

Queensland Collaborative for Healthcare Improvement: A Model for the Development of Performance Measures and Quality Improvement Processes in Renal Dialysis.

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Abstract

Background: Dialysis service delivery was identified by the Commonwealth as a high cost, high volume service. In response to this situation, funding was received for the planning, development and implementation of a quality program for a pilot group of renal services within Queensland Health renal units in 2001. The program known as the Renal Collaborative now embraces all dialysis units within Queensland Health.

Aim: The aim of the Renal Collaborative was to reduce variation in practice within Queensland Health renal units through data collection and feedback systems in order to promote service improvements in clinical practice.

Methods: Evidence based guidelines developed by the Caring for Australians with Renal Impairment program provided a platform for the development of clinical indicators. Data collection utilised various statistical analysis methods. Feedback to clinicians was through on line access to the indicators, paper-based summary results and biannual meetings.

Results: An effective shared learning model developed through efficient data collection of clinical information from all Queensland Health dialysis units was launched. Clinical staff from individual units now have the opportunity to identify service improvement through evaluating clinical interventions.

Conclusion: The development and application of 'ready to use' guidelines for dialysis services now permits timely conversion of clinical practice in dialysis areas into plausible clinical indicators and has assisted with data collection for benchmarking. The development of a highly successful collaboration of renal nursing and medical clinicians in dialysis has achieved quality improvement in renal services within Queensland Health.

Key Words

collaborative, clinical indicators, dialysis, renal, quality improvement, benchmarking, quality monitoring

Introduction

Health care providers are increasingly challenged to improve the quality of health care delivery and health outcomes. Measurement of performance and continuous improvement are important processes in achieving such outcomes, and the process of benchmarking demonstrates a commitment to public accountability and to patient care. The introduction of the Disease Outcomes Quality Initiative (DOQI, 2005) and subsequent Caring for Australians with Renal Impairment (CARI, 2005) program guidelines for people with end stage renal failure (ESRF) was a much needed innovation to assist with reduction in variation of clinical practice in dialysis units.

With the increase in prevalence of ESRF, especially in the elderly and diabetic populations, awareness of increasing costs in renal services has been acknowledged by the Australian Federal and State Government Departments. It is an expectation by the Government and public that the best possible outcomes are being achieved within financial allocations of the budget.

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This paper will report the progress of the Queensland Renal Collaborative, including background to its development, methodology, reporting practices and processes.

Background

Dialysis is of particular interest to the Government and other fund providers due to the high cost and high volume of renal replacement therapies (AIHW, 2003-2004). However, the processes and technology which enable efficient recording of analysis, benchmarking and reporting to clinical units in a timely fashion are not widely available. In response to a call from the Commonwealth to fund quality improvement projects, the Renal Collaborative was established in 2001 as one of a group of clinical collaboratives for the Medical Quality Program (MQP) within the quality improvement and enhancement program. With subsequent organisational changes over the years the principal program name has changed from MQP to the Collaborative for Healthcare Improvement (CHI). In early 2005, due to the success of CHI, activity has now been incorporated with operational funding within the Queensland Health Clinical Practice Improvement Centre (Collaborative for Healthcare Improvement, 2005). However, the purpose of the Renal Collaborative has remained unchanged.

The model that has been adopted for the Renal Collaborative aims to close the gap between potential and actual performance through the testing and implementing of change across many organisations. This follows the breakthrough model developed by the Institute for Healthcare Improvement (IHI) (Wilson, Berwick, & Cleary, 2003). This model encourages hospitals to work collaboratively on specific improvement topics. The Renal Collaborative initially

commenced with four pilot dialysis units within Queensland Health, with the remaining units committing to participate within the group by September 2003.

Aim

The Renal Collaborative was established to enable efficient recording, analysis, benchmarking and reporting to renal units within Queensland Health. The initial aim of the collaborative was to reduce variation in practice and to develop efficient data collection and feedback systems to promote service improvement. The project also enabled a test-base for trialing alternative information technology solutions focusing on data entry, storage, retrieval and presentation and the development of robust clinical indicators resulting in standardised practice procedures (Table 1).

Table 1. Aims of the Renal Collaborative Project

- Develop efficient data collection & feedback systems
- Reduce variation in practice
- Test developments in information technology
- Embed data collection, storage, retrieval & presentation as part of routine clinical practice

Methodology

Through an intensive literature search, indicators for clinical renal practice were developed. This process was assisted by the provision of the evidence based guidelines from CARI and where no evidence was available then available, expert opinion. The establishment of a working party was essential to target the priority areas for dialysis management. Without the support and commitment of the nursing clinicians who collected the data and who have used the reports for benchmarking, this project would not have succeeded.

Establishing collaborative relationships

The establishment of a renal collaborative in Queensland was not difficult due to networks already established through various working parties and committees by medical and nursing clinicians practicing in dialysis. The CARI initiative provided guidelines for renal practice, however there was no available system to measure and report performance, based on these guidelines (CARI, 2005). As dialysis clinicians were eager to participate in a collaborative, the main issue was to focus the group on developing useful measures of performance. The project team provided the co-ordination, measurement system, the reporting tool and venues to discuss and interpret the results for service improvement.

For a collaborative to be successful a group of enthusiastic clinicians working towards a common goal is mandatory. Further, there must be clear advantages for those involved in the process. Several qualities have been identified to ensure success:

- Engaging physicians and nurses as participants and leaders of improvement
- Embracing a keen clinical leader to 'champion' the program
- Utilizing technical expertise to design systems of measurement that provide top line reports in seconds, eye catching graphics and is user friendly
- Employing a specialist renal nurse to co-ordinate the process of data collection and feedback
- Executive support

Units in Queensland experience many different challenges. For example, in North Queensland water scarcity may pose a problem for home haemodialysis while for other units home visits may take up to a week because the mail

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service plane has to be utilised. For those on the south and north coasts, new patient numbers are increasing as the 'baby boomers' retire to the beach.

In addition to the successful outcomes for the renal collaborative, the keys to success have been the recognition of individual units' issues and the annual visits to each site from the project co-ordinator, and occasionally that of the project lead clinician. This is supported by the regular sixth monthly forums where representatives from each site participate in sharing service improvement strategies and performance measurement.

The Renal Collaborative is nurse driven. Wholehearted and enthusiastic support has been given by clinical staff from all dialysis units within Queensland Health. Nursing staff particularly have embraced the burden of data collection as they see the value and benefits of a reliable system that offers a benchmarking methodology at their fingertips.

Executive support is mandatory for the success of any project and has been achieved overwhelmingly forthcoming. The value of the collaborative has been recognised both for the united front presented by all hospital dialysis units

and for the type and quality of the data collected. It has been important to maintain this strategic link without compromising clinicians reporting of the data.

Developing the indicators

The rigorous development of evidence based guidelines provided the ideal platform to derive quality clinical indicators. These guidelines enabled the collaborative to base clinical and process indicators on the latest evidence based principles developed by clinicians in the Australian and New Zealand renal community. Based on the CARI guidelines and, where no evidence was yet available, 88 clinical indicators were initially developed by a working group of renal clinician experts. These process and clinical indicators were later refined and currently over twenty indicators.

The clinical indicators are separated into three themes. Firstly, new patient information is collected as new patients enter the dialysis maintenance programs. Secondly, events relating to dialysis access are collected continuously as events occur to vascular and peritoneal dialysis access, including infection and non-infection episodes. Finally, profile indicators are collected once a year from the Australian

and New Zealand renal database registry (ANZDATA, 2004) with supplemental information from a paper based form developed by the Renal collaborative.

As clinical indicators are not static, they must be adaptable to change in response to new evidence in addition to being flexible to meet the clinical requirements of clinicians (Osborne & Goebler, 1992). For example, the renal collaborative held a workshop in September 2004, to refine a number of indicators to investigate the reasons for the high incidence of temporary access at first dialysis. As a result three additional indicators have been developed with this purpose in mind.

Collecting and reporting the data

The Renal Collaborative employs several methods of data collection and resources for data entry (Figure 1). It is imperative that we prevent duplication of data collection where possible and be aware of workload issues involving data collation, as at all sites the data collection is undertaken primarily by the nursing clinicians.

From the initial data collection, the majority of information for the indicators has been collected on paper

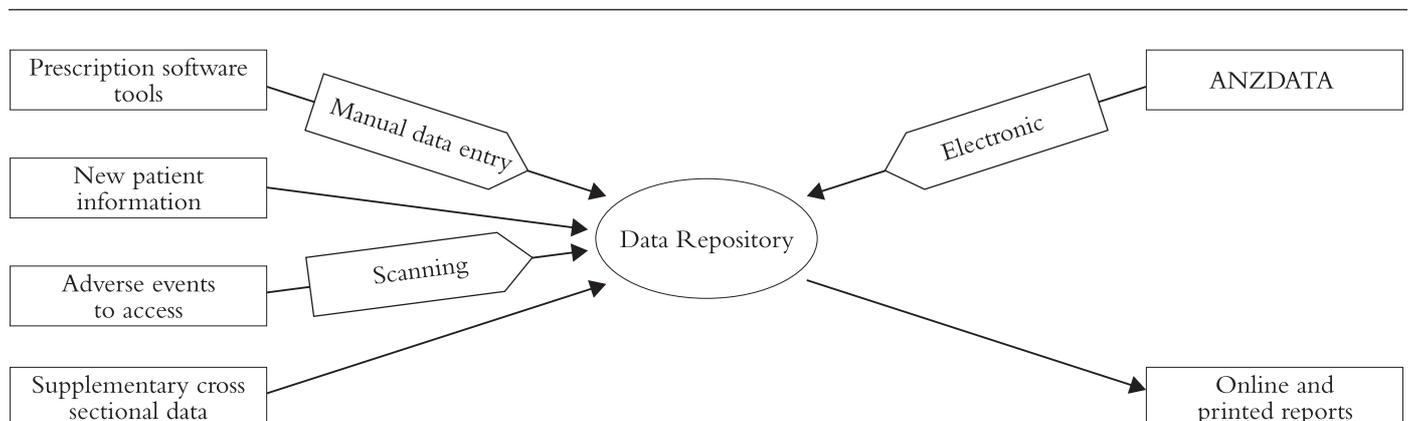


Figure 1: Data Acquisition Process

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based scannable forms at each dialysis unit. However, a number of indicators are similar to that which is collected by ANZDATA (ANZDATA, 2004) so it was necessary to obtain authorisation from each lead clinician of the renal collaborative, to permit electronic transfer of this information in a structured data file to the renal collaborative. At one site data has been provided from their local patient information system thereby negating the use of scannable forms. Initially some data was provided by units using commercial database and prescriptive software tools, and this is currently being reviewed as a possible solution to improving data quality and further reducing duplication of data collection.

Process and reporting tools

The scannable forms, which provide the majority of the data for the reports, once completed at each unit, are returned to the office of the Renal Collaborative where they are scanned into an Oracle™ database. This database is embedded within the Queensland Health Decision Support Systems (DSS). The data then goes through a translation process where it is cleaned, calculated and the creation of transaction and balance tables occurs. The data is then reported in a Holos™ multi-dimensional cube within the Indicator Analysis Tool™ (IAT), which has been developed by the Decision Support Services and the Clinical Practice Improvement Centre. As the data is entered into the database, the IAT is refreshed allowing the reports to be updated on a weekly basis.

By accessing the reports on desktops via the Queensland Health intranet site (QHEPS), individual dialysis units are able to view their own indicator results and compare against aggregate outcomes from all hospitals participating in the Renal Collaborative. This information

provides each unit with the data required to identify opportunities for service improvement or to evaluate interventions over a period of time. The IAT provides an easily accessible and timely solution to answering questions regarding current performance when benchmarked with other hospitals within the renal collaborative.

Feedback/quality processes

In addition to the reporting function within the indicator analysis tool, the six monthly Queensland Hospitals forums foster change management (Morton et al., 2001; Osborne & Goebler, 1992) through showcasing hospital specific quality improvement interventions, and by providing a venue to discuss data implications, and opportunities for service improvement. These meetings are attended by medical and nursing representatives of each dialysis unit within the Renal Collaborative. These measures are further supported by site visits, which are undertaken by the project officer and on occasion by the lead clinician for the renal collaborative. These visits, especially for the rural and remote centres, have provided useful feedback of current performance, education in change management strategies and as a means for encouraging ongoing commitment and enthusiasm for data collection and review. Site visits are also another opportunity to train clinicians on-site in the use of the IAT.

Discussion

The Queensland Renal Collaborative has been successful in establishing and providing the means by which each renal unit can identify opportunities for improvements in their dialysis service, based on their performance benchmarked against other units in the collaborative. Involvement in the renal collaborative has provided some participants with the impetus to make clinical improvements

(Osborne & Goebler, 1992). Many clinicians can 'see' the issues intuitively but are unable to instigate possible solutions due to the lack of several resources such as time, hard data and funds. The Renal Collaborative has been able to focus units to prioritise issues, through measurement of indicators and to provide a forum for discussion and possible solutions. This has been achieved through the use of flexible, robust clinical indicators based on Australasian Guidelines and sustainable data collection methodology and feedback processes.

The dialysis units participating in the renal collaborative extend to an area of 1,730,648 km², with each unit having site-specific issues. In order to gain internal support for the data collection it was important to demonstrate to the staff of each individual unit how performance measurement could benefit them by identifying individual respective issues, requirements and goals within the clinical indicators. Each unit can now ascertain how best to achieve change within their individual work place culture and set reasonable and achievable targets for quality improvement. However, it is appreciated that it takes time to embed the process of data collection (Nicola, 2005). Working as a collaborative has enabled learning through the exchange of knowledge and support, encouraging a culture of change. Conviction based on evidence and belief that change can improve patient care, assisted in encouraging the vision that change is possible. It has been recognised that time restraints at times hinder data review so site visits to individual renal units have been beneficial for the collaborative project officer to review the data and provide a summary of reports, with the time taken to discuss the implications of the results.

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Sustaining the commitment to continuous improvement has been achieved by recognising team leaders from each site as drivers for the collaborative (Nicola, 2005). In all cases this has been a role that has been embraced by nursing clinicians. These drivers are supported by the provision of a current and robust system of data analysis reports, a biannual forum to discuss issues with colleagues from across the state, and a link with strategic development.

Collaborative models have been used in the United Kingdom and the United States of America in order to achieve rapid improvements in healthcare. The most notable is the "Breakthrough" series of the Institute of Healthcare Improvement (IHI). Review of the literature supports our own experiences for establishing a quality collaborative with the aims of continuous improvement of patient care and reducing variation in practice. However, whilst not all collaborative ventures in health care improvement are successful, the key operational challenges that must be addressed have been reviewed (Nicola, 2005). This is consistent with our experience and includes careful selection of topics, clear objectives, well developed teams, executive support, well defined targets and effective support for personal and organisational learning. In the long term, sustained change requires linkage of operational activity with strategic directions, a supportive culture and technical support for information management and education (Ross, O'Tuathail, & Stubberfield, 2005). Most importantly, trust in the management of potentially sensitive outcome data is crucial for gaining clinician involvement. A government gazetted committee of clinicians has been implemented in all Queensland collaboratives to allow confidential management of all such data as all data is patient de-identified.

Conclusion

Due to the escalating population experiencing end stage renal disease it is imperative to obtain a model of care that ensures health care delivery supports viable health service outcomes. This has been achieved through the implementation of a Renal Collaborative which has facilitated the identification of key clinical indicators within renal units in order to produce quality measured outcomes against which individual units are able to benchmark in order to improve service delivery. The continuation of the Renal Collaborative will contribute to address the changing needs of the renal community within Queensland Health.

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"The data reported here have been supplied by the Australia and New Zealand Dialysis and Transplant Registry. The interpretation and reporting of these data are the responsibility of the

Authors and in no way should be seen as an official policy or interpretation of the Australia and New Zealand Dialysis and Transplant Registry"

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