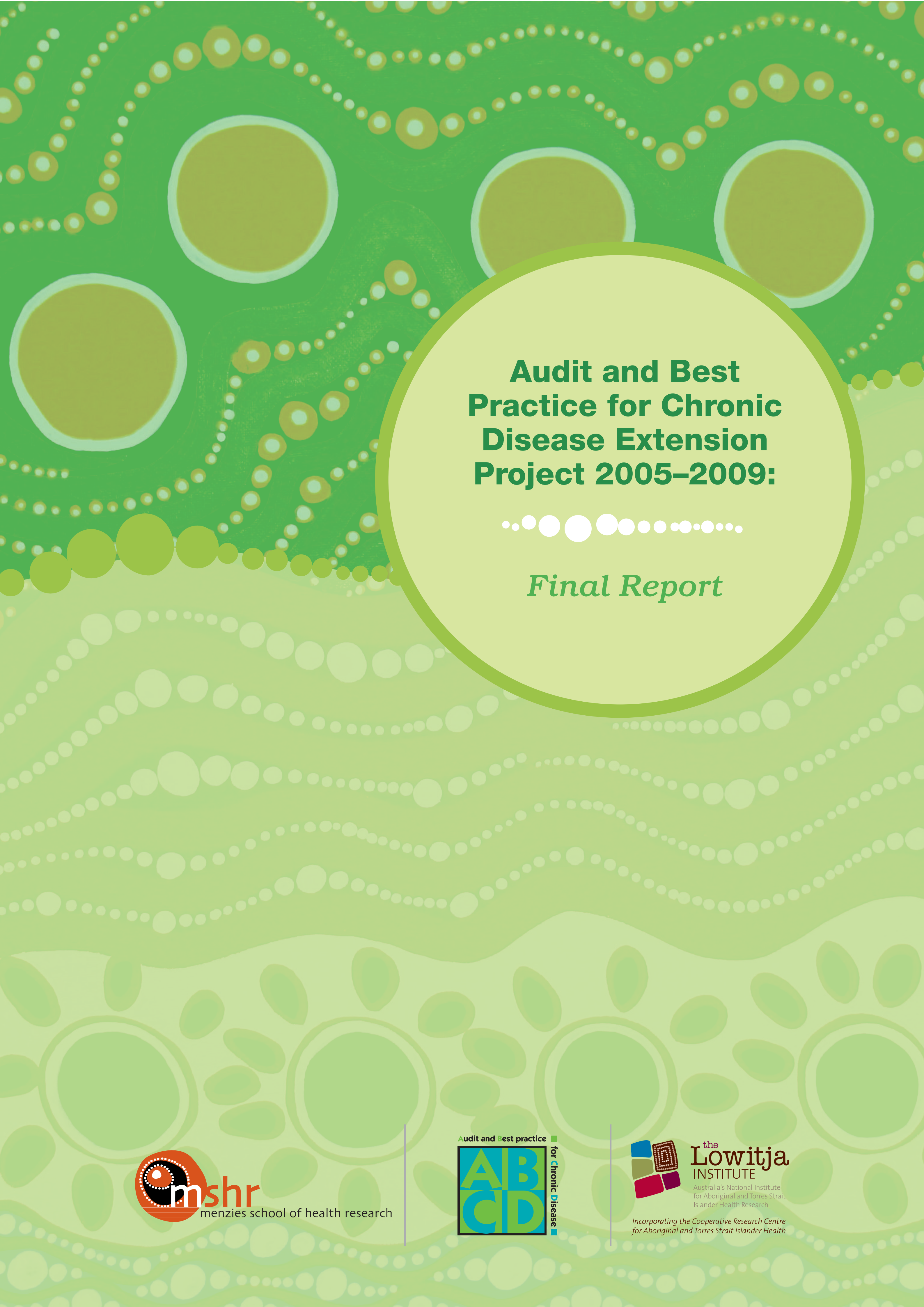

Audit and Best Practice for Chronic Disease Extension Project 2005–2009:

Final Report

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ABCD

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Incorporating the Cooperative Research Centre for Aboriginal and Torres Strait Islander Health

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Incorporating the Cooperative Research Centre for Aboriginal and Torres Strait Islander Health

ISBN 978-1-921889-00-4

First printed in March 2011

This report is a result of research undertaken by the Menzies School of Health Research and supported by the Cooperative Research Centre for Aboriginal Health (CRCAH), which operated from 2003–09. The CRCAH was a collaborative partnership partly funded by the Cooperative Research Centre Program of the Australian Government Department of Innovation, Industry, Science and Research. The report has been published as part of the activities of The Lowitja Institute*.

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Design and print: Inprint Design

For citation: Schierhout, G., Brands, J. & Bailie, R. 2010, *Audit and Best Practice for Chronic Disease Extension Project, 2005–2009: Final Report*, The Lowitja Institute, Melbourne.

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* The CRCAH concluded its funding cycle in December 2009. In January 2010, the CRC Program funded the Cooperative Research Centre for Aboriginal and Torres Strait Islander Health (CRCATSIH). Subsequently, CRCATSIH came under the management of The Lowitja Institute — Australia's National Institute for Aboriginal and Torres Strait Islander Health Research.

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Acknowledgments

The Audit and Best Practice for Chronic Disease (ABCD) Extension project built on the success of the ABCD project, a collaboration between Menzies School of Health Research, the Northern Territory Department of Health and Community Services, the Cooperative Research Centre for Aboriginal Health*, and a range of government and Aboriginal community-controlled health centres in the Top End of the Northern Territory. Initial funding support was provided by the Australian Health Ministers' Advisory Council through the States and Commonwealth Research Issues Forum.

Since then ABCD has been supported by funding from the Australian Health Ministers' Advisory Council, the CRCAH and the Commission for Safety and Quality in Healthcare. The success of the project has been a result of the support and collaboration of a number of organisations, including, in particular, the staff and management of community health centres involved in the project.

We also acknowledge the support of the ABCD Extension Management Committee, ABCD Extension Project Chief Investigators, and participating state and territory health departments.

The members of the ABCD Extension Project Team are Kat Lonergan, Cath Kennedy, Helen Liddle, Rhonda Cox, Ru Kwedza, Lyn O'Donoghue, Damin Si, Jenny Hains, Michelle Dowden, Marea Fittock, Jenny Brands, Nikki Clelland, Karen Gardner, Marie Kelly, Linda Ward, Lisa Mulhearn and Ross Bailie.

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Abbreviations *and definitions*

ABCD	Audit and Best Practice for Chronic Disease
ACIC	Assessment of Chronic Illness Care
CQI	Continuous Quality Improvement
CRCAH	Cooperative Research Centre for Aboriginal Health
Health service	In this report, health service is used to refer to an umbrella body managing the functions of a group or cluster of health centres
MBS	Medicare Benefits Schedule
SAT	Systems Assessment Tool

Key *messages*

It is well recognised that Aboriginal and Torres Strait Islander Australians have unacceptably high levels of chronic disease, but the concrete actions governments and other stakeholders can take to make a difference to health care processes and outcomes are less clear. The Audit and Best Practice for Chronic Disease Extension (ABCD) Extension project is a primary health care quality improvement intervention that is based on international best practice in primary health care. It has been developed and implemented in collaboration with peak bodies in the community-controlled Aboriginal and Torres Strait Islander health sector.

With more than 100 health centres around Australia using ABCD tools and processes at its completion, the project demonstrates that a Continuous Quality Improvement (CQI) intervention can be both acceptable and feasible across diverse health centres providing care to Aboriginal and Torres Strait Islander peoples. The project shows that given the right support for such initiatives, substantial improvements in the quality of care and in intermediate health outcomes are attainable.

How ABCD tools are improving chronic disease outcomes

Between 2005 and 2009 a systematic CQI process was refined and implemented by the ABCD Extension project in diverse Indigenous primary health care settings in Australia. Indicators of quality of care delivered, health outcomes and processes of implementation of the project were collected and analysed from 69 health centres. Voluntary uptake of the intervention was high, and interest was sustained; more than 100 health centres used the ABCD tools in some way, and almost 40 health centres applied the tools and processes for three years or more, with the following outcomes:

- system and clinical audit tools developed in ABCD were incorporated into the Australian Government's Healthy for Life program and used widely by health centres to meet reporting and other requirements
- delivery of services to help prevention and early detection of chronic diseases such as diabetes, renal and heart disease improved by 13%
- delivery of services to help patients manage diabetic conditions improved by 6%
- 64% of health centres that completed three rounds of data collection achieved improvements of 10% or more in delivery of services to prevent chronic diseases.

Overall, larger and better resourced health services — and those under the management of a regional health authority — were more likely to achieve improvements in quality of health care; however, improvements were also attained in small and remote health centres.

Implementing the ABCD CQI approach in individual health centres

Effectiveness of the ABCD CQI approach was greatest in health centres that showed:

- a high level of interest in and a commitment by senior management to CQI processes
- planned implementation that included:
    - linking the CQI approach to organisational aims and adapting it to suit local needs
    - improving the quality of record keeping of clinical data
    - allocating time and other resources for staff to participate in CQI processes
    - investing in professional development in CQI.

Those health centres with clinical leaders who engaged with the CQI process were able to maximise improvements.

Implementing the ABCD approach across regions, States and Territories

For groups of centres or entire health services, the factors that supported effective implementation of this quality improvement intervention included:

- a high-level commitment from health authorities that included providing dedicated resources to support CQI
- the establishment of organisation-wide implementation frameworks.

Without these critical systematic supports, individual efforts in local health centres could still achieve improvements — but improvements were less likely to be sustained.

What made the ABCD approach appealing?

Factors that contributed to the uptake of the ABCD approach were that the model:

- fitted well with existing practices, systems and priorities in Aboriginal and Torres Strait Islander primary health care
- included supportive infrastructure such as a web-based information system for data entry and analysis, regional facilitators who supported the implementation of CQI in health centres, and training for health centre staff in the use of CQI
- was adaptable to local contexts but retained a consistent core that allowed for comparison of health centre performance across regions and nationally
- was underpinned by evidence generated in both international and local Aboriginal and Torres Strait Islander contexts.

Policy implications

1. Co-ordinated funding and regional and/or Commonwealth infrastructure support for primary care quality improvement is required to engage in systematic CQI processes — ad hoc funding and piecemeal initiatives are unlikely to result in sustained improvements.
2. Support should be given to interventions that achieve a balance between core activities and flexibility for adaptation to local needs and priorities — centrally determined blueprints are unlikely to be sufficiently flexible to respond to local priorities and are unlikely to achieve critical local buy-in and implementation.
3. Realistic expectations of the kinds of improvements that can be achieved in processes of care, as well as health outcomes, are likely to be important to maintain momentum for change. Building incrementally on existing proven initiatives is more likely to achieve sustainable improvements than investing in initiatives that lack a sound evidence base.

Executive *summary*

The Audit and Best Practice for Chronic Disease Extension (ABCD) Extension project was an action research project designed to improve the quality of services for the prevention and management of chronic disease among Aboriginal and Torres Strait Islander people across Australia. It provided direct support to health centre staff to help them engage in systematic quality improvement activities and, at the same time, provided research data about the roll out of a systematic quality improvement approach across a variety of Aboriginal and Torres Strait Islander primary health care settings.

The intervention, based on a Plan–Do–Study–Act cycle of quality improvement, was supported by evidence-based audit tools, protocols for clinical audit and a flexible approach that allowed health centres to adapt the intervention to suit their circumstances within certain parameters. Throughout the 2005–09 period of implementation, participating health centres were supported through annual quality improvement cycles by a small project team. Health centre staff were able to interact with and learn from staff of other participating centres through information sharing and annual meetings. Technical support and a web-based information system provided participants with real-time analysis of their performance data and the capacity to compare with others. Health centres were recruited to the project progressively, and by December 2009 there were 69 health centres from four states/territories in Australia participating in the project — exceeding initial recruitment targets. These health centres were located in diverse settings across Australia, including health centres in remote rural areas, small towns and urban settings. They included Aboriginal community-controlled, government and non-government organisations, and general practice.

The project yielded rich and varied data that were analysed in different ways, and it adopted a participatory dissemination approach: early findings were used in ongoing refinement of the tools and processes, and have influenced policy and practice more broadly in the sector, including influencing the development of the Healthy for Life program — a significant program of funding for Indigenous health in Australia. The ABCD approach and tools have also been adopted by at least two state health departments, several regional authorities and many individual centres for ongoing quality improvement.

This report draws on analyses of data from use of the quality improvement tools in health centres from 2005 to 2009; data from community survey tools; report templates completed every quarter by regional hub co-ordinators responsible for overseeing implementation in a cluster or group of health centres; and purposively structured dialogue and in-depth interviews with implementers and other key informants.

This report aims to synthesise lessons that have been learned from these diverse data sources about the factors that are important for effective implementation of the ABCD approach and to identify areas for further research.

Factors affecting uptake and effectiveness of ABCD

Inter-related factors were found to be important to the overall broad-based uptake and reception of the ABCD quality improvement cycle during the implementation period.

- **The establishment of linkages between the Continuous Quality Improvement (CQI) process and wider health system accountabilities and support was found to contribute positively to wide-scale uptake for many health centres.** Using data gathered through CQI participation to report on indicators for the Healthy for Life program was an example of such an accountability linkage that contributed to successful implementation in a number of health centres.
- **Factors related to gaining the support of key stakeholders at different levels of the health system were critical to achieving high levels of uptake.** Stakeholder support was able to be achieved because of the intrinsic characteristics of the intervention (primarily, its evidence-based approach), coupled with advocacy from project champions who promoted the approach across the sector and with diverse stakeholder groupings initially and during roll out. It was also important that the project was consistent with 'Closing the Gap' policy commitments by the Australian Government and had the support of leading Aboriginal and Torres Strait Islander health organisations.
- **Establishing synergies between ABCD processes and the day-to-day organisational routines of the health centres facilitated wide-scale uptake.** This was possible partly because the intervention was designed to be as compatible as possible with health centre routines at the local level. In addition, some health centres were prepared to adjust their routines to accommodate the ABCD processes, recognising the positive effects this would have on service delivery.

Baseline data from the clinical audits showed many opportunities to improve quality of care across participating health centres. For all health centres taken together, at baseline, more than half (56%) of guideline-scheduled services for clients with diabetes were delivered; one-third (33%) of guideline-scheduled preventative services for well adults; 56% of scheduled child health services; and 57% of postnatal women returned after giving birth to their babies for one or more guideline-scheduled postnatal visits. The data showed large differences between regions and between individual health centres on these measures. In general, health centres that enrolled later in the project had slightly higher delivery of guideline-scheduled services than those that enrolled earlier.

Among health centres that completed three or more rounds of data collection, the delivery of guideline-scheduled preventative services for well adults increased by 13% overall between Round 1 and Round 3; the delivery of guideline-scheduled diabetes services increased by 6%; and the delivery of antenatal and postnatal services increased by 15% and 19% respectively. These data suggest that overall participation in the ABCD project had a positive effect on improving quality of care. However, the data also revealed marked differences between individual health centres, with some centres showing varying levels of improvement, others showing no change and a few centres showing declines in quality of care over time. Data on contextual factors and on quality improvement-related activities were analysed to understand differences in quality of care indicators over the course of the project and strategies that might be useful to maximise the possible benefits of the ABCD quality improvement approach.

An analysis of patterns of improvement over three or more years of data collection identified factors that were important contributors to the extent to which quality improvement processes resulted in improvements in delivery of guideline-scheduled services. These factors were:

- support for quality improvement processes by clinical leaders and by health centre management: key attributes of effective leaders in this regard appear to be a strong population health approach and an interest in data and data systems to support high-quality clinical care and population health outcomes
- regional-level management support and the presence of regional support systems for services to engage in quality improvement activities. This appeared to be especially important in small health centres where achievements could be rapidly reversed by the loss of a single staff member or other disruptions which might be less significant in larger health centres
- completion of the audit and systems assessment processes to a high standard and as per the project protocols
- involvement of local and/or regional community health boards in the governance of the health service
- adequate staffing levels and stability of staffing
- involvement of Aboriginal Health Workers in clinical care and quality improvement processes
- dedicated funding to support quality improvement activities, usually by allocating responsibility for quality improvement processes to a particular staff member and/or establishment of regional quality systems.

Another set of analyses looked specifically at uptake of the systems assessment component of the CQI cycle — its role in the overall quality improvement process and impact on quality of care. The systems assessment process was highly valued by those health centres that implemented it, but the level and type of implementation varied widely. Some variation was due to the quality of facilitation available to the health centres, and some was due to the degree to which participating clinicians and managers were able to see connections between quality of care and the strength of their systems. Preliminary analyses showed that those health centres that completed the systems assessment well were more likely to show improvements in quality of care between Round 1 and Round 3 than those that did not.

The clinical audits also recorded information on a number of intermediate health indicators that had been previously demonstrated to be linked to more definitive health outcomes, such as the development of complications. Early findings from an analysis of 12 participating health centres in the Top End of the Northern Territory identified promising associations between the state of development of health centre systems, quality of care and intermediate health outcomes for diabetes. Further investigation of the impacts of the ABCD process on intermediate health outcomes is underway — these and other areas of investigation are briefly described below.

Future research

The ABCD Research Partnership (2010–14) has been established to build on the experience and partnerships established through the ABCD Extension project. Together with One21seventy — the National Centre for Quality Improvement in Indigenous Primary Health Care — the ABCD Research Partnership will continue to expand and refine the work of the project.

Future research priorities will be informed by ongoing analyses of data from the ABCD Extension project and by the identified priorities of health service partners and participating health centres. Preliminary areas identified for further analyses of the ABCD Extension project dataset include the following:

- **Understanding factors associated with positive uptake and implementation of ABCD.** This will include further analyses across all data sources using mixed methods and interpretative qualitative methods. The findings of this research will be used to inform the development of more effective strategies and tools to support uptake in the future.
- **Identification of the relationships between quality of systems, quality of care and intermediate health outcomes.** This stream of research includes developing new ways to measure the 'depth' to which health centres participated in systems assessment. Some of this work may be done using existing data, but new, complementary data collection will also be required. The research will examine the relationship between *how* the systems assessment was done and improvements in quality of care and health indicators. We will also continue analysis that aims to identify which components of systems may be the most important to quality of service delivery for various health priorities. This research will be used to strengthen the CQI approach, with a focus on providing evidence for how stronger systems can lead to better quality of care and better health outcomes. It will also provide further evidence of overall effectiveness of the intervention that can be used to advocate for higher level support and resourcing for extended roll out of the tools and processes.
- **Identification of the relative importance of individual client-level characteristics and health centre factors (including participation in CQI processes) in determining quality of care and health outcomes.** Previous work has shown that the characteristics of individuals may be important determinants of the quality of care that they receive. Using the project dataset, we will be able to explore this issue across a range of health centres. Findings from this analysis have the potential to inform the design of community and health provider interventions that are better targeted at the needs of particular population subgroups in the Indigenous health context.

Several unanswered questions were highlighted through the project. They are unable to be comprehensively explored with available data, and require complementary research projects. Examples include questions related to broader aspects of service quality, including, for example, research designed to identify barriers to care for people who are not accessing services optimally; research designed to identify strategies to maximise the potential benefits of comprehensive quality primary health care through understanding factors influencing engagement by both health care providers and their clients; understanding Indigenous peoples' perspectives on quality of care; and developing strategies to enhance the capacity of primary health care services to meet client needs. Health centre staff and managers have also expressed interest in understanding more about the process and content of specific changes that are implemented in their health centres as a result of CQI.

The ABCD Extension project has established a wide national network of primary health care centres with experience in using the ABCD tools and processes. Where trend data were available from participating centres, changes over time suggest that, overall, the ABCD processes had positive impacts on quality of care on a number of measures. As anticipated, there was considerable variation in uptake of different components of the process and effectiveness between health centres, and between regions. Factors operating at national, regional and health centre level that help to explain this variation were identified. Further analysis of the data addressing outstanding questions of relevance to implementation and delivery of improved care is ongoing.

1 Background *and approach*

Key findings

- The Audit and Best Practice for Chronic Disease Extension (ABCD) Extension project (2005–09) was an action-research project designed to support the wider engagement by Australian Indigenous primary health care services in systematic continuous quality improvement (CQI) processes, and to identify health system requirements for wide and sustained engagement in CQI processes.
- The approach is informed by international best practice in CQI, evidence-based health care and prior experience in use of the method in the ABCD project and other work in the Australian Indigenous health care context.
- By December 2009, 69 health centres across five regions in four states/territories in Australia were formally participating in the research project. Approximately 60 other health centres were also using the ABCD tools and processes, but were not formally participating in the research.
- A wealth of data generated during the course of the project has influenced policy and practice in primary health care in Australia and elsewhere.

About the ABCD Extension project

The ABCD Extension project was an action research project developed with the overall aim of improving the quality of primary health care and health outcomes among Australian Indigenous people. The project supported health centres to use an annual quality improvement cycle (Plan–Do–Study–Act) and a set of clinical audit and system assessment tools to measure clinical performance, health outcomes and levels of development of primary health care service systems. The approach focused on the appropriate organisation of the health centre environment, recognising that this is often the source of quality of care problems and that improvements in this area are critical to achieving consistent and sustainable delivery of health services.

The ABCD Extension project was conducted over a five-year period (2005–09). It built on the results of the original Audit and Best Practice for Chronic Disease (ABCD) project, which commenced in 2002. The ABCD project demonstrated that a CQI model could be effective in supporting Indigenous primary health care centres to use evidence-based good practice in chronic illness care.

The ABCD Extension project expanded previous ABCD research to explore the potential transferability and sustainability of the model, and continued to extend and improve the tools, processes and resources available to support its operation. The research purpose of the project was to inform the operational and policy requirements of applying a broad-based continuous improvement program in a variety of Indigenous primary health care service settings. The project was designed to identify those factors that promoted uptake or acted as barriers to ongoing engagement in CQI processes. Input into the design of the project and ongoing governance and oversight were provided by a national reference group and a management committee that included key stakeholder representatives.

Implementation

The project was implemented through regional hubs in each of five regions in Australia: there were two hubs in the Northern Territory (the Top End and Central Australia), and hubs in Far West New South Wales, Western Australia and North Queensland. Ethics approval was obtained from the relevant ethics committees in all jurisdictions in which the project was implemented, and from the Human Research Ethics Committee of the Northern Territory Department of Health and Community Services and the Menzies School of Health Research.

Participation by health centres was typically secured through recruitment via a regional organisation, either an Aboriginal community-controlled health organisation — not necessarily all incorporated or a government department. A few health centres independently requested to join the project. A formal agreement to participate was negotiated with each health centre and, where relevant, the umbrella body managing a group of centres. This agreement took the form of an exchange of letters that specified the roles and responsibilities of the research team and the staff of the participating service organisation. Health centres joined the project throughout the project, depending on timing of establishment of hubs in different regions and on engagement by health centre staff and management.

Participating health centres received support from the project team, primarily comprising the project manager, technical support and the hub co-ordinators. Participating health centres were linked through sharing of information and expertise among co-ordinators and annual stakeholder meetings. A web-based information system provided participants with real-time analysis of their performance data and capacity to compare with others in their region and across the project overall. These data were used by health centre staff as a basis for assessing performance, identifying priorities for improvement, planning action and implementing change within the health centre. At the same time, the de-identified data were available to the overall project team and were used for research that fed back into improvements in the processes and tools and to inform broader system development. Data derived from the quality improvement processes in health centres were supplemented with data collected over the duration of the project by hub co-ordinators as part of the regional support function (see 'Data sources and methods' below). These data were also used to assess staff engagement and support for the CQI processes by management and senior clinicians at health centre and regional levels.

Health centres participated in annual cycles that comprised a number of steps (Figure 1). A full round of the cycle meant that all the steps were completed; health centres then went on to complete another round.

Figure 1: Steps in the ABCD Extension continuous quality improvement cycle

By December 2009 a total of 69 health centres across Australia had joined the project and a further 60 health centres had used the tools and processes but were not formally part of the research process. The majority of these centres were in remote areas of the country, but a significant number were in regional towns and urban locations (Figure 2).

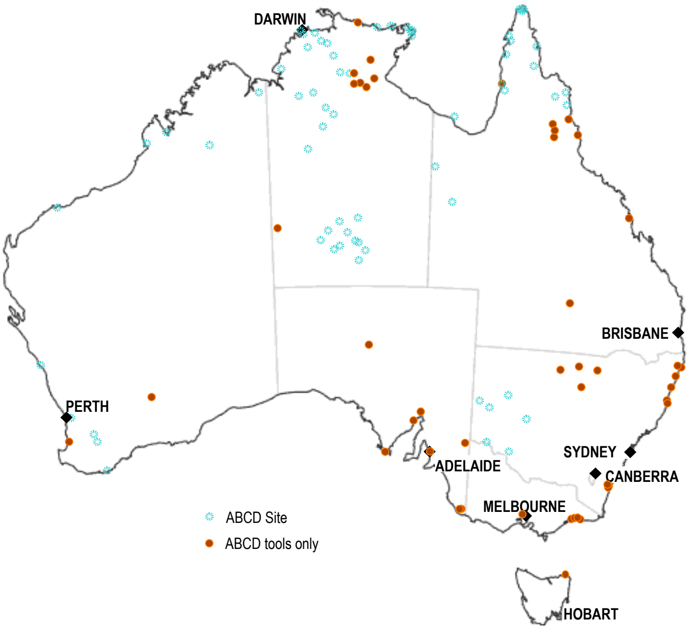

Figure 2: Number of participating health centres by geographic location (December 2009)

Owing to ongoing recruitment, health centres had completed varying numbers of rounds by the time the project formally ended, ranging from just one round to five rounds (Table 1). The number of rounds completed depended on year of recruitment, and also on completion of the steps in each cycle within the expected annual timeframe.

Table 1: Number of health centres signed up and completing various numbers of rounds of the ABCD process by region (December 2009)

	Northern Territory Top End	Northern Territory Central Australia	Western Australia	Far West New South Wales*	North Queensland	Total
Number of health centres signed up	25	10	12	6	20	**73**
Completed Round 1	17	7	9	0	20	**53**
Completed Round 2	15	5	7	6	4	**37**
Completed Round 3	11	5	6	6	0	**28**
Completed Round 4	2	0	1	6	0	**9**
Formally withdrawn	2	0	2	0	0	**4**

* Health centres in Far West New South Wales did not complete Round 1 owing to a deliberate decision to focus on re-organisation of their clinical information systems in the first year of participation, commencing with a full cycle in Round 2. Health centres in North Queensland joined later than health centres in some other states/territories, accounting for the lower number of rounds completed in North Queensland.

The Northern Territory Top End had the greatest number of participating health centres, and also the greatest number that participated in three or more complete rounds.

Integration with policy and practice

During the course of implementation, findings and knowledge from the project informed a number of policy implementation processes and clinical practice. In summary:

- the ABCD project informed the development of the Australian Government's Healthy for Life program: system and clinical audit tools used in ABCD were included in the Healthy for Life Toolkit and used widely by health centres to meet a range of reporting and other requirements
- the Northern Territory Department of Health and Families adopted the ABCD CQI process as routine practice to be implemented across all government-funded centres, and created regionally based co-ordinator positions to support its implementation
- Queensland Health implemented the ABCD process across Queensland
- South Australia has adopted ABCD tools and processes in government-managed primary health care centres
- Maari Ma Aboriginal Health Corporation in Far West New South Wales used the ABCD processes to support and evaluate implementation of its chronic disease strategy over the past four years
- four of the five hub co-ordinators were employed by state/territory health departments or Aboriginal community controlled health organisations, reflecting a strong commitment of health authorities to support implementation of the project process

- in early 2010, the ABCD tools and data were transferred to One21seventy, the National Centre for Quality Improvement in Indigenous Primary Health Care, a new vehicle developed by the ABCD team with the purpose of providing crucial infrastructure support to continue the work of the project.

Data sources and methods

The project yielded rich and varied data that were analysed in various ways to address the primary research purpose of the project. Data were collected throughout the project, allowing the process of change to be documented over time. Data sources included:

- the quality improvement tools that were used over successive CQI cycles within participating health centres; these elicited a set of standard quantitative measures of system development, quality of care delivered and intermediate health outcomes
- community survey tools, which provided contextual information about the environment in which each health centre was operating
- report templates completed every quarter by regional hub co-ordinators; these were designed to elicit details on the nature of implementation and uptake of the CQI processes, as well as perceptions of barriers and facilitating factors
- purposively structured dialogue with hub co-ordinators to explore perceptions of observed data patterns of health centre performance
- purposively structured dialogue with hub co-ordinators to explore the degree to which key influences on engagement were operating within each health centre in each year of participation; these data were derived through a participatory process of identifying and then reaching consensus on these influences in structured dialogue with hub co-ordinators and other key informants using a scoring system for each factor ('strongly agree', 'partly agree', 'partly disagree', 'strongly disagree')
- analysis of more than 48 supplementary in-depth interviews with practitioners, health centre managers and staff, policy makers, hub co-ordinators and researchers that were conducted as part of a PhD project aligned with the ABCD Extension project (Gardner et al. 2010).

Further details on the data sources are described in Chapters 2 and 3 of this report.

Methods of analysis

Various analytic methods were used throughout the project depending on the research sub-question being explored. For example, analysis included:

- simple descriptive tables, including averages and ranges between health centres
- comparison between rounds of data collection
- mixed-method approaches that integrated insights from qualitative data sources with observed trends and patterns.

In calculating confidence intervals around point estimates, our analysis took into account clustering at the health centre and regional level.

Dissemination and engagement

The project team used a variety of methods to disseminate findings throughout the life of the project. A participatory dissemination approach was used with key findings presented in workshops or small group settings involving health centre managers and other implementers. Participant views were used to assist in interpretation of findings and to draw conclusions. These in turn were fed into refinement of processes and tools.

Dissemination of findings was ongoing throughout the project and included approximately 13 research articles published in peer-reviewed journals;[1] policy briefs, fact sheets, information materials and newsletters; around a dozen invited presentations at medical and Indigenous health forums across Australia; and more than ten papers presented at national and international conferences. Complementary publications that contributed to the development of the approach have also been produced by the project team.[2] Further publications will be produced as analysis of the data progresses.

The purpose of this report is to outline the overall key findings of relevance to policy makers, health service managers and other stakeholders. It synthesises data and learnings from the project up until December 2009. The report includes a description of the overall factors found to influence uptake and impact on quality of care of CQI processes, and of sustained engagement by health centres in CQI activities. It also provides a final report on the project to participating health centres and services.

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[1] See Baeza et al. 2009; Bailie, Si, Dowden et al. 2007; Bailie, Si, O'Donoghue et al. 2007; Bailie, Si, Connors et al. 2008; Bailie, Si, Dowden et al. 2008; Bailie et al. 2009, 2010; Gardner et al. 2010; Rumbold et al. 2010; Si et al. 2005, 2007, 2008; Si, Bailie, Dowden et al. 2010; Si, Bailie, Wang et al. 2010.

[2] See Bailie et al. 2003, 2004, 2006; McDonald, Bailie, Brewster et al. 2008; McDonald, Bailie, Rumbold et al. 2008.

2 Factors important to overall uptake and reception *of ABCD Extension*

Key findings

- Our analysis of the different ways in which the ABCD intervention unfolded in different settings identified several cross-cutting factors that were important to overall uptake and reception of the project — these included establishing accountabilities beyond the health centre, eliciting strong stakeholder support, and establishment of synergies with other reporting and funding frameworks.
- Health centres located in regions with good high-level support for the project had 100% completion of the feedback and action planning steps in the ABCD Extension cycle. Health centres from regions with less high-level support evidenced patchy implementation, with fewer centres completing the systems assessment and action planning steps.
- Health centres with less institutional support from health authorities could be assisted through the steps in the CQI cycle, but required greater levels of resourcing from the ABCD Extension project staff to achieve this.
- Stakeholder engagement was enhanced by the past successes of the project, including the development of 'support scaffolding' comprising the web-based support system, regional hubs, and pre-tested tools and processes. A body of peer-reviewed research evidence supporting the approach also strengthened engagement of some stakeholders.
- The establishment of linkages and compatibilities between ABCD Extension and reporting and funding frameworks within the health system encouraged ongoing participation in the project. These compatibilities were not accidental — earlier stages of the project had informed the development of some of these frameworks, and they drew on the same evidence-base and policy environment.

The ABCD Extension project provided data from a variety of implementation settings. These included major urban centres, regional towns and remote communities, and encompassed both government and community-controlled services. By examining patterns in the data overall and in these different settings, and by exploring the different ways the intervention unfolded in different circumstances, we identified factors that seemed to promote effective uptake and factors that acted as barriers to change. This section presents a preliminary overall discussion of these factors. Chapters 3 and 4 in this report explore what can be learned from data relating to specific components of the approach — namely, the clinical audits and the system assessment respectively. Chapter 5 identifies areas for further development of the project.

The overall synthesis of the data suggested that at a sector level three broad inter-related mechanisms appeared to be driving successful uptake of the approach:

- establishing accountabilities and support beyond individual health centres
- establishing active engagement with stakeholders at national, regional and local levels
- embedding CQI in organisational routines.

Establishing accountabilities and support beyond individual health centres

The project was designed to establish facilitation and support systems for health centres in various ways. Hub co-ordinators with responsibility for supporting implementation were based in each region where the project was operating. These people had links to regional-level management and academic support. Regular national annual planning and update meetings were held with staff from participating services, managers and policy makers to encourage shared learning. These regular national meetings were supplemented with occasional support visits to health centres and to government and community-controlled peak organisations in different regions by members of the project team.

Accountabilities and support were put into operation in different ways by states/territories and regions, depending on the way in which the project had been set up or evolved in different areas. Across the project we observed two successful ways of promoting the establishment of accountabilities and support outside the health centre. These were:

- the provision of dedicated resources and high-level commitment from health authorities
- the establishment of organisation-wide implementation frameworks.

We found that the CQI processes tended to be more thoroughly implemented at health centre level in those states/territories where dedicated resources and/or organisation-wide implementation frameworks were better developed. Table 2 shows the percentage of health centres completing the action planning step as a proportion of participating health centres in each participating state/territory and the narrative below relates this to the extent to which states/territories provided high-level commitment to CQI and/or established organisation-wide implementation frameworks.

The action planning step of the CQI cycle was, for many centres, the most difficult to complete because it relied on completion of all prior steps in the cycle and required getting different people with the relevant authority together in a room to determine priorities and goals for improvement, and strategies to achieve these goals — hence, it is a good indicator of the thoroughness with which health centres implemented the approach.[3]

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[3] Along with the systems assessment process, the action planning step is potentially the most powerful step because health centre staff come together to find solutions to quality of care issues that may be raised by clinical audits, and identify concrete things they can do within their available resources to achieve change.

Table 2: Percentage of eligible health centres by state/territory completing action planning

	Northern Territory Top End	Northern Territory Central Australia	Western Australia	Far West New South Wales*	North Queensland
Round 1	84%	70%	75%	0%	100%
Round 2	73%	56%	70%	100%	57%
Round 3	69%	56%	60%	100%	n/a

* Health centres in Far West New South Wales did not complete action planning in Round 1 owing to a deliberate decision to focus on reorganisation of their clinical information systems in the first year of participation, commencing with a full cycle in Round 2. Many of the health centres in North Queensland only commenced their second cycle late in 2009, and so had not completed all steps in the cycle by December 2009.

Provision of dedicated resources and high-level commitment from health authorities

Regions with 100% completion of the action planning step in at least one round were North Queensland and Far West New South Wales. Implementation of the ABCD Project in North Queensland followed two to three years of discussion and negotiation among Queensland Health staff and with the ABCD Project team. There was a high level of interest in the project among Queensland Health staff and from a number of health centres. The recommendations from an independent external review for Queensland Health led to high-level corporate support for the project. Agreement to implement the project, when it was finally achieved, was supported by high-level management commitment and dedicated resources within Queensland Health. This high-level support was an important factor in the relatively strategic and systematic implementation of the project in this region compared to some of the other regions. Health centres completed cycles not only completely, but also within tight timeframes.

However, while completion rates of the action planning step were also fairly high in the Northern Territory Top End (84% in Round 1), the project team took on a greater role than had been intended in order to make this happen. Given that the original ABCD project had been operating in this region since 2002, we did not appoint a specific hub co-ordinator to support wider or ongoing implementation by health centres in this region. This was also to some extent a deliberate strategy to examine the response by the health authorities in this region to requirements for ongoing support for effective implementation of the CQI processes. The somewhat limited and patchy response meant that project staff took on a greater role in supporting implementation of CQI processes than intended.

In Western Australia, there was some degree of instability in higher level support. The hub co-ordinating role in this region changed its institutional base during the course of the project.

Establishment of organisation-wide implementation frameworks

In Far West New South Wales, with 100% completion of the action planning and feedback steps in Rounds 2 and 3, the health centres in the regional centre and the five smaller service centres were governed and managed by a single health authority. There was clear expectation by management that a range of staff across the organisation had specific responsibilities in implementing the ABCD processes and a specific staff member had responsibility for co-ordinating the project at a regional level. The systematic process of implementation and relatively small number of health centres under the management of this health authority facilitated the scheduling of work some time in advance, allowed the hub co-ordinator to work relatively closely with staff, and allowed services to plan for the process and to identify and release staff to be involved. Contracting an external facilitator to do some specific steps ensured a focus of attention on the process for a specified time.

Articulating linkages with other frameworks

Another strategy successfully used by some health centres or groups of health centres to promote outside accountabilities and support was a clear articulation of linkages between the ABCD project and existing and developing regulatory, financing and performance frameworks. This was supported, in the first instance, by increased emphasis on chronic disease care in national and state/territory policy. During the life of the project there was concomitant development of chronic disease clinical guidelines and strategies that both drew on and informed the development of the ABCD project. At the same time, a number of Medicare changes provided incentives to encourage adherence to best practice and other measures to promote improvements in quality of care. Some of the trends in delivery of preventative care services (see Chapter 3) illustrate the critical role played by policy and funding initiatives in supporting and facilitating service delivery improvements.

Many of the participating health centres used ABCD tools to extract clinical data that were required for reporting on other government programs such as Healthy for Life — this government initiative adopted ABCD tools and processes and incorporated them into a funding mechanism to support improvements in service delivery in Indigenous health services. Not all health centres and services used these complementary opportunities but those that did found additional reasons to sustain their engagement. The project encouraged and supported a strong focus on CQI within Healthy for Life and other programs.

Establishing active stakeholder engagement

Critical to success of the project, and similar to many other innovative interventions, is strong stakeholder support at all levels. The project actively sought support from both the health service leadership and the support of middle management and executive managers in regional authorities. At the health centre level, the engagement of senior clinical staff was found to be key to successful implementation, and this in turn was aided or hindered by the degree to which there was higher and, to a lesser extent, lower level support for the processes.

The project engaged stakeholders using two main successful strategies:

- use of a prior evidence-base and building on past successes
- building a diverse set of champions to promote the project.

Use of a prior evidence-base and building on past successes

Many stakeholders were attracted to the project because of its foundation in evidence-based practice, with the tools and approaches having been developed rigorously and in line with international best practice. Presentation of the early findings at academic meetings and subjecting them to peer review processes were important factors in eliciting support of managerial-level stakeholders. It was also important to many stakeholders that the project had prior successes in the Indigenous health field in Australia and had developed and tested its scaffolding of regional hub co-ordinators, web-based data entry and report generation, provision and update of standardised tools, training and technical support over many years.

Building a diverse set of champions to promote the project

A variety of people acted as champions for the project — Indigenous primary health care leaders, health centre nurse managers, senior staff in health authorities and private consultants. This wide range of advocates across the system was very important. In some cases, the status and personal and professional networks of project managers and hub co-ordinators influenced the participation and engagement of Indigenous health centres and other stakeholders. Over time, health services began to build project champions in their own regions. Nurses and Aboriginal health workers were engaged in the project through hands-on experience with the CQI tools and processes, and some became enthusiastic about the role and promoted the approach to other centres.

Embedding processes within organisational routines

The strategies used in different parts of the project to embed ABCD processes within organisational routines included the following.

- **Improving clinical information systems:** some health centres sought to properly embed the intervention within their organisational routines by adjusting data collection and record-keeping routines. This came about because the clinical audit process revealed or highlighted deficiencies in health centre clinical information systems, and provided an impetus for health centres to 'tidy up' and/or improve their clinical information systems, with consequent benefit to care processes, as well as the ability to engage more effectively in CQI processes.
  Activities to improve clinical information systems included better documentation of service delivery; improvements in filing of records; rationalisation and consistent use of electronic systems; removing duplicate records and records of 'inactive clients' (e.g. one-off visitors, deceased clients); developing accurate service population lists and disease registers; and implementation of recall and reminder systems.
- **Making incremental adjustments to existing systems:** where this worked well, it included specific strategies such as including reporting on CQI activities as a standing item in management meetings and reporting on action plans in weekly staff meetings. Some centres reported recruiting staff with interest in CQI and chronic illness.

3 Factors that promote effective uptake or act as barriers: *what can we learn from quality of care?*

Key findings

- The sound evidence-base on which the project was built (including quality of care measures based on evidence-based guidelines) was one of the key factors contributing to successful uptake of the project overall.
- Baseline data showed considerable room for improvement in delivery of scheduled services, both overall and at the level of individual health centres. Preventative services showed the lowest delivery at baseline, and the greatest improvement after the implementation of the intervention.
- Not all audit tools were relevant to all health centres, particularly those centres that did not provide comprehensive medical services.
- Regional-level factors including support systems for action planning and for collaborative work between staff across health centres and systematic approaches were also associated with improvements in quality of care.
- Factors related to staffing (stability, commitment to CQI and so on) were associated with improved quality of care through the ABCD Extension project. However, even where these factors were absent, it was still possible in some cases to achieve positive change.
- Factors external to the project, such as introduction of new Medicare Benefits Schedule (MBS) items, were likely to have promoted interest in the project and greater commitment to evidenced-based care — overall trends show higher levels of pre-intervention quality of care (for child health and overall delivery of preventative services) with a later year of enrolment; some of the observed regional variation may be due to differing years of enrolment by region.
- Improvements in care were seen in services operating in a variety of contexts, including remote, rural and urban locations, type of health centre governance arrangements (whether government or community-controlled health centres) or access to dedicated CQI funding. None of these factors were absolute requirements for achieving improvements in care.

The main measure of quality of care in this project was the extent to which the services specified in best practice guidelines were delivered to clients. A sample of health centre records was audited following detailed pre-tested protocols. Previous work demonstrated that these audit tools have good reliability in the Indigenous health context in Australia (Bailie, Si, Dowden et al. 2007; Si et al. 2008). The audits of health centre performance focus on quality of care in relation to services for which there is the most substantial evidence base for effectiveness. These service components were selected on the basis of strong evidence for their relevance to clinical outcomes demonstrated elsewhere and in earlier data from this project.

Ongoing participation in the ABCD project was anticipated to improve quality of care through increasing awareness of best practice guidelines reflected in the audit tools, through comparison with other better performing centres, and through the increased dialogue at the health centre level about system improvement more generally — where the tool becomes a catalyst for the development and implementation of plans on how to improve quality of care. Since participating health centres commited to approximately annual health centre audits, data could be compared from year to year to assess whether or not the process had resulted in measureable improvements.

Use of the clinical audit tools

The diabetes tool, the preventative tool and the systems assessment tool were developed prior to the start of the ABCD Extension project in 2005, and were made available to all health centres from the time of their commencement with the project. Additional tools were developed over the course of the project, with a limited number of health centres using prototype versions and fully developed versions being made available to other participating health centres as the development was completed. Health centres also tended to adopt tools incrementally, starting with just one or two tools in their first annual cycle and adding to these in subsequent rounds.

Table 3: Number of health centres that used the clinical audit tools

Audit tool	Date introduced	Used the tool at least once
Diabetes/Vascular and Metabolic	Pre-2005	69
Preventative	Pre-2005	68
Maternal	2007	47
Child	2007	49
Rheumatic Heart Disease	2006	6
Mental Health	2006	6

Note: The rheumatic heart disease tool was first developed in 2006 and trialled in one service. The tool was then refined and introduced into the current trial in six services commencing in 2008. The mental health tool was first developed in 2006, and has since been refined.

Scope for improvement in quality of care at baseline

Overall, taking all participating health centres together, at baseline between 33% and 57% of scheduled services were delivered. At baseline, just over one-half (56%) of guideline-scheduled diabetes services were delivered and 56% of scheduled child health services. For women attending health centres for antenatal care, 42% attended at the recommended early visit prior to 12-week gestational age, and 57% of women returned after giving birth for one or more guideline-scheduled postnatal visits. At baseline, overall preventative services to well adults were delivered the least often, with around one-third of scheduled well adult services delivered (Figure 3).

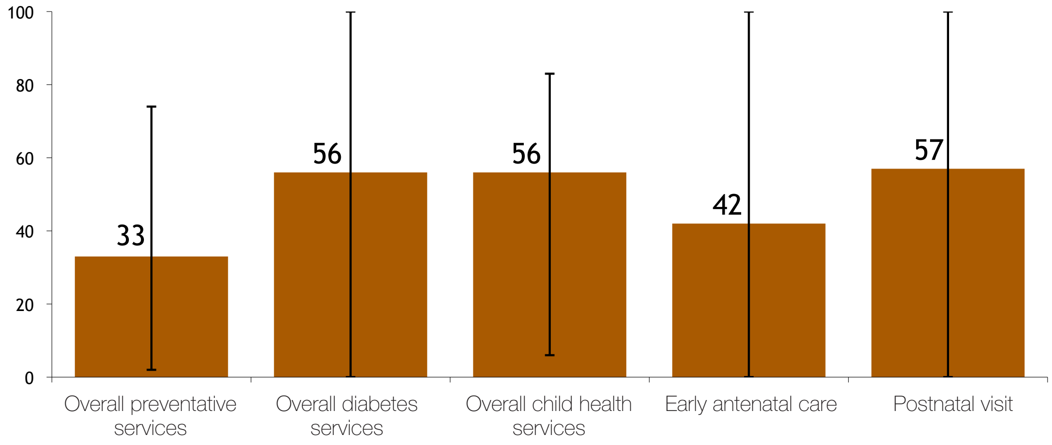

Figure 3: Percentage and range of scheduled services delivered at baseline

Note: overall preventative, diabetes and child health services refer to the average percentage of guideline-scheduled services delivered to each person included in the relevant audit of health centre records. Early antenatal care refers to the first antenatal visit at <12 weeks gestational age; error bars denote range between health centres.

As shown, the overall figures mask considerable differences in service delivery between health centres. For three of the indicators shown above (overall diabetes services, early antenatal care and postnatal visit), the range was 0–100%, indicating that one or more health centres delivered none of the scheduled services, while one or more delivered 100% of scheduled services. For preventative services, the corresponding range was 2% to 78% of scheduled services.

Regional variation in pre-intervention quality of care

There was some variation in the percentage of services delivered between regions (Figure 4). In general, fewer scheduled services were delivered in participating health centres in Western Australia at baseline compared to those in other regions. The characteristics of participating health centres in Western Australia were quite different from those in some other regions. Notably, Western Australian health centres did not have the same level of involvement of general practitioners and were therefore not as well equipped to deliver many of the scheduled services measured in the audit tools.

With the exception of Western Australia, more than 50% of diabetes services were delivered in all regions.

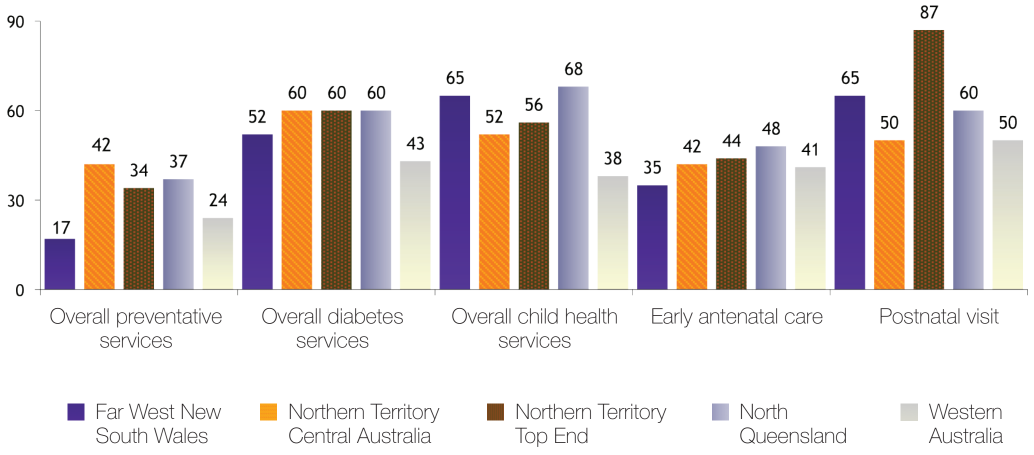

Figure 4: Percentage of scheduled services delivered at baseline by region

Health centres in the Northern Territory Top End showed high levels of scheduled postnatal visits at baseline (87%) and also showed one of the highest percentages of delivery of overall diabetes services (60%). The original ABCD project involved 12 health centres in the Top End, and ran from 2002 to 2005 inclusive, with the initial year being a start-up year. Top End health services had the opportunity to transition directly into the extension project in 2005/06. Ten of the 12 services participating in the original ABCD project took this opportunity. This means that around 40% (10 of 25) of Top End health centres already had a few years of experience with the ABCD CQI approach prior to the ABCD Extension project. This may account for some of the high scores at ABCD Extension baseline.

Variation in quality of care by year of enrolment

Since the delivery of services may be affected by time-dependent factors outside the project (federal level policy changes, new MBS items and so on), we also examined the overall delivery of services by the year in which the health centre commenced the project. The main findings are summarised in Table 4 for each category of scheduled services.

Table 4: Summary of findings indicating influence of year of commencement on baseline quality of care

Service category	Main findings and comment
Overall preventative services	A trend of increasing baseline performance with year of enrolment (24%, 32%, 34%, 38% and 36% of scheduled services were delivered by centres enrolled in 2005, 2006, 2007, 2008 and 2009 respectively). This trend may be related to greater uptake and use of the adult health check MBS item (introduced in 2004). It may also be influenced by possible underlying differences in types of health centres enrolling in different years, due to nature of project enrolment by region.
Overall diabetes services	Average performance was not related to year of enrolment (58%, 52%, 62%, 60% and 56% of scheduled services for diabetes were delivered by centres enrolled in 2005, 2006, 2007, 2008 and 2009 respectively). Health centres that enrolled after 2006 showed less variation in performance, mainly owing to absence of poorly performing centres. This may also have been influenced by possible underlying differences in types of health centres enrolling in different years, due to nature of project enrolment by region.
Overall child health services	Health centres that enrolled more recently (2009) delivered a higher percentage of guideline-scheduled child health services (67%) than those enrolled in 2008 (51%) and 2007 (57%). This may be the result of a number of factors, including possible increased emphasis on child health following the *Little Children Are Sacred* report (Northern Territory Board of Inquiry into the Protection of Aboriginal Children from Sexual Abuse 2007), the Northern Territory Emergency Response (announced June 2007) and the gradual implementation of the Medicare-funded Child Health Check (announced in 2005). However, it may also reflect different types of centres joining the project in different years — for some reason, higher performing centres joining later.

For the most part, health centres enrolling later in the project tended to have slightly higher baseline performance than those enrolling earlier. In addition to the possible explanatory factors mentioned for each service category in Table 4, this may be a reflection of growing awareness and commitment to evidence-based clinical practice across the sector over time.

Changes in quality of care

There were modest increases in quality of care with each round of data collection in a number of the categories of services (Figure 5).

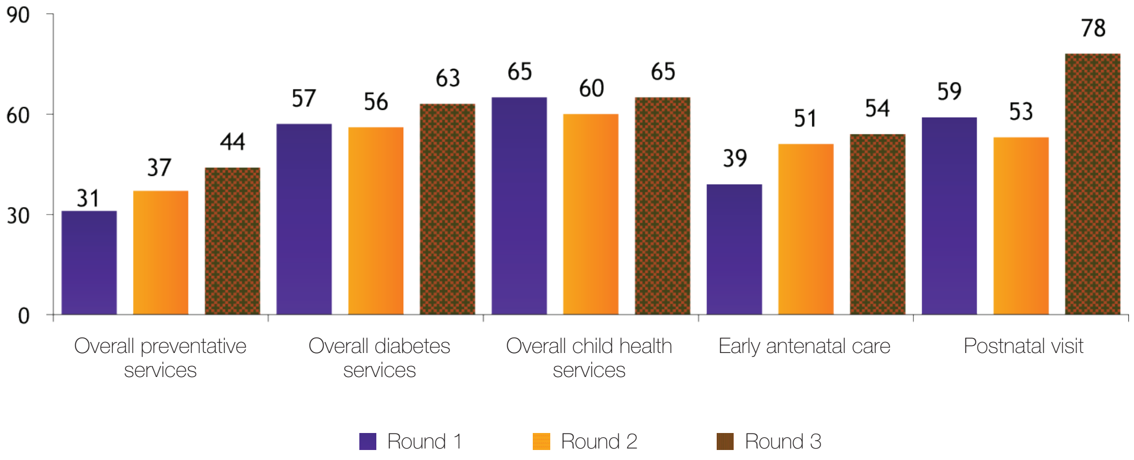

Figure 5: Percentage of scheduled services delivered by round of data collection

Over three rounds of data collection, overall the delivery of preventative services improved by 13% and the delivery of diabetes services by 6%. The delivery of scheduled early antenatal care and postnatal visits also showed improvement at each round of data collection — with a 15% difference between Round 1 and Round 3 for scheduled antenatal care and a 19% difference between Round 1 and Round 3 for postnatal visits.

At the level of the health centre, among the 36 health centres with more than three rounds of audit data, 64% of health centres (n=23) increased their overall delivery of preventative health services by 10%+, 5% (n=2) declined by 10%+ and 31% (n=11) showed <10% change.

Changes in quality of care across all rounds

The relationship between participation in health centre audits and improvements in delivery of scheduled services was not simple or linear over time. Some health centres showed improvements, for example, between Round 1 and Round 3, but then declined again in Round 4. Others showed different patterns to this, showing no improvement initially and then improving in later rounds. In some cases, fairly substantial improvements were evident for certain indicators (e.g. follow up of abnormal results for proteinuria in the preventative audits). Changes in quality of care are described further for different categories of services in Table 5.

Table 5: Summary of exploratory analyses exploring impact of increasing number of rounds of participation on quality of care

Service category	Main findings and comment
Preventative services	• Average delivery of overall preventative services increased between Round 1 and Round 2 (31% to 37%) (53 health centres). Improvements continued into Round 3 (36 health centres) (31%, 36% and 44% for Rounds 1, 2 and 3 respectively in health centres with at least three rounds of data). • Improved follow up of abnormal test results was evident with increasing rounds of data collection; 22% of those with proteinuria were followed up in Round 1 compared to 39% in Round 2 and 63% in Round 3. • Little improvement was seen in follow up of patients with abnormal blood glucose tests (24% in Round 1 compared to 15% and 26% in Rounds 2 and 3 respectively). • Improvements between rounds may have been supported by greater uptake of the adult health check MBS item (introduced in 2004).
Diabetes services	• No overall diabetes service delivery improvements were seen between Round 1 and Round 2 of data collection. Improvements were evident once a third round of data collection had taken place (36 health centres); overall percentage of services delivered increased from 57% in Round 1 to 63% in Round 3 (6% difference; p=0.04). Improvements were sustained in Round 4 (data from 18 health centres) but declined in Round 5 (data from four health centres). • No marked change in scheduled blood pressure checks (82%, 81% and 82% for Rounds 1, 2 and 3 respectively) or scheduled HbA1c tests in past six months (68%, 58% and 65% for Rounds 1, 2 and 3 respectively).
Child health services	• No change in overall delivery of scheduled child health services between Rounds 1, 2 and 3. Maternal and child health tools were only available from 2007 onwards, so there were no health centres that had completed more than three rounds of data collection by December 2009.
Maternal health services	• Clear trend of improving quality of care with increasing numbers of rounds of data collection (39%, 51% and 54% of antenatal visits occurred before the recommended gestational age of 12 weeks in Round 1, 2 and 3 respectively; 59%, 53% and 78% of women attended for a postnatal visit in Round 1, 2 and 3 respectively). • Maternal and child health tools were only available from 2007 onwards so there were no health centres that had completed more than three rounds of data collection by December 2009.

Trends beyond three rounds of data collection should be interpreted with caution as there are relatively few services with more than three rounds. Further research with ongoing implementation of ABCD Extension processes and tools will allow us to report with more confidence on trends across a range of outcomes.

When examining some of the specific services within the overall service categories, a mixed picture emerged. For example, for diabetes care, there was no marked change in scheduled blood pressure checks (82%, 81% and 82% for Rounds 1, 2 and 3 respectively) or scheduled HbA1c tests in the past six months (68%, 58% and 65% for Rounds 1, 2 and 3 respectively). Similarly, the overall delivery of child health services did not show improvements between rounds of data collection. Once again, these overall figures mask considerable differences between health centres.

Understanding variation in the impact of the CQI process on quality of care

One of the main research questions in this project related to understanding why some health centres were able to improve their quality of care during the period of CQI implementation and why other health centres did not show improvements. We followed a structured process of data-informed dialogue with hub co-ordinators and other informants (people with good knowledge of the health centre and the way ABCD processes had been implemented) in order to develop an understanding of this variation.

The first step in the process was to explore the quantitative data on quality of care delivered by individual health centres for each year that the project was implemented and identify patterns of change. While many health centres showed improvements in quality of care during the period of implementation, in many cases the trends were not simple or linear. We identified a number of different patterns of change across health centres. We did this separately for patterns of change in delivery of diabetes-related services and for change in delivery of preventative services. Examples of patterns of change are shown in Figure 6 for preventative services. The figure shows the percentage of guideline-scheduled preventative services delivered in each year of implementation — each line in Figure 6 represents data from one health centre.

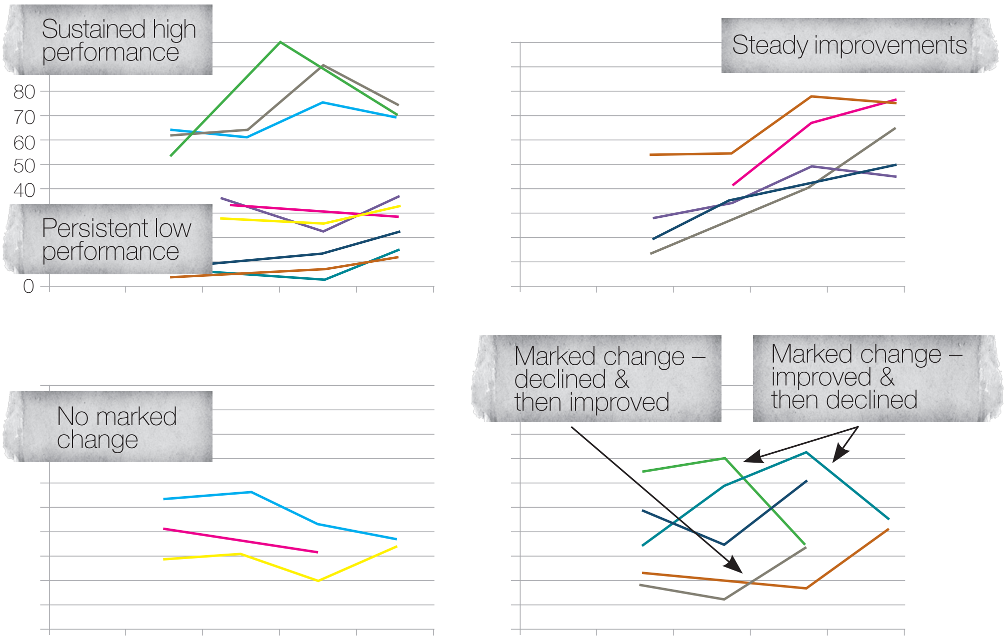

Figure 6: Select examples of trends in overall delivery of preventative services — illustrative health centres

The second step was to show these data on patterns of change to the hub co-ordinators and other key informants, and, during a facilitated dialogue, obtain their perceptions of the aspects of the individual health centres that may explain the observed trends. This was a detailed discussion in which the hub co-ordinators were able to refer back to their own quarterly documentation on implementation of ABCD processes at each health centre for each year of implementation, and draw on their detailed knowledge of the health centre context.

Preliminary analyses of these data showed that the following factors appear to be particularly important in health centres showing improvements in quality of care:

- strong leadership for quality improvement, including both medical and management leadership
- a population health approach
- regional level support systems
- involvement of Aboriginal Health Workers in preventive care
- funding to support CQI activity.

Further analyses of these data are underway and are the subject of a paper for publication. The paper will identify which characteristics of health centres are most conducive to improvements in quality of care during CQI, both for diabetes services and for preventative services. Findings should help to identify those health centres implementing CQI that may be most in need of additional support to achieve improvements in quality of care, and should indicate the kinds of support that may be required.

Intermediate health indicators

In addition to quality of care measures described above, the clinical audits also generated a unique source of data across a range of intermediate health measures; for example, the extent to which target levels of blood pressure and glycaemic control among people with diabetes were being achieved; reduction in smoking and alcohol use in adults; and indicators related to child and maternal health, such as low birth weight. Baseline levels of these indicators showed considerable scope for improvement in participating health centres. For all participating health centres taken together, at baseline, less than one-third of diabetic patients showed adequate glycaemic control at their last visit and less than two-thirds had blood pressure below the target 140/90mmHg. A barrier to achieving improvements in many of these intermediate health outcomes was the low level of follow up of abnormal test results. It is encouraging that for preventative services, the trend data indicated improved follow up on at least some of these measures —some 22% of adults with proteinuria had records of appropriate follow up in Round 1 compared to 39% in Round 2 and 63% in Round 3. However, in some other areas of follow up, little or no improvement was observed, and the reasons for this need to be identified and addressed.

As managers and policy makers are increasingly required to demonstrate health benefits of new and existing programs, the fact that the ABCD processes have been collecting data on these indicators was identified as a strength of this project. As the dataset is expanded to include more health centres with longer duration of participation, further analyses will explore the relationship between implementation of CQI processes, quality of care delivered and health indicators. Such data will provide policy makers and managers with important understanding of primary health care performance and development needs and an understanding of the potential population health impacts of ABCD. These types of analyses are complex because there are many factors both inside and outside the control of the project that can influence performance indicators — for example, an absolute increase in how many people are screened for some of these conditions may mean that more well people are included in screening, with the effect of decreasing the percentage of audits showing abnormal findings. The natural aging of the population and factors related to migration of younger or older people out of the area may also affect trends. With a large enough dataset some of these factors can be adjusted for in data analysis and this is an important part of the work envisaged for the future.

4 Factors that promote effective uptake or act as barriers: *what can we learn from system assessment?*

Key findings

- The focus on the overall system was appreciated by many stakeholders as a constructive way to initiate dialogue about areas that need improvement without apportioning blame. Nonetheless, the systems assessment tool did not have intuitive appeal for some staff and its use and effectiveness varied widely across health centres. Among those that used the tool, there was strong endorsement of the process and reports of it having a very positive impact.
- One barrier to wider appreciation of systems assessment may have been the absence of complementary uses for the detailed data outside of the health centre. This is in contrast to the clinical audit tools, which were appreciated for their ability to extract data for higher-level reporting or special funding programs.[4]
- Effective implementation of the systems assessment was heavily dependent on the quality of facilitation available, and this was found to vary widely between regions.
- It was found to be harder to implement the systems assessment well, or at all, in health centres that had few staff and limited means of covering for time staff spent participating in the process.
- Where it was used well, the systems assessment process was associated with positive changes in quality of care — the services that were identified as doing the systems assessment well showed consistently larger increases in the average score between baseline and follow up than for all services together.

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[4] While it was a contractual requirement for Healthy for Life-funded services to conduct a systems assessment of some kind, the data generated in this process, if any, were not required for reporting.

The importance of health centre systems for optimal primary health care service delivery is well established. Drawing on the Chronic Care Model and the associated Assessment of Chronic Illness Care (ACIC) tool, and the Innovative Care for Chronic Conditions framework, the ABCD project team developed a tool for assessing the state and level of development of health centre systems. Known as the Systems Assessment Tool (SAT), it articulates the key components of health centre systems that have been identified in these frameworks as important to supporting best practice chronic illness care.

The systems assessment represents an attempt to translate the concept of the Chronic Care Model and its systems view into a practical application that could be used by providers to assess their core service systems (Si et al. 2008). However, unlike the ACIC scale on which the tool is based, the systems assessment was developed to be delivered in a group setting to members of a health centre team by an experienced and trained facilitator.

Other modifications to the original pilot tool included:

- specifying additional system components deemed to be important in this context, including community linkages
- addition of items to cover core primary health care functions outside of chronic disease management.

The use of the SAT is expected to improve the delivery of health services by engaging staff in an analysis of the extent to which various health centre systems effectively support delivery of high-quality care. The tool encourages health centre staff to consider how their systems could be enhanced to more effectively support good clinical practice.

Use of the Systems Assessment Tool

The SAT is delivered as part of Step 3 of the ABCD annual quality cycle (Figure 1). The tool consists of data items in five components of primary health care systems: delivery system design, self-management support, decision support and clinical information systems, external linkages, and organisational influence and integration.

During a facilitated systems assessment discussion that ideally includes all health centre staff (management, clinical, administrative and support staff), consensus is reached on scoring the development for each item in the five components using a score ranging from 0–11: the higher the score, the better the systems. The scores are subdivided into four categories defined as 'limited or no support' (0–2), 'basic support' (3–5), 'good support' (6–8) and 'fully developed support' (9–11). Brief descriptors help staff decide the level of support and score within that level that they think best represents the systems in their centre. The results of this discussion and the attached scores are documented and brought together with the clinical audit results for interpretation during Step 4. The information arising from this process is then used in an action planning workshop, which sets goals and identifies actions during Step 5. These actions are subsequently implemented as part of the final step in the CQI cycle.

As of December 2009, 88% of health centres participating in the ABCD project had conducted a systems assessment at least once (61 out of 69): 22% had conducted a systems assessment once only, 28% had conducted a systems assessment twice, 25% three times, 9% four times and 6% had conducted a systems assessment five times. Twelve per cent had not conducted a systems assessment at all (Figure 7).

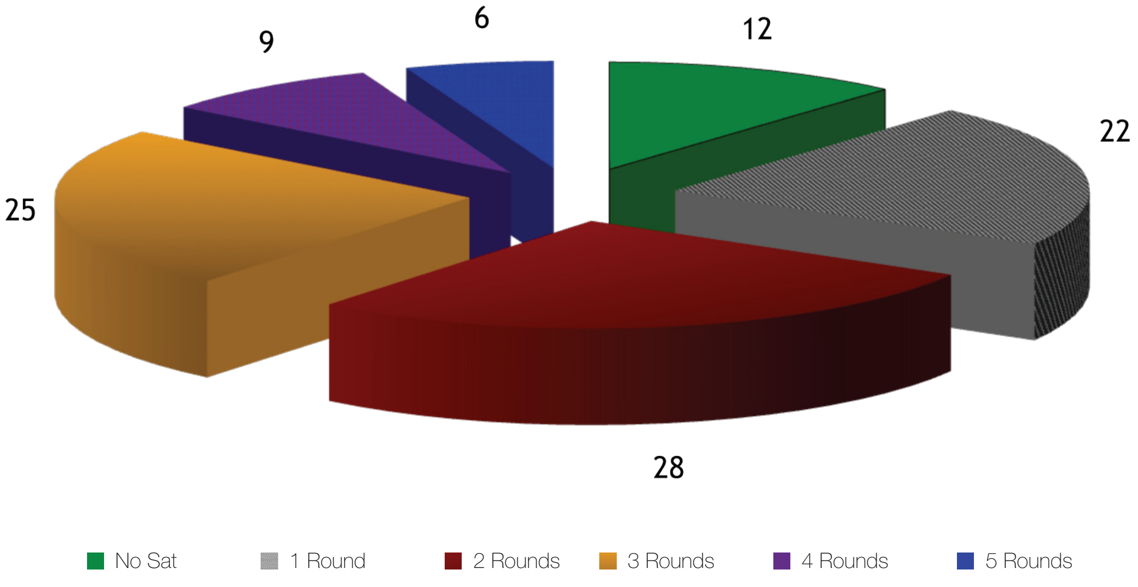

Figure 7: Percentage of health centres that had conducted various rounds of systems assessment (December 2009)

Conducting a systems assessment is a time-consuming and intensive process. Health centres allocated varying amounts of time to complete their systems assessments — some as little as two to three hours, while a few allocated one to two days. Participation was expected from all members of the centre. The high uptake of the tool, despite these demands, attests to its perceived value and usefulness.

Table 6 shows the characteristics of health centres that completed the systems assessment at least once — overall and in different kinds of health centres. Overall, 88% of participating health centres had completed it at least once. Of health centres which served a population size of less than 500 people, 85% had completed it at least once, compared to 93% of those serving 1000 or more people.

Table 6: Percentage of health centres that had conducted a systems assessment by characteristic of the health centre (December 2009)

	Conducted systems assessment at least once		Total participating	
	Number of health centres	%	Number of health centres	% of total
Location				
City	4	80	5	7
Regional town	16	100	16	23
Remote community	41	89	46	67
Missing data	0	0	2	3
Across all locations	**61**	**88**	**69**	**100**
Governance				
Government controlled	34	94	36	52
Indigenous committee or board	27	87	31	45
Missing data	0	0	2	3
Accreditation status				
Not accredited	40	89	45	65
Accredited	21	95	22	32
Missing data	0	0	2	3
Size of population served				
≤500	17	85	20	29
501–999	18	86	21	30
≥ 1000	26	93	28	41

Owing to the small number of centres that had not conducted the systems assessment (eight), these data should be interpreted with caution. However, it seems likely that completion of the systems assessment will vary to some extent by clinic characteristics — and examining these characteristics in relation to different measures of CQI participation will be important in the future. The finding that clinics serving smaller populations were slightly less likely to have completed a systems assessment than those that served larger populations (85% compared to 93%) concurs with the findings from the interviews with hub co-ordinators who reported that smaller health centres found the systems assessment hard to implement because they did not have the resources to cover for staff who would be participating. On the other hand, hub co-ordinators also reported that some larger health centres had difficulties completing the systems assessment because their systems were more complex and it was sometimes difficult to get all the relevant people in the same room at the same time to participate in the process. This illustrates some of the complexity in interpreting the quantitative data generated through the process, which is explored further below.

Interviews with hub co-ordinators identified additional health centre characteristics that influenced the extent to which the systems assessment was used in the health centres and how effectively it was used. It was not uncommon for hub co-ordinators to report significant staff turnover in the period between beginning the clinical audits and completing the systems assessment. In these cases the potential for effective use of the systems assessment was somewhat limited because there was (a) no group to hold a discussion with and (b) no consistent team to develop an action plan and implement the results. However, some health centres found that the systems assessment functions to provide an orientation to new staff, so in this way helps mitigate impacts of staff turnover.

The individuals involved also played an important role in whether or not systems assessment was conducted effectively. Individuals with broad or population-level views of health care seemed to find it easier to engage with the systems assessment than did staff with a more individual-clinical focus. This contrasted with a broader base of acceptance of clinical audits where the value was more easily understood by a wider range of people.

Data also indicated that quality of facilitation in the implementation of the systems assessment varied considerably between health centres, and that this was an important influence on effectiveness of the process. This was the case irrespective of whether or not the systems assessment was facilitated by an external person or someone internal to the health centre. The key characteristic of good facilitation seemed to be eliciting participation by staff, which in turn engendered a sense of ownership and commitment to change.

Figure 8 shows the incremental use of the SAT in participating health centres over the life of the project. Altogether during the period 2005–09, 148 systems assessments were conducted across the 61 health centres using the tool. Each year, more health centres began using the tool, with use peaking in 2008, during which 41 systems assessments were conducted — 10 were first time assessments, 16 were Round 2 assessments, nine were Round 3 assessments and six were Round 4 assessments.

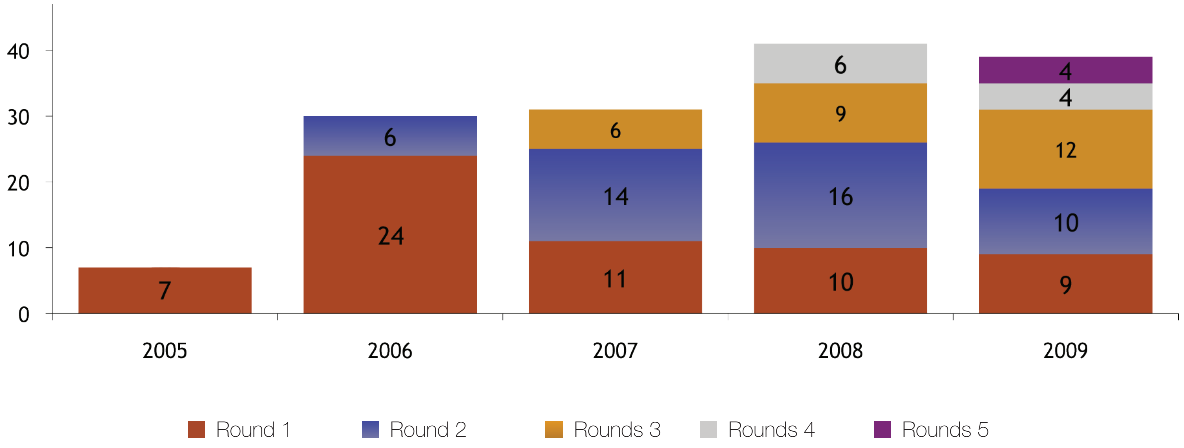

Figure 8: Number of systems assessments conducted during 2005–09 by round of assessment

During in-depth interviews, stakeholders identified the value of the tool in assisting to catalyse a 'no blame' dialogue that helped the primary health care team to identify concrete ways to strengthen its systems, and helping participants to understand the systems that underpin good practice.

While the SAT was initially developed in relation to assessing systems to support primary health care for chronic conditions, during the course of the project additional items were added to the tool in order to incorporate other aspects of care (including preventative care and maternal and child health).

The systems assessment included use of a scoring system. This gave a quantitative measure, or score, that reflected how well developed a health centre's systems were perceived to be by the health centre staff participating in the assessment — the higher the score, the better developed the systems were perceived to be. For those health centres that had completed the systems assessment three or more times, we compared their self ratings at Round 1 with those at Round 3 and calculated the extent to which the scores had changed. Since the process was focused towards improving systems, we anticipated the scores would increase over time. Changes between Round 1 and Round 3 are shown in Table 7.

Table 7: Distribution of SAT change scores (differences between Round 1 and Round 3)

Categories of change in the SAT score between Round 1 and Round 3	SAT for chronic disease (N=24)			SAT for preventative care (N=19)		
	N	%	Accumulative %	N	%	Accumulative %
< –2	2	8	8	1	5	5
–2 ~ < –1	1	4	12	0	0	5
–1 ~ < 0	3	13	25	3	16	21
0 ~ < 1	2	8	33	1	5	26
1 ~ < 2	6	25	58	4	21	47
2 ~ < 3	5	21	79	4	21	68
3 ~ < 4	3	13	92	2	11	79
4 ~ < 5	2	8	100	3	16	95
5 ~ < 6				1	5	100

Note: Of the 27 centres that had conducted three rounds of SAT, three centres had missing values for item scores at Round 1 and are thus not included in this table as their overall SAT scores for Round 1 could not be calculated.

The table shows that around two-thirds of the health centres that participated in three cycles of systems assessment showed an improvement in their systems (change score of >1), around 7% (two health centres) showed no change and the remainder showed a decline in their scores. For the systems assessment for preventative care, around three-quarters (74%) of participating centres showed an improvement in their scores between Round 1 and Round 3, one health centre stayed the same and the remainder showed a decline.

While these scores improved for the majority of health centres, it must be borne in mind that the scores do not necessarily give an objective measure of system development over time. One reason for this is that health centre staff may change their understanding of what constitutes good systems over the course of the project, becoming more self-critical; therefore, in later rounds they may tend to score their systems lower than they did in the beginning, even though some of their systems may have improved. Over time the tool was increasingly used in ways that enhanced its developmental function, with less effort to achieve standardisation and accuracy of measurement.

Based on their experiences of supporting health centre staff through the CQI cycles, the hub co-ordinators were able to identify those health centres that completed the system assessment in a way that was more likely to be a reliable reflection of the state of development of health centre systems. Preliminary analyses showed that health centres that did the systems assessment well:

- consistently had lower average scores at baseline than those that did not
- had an increase in the average score between baseline and follow up that was consistently larger than those that did not.

This was consistently the case when comparing services with two, three or four rounds of data.

These data are encouraging because they provide some quantitative evidence that health centres are implementing positive improvements in their systems of care.

It became evident during the course of the project that health care providers wanted to develop a stronger understanding of how improving systems would improve quality of care, and ultimately health outcomes. This was expressed by one manager in the following way:

> *The principle is excellent…but the problem with the ABCD process is that the parts of the cycle (clinical audit, SAT and feedback) are not adequately interrelated. How are the system assessment results going to help me improve our audit results? How is the team structure going to improve care? ABCD reports are generated for discussion of the systems but these reports need to be related to care and made relevant to the clinical systems. How does having a better team or system make care better?*

Recognising this, as the project progressed the team began to engage clinicians more closely in the interpretation of clinical audit data and the linking of this data with findings from the systems assessments. At first this happened informally as opportunities arose through engagement of clinicians in the process and through meetings between key project investigators and clinicians working in participating health centres. This became more systematised towards the end of the project with the introduction of workshops for clinicians as part of the orientation and training program. New training programs for clinicians that focus on integration between findings of the systems assessment and other parts of the CQI process are now offered as part of the standard One21seventy service package.

5 Next *steps*

The ABCD Extension project has established a wide national network of primary health care centres committed to CQI and with experience in using the ABCD tools and processes. In August 2009 a National Centre for Quality Improvement in Indigenous Primary Health Care was launched. This centre, known as One21seventy, will provide ongoing support for the use of evidence-based quality improvement approaches and tools as a routine part of service processes within Indigenous primary health care services. One21seventy will support health centres to use the tools and processes developed through the ABCD project, and will incorporate new tools and refinement of processes on the basis of evidence emerging from current and new research. Health centres enrolled with One21seventy are encouraged to participate in research for the overall benefit of quality of care in the sector. However, there is no obligation to do so. The research component of the ABCD Extension project will be carried on by The ABCD National Research Partnership (2010–14). The partnership has been established to build on the experience and collaborative working relationships established through the ABCD Extension project, to build research capacity and to facilitate the translation of research evidence into clinical practice and policy. The overall aim of the partnership is to focus on improving the quality of Aboriginal and Torres Strait Islander primary health care through:

- investigating the variation in quality of care between primary health care centres and between regions
- exploring the factors associated with clinical performance of primary health care centres
- identifying specific strategies that have been effective in improving clinical performance
- working with health service staff, management and policy makers to enhance the effective implementation of successful strategies.

The specific areas of work that will be undertaken through the partnership will be developed during 2010 and 2011. Regional and national consultative processes will identify research priorities that are consistent with the overall aim and that make best use of available resources. Research priorities will be informed by ongoing analyses of the ABCD project dataset and by emerging priorities of partners and participating health centres around Australia.

Research areas may include, for example, research that seeks to understand how to better support implementation and uptake; research that seeks to provide evidence of the impact of the CQI intervention (exploring associations between quality of systems, quality of care and health outcomes); and research that seeks to inform and refine the CQI intervention to better meet the needs of services users. Some examples of possible research questions across these areas are as follows.

- What conditions need to be in place for sector-wide uptake of CQI processes and tools? What are the operational and policy implications of this? What is needed to further develop synergies between existing and developing frameworks and systems?
- What are the capacity gaps for effective implementation across the sector and within implementing regions? What kind of mentoring and training do leaders need?
- What do health services and health centres need to maintain momentum for sustainability?
- What specific interventions and strategies (e.g. educational materials, flow charts, reminder systems, decision-support tools) can health centres put in place to improve care? What changes to care processes are likely to be most effective? What is needed to support implementation of these changes and strategies?
- What factors are related to inadequate follow up of abnormal clinical findings within health centres? What is the role of individual patient characteristics, the role of clinical inertia and the role of the treatment setting? What strategies can be used to overcome these barriers to better health outcomes?
- Does application of the ABCD processes have a differential impact on quality of care and health outcomes for men and women, for people of different age groups, and for clients with co-existing conditions and multiple health problems? What are the implications for refinement of processes and tools?
- What are client and community perceptions of quality of care and how these can be measured in a useful way for inclusion in a quality improvement framework?

The ABCD Extension project has demonstrated that a CQI approach can be attractive to, and effective across, diverse health centre contexts in the Aboriginal primary health care setting. The findings presented here provide evidence of wide variation in delivery of guideline-scheduled services and health outcomes between health centres and between regions. Factors associated with effective uptake were identified. Through participation in the ABCD processes, health centres implemented changes in the way that they delivered care. Further work to understand the nature and process of change, and the factors that are related to both variation and improvements should assist clinicians, health managers and policy makers to develop strategies to improve the quality of care in Aboriginal communities in Australia.

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