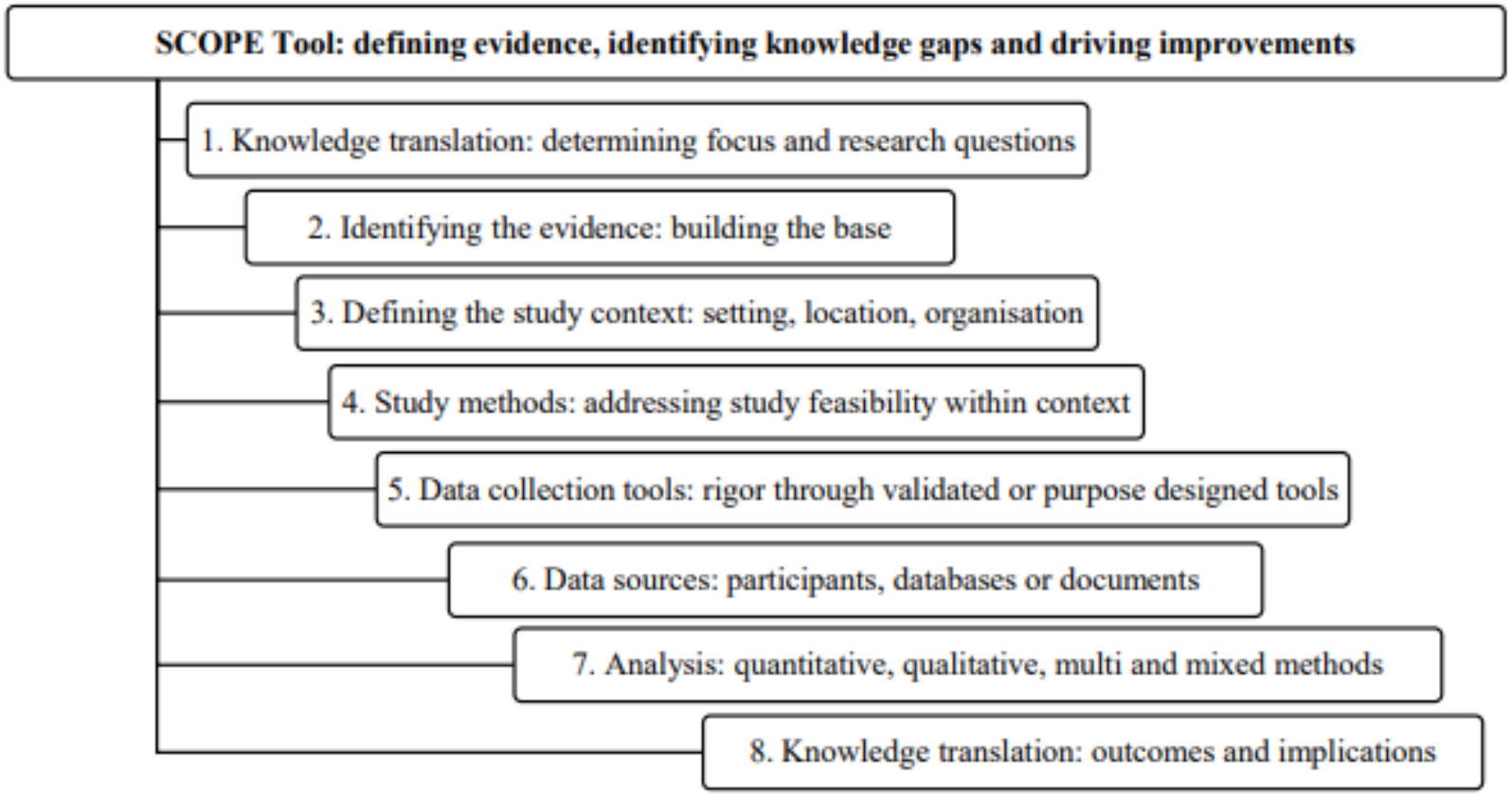


**Figure 2 SCOPE Tool: components of translational HSR**

Eljiz, K., Hogden, A., Vrklevski, L., Milosavljevic, M. Walton, V. and Greenfield, D. (2023) The SCOPE Toolkit: how to conduct translational health systems research studies, *The Journal of Health Administration Education, in press*

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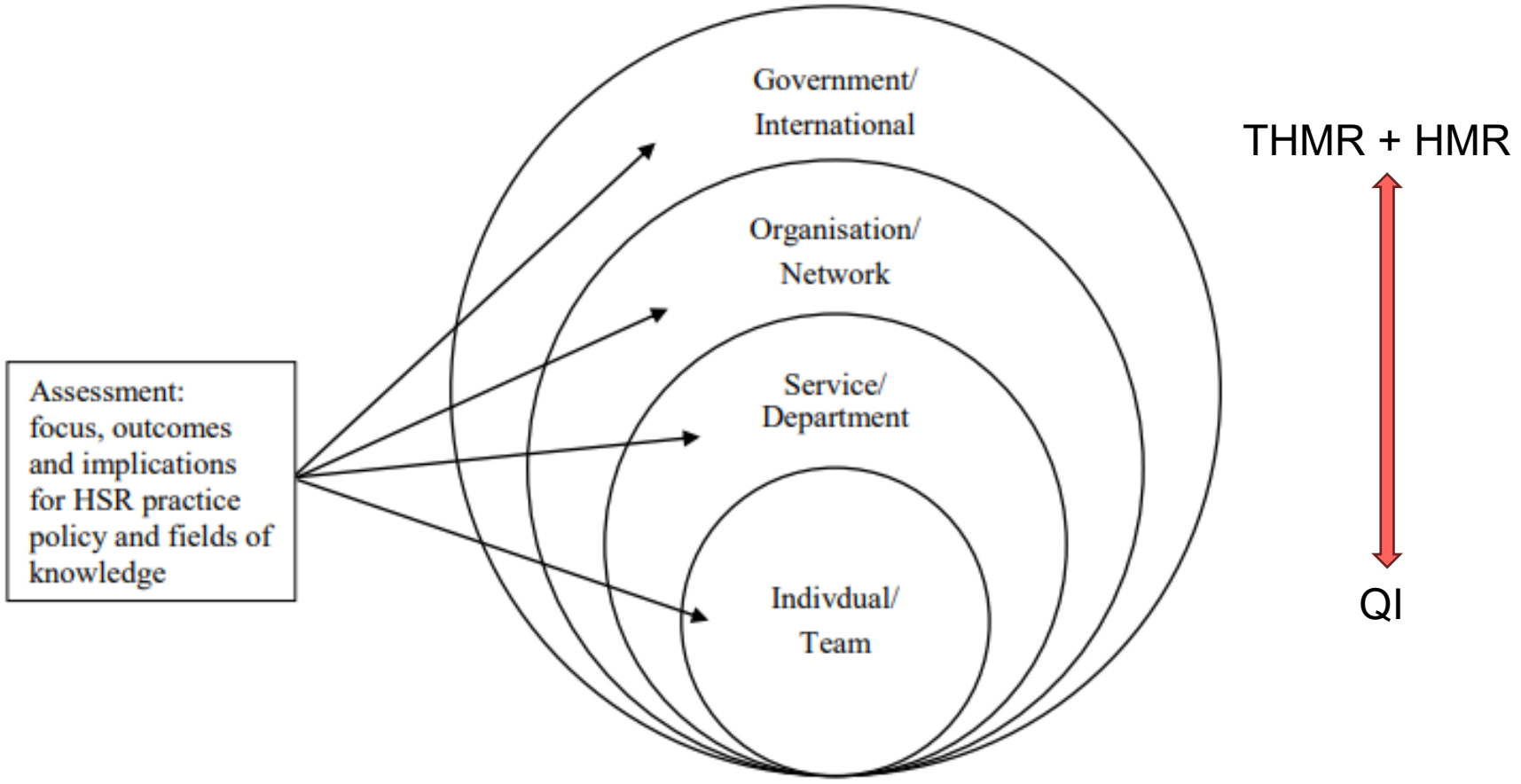
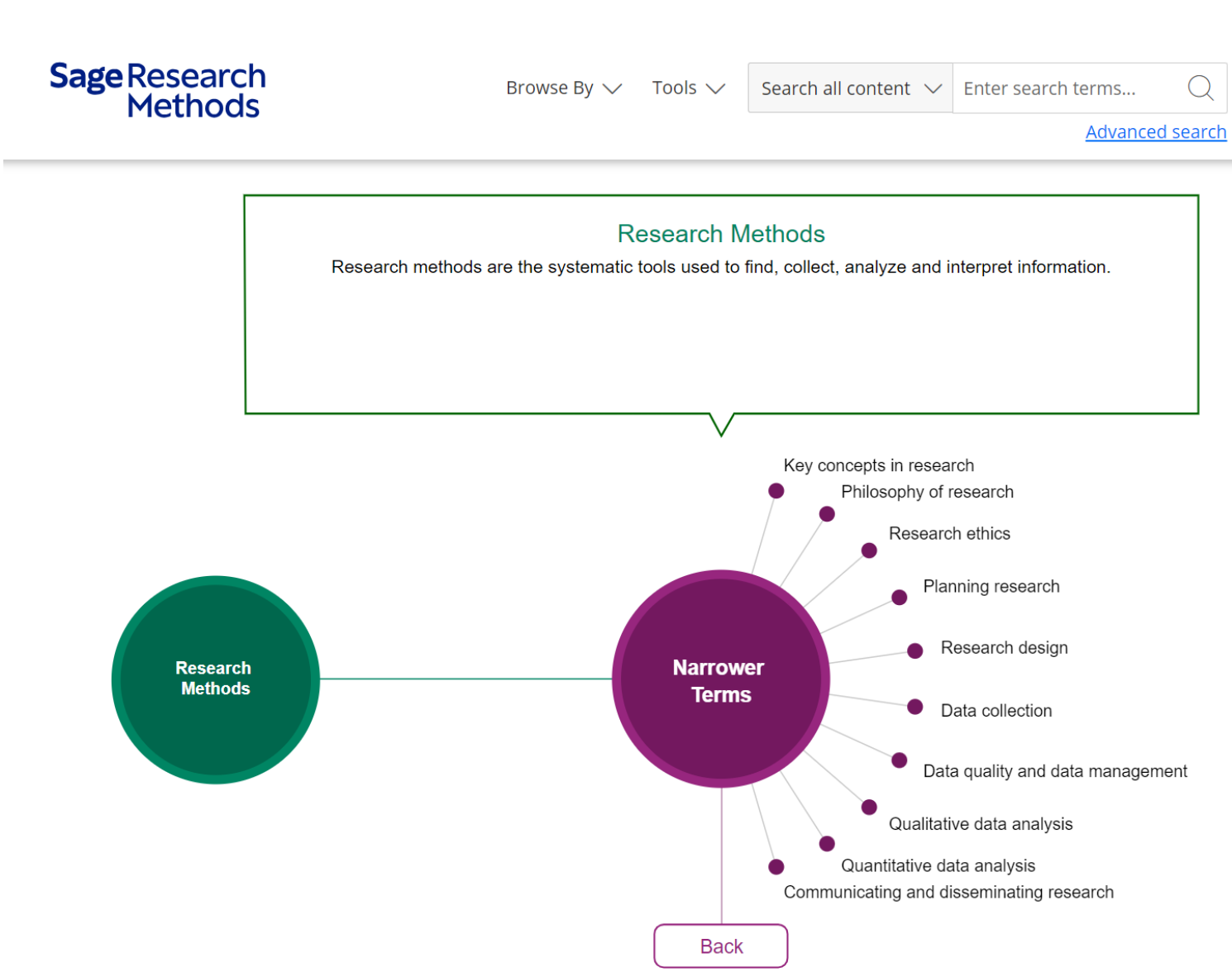



**Figure 1 HSR LEVELS: interrelationships and assessment focus**




https://methods-sagepub-com.wwwproxy1.library.unsw.edu.au/methods-map

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# Improving knowledge translation for increased engagement and impact in healthcare

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## INTRODUCTION

Healthcare and university sectors devote substantial resources to researching, publishing and informing best practice for clinical care and the delivery of services. In 2016, Australia committed $A6.5billion,[1] the USA US$171.8billion[2] and the UK £755.5million[3] to health and medical

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To achieve an improved return on research investment, involving knowledge users in the research process, including the dissemination of findings, is an important step.[13] Coproduction and the subsequent diffu-

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A significant challenge is knowing how to target and structure the dissemination of research to stakeholders through appropriate communication methods. Designing, disseminating and implementing research[27] *with* stakeholders are crucial in the uptake of research. To this end, we present a dissemination instrument, the 'REAch and Diffusion of health iMprovement Evidence' (README) checklist, for the communication of research findings, integrating both traditional and newer communication methods. Additionally, to aid in the dissemination of knowledge, we propose a 'Strategic Translation and Engagement Planning' (STEP) tool. The STEP tool challenges individuals to consider need of communicating simple or complex information against the desire for passive or active stakeholder interaction.

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**Figure 1** Strategic Translation and Engagement Planning tool.

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Table 1: **README checklist outlining key criteria for research dissemination**

| Communication Method | Main audience/ stakeholder | Primary focus/ outcome | Structure | Main question/s |
|---|---|---|---|---|
| *Traditional communication methods for dissemination* | | | | |
| *1. Research report* | Academic and healthcare professionals | Recommendations for moving the research outcomes forward, to contribute to the evidence base and improve practice | Executive summary<br>Glossary of terms<br>Introduction<br>Literature review<br>Method<br>Results<br>Discussion<br>Conclusion<br>Recommendations<br>References<br>Appendices | • Is the executive summary informative, clear and concise?<br>• Is the case for the study well made and supported by evidence?<br>• Is the research aim/question stated and addressed?<br>• Is the literature review comprehensive and logical?<br>• Are the methods detailed, including setting, population, data collection and analysis?<br>• Has ethics endorsement been obtained?<br>• Are the findings structured and integrated?<br>• Do the conclusions logically follow from the findings?<br>• Is the technical language appropriate for the audience?<br>• Does the report structure have sections specified?<br>• Are references formatted correctly? |
| *2. Poster* | Academic, healthcare professionals, students and consumers | Present complex information in a succinct way through attracting and sustaining audience interest in the poster's contents | Title<br>Introduction/background<br>Research question<br>Method<br>Results<br>Conclusion<br>References | • Are the main audience groups targeted?<br>• Is there a balance of text, tables, graphs and pictures? Are the poster contents clear and comprehensible?<br>• Is the title legible from a distance of 3m?<br>• Is the aim clearly stated and addressed?<br>• Is the highest priority information most prominent?<br>• Is the pathway through the poster clear?<br>• Are contact details included? |
| *3. Healthcare industry presentation* | Healthcare professionals and consumers | Focus on applied implications to facilitate evidence-based practices | Title page<br>Outline<br>Introduction<br>Organisation background<br>Methods<br>Results and analysis<br>Conclusion<br>Questions | • Is the case for the study well made and supported by evidence?<br>• Is the research aim/question stated and addressed?<br>• Is the literature review comprehensive and logical?<br>• Are the methods detailed, including setting, population, data collection and analysis?<br>• Has ethics endorsement been obtained?<br>• Are the findings structured and integrated?<br>• Is there a balance of text, tables and illustrations?<br>• Do the conclusions logically follow from the findings?<br>• Are the practical implications for organisations clear?<br>• Has clear, specific language been used?<br>• Are references formatted correctly?<br>• Are the slides clearly laid out and easy to read?<br>• Could images and animation be incorporated to convey the message? |

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To achieve an improved return on research investment, involving knowledge users in the research process, including the dissemination of findings, is an important step.[13]

| Communication Method | Main audience/ stakeholder | Primary focus/ outcome | Structure | Main question/s |
|---|---|---|---|---|
| *4. Academic presentation* | Academic, healthcare professionals and students | Idea generation, defining research territory and encouraging collaboration between academic, healthcare professionals and students | Title slide<br>Acknowledgements<br>Outline<br>Introduction<br>Theoretical background/ Literature review<br>Methods<br>Analysis and Results<br>Conclusion<br>Questions<br>References | • Is the case for the study well made and supported by evidence?<br>• Is the research aim/question stated and addressed?<br>• Is the literature review comprehensive and logical?<br>• Are the methods detailed, including setting, population, data collection and analysis?<br>• Are the findings structured and integrated?<br>• Is there a balance of words, tables and illustrations?<br>• Do the conclusions and logically follow from the findings?<br>• Are the theoretical and practical implications for research and organisations clear?<br>• Are the contributions to theory explicit?<br>• Is the language clear and specific, within the norms of the academic field?<br>• Are references formatted correctly?<br>• Are the slides clearly laid out and easy to read?<br>• Could images and animation be incorporated to convey the message? |
| *5. Peer-reviewed journal article* | Academic | Dissemination of conceptual and empirical research, making a theoretical contribution | Title<br>Abstract<br>Introduction<br>Background<br>Methods<br>Results and analysis<br>Discussion<br>Implications<br>Limitations<br>Conclusion and organisational implications | • Is the abstract informative, clear and concise?<br>• Is the case for the study well made and supported by evidence? Is the research aim/question stated and addressed?<br>• Is the literature review comprehensive and logical?<br>• Are the methods detailed, including setting, population, data collection and analysis? Has ethics endorsement been obtained?<br>• Are the findings structured and integrated?<br>• Do the conclusions logically follow from the findings?<br>• Is the language clear and specific, within the norms of the academic field? Does the report structure have sections specified?<br>• Are references formatted to the journal specifications? |
| *Evolving communication methods for research dissemination* | | | | |
| *6. Elevator pitch/3MT* | Non-specialist audience | Inform and engage interests of others, establish credibility as a researcher | Orientation<br>Rationale<br>Purpose<br>Methods<br>Framework<br>Results<br>Implication<br>Termination | • Is a single static PowerPoint slide used?<br>• Is the presentation under three minutes duration?<br>• Is the presentation spoken word only?<br>• Is the central message clear?<br>• Is there a balance of text, tables and illustrations?<br>• Is the unique contribution of the study articulated?<br>• Is the study realistic and feasible?<br>• Are contact details clearly identifiable? |



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| Communication Method | Main audience/ stakeholder | Primary focus/ outcome | Structure | Main question/s |
|---|---|---|---|---|
| *7. Podcast* | Healthcare professionals, policy makers and consumers | Educate and inform, establish/maintain expertise | Title<br>Introduction (purpose/outline)<br>Topic 1, 2, 3 etc<br>Guest/Discussion<br>Summary<br>Conclusion | • Is the audio clear and engaging?<br>• Is the case for the study well made and supported by evidence?<br>• Is the unique contribution of the study articulated?<br>• Is the content easily accessible on personal devices?<br>• Is the presenter a credible subject matter expert? |
| *8. Webinar* | Healthcare professionals, policy makers and consumers | Educate and inform, establish/maintain expertise, facilitate discussion | Title<br>Introduction (purpose/outline)<br>Topic 1, 2, 3 etc<br>Guest/Discussion<br>Audience interaction<br>Summary<br>Feedback<br>Conclusion | • Has a mix of audio and visual content been included?<br>• Is the audio clear and engaging?<br>• Is the case for the study well made and supported by evidence?<br>• Is the unique contribution of the study articulated?<br>• Is the content easily accessible on personal devices?<br>• Are the presenters appropriately credible skilled subject matter expert?<br>• Is there a balance of text, tables and illustrations?<br>• Have question and answer features been incorporated to allow for audience interaction?<br>• Is there a consistent focus throughout the webinar? |
| *9. Infographics* | Academic, healthcare professionals, consumers and non-specialist audiences | Present complex information in an, engaging, visually appealing manner | Title<br>Introduction<br>Body (main content)<br>Conclusion<br>References | • What are the key messages to be conveyed?<br>• Who are the target audiences?<br>• Can the information presented be quickly understood?<br>• Is there a balance of text, tables and illustrations?<br>• Will the infographic be used alone or in conjunction with other dissemination methods? |

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World Health Organization | Health Topics | Countries | Newsroom | Emergencies | Data | About WHO

Research for health spans 5 generic areas of activity:

- measuring the magnitude and distribution of the health problem;
- understanding the diverse causes or the determinants of the problem, whether they are due to biological, behavioural, social or environmental factors;
- developing solutions or interventions that will help to prevent or mitigate the problem;
- implementing or delivering solutions through policies and programmes; and
- evaluating the impact of these solutions on the level and distribution of the problem.

https://www.who.int/health-topics/research#tab=tab_1

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The WHO 2012 Strategy on HPSR advocated a six-point agenda for action to facilitate evidence-informed decision-making and the strengthening of health systems:

1. embedding research within decision-making processes;
2. supporting demand-driven research;
3. strengthening capacity for research and use of evidence;
4. establishing repositories of knowledge;
5. improving the efficiency of investments in research; and,
6. increasing accountability for actions.

World Health Organization. Changing mindsets: strategy on health policy and systems research. 2012. www.who.int/ alliance-hpsr/alliancehpsr_changing mindsets_strategyhpsr.pdf

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# The National Collaborating Centre for Methods and Tools (NCCMT): Supporting evidence-informed decision-making in public health in Canada

Heather Husson[1]*, Claire Howarth[1], Sarah Neil-Sztramko[1,2], Maureen Dobbins[1,3]

**Abstract**

The National Collaborating Centre for Methods and Tools (NCCMT) is part of a network of six National Collaborating Centres for Public Health (NCC) created in 2005 by the federal government following the severe acute respiratory syndrome (SARS) epidemic to strengthen public health infrastructure in Canada. The work of the NCCMT, to support evidence-informed decision-making (EIDM) in public health in Canada, is accomplished by curating trustworthy evidence, building competence to use evidence and accelerating change in EIDM. Ongoing engagement with its target audiences ensures NCCMT's relevance and ability to respond to evolving public health needs. This has been particularly critical during the coronavirus disease 2019 (COVID-19) pandemic, which saw NCCMT pivot its activities to support the public health response by conducting rapid reviews on priority questions identified by decision-makers from federal to local levels as well as create and maintain a national repository of in-progress or completed syntheses. These efforts, along with partnering with the COVID-19 Evidence Network to support Decision-Making (COVID-END), sought to reduce duplication, increase coordination of synthesis efforts and support decision-makers to use the best available evidence in decision-making. Data from website statistics illustrate the successful uptake of these initiatives across Canada and internationally.



**Affiliations**

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hhusson@mcmaster.ca

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***Keywords:*** public health, evidence, synthesis, knowledge mobilization, partnership, networks, COVID-19

## Overview—National Collaborating Centres for Public Health

Funded by the Public Health Agency of Canada (PHAC) each of the six National Collaborating Centres for Public Health (NCCs) focuses on a specific public health area: Determinants of Health, Healthy Public Policy, Knowledge Translation Methods and Tools, Infectious Diseases, Environmental Health, and Indigenous Health. Each is hosted by an academic institution or government-based organization, which are geographically dispersed across the country (1–3). In 2019, PHAC renewed funding for the NCCs for an eight-year period (2020–2028), reaffirming their value in Canada's public health infrastructure.

The NCCs synthesize and disseminate high-quality evidence and knowledges, foster collaboration among diverse groups and support the use of the best available evidence in public health decision-making to improve health outcomes for Canadians.

Expert advisory boards, comprising public health practitioners, senior decision-makers, policy makers and Indigenous leaders, provide advice to their respective NCC on goals and objectives and annual workplans, prior to their submission to PHAC for approval. The NCC priorities are established through national gatherings, participation in networks and committees and needs assessments. Detailed descriptions of the NCCs have been reported previously (3,4).

## National Collaborating Centre for Methods and Tools—Mandate

This article, the third of six, describes the work of the National Collaborating Centre for Methods and Tools (NCCMT; the Centre) generally, and its response to coronavirus disease 2019 (COVID-19) specifically. The NCCMT (5) acts as an evidence intermediary, curating trustworthy evidence, and building



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**Table 1: National Collaborating Centre for Methods and Tools' work and related resources and services**

| NCCMT resource | Description | Launch date | Audience use |
|---|---|---|---|
| **Supporting access to evidence** | | | |
| Health Evidence™ (6) | A searchable repository of over 6,900 critically appraised systematic reviews evaluating the effectiveness and cost-effectiveness of public health interventions | 2005 | Annual average: 90,000 visits from 181 countries |
| Registry of Evidence-Informed Decision-Making Tools (7) | A curated, searchable repository of over 150 methods and tools in EIDM | 2007 | Annual average: 250,000 visits from 195 countries |
| **Capacity development for EIDM** | | | |
| Online learning modules (8) | Twelve interactive modules focused on one or more steps in the EIDM process | 2011 | Completed over 35,000 times |
| Understanding Research Evidence videos (9,10) | Eleven short videos explaining research terms | 2014 | Viewed over 300,000 times |
| Evidence-Informed Decision-making Skills Assessment (11) | A 20-item tool of multiple-choice questions that assess EIDM knowledge and skill | 2018 | Completed over 3,000 times by 1,400 unique users |
| Knowledge Broker Mentoring program (12) | A 16-month training program to support organizational capacity development for EIDM | 2014 | Completed by 55 participants from 10 public health organizations |
| Workshops (13) | Half, full, and multi-day sessions to build EIDM capacity | 2010 | Delivered to 28 Canadian public health organizations |
| Webinars (14) | 90-minute sessions to explore and practice EIDM competencies | 2012 | Annual average: 10 webinars; 1,500 attendees<br>Over 90% agree participation increased understanding of EIDM |
| **Systems change resources** | | | |
| Applicability and Transferability of Evidence Tool (15) | Assesses the feasibility and generalizability of evidence to public health practice in specific jurisdictions | 2011 | Accessed more than 5,500 times since 2017 |
| Rapid Review Guidebook (16) | Step-by-step guide to the rapid review process | 2017 | Accessed over 10,000 times |
| Quality Assessment of Community Evidence (QACE) Tools (17) | Two tools that can be used to assess community evidence to ensure it is relevant, trustworthy and equity-informed | 2020 | Accessed over 2,300 times |

Abbreviation: EIDM, evidence-informed decision-making


Questions?

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