

# Safety and Quality Reporting at a Board Level

Environmental Scan

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# Contents

Executive summary .....	5
1 Introduction .....	7
2 Methods.....	8
2.1 Scope .....	8
2.2 Guiding questions.....	8
2.3 Search strategy .....	9
3 International landscape .....	10
3.1 Canada .....	10
3.2 The UK.....	20
3.3 Other countries.....	23
4 Australian landscape.....	27
4.1 Australian national guidelines .....	28
4.2 Western Australia .....	36
4.3 New South Wales .....	38
4.4 Queensland.....	39
4.5 South Australia .....	40
4.6 Victoria.....	41
5 Discussion .....	43
5.1 International guidelines and frameworks .....	43
5.2 Australian guidelines and frameworks.....	44
5.3 The experience of identifying measures and indicators .....	44
6 Conclusion.....	47
7 Appendix A – International examples .....	48
8 Appendix B – Australian examples .....	54
9 References .....	67

# Figures

Figure 3.1 Big dot categories employed by SJHH.....	13
Figure 3.2 Toronto Central LHIN: Example of system and sector-specific indicators alignment .	15
Figure 3.3 Snapshot of CIHI indicator library .....	18
Figure 3.4 The Hospital Harm Measure and associated sub-measures .....	19
Figure 3.5 Five dimensions of the five-question framework .....	21
Figure 3.6 CMH’s system level measures across the continuum of care (adapted from WSM) ..	24
Figure 3.7 DUQuE conceptual framework .....	25
Figure 3.8 AHRQ’s Patient Safety Indicators at provider level and area level.....	26
Figure 4.1 Roles and responsibilities of the governing body in a health service organisation ....	28
Figure 4.2 NSQHS Standards 1 <sup>st</sup> edition.....	29
Figure 4.3 NSQHS Standards 2 <sup>nd</sup> edition .....	31
Figure 4.4 Five-question framework for governing bodies .....	32
Figure 7.1 CIHI’s Health System Performance Measurement Framework.....	48
Figure 7.2 The quality indicator development process example.....	52
Figure 7.3 Quality indicator standardised information sheet example.....	52

# Tables

Table 3.1 The original Whole System Measures.....	11
Table 3.2 Whole System Measures 2.0.....	11
Table 3.3 SJHH’s big dot categories and associated indicators .....	13
Table 3.4 Criteria for the selection of big dot indicators at Toronto Central LHIN .....	14
Table 3.5 Big dots and associated indicators at <i>Hospital</i> sector at Toronto Central LHIN.....	16
Table 3.6 Framework and performance indicators reported by CEHQ.....	17
Table 4.1 Information checklist suggested in User Guide for Governing Bodies 2019 .....	33
Table 7.1 Dimensions of the CIHI Hospital Performance Framework and examples of indicators .....	48
Table 7.2 Gold standards for performance on 15 system level measures at CMH New Zealand	53
Table 8.1 PAF Indicators for hospitals.....	54
Table 8.2 CHBOI indicators .....	55
Table 8.3 Hospital Acquired Complications .....	56
Table 8.4 Australian sentinel events list (version 2) .....	57
Table 8.5 Top 20 indicators as voted by Clinical Senators.....	58
Table 8.6 Top three clinician-voted clinical indicators in the six domains of quality .....	60
Table 8.7 Indicators in BHI report: Healthcare in Focus 2016 .....	62
Table 8.8 Examples of indicators employed in Queensland.....	65

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# Executive summary

The Victorian Agency for Health Information (VAHI) produces a Board Safety and Quality Report (BSQR) to support healthcare service leaders and boards in understanding comparative performance in order to drive improvement, identify priorities for improving safety and quality, and promote efficiency in the provision of services.

VAHI is undertaking a project to redesign their BSQR based on a proposed new framework to better align with clinical governance domains and reduce duplication of information. VAHI has engaged CSIRO to conduct an environmental scan to inform this redesign process. This document presents the findings of the environmental scan.

The search strategy for the environmental scan is informed by a series of guiding questions and explores the frameworks developed to guide the reporting of safety and quality, associated methods and strategies for the development or selection of indicators and the resulting strategic measures chosen for reporting at a board level. It also explores challenges faced and lessons learnt as part of undertaking such an activity. The search has focused on board-level reporting and a series of PubMed and general Internet searches to collect publications and articles of interest. The international and Australian landscapes are discussed, and, in each instance, we discuss the key frameworks and the journey of health services in adopting the chosen paths to redefine their board reporting.

To summarise, we highlight the following key insights from the environmental scan that might be useful in the context of BSQR redesign:

- Two frameworks have figured prominently in the environmental scan. The Whole System Measures framework introduced the concept of strategic “Big Dot” measures linked downstream to measurable processes and outcome indicators at the program or unit level. This was widely adopted across Canada and by a digital health board in New Zealand. The Measurement and Monitoring of Safety Framework, popularly known as the five-question framework, is also significant as it was adopted by the Australian Commission on Safety and Quality in Health Care in developing the National Safety and Quality Health Services (NSQHS) Standards User Guide for Governing Bodies 2019.
- The experience shared by the organisations that have adopted the abovementioned and other approaches to define strategic reporting for their governing boards provides a good understanding of their journeys, the challenges faced, the strategies adopted, the measures chosen, and the lessons learnt. These can provide invaluable insights for this redesign project.
- There is a considerable convergence on the reported frameworks and implementation approaches, most of which share core elements such as efficiency, access, effectiveness, safety and patient-centredness. However, when implementing conceptual frameworks, reaching a consensus on the specific indicators that fit within the framework while still representing the organisations’ strategic objectives is the most difficult part, requiring a great deal of effort to coordinate multiple stakeholders’ opinions.

In conclusion, shortlisting a handful of measures that can describe the entire system out of the unmanageable plethora of safety and quality indicators is challenging, both theoretically and practically. A good solution needs to combine both top-down and bottom-up consultations and must ensure the following steps are followed: designing a strategic framework beforehand; identifying measurable outcomes that can be linked to strategic objectives; selecting indicators through both patients' eyes and clinicians' inputs; prioritising measures that are not overly complex; building strong engagements with stakeholders; and providing ongoing training for boards.



# 1 Introduction

The Victorian Agency for Health Information (VAHI) is an organisation set up for sharing the safety and quality performance of public and private health services in Victoria. VAHI plays an integral role in collecting and reporting safety and performance information for the purposes of oversight and improvement. VAHI produces a suite of reports to meet the specific needs of different audiences in health services and the Victorian community.<sup>1</sup>

Recently, VAHI commissioned a redesign activity to reform their Board Safety and Quality Report (BSQR) to better target information to the role and information needs of the health services board audience. In collaboration with Safer Care Victoria (SCV), VAHI has proposed a new framework which underpins the structure and content for the new BSQR report. This framework will ensure the new BSQR structure is aligned with the clinical governance domains by targeting key clinical governance questions and focusing on strategic level measures. The themes captured in the new framework also present the opportunity to include new measures that are not in the current set of reported measures.

As part of this redesign activity, VAHI is keen to capture and understand the experience of other health services that have undertaken similar activities and share this knowledge with the Expert Advisory Group (EAG) that is providing stewardship of this redesign activity. CSIRO has been engaged by VAHI to undertake an environmental scan that reviews available literature and other information in the national and international context, collates information about available frameworks and measures, and details the implementation journey and experience of the health services, within the context of their individual health systems. Strategic focus areas identified by VAHI include work done in Canada to establish “Big Dot” system level measures, and recent work in Western Australia that relied on clinician input to pick strategic measures of interest.

This report presents the findings from the environmental scan. The aim of this activity is not to suggest the best framework or candidate metrics for the redesign of BSQR. We explore the international and Australian landscapes and present an overview of the frameworks and associated guidelines that have been developed for safety and quality performance measurement, reporting at a board level, and quality improvement. We discuss details of how health services in Australia and overseas have adopted these frameworks and guidelines, and list the strategic measures they have identified as part of this process. Where available, we highlight the challenges they faced as part of this effort, how they overcame these challenges, and the lessons they learnt along the way.

## 2 Methods

The aim of the environmental scan is to explore related work reported at the international and Australian levels on performance frameworks and selections of safety and quality measures to support health service organisation boards in carrying out governance, strategic review and planning.

### 2.1 Scope

Healthcare performance, including safety and quality, can be monitored and reported at different levels of healthcare systems. Our initial broad search resulted in a large body of related work, discussing performance reporting at various health system levels (national, state, community, social, facility/service provider), and targeted at various audiences (public, consumers, boards, funding bodies, government, audit bodies etc.). Although some of these results provided useful insights on safety and quality, particularly on varied methodologies for developing frameworks and indicators, the focus on board-level reporting was significantly obscured.

The scope of this environmental scan was therefore limited to frameworks, strategies and methodologies which focus on board-level reporting, and related metrics. For jurisdictions where information related to board-level reporting was not available, the scope was expanded to explore the reporting of strategic outcome measures, which is often what health service boards are keen to focus on.

Key challenges faced when compiling the review were the differences in healthcare models, and definitions and measurements of metrics across various systems. This was especially significant when looking at international jurisdictions. Readers should therefore be aware that these differences in semantics must be carefully considered when comparing between metrics across various systems.

### 2.2 Guiding questions

The following questions were used to guide the search strategy based on the scope:

1. What frameworks have been used to guide the reporting of safety and quality?
2. What methods and strategies have been used for the development of indicators and for the alignment with frameworks?
3. What measures and indicators have been reported?
4. What challenges and lessons learnt have been discussed in these pieces of work?

## 2.3 Search strategy

### 2.3.1 PubMed search

We conducted a search of the PubMed database.

We first identified relevant medical subject headings (MeSH) by using the terms “safety” and “quality” (in substring) to search MeSH (<https://meshb.nlm.nih.gov/search>). After screening the terms, the following terms in MeSH were considered relevant: “patient safety”, “risk management”, “quality indicator, healthcare”, “healthcare quality assurance”, and “quality improvement”.

By using the MeSH terms identified, we searched the PubMed with a filter looking for a combination of the following terms in the Title/Abstract: “framework”, “board”, “measure”, “reporting” (for example, “measure”[Title/Abstract]) AND “board”[Title/Abstract]). We also limited our search to papers published in the last 10 years and in English. After checking, papers identified as relevant based on the scope of this review were read in detail.

### 2.3.2 General Internet search

The general Internet search employed a combination of the following search terms: “health”, “health care”, “performance”, “safety”, “quality”, “framework”, “indicator”, “measure”, “board” and “reporting”.

### 2.3.3 Other sources

For both the PubMed search and the general Internet search, a close look at the bibliographic lists of these search results also helped to identify additional publications and reports for consideration. In addition, we used information supplied by VAHI to identify organisations and reports of interest. Information from these was also included in the environmental scan.

## 3 International landscape

In presenting the international context, we start with work reported by organisations in Canada and the UK. Both countries have health systems that are very comparable to the Australian health system. In addition, several health services in Canada have adopted a board reporting model that employs a series of strategic “Big Dot” measures linked downstream to measurable processes and outcome indicators at the program or unit level. This is followed by a look at related work in a selection of other countries, noting that there are differences compared to the Australian health system.

In describing the presented work, we include specific examples that cover conceptual frameworks and approaches for assessing and monitoring safety, quality and performance at healthcare system levels. In most cases, limited information was available on specific indicator details, particularly on how some of these measures worked in a cascading framework. Most examples present conceptual models that have a dynamic nature and provide guidelines on how to align the frameworks for the leaders of hospitals and other sectors. As such, the research results presented in this section provide a broad landscape and cover experience from international cases where information is publicly available and where useful practical implications for hospital-level and board-level reporting can be drawn out.

### 3.1 Canada

The Canadian federal government has jurisdiction in specific aspects of healthcare, public health, health research and health data collection. Healthcare is mainly a provincial responsibility. Canada’s 10 provinces and three territories are responsible for providing coverage of hospital and physician medical services as well as access to other health services.<sup>2</sup>

The Canadian Patient Safety Institute (CPSI)<sup>3</sup> and Health Standards Organization (HSO)<sup>4</sup> play an important role in the field of healthcare performance, safety and quality.<sup>5</sup> There are also state-level organisations involved in this field, such as the Ontario Ministry of Health and Long-Term Care<sup>6</sup> and Health Quality Ontario<sup>7</sup>.

The Canadian Institute for Health Information (CIHI)<sup>8</sup> is an independent, not-for-profit organisation providing essential information on Canada's health systems and the health of Canadians. CIHI produces a broad range of health system information, measures, analysis and reports. It also works with the federal, provincial and territorial governments to develop indicators for assessing healthcare services.

In this section, we will first describe the “Whole System Measures”<sup>9,10</sup> which were developed by the Institute for Healthcare Improvement (IHI)<sup>11</sup> and have guided the selection of quality indicators for board level reporting in some Canadian health services. We then describe the details of these cases. Other conceptual frameworks for healthcare systems (e.g., CIHI’s framework) and related indicators which might be relevant to outcome measures are then presented. Other resources related to methodologies which might be useful are also briefly discussed.

### 3.1.1 IHI – Whole System Measures

IHI was originally founded in 1991 in the USA to provide research expertise in improvement science in healthcare and has footprints across the world. They have provided guidance on various topics in healthcare improvement, including measuring and monitoring quality, and mobilising health systems to reduce harm and deaths.

Whole System Measures (WSM) were developed by IHI in 2007<sup>9</sup> to provide specific guidance to healthcare system leaders and boards on how to measure overall system performance and use the data to inform organisational strategies. The original white paper was published in 2007 and “Whole System Measures 2.0: A Compass for Health System Leaders” was released in 2016.<sup>10</sup>

The original WSM covers a set of health system performance measures for evaluating the overall performance of a health system (Table 3.1). It has six dimensions of quality outlined by the Institute of Medicine (IOM): safe, effective, patient-centred, timely, efficient, and equitable.

**Table 3.1 The original Whole System Measures**

Whole System Measure	Dimension of Quality
1. Rate of Adverse Events	Safe
2. Incidence of Nonfatal Occupational Injuries and Illnesses	Safe
3. Hospital Standardised Mortality Ratio (HSMR)	Effective
4. Unadjusted Raw Mortality Percentage	Effective
5. Functional Health Outcomes Score	Effective
6. Hospital Readmission Percentage	Effective
7. Reliability of Core Measures	Effective
8. Patient Satisfaction with Care Score	Patient-Centred
9. Patient Experience Score	Patient-Centred
10. Days to Third Next Available Appointment	Timely
11. Hospital Days per Decedent During the Last Six Months of Life	Efficient
12. Health Care Cost per Capita	Efficient
13. Equity (Stratification of Whole System Measures)	Equitable

WSM 2.0 reflects the emerging trend of a shift from a focus on disease to a broader focus on health based on IHI’s Triple Aim (health, care, cost) subdomains. It has significant changes in “health” measures as compared to the original WSM. WSM 2.0 suggests that the scope for the measures should include regular users of a healthcare system as well as the people living in the communities that healthcare system also serves.

A set of 15 subdomain measures in three categories (population health, experience of care, per capita cost of care) are listed in WSM 2.0. The pools of measures include the “Vital Signs” report released by the Institute of Medicine<sup>12</sup> as well as the previous WSM.

Table 3.2 details the set of WSM 2.0’s 15 measures chosen to assess health system performance based on the Triple Aim.

**Table 3.2 Whole System Measures 2.0**

Subdomain	Measure
Individual Health	General health
Healthy Behaviours	Overweight/obesity
Healthy Behaviours	Optimal lifestyle metric
Community Wellbeing and Health	Social support
Equity	

Community Wellbeing and Health Equity	Disparities in infant mortality rate
Community Wellbeing and Health Equity	Disparities in high school graduation rate
Workforce Wellbeing (i.e., for the healthcare workforce)	Job satisfaction
Access	Timely ambulatory care
Prevention	Childhood immunisations
Safety	Hospital-acquired conditions
Safety	Serious reportable events (SREs)
Appropriateness and Effectiveness	Preventable hospitalisations
Patient-Centredness	Patient-clinician communication satisfaction
Affordability	Unmet healthcare needs
Societal Footprint	Healthcare cost per capita: Medicare reimbursement per enrollee per year

### 3.1.2 “Big dot” cases

Since the original WSM were developed, a number of health services and hospitals in Canada have followed the advice provided by IHI and IOM and employed the WSM guidelines to develop “big dot” measures to govern and monitor the performance of their health systems. Big dot indicators are whole system measures that address core processes or functions that patients expect the organisation to perform in order to improve safety and quality. The key of the approach is to link big dots to little dots, which are other measurable processes and outcome indicators at program and unit levels.

We will present two specific implementation cases, St. Joseph's Healthcare Hamilton and Toronto Central Local Health Integration Network, with details of how they aligned with the WSM to develop big dots and associated measures.

#### Case 1. St. Joseph's Healthcare Hamilton, Ontario

St. Joseph's Healthcare Hamilton (SJHH) is a large public hospital in Hamilton, Ontario. Their work on selecting big dot categories and the development of measures that cascaded down from the system level was presented in 2009 and reported in a paper in 2013.<sup>13,14</sup> The board first reviewed the definition of quality in available literature (e.g., IOM's six dimensions of quality). They developed their own definition of quality as: “quality care at SJHH is safe, kind, effective and timely and is provided in an environment of inquiry and learning.” Following this, activities were carried out for developing big dot measures.

Their first step was identifying big dot categories which could be used to frame indicators, were easy to comprehend, and had relevance to clinical practices. Three themed categories emerged for the board to consider: patient credo categories, clinical categories, and strategic categories (Figure 3.1).

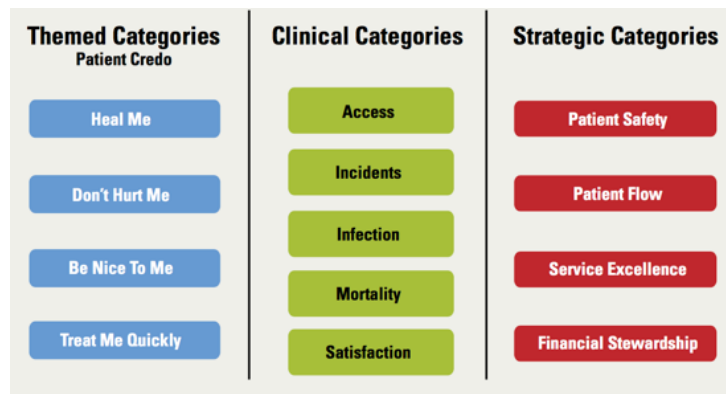


Figure 3.1 Big dot categories employed by SJHH

The second step was to develop criteria for selecting WSM big dots, and resulted in the following set of criteria:

- is institution wide
- is outcome driven
- connects to other little dots or processes (multifaceted)
- reflects the organisation’s strategic priorities
- reflects the organisation’s definition of quality.

The third step involved an evaluation of their existing metrics to narrow the number of big dot metrics for the board to monitor. Table 3.3 illustrates the big dot categories and indicators selected by SJHH.

Table 3.3 SJHH’s big dot categories and associated indicators

Big dots	Associated indicators
Timely Access	Total time spent in ED-high acuity (CTAS I, II) Total time spent in ED-high acuity (CTAS III, IV, V) ED left with being seen Mental health outpatient wait time Cancer surgery wait time Cataract surgery wait time MRI wait time CT scan wait time Number of ALC equivalent beds
Infections	Central line infection rate per 1,000 device days Infection rate – Clostridium difficile per 1,000 patient days Infection rate – MRSA per 1,000 patient days Infection rate – VRE per 1,000 patient days Surgical site infection prevention rate Ventilator-associated pneumonia rates per 1,000 ventilator days
Mortality	Hospital standardised mortality ratio Deaths in acute care Deaths in CCC, rehabilitation and mental health
Satisfaction	Patient satisfaction – acute care Patient satisfaction – emergency care Patient satisfaction – surgical care Patient satisfaction – mental health
Incidents	Number of serious incidents Number of never events Seclusion incidents (mental health)

We also noted the patient safety indicators that SJHH is tracking as shown on SJHH’s website.<sup>15</sup> Detailed patient safety indicator public reporting is available through the Ontario Ministry of Health and Long-Term Care and on Health Quality Ontario’s website.<sup>6,7</sup> SJHH’s patient safety indicators reported include:

- C Difficile Infection Rates
- Central Line Associated Blood Stream Infection
- Emergency Room Treatment Times
- Hand Hygiene Compliance
- Hospital Standard Mortality Ratio (HSMR)
- MRSA and VRE Infection Rates
- Patient Satisfaction
- Readmission Rate
- Ventilator Associated Pneumonia
- HNH B LHIN MRI and CT Scan Wait Times.

### Case 2. Toronto Central Local Health Integration Network (LHIN)

The Toronto Central LHIN also reported their experience in using Triple Aim and WSM to derive areas of focus for quality measures in 2013.<sup>16</sup> Similar to SJHH, they adopted a staged process in developing the quality indicators.

Three themes were identified as critical at system level at the first step:

- Appropriate access to care, focusing on avoidable time in hospital
- Transitions of care, focusing on patient experience
- Care for patients with complex needs.

Criteria for selecting big dot indicators were developed and covered categories of comprehensive, alignment, focus area, and scientific soundness as shown in Table 3.4.

**Table 3.4 Criteria for the selection of big dot indicators at Toronto Central LHIN**

Criteria Category	Description
Comprehensive	Affected by factors across the spectrum of services/continuum of care Requires cross-sectoral collaboration to achieve improvement Pertinent to two or more sectors Issue that indicator measures is under TC LHIN jurisdiction
Alignment	Reflects TC LHIN’s strategic priorities, including equity, improving access and outcomes for mental health and addictions clients, reducing ER wait times etc. Aligns with or is linked to activity in primary care and public health Is consistent or aligns with Health Quality Ontario indicators
Focus area	Focuses on issues that have potential to affect significant segments of the population and/or users of the health system Is system wide and not disease or program specific Is a big dot indicator into which small dot indicators can feed
Scientific soundness	Meets technical requirements criteria: <ul style="list-style-type: none"> <li>• Reliable</li> <li>• Valid</li> <li>• Clear</li> <li>• Actionable – actions that could be undertaken by relevant health service providers can result in change in the indicator</li> <li>• Responsive</li> </ul>



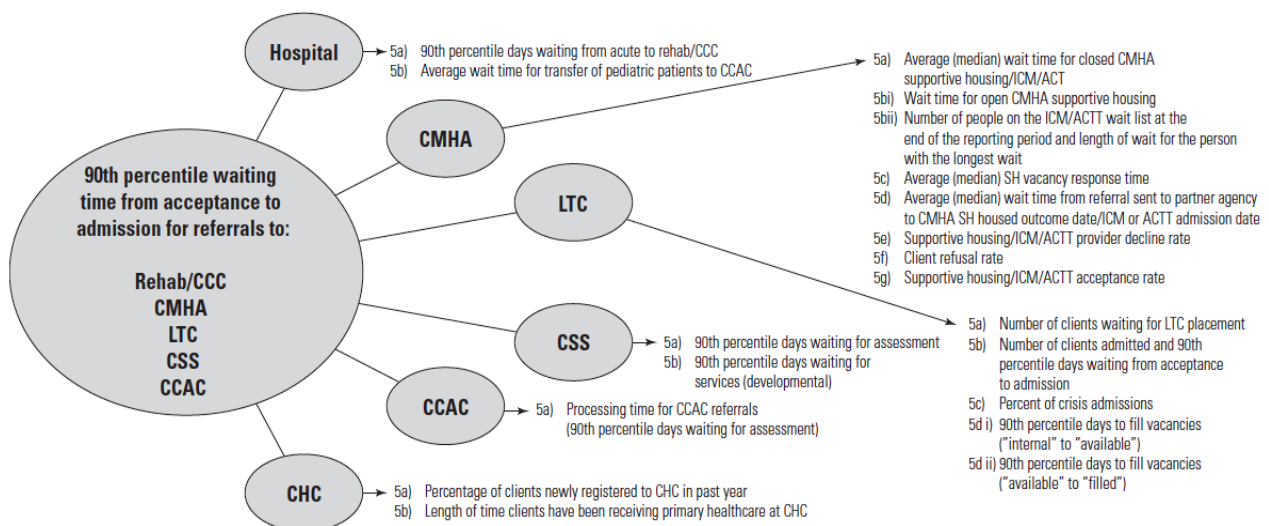
- Comparable
- Feasible – the required data can be measured and collected and calculated, and the agencies/organisations are able and willing to do so; data do not have to be currently available
- Timely

Using the criteria, major issues were identified for each theme, and a modified Delphi method was used to select the final indicators. The six chosen big dot indicators are listed below:

- Unscheduled in-patient readmissions within 30 days of discharge for selected casemix groups (stroke, chronic obstructive pulmonary disease, congestive heart failure, cardiac, pneumonia, diabetes, gastrointestinal, asthma, mental health and addictions).
- Repeat unscheduled ED use within 30 days for any reason (focus on Canadian Triage Acuity Scale levels 4 and 5).
- Percentage of hospital patients who know important discharge aspects, for example, danger signals to watch for after going home, medication-related information, when to resume usual activities, who to call if they need help.
- 90<sup>th</sup> percentile decision time (number of days from the date that the referral is sent to final response by receiving agency).
- 90<sup>th</sup> percentile waiting time from acceptance to admission.
- Percentage of patients with complex high care needs identified who are targeted/receiving appropriate care (e.g., intensive case management).

As a point of difference to SJHH, Toronto Central LHIN particularly addressed the differences between different sectors.

Figure 3.2 illustrates an example of alignment between system and sector-specific indicators. Details of sector specific indicators and subsector data resources can be found in a report<sup>17</sup> which is available on the website of Toronto Central LHIN. Table 3.5 shows a full list of big dots and associated indicators chosen for the “Hospital” sector.



ACTT = Assertive Community Treatment Team; CCAC = community care access centre; CCC = complex continuing care; CHC = community health centre; CMHA = community mental health and addictions; CSS = community support services; ICM = intensive case management; LTC = long-term care; MHA = mental health and addictions; SH = supportive housing.

**Figure 3.2 Toronto Central LHIN: Example of system and sector-specific indicators alignment**

**Table 3.5 Big dots and associated indicators at *Hospital* sector at Toronto Central LHIN**

Big dots	Associated indicators
1. Inpatient Readmissions within 30 Days for selected Casemix Groups	1a) Full medication reconciliation completed at discharge from any hospital to another setting 1b) Average length of stay in hospital (Explanatory) 1c) Completed discharge summary upon discharge from the hospital
2. Repeat unscheduled ED visits within 30 days for any reason	Frequency of individuals with multiple unscheduled emergency department visits
3. Patient Satisfaction related to the percentage of hospital patients (ED or inpatient) who knew various important discharge aspects	3a) Full medication reconciliation completed at discharge from any hospital to another setting 3b) Average length of stay in hospital 3c) Completed discharge summary upon discharge from the hospital
4. 90th percentile Decision Time for patients leaving the hospital to the community or another sector (Acute/Rehab/CCC/CCAC/LTC/CSS/CMHA)	4a) Completed referrals from acute to rehab and CCC with first response as final decision rendered within 2 days of referral being received. 4b) Referrals from acute to rehab and CCC that were denied by denial reason 4c) Length of time to Request Information (from Receiver to Sender) 4d) Length of time to Respond to RFI (from Sender to Receiver) 4e) Completed paediatrics referrals to CCAC with decision rendered within 2 days (acceptance/denial)
5. 90th Percentile admission wait time (for Acute/Rehab/CCC/LTC/CMHA); Assessment time (for CCAC/CSS)	5a) 90 <sup>th</sup> Percentile admission wait time of referrals from acute to rehab/CCC ( <i>Exclude paediatrics, MHA</i> ) 5b) Average wait time for transfer of paediatric patients to CCAC ( <i>For Paediatrics only</i> )
6. Percent of identified patients with complex high care needs that are targeted/receiving appropriate care	No indicator

### 3.1.3 Collaborative for Excellence in Healthcare Quality

A five-year initiative, the Collaborative for Excellence in Healthcare Quality (CEHQ), was set up from 2010 to 2015 with an aim to achieve higher-quality patient care in university hospitals across Canada.<sup>18</sup> The collaborative engaged healthcare leaders in the development of a common framework and a set of performance measures for reporting and benchmarking. Teaching hospitals of 12 health regions or organisations participated in the collaborative. They adopted a modified Delphi approach and went through a three-round process.

The outcome of the CEHQ was an agreed set of 17 indicators (out of the 521 indicators in round one) in a framework reflecting five dimensions of care: access, effectiveness, efficiency, safety, and satisfaction/patient experience. The CEHQ worked closely with CIHI to develop a scorecard for the 17 selected indicators.

The majority of the indicators that were dropped included those for which data were not readily available; that were too specific to a sub-population; for which the methodology used was not

consistent; and that were calculated in a non-standard way across organisations. The final framework and performance indicators are presented in Table 3.6.

**Table 3.6 Framework and performance indicators reported by CEHQ**

Dimensions	Indicators
Access	Wait times for diagnostic imaging (MRI/CT) Surgical wait times Wait times in emergency department Delay to hip fracture surgery % Alternate Level of Care (ALC) cases and days
Effectiveness	Readmission rate overall
Efficiency	Actual vs. expected length of stay
Safety	Methicillin-resistant Staphylococcus aureus (MRSA) Vancomycin-resistant Enterococci (VRE) Clostridium difficile infection (CDI) Surgical safety checklist Surgical site infection (SSI) Hospital Standardised Mortality Ratio (HSMR) Pressure ulcers
Satisfaction/Patient experience	Patient experience (overall)

### 3.1.4 CIHI performance measurement framework, indicator library and hospital harm measure

#### Health System Performance Measurement Framework

CIHI released their updated Health System Performance Measurement Framework for the Canadian health system in 2013.<sup>19</sup> The framework was built on two validated hospital frameworks:

- the Performance Assessment Tool for Quality Improvement in Hospitals (PATH),<sup>20</sup> which was developed by the WHO and has been applied internationally.
- the Hospital Balanced Scorecard,<sup>21</sup> which was used in Ontario to measure and report on the performance of hospitals.

It is a conceptual high-level framework developed to support the evolving quality improvement needs of various levels of users across Canadian jurisdictions (provinces, territories and regional health authorities). The framework consists of four interrelated quadrants: health system outcomes, social determinants of health, health system outputs, and health system inputs and characteristics (Figure 7.1, Appendix A). Each of the quadrants has different performance dimensions.

CIHI claims that the framework is a dynamic and action-oriented framework that reflects the relationship between various performance dimensions. CIHI has developed complementary (i.e. cascading) frameworks<sup>22</sup> to help different sectors (such as hospitals) align their input, process and outcome measures to the Performance Measurement Framework.

The cascading hospital framework dimensions that can be mapped onto the hospital balanced scorecard perspectives are shown in Table 7.1 (Appendix A). These include hospital outputs (access to high quality hospital services, appropriate and effective, person centred, efficiently delivered) and hospital outcomes (patient survival and degree of health recovery and health

protection, responsiveness to community served, hospital value for money) as well as the examples of associated indicators.

## Indicator library

The CIHI website presents a comprehensive health system performance indicator library.<sup>23</sup> Different levels of health services and organisations (equity, national, province/territory, region, facility) have their own sets of indicators which are grouped by different performance measure categories. Figure 3.3 shows a snapshot of the web-based library.

### Welcome to CIHI's Indicator Library

This library brings together metadata for health indicators in a convenient location on CIHI's website. For each indicator, definitions, methodologies and characteristics such as reporting level are summarized in a standard template. Indicator results can also be accessed from hyperlinks provided in the library. The indicators in the library are organized according to CIHI's [Health System Performance Measurement Framework](#), but the tool also allows you to search for indicators by [areas of need](#) and reporting levels

View Indicators
Search by Indicator Keyword

► Refine Indicator List

Each column can be sorted (alphabetically or numerically) by selecting the column header (press Enter on your keyboard). Select the column header again to reverse the sorting order.

Showing all indicators

Indicator	HSP Framework	Areas of Need	Reporting Levels				
			Equity	National	Prov./Terr.	Region	Facility
<a href="#">30-Day All-Cause Readmission Rate After Isolated Coronary Artery Bypass Graft (CABG)</a>	3.4 Appropriate and effective	B Getting better		•	•		•
<a href="#">30-Day All-Cause Readmission Rate After Percutaneous Coronary Intervention (PCI)</a>	3.4 Appropriate and effective	B Getting better		•	•		•
<a href="#">30-Day In-Hospital Mortality After Coronary Artery Bypass Graft (CABG) and Aortic Valve Replacement (AVR)</a>	3.4 Appropriate and effective	B Getting better		•	•		•
<a href="#">30-Day In-Hospital Mortality After Isolated Aortic Valve Replacement (AVR)</a>	3.4 Appropriate and effective	B Getting better		•	•		•
<a href="#">30-Day In-Hospital Mortality After Isolated Coronary Artery Bypass Graft (CABG)</a>	3.4 Appropriate and effective	B Getting better		•	•		•
<a href="#">30-Day In-Hospital Mortality After Percutaneous Coronary Intervention (PCI)</a>	3.4 Appropriate and effective	B Getting better		•	•		•

Figure 3.3 Snapshot of CIHI indicator library

## Hospital Harm Measure

CIHI and the Canadian Patient Safety Institute (CPSI) collaborated on developing a new measure of patient safety in 2017.<sup>24</sup> The new Hospital Harm Measure captures acute care hospitalisations with at least one occurrence of unintended harm that could potentially have been prevented. There are 31 different types of harm (or clinical groups) sub-measures in four broad categories: healthcare-/medication-associated conditions, healthcare-associated infections, patient accidents and procedure-associated conditions (Figure 3.4). They found that the sub-measures and associated clinical evidence-informed practices are useful new tools for monitoring and identifying harm and have the potential to improve patient safety.<sup>25</sup>

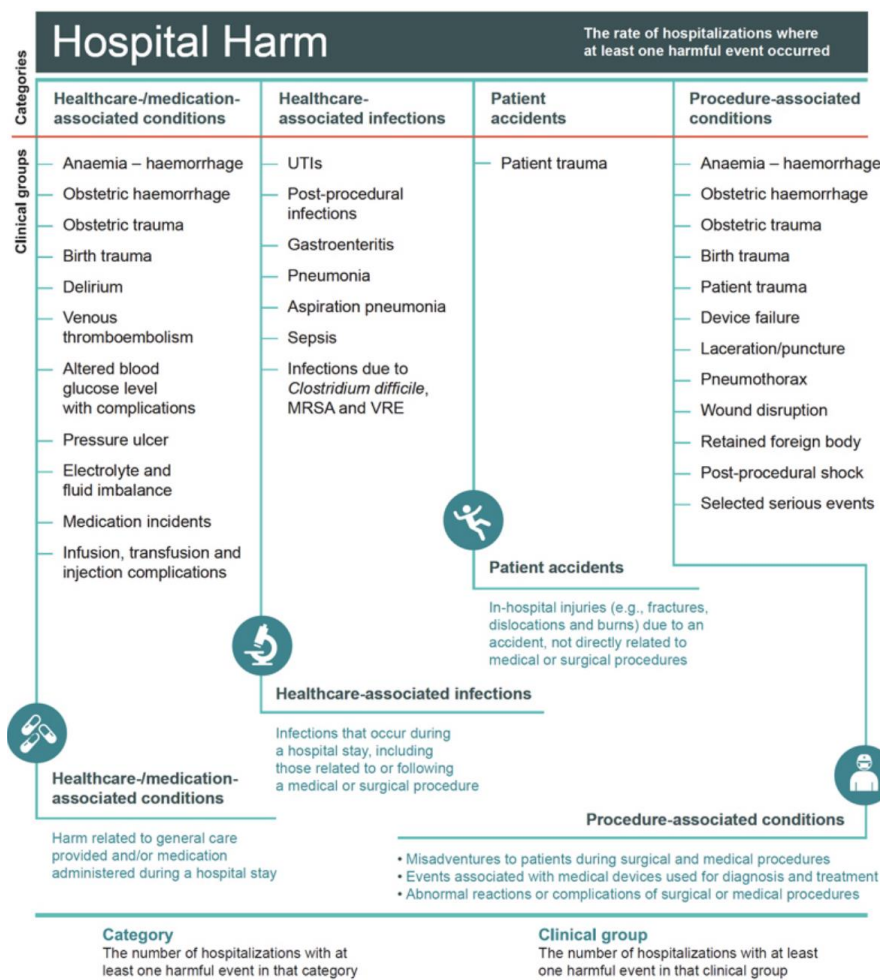


Figure 3.4 The Hospital Harm Measure and associated sub-measures

### 3.1.5 Other resources

#### IHI's resources

To help with improvement efforts, IHI offers tools, white papers, audio and video materials, advice and improvement stories through their website.<sup>11</sup>

For example, on the topic of “how to improve”, one of the steps is “establishing measures”.<sup>26</sup> IHI suggests using a balanced set of measures for all improvement efforts, including outcome measures, process measures and balancing measures, as well as the following associated questions:

- Outcome measures  
How does the system impact the values of patients, their health and wellbeing? What are impacts on other stakeholders such as payers, employees, or the community?
- Process measures  
Are the parts/steps in the system performing as planned? Are we on track in our efforts to improve the system?
- Balancing measures (looking at a system from different directions/dimensions)  
Are changes designed to improve one part of the system causing new problems in other parts of the system?

Sample measures related to outcomes (such as medication safety, surgical site infection etc.) can also be found on IHI's website.<sup>27</sup>

### Other methodologies

Besides the examples of big dot cases described above, another good example of a methodological approach for developing measurements has been reported by some Canadian researchers from the University of Calgary.<sup>28</sup> They presented a detailed conceptual process wherein two broad approaches were employed to help develop quality indicators: a deductive approach (from concept to data) and an inductive approach (from data to concept). They argued that quality indicator development should not be considered as a one-time event and consideration needed to be given to measure maintenance.

Their quality indicator development process is outlined in Figure 7.2 (Appendix A). Drawing on synthesised research and an environmental scan, they developed a list of potential quality indicators. This was followed by employing a consensus methodology and a quality indicator standardised information sheet (Figure 7.3, Appendix A) to develop a final set of indicators. They also pointed out some practical considerations in the process, including:

- Composition of the expert panel
- Establishment of criteria for indicator development
- Process for selecting indicators
- Establishment of indicator definitions and codes.

## 3.2 The UK

The UK National Health Service (NHS) emphasises a systematic approach to improving patient safety. The National Patient Safety Agency (NPSA) was created in 2001 to address information related to patient safety issues. In April 2016, the agency was folded into the newly established NHS Improvement. According to the NHS Improvement website<sup>29</sup>, since April 2019, NHS Improvement and NHS England have been working together as a new single organisation to support the NHS to deliver better care for patients.

In this section, we focus on the five-question framework which has been recognised for its role in providing guidelines for board members for patient safety measurement and monitoring.<sup>30,31,32,33</sup> We then outline conceptual frameworks and strategic guidelines which look at safety and quality at a board level as well as other resources which might be of interest to VAHI.

### 3.2.1 The five-question framework

The five-question framework (or the Measurement and Monitoring of Safety Framework) was developed with the aim to guide healthcare organisation boards in the measurement and monitoring of safety and in reviewing progress against safety objectives.<sup>30,31,32</sup> The framework has been used to promote self-reflection at both board and clinical team levels, to encourage an organisational analysis in the gaps of information, and to promote the discussion of “what could we do differently”.

It was developed by gathering academic evidence and practical experience through scoping reviews, interviews and case studies, as described in a thought paper published by the Health Foundation in 2013.<sup>30</sup> Since then, a number of publications and reports have summarised the findings of the extensive effort and described the framework. However, these reports have focused on guidelines and approaches and only a small number of sample indicators have been presented.

At the heart of the framework are the five questions to be asked when looking into patient safety<sup>30</sup>:

- Has patient care been safe in the past?
- Are our clinical systems and processes reliable?
- Is care safe today?
- Will care be safe in the future?
- Are we responding and improving?

The framework covers five dimensions of safety measurement and monitoring<sup>30</sup> (Figure 3.5):

- Past harm: this encompasses both psychological and physical measures.
- Reliability: this encompasses measures of behaviour and systems.
- Sensitivity to operations: the information and capacity to monitor safety on an hourly or daily basis.
- Anticipation and preparedness: the ability to anticipate and be prepared for problems.
- Integration and learning: the ability to respond to, and improve from, safety information.



**Figure 3.5 Five dimensions of the five-question framework**

This work has also been adapted by the Australian National Safety and Quality Health Services Standards (NSQHS) Standards User Guide for Governing Bodies 2019 edition<sup>33</sup> as discussed in section 4.1.3.

### 3.2.2 Board Assurance Framework

Board reporting in the UK is underpinned by a Board Assurance Framework (BAF) that has traditionally followed principles introduced in 2003.<sup>34</sup> The BAF guidelines have helped boards focus on risks which may compromise the achievement of its high-level strategic objectives.

Implementation examples can be found in the Sherwood Forest Hospitals NHS Foundation Trust BAF (2016)<sup>35</sup> and the Bridgewater Community Healthcare NHS Foundation Trust BAF (2018),<sup>36</sup> which provided their boards with a simple but comprehensive method for oversight and management of the principal risks to their trusts' strategic priorities.

A recent review,<sup>37</sup> however, identified the need for significant improvements and made the following recommendations which are also relevant to the BSQR redesign effort:

- Measurable outcomes should be defined for, and linked to, strategic objectives.
- Regular updates and ongoing training are necessary to keep the focus on strategic challenges.

### 3.2.3 Other resources and methodologies

#### Dr Foster and the Intelligent Board

Dr Foster's *The Intelligent Board 2010: Patient Experience* presents guidance and practical resources for boards and their members to address the importance of patient experience.<sup>38</sup> By using the term "intelligent board", Dr Foster explains what boards can do to ensure they get an understanding of how patients, families or carers experience health services. Dr Foster argues that good intelligence is based on systematic analysis to make data meaningful and not just simply reporting information. An intelligent report needs to integrate various sources of information, and, importantly, gives both context and interpretation for the board.

According to the intelligent board principles, all information about quality for the board should:

- Cover locally defined priorities as well as national "must do" requirements
- Focus on outcomes, not systems and processes
- Be available in a timely and understandable format, preferably monthly
- Be clearly and simply presented, including graphic overviews and brief commentary
- Be forward-looking, presenting trends and anticipating future issues
- Allow internal comparison between services and make use of external benchmarks
- Allow comparison between the experiences of diverse patient groups
- Cover the full extent of people's experiences during care, not just at the point of discharge, and including handovers between different organisations
- Combine quantitative data with softer, qualitative data and primary research
- Provide interpretation and analysis as well as information
- Provide a level of detail that is appropriate to the board's governance role.

#### Clinical Services Quality Measures

Clinical Services Quality Measures developed by NHS England are metrics that allow for comparisons between services in order to provide better information for patients, clinicians and



the general public.<sup>39</sup> These measures use existing data collected through national clinical audits, the Hospital Episodes Statistics system, surveys and other indicators available.

Although these are not directly related to board reporting, it is worth noting that clinical service quality performance data related to 30 specific specialities (e.g., different surgeries) and various services (hospitals, mental health) can be accessed via the My NHS website.<sup>40</sup> This website is also trialling new ways to help use performance data and test a dashboard prototype tool for presenting the data.

### 3.3 Other countries

There is limited availability of detailed measurements targeting board-level reporting in other countries. One district health board in New Zealand reports on the experience of establishing system-level measures for their board. In some European countries, conceptual frameworks related to health performance in the healthcare system in general have been reported. In the USA public reporting domain, there are multiple organisations, including not-for-profit organisations, which capture, analyse and compare the performance of hospitals using a range of indicators.

In this section, we first describe the New Zealand experience. We then touch on a review paper which provides comparative international analysis of eight countries based on their health system frameworks and performance indicators. We also outline a couple of frameworks in other European countries. Some key USA healthcare quality reporting organisations which provide useful information on patient safety and outcome indicators are briefly discussed.

#### 3.3.1 Establishing system level measures at a New Zealand district health board

Counties Manukau Health (CMH) in New Zealand undertook work in developing a set of system-level measures to track performance for quality improvement at the CMH District Health Board (DHB), which is one of the 20 DHBs in New Zealand.<sup>41,42</sup> DHBs are responsible for providing or funding the provision of health services in their district.

Similar to Canadian cases described before, CMH went through a process of selecting system-level measures based on IHI's Whole System Measures and Triple Aim as well as New Zealand's existing national safety and quality measures. A suite of system level measures have been implemented at the CMH District Health Board since 2014.<sup>41</sup> Figure 3.6 shows CMH's system-level measures and their inter-relationship. A recent paper reports a further step carried out by CMH to establish "gold standards" for each of the measures using Delphi technique.<sup>42</sup> Their "gold standards" or aspirational goals are consistent with IHI's Toyota Specifications which are "ambitious" goals that represent breakthrough performance in quality. Details of the proposed "gold standards" for system-level measures are presented in Table 7.2 (Appendix A).

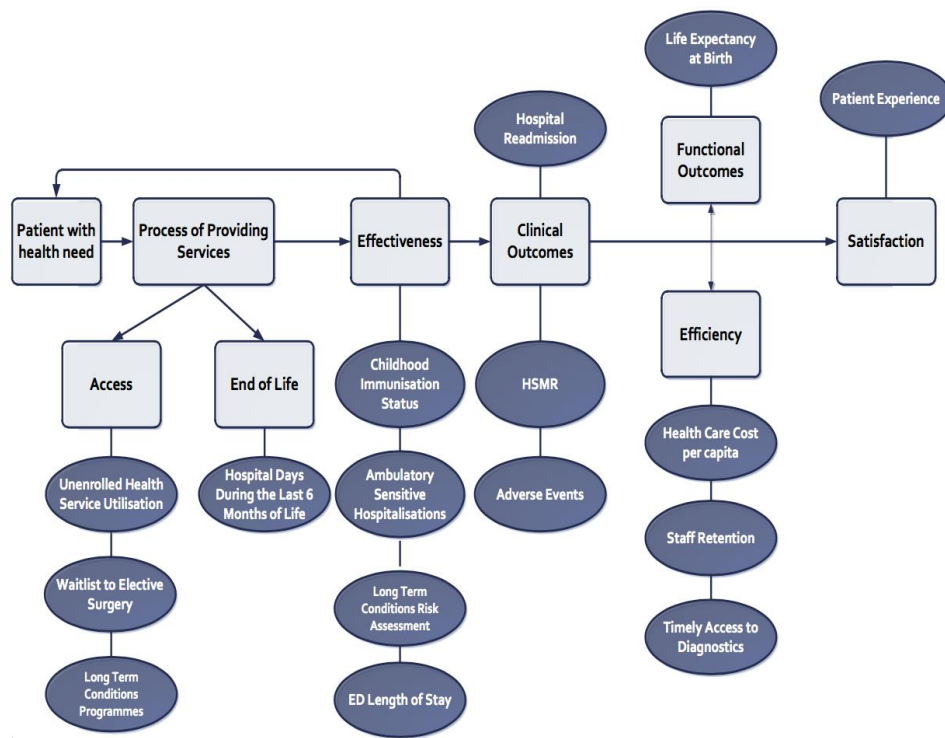


Figure 3.6 CMH’s system-level measures across the continuum of care (adapted from WSM)

### 3.3.2 A comparative international analysis on eight countries

A comparative study was reported in 2016 to identify and compare frameworks and performance indicators used in selected OECD (Organisation for Economic Co-operation and Development) countries, including Australia, Canada, Denmark, England, the Netherlands, New Zealand, Scotland and the United States.<sup>43</sup> The study looked at country-specific frameworks at a national health system performance level. The researchers also explored indicators that were collected at a national scale and could be relevant to local healthcare quality improvement. They listed 18 domains of performance indicators by countries, including effectiveness, access, safety, efficient, quality, appropriateness, outcome of care/health improvement, patient-centred/experience, cost, equity, responsiveness, competence/capability, continuity, timely, acceptability, sustainability, and avoidable hospital use. Their search resulted in 401 indicators. They classified the indicators into community level, hospital level and population level. They broke down the indicators into disease groups (including the three most frequently reported diseases, cardiovascular, surgery and mental health). According to this study, the most commonly used domains in performance frameworks were safety, effectiveness and access.

### 3.3.3 DUQuE – a multi-country project in Europe

The project of DUQuE (Deepening our Understanding of Quality Improvement in Europe) was a collaboration across multiple countries in the European Union to assess the relationship between quality management and patient outcomes.<sup>44</sup> A conceptual framework was developed to show how factors at multiple levels can influence hospital performance and patient outcomes.

The framework’s multi-level dimensions include: hospital level constructs (organisational culture and professional involvement), clinical pathway constructs (culture, professional attitude in the

care processes for acute myocardial infarction, stroke, hip fracture and deliveries), patient processes and outcomes (clinical effectiveness, patient safety and patient experience) and external constructs that can modify hospital quality (external pressure). Figure 3.7 presents details of the constructs and measure domains.

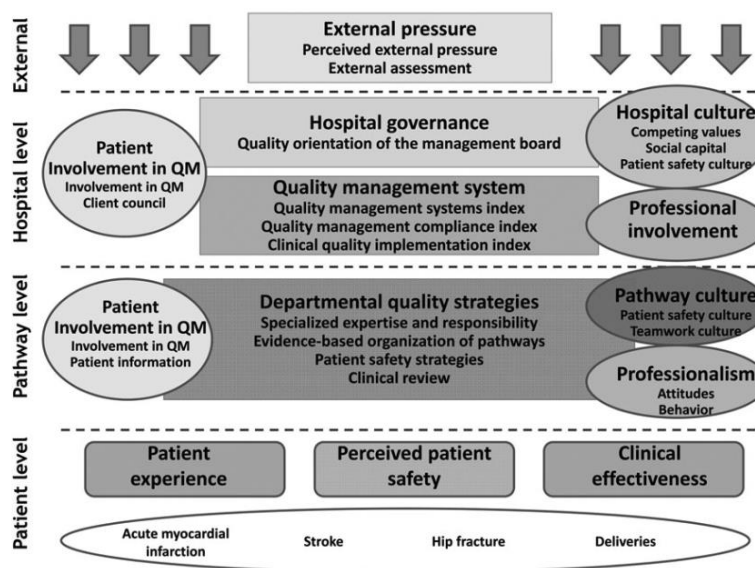


Figure 3.7 DUQuE conceptual framework

### 3.3.4 Balanced Scorecard and Closed-Loop Management System in Ireland

The Health Service Executive (HSE) is the management body of public healthcare in Ireland. Since 2008, the HSE has developed its performance management framework drawing on the balanced scorecard (BSC) as a strategic planning tool. This tool has evolved into a management framework called the Closed-Loop Management System (CLMS) which consists of five stages and a subset of tools that can be employed to support the development of a healthcare organisation’s strategies. How this tool was used, details of hospital performance indicators, access area indicators, KPIs and targets were reviewed and reported in a paper in 2016.<sup>45</sup> According to the review, the hospital performance indicators in Ireland consisted of activity indicators (e.g., outpatients, ED admission, number and % of patient discharge, % of all patients, % of public patient based on casemix and ambulance) and key performance indicators (e.g., public inpatient discharge and waiting list, appropriate use of bed, ED efficiency).

### 3.3.5 Resources in some organisations in the USA

#### The Agency for Healthcare Research and Quality (AHRQ)

AHRQ in the USA is a federal agency for research on healthcare quality, costs, outcomes and patient safety. Drawing on the five domains definition of quality from the Institute of Medicine, AHRQ’s quality improvement modules provide indicators in four aspects: prevention quality indicators, inpatient quality indicators, patient safety indicators, and paediatric quality indicators.<sup>46</sup> Their website provides a list of the indicators, individual specifications and brochures that can be downloaded.<sup>47</sup> For example, Figure 3.8 shows Patient Safety Indicators at provider level and area level.

<b>Patient Safety Indicators</b>	
<b>Provider-Level Indicators</b>	
■ PSI 02 - Death rate in low-mortality diagnosis related groups (DRGs)	■ PSI 15 - Accidental puncture or laceration rate
■ PSI 03 - Pressure ulcer rate	■ PSI 16 - Transfusion reaction count
■ PSI 04 - Death rate among surgical inpatients with serious treatable conditions	■ PSI 17 - Birth trauma rate – injury to neonate
■ PSI 05 - Retained surgical item or unretrieved device fragment count	■ PSI 18 - Obstetric trauma rate – vaginal delivery with instrument
■ PSI 06 - Iatrogenic pneumothorax rate	■ PSI 19 - Obstetric trauma rate-vaginal delivery without instrument
■ PSI 07 - Central venous catheter-related blood stream infection rate	■ PSI 90 - Patient Safety for Selected Indicators
■ PSI 08 - Postoperative hip fracture rate	
■ PSI 09 - Perioperative hemorrhage or hematoma rate	<b>Area-Level Indicators</b>
■ PSI 10 - Postoperative physiologic and metabolic derangement rate	■ PSI 21 - Retained surgical item or unretrieved device fragment rate
■ PSI 11 - Postoperative respiratory failure rate	■ PSI 22 - Iatrogenic pneumothorax rate
■ PSI 12 - Perioperative pulmonary embolism or deep vein thrombosis rate	■ PSI 23 - Central venous catheter-related blood stream infection rate
■ PSI 13 - Postoperative sepsis rate	■ PSI 24 - Postoperative wound dehiscence rate
■ PSI 14 - Postoperative wound dehiscence rate	■ PSI 25 - Accidental puncture or laceration rate
	■ PSI 26 - Transfusion reaction rate
	■ PSI 27 - Postoperative hemorrhage or hematoma rate

**Figure 3.8 AHRQ’s Patient Safety Indicators at provider level and area level**

The interactive tool of AHRQ is also noteworthy. In addition to the standard quality improvement indicators on its website, AHRQ provides a free software package for healthcare providers to analyse and report against these indicators.

### The Leapfrog Group

The Leapfrog Group is a not-for-profit organisation in the USA. It serves as a centralised reporting agency to help benchmark hospitals’ performance on the national measures against other hospitals in their state and across the nation. It provides hospital data to inform consumers about patient safety and hospital performance.

Their Hospital Safety Grade<sup>48</sup> reporting targets process/structural and outcome measures based on 28 national performance measures. For example, one of outcome measures is patient safety which consists of 7 AHRQ Patient Safety Indicators: pressure ulcer rate, death rate among surgical inpatients with serious treatable conditions, iatrogenic pneumothorax rate, postoperative respiratory failure rate, perioperative PE/DVT rate, postoperative wound dehiscence rate, and unrecognised abdominopelvic accidental puncture/laceration rate. Scoring methodologies of the grade are available from their website.

### Core Processes of Care Measures at Johns Hopkins Medicine

The core processes of care measures at Johns Hopkins Medicine were outlined by some researchers when reporting the process of improving performance on core processes of care for acute myocardial infarction, heart failure, pneumonia, surgical care, and children’s asthma at Johns Hopkins Medicine.<sup>49</sup> A four-part, sequential conceptual model was developed to guide the quality improvement initiative. Their targeted core processes of care measures included: acute myocardial infarction percutaneous coronary intervention <90 minutes, heart failure discharge instructions, pneumonia patients’ blood cultures performed in ED, cardiac surgery glucose, surgery patient on beta-blocker therapy before admission, urinary catheter removed on postoperative day 1 or 2, and home management plan.

## 4 Australian landscape

In Australia, a range of organisations at varying levels of bureaucracy are responsible for healthcare safety and quality reporting. At the national level, the Australian Commission on Safety and Quality in Health Care (the Commission) is the key agency providing leadership for healthcare providers in safety and quality. It has developed the National Safety and Quality Health Services (NSQHS) Standards with state and territory partners, consumers and the private sectors. The standards provide an assurance mechanism to test that expected standards of safety and quality are being met. At state and territory levels, the health departments/ministries in individual states and territories undertake monitoring and reporting on healthcare safety and quality, either through releasing reports or through interactive web portals. Some states (e.g., NSW and Victoria) have established independent agencies specifically for safety and quality reporting. At a jurisdictional or service provider level, health service providers also measure and monitor performance within their individual organisations to improve clinical outcomes and the appropriateness of services. Some service providers, such as the Metro South Hospital and Health Service (MSHHS), publish a Clinical Governance Scorecard as an interactive document that reports performance against the NSQHS Standards.

The audience of the reporting also determines the reports' perspectives. The government (e.g., the Department/Ministries of Health) publishes public reports on performance from a health system and population perspective. Reporting for consumers provides information which would benefit their decision-making process, while reports for the service providers audience focus more on health services management and operation. Within a health service environment, there are also different governance levels. The National Model Clinical Governance Framework<sup>50</sup> developed by the NSQHS explicitly explains the role and responsibilities of the governing body in a health service organisation (Figure 4.1). The following sections discuss safety and quality reporting with a board focus. Guidelines, measures and indicators at a national level, and example practices at states and territories, are discussed.

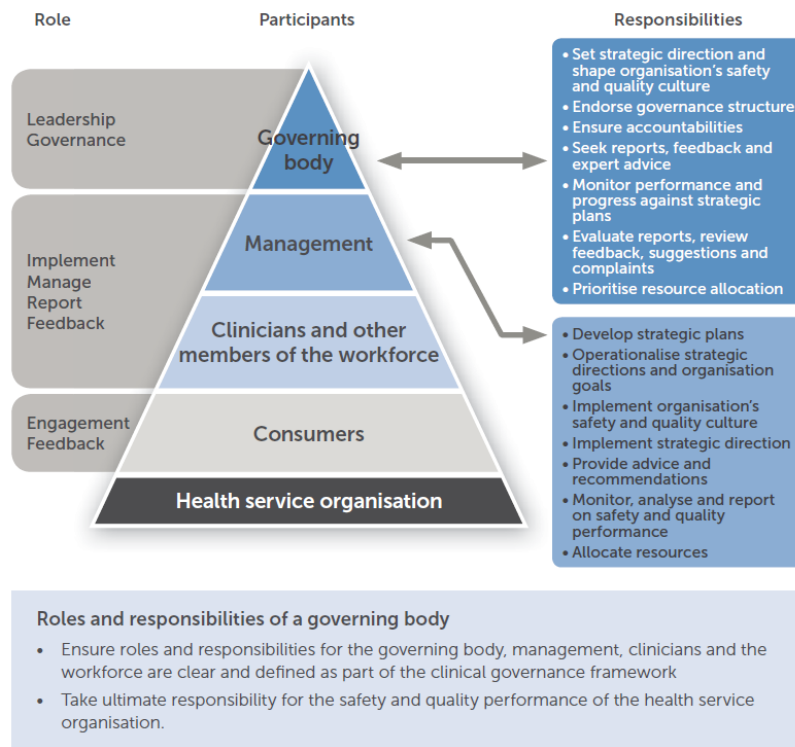


Figure 4.1 Roles and responsibilities of the governing body in a health service organisation

## 4.1 Australian national guidelines

### 4.1.1 Key organisations in the safety and quality area

#### National Safety and Quality Health Services (NSQHS) Standards

NSQHS Standards have been developed by the Commission in partnership with the Australian Government, state and territory partners, consumers and the private sector. The primary aims are to protect the public from harm and improve the quality of healthcare. The Commission accredits healthcare organisations against the NSQHS Standards, seeking to drive the implementation of safety and quality systems and improve the quality of healthcare in Australia.

The NSQHS Standards also provide a nationally consistent statement about the level of care patients should expect from health services. Healthcare organisations have an obligation to collect and monitor relevant indicators associated with actions to the NSQHS Standards and to report these to the highest appropriate level of governance within the organisation.

The NSQHS Standards resources includes several useful core documents:

- NSQHS Standards 2nd edition<sup>51</sup>: This presents the current NSQHS Standards, and related criteria and actions.
- National Model Clinical Governance Framework<sup>50</sup>: This describes the key components of a clinical governance framework, based on the NSQHS Standards.
- NSQHS Standards Guide for Hospitals<sup>52</sup>: This is designed to assist health service organisations align their patient safety and quality improvement programs using the framework of the NSQHS Standards; it includes key tasks, strategies, and resources for each of the eight NSQHS Standards.

- NSQHS Standards User Guide for Governing Bodies (2019)<sup>33</sup>: The purpose of this guide is to advise members of governing bodies exercising their governance responsibilities for implementing the NSQHS Standards.
- NSQHS Standards Guide for Health Service Organisation Boards (2015)<sup>53</sup>: This is an older version of the abovementioned user guide for governing bodies and was released in 2015. It is included in this environmental scan because it represents the Commission’s first attempt at providing a guideline for boards. The guideline presents advice about the selection and use of strategic indicators that is worth considering as part of the BSQR review process.

## 4.1.2 NSQHS Standards Guide for Health Service Organisation Boards 2015

### Framework

The NSQHS Standards guideline for boards<sup>53</sup> was first developed in 2015 based on the 1<sup>st</sup> edition of NSQHS.<sup>54</sup> The 1<sup>st</sup> edition’s 10 standards are shown in Figure 4.2.

-  **1. Governance for Safety and Quality in Health Service Organisations** which describes the quality framework required for health service organisations to implement safe systems.
-  **2. Partnering with Consumers** which describes the systems and strategies to create a consumer-centred health system by including consumers in the development and design of quality health care.
-  **3. Preventing and Controlling Healthcare Associated Infections** which describes the systems and strategies to prevent infection of patients within the healthcare system and to manage infections effectively when they occur to minimise the consequences.
-  **4. Medication Safety** which describes the systems and strategies to ensure clinicians safely prescribe, dispense and administer appropriate medicines to informed patients.
-  **5. Patient Identification and Procedure Matching** which describes the systems and strategies to identify patients and correctly match their identity with the correct treatment.
-  **6. Clinical Handover** which describes the systems and strategies for effective clinical communication whenever accountability and responsibility for a patient’s care is transferred.
-  **7. Blood and Blood Products** which describes the systems and strategies for the safe, effective and appropriate management of blood and blood products so the patients receiving blood are safe.
-  **8. Preventing and Managing Pressure Injuries** which describes the systems and strategies to prevent patients developing pressure injuries and best practice management when pressure injuries occur.
-  **9. Recognising and Responding to Clinical Deterioration in Acute Health Care** which describes the systems and processes to be implemented by health service organisations to respond effectively to patients when their clinical condition deteriorates.
-  **10. Preventing Falls and Harm from Falls** which describes the systems and strategies to reduce the incidence of patient falls in health service organisations and best practice management when falls do occur.

Figure 4.2 NSQHS Standards 1<sup>st</sup> edition

In the “Quality Management” section, the guideline advises boards to describe “quality” and define what good quality looks like through its organisation’s stated mission, vision and goals. It suggests that the description framework can include dimensions of safety, effectiveness, appropriateness, responsiveness, continuity, accessibility and efficiency. Choosing the right key

performance indicators (KPIs) relies upon a good understanding of what is important to the work of the organisation or unit. Sub-categories of the KPIs suggested by the guideline include:

- **quantitative** indicators that can be presented with a number
- **qualitative** indicators that cannot be presented as a number
- **input** indicators that measure the amount of resources consumed during the generation of the outcome
- **process** indicators that represent the efficiency or the productivity of the process
- **output** indicators that reflect the outcome or results of the process activities
- **directional** indicators specifying whether an organisation is getting better
- **actionable** indicators which are sufficiently in an organisation's control to effect change
- **financial** indicators used in performance measurement and compared against the budget.

### Measures and indicators

A separate section in this guideline, "Reporting to the board", gives clear guidance regarding board reporting processes. Some suggested measures and indicators are listed below:

#### Indicators that should be reported to the board

- The National Health Reform Performance and Accountability Framework (PAF)<sup>55</sup> is a framework designed to improve accountability and transparency of health service provision. The framework comprises 48 national indicators, 31 covering primary care (at a primary health network level) and 17 covering acute care (at a local health network or equivalent level). The 2015 board guideline recommended them as mandatory indicators for national patient safety reporting and that they should be reported to the board. A list of the PAF indicators for hospitals can be found in Table 8.1 (Appendix B).
- Core hospital-based outcome indicators (CHBOI)<sup>56</sup>: The CHBOI include indicators of mortality, readmission and infection. The CHBOI are referenced in the Performance and Accountability Framework (PAF) and should therefore be routinely reviewed by health service organisation boards. A list of the CHBOI indicators can be found in Table 8.2 (Appendix B). To specifically support local interpretation and use of hospital mortality indicators at a board level, the Commission has also developed a guideline entitled Using hospital mortality indicators to improve patient care: A guide for Boards and Chief Executives.<sup>57</sup>

#### Other measures which may be considered by the board

The Commission's 2015 board guideline also suggests additional elements that health service organisation boards may wish to include in their reporting:

- Standards – Monitoring adherence to the NSQHS Standards. Actions in the NSQHS Standards that require data collection for audit or review. Summary data from these audits and reviews can also be reported to the board.
- National set of high priority hospital complications. A review of high-priority hospital complications from inpatient administration systems should be considered by boards.<sup>58</sup>
- Surveys of patient hospital experience.
- Structured analyses of selected sets of incident types – Use of structured incident analysis methodology to analyse selected incident categories, using information generated by incident reporting systems.



- Organisational culture – Boards may also consider reviewing surveys of staff attitudes, behaviours and perceptions to understand organisational safety culture.

The guideline suggests board reporting should involve an appropriate number of measures and where possible some real-time measures of clinical performance. It also suggests the use of trend data with commentary on actions to help operations and tracking. It also points out that the way data are presented is important and has a big impact on its interpretation and judgement.

The guideline advises that, in addition to the regular quality performance indicator reports, the board can establish a schedule of safety and quality reports covering key systems that are appropriate to its health service. If the board has a safety and quality subcommittee, these reports are likely to cover high-risk issues and key recommendations that require a board decision. These reports will allow analysis, discussion and decisions on any improvements or actions that need to be undertaken.

### 4.1.3 NSQHS Standards User Guide for Governing Bodies 2019

#### Framework

An updated NSQHS Standards User Guide for Governing Bodies was developed in the year 2019 based on the 2<sup>nd</sup> edition of NSQHS. The 2<sup>nd</sup> edition has 8 standards (Figure 4.3).

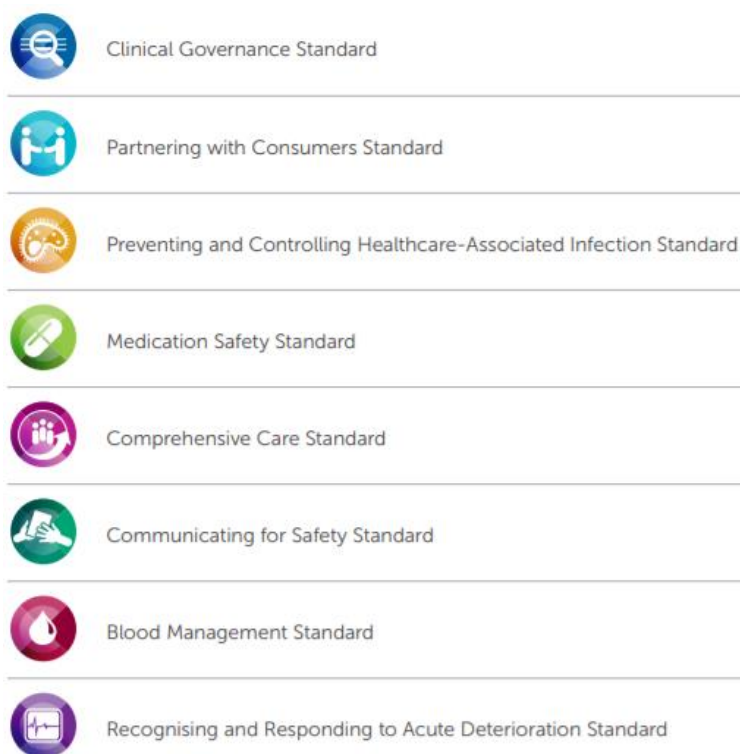


Figure 4.3 NSQHS Standards 2<sup>nd</sup> edition

The 2019 guideline proposes 3 principles for governing body members:

1. See every piece of information – every measure and every indicator – in its context.
2. Look beyond written intelligence.
3. Take responsibility for learning the basis of safety and quality measurement.

Based on these three principles, the new guideline adopts a five-question framework adapted from NHS research (see Section 3.2.1). This framework (Figure 4.4) presents five questions that governing bodies should ask about the safety and quality of their services. Each question can be answered by reference to particular sources of information and data.



**Figure 4.4 Five-question framework for governing bodies**

### Measures and indicators

The new guideline lists the following indicators and information sources or tools that can help give governing bodies a holistic picture of safety and quality at their services. Information sources are arranged according to the five-question framework. Under each of the five questions, there are three groups of information sources: 1) routinely collected information (sometimes called administrative data); 2) information collected from patients, carers and families; and 3) information collected from the reporting activity of clinicians and managers.

Table 4.1 summarises the information checklist as suggested by the guideline.

**Table 4.1 Information checklist suggested in User Guide for Governing Bodies 2019**

Questions	Source information		
	Routinely collected information	Patient-, family- and carer-reported information	Workforce-reported and other information sources
Q1: How safe has our care been?	<ul style="list-style-type: none"> <li>• Core hospital-based outcome indicators (CHBOI) (Table 8.2, Appendix B)</li> <li>• Hospital acquired complications (Table 8.3, Appendix B)</li> <li>• Sentinel events (Table 8.4, Appendix B)</li> <li>• Surveillance data (such as the Antimicrobial Use and Resistance in Australia [AURA] surveillance system).</li> <li>• National Healthcare Agreement safety and quality indicators (specifically relating to performance indicators numbers:                             <ul style="list-style-type: none"> <li>○ PI16 Potentially avoidable deaths (<a href="https://meteor.aihw.gov.au/content/index.phtml/itemId/658503">https://meteor.aihw.gov.au/content/index.phtml/itemId/658503</a>)</li> <li>○ PI18 Selected potentially preventable hospitalisations (<a href="https://meteor.aihw.gov.au/content/index.phtml/itemId/658499">https://meteor.aihw.gov.au/content/index.phtml/itemId/658499</a>)</li> <li>○ PI22 Healthcare associated infections: SAB (<a href="https://meteor.aihw.gov.au/content/index.phtml/itemId/598734">https://meteor.aihw.gov.au/content/index.phtml/itemId/598734</a>)</li> <li>○ PI23 Unplanned hospital readmission rates (<a href="https://meteor.aihw.gov.au/content/index.phtml/itemId/658485">https://meteor.aihw.gov.au/content/index.phtml/itemId/658485</a>)</li> <li>○ PI25 Rate of community follow up within first seven days of discharge from a psychiatric admission (<a href="https://meteor.aihw.gov.au/content/index.phtml/itemId/630053">https://meteor.aihw.gov.au/content/index.phtml/itemId/630053</a>)</li> </ul> </li> <li>• These types of information are usefully presented as:                             <ul style="list-style-type: none"> <li>○ Risk-adjusted data by casemix, age and sex</li> <li>○ Time series to assess trends</li> <li>○ Funnel plots including peer organisation to identify outliers.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Australian Hospital Patient Experience Question Set</li> <li>• Qualitative and quantitative analysis of patient complaints and compliments</li> <li>• Trends in responses to patient experience or satisfaction surveys</li> <li>• Patient-reported quality of life, pain and symptom severity outcomes – these are collected in detail in some specialties.</li> </ul>	<ul style="list-style-type: none"> <li>• Quantitative and qualitative analysis of incident reports (to detect trends in type, location and theme)</li> <li>• Qualitative analysis of death reviews and coronial findings</li> <li>• Ad hoc audits (such as the national inpatient medication chart audit) Australian Commission on Safety and Quality in Health Care. National standard medication charts Sydney: ACSQHC; 2018. Available from: <a href="https://www.safetyandquality.gov.au/our-work/medication-safety/medication-charts/national-standard-medication-charts28">https://www.safetyandquality.gov.au/our-work/medication-safety/medication-charts/national-standard-medication-charts28</a></li> <li>• Annual safety and quality presentations from divisions within the organisation, including clinical registry performance results</li> <li>• Internal self-assessment using the NSQHS Standards.</li> </ul>

<p>Q2: How consistent are our processes of care?</p>	<ul style="list-style-type: none"> <li>• The Australian Atlas of Healthcare Variation shows the value of using administrative data in comparisons between geographical areas to highlight potentially unwarranted over-treatment or under-treatment. Organisations can use the performance of their geographical area, as highlighted in the Atlas, to consider whether rates of intervention or treatment warrant further investigation into the processes of care.</li> </ul>	<ul style="list-style-type: none"> <li>• Patient complaints and compliments analysis</li> <li>• Patient-reported experience of harm or distress (such as the Australasian College for Emergency Medicine consumer portal)</li> <li>• Patient-reported outcome measures over time (such as the Kessler Psychological Distress Scale K-10 questionnaire in mental health services).</li> </ul>	<p>Process indicators can help detect where safety-critical processes vary between services or organisations, and identify processes for further investigation. Some areas of focus for determining the reliability of care are:</p> <ul style="list-style-type: none"> <li>• Hand hygiene compliance audit</li> <li>• Surgical safety checklist audit</li> <li>• Clinical audit within specialties</li> <li>• Completed risk assessments</li> <li>• Completed discharge plans</li> <li>• Use of personal protective equipment</li> <li>• Presence and use of a standardised handover protocol.</li> </ul> <p>Clinical process indicators can also help to identify variation from recommended practice. The Commission’s clinical care standards include indicators to enable local monitoring of how closely a service or unit is following the best-practice standard. Indicators are available to enable auditing and monitoring of processes in areas such as:</p> <ul style="list-style-type: none"> <li>• Antimicrobial stewardship</li> <li>• Heavy menstrual bleeding</li> <li>• Acute coronary care</li> <li>• Hip fracture care</li> <li>• Acute stroke care</li> <li>• Osteoarthritis of the knee</li> <li>• Delirium.</li> </ul>
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<p>Q3: How safe and high quality is our care today?</p>	<p>This includes instantly available information from incident monitoring systems. Structural indicators that show mechanisms are in place to collect and make use of continuously available ('real time') information include:</p> <ul style="list-style-type: none"> <li>• Presence of designated patient safety officers</li> <li>• Computerised adverse medication event alerts or warnings</li> <li>• A system for patients and the workforce to anonymously express concerns</li> <li>• Routine consumer involvement in governance structures.</li> </ul>	<p>Mechanisms for collecting information from patients, families and carers can include:</p> <ul style="list-style-type: none"> <li>• Bedside tablet-based experience surveys ('trackers')</li> <li>• Patient opinion website reports</li> <li>• Patient report websites such as the Emergency Medicine Events Register Consumer Reporting Portal</li> <li>• Australian Hospital Patient Experience Question Set</li> <li>• Patient and consumer focus groups, interviews or presentations to the governing body.</li> </ul>	<ul style="list-style-type: none"> <li>• Significant event status reports</li> <li>• Information from observation and conversations with executive safety walk-arounds and clinicians, spot checks, visits to clinical areas and routine reviews of working environments</li> <li>• Information from the workforce feedback (including whistle-blower processes), use of stories from the workforce (an extension of the quality improvement approach of patient stories) of experience of care, and immediate feedback mechanism to capture the experiences of the workforce and to get feedback from local leaders.</li> </ul>
<p>Q4: How can we spot problems in the future?</p>	<p>Routinely collected information can include a safety and quality performance dashboard to look for emerging patterns in multiple sources of data.</p>	<p>Supplementary qualitative data can be collected in several formats and synthesised to offer detailed and specific insights into real or potential problems in the quality of care. Information from patients and consumers can reach the organisation in the form of emails, social media posts and conversations on ward rounds. This information can be aggregated, compared with 'hard' metrics such as data collected from administrative and clinical information systems, or be used to add emotional force to an issue to influence behaviour change. Thematic analysis of patient-reported 'near misses' is also important.</p>	<ul style="list-style-type: none"> <li>• Organisational safety culture assessments (survey based and observation based)</li> <li>• Thematic analysis of 'near-miss' incident reports</li> <li>• Data on open-disclosure processes conducted</li> <li>• Structured reflection, including video-reflexive ethnography which is particularly helpful in complex situations</li> <li>• Governing body members' reporting of complaints, concerns and suggestions from members of the workforce</li> <li>• Governing body members' reports after having been allocated a 'scrutiny role' for particular areas of activity.</li> </ul>

<p>Q5: How can we learn for continuous improvement?</p>	<ul style="list-style-type: none"> <li>• Analysis of safety incidents over time to detect trends and patterns</li> <li>• Evidence of learning through incidents, understanding system weaknesses and ensuring they are addressed</li> <li>• Progress against benchmarks established by clinical registries, collaborations or peer developed performance standards</li> <li>• Ongoing refinement of the organisational quality dashboard of performance measures to reflect current priorities and high-risk areas</li> <li>• Development of localised targets (for example, within divisions) to increase competition across the health service, reflect on progress and ensure that smaller organisational units are held accountable.</li> </ul>	<ul style="list-style-type: none"> <li>• Trend analysis on consumer feedback tools</li> <li>• Systematic analysis of patient complaints</li> <li>• Clinical quality registry reports and feedback loops, including patient-reported outcome measures</li> </ul>	<ul style="list-style-type: none"> <li>• Clinical quality registry performance reports; feedback loops; or collaborative learning workshops involving patients, members of the workforce, researchers and managers</li> <li>• Progress against benchmarks established by clinical quality registries, collaborations or peer-developed performance standards</li> <li>• Peer-reported clinical excellence</li> <li>• Feedback from quality improvement programs, including progress reports and third-party assessments</li> <li>• Workforce perceptions on addressing safety from surveys.</li> </ul>
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Under the question “How safe and high quality is our care today?”, the new guideline suggests the use of “real-time” information to reflect the timeliness of clinical performance. Compared to the indicators suggested in 2015 guideline, it proposes some innovative information sources. For example, it suggests collecting information from observation and conversation with executive safety walk-arounds and clinicians, spot checks, and visits to clinical areas. This information may be very valuable but would require effort to collect in a working environment.

The new guideline also provides suggestions on how the information can be presented for interpretation. For example, under the question of “how safe has our care been”, it suggests the key indicators to be presented as: 1) risk-adjusted data by casemix, age and sex; 2) time series to assess trends; 3) funnel plots including peer organisation to identify outliers.

Although the new guideline provides comprehensive information for boards’ consideration, it suggests that governing bodies must consult with relevant managers and members of the workforce about the best types of information to use to answer each of the five questions to avoid excessive a burden on those responsible for reporting.

## 4.2 Western Australia

### 4.2.1 Key organisations in the safety and quality area

Western Australia (WA) Health publishes an annual healthcare quality and patient safety report, entitled *Your safety in our hands in hospital: An Integrated Approach to Patient Safety Surveillance* by WA Health Service Providers, Hospitals and the Community. Recent versions of this annual report have been augmented to align with the NSQHS, by providing aggregated state-wide rates of clinical incidents.<sup>59</sup>

In addition, the Healthcare Associated Infection Unit (HAIU) also produces quarterly and annual reports on information including rates of various infections such as surgical site infection following various procedures, healthcare associated *Staphylococcus aureus* bloodstream infections and

hospital-identified *Clostridium difficile* infections.<sup>60</sup> WA Health also undertakes online reporting with a dedicated healthcare performance portal which includes patient safety and healthcare quality indicators, at an individual hospital/facility level.<sup>61</sup>

#### **4.2.2 Reporting with a board focus**

During 2017, the Clinical Senate of Western Australia discussed and commissioned an activity related to selecting a minimum set of safety and quality indicators at a system level.<sup>61</sup>

The aim of this activity was to develop a standardised, contemporary and consistent set of safety and quality indicators to be used across WA Health to drive quality improvement and provide system assurance to the system managers and health service provider boards. Selection of such clinical indicators for benchmarking until then was typically determined at senior levels of executive management. Recognising the importance of involving clinical staff in critical service decisions to assist the achievement of organisational goals, this activity aimed to incorporate clinicians' input into the prioritisation of clinical indicators reported to management and governance bodies<sup>62</sup>. We describe the methodology employed to achieve this aim as follows.

##### **Framework**

Six internationally recognised domains of quality were utilised to categorise the indicators. These domains included: safety, patient centredness, efficiency, timeliness and accessibility, effectiveness and appropriateness, and equity. The criteria for the selection was the SMART (Specific, Measurable, Attainable, Relevant, Time-framed) rule.

##### **Indicator pool**

A set of clinical indicators was collated from five reputable sources, including:

- The Australian Commission on Safety and Quality in Healthcare
- The State Government of Victoria
- The State Government of Western Australia
- Private Healthcare Australia
- Prior Clinical Senate debates in Western Australia

After deleting repeated indicators and merging those that were similar, a dataset of 107 indicators were chosen and mapped into the six categories by clinicians.

##### **Process**

- An audit of voting outcomes from clinicians who were members of a Clinical Senate representing the State of Western Australia, Australia was undertaken.
- Clinicians received written information and a list of clinical indicators compiled from the five reputable sources.
- A facilitated debate was held utilising deliberative decision making, before clinicians voted on their top 20 indicators.

## Results

Their results included two parts: 1) the top 20 indicators among all 107 indicators provided; 2) the top 3 indicators in each of the six domains. These indicator details are presented in Table 8.5 and Table 8.6 (Appendix B).

### 4.3 New South Wales

#### 4.3.1 Key organisations in the safety and quality area

In New South Wales, the Ministry of Health has the statutory and policy responsibility for patient safety and clinical quality within the NSW public health system. The local hospital districts (LHDs) and specialty health networks (SHNs) are responsible for the safety and quality of the services provided by their facilities, staff and contractors.

The Clinical Excellence Commission (CEC) is a statutory health corporation and leading agency for safety and quality improvement in the NSW public health system. Its main tasks are reporting and analysing the information reported in the NSW clinical incident management system. Their reports cover clinical incident information relating to falls, pressure injuries and other adverse events and sentinel events. In addition, analysis of the root cause of such events is also included.

The Bureau of Health Information (BHI) was established by the NSW Government in 2009 as an independent, board-governed statutory authority following the Special Commission of Inquiry into Acute Care Services in NSW Public Hospitals. BHI is responsible for reporting on the performance of the health system in NSW with a whole-health-system perspective. This includes details on emergency department waiting times and transfer of care times as well as elective surgery waiting times (at a state-wide, LHD/SHN and facility level). BHI also publishes patient-reported data gathered through various patient surveys, such as outpatient surveys and admitted children and young patients' surveys.

The main report that BHI releases every year is a series entitled Healthcare in Focus – How Does NSW Compare.<sup>63,64</sup> It presents more than 100 indicators across six dimensions of performance: accessibility, appropriateness, effectiveness, efficiency, equity, and sustainability. The aim of this report is to compare NSW health system performance against an international or national counterpart, thereby strengthening healthcare policy in NSW. Therefore the 100+ chosen indicators are measuring the NSW health system with a strong policymaker's perspective. Table 8.7 (Appendix B) presents a list of all the indicators in the BHI Healthcare in Focus report.

#### 4.3.2 Reporting with a board focus

CEC released a guideline paper,<sup>65</sup> Measurement For Quality Improvement For Board Members And Executives, which identified seven questions boards should ask about patient safety. The questions were adapted from the NHS National Patient Safety Agency's Questions Are The Answer! Seven Questions Every Board Member Should Ask About Patient Safety.<sup>66</sup> These seven questions are:

1. Does everyone understand the importance of patient safety?
2. Do we really have an open and fair culture?



3. Are we actively encouraging reporting of incidents?
4. Do we get the right information?
5. Are we always open when things go wrong?
6. Do we learn from patient safety incidents?
7. Are we actively implementing recommendations and safety alerts?

This guideline suggests boards use reports that present real-time data and analysis, relying more on data that describe trends and patterns and less on aggregated data. CEC's website<sup>67</sup> also provides training courses and programs for executives and boards to help them understand quality improvement (QI), as well as tools (e.g., basic statistics, brainstorming techniques) for quality improvement practice.

## 4.4 Queensland

### 4.4.1 Key organisations in the safety and quality area

The Queensland Department of Health plays a key role in monitoring and managing safety and quality across the healthcare system in Queensland. Currently, the department provides hospital performance information to the public through its Hospital Performance website.<sup>68</sup> Activity and performance information relates to immunisation rates, emergency department attendances, elective surgery operations, hospital admission activity, percentage of patients waiting within the clinically recommended waiting times for specialist outpatient appointments, and patient experience for emergency department and maternity patient categories. Data can be viewed at a state-wide, regional or hospital level.<sup>69,70</sup>

The annual report published by the Clinical Excellence Division provides a high-level overview of safety and quality initiatives implemented in the 2016–2017 financial year.<sup>71</sup> A new suite of patient safety and quality indicators and reporting for hospital-acquired complications, maternity and paediatrics were introduced in 2017 to support monitoring of patient safety and quality.

The Statistical Services Branch has compiled a list of state and national health-related indicator sets and performance measurement frameworks with links to key information about indicators. Some links for indicator sets are only accessible to Queensland Health staff via the Queensland Health intranet (QHEPS).<sup>72</sup>

In 2017, Queensland Health released a discussion paper entitled "Expanding healthcare quality and patient safety reporting across Queensland's health system"<sup>71</sup> as the first step towards better understanding views on the collection, use and public reporting of safety and quality information. This discussion paper discusses the key considerations for expanding reporting. It points out that one of the dilemmas is the constant tension between the number of indicators or measures that are made available, and the usefulness of that information. Although it does not have a specific board focus, it suggests that a mix of safety and quality indicators should be reported with emphasis on the areas of clinical outcome data, clinical incident data, open disclosure, patient reported outcomes measures and patient reported experience measures. This discussion paper provides information about indicators currently reported by different organisations (Table 8.8, Appendix B).

#### 4.4.2 Reporting with a board focus

In addition to this system-wide reporting, across Queensland, a number of hospital and health services also publish certain data relating to the safety and quality of their services. For example, the Metro South Hospital and Health Service (MSHHS) publishes a Clinical Governance scorecard as an interactive document that reports performance against the National Safety and Quality Health Service (NSQHS) Standards.<sup>73</sup> The Clinical Governance scorecard is published on the MSHHS website and is updated twice a year. Metro South also releases an annual report providing an overview of the health service's financial and non-financial performance and key achievements, as well as the analysis of some of the safety and quality indicators. These reports are not developed exclusively with a board reporting focus, but the intended audience does include board members.

In addition, a service agreement was developed among hospital and health services, using a performance framework to monitor and assess performance. The performance measures proposed in the agreement include: 1) safety and quality markers which provide timely and transparent information on the safety and quality of services provided by the hospital and health service; 2) KPIs which focus on the delivery of key strategic objectives and state-wide targets and inform hospital and health service performance assessments; 3) outcome indicators which provide information on specific activities and interventions that are expected to make positive contributions to improving patients' health status and experiences; 4) supporting indicators which provide contextual information and enable an improved understanding of performance.<sup>74</sup> It is worth pointing out that the safety and quality markers suggested include: hospital acquired complications, sentinel events, hospital standardised mortality ratio, healthcare-associated Staphylococcus aureus bacteraemia, severity assessment code (SAC) 1–4 closure rates, unplanned readmission rates, and rate of healthcare-associated Staphylococcus aureus bloodstream infections.

### 4.5 South Australia

#### 4.5.1 Key organisations in the safety and quality area

The South Australian (SA) Department of Health and Wellbeing aligns its safety and quality programs, frameworks and reporting with the NSQHS Standards. The SA Department of Health and Wellbeing produces two key reports related to safety and quality: the annual Patient Safety Report and the Measuring Consumer Experience Annual Report.<sup>75</sup>

The Patient Safety Report provides detail on the number of clinical incidents and sentinel events, compliance with accreditation, as well as consumer feedback (complaints), healthcare-associated infections, medication incidents, patient identification incidents, incidents relating to transfusion of blood and blood products, pressure injuries, falls, and hand hygiene. Findings from the Measuring Consumer Experience Annual Report are also incorporated into the Patient Safety Report. Data is reported at a state-wide aggregate and compared to other jurisdictions. Data are benchmarked against national standards and targets. The department also compares hand hygiene compliance to the state target. Quantitative analysis is supported by detailed information on the programs, initiatives, and actions being undertaken to learn from, and prevent future occurrences of, patient harm.<sup>75</sup>

## 4.5.2 Reporting with a board focus

On the SA Health website, there are several resources that link to safety and quality:

- Partnering with consumers and the community
- Safety Learning System malpractice
- **Governance for safety and quality**<sup>76</sup>
- Safety and quality programs
- Medication safety
- Standards and accreditation on safety and quality.

Under “Governance for safety and quality”, there is the “SA Health Governance for Safety and Quality in Health Service Organisations Accreditation Resource” which can be used to support the leaders of a health service organisation in improving the safety and quality of their services.<sup>77</sup> A number of examples are presented to show how the standards are met. For example, in the sub-section of “Measurement and quality improvement”, it is noted that Safety and Quality Reports are circulated and discussed at different management levels (e.g., SA Health Partnering with Consumers and Community Advisory Group, LHN Consumer and Community Advisory Committees Groups, Health Advisory Councils). Similarly, the Patient Safety Report is circulated among the SA Health Executive, Local Health Networks CEOs, and the Health and Community Services Complaints Commissioner.<sup>77</sup>

## 4.6 Victoria

### 4.6.1 Key organisations in the safety and quality area

In Victoria, the Department of Health and Human Services is responsible for ensuring that high quality and safe healthcare services are delivered to the community. Since 2015, performance measures have been incrementally introduced to strengthen the focus on safety and quality, particularly in maternity and newborn care. Performance measures have been aligned to the NSQHS Standards. Health services provide quarterly performance reports and annual reports.

In October 2016, the Victorian Government released the Targeting Zero: Supporting The Victorian Hospital System To Eliminate Avoidable Harm And Strengthen Quality Of Care (Targeting Zero) report.<sup>78</sup> The report made 179 recommendations for healthcare system improvements and reform. Three recommendations were related to the reporting of safety and quality data<sup>78</sup>:

- The public should be provided with hospital safety and quality performance data on a quarterly basis that covers all safety and quality indicators against which hospitals are monitored, with the names of all hospitals to be identified
- Hospitals and department leadership should be provided with a monthly report detailing hospital performance against all safety and quality indicators
- Clinical networks and hospitals should be provided with an interactive data portal that enables users to explore patient outcomes and patient journeys in their hospital and compare their outcomes with other hospital outcomes.

As part of the reforms to strengthen safety and quality, the Victorian State Government established two agencies reporting to the Department Secretary: Safer Care Victoria (SCV) and VAHI. SCV works with health services to identify key performance frameworks and indicators for safety and quality across the sector, which form a core part of performance accountability. VAHI leads the safety and quality reporting for the benefit of the Victorian community in partnership with the hospitals, SCV and the Victorian Department of Health and Human Services.

#### **4.6.2 Reporting with a board focus**

VAHI produces a suite of reports designed to meet the needs of a range of audiences, including the general public, health services and their executives, clinical leads, boards and the Victorian Department of Health and Human Services. The report designed for boards is called the “Board Safety and Quality Report” and is the focus of the redesign effort this study is informing.

In 2014, researchers from the University of Melbourne published a paper entitled *Governance Of Quality Of Care: A Qualitative Study Of Health Service Boards In Victoria, Australia*.<sup>79</sup> This paper describes the engagement of health service boards with quality-of-care issues and identifies factors that influence boards’ activities in this area. Authors interviewed 35 board members and executives from 13 public health services in Victoria.

The results showed that all interviewed board members believed boards had substantial opportunities to influence the quality of care delivered within the service, primarily through setting priorities, monitoring progress, holding staff to account and shaping culture. Perceived barriers to leveraging this influence included insufficient resources, gaps in skills and experience among board members, inadequate information on performance, and regulatory requirements that miss the mark. Interviewees converged on the following four enablers for effective quality governance:

- Stronger regional collaborations
- More tailored board training on quality issue
- Smarter use of reporting and accreditation requirements
- Better access to data that were reliable, longitudinal and allowed for benchmarking against peer organisations.

## 5 Discussion

In this section, we summarise findings from the environmental scan of board and strategic level reporting on safety and quality in the international and Australian landscapes. We start by reviewing the guidelines and frameworks identified from the point of view of how they can inform the BSQR redesign process. We then discuss the experiences of key organisations that have undertaken this journey and discuss key challenges they have identified and lessons that they report having learnt.

### 5.1 International guidelines and frameworks

A search of the international landscape identified several guidelines and frameworks which provide guidance on measuring and monitoring performance of healthcare organisations from a board or governing body perspective.

IHI's Whole System Measures and the UK's five-question framework have probably had the greatest impact on organisations undertaking this journey. IHI's "Big Dot" approach provides organisational leaders with a set of strategic measures that represent overall performance and a mechanism for connecting these to measurable process and outcome indicators at program and unit levels that can be targeted to deliver improvements. The five-question framework provides structure and clarity for the measurement and monitoring of safety. It supports the self-reflection and organisational analysis for information gaps and quality improvement. Other guidelines (e.g., IHI's guiding questions on establishing a balanced set of outcome/process/balance measures, the Board Assurance Framework, Dr Foster's Intelligent Board) also provide guidance and practical resources for boards to align the safety and quality measures to their strategic objectives.

The common theme flowing across these frameworks is the use of a balanced set of strategic measures that reflect organisational priorities. This aligns with VAHI's current efforts to align the redesign process to a new framework that reflects the organisational values and focus.

Our scan also identifies some frameworks developed for a broader purpose and audience, such as frameworks at health system level (e.g., CIHI's Health System Performance Measurement Framework) and conceptual frameworks. They all aim to provide a better understanding of the underlying performance of a hospital and critical factors that drive its performance in safety and quality. WSM 2.0 has broadened its initial WSM scope for the measures to reflect the emerging shift from a focus on disease to a broader focus on health, which not only looks at healthcare system patients but also people living in the communities that the healthcare system serves. It is expected that an understanding of the salient features of these frameworks will provide an overarching understanding of other aspects to consider as part of the redesign journey. Care must be taken however to assess these within the context and priorities of the individual health systems for which they have been designed.

## 5.2 Australian guidelines and frameworks

A key consideration for the redesign process is how the new BSQR aligns with national and state-based guidelines and supports national and state-wide benchmarking. In Australia, there are several organisations and regulations at varying levels (e.g., national, state and territory, service provider) that relate to reporting and monitoring of safety and quality. The most comprehensive resource related to this redesign is the NSQHS Standards User Guide for Governing Bodies developed by the Australian Commission on Safety and Quality in Health Care.

The NSQHS guide recommends that members of governing bodies exercise their governance responsibilities for implementing the NSQHS Standards and investigate how they can monitor and manage safety and quality in their own services. The new 2019 NSQHS user guide for governing bodies proposes a five-question framework adapted from the UK's five-question framework. It presents an updated set of five guiding questions that governing bodies should consider and ask about the safety and quality of their services. The guideline lists detailed measures under each question and provides suggested indicators and information that governing bodies should review and discuss frequently. The guideline also emphasises the value of “real-time” information on monitoring clinical performance in a timely way. It suggests that board members and executives walk around and talk to frontline clinicians to gather information. In addition, it points out that the way in which information is presented and interpreted can also be influential. For example, it suggests that trend data with commentary on actions may better help governing bodies operate and track performance.

Our scan also identifies frameworks and guidelines adopted by various states and adds to the knowledge base available for consideration as part of the redesign journey.

## 5.3 The experience of identifying measures and indicators

The most comprehensive and systematic information available about the experience of adopting appropriate frameworks to redesign board level reporting is available from efforts in Canada and one effort in New Zealand that have undertaken the process of aligning with IHI's Whole System Measures for improvement monitoring and external comparison purposes. The experience of St. Joseph's Healthcare Hamilton (SJHH) Ontario and Toronto Central Local Health Integration Network (LHIN) in Canada have been discussed in detail, as has the experience of Counties Manukau Health in New Zealand. Their journeys involved a review of literature to understand the definition of quality and frameworks, developing criteria for identifying big dots, and an evaluation of their existing metrics to narrow the number of big dot metrics for the board to monitor. The final set of measures were chosen based on their ability to inform the monitoring of improvement towards the health service's strategic objectives.

In Australia, effort undertaken by the Western Australia Clinical Senate represents the only publicly reported effort that we could identify as aligning closely with this redesign effort. They shortlisted a set of safety and quality indicators for consideration by health service boards. These indicators were voted on by a multidisciplinary group of clinicians who work on a daily basis with patients. Clinicians assimilated data from existing reputable indicators sources and ranked those indicators. Before voting, a facilitated debate was held to inform decision making. In the end, clinicians voted on their top 20 indicators and the top 3 indicators in each of the six dimensions:

safety, patient centredness, efficiency, timeliness and accessibility, effectiveness and appropriateness, and equity. While this effort is recent, it represents a stronger focus on clinical-led selection than has been reported internationally, and their experience with using these metrics in practice may offer unique insights to the redesign process.

Challenges and lessons learnt have been discussed in the international landscape based on their contexts. The Canadian implementations outline the following challenges in their efforts to select system-level categories and indicators:

- *Comparative measurement activities are limited by the availability of valid, reliable data across different organisations:* The difficulty of comparing the performance of different hospitals against several indicators due to the lack of consistency was presented as a challenge by Toronto Central LHIN.<sup>16</sup> Another Canadian study pointed out that some quality indicators were not well captured in existing data sources. They argued that measurements should be developed based on the problem and not the available data.<sup>28</sup>
- *The measurement of patient experience and care for complex patients:* Many complex patients receive care from multiple healthcare providers and sectors. Developing indicators for measuring care for complex patients was also complicated by the definitions of complex users according to Toronto Central LHIN.<sup>16</sup> They indicated that it was difficult to identify a minimum set of common indicators in the context of promoting continuous quality of care.
- *Practical challenges in selecting and developing measures:* Several challenges have been pointed out by IHI in their process of developing the original WSM,<sup>9</sup> such as lack of adequate measures in some subdomains, needed versus available measures, frequency of data collection, outcome versus process measures etc. SJHH also pointed out the challenge of distinguishing whole system measures from process indicators.<sup>13</sup>

To overcome the challenges of applying guidelines and frameworks to particular local contexts, IHI's WSM and the five-question framework have provided useful strategies:

- The following principles have been suggested by IHI<sup>9</sup> to guide the selection of measures when adopting the WSM:
  - Where possible, select measures that address multiple requirements by payers, accreditors, and other regulatory bodies.
  - Select measures with room for improvement.
  - Where possible, select measures with data available monthly or quarterly, and electronically.
  - Prioritise measures that are not overly complex.
  - Select measures that capture multiple services and sites of care.
  - Select measures that are important in driving toward the Triple Aim.
- The five-question framework suggests these approaches when adopting the framework<sup>31</sup>:
  - Sensing problems, not just seeking assurance: start with an honest assessment of where you are, what safety information you hold and where the gaps exist.
  - Looking in, not just looking out: listening to what your staff and patients say is important for understanding safety.

- Doing less, not just doing more: resist the temptation to introduce a new set of measures before assessing whether the current ones are adding value.

The big dot metrics implementations in Canada have relied on these criteria to select their individual system-level measures. Some have also summarised the strategies adopted to overcome the challenges faced in the processes. Toronto Central LHIN relied on strong engagement with stakeholders, selecting indicators through patients' eyes, selecting the right measures and then tweaking them and making data the conversation starter.<sup>16</sup> Similarly, SJHH identified the following factors as being responsible for their success with their quality governance journey: identifying board champions, promoting team unity, taking methodical and systematic approaches, resourcing the process and reviewing outcomes.<sup>13</sup>

Suggestions to address the issue of the lack of valid and reliable data have also been proposed by researchers. Using a combination of measures that use different data sources to allow effective triangulation was recommended by Canadian researchers.<sup>28</sup> Research from the UK suggested the use of easy-to-control single value activities and standardised routine activities to measure hospital performance, and for the hospital to compare its performance with its own statistics from previous years.<sup>80</sup>

Barriers and potential solutions for improving board oversight and engagement have been reported by researchers from the University of Melbourne. By interviewing a group of Victorian health board members and executives, they found that boards have substantial opportunities to influence the quality of care by setting priorities, monitoring progress, holding staff to account and shaping culture.<sup>79</sup> Gaps in skills and experience among board members was identified as one of the barriers to overcome. Suggested solutions included tailored board training on quality issues, smarter use of reporting and accreditation requirements, and better access to data that are reliable, longitudinal and allow for benchmarking against peer organisations. Good examples of skills training are the courses, programs, and quality improvement practice tools provided by the CEC in New South Wales for executives and board members.

It is expected that understanding the journey undertaken by other organisations in redesigning their board level reporting, including the challenges they faced, the lessons they learnt and the strategies they adopted to overcome identified barriers will provide valuable insights to help shape VAHI's redesign effort.



## 6 Conclusion

This environmental scan has identified several guidelines, performance frameworks and indicators that have been developed for safety and quality performance measure and reporting at the board level. These have been discussed in detail, with the international landscape focussing on efforts in Canada and the UK, and the Australian landscape covering the national standards and guidelines and ongoing efforts in various states. Valuable insights that can be drawn are discussed, including challenges faced, strategies employed, and lessons learnt. It is anticipated that this document will contribute significantly to the knowledge that informs VAHI's process of identifying strategic metrics suitable for inclusion in the new Board Safety and Quality Report.

Improving safety and quality in healthcare is a moving target. We hope our exploration through this environmental scan proves beneficial for VAHI and other organisations working towards improving the measurement and reporting of safety and quality at a strategic level with the ultimate goal of delivering better and safer care for patients.

# 7 Appendix A – International examples

## A.1 CIHI Health System Performance Measurement Framework

CIHI released the Health System Performance Measurement Framework in 2013. The framework consists of four interrelated quadrants: health system outcomes, social determinants of health, health system outputs, and health system inputs and characteristics (Figure 7.1).

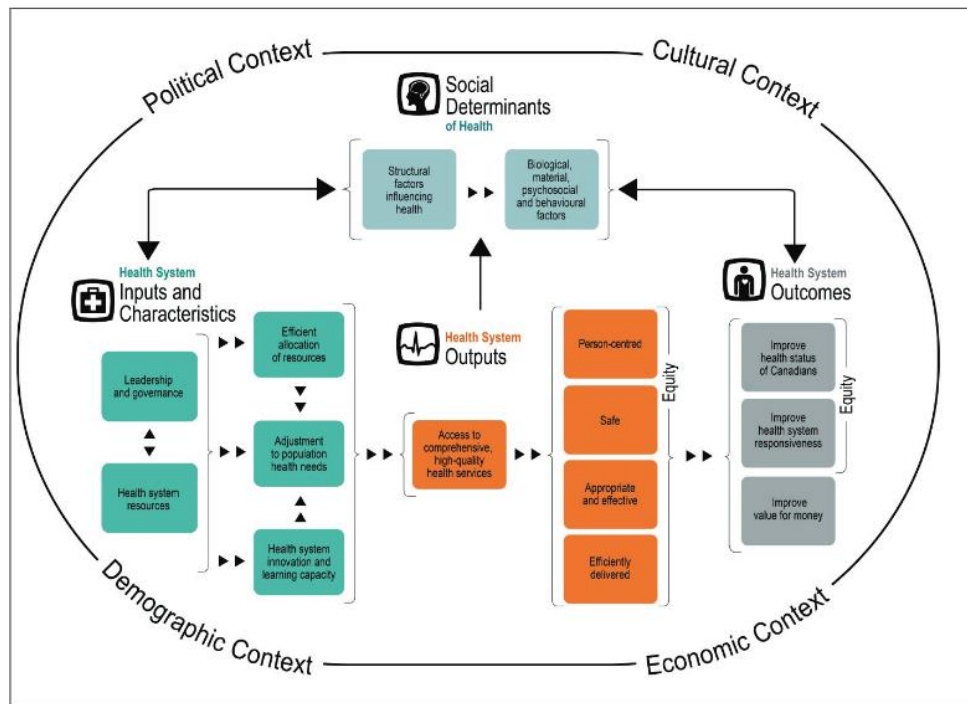


Figure 7.1 CIHI’s Health System Performance Measurement Framework

CIHI’s cascading hospital framework dimensions that can be mapped onto the hospital balanced scorecard perspectives are shown in Table 7.1.

Table 7.1 Dimensions of the CIHI Hospital Performance Framework and examples of indicators

Dimensions of the Hospital Performance Framework		
Exogenous Factors		
Social Determinants of Health	Social determinants of health represent the factors outside the health system that influence the health of a population. In this framework, these include structural factors such as income and social status, education and literacy, and gender and ethnicity. The structural factors shape and operate through intermediary factors including material and psychosocial circumstances and behavioural and biological factors.	<ul style="list-style-type: none"> <li>Indicators on income, age, environment, education, behaviours and lifestyles should be used to provide context for hospital outcome indicators.</li> </ul>
Health System	All organisations, people and actions whose primary intent is to promote, restore or maintain health.	<ul style="list-style-type: none"> <li>Indicators on the use of other services in the health system (primary care, public health, rehabilitation, etc.) should be used to provide context for</li> </ul>

		hospital outcome indicators.
Hospital Inputs		
Hospital Leadership and Governance	The degree to which a hospital is responsive to community needs, ensures care continuity and coordination, promotes health, is innovative and provides care to the community it serves.	<ul style="list-style-type: none"> <li>Indicators are needed on hospital/primary care/public health integration and consideration of patient needs when making resource allocation decisions.</li> </ul>
Quality and Quantity of Hospital Resources	Hospital resources refer to the information, physical and human resources used to deliver patient care in hospital. Leadership and governance is responsible for policies and procedures that ensure that hospital staff are appropriately qualified to deliver the required patient care, have the opportunity for continued learning and training, work in positively enabling conditions and are satisfied with their work. Physical resources include physical structures and facilities among other things, while information resources include use of information technology and development of systems that provide information to support decision-making and delivery of care.	<ul style="list-style-type: none"> <li>Total beds staffed and in operation</li> <li>Total budget or expenditures</li> </ul>
Efficient Allocation of Hospital Resources	Efficient allocation of resources measures how the resources available to the hospital are combined to produce health services to meet the population-based demands and needs of the community served by the hospital.	<ul style="list-style-type: none"> <li>Nursing inpatient services total worked hours per weighted case</li> <li>Diagnostic services total worked hours per weighted case</li> <li>Clinical laboratory total worked hours per weighted case</li> <li>Pharmacy total worked hours per weighted case</li> </ul>
Adjustment to Community and Local Needs	This refers to the capacity of the hospital to continually adapt to meet the health needs of the community it serves through understanding those needs as well as working with external agencies in the community to address and adjust to the impact of social determinants of health.	<ul style="list-style-type: none"> <li>Indicators are needed on the extent to which hospitals work with community organisations and respond to local needs.</li> </ul>
Hospital Innovation and Learning Capacity	Hospital innovation represents the implementation of an internally generated or borrowed idea – whether pertaining to a product, device, system, process, policy, program or service – that was new to the organisation at the time of adoption. Learning capacity in the health system refers to the extent to which the system is “skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect knowledge and insights.”	<ul style="list-style-type: none"> <li>Indicators are needed on information technology implementation in hospitals, knowledge transfer activities, quality improvement activities, performance measurement activities, etc.</li> <li>Indicators are needed on the time taken to adopt best practice processes in hospitals (development of clinical guidelines, monitoring of processes, etc.).</li> </ul>

Hospital Outputs		
Access to High-Quality Hospital Services	Access to comprehensive hospital services corresponds to the range of hospital services available and the hospital's ability to meet the needs of the community served or a particular patient without financial, organisational or geographical obstacles standing in the way of seeking or obtaining these services.	<ul style="list-style-type: none"> <li>• Emergency department (ED) wait time for physician assessment</li> <li>• Total ED length of stay</li> <li>• Hip fracture surgical procedures performed within 48 hours across facilities</li> <li>• Number of days the ED was closed/number of days the ED was over capacity</li> </ul>
Appropriate and Effective	When a hospital, in line with the current state of knowledge, appropriately and competently delivers clinical care or services to, and achieves the desired outcomes for, all patients likely to benefit most.	<ul style="list-style-type: none"> <li>• Use of coronary angiography following acute myocardial infarction (AMI)</li> <li>• 30-day overall readmission</li> <li>• 30-day obstetric readmission</li> <li>• 30-day readmission — patients aged 19 and younger</li> <li>• 30-day surgical readmission</li> <li>• 30-day medical readmission</li> </ul>
Person-Centred	When a hospital places patients at the centre of care and service delivery by paying particular attention to patients and their families' needs, expectations, autonomy, access to hospital support networks, communication, confidentiality, dignity, choice of provider and desire for prompt, timely care. The degree to which a hospital ensures that patients and clinicians have access to, and take into consideration, all required information on a patient's conditions and treatments to ensure that the patient receives appropriate healthcare services. Patient experience with hospital services is related to providing hospital care that is respectful of and responsive to individual patients' preferences, needs and values, and the assurance that patient values guide all clinical decisions. The degree to which patients and the community served by the hospital perceive hospital services as being part of a seamless (coordinated and integrated) experience with the health system.	<ul style="list-style-type: none"> <li>• Restraint use for mental illness, as a measure of being treated humanely</li> <li>• Rate of transfers to another facility</li> <li>• Patient experience indicators</li> <li>• Indicators are needed in the responsiveness domains, particularly those that address coordination and integration of hospital care with services from other providers.</li> </ul>
Efficiently Delivered	The extent to which a hospital maximises the volume of healthcare services delivered for the minimal amount of resources used.	<ul style="list-style-type: none"> <li>• Administrative expense as a percentage of total expense</li> <li>• Cost of a standard hospital stay</li> <li>• Number of inpatient cases (separations)</li> <li>• Average Resource Intensity Weight</li> <li>• Average length of stay</li> <li>• Percentage of alternate level of care days</li> <li>• Percentage of alternate level of care cases</li> <li>• Total beds staffed and in operation</li> </ul>
Hospital Outcomes		

<p>Patient Survival and Degree of Health Recovery and Health Protection</p>	<p>Patient survival is of overriding importance to most patients and can be measured over various periods appropriate to the medical condition. Degree of health or recovery achieved or retained at the peak or steady state normally includes dimensions such as freedom from disease and relevant aspects of functional status. Health protection refers to ensuring that a patient's health will be protected upon discharge through continuing integrated care and patient behaviours.</p>	<ul style="list-style-type: none"> <li>• Hospital standardised mortality ratio</li> <li>• Hospital deaths following major surgery</li> <li>• Patient reported outcome measures</li> </ul>
<p>Responsiveness to Community Served</p>	<p>The degree to which the hospital ensures that the continued needs of its patients are met upon discharge, including referral to community resources or partnership with other healthcare professionals. Also the extent to which the hospital is able to provide services that address the needs within its community for acute care.</p>	<ul style="list-style-type: none"> <li>• Indicators of hospital coordination and integration with other healthcare providers.</li> <li>• Indicators of how the hospital has been addressing community needs over time.</li> </ul>
<p>Hospital Value for Money</p>	<p>Hospital contribution to health system value for money measures the level of achievement of health protection, patient survival and responsiveness given the resources used and compares this with the maximum attainable level.</p>	<ul style="list-style-type: none"> <li>• Indicators relating the extent to which the previous two outcomes have been achieved to the resources used.</li> </ul>

## A.2 A conceptual approach to quality indicator development and evaluation

A Canadian example of the quality indicator development process is outlined in Figure 7.2. The Calgary University researchers drew on synthesised research to help the development of a list of potential quality indicators. A consensus methodology and a quality standardised information sheet was used (Figure 7.3) to develop a final set of indicators.

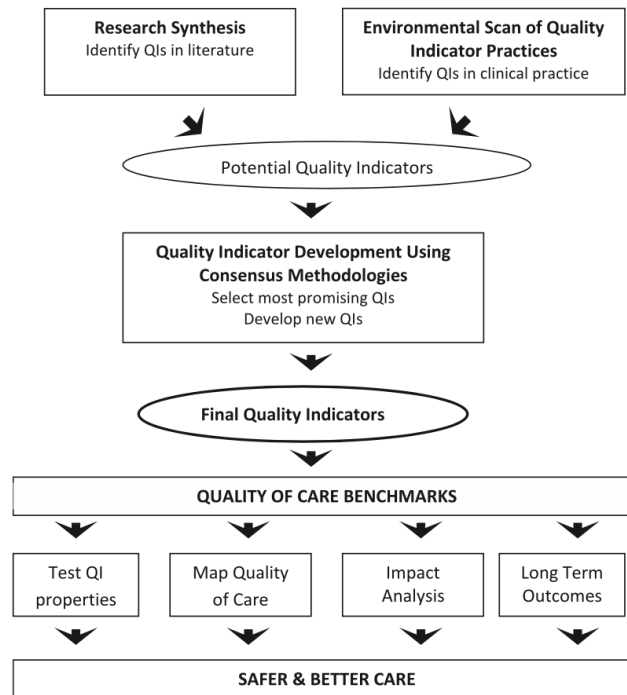


Figure 7.2 The quality indicator development process example

**Quality indicator:** \_\_\_\_\_

**Description of Indicator<sup>a</sup>**

Source	
Definition	
Numerator	
Denominator	
Type of Indicator	

**Summary of Evidence**

Types of Studies	
Study Conclusions	
Level of Evidence	

**Current Utilization (Evidence from Environmental Scan)**

Current utilization by trauma centers	
---------------------------------------	--

**Reviewer Ratings<sup>b</sup>**

Quality Indicator Dimensions	Disagree			Neutral			Agree		
	1	2	3	4	5	6	7	8	9
Targets Important Improvements									
Precisely Defined & Specified									
Reliable									
Valid									
Appropriate Risk Adjustment									
Reasonable Cost Data Collection Effort									
Results Easily Interpreted									

Overall Assessment	Unnecessary			Supplemental			Necessary		
	1	2	3	4	5	6	7	8	9

**Written comments**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

<sup>a</sup> Quality indicator standardized information sheet derived from a template used by the Agency for Healthcare Research and Quality (3).  
<sup>b</sup> Reviewer rating scale derived from the RAND/University of California appropriateness method (57).

Figure 7.3 Quality indicator standardised information sheet example

### A.3. System-level measures at the Counties Manukau Health District Health Board in New Zealand

Counties Manukau Health (CMH) in New Zealand reported their work in developing a set of system level measures to track performance for quality improvement at the local District Health Board (DHB). Details of the system-level measures and the proposed gold standards can be found in Table 7.2.

**Table 7.2 Gold standards for performance on 15 system level measures at CMH New Zealand**

System-level measure	Data definition	Proposed gold standards
Health services utilisation	Percentage not enrolled in a primary health organisation within a month of discharge from secondary inpatient care	1.1%
Acute hospital readmission (ASH)	Percentage readmitted within 28 days of index discharge	3.4%
Hospital days during last 6 months of life	Total hospital days in the last 6 months for patients who have had a death recorded in hospital	6.3 days
Hospital standardised mortality rate	$100 \times \text{Observed Deaths} / \text{Expected Deaths}$	76.6
Ambulatory sensitive hospitalisation	Admission rate per 1,000 for those admitted with an ASH condition and domiciled in CMH District Health Board locale.	14.6%
Childhood immunisation status	Percentage of children fully immunised at 8 months of age	96%
Adverse events	This measure is consistent with the Global Trigger Tool and is defined as the rate of adverse events (AEs) that cause harm to the patient, based on a review of a representative sample of hospitalised patients' medical records. AEs per 1,000 Bed Days = $(\text{Total number of AEs} / \text{Total length of stay for all patient records reviewed}) \times 1,000$	23.5
Cardiovascular risk assessments	Percentage of the eligible population (8,074) will have had their cardiovascular risk assessed in the last 5 years	96%
Patient experience of care	Percentage of patients rating their care as 'very good' or 'excellent'	90%
Access to outpatient diagnostics	Percentage of all outpatient referrals for radiology completed within 6 weeks	95.4%
Waitlist for elective surgery	Patients given a commitment to treatment but not treated within the required timeframe (4 months)	100%
Emergency department length of stay	The percentage of patients admitted, discharged, or transferred from the CMH emergency department (ED) within 6 hours	96.9%
Workforce retention (annualised)	Percentage of turnover per annum	4.8%
Healthcare costs per capita	Numerator – The sum of total expenditure on health for CMH – Denominator: Total CMH patient population	\$3,664 (US dollars)
Life expectancy at birth	Estimated lifespan of an infant if they experience the current mortality rates of their population over the rest of their life	82.2 years

## 8 Appendix B – Australian examples

### B.1 PAF indicators for hospitals

The National Health Reform Performance and Accountability Framework (PAF)<sup>55</sup> is a framework designed to improve accountability and transparency of health service provision. Table 8.1 shows PAF Indicators for hospitals.

**Table 8.1 PAF Indicators for hospitals**

PAF Indicators for hospitals
6.2.1 Effectiveness – Safety and quality
6.2.1.1 Hospital Standardised Mortality Ratio
6.2.1.2 Death in low-mortality Diagnostic Related Groups
6.2.1.3 In hospital mortality rates for: <ul style="list-style-type: none"> <li>• Acute myocardial infarction</li> <li>• Heart failure</li> <li>• Stroke</li> <li>• Fractured neck of femur</li> <li>• Pneumonia</li> </ul>
6.2.1.4 Unplanned hospital readmission rates for patients discharged following management of: <ul style="list-style-type: none"> <li>• Acute Myocardial Infarction</li> <li>• Heart failure</li> <li>• Knee and hip replacements</li> <li>• Depression</li> <li>• Schizophrenia</li> <li>• Paediatric tonsillectomy and adenoidectomy</li> </ul>
6.2.1.5 Healthcare associated Staphylococcus aureus (including MRSA) bacteraemia
6.2.1.6 Healthcare associated Clostridium difficile infections
6.2.1.7 Rate of community follow up within the first seven days of discharge from a psychiatric admission
6.2.2 Effectiveness - Patient experience
6.2.2.1 Measures of the patient experience with hospital services
6.2.3 Equity and effectiveness - Access
6.2.3.1 Access to services by type of service compared to need
6.2.3.2 Emergency Department waiting times by urgency category
6.2.3.3 Percentage of Emergency Department patients transferred to a ward or discharged within four hours, by triage category
6.2.3.4 Elective surgery patient waiting times by urgency category
6.2.3.5 Cancer care pathway – waiting times for cancer care
6.2.4 Efficiency – Efficiency and financial performance
6.2.4.1 Relative Stay Index for multi-day stay patients
6.2.4.2 Day of surgery admission rates for non-emergency multi-day stay patients
6.2.4.3 Cost per weighted separation and total case weighted separations
6.2.4.4 Financial performance against activity funded budget (annual operating result)



## B.2 CHBOI indicators

In November 2009, Health Ministers endorsed the Commission's recommendation that hospitals routinely monitor and review a succinct set of indicators. These hospital-based outcome indicators (Table 8.2) can be generated by jurisdictions or private hospital ownership groups, which hold the source data, and reported back to provider facilities.

**Table 8.2 CHBOI indicators**

CHBOI indicators
CHBOI 1 Hospital standardised mortality ratio (HSMR)
CHBOI 2 Death in low-mortality Diagnosis Related Groups (DRGs)
CHBOI 3 In-hospital mortality for: a) acute myocardial infarction (AMI) b) stroke c) fractured neck of femur, and d) pneumonia
CHBOI 4 Unplanned/unexpected hospital readmission of patients discharged following management of: a) acute myocardial infarction (AMI) b) knee replacements c) hip replacements d) paediatric tonsillectomy and adenoidectomy
CHBOI 5 Healthcare associated <i>Staphylococcus aureus</i> bacteraemia (SAB)
CHBOI 6 <i>Clostridium difficile</i> infection (CDI).

## B.3 Hospital acquired complications

The national list of 16 hospital acquired complications (HACs) (Table 8.3) was developed through a comprehensive process that included reviews of the literature, clinical engagement and testing of the concept with public and private hospitals.

**Table 8.3 Hospital Acquired Complications**

Complication	Diagnosis
Pressure injury	<ul style="list-style-type: none"> <li>• Stage III ulcer</li> <li>• Stage IV ulcer</li> <li>• Unspecified decubitus ulcer and pressure area</li> </ul>
Falls resulting in fracture or intracranial injury	<ul style="list-style-type: none"> <li>• Intracranial injury</li> <li>• Fractured neck of femur</li> <li>• Other fractures</li> </ul>
Healthcare-associated infection	<ul style="list-style-type: none"> <li>• Urinary tract infection</li> <li>• Surgical site infection</li> <li>• Pneumonia</li> <li>• Blood stream infection</li> <li>• Central line and peripheral line associated bloodstream infection</li> <li>• Multi-resistant organism</li> <li>• Infection associated with prosthetics/implantable devices</li> <li>• Gastrointestinal infections</li> </ul>
Surgical complications requiring unplanned return to theatre	<ul style="list-style-type: none"> <li>• Post-operative haemorrhage/haematoma requiring transfusion and/or return to theatre</li> <li>• Surgical wound dehiscence</li> <li>• Anastomotic leak</li> <li>• Vascular graft failure</li> <li>• Other surgical complications requiring unplanned return to theatre</li> </ul>
Unplanned intensive care unit admission	<ul style="list-style-type: none"> <li>• Unplanned admission to intensive care unit</li> </ul>
Respiratory complications	<ul style="list-style-type: none"> <li>• Respiratory failure including acute respiratory distress syndrome requiring ventilation</li> <li>• Aspiration pneumonia</li> </ul>
Venous thromboembolism	<ul style="list-style-type: none"> <li>• Pulmonary embolism</li> <li>• Deep vein thrombosis</li> </ul>
Renal failure	<ul style="list-style-type: none"> <li>• Renal failure requiring haemodialysis or continuous veno-venous haemodialysis</li> </ul>
Gastrointestinal bleeding	<ul style="list-style-type: none"> <li>• Gastrointestinal bleeding</li> </ul>
Medication complications	<ul style="list-style-type: none"> <li>• Drug related respiratory complications/depression</li> <li>• Haemorrhagic disorder due to circulating anticoagulants</li> <li>• Hypoglycaemia</li> </ul>
Delirium	<ul style="list-style-type: none"> <li>• Delirium</li> </ul>
Persistent incontinence	<ul style="list-style-type: none"> <li>• Urinary incontinence</li> </ul>
Malnutrition	<ul style="list-style-type: none"> <li>• Malnutrition</li> </ul>
Cardiac complications	<ul style="list-style-type: none"> <li>• Heart failure and pulmonary oedema</li> <li>• Arrhythmias</li> <li>• Cardiac arrest</li> <li>• Acute coronary syndrome including unstable angina, STEMI and NSTEMI</li> </ul>
Third- and fourth-degree perineal laceration during delivery	<ul style="list-style-type: none"> <li>• Third- and fourth-degree perineal laceration during delivery</li> </ul>
Neonatal birth trauma	<ul style="list-style-type: none"> <li>• Neonatal birth trauma</li> </ul>

## B.4 Sentinel events list

In 2017, the Commission undertook a review of the Australian sentinel events list (Table 8.4) on behalf of the states, territories and the Commonwealth, and the updated Australian sentinel events list was endorsed by Australian Health Ministers in December 2018.

**Table 8.4 Australian sentinel events list (version 2)**

Australian sentinel events list (version 2) (2018)	
1	Surgery or other invasive procedure performed on the wrong site resulting in serious harm or death
2	Surgery or other invasive procedure performed on the wrong patient resulting in serious harm or death
3	Wrong surgical or other invasive procedure performed on a patient resulting in serious harm or death
4	Unintended retention of a foreign object in a patient after surgery or other invasive procedure resulting in serious harm or death
5	Haemolytic blood transfusion reaction resulting from ABO incompatibility resulting in serious harm or death
6	Suspected suicide of a patient in an acute psychiatric unit or acute psychiatric ward
7	Medication error resulting in serious harm or death
8	Use of physical or mechanical restraint resulting in serious harm or death
9	Discharge or release of an infant or child to an unauthorised person
10	Use of an incorrectly positioned oro- or naso- gastric tube resulting in serious harm or death

## B.5 Indicators selected in WA clinical senate meeting

Results included two parts: 1) the top 20 indicators among all 107 indicators provided (Table 8.5); 2) the top 3 indicators in each of the six domains (Table 8.6).

**Table 8.5 Top 20 indicators as voted by Clinical Senators**

Top 20 as voted by Clinical Senators/Proxies		
1	SAC 1 (Severity Access Code) events <ul style="list-style-type: none"> <li>• Reports completed within 28 days</li> <li>• Timeliness of evaluation reports</li> <li>• Related to failure to escalate care</li> <li>• Related to failure of clinical handover</li> </ul>	Safety
2	Hospital acquired complications dataset (HACs)	Safety
3	Potentially preventable hospitalisations indicators <ul style="list-style-type: none"> <li>• Vaccine preventable indicators</li> <li>• Chronic conditions (CCF, Diabetes, COPD, angina)</li> <li>• Acute condition (UTI, Cellulitis, dental, ENT)</li> </ul>	Equity
4	Medication safety <ul style="list-style-type: none"> <li>• Percentage of patients who required medical intervention as a result of medication safety incident</li> </ul>	Safety
5	Clinical handover <ul style="list-style-type: none"> <li>• Documented clinical handover in high risk settings</li> </ul>	Safety
6	Discharge summary completion rates <ul style="list-style-type: none"> <li>• Completion rates within 48 hours</li> </ul>	Timeliness and Accessibility
7	Staff satisfaction and engagement survey	Effectiveness and appropriateness
8	Links with primary care <ul style="list-style-type: none"> <li>• Presence of a formal agreement at Board or senior health service management level with the local primary care provider that is reviewed on an annual basis with that provider</li> </ul>	Equity
9	National patient experience survey <ul style="list-style-type: none"> <li>• Inpatients</li> <li>• Outpatients</li> <li>• Paediatric patients</li> </ul>	Patient centredness and Timeliness
10	Staff measurements <ul style="list-style-type: none"> <li>• Sickness</li> <li>• Turnover</li> <li>• Annual leave outstanding</li> <li>• Executive team turnover</li> </ul>	Efficiency

11	<p>Staff attitudes towards management</p> <p>Percentage of clinical staff who agree with the following:</p> <ul style="list-style-type: none"> <li>• Patient care errors are handled appropriately in my work area.</li> <li>• This health service does a good job of training new and existing staff.</li> <li>• I am encouraged by my colleagues to report any patient safety concerns I may have.</li> <li>• The culture in my work area makes it easy to learn from the errors of others.</li> <li>• Trainees in my discipline are adequately supervised.</li> <li>• My suggestions about patient safety would be acted upon if I expressed them to my manager.</li> <li>• Management is driving us to be a safety-centred organisation.</li> <li>• I would recommend a friend or relative to be treated as a patient here.</li> </ul>	Effectiveness and appropriateness
12	<p>Selected obstetric and neonatal dataset</p> <ul style="list-style-type: none"> <li>• Percentage of term babies requiring admission to SCU or NICU</li> <li>• Caesarean section rate in low risk primigravid woman with term pregnancy</li> <li>• Postpartum haemorrhage rates</li> <li>• Documented evidence of advice on smoking cessation</li> <li>• Vaccination rates for influenza and Pertussis</li> </ul>	Safety
13	<p>Selected mental health dataset</p> <ul style="list-style-type: none"> <li>• Documents evidence of a physical examination and physical health assessment in a mental health inpatient at time of discharge</li> <li>• Health of the nation outcome scale (HoNOS)</li> <li>• Readmission within 30 days</li> </ul>	Effectiveness and appropriateness
14	Patient reported outcome measures	Patient centredness
15	Mortality audits within each discipline	Safety
16	Readmission within 28 days	Effectiveness and appropriateness
17	<p>Patient Complaints (Response to complaints dataset)</p> <ul style="list-style-type: none"> <li>• Number</li> <li>• Percentage resolved</li> <li>• Type</li> </ul>	Patient centredness
18	<p>Selected theatre dataset</p> <ul style="list-style-type: none"> <li>• Unplanned return to theatre</li> <li>• Incidence of blood transfusion in surgical patients</li> <li>• Cancellation of day surgery patient on day of surgery</li> </ul>	Safety
19	Number of Selected Inappropriate tests performed (Inappropriate tests as suggested by Choosing Wisely)	Effectiveness and appropriateness
20	Staff credentialing metrics	Effectiveness and appropriateness

**Table 8.6 Top three clinician-voted clinical indicators in the six domains of quality**

Rank	Indicator
<b>Safety</b>	
1	SAC 1 (Severity Access Code) events <ul style="list-style-type: none"> <li>• Reports completed within 28 days</li> <li>• Timeliness of evaluation reports</li> <li>• Related to failure to escalate care</li> <li>• Related to failure of clinical handover</li> </ul>
2	Hospital acquired complications dataset (HACs)
3	Medication safety <ul style="list-style-type: none"> <li>• Percentage of patients who require medical intervention as a result of a medication safety incident</li> </ul>
<b>Patient centredness</b>	
1	National patient experience survey <ul style="list-style-type: none"> <li>• Inpatients</li> <li>• Outpatients</li> <li>• Paediatric patients</li> </ul>
2	Patient reported outcome measures
3	Patient complaints (response to complaints dataset) <ul style="list-style-type: none"> <li>• Number</li> <li>• Percentage resolved</li> <li>• Type</li> </ul>
<b>Efficiency</b>	
1	Staff measurements <ul style="list-style-type: none"> <li>• Sickness (days lost)</li> <li>• Turnover</li> <li>• Annual leave outstanding</li> <li>• Executive team turnover</li> </ul>
2	Antibiotics <ul style="list-style-type: none"> <li>• Percentage of antibiotics prescribed that comply with clinical guidelines</li> </ul>
3	Myocardial infarction <ul style="list-style-type: none"> <li>• ECG for all patients presenting with suspected Acute coronary syndrome (ACS) and management in accordance with an evidence-based ACS assessment protocol</li> <li>• Use of primary PCI or fibrinolytic therapy for STEMI patients</li> <li>• Cardiac rehabilitation for all patients hospitalised with ACS</li> </ul>
<b>Timeliness and accessibility</b>	
1	Discharge summary completion rates <ul style="list-style-type: none"> <li>• Completion rates within 48 hours</li> </ul>
2	Emergency centre <ul style="list-style-type: none"> <li>• Percentage of patients seen within recommended times</li> </ul>
3	Outpatients <ul style="list-style-type: none"> <li>• Percentage of patients waiting longer than recommended for 1<sup>st</sup> appointment</li> </ul>
<b>Effectiveness and appropriateness</b>	
1	Staff satisfaction and engagement survey
2	Staff attitudes towards management Percentage of clinical staff who agree with the following: <ul style="list-style-type: none"> <li>• Patient care errors are handled appropriately in my workarea</li> <li>• This health service does a good job of training new and existing staff</li> <li>• I am encouraged by my colleagues to report any patient safety concerns I may have</li> <li>• The culture in my work area makes it easy to learn from the errors of others</li> <li>• Trainees in my discipline are adequately supervised</li> <li>• My suggestions about patient safety would be acted upon if I expressed them to my manager</li> <li>• Management is driving us to be a safety-centred organisation</li> <li>• I would recommend a friend or relative to be treated as a patient here.</li> </ul>
	Selected mental health dataset

3	<ul style="list-style-type: none"> <li>• Documented evidence of a physical examination and physical health assessment in a mental health inpatient at time of discharge</li> <li>• Health of the nation outcome scale (HoNOS)</li> <li>• Readmission within 30 days</li> </ul>
Equity	
1	Potentially preventable hospitalisations
2	Links with primary care <ul style="list-style-type: none"> <li>• Presence of a formal agreement at Board or senior health service management level with the local primary care provider that is reviewed on an annual basis with that provider</li> </ul>
3	Percentage discharge against medical advice <ul style="list-style-type: none"> <li>• Aboriginal</li> <li>• Non-Aboriginal</li> </ul>

## B.6 Indicators in BHI report: Healthcare in Focus 2016

The 100+ indicators reported in BHI report: Healthcare in Focus 2016 are across six dimensions of performance: accessibility; appropriateness; effectiveness; efficiency; equity; and sustainability, with the aim of comparing NSW health system performance against an international or national counterpart (Table 8.7).

**Table 8.7 Indicators in BHI report: Healthcare in Focus 2016**

Overall views of performance	
How does NSW perform overall? Patient-reported experiences of overall care	
<b>Chapter 1: Accessibility – Healthcare when and where needed</b>	
Ambulance and transfer of care	Call to ambulance arrival time; ambulance arrivals for which care was transferred within 30 minutes
Timely ED treatment	Patients treated within recommended time; median time from presentation to start of treatment
Leaving the ED without treatment	Leaving the ED without treatment
Time spent in ED	Patients spending four hours or less in ED; median time spent in ED; patients spending more than 24 hours in ED
Waiting times for radiotherapy	Median and 90 <sup>th</sup> percentile waiting times; emergency cases treated within recommended time
Waiting times for elective surgery	Elective surgery within recommended times; median wait by procedure; waiting time more than 365 days
Barriers to accessing healthcare	Unmet need for GP or specialist; adults in emotional distress who could get professional help; skipped care due to cost or unable to pay medical bills
<b>Chapter 2: Appropriateness – The right healthcare, the right way</b>	
Hip fracture surgery	Procedures performed within two days of hospital admission
Knee arthroscopy	Knee arthroscopy by age and osteoarthritis diagnosis
Caesarean section	Births by elective and emergency caesarean section
Hospital mental healthcare	Seclusion events in psychiatric acute inpatient units
Community mental healthcare	Follow-up in the community within seven days of discharge
Medication management	Health professionals discussed medication and side effects with patients; nurses checked identification
Coordinated care	Patients given written information upon discharge; hospital arranged follow-up care; patients given contradictory information from ED professionals
Hand hygiene	Hand hygiene compliance; patients saw nurses and doctors practise hand hygiene
Breastfeeding	Midwife assistance provided; women received conflicting advice; full breastfeeding at hospital discharge
Patient engagement	Patients given the right amount of information; patients involved in decisions about their care
Respectful care	Patients treated with respect; doctors answered questions; patients treated unfairly
<b>Chapter 3: Effectiveness – Making a difference for patients</b>	
Cardiovascular disease mortality	Deaths from acute myocardial infarction and cerebrovascular diseases
Ambulance care outcomes	Cardiac arrest survival rate; clinically meaningful pain reduction
ED re-presentations	ED patients who did not wait or left at their own risk before treatment was completed, who re-presented to an ED within two days and seven days
Returns to hospital with subsequent fracture	Patients with a fracture who returned to hospital within two years with a subsequent fracture
Mental health readmissions	Readmission within 28 days of discharge from a psychiatric acute inpatient service



Patient safety: Hospital care	Adverse events; Severity Assessment Code (SAC) 1 and 2 clinical incidents; sentinel events.
Hospital infections	Staphylococcus aureus bacteraemia in public hospitals
Complications post-surgery	<ul style="list-style-type: none"> <li>• Post-operative deep vein thrombosis and pulmonary embolism following hip and knee surgery</li> <li>• Post-operative sepsis rates following abdominal surgery</li> <li>• Post-operative retained foreign body</li> </ul>
Falls in hospital resulting in harm	Falls in hospital resulting in patient harm; average length of stay among patients who did and did not experience a fall in hospital resulting in harm
Maternity care	Obstetric trauma during vaginal delivery with and without instrument
Patient-reported outcomes and complications	<ul style="list-style-type: none"> <li>• Patients who said the care they received helped them; patients who experienced a complication</li> <li>• CASE-Cancer survey questions, patients in active Treatment phase</li> </ul>
<b>Chapter 4: Efficiency – Value for money</b>	
Value for money	Healthcare expenditure total and per capita, and by potential years of life lost; percentage of healthcare expenditure accounted for by hospitals
Variation in average hospital costs	Average cost of an ED visit by admission status; recurrent cost per admitted acute weighted separation
Average length of stay (ALOS)	ALOS overall and for surgical and medical patients; relative stay index
Maternity services	ALOS following vaginal birth and caesarean section; percentage of vaginal births in which the mother was discharged on the same day as the birth
Cataract surgery	Cataract extractions performed as a same-day procedure
<b>Chapter 5: Equity – Health for all, healthcare that's fair</b>	
Disparities in accessibility: Barriers to care	<ul style="list-style-type: none"> <li>• People reporting barriers to accessing primary care</li> <li>• People reporting barriers to accessing specialist care</li> <li>• People reporting barriers to care (could not get help when in emotional distress; problems paying bills; skipped consultation, test or prescription due to cost)</li> </ul>
Disparities in accessibility: Emergency department timeliness	<ul style="list-style-type: none"> <li>• ED visits for which the time to start treatment was within recommendations</li> <li>• ED visits for which patients spent less than four hours</li> <li>• Patients who said they spent less than four hours in the ED</li> </ul>
Disparities in accessibility: Timeliness of elective surgery	<ul style="list-style-type: none"> <li>• Elective surgery not completed within the recommended time</li> <li>• Median waiting time for selected elective surgical procedures</li> </ul>
Disparities in appropriateness: Right care	<ul style="list-style-type: none"> <li>• Patients receiving hip fracture surgery within two days</li> <li>• Breastfeeding at hospital discharge</li> <li>• Patients receiving community follow-up within seven days of discharge from a psychiatric inpatient unit</li> </ul>
Disparities in effectiveness: Complications	<ul style="list-style-type: none"> <li>• Post-operative complications (pulmonary embolism, deep vein thrombosis and sepsis)</li> <li>• Obstetric trauma with instrument</li> <li>• Patients who said they experienced any complication</li> </ul>
<b>Chapter 6: Sustainability – Caring for the future</b>	
Healthcare resourcing	Healthcare expenditure as a percentage of GDP; recurrent cost per admitted acute weighted separation; indicative estimate of capital cost per weighted separation
Increasing demand for healthcare	ED visits and hospitalisations by age group; hospitalisations by disease group; frequency of ED visits and hospitalisations
Ambulance services	Patient arrival at ED by ambulance; volume of ambulance responses by priority; ambulance responses resulting in patient transportation to hospital

Increasing use of EDs	ED presentations per 100,000 population for triage categories 1–3 and 4–5; GP non-referred attendances per 100,000 population; ED presentations and population growth
Cancer services	Use of cancer outpatient clinics by patients for long-term follow-up; length of time patients in long-term follow-up have been attending cancer outpatient clinics
Telehealth services	Telehealth video consultations and patient-end support services, per 100,000 population
Healthcare workforce	Doctors and nurses per capita; employee engagement index

## B.7 Example indicators in Queensland Health’s discussion paper

In 2017, Queensland Health released a discussion paper entitled Expanding Healthcare Quality and Patient Safety Reporting Across Queensland’s Health System<sup>70</sup> as the first step towards better understanding views on the collection, use and public reporting of safety and quality information. Table 8.8 summarises clinical outcome data, clinical incident data, patient reported outcome measures and patient reported experience measures reported in this paper as an example of measures that are collected and reported by various organisations nationally and internationally for measuring and reporting safety and quality.

**Table 8.8 Examples of indicators employed in Queensland**

Measure or overarching data	Indicators that are collected and/or reported (depending on organisation) in relation to this particular measure
Hospital acquired infection rates and hand hygiene	Staphylococcus Aureus Bacteraemia (SAB) (including MRSA) Clostridium Difficile Hand washing activities Central line associated bloodstream infections In hospital sepsis rate
Condition specific/surgical intervention/medication safety and other matters resulting in the following clinical outcomes:	Complications of surgery (e.g., hip replacement complications of surgery) In-hospital mortality (e.g., Stroke, acute myocardial infarction, fractured neck of femur, pneumonia) Hospital standardised mortality ratio (HSMR) Long-stay outcomes beyond benchmark in-hospital timeframes (e.g., knee replacement long stay) Deaths in low-mortality Diagnostic Resource Groups Unplanned hospital readmission (e.g., stroke, acute myocardial infarction, fractured neck of femur, heart failure, knee and hip replacements, paediatric tonsillectomy and adenoidectomy) Relative Stay Index for multi-day stay patients Day of surgery admission rates for non-emergency multi-day stay patients
Maternity & neonatal	Induction of labour Instrumental delivery Third and/or fourth degree tears Episiotomy Caesarean section APGAR score of less than seven
Patient harm	Pressure Injuries In-hospital falls In-hospital falls resulting in injury Hospital Acquired Complications Medication errors requiring medical intervention Adverse transfusion reactions Unplanned return to operating theatre Total number incidents categorised by type (Severity Assessment Code [SAC] 1, 2 and 3) SAC 1 incidents with a Root Cause Analysis completed

	within 90 calendar days
Patient experience surveys	<p>Overall patient satisfaction with hospital</p> <p>Time taken to be seen in Emergency Department</p> <p>Overall rating of care</p> <p>Involvement in decision-making about your care</p> <p>Level of communication you received</p> <p>Pain management</p> <p>Perceived support during transition of care (between providers and between locations)</p> <p>Willingness to recommend hospital</p> <p>Quietness of hospital environment</p> <p>Cleanliness of hospital environment</p>
Accreditation status	Status/performance against the ACQSHC's ten national standards
Complaints	<p>Complaints acknowledged within X calendar and/or working days (different timeframes for different service providers)</p> <p>Complaints resolved within X calendar and/or working days (different timeframes for different service providers)</p>
Mental health	<p>HoNOS Score (Health of the National Outcome Survey/Scale) measured on admission and discharge to see if an improvement occurred</p> <p>Community follow up within the first seven days of discharge from a psychiatric admission</p> <p>Repeat hospital stays for mental illness (at least 3 stays per year)</p> <p>Seclusion</p>

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