

Good health information – an asset not a burden!

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Abstract. Good health information is central to informing the delivery of health care. Health has mostly struggled to promote the effective use of information to manage services on a day to day basis. Based on the experience at the Children's Hospital at Westmead, a case is made for seeing information as an asset that requires a structured approach to improving data quality, and making a concerted effort to grow a more robust information culture. Transforming Health through better health information will not happen overnight. It needs a long range plan. It should be supported by appropriate business intelligence tools and a structured approach to process improvement, built around data management.

What is known about the topic? Good Health Information is central to informing the delivery of health care. Health has mostly struggled to promote the effective use of information to manage services on a day to day basis.

What does this paper add? A case is made for seeing information as an asset that requires a structured approach to improving data quality and a concerted effort to grow a more robust information culture.

What are the implications for practitioners? Health is at a point where far greater use can be made of available information assets and the development of staff. Good health information needs to be seen as an asset. Health facilities need to recognise the importance of a clear vision for information management and how it can support the overall transformation of Health.

Introduction

The focus on good health information has never been greater. With Health coming under increasing scrutiny and the impetus for real reform in Australia gaining momentum,¹ there is a growing expectation that the health system and individual clinicians are able to provide evidence of their performance to the public. Patients, too, are rating their clinicians.^{1,2} Most recently, the *Final Report of the National Health and Hospitals Reform Commission*³ and the *Final Report of the Garling Inquiry into Acute Care in NSW Public Hospitals*⁴ have highlighted the need for good quality data to inform the delivery of healthcare.

The recommendations made in each report are a core element of the Federal Government's health reforms, with proposals for strong national standards and transparent reporting that are locally relevant. Despite the broader debate around the healthcare reforms, the recommendations concerning reporting have received widespread acceptance.

The intention of the reforms is to drive improved performance across the Health and hospital system, with funding increasingly linked to performance. This approach will provide Australians with access to transparent and nationally comparable performance data and information on their local hospitals and Health services, allowing individuals to make more informed choices and helping to ensure the continued improvement of the standard of care patients. New governance and funding arrangements under the National Health and Hospitals Networks will also require the establishment of robust and nationally consistent information management systems.

There has, however, been little acknowledgement of the importance of good information management and the need for high quality data underpinning the reforms. Data quality is complex and the focus of extensive research.^{5,6} The need for good quality data in healthcare is widely recognised, and well-established approaches to evaluating and improving data quality have been developed.^{7–9} The importance of managing data quality strategically has been highlighted by Kerr and colleagues.^{8,9}

Jurisdictions such as NSW Health have initiated reporting through a separate agency, the NSW Bureau of Health Information, with responsibility for public reporting and performance monitoring, as well as *ad hoc* data supply and analysis, evaluation and research. Despite the best of intentions, such a bureau is more likely to focus on broad system performance and rely on historical performance data rather than locally relevant and current information.

Significant change also has to occur across the system at the local level to ensure local relevance of information. Health services need to focus on growing an information culture underpinned by a performance management framework that is meaningful to clinicians and managers and supports them in their daily work. Only then will clinicians and managers start to value the information they have as an asset, with their contribution to the overall reform agenda becoming more visible.

Health has generally struggled to promote the effective use of information in managing services on a day to day basis, with very few facilities around the world able to claim that they have a mature information environment.¹⁰

Many managers, particularly clinical managers, have little training in information management and are often unsure as to what information they actually need to manage their service. The utility of available information to quality improvement and process redesign is often undervalued. In addition to the existing culture, Health reporting is hampered by having disparate information systems which are mostly poorly integrated. Information is often inconsistent and not sufficiently timely to be of real value.

Clinicians, clerical staff and managers need timely, consistent and accurate data, collated as a byproduct of daily activities, and delivered in a format that is easy to interpret. Much of the criticism and mistrust of information stems from the failure to meet these basic requirements. However, many years of experience at the Children's Hospital at Westmead (CHW) have shown that even when these criteria can be met, staff, including managers, are still unsure as to how to work effectively with the information to measure, monitor and track performance, as well as to plan or demonstrate process outcomes.

Clearly, the lack of capability stems from a culture where data is not valued or where staff are not adequately trained or supported in its use. If the Health system is to rise to the challenge of reform, and for individual health facilities to be viable in the current climate, senior management needs to be clear on its expectations, articulate a clear business information strategy that meets the needs of the organisation and build both a management and information culture that supports the directions of the organisation. Most importantly, the focus needs to shift from historical reporting to supporting informed and participative management that is strategically aligned, as well as supporting staff in their daily work and the delivery of patient care. This is often an iterative process as users develop an understanding of their data and information needs.

Key success factors for harnessing information in Health

Making the transition to an environment where staff value the information they have at their disposal is not an easy journey and does not happen overnight. However, if several key elements are addressed in a coordinated way, the likelihood of success will be significantly increased.

The importance of a systemic approach to quality improvement was first highlighted by leaders in quality, such as Deming¹¹ and Drucker.¹² More specifically, Wang and others have established data quality frameworks that have been shown to be relevant to Health.^{5,6} Based on the lessons from their work and others with a specific focus on Health,⁷⁻⁹ the key elements of success in enhancing both the quality and use of data include:

- 1) Vision – management needs to articulate a clear vision that sets out a clear direction for information management within a broader performance framework, and that reflects the strategic priorities of the Health service.
- 2) Leadership – management at all levels, starting with the Chief Executive, needs to set clear expectations, be consistent and reinforce the right behaviours.
- 3) Management culture – the leadership needs to place a value on information, incorporating information and accountability for performance into how the organisation works.
- 4) Performance culture – having set a vision and expectations, management needs to link these to accountability for

performance and ensure every person in the organisation is responsible for the performance they can influence.

- 5) Information culture – organisations need to be driven by data and grow their awareness and capability, by recruiting staff who have the right skills, and developing those skills in those who do not.
- 6) Information management – all staff have a role to play in managing the flow of information. Staff engagement and robust data quality framework that focuses on accuracy, relevance, representation and accessibility will ensure the availability of timely and meaningful data.

It takes a combination of all six dimensions to ensure the provision and uptake of good quality information by users. Focussing on users requires an understanding of the various user groups and their needs. A mature organisation will focus on the needs of all staff with upward reporting being a byproduct of day to day information. Currently, there is a significant gap in the systems and information clinicians need at the point of care, or that clinician managers and managers need to operate efficiently. As this gap is progressively addressed, Health will increasingly receive the uptake and benefits out of a growing investment in technology.

Improving data quality

Industry has long recognised the importance of capitalising on data as an asset for improved organisational performance.^{13,14}

The clear message to emerge from industry is that in order to promote the practical use of data, there needs to be a significant effort to improve data quality. The approach needs to be underpinned by a structured approach based on well-established data quality frameworks that align well with standard approaches to quality improvement, many of which are well understood and utilised in Health.¹⁵⁻¹⁹ An alternative approach is simply to encourage more extensive use of data, hoping that over time the quality of the data will improve. The author's experience has shown that although this may be the case, it can take a long time to gain user trust and get widespread reliance on data. Often, poor data are presented to users and far too much effort is expended on cleansing data. Users, many of whom generate the data in the first place, need to take more accountability for the quality of the data and how they need the data presented, for it to be of value. The process requires a systematic approach with a review of current data management practices and targeted process improvement.

Getting the data right will contribute significantly to the provision of safe high quality care, clinical process improvement and the need to manage scarce healthcare resources. Healthcare is too complex to manage without good data. Therefore, every effort needs to go into ensuring that the data used are of a high quality.

Managing the change beyond the data

To achieve sustainable change, the barriers between managers, clinicians and data managers within Health services need to be broken down to ensure cooperation and to get the most value out of the wealth of data available. Clinicians need to take an active interest in the documentation and interpretation of clinical data. Ideally, a leadership group needs to take the organisation forward by educating and coaching staff at all levels, introducing management accountability, learning how clinicians and managers

use information but, most importantly, measuring the right things and rewarding the right behaviours.

Improving data quality therefore needs a long range plan and should be supported by a structured approach to process improvement around data management and applying appropriate business intelligence tools.^{13–15} Far too often, however, there is a focus on the tools and the promises of what they can deliver rather than the process or skills development. As a result, expectations often get out of sync with the product life cycle and ignore the culture and capability of the organisation, as well as the intended changes expected. The issue becomes even more complex, particularly in Health, where there is a broad program of work with conflicting demands and anticipated benefits.

Consequently, the tools or information technology (IT) are often seen as failing, whereas the real issue rests with a failure to improve processes and drive accountability. It needs to be ensured that the management of technology is not confused with the management of data and information. Data are the vehicle for the measurement of performance and performance improvement to which the IT systems contribute. This has significant implications for governance and needs to recognise that information management requires separate governance and can no longer be managed passively. Data governance needs to progress to a more active process that strives to achieve best practice by getting the right information into the system the first time. Subsequent uses at all levels should be a byproduct of quality data, captured once.

If the cycle of poor quality data and process improvement is not broken, there are sufficient lessons in industry that would suggest that hospitals and the Health system are destined to remain 'dysfunctional learning organisations'.¹³

Everyone needs to be put to work to improve systems and transform the organisation and work with process owners. Activity-based funding and transparent public reporting will become important catalysts for improving information management. Unless driven by strong leadership, Health services and clinicians will not engage until they see the reality of poor quality information systems and information.

Moving forward requires a clear understanding of where a Hospital or Health Service is in terms of information management. Many facilities in Health are in a fragmented state of maturity, with varying legacy systems and a limited ability to aggregate data, but with some movement towards becoming operationally efficient with underpinning process standardisation. Adopting a systematic approach to quality improvement will help more Hospitals and Health Services demonstrate that they are delivering high quality care. Achieving real excellence, however, requires a clear benefits plan and data-driven decision making that moves well beyond the existing performance framework.

Getting there is a staged process. Management needs to appreciate the importance of each step in the journey and not attempt to leapfrog to the endpoint. The journey starts with understanding the information and where it comes from. This inspires the custodian of the many source systems and managers to both invest in the right systems and avoid the pitfall of information overload.

In driving adoption one needs to understand the barriers to progress. The users who resist the implementation of new systems or who know best and have their own trusted datasets with

different definitions and timeframes are all too familiar. Only a systematic approach and firm leadership will bring them in line.

Often there is a tendency to respond following critical incidents or in response to crises when it becomes apparent that data are unreliable or incomplete. In Health, this often puts Health services and Government on the back foot trying to defend performance issues around Emergency Department performance or surgical waiting lists. Crisis management will lead to poor longer term outcomes and often fails to address the fundamental underlying problems. Equally, one cannot assume that processes are working well, particularly if benefits and data quality are not measured. A good example would be bed management where simple counts of admissions and separations, or occupancy status, fail to reflect significant delays that may impact the patient journey as they transition between services.

Understanding how good or bad one's systems and data are remains a key starting point to improving data and the supporting processes around its collection, reporting and use.¹⁵ Executives, managers and, for that matter, clinicians cannot accept poor quality data.

Managers cannot, however, drive uptake of information and get users to recognise the importance of good quality data by using a sledgehammer. Data and information need to be valued and managed as an asset.^{13,14} Good data have the potential to allow better monitoring of the efficiency and quality of the services provided, enhance decision support and improve service but, equally important, these provide the best vehicle to demonstrate success and drive further investment or enhance revenue.

Developing a culture that values information as an asset – the CHW experience

As clinical and corporate systems in Health are rolled out and the reform agenda progresses, the demand for good quality information will grow. CHW recognised that it needed to make far greater use of its information assets and grow the capabilities of the staff by having a clear vision and showing strong leadership in driving a major culture change.

Despite a concerted effort by the CHW to ensure the availability of good quality data, uptake by users has not always been ideal. Firstly, there was a failure to ensure that appropriately skilled staff existed in key service roles to support the use of information. Secondly, clinician and Manager buy-in was poor and was compounded by system conversion and performance issues affecting the reliability, timeliness and completeness of data and reports. Planning around the management of data was also limited, leading to 'pockets' of data throughout the organisation, affecting accessibility, duplication and data quality issues.

The Hospital saw the need for a better planned approach to information management to ensure that development was far more than just a process, but embedded in the culture of the Hospital. Even with the most idealistic approach to the management of information, if a culture is not established that values and embraces the use of it then, even the best system of delivery will fail.

The Hospital chose to focus on driving an information culture through the organisation. A patient-centred and outcome-focused approach was adopted. The aim was to target 'efforts designed to improve the quality and cost-effectiveness of patient

care through the application of information technology and management systems across the healthcare spectrum'.¹⁹ To a large degree, this meant working with users to develop an understanding of the information they required to improve the processes and outcomes of patient care. In developing an information culture, it was also recognised that the Hospital needed to ensure that the system to be implemented added value to what users already had access to.

Critical to the success of the initiative was having the capability in the Hospital's Management Support and Analysis Unit (MSAU) that was closely engaged with users. Under the guidance of a steering committee, the unit implemented a set of staged recommendations. These included:

Phase 1

1. Identifying key staff with the capability to integrate the use of data into practice, and training these staff in data extraction and statistical methodology.
2. Ensuring all departments were supported by these newly trained staff members who largely filled business manager roles.
3. Establishing a forum by which information needs were discussed and addressed across the organisation.
4. Maintaining accountability at department level while closely aligning trained staff with the MSAU in order to establish a cohesive working relationship that would allow ongoing development, support and improved data quality.

Phase 2

1. Improving system capability and performance.
2. Identifying and streamlining data flow streams within the organisation.
3. Broadening the scope of data collected to include all patient settings for all services to ensure relevance for all users.
4. Consolidating data reporting and distribution through one channel.
5. Identifying, prioritising and rationalising the number of reports and measures generated.
6. Ongoing development of staff in the use of information.

Early subjective benefits for CHW included a positive response from users who now had access to timely and consistent information and expressed greater confidence in the data. This led to improved transparency in planning, performance management and accountability, greater financial understanding and early identification of issues for resolution. Active participation by users and the increasing demand for ongoing enhancements and expanded reporting would suggest that the approach has been well received.

Subsequent evaluation by the MSAU of regular automated monthly reporting showed a 97% reduction in process time taken to prepare and deliver reports with 100% compliance of all divisions submitting completed responses on time. The automation of the process reduced the time taken to produce reports from 2 days to 30 min.

A survey of 28 staff (47% response rate) showed that 82% of the respondents found the standardised integrated reports as

useful or very useful. Most (72%) rated the quality of information presented as good or excellent and 55% felt that the improved process saved them significant time, with 64% agreeing or strongly agreeing that their productivity had increased.

Conclusion

Good health information needs to be seen as an asset. To fully appreciate the value of information, Health facilities need to recognise the importance of a clear vision for information management and how it can support the overall transformation of Health. Only then can organisations embark on the journey of implementing systems and growing a culture that strives for excellence in information and performance management, ultimately leading to better care for patients.

Competing interests

The author declares that no conflicts of interest exist.

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