Improving performance using indicators. Recent experiences in the United States, the United Kingdom, and Australia

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Abstract

This article describes recent national performance improvement initiatives in the United States, United Kingdom, and Australia. This comparison is of particular interest because each of these three countries faces similar challenges in delivering health care and improving health. Each has elevated a focus on safety and quality improvement to a national level. Marked differences in the organization and financing of health care across these three countries provide a unique opportunity to compare and contrast approaches. Drawing on the experience of the authors in each of the three countries and publicly available data sources about specific national initiatives, we describe the national context for improvement and outline recent performance improvement initiatives and emerging issues and challenges. Similarities and differences in the current evolution of national performance initiatives are described and conclusions are drawn about challenges that all three countries face, particularly in terms of developing meaningful sets of national indicators of health system performance. The challenges for future work include the importance of information infrastructure, the paucity of accurate and accessible clinical data, the need for effective performance measurement processes at a local level to capture useful data, and the tensions of balancing accountability and improvement agendas for measurement.

Keywords: international comparison, performance improvement, performance indicators, performance measurement, quality, safety

There is growing recognition that a capacity to evaluate and report on quality is a critical building block for system-wide improvement of health care delivery and patient outcomes [1]. The purpose of this paper is to describe recent national performance improvement initiatives in the United States, United Kingdom, and Australia. The prime focus will be on efforts to improve the quality of health care, including domains of effectiveness, responsiveness, appropriateness, and safety.

Reasons for comparison

There are three important reasons why a comparison of the US, UK, and Australia is of particular interest. Firstly, each country faces similar challenges in delivering health care and improving health: growing numbers of elderly people, increased chronic disease prevalence, new and emerging medical technologies, increasing public expectations accompanied by eroding public confidence, and wide availability of internet-based information.

Secondly, while other countries are also developing and using performance indicators, the US, UK, and Australia have elevated the focus on safety and quality of health care to a national level. Each of these countries has experienced growing concerns about medical errors and a heightened emphasis on safety and quality. In the US, a report by the Institute of Medicine Report [2] estimated the incidence of mortality relating to medical error to be 44,000–98,000 per year. In Australia, the Quality in Australian Health Care Study reported on a study of over 14,000 medical records, which found that 16.6% of hospital admissions were associated with an adverse event [3]. In the UK, recent failures in medical care – Bristol and Newham – have highlighted a growing public anxiety regarding the safety of medical care, which has resulted in a number of new initiatives [4]. Extrapolating...
from the US and Australian experience to the UK, the more conservative (US) findings suggested that over 300,000 adverse events per annum are associated with a cost of over 1 billion [5]. Thirdly, despite the common challenges these three countries face, there are fundamental differences in the organization and financing of the health sector across the three countries, which provide a unique opportunity to describe and analyze different approaches to performance improvement within these contrasting structures.

The UK is characterized by a nationalized, centrally driven health care system. This is illustrated by the pro-active role the Labour government has taken in setting and monitoring standards for efficiency, effectiveness, and equity while modifying aspects of the previously established internal market to transition to a spirit of partnership rather than competition. In sharp contrast to the monolithic structure of the National Health Service (NHS) in the UK, US health care is a concatenation of health care systems, with variable insurance benefits, influenced by differing regulation at a combination of state and federal levels. It is a pluralistic, private sector-driven health system with a market-based approach emphasizing the use of performance data by health care purchasers and consumers to catalyze performance improvement through selection and choice.

Australia stands between these two approaches, illustrating a unique blend of features. It has an established universal access system, complemented by the use of market-like financing incentives and stimulation of the private sector (31% of health expenditure is private spending). As a federated structure, with overlapping responsibilities between the national and state governments for funding, regulating, and delivery of health care, collaboration between governments and professional colleges is essential to effect system-wide change.

A focus on performance improvement

The response of governments and others to concerns about the safety and quality of care has catalyzed national actions in the USA, UK, and Australia. This includes new policies, the development of national infrastructure, performance information systems, new mechanisms for performance review, systems to ensure compliance with standards, and the use of financing levers. While the development and implementation of such initiatives is dynamic and evolutionary, Table 1 summarizes the current status of initiatives in each of the three countries. This is described in more detail in the country case studies that follow.

The US

National context

A description of performance measurement and improvement initiatives in the US needs to recognize many different approaches and a multitude of stakeholders and responsible parties. The US is widely recognized as a leader in the development of performance measures, methods of analysis, and public reporting approaches, in part catalyzed by market dynamics predicated on beliefs that more information about performance to the public and purchasers will compel health care organizations to compete on the basis of quality [6]. Additionally, the availability of government and private foundation funding for effectiveness and quality of care research has promoted advances in the state of the art.

Despite the significant volume of activity in the US, problems in quality of care remain widespread. Studies published in leading professional journals consistently report findings that people with acute and chronic medical conditions receive only about two-thirds of the health care needed at the same time that other patient groups are receiving about 20–30% of unnecessary care [7]. The implementation of cogent change strategies remains elusive and episodic.

Recent national initiatives

While acknowledging that within the US context, much of the innovation and implementation of performance management takes place at the operational rather than the national policy level, there are important national initiatives, some of which occur within the government and others within the private or voluntary sector. Four of the most important that have recently contributed to the landscape for performance evaluation and improvement and are part of a developing national capacity are the following.

The President’s Commission on consumer protection and quality in health care

In 1997, President Clinton appointed a one-year 32 member Commission (chaired by the two US Cabinet Secretaries for Health and for Labor), to study the state of quality in health care and to recommend strategies for performance improvement. The two major outputs of the Commission were a set of recommendations for patients’ rights legislation and an assessment of the state of quality in the US accompanied by a set of recommendations for increasing national capacity for quality improvement, particularly in the areas of effectiveness and responsiveness [7]. Although there has not been significant passage of Patient Rights legislation at the federal level, the President’s Commission has led to the establishment of a new organization, the National Forum for Quality Measurement and Reporting (described below), to facilitate the promulgation of common performance indicators throughout the US health services sector.

The Institute of Medicine: quality and safety reports

Three major reports of the Institute of Medicine, a branch of The National Academy of Sciences, have served to further delineate the nature and magnitude of performance problems and unexplained variation in effective and appropriate delivery of health care. Specific problems in the overuse, underuse, and misuse of health care services were described in detail, summarizing the scientific literature that is replete with observations of the gaps between the evidence base and the common practice and delivery of health services [8]. Compounding this sobering performance appraisal, a later report
Table 1  Evolution of National Performance Initiatives

<table>
<thead>
<tr>
<th>Underlying assumptions for improvement</th>
<th>USA</th>
<th>UK</th>
<th>Australia</th>
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<tr>
<td>National policy of performance improvement</td>
<td>Market-driven improvement</td>
<td>Accountability</td>
<td>A mix of accountability, professional and market-driven</td>
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<tr>
<td>National performance indicators</td>
<td>Weak</td>
<td>Strong</td>
<td>Moderate</td>
</tr>
<tr>
<td>Local use of performance indicators</td>
<td>Developing</td>
<td>Comprehensive set of high level performance indicators and targets</td>
<td>Selective, developing</td>
</tr>
<tr>
<td></td>
<td>Strong</td>
<td>Mainly focused on efficiency to date, but development underway of meaningful targets for local use</td>
<td>Patchy and being explored</td>
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[2] described the scope and scale of adverse events or medical errors, noting that 44 000–98 000 deaths occur every year and calling for a national reporting system on errors. Most recent is a report that recommends six aims or domains for performance improvement: safety, effectiveness, patient-centredness, timeliness, efficiency, and equity [9].

### Increased Federal Government leadership and leverage

In 2000, the formerly named Agency for Health Care Research and Policy was renamed The Agency for Health Research and Quality (AHRQ), in large part signifying the heightened public and policymaker consciousness of the issue of health care quality. The US Congress mandated that AHRQ develop a National Quality Report comprised of performance measures in multiple domains, including effectiveness, safety, and patient-centred care/responsiveness. The prototype of this report is to be released in 2003. In addition to the very significant role of AHRQ, the federal government is using its influence as a major purchaser and regulator of health care. Increasingly the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration) uses its purchasing leverage on behalf of Medicare beneficiaries to mandate compliance with various performance measurement and improvement efforts as conditions of participation. By exercising this influence, the federal government can drive change (beyond the Medicare population) across the US in both public and private health systems and affecting publicly and privately insured populations.

### The National Forum for Quality Measurement and Reporting

The National Forum for Quality Measurement and Reporting (The Quality Forum) was established in late 1999 pursuant to a recommendation of the President’s Commission on Consumer Protection and Quality of Health Care. This voluntary, non-profit organization is a private–public sector partnership made up of more than 100 member organizations with the mutual interest of advancing a common set of performance measures across the health services sector [1]. The purpose of such a new initiative is to evaluate the degree to which the US health care system is providing safe, effective, timely, and patient-centered care, to assess whether the distribution of care is efficient and equitable, to make progress toward achieving established national goals, and to provide easily accessible information [10] to consumers, providers, managers, and government. Through an expert panel commissioned for an eighteen-month period, a national strategy for measurement and public reporting has been designed.

The Quality Forum was established recognizing that there is an abundance of performance data available, but considerable concern remains regarding comprehensibility, comparability, and usability. The fragmentation of the health care system is reflected in the phenomenon of having different performance evaluation and reporting systems for hospital provided care (through the Joint Commission on Accreditation of Healthcare Organizations), for health plan sponsored care, through HEDIS (the Health Plan Employer Data and Information Set of the National Committee for Quality Assurance), or for what is considered to be the consumer perspective, through other activities.

### Emerging issues and challenges

Realizing the hoped-for contribution of performance evaluation, reporting and improvement initiatives to improving effectiveness and quality within the US health care system is dependent upon remediating a number of barriers. Firstly, there is simply the matter of the commitment to develop a coordinated strategy to build national consensus and capacity to prioritize effective, high quality health care as an explicit policy and technical goal. Secondly, there is a matter of ability. The state of the art of performance measurement and effectiveness research has made dramatic advances in the past three decades but is still deficient in supporting widespread diffusion, predictable systematic application, and routinely accurate, standardized, and fair assessments. A national agenda for research and development is needed. Thirdly, there is a fundamental need for information infrastructure.
Simply stated, the deficiency of complete, accurate, and accessible clinical information impedes systematic and systemic efforts to improve the effectiveness of health care service delivery at the bedside of the patient and at the population level.

Finally, the quality of care in the US remains heavily dependent on fundamental changes in organization and financing. The necessary changes would include, but not be limited to, more predictable and equitable access for insured and uninsured populations, improvements in the continuity and integration of care, as well as changes in payment systems conducive to delivering higher quality in patient care.

The UK

National context

In contrast to the US and Australia, the UK has a history of a coherent national approach to the provision of health services since the introduction of the National Health Service (NHS) in 1948. The NHS is a universal access system funded through taxation and, until relatively recently, was managed as a single unit.

In 1990, in the most radical restructuring since its inception, the NHS and Community Care Act moved the NHS towards a model of a managed internal market where there was a clear separation of the provision of services by hospitals and community trusts from purchasing by health authorities and GP fundholders on behalf of their population. In 1997 the newly elected Labour government set out plans in a number of White Papers [6] and consultation documents and secured significantly increased investment [11–15]. While some features of an internal market were retained, the emphasis moved to partnership and collaboration. These new policy initiatives included a more coherent national strategy for performance monitoring in parallel with newly defined accountability structures.

Recent national initiatives

Until recently the main components of quality assurance in the UK included hospital morbidity and mortality committees and local clinical audit, the National Confidential Enquiries, and the licensing of doctors through the General Medical Council. These processes focused mainly on cases that had ‘gone wrong’.

In response to a number of dramatic failures, accompanied by widespread media coverage, and growing public concern about quality, the official paper of 1998 [12] positioned quality as a main priority for the health service, defining the objective of the NHS as ensuring fair access to effective, prompt, and high quality care. Five main components of this programme included: the establishment of clear national standards through National Service Frameworks, a new National Institute for Clinical Excellence (NICE), the definition of a new statutory duty for clinical governance, the creation of a new national entity to monitor quality standards (Commission for Health Improvement), and a Performance Assessment Framework. In 2000, a further document [16] set out a plan to improve safety including the development of a National Safety Report and a new Safety Agency.

National performance frameworks

One of the most significant developments in recent years in the UK is the development of output and performance analysis based on a Public Service Agreement between the Treasury and the various Departments of State, including the Department of Health. The first Department of Health Public Service Agreement, published in a Treasury White Paper in 1998 [17], specified targets to improve productivity and efficiency in health and social services to be achieved over three years.

The implementation of this agreement between Ministers at the Treasury and the Health Department is through the National Performance Frameworks. This national performance monitoring system also includes a new four-year series of national surveys of patient and user experience. Six areas of the new performance framework were agreed by ministers by midsummer 1999: (i) health improvement, deaths from all causes; (ii) fair access; (iii) effective delivery of appropriate health care; (iv) efficiency; (v) patient/carer experience of the NHS; and (vi) health outcomes. In June 1999, for the first time, data on the six indicators were published for approximately 389 individual Trusts and 100 health authorities for a three-year period. Considerable variation was demonstrated across the country. There is a concerted effort by the government to release data into the public domain.

National service frameworks

An important UK innovation, subordinate to the Public Service Agreement, is the development of National Service Frameworks (NSFs). The intention of NSFs is to set national standards and define service models for specific services or care groups, to put in place programmes to support implementation and to establish performance measures against which progress will be measured. Each NSF will set out which setting is most appropriate to the care to be provided and the standard of care patients should be offered. The priority programmes are cancer, coronary heart disease, and diabetes. Each NSF will include a definition of the scope, the evidence base, national standards, key interventions and associated costs, commissioned work to support implementation including research, appraisal, benchmarks and outcome indicators, as well as supporting programmes such as workforce planning, education, and training and information development.

National Institute for Clinical Excellence

The NICE has a remit to provide guidance through the development and promulgation of clinical guidelines and evidence-based assessments of pharmaceuticals and technology. It provides the analytical work underpinning the development of the NSFs. The four established Confidential Enquiries – on maternal deaths, stillbirths and death in infancy, suicide, and peri-operative deaths – were brought under the NICE umbrella. NICE is intended to develop a
range of audit methodologies that can be adapted for local use to support the guidelines it produces [18].

The Commission for Health Improvement
In 1997, the concept of clinical governance was introduced as a framework to ensure accountability by NHS agencies for safeguarding high standards of care and continuous improvement [11]. Based on the model of the Audit Commission, this new statutory authority is charged with the review of the clinical-governance structure of all NHS agencies in a four-year period. It also has powers to investigate matters raised by the Secretary of State for Health. It is intended to offer ‘an independent guarantee’ that local systems to monitor, assure, and improve clinical quality are in place.

Emerging issues and challenges
The challenge for the NHS arises from the deficiencies at local levels to monitor performance and drive effective change in a nationalized and centrally directed system. These failures have led to explicit policy formulation and development of operational programs at a national level to provide clear guidance and goals, clinical service delivery, safety, and accountability.

As with the US and Australia, the processes for national performance measurement are poorly developed. While national clinical indicators such as those on hospital death rates following surgery and heart attack are being published, they are not seen as useful for a number of reasons. Given the size and complexity of the NHS, substantial investment is needed in information strategies that provide efficient and routinized capture of performance information and in basic organizational and cultural changes at the local level that draw in medical professional leaders.

Australia
National context
The overlapping roles and responsibilities of national and state governments in the health care system provide an important context for understanding performance measurement and improvement initiatives in Australia. Australia’s universal publicly funded health insurance scheme involves pharmaceutical and medical benefits for non-public hospital care funded directly by the Commonwealth and free access to public hospitals jointly funded by the Commonwealth and the States. Funding for public hospital services occurs in the framework of five-year agreements (Australian Health Care Agreements), which in their current form also specify public performance reporting and quality improvement requirements [19]. By virtue of its universal fee-for-service payment system for medical services, Australia has a robust system for national data collection of service utilization outside of public hospitals, although these data are primarily administratively focused. It also has national datasets of hospital morbidity data and case-mix data.

Since the mid 1990s, there has been support from national and state Health Ministers for efforts to develop nationally consistent measures and benchmarks to assess and report on the performance of the health system in Australia [20–23]. This work has included research on a possible set of national quality of care and health outcome indicators within a framework that includes hospital access, effectiveness, allocative and technical efficiency, appropriateness, a consumer focus, coordination of care, technical proficiency, and patient safety across both generic indicators and condition-specific modules [24]. In the mid 1990s, much of this activity focused unsuccessfully on finding a set of hospital-based quality-of-care indicators that could be used to report on the quality of the acute care system. There has also been considerable medical specialty-based activity in the development of clinical indicators although there have been ongoing concerns about the rigour and usefulness of these measures.

During 1999 a National Health Information Model was produced as a conceptual mapping of standardized information items. Feeding into this is a National Health Data Dictionary that delivers the data terms in use. The existence of this infrastructure has provided a basis for compatible performance information.

Recent national initiatives
In 1995, the Quality in Australian Health Care Study led to the creation of two consecutive national bodies that made recommendations to health ministers regarding directions for developing improved performance indicators, public reporting, and incident reporting systems [25]. Since 1999, the Federal Government has led the development of national infrastructure in a number of key areas to focus efforts to improve the performance of the health care system, as outlined below.

Australian Council for Safety and Quality in Health Care (Safety and Quality Council)
The Safety and Quality Council was established in early 2000 as a vehicle for better national collaboration on safety and quality improvement. The Council is expert based and comprises physicians, academicians, managers, consumers, and members from all Australian governments. In line with a renewed international focus on safety as the leading edge of quality improvement, and continuing public concern about adverse events in hospitals, the Council is focusing on safety with funding of $AUD 50 million over a five-year period. In late 2001, the Council will produce a report on the adequacy of existing national data sources to identify and measure safety problems and also directions for a national approach to a safety reporting system incorporating elements such as incident monitoring, improving the quality and usability of existing national mortality and morbidity data sets, and methodologies for snapshot national surveys.

National Institute of Clinical Studies
The National Institute of Clinical Studies (NICS) was established in December 2000 as an independent company to lead national efforts to work with clinicians in priority areas.
Table 2 Recent (1997–2001) government-led initiatives to build national capacity

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<th>Strategies</th>
<th>US</th>
<th>UK</th>
<th>Australia</th>
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<tr>
<td>Public reports describing quality problems and calls for improvement</td>
<td>President’s Commission on Consumer Protection and Quality in Health Care; Institute of Medicine: Quality and Safety Reports</td>
<td>The New NHS – Modern and Dependable</td>
<td>Reports of expert national committees</td>
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<td>A first class service. Quality in the NHS NHS Plans</td>
<td>Final Report of the Taskforce on Quality in Australian Health Care;</td>
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<td>An Organization with Memory</td>
<td>National Expert Advisory Group</td>
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<td>Interim and Final Reports</td>
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<td>Safety and Quality Council; Safety First</td>
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<td>Establishing national bodies/programs to improve capacity for measuring and monitoring performance</td>
<td>National Forum for Quality Measurement and Reporting</td>
<td>Development of National Service Frameworks</td>
<td>National Health Performance Committee</td>
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<td>National Clinical Assessment Authority</td>
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<td>National Patient Safety Agency</td>
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<td>National Performance Framework</td>
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<td>Public reporting of performance, national and local</td>
<td>National Quality Report developed for 2003 by the Agency for Healthcare Research and Quality Voluntary and mandated reporting at local levels</td>
<td>Public reporting on some elements of performance down to local levels</td>
<td>Annual Performance Reports as part of the Australian Health Care Agreements; Annual Reports of the National Health Performance Committee and its predecessor</td>
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<td>Systemic use of incentives</td>
<td>State and Federal (CMS) requirements for measurement, reporting and improvement as conditions of participation in Medicare and Medicaid</td>
<td>Performance Agreements at Treasury level Clinical governance within agency contracts Mandated compliance with National Service Frameworks</td>
<td>Quality Improvement and Enhancement Funds as part of the Australian Health Care Agreements; A variety of Federal and State requirements at local and national levels e.g. incentive payments to General Practice for improved patient outcomes for diabetes and asthma</td>
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with a focus on closing the gap between evidence and practice. It has been established with a board comprising mainly medical practitioners who have a strong track record of leading professional practice improvements. With funding of approximately AUD 3.5 million per year and still at an early stage of its work, NICS will be seeking to apply evidence of effective implementation strategies to units interested in improving patient care.

National Health Priority Action Council (NHPAC)
While the Safety and Quality Council and NICS have a broad, system-wide focus, there is increasing recognition of the need to focus on improving performance in specific priority disease areas and for particular population groups. Australia has had a system of national health priorities since 1996, namely asthma, depression, cancer, diabetes, cardiovascular disease, and injury. Established in mid 2000, NHPAC is responsible for advising Health Ministers on the coordination and progress of the National Health Priority Areas and comprises representatives of all governments, a high-quality aboriginal healthcare organization and a consumer organization. NHPAC’s predecessor concentrated on producing reports describing the best available data in most of the national health priority areas [26–31]. The newly formed NHPAC is intended to act to improve care. In its most recent budget, the Government has announced new programs of financial incentives for general practitioners to improve the care of people with diabetes and asthma among other priority care initiatives. This will need to include monitoring performance in the detection and management of these conditions.

National Health Performance Committee (NHPC)
In August 1999, Australian Health Ministers established the National Health Performance Committee with responsibility for developing and maintaining a national performance measurement framework for the whole of the health system. The NHPC has a brief to support benchmarking for health system improvement and to provide information on national health system performance, including population health outcomes, risk factors, and health system measures [32]. Much work remains to be done to populate this framework with indicators but it is hoped that this framework will provide a better focus for indicator development.

Emerging issues and challenges
For all the efforts to date, Australia, like the UK and US, still faces significant challenges in developing a meaningful set of national indicators of health system performance. This reflects three main challenges. The first of these is a paucity of reliable and valid clinical data and limitations in the quality and usability of available administrative data sets, although there is renewed effort to establish better links between clinical and administrative data sets to make these data more useful. Secondly, there are continued tensions in the search for a set of indicators that are meaningful at a national level and that can be useful for improvement purposes at the service provision level. There are different indicators at a national level that can be benchmarked internationally and that are relatively stable, such as survival rates and times, adverse events, time to complications, and complication rates. These indicators might identify where the problems lie but do not provide information on why variations are occurring and how to improve performance.

Thirdly, in parallel with the experience in the UK, the use of performance indicators in the context of accountability has led to suspected ‘gaming’ of data. As an example, it has been difficult to develop an indicator set for national performance through the Australian Health Care Agreements because of suspicion by the states and territories that their performance will either be poor compared with others, or be used against them in funding discussions.

Conclusion
Information about performance is increasingly seen at a national level in each of the three countries, as a crucial tool to promote improved performance across the system. Table 2 summarizes some of the essential features of current national performance initiatives in the US, UK, and Australia. Although it is widely believed that common indicators can assist in systemic monitoring and public reporting, it is not known which of the various indicator models (or attributes) are likely to be the most effective for demonstrating improved performance.

What are the emerging insights in the use of performance indicators to improve quality? There is a clear public interest in access to information about the performance of the health care system. Yet health is determined by many broad social factors that shape the levels of risk associated with the provision of care to each patient. Health care involves complex processes and our levels of uncertainty about effective health care interventions are much greater than those in any comparable sector. The experience of these three countries indicates the need to differentiate performance reporting at a national level for purposes of accountability from reporting at a local level needed to build knowledge of effective and safe care processes.

Currently, the ability to measure and report performance-related information exceeds our understanding of how to conduct and our capacity to systematically employ targeted interventions to ameliorate performance. This key task will require greater knowledge and competency in selecting and implementing transformation strategies.

The US has expertise in methods of performance measurement, the UK has clearly articulated national targets, and Australia has a national health information infrastructure. While there may be cross-cultural differences that require adaptation, there is clearly scope for further collaborative exchange.

References