Rapid Synthesis

Identifying Approaches Used in the Analysis and Reporting of Health-system Performance that Have Been Effective at Driving Continuous Improvement and Accountability

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Rapid Synthesis:
Identifying Approaches Used in the Analysis and Reporting of Health-system Performance that Have Been Effective at Driving Continuous Improvement and Accountability

30-day response

31 July 2020

McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 30-business-day timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

Questions

- What are the features of approaches that have been used for analysis of and reporting about health-system performance?
- How have approaches been successful in enabling quality improvement and promoting accountability across the system?

Why the issue is important

- Health-system performance reporting and analysis has been a focus for health-system decision-makers for several years, and has been used to guide and analyze reforms meant to drive improvement.
- Measuring performance requires clear frameworks that define the goals of the health system, whereby outcomes can be examined and performance can be quantified.
- In this context, this rapid synthesis was requested to further understand the features of health-system performance reporting and analysis that enable improvement and accountability.

What we found

- We included 16 systematic reviews and 19 single studies that were relevant to the questions.
- For analysis of health performance, approaches ranged from simple reporting of crude numbers for an organization, to standardized ratio measures for cross comparisons, to more sophisticated analyses that control for relevant variables (e.g., demographics and different health conditions).
- Some facilitators for analysis of health performance include organizational attributes and resources (e.g., analytical literacy, benchmark data availability and partnerships), and use of analytic tools to process electronic data and facilitate ongoing performance monitoring, but one limitation identified was that many approaches lack systematic integration and analysis of the qualitative perspectives.
- The most commonly reported domains in health-system performance frameworks were safety, effectiveness and access, but the literature we reviewed points to there being no single 'best' approach for reporting about health-system performance given differing context, objectives and target audiences.
- Health-system performance is commonly reported through health-system report cards, balanced scorecards and/or reporting dashboards to internally present organizational accountability measures.
- Findings about the impact of public reporting of health-system performance were mixed, with two reviews finding that it can stimulate care quality by focusing on transparency and accountability which supports the engagement in activities to improve care quality, but others finding that it makes little to no difference to healthcare utilization by healthcare consumers or providers, or to provider performance.
- In addition to findings from systematic reviews and primary studies, we conducted a jurisdictional scan to identify the features of approaches that have been used for analysis of and reporting about health-system performance, and insights about whether and how they have they been successful in enabling quality improvement and promoting accountability across the systems analyzed.
- In Canada, health indicators have been established for use across the country, and jurisdictions are accountable for submission of local data through local data holdings in relation to: 1) health-system outcomes; 2) social determinants of health; 3) health-system outputs; and 4) health-system inputs.
- In Canada, a variety of reports are released to the public on a frequent basis, including information on health indicators, international comparisons, and tools specific to different areas of care.
- In the comparator countries we included (Australia, New Zealand, United Kingdom and United States), most analyzed performance towards strategic or government priority targets.
- Some jurisdictions also conducted operational performance of specific health services, broader system performance across health-service areas, surveys of patient experience, and financial performance.
- The relevant bodies in all jurisdictions (apart from the United States) release reports that outline operational and/or financial performance of the system at various levels of depth, and some jurisdictions make raw/minimally processed datasets about system performance publicly available, and/or provide interactive online tools that enable citizens and policymakers to learn about system performance.

QUESTIONS

- What are the features of approaches that have been used for analysis of and reporting about health-system performance?
- How have approaches been successful in enabling quality improvement and promoting accountability across the system?

WHY THE ISSUE IS IMPORTANT

Health-system performance reporting and analysis has been a major focus of health-system decision-makers for many years, and is used to guide reforms to drive health-system improvement.(1) Measuring performance requires clear frameworks that define the goals of the health system, whereby outcomes can be examined and performance can be quantified.(1) The World Health Organization has proposed three broad goals of all health systems: improving health status, responsiveness to people's expectations, and fairly distributing the financial burden of healthcare.(2) In Canada, the Canadian Institute for Health Information (CIHI) adapted these objectives to create a framework to measure health-system performance from a pan-Canadian perspective.(3) The framework reflects a dynamic process whereby four quadrants (health-system outcomes, social determinants of health, health-system outputs and health-system inputs) contain key indicators, which relate to a target audience (general public or health managers) and a measurement level (provincial, regional, hospital or long-term care). Reporting how health systems are performing within these quadrants is meant to increase transparency and accountability in the health systems in Canada, and stimulate improvement by provincial and territorial governments.(4) Performance reporting involves publicly reporting relevant measures, and necessitates the complementary use of instruments such as analytical tools, research and indicator development and capacity-building activities.(4) When analyzing performance data, it seems to be difficult to determine the types of analyses that matter and the types of analyses that drive improvement.(4) In Canada, there have been examples whereby performance data that highlight regional and facility-level variation in outcomes have led to learning and change in healthcare processes.(5) But in all cases of successful learning and improvement, it is only through facilitating decision-makers to "dig deeper into" the meaning of performance results that transformation occurs.(5)

Box 1: Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

This rapid synthesis was prepared over a 30-business-day timeframe and involved four steps:

1) submission of a question from a policymaker or stakeholder (in this case, the British Columbia Ministry of Health);
2) identifying, selecting, appraising and synthesizing relevant research evidence about the question;
3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
4) finalizing the rapid synthesis based on the input of at least two merit reviewers.

In order to further understand the features of health-system performance reporting and analysis that enable improvement and accountability, the British Columbia Ministry of Health has requested this rapid synthesis.

WHAT WE FOUND

We found 16 systematic reviews and 19 single studies. The systematic reviews examined health-system performance analysis and reporting approaches in a range of settings (e.g., primary care and hospital-based care). We provide an overview of the key findings from the systematic reviews and single studies in Table 1, with additional details about each of the systematic reviews in Appendix 1, and about the single studies in Appendix 2.

In addition to findings from systematic reviews and primary studies, we conducted a jurisdictional scan to identify the features of approaches that have been used for analysis of and reporting about health-system performance, and insights about whether and how they have they been successful in enabling quality improvement and promoting accountability across the systems analyzed. To do this, we conducted hand searches of government and organizational websites in Canada at the national level (federal government and key Canadian national health-related organizations) and three provinces (Alberta, Manitoba and Ontario) prioritized for review by the requestor. In addition to Canada, we also included Australia (nationally and in New South Wales), New Zealand, United Kingdom (for the National Health Service for England and Scotland) and the United States (for the Centers for Medicare and Medicaid and Kaiser Permanente). These jurisdictions were prioritized to be included by the requestor given they are the typical comparators to the Canadian health system.

Key findings from the research evidence

We summarized results from research evidence in analytic and reporting approaches about health-system performance, and any impacts for driving continuous improvement.

Approaches and challenges to analyses for reporting health-system performance to enable improvement and accountability

Data analysis is usually more complex and costly than anticipated. One medium-quality systematic review reports that many organizations lack the human resources and financial capacity to implement successful analytical systems.(6) A medium-quality systematic review on performance evaluation in non-profit organizations found that there were several organizational features that facilitated better evaluation and analysis, including technological availability, sufficient resource allocation, analytical literacy, benchmark data availability, and expert partnerships.(7) Another medium-quality review which examined technology-enabled performance analytics concluded that adopting analytic tools to automatically process electronic data and

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (in June 2020) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence we searched for performance report* using the search filter for quality monitoring and improvement systems under health system delivery arrangements. In PubMed, we searched for publications within the last 10 years using the following terms: health system AND performance report* AND (quality or accountability) AND Canada.

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis.

For each systematic review we included the focus of the review, key findings, last year the literature was searched (as an indicator of how recently it was conducted), methodological quality using the AMSTAR quality appraisal tool (see the Appendix for more detail), and the proportion of the included studies that were conducted in Canada. For primary research (if included), we documented the focus of the study, methods used, a description of the sample, the jurisdiction(s) studied, key features of the intervention, and key findings. We then used this extracted information to develop a synthesis of the key findings from the included reviews and primary studies.

facilitate ongoing performance monitoring can enhance compliance with evidence-based practice recommendations.(8)

Data source, quality and timeliness pose a challenge to analyses. Administrative data, patient surveys and interviews are examples of data used for health-system reporting.(9) A medium-quality review on quality health-system enhancement in developing countries noted that a large proportion of health-system improvement frameworks lack the consistent use of qualitative perspectives.(10) There is also considerable variation in data analysis methodology, from simply reporting crude numbers, to standardized ratio measures, to sophisticated multivariate methods that adjust for differences in demographics and diagnoses.(6) Although there tends to be a large focus on ranking data during analysis, implementation considerations are often overlooked during this process.(11) The importance of managers emphasizing the value of quality indicators in practice is an essential component to give measures meaning.(11)

An important consideration for the analysis of health-system performance is the process by which the frameworks are created. For example, a Canadian study tested and reviewed a framework of 18 sub-criteria and a phased approach that was based on the Institute of Medicine's (IOM) Recommendations for Measure Selection Criteria to select and confirm national health-system performance indicators. The evaluation consisted of three distinct phases including an initial research and development of the evaluation plan, an internal execution of the evaluation, and achievement of consensus among stakeholders. The process was found to be an informative, objective, systematic, transparent, inclusive and likely repeatable approach.(12) In low-income countries, several key considerations for developing health-system performance frameworks were emphasized, including: a) an inclusive development process; b) embedding the framework in a specified health system; c) relating the framework to current policy and structure; d) ensuring the framework has a defined purpose, dimensions and indicators; e) supporting the framework with institutional resources (technical, financial and human); and f) providing clear mechanisms for eliciting change in the health system.(13)

A limitation of processes to create health-system performance frameworks was underscored by a medium-quality review that identified performance and quality indicators for use in maternity-care systems serving northern and/or Indigenous populations. Of the 26 documents identified (which included government documents, review articles, indicator compilations, indicator sets recommended by academics or non-governmental organizations and research papers), with health-system performance-measurement frameworks, none were found to have been shaped by the circumpolar context. The review extracted 81 different health indicators, which mainly focused on healthcare effectiveness and health outcomes, rather than patient safety, accessibility, health-system responsiveness or healthcare costs. As a result, the review concluded that while some effort has been made to develop Indigenous performance-measurement frameworks, there is a lack of research on contextually specific performance measurements in circumpolar regions.(14)

Approaches to reporting health-system performance to enable improvement and accountability

The reporting of health-system performance measures varies depending on the specific context, objective, rationale and audience. For performance reporting to be effective, why you are reporting, who you are reporting to, how to distribute the message and how to measure the impact needs to be known.(15) Accountability, quality improvement and consumer choice appear to be the most common purpose for performance reporting.(15) A common theme of performance reporting was its effectiveness in empowering public engagement in decision-making at the community level and in promoting overall health-system responsiveness.(16) The most commonly used domains in health-system performance-measurement frameworks appear to be safety, effectiveness and access, with a focus on clinical areas (e.g., cardiac care, primary care, surgery, mental health), mortality and satisfaction with care.(17). However, one medium-quality systematic review focused on performance reporting in primary care emphasized that there is a gap between performance-measurement frameworks in the literature and performance measurement and reporting in practice.(18)

Health System Report Cards are commonly used for reporting and are typically aimed at improving the effectiveness and efficiency of care. Reports should be easy to understand, relatively short and use visual rating systems.(15) When considering hospital-performance reporting, reporting tools often consist of balanced scorecards and reporting dashboards to internally present organizational and accountability data which are regularly monitored.(19) A single study emphasized that the implementation of these tools were positively influenced by strong culture, leadership, resources, and financial and non-financial incentives.(20) However, a different single study in Quebec, Canada found that performance reporting is highly subject to "power plays" where institutional issues may influence performance reporting within healthcare organizations. Power plays relate to the choice of a performance-measurement model, the selection of a series of indicators for performance appraisal, the evidence-based construction of indicators, and the access to the data and information systems needed to analyze performance indicators.(21)

What has been the impact of reporting on health-system performance

A single study examined ways that performance reporting can enable improvement in healthcare, including:(22)

- cognitive levers (awareness and understanding);
- mimetic levers (performance of others encourages emulation);
- supportive levers (implementation tools and models of care);
- formative levers (skill development through teaching and feedback);
- normative levers (set performance against guidelines and standards);
- coercive levers (use policies, regulations and disincentives);
- structural levers (physical environment or professional cultures); and
- competitive levers (attract patients or funders).(22)

Impact of publicly reporting performance data shows mixed results. A high-quality Cochrane review on the topic found that the public release of performance data makes little to no difference to healthcare utilization by healthcare consumers or providers, or to provider performance. In addition, it found that patient outcomes may be marginally improved, but the evidence is limited.(23) Another high-quality review found a limited body of evidence which found no consistent data that the public release of performance data changed consumer behaviour or improved care. A cross-sectional study reported that the vast majority of patients were not aware of hospital public-performance reporting, and of those who were aware, little considered it to play an influencing role on their choice of hospital.(24) In addition, the review indicated that evidence was limited in whether public release of performance data has an impact on the behaviour of health professionals or organizations.(25) However, another high-quality review focused on hospital performance suggested that the public release of performance data may be able to stimulate care quality by increasing transparency and accountability, and encouraging patient participation in decision-making.(26) A different medium-quality review examining public reporting as a quality-improvement strategy found positive changes on quality health measures (e.g., mortality, pain, satisfaction with care) and patient and provider behaviour when performance data was made public. A subgroup of patients (e.g., younger, more educated) were more likely to be affected on their selection of providers, and providers were more likely to change patient delivery processes for quality improvement, such as offering new services or changing policies.(27)

We also identified a medium-quality review that examined benchmarking projects of health facilities, including the rationales for the projects, the motivations for benchmarking, indicators used and the success factors linked to the project. From 23 benchmarking projects identified, it was found that several used a financial incentive to participate and most projects reported positive impacts, which included practice improvements, guideline adoption, and increased communication. These success factors were linked to the process of benchmarking, which facilitated meeting and communicating, and the indicators used (focus on diagnostic-related groups).(28)

Table 1: Key findings from systematic reviews and single studies in relation to the question

Source of evidence	Features of approaches for analysis of reporting about health-system performance	Features of approaches for reporting about health-system performance	Enablers to and impacts on driving continuous improvement and accountability
Systematic reviews	• Adopting analytic tools to automatically process electronic health record (HER) data and facilitate on-going performance monitoring and feedback can enhance compliance with evidence-based practice recommendations.(8) • Health-System Report Cards are commonly based on a variety of data sources (e.g., administrative sources, prospective and retrospective data, patient survey and interviews).(9) • Most quality assessment and improvement frameworks measure dimensions such as effectiveness, efficiency, access, safety, equity, appropriateness, timeliness, acceptability, patient centredness, satisfaction, health improvement and continuity of care.(10) • Current frameworks commonly lack the qualitative perspective of the patient. A mixed approach based on situation and environment is recommended when measuring performance.(10) • Six key components of developing a health-system performance assessment framework were identified for low-income countries: 1) an inclusive development process; 2) embedding the framework in a specified health system; 3) relating the framework to current policy and structure; 4) ensuring the framework has a defined purpose, dimensions and indicators; 5) supporting the framework with institutional resources (technical, financial and human), and; 6) providing clear mechanisms for eliciting change in the health system.(13)	• Reporting is commonly driven by accountability, quality improvement and consumer choice.(15) • There is no single 'best' approach when it comes to public reporting on healthcare quality and performance. Reporting methods should depend on the specific context and audience.(15) • Reports should be easy to understand, relatively short and use visual rating systems.(15) • Mortality, pain, pressure ulcers and satisfaction with care are health quality outcomes most often publicly reported.(27) • Clinical areas with high-performance reporting include cardiac care/cardiac surgery, primary care/general practice and mental healthcare. Oncology has the lowest rate of performance reporting.(9) • Health-System Report Cards are used to communicate the results of health-system quality reporting to health-service providers and other interest groups with the aim of improving effectiveness and efficiency of care.(9) • There is a gap between primary-care performance-measurement frameworks in the literature and primary-care performance measurement and reporting in practice. Given this, a 'matrix approach' to primary-care performance measurement can be used, which should incorporate identified patient population segments that represent specific primary-care needs, and measure against performance domains representing high-quality primary care.(18) • Health facilities assessments are a key component in assessing health-system capacity to deliver	• When examining public reporting as a quality-improvement strategy, it was found that patients engaged in more activities to improve care quality when performance data was made public, and providers were more likely to change patient delivery processes such as offering new services or changing policies.(27) • The public release of hospital performance data has been recommended as a key strategy for stimulating care quality by focusing on transparency and accountability. Public reporting may be expected to stimulate patient participation in informed choices regarding their healthcare.(23) • The public release of performance data makes little to no difference to healthcare utilization by healthcare consumers or providers, or to provider performance. There was low-quality evidence to suggest that public release of performance data may marginally improve patient outcomes.(23)

Source of evidence	Features of approaches for analysis of reporting about health-system performance	Features of approaches for reporting about health-system performance	Enablers to and impacts on driving continuous improvement and accountability
	• A 'matrix approach' to primary-care performance measurement should incorporate identified patient population segments that represent specific primary-care needs, against performance domains representing high-quality primary care.(18) • Audit and feedback and the development of a quality-improvement plan are frequently used strategies for implementing quality indicators in hospital care. Implementation was most effective when multiple implementation strategies were used in combination.(29)	healthcare, and indicators span domains of governance, healthcare financing, health workforce, medical products, research, and service delivery, with considerable variation around service delivery indicator reporting.(30)	
Single studies	• Policy tends to focus on ranking of quality indicators and overlooks implementation considerations. This study found that managerial activity was essential to emphasize the value of quality indicators in practice. Having a coherent information system and strong team morale were also important considerations.(11) • A systematic approach to choose, confirm and evaluate health-system performance indicators is outlined, and has proven to be an informative, objective, systematic, transparent, inclusive and likely repeatable process. The approach used a set of 18 sub-criteria over an 18-month evaluation period comprised of three distinct phases (development of the evaluation plan, executing the evaluation internally at CIHI, and achieving consensus across stakeholders).(12) • Hospital accountability is often reported through financial performance and quality performance.(19) • A range of different indicators are being used to report on a single healthcare measure (e.g.,	• The most commonly used domains in health-system performance frameworks are safety, effectiveness and access. Forty-five relevant indicators were reported in more than one country. Cardiovascular, surgery and mental health were the most frequently reported disease groups.(17) • Hospitals employ tools such as balanced scorecards and reporting dashboards to internally present organizational goals and data. Data is routinely monitored by management.(19) • In Ontario, the same performance measure in hospitals is often reported to different bodies (e.g., Ontario Hospital Association, Local Health Integration Networks) using different methodologies to two or more agencies (e.g., Ministry of Health and Long-Term Care, Local Health Integration Networks and Health Quality Ontario, etc.).(19) • Balanced scorecard (BSC) implementation in a Pakistan hospital was positively influenced by strong culture, leadership, financial and non-financial incentives, clear directions, resources and routinized activity. Clarifying the purpose and	• There are several ways in which performance reporting can be used as a 'lever' for improvement in healthcare. These levers include: cognitive levers (awareness and understanding); mimetic levers (performance of others encourages emulation); supportive levers (implementation tools and models of care); formative levers (skill development through teaching and feedback); normative levers (set performance against guidelines, standards, etc.); coercive levers (use policies, regulations and disincentives); structural levers (physical environment or professional cultures); and competitive levers (attract patients or funders).(22)

Source of evidence	Features of approaches for analysis of reporting about health-system performance	Features of approaches for reporting about health-system performance	Enablers to and impacts on driving continuous improvement and accountability
	access to care was reported via percentage of patients, patient-reported perception of access and wait times).(31) • Many non-profit hospitals in the United States are regularly assessed and held accountable through the Community Health Needs Assessment (CHNA).(32) • A novel performance-monitoring framework for health research systems used by the National Institute for Health Research (NIHR) uses a hybridization of the logic model and balanced-scorecard approach.(33) • Population segments may be used as a tool to create clear, distinct patient groups for the understanding of variations in practice-level costs and patterns of care in health performance reporting.(34) • Adjustments to the development of health-system performance assessment frameworks should be made to include representative stakeholder involvement, inclusion of evidence-based data, implementation of regular assessments, clear description of reporting objectives, and consideration of context.(35) • The Holistic Assessment Tool (HAT) used in Ghana excluded evaluations of key health-system areas (e.g., information health systems, patient-centredness, access to essential medicines).(36)	benefits of the BSC were key, and building a BSC that was agreeable with existing infrastructure was important.(20) • Performance reporting is subject to "power plays" where institutional issues may influence performance reporting within healthcare organizations. Power plays are related to the: 1) choice of a performance measurement model; 2) selection of a series of indicators for performance appraisal; 3) evidence-based construction of indicators; and 4) access to the data and information systems needed to analyze performance indicators.(21) • Three of the four approaches to accountability prominent in healthcare are used in the long-term care (LTC) sector: 1) financial incentives and oversight; 2) regulation; and 3) provision of information/reporting. Control over accountability is dispersed among the government agencies and regional authorities.(37) • Accountability mechanisms for public-health units range from legal channels, performance audit, performance reporting and performance management.(38) • Accountability for service delivery in the home and community sector (HCC) in Ontario largely relies on regulatory and expenditure instruments.(39) • Ontario has a organization dedicated to performance measurement, Health Quality, and has implemented provincial accountability strategies such as the Excellent Care for All Act and the Primary Care Performance-measurement framework for Ontario.(40)	

Key findings from the jurisdictional scan

A jurisdictional scan of health-system performance measurement in Canada demonstrated a variety of approaches to both analyzing and reporting performance data. At the national level, the Canadian Institute for Health Information (CIHI) and Statistics Canada collaborate to identify health indicators for all health regions across the country.(41)

International jurisdictional scanning identified approaches to analyzing and reporting health-system performance in Australia (nationally and in New South Wales), New Zealand, the United Kingdom (for the National Health Service for England and Scotland) and the United States (for the Centers for Medicare and Medicaid and Kaiser Permanente). These reports are conducted to improve health-system performance and accountability to the public. We provide the results from the jurisdictional scan in Tables 2 (for Canada) and 3 (for other countries) along with a summary of the key findings below.

Approaches and challenges to analyses for reporting health-system performance to enable improvement and accountability

Jurisdictions are accountable for submission of local data through local data holdings.(42) While provinces and territories provide local data for national analysis, each jurisdiction takes an individual approach to data collection and indicatory selection and analysis. CIHI uses a four-stage process for implementing a new indicator of system performance, and as new gaps emerge this process is utilized to initiate, develop, calculate, and release new indicators.(43)

Health-system performance data is both quantitatively and qualitatively analyzed by CIHI. The CIHI framework includes four domains: 1) health-system outcomes (e.g., health system responsiveness); 2) social determinants of health (e.g., structural and intermediary determinants; 3) health-system outputs (e.g., accessibility and quality of care); and 4) health-system inputs (e.g., health-system leadership and innovation).(3) For instance, Ontario assesses performance outcomes on the basis of the Quadruple Aim of enhancing patient experience, improving health outcomes with manageable per capita costs and positive provider experiences. Health Quality Ontario (HQO) is the main body responsible for performance analysis, and collects data across sectors (including hospitals, primary-care centres, and long-term care facilities).(44)

With respect to international analysis of system performance, a common theme was the analysis of performance against strategic or government priority targets. Some form of strategic analysis, such as performance against priority areas, was found in New Zealand, the United Kingdom (currently with NHS Scotland and in the past with NHS England), and in the United States (with the Centers for Medicare and Medicaid Services).(45-47) Operational performance of specific health services (such as emergency departments, cancer care, and elective surgeries) is analyzed in New South Wales and by NHS England.(48; 49) Broader system-performance analysis that cuts across health service areas (including but not limited to continuity of care, wait times, and accessibility of care) is conducted nationally in Australia and New Zealand, in the United Kingdom (by NHS England and NHS Scotland), and in the United States (by the Centers for Medicare and Medicaid Services).(45; 47; 49-51) Surveys (of patients and providers) and patient-experience scores are used for performance analysis in the United Kingdom (by NHS England and NHS Scotland) and the United States (by the Centers for Medicare and Medicaid Services and Kaiser Permanente).(51-54) Financial performance of the health system is analyzed to some extent in New Zealand, the United Kingdom (by NHS England and NHS Scotland), and in the United States (by the Centers for Medicare and Medicaid Services).(45; 47; 49; 55)

Approaches to reporting health-system performance to enable improvement and accountability

In terms of reporting about health-system performance, many jurisdictions produce regular reports. Nationally, CIHI releases a variety of reports to the public with information on health indicators reported at the regional, provincial and national levels, as well as international comparisons.(56) CIHI also maintains interactive tools that report macro system-level indicators as well as indicators specific to different areas of

care (e.g., cardiac care).(56) These interactive tools enable users to explore health indicators regionally and internationally compared with other Organisation for Economic Co-operation and Development (OECD) countries.(56) When data access standards permit, healthcare providers and other stakeholders can request more detailed data on health-system performance, and can receive consultation from reporting bodies on potential deficiencies.(57) Many provinces release similar reports (see Table 2).

With respect to international health-system performance reporting, the relevant bodies in all jurisdictions apart from the United States release reports (on some defined interval) that outline operational and/or financial performance of the system in various levels of depth. Furthermore, some jurisdictions make raw/minimally processed datasets about system performance publicly available (Australia, New Zealand, and the U.S. Centers for Medicare and Medicaid Services).(58-62) There are also several interactive online tools that enable citizens and policymakers to learn about system performance and compare the performance of hospitals, NHS boards/providers, and physicians to comparators in their jurisdictions.(49; 51; 52; 63; 64) Examples of these tools include the Expanded Healthcare Observer for New South Wales, NHS Performs for Scotland, and Physician Compare and Hospital Compare for the United States. Finally, the performance of the Kaiser Permanente health system is reported upon by several independent bodies such as the National Committee for Quality Assurance, and in Scotland, Healthcare Improvement Scotland conducts independent reviews of and publicly reports upon healthcare facilities and indicators of service delivery quality.(52; 65)

Table 2: Key findings from a jurisdictional scan of features of approaches for analysis of and reporting about health-system performance

Country and province/state/ organization		Features of approaches for analysis of reporting about health-system performance	Features of approaches for reporting about health-system performance	Enablers to and impacts on driving continuous improvement
Canada	National	**Frameworks** • The Canadian Institute for Health Information (CIHI) evaluates health-system performance with a measurement framework composed of four quadrants:(3) o health-system outcomes, including: ▪ health of Canadians, ▪ responsiveness of the health system to population health needs, and the equity of this system, and ▪ ability of the health system to balance resource allocation with outcome ("value for money"); o social determinants of health, including: ▪ structural factors (income, social status, education and literacy, gender and ethnicity), and ▪ intermediary factors (biological factors, material and psychosocial circumstances, and behavioral factors); o health-system outputs, including: ▪ capacity of the system (ability to deliver high-quality health-promotion and disease-prevention services), and ▪ quality attributes (person-centred, safe, appropriate and effective, efficient); and o health-system inputs and characteristics, including: ▪ leadership and governance (implementation of strategic policy frameworks and effective oversight),	**Approaches to performance-measurement reporting to the public.** • Health-system performance information is provided at the international, national, provincial/territorial, health region, and facility levels. o Canadian jurisdictional data is compared with other OECD countries (Australia, France, Germany, the Netherlands, New Zealand, Sweden, the United Kingdom, and the United States).(66; 67) o Data is also reported to contrast findings across provinces and provincial regions.(68) • The CIHI website presents interactive tools for the public and healthcare providers to access health indicators.(56) • eReporting Data Reporting Tool allows authorized users to log in and view reports for a number of CIHI databases (including the Home Care Reporting System and Continuing Care Reporting System).(69) • Other reports released to the public on a regular basis include the Health Indicators e-Publication, OECD Health Database, Cardiac Care Quality indicators, and Your Health System web tool, which allow for brief or in-depth viewing of indicators and results across regions and facilities.(41)	• The Shared Health Priorities Advisory Council with representatives from each province and territory, CIHI and Statistics Canada was established in 2018 to support the development of new indicators to be used in performance reporting representatives from provinces/territories, Health Canada, CIHI, and Statistics Canada.(70)

		▪ resources (financial, human, physical, technical and information resources within the health system), ▪ efficient allocation of resources, and ▪ innovation (learning capacity of the health system), and capacity to adjust and adapt as population needs change. • CIHI uses a four-stage cycle to develop new indicators where a knowledge gap emerges.(43) The process includes the following: o an initiation phase to scope out the gap and identify existing knowledge; ▪ a development phase to define the indicator and the methodology to be used; ▪ a calculation phase to apply the methodology and test for reproducibility; and ▪ a release phase to give stakeholders and the public access to new information. **Data source and quality** • Performance measures are collected from jurisdictions through patient-experience survey data and patient-reported outcome measures (PROMs). • Jurisdictions are accountable for submission of local data to CIHI through local data holdings (e.g., data submission through Ontario Mental Health Reporting System occurs every fiscal quarter).(42) **Data analysis** • Quantitative analysis is performed on data collected across provinces and territories,	**Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • In addition to publicly reported measures, additional metrics are available for health-system providers and audiences at the regional and the provincial/territorial level. • Educational supplementation from CIHI supports jurisdictions in building capacity to report indicators of health-system performance.(68) • The indicator development cycle release phase at CIHI includes an embargo phase wherein new indicator results are initially released to relevant stakeholders prior to public release.(43)	

		using the measurement framework outlined above.		
	Alberta	**Frameworks** • Alberta Health Services (AHS) has developed a three-year 2017-2020 Health Plan to determine how the provincial health system will measure its performance. • Four key goals, with 12 associated performance objectives, have been derived from previous data.(71) o Goal one: Improve client experiences with the health care system ▪ Objectives include enhancing community care, care transitions, a Patient First Strategy, and integration of addiction and mental health services. o Goal two: Improve health outcomes ▪ Objectives include a focus on access to care, the health of Indigenous People, prevention of harm, and childhood immunization. o Goal three: Improve experience and safety ▪ Objectives include workforce engagement and reduction in workplace injuries. o Goal four: Improve financial health ▪ Objectives include improved efficiencies and the creation of a common clinical information system. **Data source and quality** • Most monitoring measures are tracked internally by the AHS.(72)	**Approaches to performance-measurement reporting to the public** • Quarterly reports and an annual report on the 12 AHS performance measures • Trending results are based on yearly results rather than quarterly comparisons.(72) • These reports are widely available for the public. **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • The Analytics and Performance Branch at Alberta Health houses a range of datasets, including the population registry, Alberta Continuing Care Information System, and Longitudinal Demographic Profile.(74) o Data can be requested by stakeholders for analysis.	• The 2020-2023 Health Plan will reflect recommendations from recent consultations and reviews. o There is an increased focus on fiscal prudence as per government priority given that the public service spending of Alberta is under scrutiny and will likely be of increased focus in future performance-measurement reporting.(73; 75)

		Data analysis • Quantitative analyses are conducted on a quarterly basis and indicator results are compared to the same quarter from previous years.(73)		
	Manitoba	**Frameworks** • The Manitoba Centre for Health Policy developed the 2019 RHA Indicators Atlas to support regional decision-makers in measuring performance outcomes. **Data source and quality** • Shared Health is a recent centralized provincial authority, which plays a role in data collection and will release annual reports. • Annual Community Health Assessments from each of the five Regional Health Authorities (RHA) contribute to upcoming Strategic Health Plans.(76) **Data analysis** • Indicators for the RHA Indicator Atlas are calculated using a population-based approach that reflects where people live, not where they received healthcare. • A generalized linear model of statistical analysis is used to examine health-system performance and outcomes for the RHAs. • Indicators encompass population health and mortality, physical illness, physician and nurse practitioner services, quality of primary care, hospital services, surgical and diagnostic services, personal care homes, and maternal and child health.(77)	**Approaches to performance-measurement reporting to the public** • Health, Seniors and Active Living produce annual reports on health system statistics. o RHAs also produce statistical reports through Community Health Assessments every five years.(78) **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • Manitoba Health, Seniors and Active Living Information Management & Analytics branch manages data sharing agreements with organizations such as CIHI, Statistics Canada, and CancerCare Manitoba. o The branch provides consultation and analysis of departmental datasets, and data can be requested by researchers and organizations.(57)	• Currently, Manitoba has RHAs and care is largely siloed, but the province is moving towards the creation of Shared Health, a provincial health organization. • Enhanced performance monitoring is planned as the provincial health system shifts and consolidates under Shared Health. • Examples of enhanced monitoring include the investigation of critical incident reports and the establishment of a provincial pre-analytic committee examining efficiencies in diagnostic testing.(79)

	Ontario	**Frameworks** • Performance outcomes are based on the Quadruple Aim of health care improvement (enhancing patient experience and improving population health at manageable per capita costs and positive provider experiences). • Health Quality Ontario (HQO) has also adopted the Institute of Medicine's definition of quality to measure performance, focusing on a system that is: 1) safe; 2) effective; 3) patient-centred; 4) timely; 5) efficient; and, 6) equitable.(80) • The Primary Care Performance-measurement framework o Performance metrics at the practice level and system level, include indicators such as access to primary care, use of electronic records, immunization rates and infection control.(81) **Data source and quality** • Data for analysis is provided by a number of sources, including CIHI, Cancer Care Ontario and Public Health Ontario.(82) o Data is analyzed with age- and sex-adjustments where appropriate. o Comparisons are made to other jurisdictions within Canada, and other OECD countries. • Independent research bodies engage in health-system. performance measurement o For instance, with funding from the Ontario Ministry of Health and Long-Term Care, the Health System Performance Network (HSPN) has engaged in research analyzing integrated	**Approaches to performance-measurement reporting to the public** • A yearly Measuring Up report assesses Ontario's health-system performance across a range of indicators focusing on quality elements.(44) • HQO measures performance with a wide range of indicators that have been suggested by the public, reviewed, and approved by stakeholders, and the indicator library is accessible online. • System performance is publicly accessible with information presented by sector (e.g., hospital sector, community pharmacy, primary care and long-term care). **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • HQO provides tools and guides to healthcare providers for support with a variety of performance measures, including patient engagement.(85)	• HQO and the OHA have collaborated on a recommended performance-measurement approach as the province transitions to a consolidated Ontario Health agency. o Stakeholder consultations have demonstrated that "indicator chaos" is interfering with effective performance-outcome measurement. o Recommendations from this report include creating a province-wide health system indicator database to monitor Ontario's health-system performance .(86)

		funding models in the Ontario health system. o Through a combination of qualitative and quantitative data collection and analysis, HSPN engaged patients and providers to assess outcomes in line with the Quadruple Aim approach.(83) **Data analysis** • Performance measurement in Ontario occurs based on sector (e.g., hospital, primary-care centres, long-term care).(84) o A total of 257 indicators measure performance outcomes across sectors based on reporting tools, including public reporting, audits, custom reports, public reports, and quality-improvement reports.		
Australia	National	**Frameworks** • The Australian Health Performance Framework (AHPF) contains indicators and provides a tool with which the health system can be analyzed at the national, state, territory and local levels. **Data source and quality** • The AHPF breaks health-system performance measurement into three main categories:(50) o determinants of health (including health behaviours, personal factors, socio-economic factors); o health system (including accessibility, continuity of care, effectiveness, efficiency and sustainability, and safety); and o health status (including deaths, conditions, human function, and well-being).	**Approaches to performance-measurement reporting to the public** • A biennial report examines the performance of Australia's health system against the indicators put forth by the AHPF.(58) • Data are reported by the Australian Institute of Health and Welfare in two streams: Primary Health Networks and Local Hospital Networks. o The public can access these datasets on the websites of these institutions.(58) **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • Health-service organizations collect performance-outcome data within their organization, and may or may not make this data publicly available.	• No specific approaches identified

		• Data is collected by survey across national, state and territory, and primary health networks. **Data analysis** • The current edition of the AHPF report includes data for 45 indicators, disaggregated by population subgroups.(50) o Trends are assessed over a 10-year period where possible.(58)	• If not available, data may be requested in some organizations.(58)	
	New South Wales	**Frameworks** • The NSW Health Performance Framework applies to the 15 NSW local health districts and associated services. o The core values of the framework include collaboration, openness, respect, and empowerment.(87) **Data source and quality** • The Bureau of Health Information (BHI) in NSW collects data from different sectors to analyze information about the performance of emergency departments, ambulance activity, and elective surgeries. **Data analysis** • A range of indicators are used to assess performance across sectors and are published in a quarterly Healthcare report (48) and accompanying Technical report.(88)	**Approaches to performance-measurement reporting to the public** • Quarterly reports are published to track activity and performance.(48) • Online information tools allow the public to access performance indicators for local hospitals, and ability to compare information across sites.(63) • HealthStats NSW is a public website providing statistical information about health status and system performance in NSW.(61) **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • No specific reporting measures identified	• No specific approaches identified
New Zealand		**Frameworks** • Four dimensions have been identified that are part of District Health Boards (DHBs) performance monitoring:(45) 1) policy priorities set out by the government;	**Approaches to performance-measurement reporting to the public** • The Ministry of Health provides quarterly reports on each district health board performance.	• Current work on a new set of performance measures is underway. o Some data release is altered while work is underway.(89)

		2) system integration (e.g., service coverage requirements and interconnectedness); 3) ownership (e.g, quality services); and 4) outputs (e.g., balance of quality services and financial performance). **Data source and quality** • District health boards (DHBs) report to the Ministry of Health on the current set of health targets. **Data analysis** • DHBs are responsible for providing quarterly reports to the Ministry of Health on performance measurement outcomes via a web-based reporting tool.(60) o Analysis of each performance target or measure is conducted by the Ministry of Health.	• Data on primary-health organizations (PHOs) is not being reported at this time. **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • DHBs enter a formal agreement with the Ministry of Health to deliver on the performance measures detailed by the DHB annual plans. • Where DHBs have not achieved performance outcomes as expected by the framework, the Ministry of Health carries out a performance escalation, formal monitoring, and intervention where indicated.(60)	
United Kingdom	NHS England	**Frameworks** • The NHS Outcomes Framework indicators serve to monitor the health outcomes and status of adults and children in England and, by extension, the performance of the NHS. The framework of outcome goals is set by the Secretary of State and NHS Digital calculates the indicators and publishes the data.(90) o Indicators are grouped under five overarching domains: preventing premature death; enhancing quality of life for people with long-term conditions; helping people to recover from episodes of ill health or following injury; ensuring that people have a positive experience of care; and treating and caring for people in	**Approaches to performance-measurement reporting to the public** • NHS England and NHS Improvement both currently report on system performance on their respective websites, but are in the process of merging organizations and websites. • NHS England maintains a dedicated statistics section on its website with information on a range of quality and performance topics.(46) **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • The Pre-Release Access to Official Statistics Order 2008 gives certain ministers, officials, and their delegates access to final form	• Quarterly performance reports of the NHS provider sector, and other measures of system performance, are and will be used to measure progress towards the NHS Long Term Plan.(92)

		a safe environment and protecting them from avoidable harm. • The Integrated Performance Measures Monitoring reports on Primary Care Trust and NHS Trust performance in relation to performance objectives for select health-priority areas. This monitoring system appears to have ceased as of 2013. The selected health priorities included the following: o stroke; o diabetes; o maternity; o NHS Health Checks; o delayed transfers of care; o child and adolescent mental health services; and o Rapid Access Chest Pain Clinics.(46) Combined Performance Summaries were published on a monthly basis to analyze performance against standards and in relation to historical data for urgent and emergency care, planned care, cancer care, and mental health care. This service was decommissioned in March 2020.(46) **Data source and quality** • NHS England uses a range of surveys to measure health-system performance. These surveys include the following: o GP Patient Survey, which examines patient experiences in primary care; o secondary care surveys, which are focused on outpatients, inpatients, accident and emergency, maternity, community mental health, and children and young people;	publications prior (generally 24 hours) to their public release.(91)	

		○ cancer patient experience survey, which examines patient experiences related to cancer care; ○ overall patient-experience scores, which measure overall patient experiences of NHS care and services by constructing composite scores from inpatient, outpatient, community mental health, and accident and emergency surveys; and ○ NHS staff provider experience survey, which examines staff experiences and well-being as well as performance against pledges in the NHS constitution.(46) **Data analysis** • Quarterly performance reports of the NHS provider sector are assembled using operational performance and financial performance data.(49) ○ Operational performance is reported across a variety of domains including accident and emergency, cancer wait times, infection control, and winter resilience. Data are often compared to past year/quarter performance and in relation to pre-determined performance targets. ○ Financial performance is reported across several domains including income and expenditure, employee expenses, efficiency savings, and capital expenditure. Performance is often reported as variances from planned financial performance and changes year-on-year. • Overall financial and operational performance is also broken down and reported for every provider within the NHS,		

		and the best and worst performers are highlighted.		
	NHS Scotland	**Frameworks** • The Scottish Government's Local Delivery Plan (LDP) 2015-16 set improvement priorities and standards for NHS Scotland. The LDP standards are specific quantitative targets used to measure system performance and improvements (e.g., increasing the proportion of people diagnosed and treated in the first stage of breast, colorectal and lung cancer by 25%). The LDP standards also include targets for system-level financial performance.(47) **Data source and quality** • Various surveys exist to garner citizen views on system performance. These surveys include the Inpatient Experience Survey, Health and Care Experience Survey, Maternity Care Survey, and Cancer Patient Experience Survey.(54)	**Approaches to performance-measurement reporting to the public** • NHS Scotland's performance against the LDP standards is reported periodically. The time between reports varies by specific LDP standard. This performance data is published by the Scottish government's Health Performance and Delivery Directorate.(93) • NHS Scotland publishes annual financial reports for all NHS boards and Integration Authorities, including reports on financial performance.(94) • NHS Scotland's Chief Executive publishes an annual report which includes some performance reporting about healthcare services, population health, the health workforce, and financial sustainability.(95) o Findings from the various patient surveys are an example of an element reported upon in the annual report. • NHS Performs is a website dedicated to reporting upon the performance of NHS Boards and selected hospitals. Topics addressed in NHS Performs include wait times, rates of healthcare-associated infections, accident and emergency performance, and number of hospital beds. Data are reported in relation to national averages but not in relation to any performance objectives.(64) • Healthcare Improvement Scotland publishes independent inspection reports of health facilities in Scotland and indicators of service delivery quality on its website.(65)	• Healthcare Improvement Scotland's inspection reports of facilities include recommendations for improvement and report on facilities' progress towards previously made recommendations.

United States	Centers for Medicare and Medicaid	**Frameworks** • Several monitoring programs exist within the Centers for Medicare and Medicaid Services, mostly focused on tracking and auditing payments.(55) o One bundle of programs focuses on monitoring and correcting errors in payments and billing for Medicaid, Medicare, and the Children's Health Insurance Program services. o Another focus of these monitoring programs is to identify and address fraud and waste within the system. o Additionally, the Qualified Entity program enables third-party organizations access to Medicare claims data to produce publicly available and private evaluations of provider performance. • The Centers for Medicare and Medicaid Services launched the Meaningful Measures Framework in 2017, part of which includes the Meaningful Measurement Areas, which are identified as being vitally important to improve patient outcomes and to achieve strategic goals. These measurement areas include indicators related to: o promoting effective communication and coordination of care; o promoting effective prevention and treatment of chronic disease; o making care safer by reducing harm caused in the delivery of care; o working with communities to promote best practices of healthy living; o making care affordable; and o strengthening person and family engagement as partners in their care.	**Approaches to performance-measurement reporting to the public** • The Department of Health and Human Services operates Healthdata.gov, which provides a repository of publicly available datasets related to health systems and healthcare, including 41 datasets regarding various elements of 'quality'.(62) o The available data comes from agencies operating at both the state and federal levels. • The Physician Compare Initiative enables consumers to compare clinicians, healthcare groups, and accountable care organizations and make informed decisions about their care.(51) o The information available for consumers includes general information about clinicians, groups, and accountable care organizations, as well as performance information (including participation indicators, healthcare performance, and patient survey scores). **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • The Measures Inventory Tool provides a repository of all measures related to healthcare quality and quality improvement that are used (or proposed for use) in Centers for Medicare and Medicaid Services organizations.(59)	• The Centers for Medicare & Medicaid Services Center for Program Integrity's Recovery Audit Contractor program has identified improper payments made to providers excluded from Medicare programs, prescribers unauthorized to prescribe certain drugs that are part of a Medicare prescription drug coverage program, and illegal refills of controlled drugs.(96)

		Data analysis • Performance information intended for consumers is available on Physician Compare and focuses on three domains of analysis.(51) o Participation indicators identify whether clinicians or groups participate in one or more Alternative Payment Models and whether they use a certified electronic health record technology. o Healthcare performance shows how well clinicians and groups provide recommended care to patients compared to top performers based on data from the Merit-based Incentive Payment System and potentially a qualified clinical data registry. o Patient survey scores report how Medicare patients experience interacting with clinicians and groups based on responses to the Consumer Assessment of Healthcare Providers and Systems survey.		
	Kaiser Permanente	**Frameworks** • The assessment of performance varies by region in which Kaiser Permanente operates. For example, in California an internal Quality Transparency Dashboard is maintained to compare hospital performance on certain important metrics against national performance, as well as to highlight if certain patient-safety programs are in place. **Data analysis** • Analysis of health plan performance is conducted by the National Committee for Quality Assurance which assesses various	**Approaches to performance-measurement reporting to the public** • Performance data is reported on the Kaiser Permanente website's section on Quality and Safety. Reporting is divided based on region. Performance of hospitals within the Kaiser Permanente system is often reported on individual hospital websites.(52) **Approaches to performance-measurement reporting to jurisdictions and other stakeholders** • The performance of Kaiser Permanente health plans and hospitals is reported upon	• No information identified

		scores for plan effectiveness and patient experiences for both private and Medicare plans. Physician groups are rated by various external groups including the Integrated Health Association and various state-level organizations. Kaiser Permanente hospital performance is analyzed by external groups such as the Joint Commission and The Leapfrog Group.(52)	by various external organizations such as the National Committee for Quality Assurance and Hospital Compare.	

REFERENCES

1. Tandon A, Murray C, Lauer J, Evans D. Measuring Overall Health System Performance for 191 Countries. Geneva, Switzerland: World Health Organization; No date provided.
2. World Health Organization. The World Health Report. Geneva, Switzerland: World Health Organization; 2000.
3. Canadian Institute for Health Information. A Performance Measurement Framework for the Canadian Health System. Ottawa, ON: CIHI; 2013.
4. Veillard J, Tipper B, Allin S. Health system performance reporting in Canada: Bridging theory and practice at pan-Canadian level. *Canadian Public Administration* 2015;58(1): 15-38.
5. Leeb K. Does health system performance reporting stimulate change? *Healthcare Management Forum* 2018;31(6): 235-238.
6. Adair C, Simpson L, Birdsell J, et al. Performance measurement systems in health and mental health services: Models, practices and effectiveness. *A State of the Science Review Alberta Heritage Foundation for Medical Research* 2003.
7. Bach-Mortensen AM, Montgomery P. What are the barriers and facilitators for third sector organisations (non-profits) to evaluate their services? A systematic review. *Systematic reviews* 2018;7(1): 13.
8. DeMellow J, Kim TY. Technology-enabled performance monitoring in intensive care: An integrative literature review. *Intensive and Critical Care Nursing* 2018;48: 42-51.
9. Brien SE, Lorenzetti DL, Lewis S, Kennedy J, Ghali WA. Overview of a formal scoping review on health system report cards. *Implementation Science* 2010;5(1): 2.
10. Kurji Z, Shaheen ZZSP, Mithani Y. Review and analysis of quality healthcare system enhancement in developing countries. *JPMA The Journal of the Pakistan Medical Association* 2015;65(7): 776.
11. Waelli M, Gomez M-L, Sicotte C, et al. Keys to successful implementation of a French national quality indicator in health care organizations: A qualitative study. *BMC health services research* 2016;16(1): 553-553.
12. Fekri O, Leeb K, Gurevich Y. Systematic approach to evaluating and confirming the utility of a suite of national health system performance (HSP) indicators in Canada: A modified Delphi study. *BMJ open* 2017;7(4): e014772-e014772.
13. Tashobya CK, da Silveira VC, Ssengooba F, Nabyonga-Orem J, Macq J, Criel B. Health systems performance assessment in low-income countries: Learning from international experiences. *Globalization and health* 2014;10: 5-5.
14. Rich R, D'Hont T, Linton J, Murphy KE, Veillard J, Chatwood S. Performance indicators for maternity care in a circumpolar context: A scoping review. *International journal of circumpolar health* 2016;75: 31470-31470.
15. Wallace J, Teare GF, Verrall T, Chan BT. Public reporting on the quality of healthcare: Emerging evidence on promising practices for effective reporting. Ottawa, Canada: Canadian Health Services Research Foundation; 2007.
16. Johnston S, Abelson J, Wong ST, et al. Citizen perspectives on the use of publicly reported primary care performance information: Results from citizen-patient dialogues in three Canadian provinces. *Health Expectations* 2019;22(5): 974-982.

17. Braithwaite J, Hibbert P, Blakely B, et al. Health system frameworks and performance indicators in eight countries: A comparative international analysis. *SAGE open medicine* 2017;5: 2050312116686516-2050312116686516.

18. Langton JM, Wong ST, Johnston S, et al. Primary care performance measurement and reporting at a regional level: Could a matrix approach provide actionable information for policy makers and clinicians? *Healthcare policy* 2016;12(2): 33-51.

19. Kraetschmer N, Jass J, Woodman C, Koo I, Kromm SK, Deber RB. Hospitals' internal accountability. *Healthcare Policy* 2014;10(Spec issue): 36-44.

20. Rabbani F, Lalji SN, Abbas F, et al. Understanding the context of balanced scorecard implementation: A hospital-based case study in Pakistan. *Implementation Science* 2011;6: 31-31.

21. Fache P, Sicotte C, Minvielle É. The search is on for coherent performance measurement in healthcare organizations.: Has Quebec reached a crossroads? *Healthcare policy* 2016;11(4): 60-69.

22. Levesque J-F, Sutherland K. What role does performance information play in securing improvement in healthcare? A conceptual framework for levers of change. *BMJ open* 2017;7(8): e014825-e014825.

23. Metcalfe D, Rios Diaz AJ, Olufajo OA, et al. Impact of public release of performance data on the behaviour of healthcare consumers and providers. *The Cochrane database of systematic reviews* 2018;9(9): CD004538-CD004538.

24. Prang K-H, Canaway R, Bismark M, Dunt D, Miller JA, Kelaher M. Public performance reporting and hospital choice: A cross-sectional study of patients undergoing cancer surgery in the Australian private healthcare sector. *BMJ open* 2018;8(4): e020644-e020644.

25. Ketelaar NABM, Faber MJ, Flottorp S, Rygh LH, Deane KHO, Eccles MP. Public release of performance data in changing the behaviour of healthcare consumers, professionals or organisations. *Cochrane Database of Systematic Reviews* 2011(11): CD004538-CD004538.

26. Campanella P, Vukovic V, Parente P, Sulejmani A, Ricciardi W, Specchia ML. The impact of Public Reporting on clinical outcomes: A systematic review and meta-analysis. *BMC health services research* 2016;16(1): 296.

27. Totten A, Wagner J, Tiwari A, O'Haire C, Griffin J, Walker M. Closing the quality gap: Revisiting the state of the science (vol. 5: public reporting as a quality improvement strategy). *Evidence Reports/Technology Assessments* 2012;208.5(1530-4396 (Print)).

28. Thonon F, Watson J, Saghatchian M. Benchmarking facilities providing care: An international overview of initiatives. *SAGE open medicine* 2015;3: 2050312115601692.

29. De Vos M, Graafmans W, Kooistra M, Meijboom B, Van Der Voort P, Westert G. Using quality indicators to improve hospital care: A review of the literature. *International Journal for Quality in Health Care* 2009;21(2): 119-129.

30. Nickerson JW, Adams O, Attaran A, Hatcher-Roberts J, Tugwell P. Monitoring the ability to deliver care in low-and middle-income countries: A systematic review of health facility assessment tools. *Health policy and planning* 2015;30(5): 675-686.

31. Johnston S, Hogel M. A decade lost: Primary healthcare performance reporting across Canada under the action plan for health system renewal. *Healthcare policy* 2016;11(4): 95-110.

32. Graham JR. Accountability for community benefit: A reasonable expectation for Canadian hospitals. *Healthcare policy* 2016;11(4): 20-26.

33. El Turabi A, Hallsworth M, Ling T, Grant J. A novel performance monitoring framework for health research systems: Experiences of the National Institute for Health Research in England. *Health research policy and systems* 2011;9: 13-13.

34. Langton JM, Wong ST, Burge F, et al. Population segments as a tool for health care performance reporting: An exploratory study in the Canadian province of British Columbia. *BMC family practice* 2020;21(1): 98-98.

35. KirungaTashobya C, Ssengooba F, Nabyonga-Orem J, et al. A critique of the Uganda district league table using a normative health system performance assessment framework. *BMC health services research* 2018;18(1): 355-355.

36. Kumah E, Ankomah SE, Fusheini A, et al. Frameworks for health systems performance assessment: How comprehensive is Ghana's holistic assessment tool? *Global health research and policy* 2020;5: 10-10.

37. Berta W, Laporte A, Wodchis WP. Approaches to accountability in long-term care. *Healthcare Policy* 2014;10(Spec issue): 132-144.

38. Schwartz R, Price A, Deber RB, Manson H, Scott F. Hopes and realities of public health accountability policies. *Healthcare Policy* 2014;10(Spec issue): 79-89.

39. Steele Gray C, Berta W, Deber RB, Lum J. Home and community care sector accountability. *Healthcare Policy* 2014;10(Spec issue): 56-66.

40. Martin-Misener R, Wong ST, Johnston S, et al. Regional variation in primary care improvement strategies and policy: Case studies that consider qualitative contextual data for performance measurement in three Canadian provinces. *BMJ open* 2019;9(10): e029622-e029622.

41. Canadian Institute for Health Information. CIHI's Analytical Plan, 2019 to 2021. Ottawa, ON: CIHI; 2020.

42. Canadian Institute for Health Information. Submission Deadlines and Refresh Dates. Ottawa, ON: CIHI; 2020.

43. Canadian Institute for Health Information. How is an Indicator Developed at CIHI? Ottawa, Canada: Canadian Institute for Health Information; 2020. https://www.cihi.ca/en/how-is-an-indicator-developed-at-cihi (accessed 13 August 2020).

44. Health Quality Ontario. Measuring Up 2019: A yearly report on how Ontario's health system is performing. Toronto, ON: HQO; 2019.

45. New Zealand Ministry of Health. Performance measures. Wellington, NZ: Ministry of Health; 2020. https://nsfl.health.govt.nz/accountability/performance-and-monitoring/performance-measures (accessed 22 June 2020).

46. NHS England. Integrated Performance Measures Monitoring. NHS England; 2020. https://www.england.nhs.uk/statistics/statistical-work-areas/integrated-performance-measures-monitoring/ (accessed 25 June 2020).

47. NHS Scotland. NHS Scotland Local Delivery Plan Guidance 2015-16. Edinburgh, Scotland; 2015.

48. Bureau of Health Information. Healthcare Quarterly, Activity and performance, Emergency department, ambulance, admitted patients, seclusion and restraint, and elective surgery, January to March 2020. Sydney, Australia: Bureau of Health Information; 2020.

49. NHS Improvement. Performance of the NHS provider sector for the quarter ended 30 September 2018. 2018.

50. Australian Government. Australia's Health Performance Framework. Canberra, AUS: Australian Institute of Health and Welfare; 2020. https://www.aihw.gov.au/reports-data/indicators/australias-health-performance-framework (accessed 26 June 2020).

51. Centers for Medicare & Medicaid Services. Performance Information and Physician Compare. 2020. https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/physician-compare-initiative/Quality-Data-and-Physician-Compare- (accessed 27 August 2020).

52. Kaiser Foundation Health Plan. Quality at Kaiser Permanente - Measuring Quality and Patient Safety. Kaiser Permanente; 2020. https://healthy.kaiserpermanente.org/health/care/consumer/center/!ut/p/a1/hY9PC4JAEMU_SwePMVPiVt40yNRK-0Nue4lNVxNstdoKv31mdAwHBubBbx7vAQMKTPJnnnGVl5IXH83IceZtA9seWBgYgYHu0nAmHlkNcTqCCDxgWVGeWvhwVqoyNdTwVVVxKZWQKm5W3DQEdhNZ4wp0bkWdrCwTkSdAozA0zcXGIsQOmNP59r0kvwig1wcvclX37zwVqm6SsrYM6u66LeOEBNEd-zt_P_F1xOEP-DMWQnUZ13rxXKRbt_cG-stHOg!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/ (accessed 27 August 2020).

53. NHS England. Statistical Work Areas. https://www.england.nhs.uk/statistics/statistical-work-areas/ (accessed June 25 2020).

54. The Scottish Government. Scottish Government Health Statistics. 2020. https://www2.gov.scot/Topics/Statistics/Browse/Health (accessed 27 June 2020).

55. Centers for Medicare & Medicaid Services. Research, Statistics, Data & Systems. 2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research-Statistics-Data-and-Systems (accessed 27 August 2020).

56. Canadian Institute for Health Information. Performance Reporting. Ottawa, ON: CIHI; 2020. https://www.cihi.ca/en/performance-reporting#:~:text=Part%20of%20this%20work%20involves,authorities%20and%20health%20care%20facilities. (accessed 6 July 2020).

57. Manitoba Health Seniors and Active Living. Information Management & Analytics. Winnipeg, MB: Government of Manitoba; 2020. https://www.gov.mb.ca/health/ima/index.html (accessed 13 July 2020).

58. Australian Government. Australia's Health 2018. Canberra, AUS: Australian Institute of Health and Welfare; 2018.

59. Centers for Medicare & Medicaid Services. Centers for Medicare & Medicaid Services Measures Inventory Tool. 2020. https://cmit.cms.gov/CMIT_public/ListMeasures (accessed 27 August 2020).

60. New Zealand Ministry of Health. 2020/21 DHB non-financial monitoring framework and performance measures. Wellington, NZ: Ministry of Health; 2020.

61. NSW Government. HealthStats NSW. Sydney, NSW: 2020. http://www.healthstats.nsw.gov.au/ContentText/Display/About (accessed 24 June 2020).

62. U.S. Department of Health & Human Services. HealthData.gov. U.S. Department of Health & Human Services; 2020. https://healthdata.gov/content/about (accessed 27 August 2020).

63. Bureau of Health Information. Healthcare Observer. Sydney, NSW: BHI; 2020. http://www.bhi.nsw.gov.au/Healthcare_Observer (accessed 25 June 2020).

64. NHS Scotland. NHS Performs. NHS Scotland; 2020. https://www.nhsperforms.scot/ (accessed 27 August 2020).

65. NHS Scotland. Healthcare Improvement Scotland. NHS Scotland; 2020. http://www.healthcareimprovementscotland.org/ (accessed 27 August 2020).

66. Canadian Institute for Health Information. Benchmarking Canada's Health Care Systems: International Comparisons. Ottawa, ON: CIHI; 2019.

67. Canadian Institute for Health Information. CIHI's Annual Report, 2018–2019: 25 Years of CIHI. . Ottawa, ON: CIHI; 2019.

68. Canadian Institute for Health Information. Enhancing Pan-Canadian Health System Performance Reporting at CIHI. Ottawa, ON: CIHI; 2013.
69. Canadian Institute for Health Information. eReporting Data Reporting Tool. Ottawa, ON: CIHI; 2020. https://www.cihi.ca/en/ereporting-data-reporting-tool (accessed 26 June 2020).
70. Canadian Institute for Health Information. Shared Health Priorities. Ottawa, ON: CIHI; 2019. https://www.cihi.ca/en/shared-health-priorities (accessed 26 June 2020).
71. Alberta Health Services. The 2017-2020 Health Plan and Business Plan. Edmonton, AB: Alberta Health Services; 2019.
72. Alberta Health Services. Monitoring Measures. Edmonton, AB: AHS; 2020. https://www.albertahealthservices.ca/about/Page12640.aspx (accessed 26 June 2020).
73. Alberta Health Services. Measuring our progress: Q3 2019-2020 Health Plan Update. Edmonton, AB: AHS; 2020.
74. Alberta Health AaPRB. Overview of Administrative Health Datasets. Edmonton, AB: Alberta Health; 2017.
75. Ernst & Young. Alberta Health Services Performance Review. Edmonton, AB: EY; 2020.
76. Shared Health Manitoba. Community Health Assessment. Winnipeg, MB: 2020. https://sharedhealthmb.ca/about/quality-patient-safety-learning/community-health-assessment/ (accessed 28 June 2020).
77. Fransoo R MA, The Need To Know Team, Anderson A, Prior H, Koseva I, McCulloch S, Jarmasz J, Burchill S. The 2019 RHA Indicators Atlas. Winnipeg,MB: Manitoba Centre for Health Policy; 2019.
78. Manitoba Health Seniors and Active Living. Annual Statistics 2018-2019. Winnipeg, MB: Government of Manitoba; 2020.
79. Shared Health Manitoba. 2018-2019 Annual Report to the Minister. Winnipeg, MB: Shared Health Inc. ; 2019.
80. Health Quality Ontario. Quality Matters: Realizing Excellent Care for All. Toronto, ON: HQO; 2015.
81. Health Quality Ontario. A Primary Care Performance Measurement Framework for Ontario. Toronto, ON: HQO; 2014.
82. Health Quality Ontario. Measuring Up 2019: Technical Appendix. Toronto, ON: HQO; 2019.
83. Health System Performance Network. Integrated Funding Models. Toronto, Canada: HSPN; 2020. https://hspn.ca/evaluation/integrated-funding-models/ (accessed 17 July 2020).
84. Health Quality Ontario. System Performance: Indicator Library. Toronto, ON: HQO; 2020. https://www.hqontario.ca/System-Performance/Measuring-System-Performance/Indicator-Library (accessed 14 July 2020).
85. Health Quality Ontario. Patient Partnering: Resources for Health Care Providers. Toronto, ON: HQO; 2020. https://www.hqontario.ca/patient-partnering/patient-partnering-Tools-and-Resources/Resources-for-Health-Care-Providers (accessed 14 July 2020).
86. Health Quality Ontario, Ontario Hospital Association. A Sustainable Indicator Reduction and Management Strategy for the Ontario Hospital Sector. Toronto, ON: HQO, OHA; 2019.
87. NSW Government. Performance framework. Sydney, Australia: NSW Government; 2020. https://www.health.nsw.gov.au/Performance/Pages/frameworks.aspx (accessed 30 July 2020).
88. Bureau of Health Information. Technical Supplement to Healthcare Quarterly, Activity and Performance – Emergency department, ambulance, admitted patients, seclusion and restraint, and elective surgery, January to March 2020. Sydney, NSW: Bureau of Health Information; 2020.

89. New Zealand Ministry of Health. Health targets. Wellington, NZ: Ministry of Health; 2020. https://www.health.govt.nz/new-zealand-health-system/health-targets (accessed 22 June 2020).

90. Clinical Indicators Team NHS Digital. NSH Outcomes Framework indicators. 2020.

91. Department of Health and Social Care, NHS England. Pre-Release Access to Official Statistics Order. 2008. https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2018/12/Joint-DH--NHS-England-Statement-of-Compliance-with-PRA-Order-v1.0.pdf (accessed 31 July 2020).

92. NHS England. NHS Long Term Plan. London, England: NHS England; 2020. https://www.longtermplan.nhs.uk/ (accessed 25 June 2020).

93. Health Performance and Delivery Directorate. NHS Scotland performance against LDP standards. Edinburgh, Scotland: The Scottish Government; 2019. https://www.gov.scot/publications/nhsscotland-performance-against-ldp-standards/pages/introduction/ (accessed 27 August 2020).

94. Health Finance and Governance. NHS Scotland and Integration Authorities consolidated financial reporting: 2019-2020. Edinburgh, Scotland: The Scottish Government; 2020. NHS Scotland and Integration Authorities consolidated financial reporting: 2019-2020 (accessed 2020 2020).

95. Office of the Chief Executive NHS Scotland. NHS Scotland Chief Executive's Annual Report 2017/18. Edinburgh, Scotland: The Scottish Government; 2018. https://www.gov.scot/publications/nhs-scotland-chief-executives-annual-report-2017-18/pages/1/ (accessed 27 August 2020).

96. Centers for Medicare & Medicaid Services. Parts C and D Recovery Audit Program - Program History and Authorities. 2020. https://www.cms.gov/Research-Statistics-Data-and-Systems/Monitoring-Programs/recovery-audit-program-parts-c-and-d/Program-History-and-Authorities (accessed 27 August 2020).

97. Parker C, Schwamm L, Fonarow G, Smith E, Reeves MJ. Stroke quality metrics: Systematic reviews of the relationships to patient-centered outcomes and impact of public reporting. *Stroke* 2011;43(1): 155-162.

APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Appendix 1: Summary of findings from systematic reviews about features of approaches for analysis of and reporting about health-system performance

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Examining public reporting as a quality-improvement strategy (27)	A review of 97 quantitative and 101 qualitative studies were included to evaluate the effectiveness of healthcare-quality information public reporting as a quality-improvement strategy. Public reporting is often categorized as a means of influencing quality by providing incentives for change. Such incentives may be for the consumers of healthcare, including patients or families, or for other purchasers of healthcare. Findings indicate that the outcomes most studied were mortality, pain, pressure ulcers and satisfaction with care. In general, it was found that public reporting had a positive impact on the quality measures examined. There was some variation across subgroups of the patient population. Competitive markets and subgroups of providers with lower scores in initial public reports saw an increased impact. Patients or their representatives were found to engage in activities to improve quality when performance data were made public. The quality measures that were publicly reported improved over time. In terms of whether harms result from public reporting, studies found more evidence of no harm than evidence of harm. It was found that almost all studies found weak to no evidence supporting public reporting as affecting the selection of healthcare providers by patients. Public reporting was also found to be more likely associated with changes in healthcare-provider behaviours than with selection of health-services providers by patients. However, studies found that providers responded positively to public reporting, leading to changes in healthcare delivery structures and processes (e.g., offering new services, changing policies, increasing quality-improvement activities). The strength of the evidence for most outcomes was moderate due to methodological challenges in designing and conducting research in healthcare performance measures. The review found few studies describing characteristics of public reports and the context. No quantitative studies examined which characteristics of public reporting increased its impact on quality care.	2011	7/10 (AMSTAR rating from McMaster Health Forum)	8/197
Examining health-system report cards (9)	A scoping review of 1,222 studies investigated the effectiveness of health-system report cards for health-system quality reporting. Health-system report cards are used to report the results of health-system quality reporting to health-service providers and other interest groups with the aim to improve effectiveness and efficiency of care. The review identified several formal frameworks around which health-quality report cards are based. Reports are commonly based on a variety of data sources, including administrative sources, prospective clinical data collection, retrospective chart review, patient survey/interviews, and provider interviews and	2008	5/9 (AMSTAR rating from McMaster Health Forum)	Not reported

	reports. Some studies addressed the issues of statistical methodology such as appropriate risk adjustment for health-system report cards. Compared to Canada (7%), the majority of included studies (65%) were from the United Stated where there is a culture of healthcare report cards. Most organizations reporting research pertaining to healthcare performance measurement and quality-improvement initiatives were based in the United States. The majority of studies pertained to quality reporting at the level of the healthcare system in comparison to facility, group or individual levels. The most common clinical areas with high performance reporting were cardiac care/cardiac surgery, primary care/general practice and mental health care. Oncology has the least performance reporting.			
Examining performance-measurement systems in health and mental health services (6)	There has been a rise in prominence of performance measurement as an accountability mechanism in health and mental health services in the past 15 years. This review of 617 articles examined the current literature on models, practice and effectiveness of performance measurement in Canada. It was found that the literature on performance measurement is incredibly diverse, lacking clarity in both definitions and concepts within and across health and mental health sectors. The blurred lines among approaches and tools related to performance measurement (e.g., accreditation, service evaluation, quality improvement, health-system report cards, etc.) is considered one of the major barriers to the advancement of research and practice. The development of performance-measurement systems can be broadly grouped in stages as: 1) conceptualization and strategy (aligning performance measurement with the strategic direction of the system which includes giving consideration across levels of the organization); 2) measures selection or development (deciding on the domains for measurement or a specific framework); 3) data collection and analysis (considering issues of data sources, data quality, etc.); and 4) reporting and use (making use of publicly reported health-performance information). Examining the past 10 years of literature, there appears to be an evolution of thought concerning performance measurement, ranging from: 1) an initial enthusiasm; 2) proliferation of measures and fragmentation of effort; 3) sober reassessment and reflection on the complexity of the task; and recently 4) stage of consensus and identifying solutions. Performance-measurement activities were also found to be more advanced in the U.S. and the U.K., but there is growing use in Canadian policy and practice.	2002	7/10 (AMSTAR rating from McMaster Health Forum)	Not reported
Examining the barriers and facilitators to evaluation for third-sector organization/	A systematic review of 24 studies examined the barriers and facilitators for third-sector organizations in evaluating their services. While the third sector is a common provider of social and health services, research suggests that many third-sector organizations struggle to provide strong quality evidence of its effects. The majority of studies (70.8%) were conducted in North America, followed by the U.K. All studies examined evaluation in some way, but varied in the specific type of evaluation (e.g. performance evaluation, evaluation capacity, evaluation practice, program evaluation, impact evaluation). All studies had strong study quality.	Published in 2018 (last year searched not stated)	5/9 (AMSTAR rating from McMaster Health Forum)	2/24

non-profits (7)	The review identified several main barriers for evaluation in third-sector organizations, including a lack of financial resources (e.g., money, time and staff), lack of technical capability and evaluation literacy, and challenges around identifying relevant evaluation systems and outcome indicators. There seemed to be a mismatch between funder requirements and what organizations perceived to be appropriate evaluation goals. Many of these challenges were related to capacity and capability, which the paper proposes can be resolved through using evidence-based and stakeholder-inclusive strategies. Key facilitators to evaluation included receiving appropriate support, having an organizational culture that supports evaluation (e.g., high engagement and willingness), and the motivation to be accountable to stakeholders. Factors such as having appropriately trained evaluation staff were also important facilitators.			
Reviewing and analysing quality healthcare-system enhancement in developing countries (10)	The review proposes that 'quality' has multidimensional perspectives which can be broadly categorized into professional, patient and management. The professional is more interested in the technical competencies and professional development of staff of quality assessment, while patients put greater emphasis on access to care and low-cost treatments. Quality improvement from the management point of view may prioritize optimizing resources. A mixed approach using multiple frameworks should be implemented for measuring quality based on situation and environment (e.g., quality framework for community versus quality framework for a hospital setting). The review states that most quality assessment and improvement frameworks measure dimensions such as effectiveness, efficiency, access, safety, equity, appropriateness, timeliness, acceptability, patient centredness, satisfaction, health improvement and continuity of care. The review proposes that none of the frameworks adequately provided a complete picture of how quality is measured, with many of them lacking the qualitative perspective of the patient. Governments and professional bodies commonly use three main categories to improve the quality of healthcare: licensing, certification and accreditation. Two of such approaches are Continuous Quality Improvement (CQI) (practical tool for reducing errors) and Root Cause Analysis (examines systems as a whole and used to identify root causes of the problem). Quality improvement should start with good performance key indicators at the benchmark level. Facilitators to the quality-improvement process include leadership, positive organizational culture, training, resources and use of rewards such as financial incentives. In developing countries where there is a great need for optimized resources, quality approaches can provide workable and appropriate solutions.	2012	1/9 (AMSTAR rating from Program in Policy Decision-making)	Not reported
Evaluating public reporting on the quality of healthcare (15)	Public reporting has been on the rise over the last 20 years in Canada. The review suggests that for reporting to be effective, it must pay attention to its objectives, audience, content, product, distribution and impacts. There is no single 'best' approach when it comes to public reporting on healthcare quality and performance. Reporting methods will depend on the specific context and audience. Considerations for public reporting should include who you are reporting to, why you are reporting, how to get the message to a broad public	Published in 2007 (last year searched not stated)	2/9 (AMSTAR rating from McMaster Health Forum)	1/3

	audience, and how to ensure that reporting is a part of broader, ongoing efforts to build relationships with the citizens and stakeholders who are intended users of the information. The most common reasons for reporting are accountability, quality improvement and consumer choice. When reporting for accountability, the audience is typically the general public and thus it is important to consider differences in readers' education, income, and socio-economic and health status. When reporting to improve quality, reporting should target the audience of health-system providers or policymakers. There remains debate on whether performance reporting should be completed at the individual (e.g., healthcare providers) or organization level (e.g., hospital, health region). The product (e.g. heath report cards) itself is commonly presented in a printed format, electronic/web or both. Research shows that reports should be easy to understand, relatively short and use visual rating systems (e.g., stars rather than numeric scores). All of the organizations examined by the review distributed quality reports through passive channels (libraries, waiting rooms, newspaper inserts). There was little evidence suggesting that consumers read or used such materials. Overall, there was no strong evidence suggesting that reporting increased accountability. However, there were a number of studies demonstrating that public reporting led to minimal improvements in quality of care and stimulated action.			
Exploring the use of quality indicators to improve hospital care (29)	A review of 21 studies examined strategies for implementing quality indicators in hospital care and explored their effectiveness in improving quality of care. Audit and feedback were found to be the most frequently used implementation strategies, followed by the development of a quality-improvement plan. The combination of these strategies was used in some studies. Four out of six studies evaluating the effects of the implementation of quality indicators on patient outcomes found it to be ineffective. One study found it to be partially effective and one found it be effective. Most studies (n=17) out of 20 studies focusing on care processes reported significant improvements in the measured process indicators. It was found that the implementation of quality indicators in the hospital setting was most effective if multifaceted/multiple implementation strategies were used (e.g., feedback reports combined with an educational implementation strategy and/or a quality-improvement plan). Identified barriers to implementation include a lack of resources (e.g., time), lack of administrative support/management, and lack of credible data and knowledge.	2008	3/9 (AMSTAR rating from McMaster Health Forum)	1/21
Exploring stroke quality metrics for quality improvement (97)	Stroke quality metrics, or stroke performance measures, are important components in quality improvement in relation to provider reimbursement, accreditation and public reporting. This review of 14 studies examined the compliance between stroke quality metrics and patient-centred outcomes, and its public reporting on quality improvement. Nine studies found mostly positive associations between stroke quality metric compliance and patient-centred outcomes. Five found no or little associations. Findings also indicate that stroke patients who were	2010	4/10 (AMSTAR rating from McMaster Health Forum)	0/14

	treated at hospitals during a period of intensive public reporting had significantly lower mortality rates. However, data collection issues were noted. There is limited information on whether its public reporting is accurate, effective, or has unintended consequences. Only two studies directly addressed public reporting of stroke quality metrics. One study suggested the need to develop a national standard for public reporting to describe explicit requirements and ensure minimum standards. The second study found positive reports of public reporting.			
Examining the tools used to access health facilities in low- and middle-income countries (30)	The review identified 10 health-facility assessment tools intended for use in low- and middle-income countries (LMICs). The review emphasized that health facilities assessments are a key component of health-system strengthening and assessing the capacity of the health system to deliver healthcare. The review aimed to analyze the different tools used to assess delivery capabilities of health facilities in LMICs. The review found a large number of different health-facility assessment tools, and observed that the data collected and methods used were also quite different. A thematic analysis revealed 41 different assessment domains, which were mapped onto a health-system building-block framework from the WHO (building blocks included leadership/governance, healthcare financing, health workforce, medical products technologies, information and research, service delivery). None of the tools examined collected data on all 41 domains (median: 25.5) and the largest variation was noticed in the area of services delivery (there was a preference towards assessments of services at the primary-care or community level rather than secondary-level services). The review concluded that reaching a consensus on the essential elements of health-facility assessments would help guide the development of more specific indicators and for refining existing instruments. The review only evaluated tools applied in LMIC. The health priorities of high-income countries may be very different. The review excluded service-specific assessments, which may have limited the amount of data that could have been examined.	2012	5/9 (AMSTAR rating from McMaster Health Forum)	0/10
Assessing technology-enabled performance monitoring and feedback to improve care quality and patient outcomes (8)	The review included nine studies which examined technology-enabled performance monitoring and feedback (PMF) to improve quality of care and patient outcomes when implementing evidence-based bundles in intensive-care units (ICU). Electronic health records (EHRs) are considered a means to collect longitudinal health data, facilitating efficient clinical workflow and supporting providers' decision-making. Adopting analytic tools to process EHR data could promote ongoing performance monitoring, which could enhance a care team's compliance with evidence-based practice recommendations. This literature review was performed to better understand the impact of technology-enabled PMF mechanisms on care-team performance and patient outcomes. The ICU was used as an example, where evidence-based practice bundles have been proven to improve patient outcomes when performed reliably. All studies included in the review reported improved team compliance with evidence-based bundles after the implementation of technology-enabled PMF. Significant reductions in hospital-acquired infections were also reported. The review concluded that allowing for data standardization and documentation of key measures	2017	4/10 (AMSTAR rating from McMaster Health Forum)	0/9

	in electronic health records allowed for the provision of feedback to teams, improving their compliance. Performance feedback was provided to multiple stakeholders (nurses, physicians, quality-improvement teams, and/or leadership) in the form of daily performance reports and weekly/quarterly scorecards with patient outcomes and compliance rates. The review concluded that hospitals should engage stakeholders in order to develop a technology-enabled PMF system using dashboards and regular automated reports to improve processes. However, the review acknowledged that technology-enabled PMF requires resources, education and leadership involvement, and there is a need to examine cost effectiveness.			
Examining performance and quality indicators for maternity-care systems serving northern and Indigenous populations (14)	This review identified 26 documents (which included government documents, review articles, indicator compilations, indicator sets recommended by academics or non-governmental organizations and research papers). The review aimed to identify performance and quality indicators for use in maternity-care systems serving northern and/or Indigenous populations. None of the health-system performance-measurement frameworks were shaped by the circumpolar context. The review extracted 81 different health indicators, which mainly focused on healthcare effectiveness and health outcomes, rather than patient safety, accessibility, health-system responsiveness or healthcare costs. Indicators were classified according to a modified version of the Organisation for Economic Cooperation and Development (OECD) health-systems framework (domains included health outcomes, effectiveness, determinants of health, responsiveness, accessibility, expenditure and safety). The review concluded that although some effort has been made to develop Indigenous performance-measurement frameworks, there is a lack of research on contextually specific performance measurements in circumpolar regions. This review focuses on pregnancy, birth and the immediate post-partum and neonatal periods. Authors were unable to contact individual institutions for lists of internally reported indicators	2015	6/9 (AMSTAR rating from McMaster Health Forum)	9/26
Exploring the use of a matrix approach to primary-care performance measurement and reporting (18)	This scoping review found that seven of 11 countries examined had national initiatives in the form of primary-care performance measurement or reporting. This review aimed to develop a matrix to guide primary-care performance measurement and reporting in Canada. The review identified that there was a gap between primary-care performance-measurement frameworks in the literature and primary-care performance measurement and reporting in practice. The review found that there was currently no analytical approach that could act as a foundation for a regional-level primary-care reporting system. The review concluded that performance measurement and reporting should follow a matrix approach to performance measurement. This matrix would incorporate the measurement of identified patient population segments that represent specific primary-care needs (established by groups that capture a majority of people who interact with primary care, groups that have a certain level of need for primary care, groups that have homogenous priorities, groups that are mutually exclusive, groups who are large enough to enable comparison, and groups who can be tracked longitudinally; for example, 'healthy', 'at risk for a chronic condition', 'one chronic condition', 'multiple chronic conditions' and 'advance complex chronic conditions'), with performance domains representing high-quality primary care (covering the areas	2016	4/9 (AMSTAR rating from McMaster Health Forum)	2/14

	of access, comprehensiveness, continuity, coordination, effectiveness, efficiency, equity, person centredness, safety, service use and cost). The proposed matrix for primary-care performance measurement fills a gap where there is a lack of regional planning based on healthcare needs of populations. The review suggests that although the age of populations might be a popular way to organize funding, a more nuanced approach that groups patients according to complexity may be a more useful way to understand the performance of primary care and other parts of the healthcare system. However, the review acknowledges that it will be challenging to avoid selecting and reporting measures based on what is easiest to measure given data availability and historically popular metrics.			
Examining the impact of the public release of performance data on healthcare behaviour (23)	This review aimed to estimate the effects of public release of performance data on changing the healthcare-utilization behaviour of healthcare consumers, providers, and purchasers of care, and identified 12 relevant studies. The review found that public release of performance data makes little to no difference to healthcare utilization by healthcare consumers or providers, or to provider performance. There was low-quality evidence to suggest that public release of performance data may marginally improve patient outcomes, specifically with disadvantaged populations. The review noted that the evidence varied substantially in terms of setting, health condition, type of performance data (e.g., process or patient outcome), the mode of data publication (e.g., mail-out information or poster) and their reporting of findings.	2017	9/10 (AMSTAR rating from McMaster Health Forum)	1/12
Assessing health-system performance assessment in low-income countries (13)	This review aimed to develop a set of attributes for a health-system performance-assessment framework in low-income countries, specifically for Uganda. An expert group was used to contextualize framework attributes. The review found six key attributes for a health-system performance-assessment framework: 1) an inclusive development process of the framework; 2) embedding the framework in a specified health system; 3) relating the framework to current policy, organizational structures and societal contexts; 4) ensuring the framework has a defined purpose, dimensions and indicators; 5) supporting the framework with institutional resources (technical, financial and human) that allow for performance assessment; and; 6) providing clear mechanisms for eliciting change in the health system. Differences between how high-, low- or middle-income countries develop health-system performance frameworks may be subtle, although important. Differences may relate to governance, literacy, empowerment, and public expectation. A limitation of this review was that internet searches to source grey literature on frameworks could introduce bias.	2013	1/9 (AMSTAR rating from McMaster Health Forum)	4/44
Examining the impact of public reporting on	This review examined the impact of public reporting on clinical outcomes, and included 27 studies. The review found that the effect of public reporting on clinical outcomes was generally positive. Most studies included in the review were at the hospital level and focused on mortality rates and cardiac	2014	8/11 (AMSTAR rating from McMaster	1/27

clinical outcomes (26)	procedures. Ten studies found that mortality rates decreased after public reporting, while nine studies did not find a significant link. The review concluded that introduction of public reporting programs in the healthcare sector may be an effective public-health strategy to improve healthcare quality. The public release of hospital performance data has been recommended as a key strategy for stimulating care quality by focusing on transparency and accountability. In addition, the review suggests that public reporting may be expected to stimulate patient participation in informed choices regarding their healthcare. As opposed to the studies performed in the hospital setting, little information is available regarding the effectiveness of public reporting in primary-care settings. In addition, differences in starting levels of quality between different hospitals may be a source of heterogeneity. Technological improvement running parallel to the adoption of the public reporting may have confounded the results of several studies.		Health Forum)	
Exploring the public release of performance data to change the behaviour of healthcare consumers, professionals and organizations (25)	This review aimed to determine the effectiveness of the public release of performance data in changing the behaviour of healthcare consumers, professionals and organizations. Four studies were included containing more than 35,000 consumers and 1,560 hospitals. The review found a limited body of evidence which showed no consistent data that the public release of performance data changed consumer behaviour or improved care. Evidence was limited in whether public release of performance data has an impact on the behaviour of health professionals or organizations. Although the overall quality of evidence was low, the authors cannot exclude the possibility of having missed relevant studies.	2011	8/9 (AMSTAR rating from McMaster Health Forum)	1/4
Reviewing initiatives to benchmark facilities providing healthcare (28)	This review examined 38 peer reviewed articles and 11 documents from the grey literature that aimed to examine benchmarking projects of health facilities. The review specifically examined the rationales for the projects, the motivation for health facilities, the indicators used, and the success factors linked to the projects. The study found 23 different benchmarking projects which used a range of structures, processes and indicators. For several projects there was a financial incentive to participate. Most projects reported positive impacts, which included practice improvements, guideline adoption, and increased communication. These success factors were linked to the process of benchmarking, which facilitated meeting and communicating, and the indicators used (focus on diagnostic-related groups). The review concludes that policymakers and program coordinators who want to develop benchmarking projects can learn from the lessons of previous implementers. The evidence on the impact of benchmarking to yield best practice was limited.	2015	4/9 (AMSTAR rating from McMaster Health Forum)	Not available

Appendix 2: Summary of findings from primary studies about features of approaches for analysis of and reporting about health-system performance

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
Hospitals' internal accountability (19)	*Publication date:* 2014 *Jurisdiction studied:* Ontario, Canada *Methods used:* Qualitative case study	Staff at Ontario acute-care hospitals	Surveys and interviews of hospital administrators	The study aimed to explore the dimensions of accountability captured and not captured in acute-care hospitals in Ontario, Canada. The overall survey response rate of hospital administrators was 45.7%, while the response rate for interviews was 100%. Internal hospital reporting was found to align with external reporting requirements. Hospitals internally employed tools (e.g., balanced scorecards, reporting dashboards) to present organizational goals, and data were routinely monitored by management. The reporting tools reflected performance measures outlined in the hospital-service accountability agreement (H-SAA) and annual QIPs. The paper found that organizational foci aligned with external accountabilities such as external reporting accountabilities and funding. The most dominant dimensions of hospital accountability reported were financial performance and quality performance. Both dimensions affected internal and external reporting. The internal reports of hospitals commonly included performance measures that were mandated in external reports. Findings also show that the same performance measure was being reported to different bodies (e.g., Ontario Hospital Association, LHINs) using different methodologies to two or more agencies (e.g., MOHLTC, LHIN, HQO, etc.) commonly. Survey results indicate that respondents suggested implementing process maps for data collection to increase understanding of how and where data flowed within the system and determine whether efficiencies in reporting could be introduced. It was found that while many saw reporting as valuable, a number of barriers were cited with their current reporting mechanisms. Insufficient resources, including prevalent manual data capture and reporting, and a lack of sophisticated tools/technology, were reported by 58% of respondents. Staff also felt that hospitals tended to focus on outcomes with high measurability. Specifically, 53% of respondents indicated that current reporting requirements were missing data on valuable cross-system accountability and performance measures.
Approaches to accountability in long-term care (37)	*Publication date:* 2014 *Jurisdiction studied:* Ontario, Canada	Focus group of eight key informants from Ontario LTC industry	Focus group discussion and paper, and review of all current regulations of	The paper studies the different approaches to accountability in Ontario long-term care (LTC) homes. Since the implementation of LHINs in 2006, some of the responsibility for managing accountability agreements, particularly agreements with regional bodies (e.g., hospitals), were transferred over.

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	Methods used: Qualitative		relevance to the LTC sector	Three of the four approaches to accountability that are prominent in healthcare were found with prominence in the LTC sector, including financial incentives and oversight, regulation, and provision of information/reporting. Professionalism had a smaller emphasis on accountability, partly because LTC relies heavily on non-regulated providers. Measurements for accountability typically encompassed a range of fiscal, clinical and public accountability mechanisms. Control over accountability is dispersed. While regulations are standardized and enacted by the MOHLTC, enforcement through compliance and inspections are conducted by LHINs. Financial accountability and accountability for inspection findings are included within three-year service-agreement contracts (L-SAAs). Public reporting became mandatory by Health Quality Ontario (HQO) in 2013. Accreditation by Accreditation Canada is voluntary. While measurability of such accountability outcomes remain somewhat problematic, it has been improved with comprehensive clinical information and public reporting.
Primary-healthcare (PHC) performance reporting across Canada under the action plan for health-system renewal (31)	*Publication date:* 2016 *Jurisdiction studied:* Canada *Methods used:* Qualitative	Canadians	Scoping review of PHC performance reporting in Canada	The paper reviews the state of primary-healthcare performance reporting after the public reporting mandate agreed to under the Action Plan for Health System Renewal of 2003. The plan aimed to provide annual comprehensive public reporting to Canadians using agreed-upon indicators of health status, outcomes and service quality. A search of governmental and independent reporting bodies across Canada indicated that none of the provinces, nor the federal government, met their performance-reporting obligations. Seven of the 10 provinces reported at least once on one of the performance measures of the PHC system. Manitoba reported one performance indicator (until 2012 when it incorporated an additional six), British Columbia reported two, while Newfoundland and Labrador, Nova Scotia, Prince Edward Island and Saskatchewan reported on zero of their primary-healthcare systems between 2008 and 2012. A range of different indicators were used to report on a single attribute. For example, the most commonly reported attribute, access to care, was reported on via percentage of patients, patient-reported perception of access, and wait times. Other common attributes included care coordination and collaboration and interpersonal communication.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				Different strategies were used by the provinces for data collection, but many used a combination of provincial administrative databases and surveys with national surveys.
Public-health accountability policies (38)	*Publication date:* 2014 *Jurisdiction studied:* Ontario, Canada *Methods used:* Qualitative	Health staff including medical officers and public-health managers	Key informant interviews, web-based survey of medical officers, web-based accountability survey of public-health unit managers	The paper investigates how challenges related to governance and funding arrangements in addressing accountability in health boards are addressed. Findings suggest that while senior and middle management are open to accountability measures by the MOHLTC, they are more oriented to local boards of health and local/regional boards. They find internal accountability systems more helpful for performance improvement than the MOHLTC system, the latter perceived as compliance oriented. Categorized as hybrid public-sector organizations, public-health units (PHUs) balance between multiple health professional associations and multiple accountabilities. Results from the surveys and interviews indicate that PHU management perceive only three formal accountability holders to be of significance: local health boards, municipal/regional boards and MOHLTC. Several potential accountability mechanisms for public-health units exist, including legal channels, performance audit, performance reporting and performance management. When asked about perceived issues of accountability, the majority of respondents responded with little worry. A total of 2% believed that abuse of funds was common or very common, while 8% perceived preferential treatment of friends and family to be common or very common. A large number of respondents reported high uncertainty in the section of inspector and evaluator perception, indicating they were unsure whether they were purposefully looking for various accountability issues. While there was satisfaction with the new accountability system, there was also considerable skepticism. Difficulties were identified in determining meaningful indicators. There were views that the accountability system was more to ensure bureaucratic compliance than to improve performance and population health. The paper finds that there are considerable challenges to holding public-health units accountable.
Citizen perspectives on the use of publicly reported primary-care	*Publication date:* 2019 *Jurisdiction studied:* Canada	56 citizen/patients aged 18 and older who participated in a waiting room patient-experience	Citizen/patient panel dialogues in three Canadian provinces	The paper focuses on analysing the reports from citizen/patient dialogues in three Canadian provinces (British Columbia, Ontario and Nova Scotia) regarding citizen perspectives on the use of publicly reported primary-care performance information.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
performance information (16)	*Methods used:* Qualitative	survey at a primary care =practice		Common uses for primary-care performance information were found, including to support collective health-system decisions, strategic decisions about health services, and policy. Participants often reported using such information for community advocacy (advocating for better primary care in their community) and participation in health-system decision-making. Public reporting was found to be a potentially effective way to enable/empower public engagement in decision-making at the community level and promote a health system's responsiveness. A common theme that emerged among the dialogue sessions was the value of public performance reporting in enhancing trust. This finding, rather than empowering patient choice, may reflect unique elements of the Canadian health system's context. Participants reported a greater motivation to hold their elected representatives accountable when knowing the performance information of their region compared to other regions. A contrasting perspective was that some felt public performance reporting might make some communities more vulnerable. Multiple participants also expressed that they would trust their own positive experiences over published reports of poor performance for their provider, discounting such circumstances for patient factors. A few participants suggested that they might lack the skills to understand public reports. Each region reported similar barriers for using performance information as a way to choose a primary-care provider, including the perceived lack of choice of providers and the high value placed on relationships with current providers.
Home and community-care sector accountability (39)	*Publication date:* 2014 *Jurisdiction studied:* Ontario, Canada *Methods used:* Qualitative	Representatives from urban and rural community care agencies in Ontario	Semi-structured key informant interviews	The paper focuses on investigating the accountability for the home and community-care (HCC) sector in Ontario. The heterogenous nature of the HCC sector with its many service-delivery approaches, funding methods and number of involved organizations means it faces multiple accountability requirements from varying stakeholders. To examine the accountability mechanisms of the HCC sector, the paper draws on Doern and Phidd's model of five policy instruments: self-regulation, exhortation, expenditure, regulation and public ownership. Accountability for service delivery typically lies on regulatory (e.g., government legislation, social regulations, etc.) and expenditure instruments. Findings from semi-structured key informant interviews indicate that these expenditure-based accountability tools create a number of positive and negative unintended consequences, including an increased organizational focus on quality, shifting care time away from clients (especially for small agencies), dissuading innovation, and

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				poor reliance on performance indicators (e.g., heavy focus on process indicators and exclusion of outcome measures). While expenditure tools can directly hold HCC agencies accountable for service delivery, they have poor measurability and low observability of the sector. The delivery of HCC services are more tightly controlled when agencies are receiving government funding. Findings also suggest that while performance reporting strengthens financial accountability, they are supported well for the purposes of performance and political accountability.
Hospital accountability for community benefit (32)	*Publication date:* 2016 *Jurisdiction studied:* Canada *Methods used:* Qualitative	Canadians	A modified community-health needs assessment (CHNA) and community benefit program in Canada	With the "accountability for community benefit" required under the Patient Protection and Affordable Care Act, 3,000 non-profit hospitals in the United States now regularly assess the health status of the community and are held accountable for addressing health needs. These non-profit hospitals must conduct a Community Health Needs Assessment (CHNA) at least every three years to remain exempt from federal taxes. The paper explores whether a modified version of such accountability mechanisms would be beneficial in the Canadian context. Ontario hospitals are currently held accountable for financial performance, service volumes, quality and patient safety. However, evidence indicates that these accountabilities may have little upstream effects on the determinants of health. Canadian hospitals can better address community health needs by increasing public-health service delivery, using a population health lens in decision-making, and increasing collaboration with non-health-sector stakeholders. Such actions rely on hospitals voluntarily allocating resources toward activities that are not currently being held accountable. The paper proposes several modifications to the CHNA and community-benefit (CB) program if adapted in Canada. There should be a revision of the definition of 'community benefit' to focus on specific, evidence-based prevention and health-promotion activities. The role of population health in community benefit should be clarified. CHNA and community-benefit requirements should be included in existing accountability frameworks, rather than as requirements for tax-exemption. Transparency should play a central role to support accountability. It should be made explicit that CHNA and community-benefit requirements are for hospitals. An effective accountability program will be able to inform hospital planning and resource decision-making, as well as justify allocation of hospital resources (e.g., toward prevention rather than treatment). Implementation may face barriers such as resource constraints.

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Public-performance reporting and hospital choice (24)	*Publication date:* 2018 *Jurisdiction studied:* Australia *Methods used:* Qualitative	Private patients with breast, bowel or lung cancer who attended a public or private hospital for elective surgery in 2016	National cross-sectional postal questionnaire	This cross-sectional study examines public performance reporting and hospital choice of patients undergoing cancer surgery in the Australian private healthcare sector. Public performance reporting (PPR) is mandatory for Australian public hospitals, but voluntary for private hospitals. Public performance reporting was not found to play an influencing role on choice of hospital. A total of 92% of respondents were not aware of public performance-reporting information. Of those who were aware, 57% considered it to be of little importance in their choice of hospital. Factors that did have an impact on their hospital selection were specialists (90%), followed by reputation of the hospital (24%). Barriers impeding the use of public performance reporting include a lack of awareness and lack of information relevance. However, public performance reporting was found to be important for their or their family member's future choice of hospital. Areas identified as important focal points in public performance reports include surgery costs (59%), complications (58%) and recovery success rates (57%). Almost half of the respondents reported that quality indicators should be reported at the individual clinical level. A total of 71% of respondents indicated public performance reporting to be important, but preferred the information to be provided by their general practitioners rather than reading the information themselves. The paper proposes that it may be useful to use personalized and integrated information on cost and quality of hospitals in public reporting.
Regional variation in primary-care improvement strategies and policy (40)	*Publication date:* 2019 *Jurisdiction studied:* Canada *Methods used:* Qualitative	Focus groups of recruited patients, clinicians and other health professionals	Multiple comparative embedded case study	The paper investigates qualitative contextual data for performance measurement from case studies in three Canadian provinces (British Columbia, Ontario, Nova Scotia) to examine regional variation in primary-care improvement strategies and policies. Six primary-care improvement strategies were implemented in all three regions: interprofessional team-based approaches, provider skill-mix expansion, physician groups and networks, information systems, remuneration and performance measurement, and reporting infrastructure. National initiatives (e.g., Canadian Institute for Health Information, Statistics Canada) provide limited data on primary care. Ontario is the only province of the three to have an organization dedicated to performance measurement across health systems, Health Quality Ontario. Ontario has implemented provincial accountability

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				strategies such as the Excellent Care for All Act and the Primary Care Performance-measurement framework for Ontario. Family physicians in Ontario can also opt to receive quality-indicator reports (from administrative data) and annual performance-overview reports. Little investment in performance measurement has been made in British Columbia. Improvement initiatives in British Columbia have focused on physicians' concerns with family practice, services in rural communities and clinician learning modules. The Department of Health and Wellness and the Nova Scotia Health Authority are the central policy drivers of performance improvement in Nova Scotia. Little focus has been placed on measuring and supplying data.
A performance-monitoring framework for health-research systems (33)	*Publication date:* 2011 *Jurisdiction studied:* England *Methods used:* Qualitative	Senior health-research system managers and practitioners	A hybrid, conceptual framework for defining performance indicators	The paper explores the development of a novel performance-monitoring framework for health-research systems for the National Institute for Health Research (NIHR) in England. The framework is based on a hybridization of the logic model and balanced scorecard approaches. Its aim is to monitor performance and link early indicators of performance with longer-term research impacts. The framework was received with satisfaction from senior health-research system managers and practitioners. The conceptual framework defined performance indicators that are aligned with the strategic aims of a health-research system.
Population segments as a tool for healthcare-performance reporting (34)	*Publication date:* 2020 *Jurisdiction studied:* British Columbia, Canada *Methods used:* Qualitative	Participants aged 18 years or older	Cross-sectional study	The exploratory study assesses population segments as a tool to create distinct patient groups for healthcare-performance reporting in British Columbia, Canada. Population segments at the practice level largely mirrored the overall picture with most primary-care physicians having accurate patient distributions across population segments. Mean healthcare costs (e.g., hospital costs, physician visits, ED visits, prescriptions) per person ranged from $1,460 in the low-need segment to $10,798 in the frail segment. These findings suggest that in terms of overall healthcare costs, population segmentation creates clear, distinct patient groups. Population segments may assist in the understanding of variations in practice-level costs and patterns of care.
A critique of the Uganda district league table using a normative health-system performance	*Publication date:* 2018 *Jurisdiction studied:* Uganda	Key informants from the Ugandan health system and grey literature	A review of the Ugandan Ministry of Health's District League Table (DLT) to track district health performance	This paper reviews the Ugandan Ministry of Health's District League Table (DLT) to track district health performance in order to add to the evidence base on Health Systems Performance Assessments (HSPAs) around the world. The review found limited stakeholder involvement in the development of the DLT and there was no conceptual reference model or clarity on constitutive dimensions.

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assessment framework (35)	*Methods used:* Mixed methods			Although the DLT's objectives and indicators were described, mechanisms for change were not articulated. The DLT compared significantly different districts and failed to describe the factors constituting observed performance. Adjustments could be made in the following areas: 1) wider stakeholder involvement with district technical, political and administrative managers, researchers, and representatives of various entities that collect and use data; 2) more focus on developing district health-system performance assessments with data that justifies its use to promote buy-in; 3) clearly situating the DLT in the wider national health system and HSPA framework that recognizes social determinants of health; 4) district health-system performance assessments should be adjusted to the context that it is in, not automatically assuming similar approaches to priority setting, management of resources and performance assessment; 5) the DLT should emphasize the collection, analysis and use of data for decision-making at the district level; 6) develop mechanisms for providing accountability to the communities that are served (downward accountability); 7) a conceptual model should be elaborated for Uganda district HSPA clearly linking it with the broader health system, and highlighting dimensions and sub-dimensions; 8) an explicit unit should be designated in the Ugandan health system to support district HSPA across the country; 9) system-wide data quality assessments should be held regularly; 10) additional approaches to analyze district HSPA data be sought (for example hierarchical cluster analysis (HCA) can be used to group districts with similarities, and provide a compromise position between the overly summarized DLT rank and detailed data on all districts and several indicators); and 11) the primary objective of reporting this information should be to influence decision-making improvements in health-services delivery
Performance measurement in healthcare organizations in Quebec (21)	*Publication date:* 2016 *Jurisdiction studied:* Quebec, Canada *Methods used:* Qualitative	Official publications and fieldwork based on 13 semi-directed interviews with key informants on performance measurement in the Quebec healthcare system	N/A	This article investigates how Quebec actors pursue coherence in performance measurement, examining key issues in a relatively fragmented process. The underlying institutional issues that affect performance measurement within healthcare organizations is relatively unexplored. The article identified four types of "power plays" in performance measurement: 1) choice of a performance-measurement model (influenced by fights over the selection of a legitimate model, the development of "in-house" systems, and key actors all selecting the same model); 2) selection of a series of indicators for performance appraisal (influenced by tensions around the perimeters of the indicators, expanding financial indicators, political use of indicators, and district preferences in contrast to comprehensive lists selected by external parties); 3) evidence-based construction of indicators (influenced by rhetoric about complexity,

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				arguments over the "quality of the existing data" as a tactic to delay a current approach, and reliance on the DOH's internal experts to the detriment of external experts in academic research); and 4) access to the data and the various information systems needed to calculate performance indicators (influenced by the control and sharing of databases and the rivalries over combining databases to analyze care pathways).
Frameworks for health-systems performance assessment (36)	*Publication date:* 2020 *Jurisdiction studied:* Ghana *Methods used:* Secondary data analysis	A combination of literature searches, unpublished Ghana Ministry of Health documents and descriptive statistics were used	N/A	This paper examines Ghana's health-system assessment framework called the Holistic Assessment Tool (HAT) in comparison to other frameworks globally. Trends in the performance of the health system were also examined to assess whether the adoption of the Holistic Assessment Tool led to any improvement. The paper found although the HAT was useful for evaluating health-system performance in several domains, it did not cover key health-system areas such as information systems for health, access to essential medicines, and patient-centredness. However, health-system improvements were recorded in several population health indicators. The tool will need further refinement in both scope and robustness.
Systematic approach to evaluating and confirming the utility of a suite of national health-system performance indicators in Canada (12)	*Publication date:* 2017 *Jurisdiction studied:* Canada *Methods used:* Mixed methods	73 participants, comprised of 61 conference attendants/stakeholders from across Canada and 12 national health information steward staff	Following CIHI's approach to evaluating a set of HSP indicators using a systematic criteria-based assessment tool and process	This study aimed to examine a set of health-system performance (HSP) indicators for reporting using a systematic criteria-based assessment and national consensus conference. The review indicated that their approach to evaluate and confirm HSP indicators proved to be an informative, objective, systematic, transparent, inclusive and likely repeatable process. Overall, the approach of using a set of 18 sub-criteria was manageable. The timeline of the evaluation process was 18 months. Three distinct phases were: initial R&D of the evaluation plan; executing the evaluation internally at CIHI; and achieving consensus across stakeholders. The study concluded that although the overall evaluation process required considerable time and resources, there were important benefits to this comprehensive approach to evaluation of HSP indicators.
Keys to successful implementation of a French national quality indicator in	*Publication date:* 2016 *Jurisdiction studied:* France *Methods used:*	Seven case studies of French Health Care Organizations and 37 interviews of staff involved in	N/A	The study acknowledges that a prerequisite to quality improvement is successful local quality indicator (QI) implementation. The aim of this study was to explore the pathway that a QI of the French national public reporting system, (quality of the anesthesia file (QAF)), was put into practice.

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healthcare organizations (11)	Mixed methods of ethnography and interviews	quality of anesthesia file (QAF)		The study found that a large proportion of QAF users were unaware of the quality data. Three intertwined factors were found to influence QAF implementation by anesthesia teams. First was clinical managers helping translate policy into practice by highlighting the scientific evidence, achieving consensus within their team and emphasizing the value of QAF. The other two factors related to the coherence of the information system and the quality of relationships within the department. Overall, the study concluded that although policy tends to focus on the validity and ranking of quality indicators, they often overlook implementation considerations. Local managerial activity and team morale are key considerations.
Role of performance information in securing improvement in healthcare (22)	*Publication date:* 2017 *Jurisdiction studied:* Multiple *Methods used:* Framework synthesis	Academic theories and frameworks were examined	A synthesis of published frameworks	The study acknowledges that there is limited agreement about how measurement and reporting performance improves healthcare. This paper aimed to develop a conceptual framework that can be leveraged by healthcare-performance information. The framework proposed by the study identifies eight levers for change: (1) Cognitive levers: awareness and understanding; (2) Mimetic levers: performance of others encourages emulation; (3) Supportive levers: implementation tools and models of care; (4) Formative levers: skill development through teaching and feedback; (5) Normative levers: set performance against guidelines, standards, etc.; (6) Coercive levers: use policies, regulations and disincentives; (7) Structural levers: physical environment or professional cultures; and (8) Competitive levers: attract patients or funders. The study concluded that this framework can help highlight how performance measurement and reporting can contribute to levers for change/impact.
Comparative analysis of health-system frameworks and performance indicators in eight countries (17)	*Publication date:* 2017 *Jurisdictions studied:* Australia, Canada, Denmark, England, the Netherlands, New Zealand,	Frameworks and performance indicators for quality of healthcare in Australia, Canada, Denmark, England, the Netherlands, New Zealand, Scotland	Identification of comparable international indicators and analyses of their characteristics and of their broader national frameworks and contexts	This study identifies and compares frameworks and performance indicators used in selected organizations and health systems to measure and report on the performance of healthcare organizations and local health systems. The most commonly used domains in performance frameworks were safety, effectiveness and access. The search found 401 indicators that fulfilled the 'nationally consistent and locally relevant' criteria. Of these, 45 indicators are reported in more than one country. Cardiovascular, surgery and mental health were the most frequently reported disease groups.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	Scotland and the United States *Methods used:* Mixed methods	and the United States		These comparative data inform researchers and policymakers internationally when designing health-performance frameworks and indicator sets.
Understanding the context of balanced scorecard implementation (20)	*Publication date:* 2011 *Jurisdiction studied:* Pakistan *Methods used:* Case study	Four clinical units of a Pakistan hospital that were involved in the implementation of a balanced scorecard (BSC)	Implementation of the BSC to improve hospital performance included familiarizing units with the BSC and developing speciality specific scores and reporting. Data collection included an assessment questionnaire and key informant interviews.	This study aimed to explore the contextual elements related to balanced scorecard (BSC) implementation in a Pakistani hospital. The study found that culture, leadership, financial incentives, non-financial incentives, clear directions, resources, and routinized activities were positive attributes for BSC implementation. Role clarification and consensus about the purpose and benefits of the BSC were noted as key strategies for overcoming implementation barriers. Participants emphasized that BSC would more readily be adopted if it was built on existing infrastructure and networks rather than replacing systems all together. The study concluded that variable levels of BSC implementation were observed, but noted key facilitators and barriers to implementation across units.

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