

# Can formal Collaborative methodologies improve quality in primary health care in New Zealand? Insights from the EQUIPPED Auckland Collaborative

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## ABSTRACT

**INTRODUCTION:** Auckland District Health Board was one of four District Health Boards to trial the Breakthrough Series (BTS) methodology to improve the management of long-term conditions in New Zealand, with support from the Ministry of Health.

**AIM:** To improve clinical outcomes, facilitate planned care and promote quality improvement within participating practices in Auckland.

**METHODS:** Implementation of the Collaborative followed the improvement model / Institute for Healthcare Improvement methodology. Three topic areas were selected: system redesign, cardiovascular disease/diabetes, and self-management support. An expert advisory group and the Improvement Foundation Australia helped guide project development and implementation. Primary Health Organisation facilitators were trained in the methodology and 15 practice teams participated in the three learning workshops and action periods over 12 months. An independent evaluation study using both quantitative and qualitative methods was conducted.

**RESULTS:** Improvements were recorded in cardiovascular disease risk assessment, practice-level systems of care, self-management systems and follow-up and coordination for patients. Qualitative research found improvements in coordination and teamwork, knowledge of practice populations and understanding of managing long-term conditions.

**CONCLUSION:** The Collaborative process delivered some real improvements in the systems of care for people with long-term conditions and a change in culture among participating practices. The findings suggest that by strengthening facilitation processes, improving access to comprehensive population audit tools and lengthening the time frame, the process has the potential to make significant improvements in practice. Other organisations should consider this approach when investigating quality improvement programmes.

**KEYWORDS:** Chronic disease; primary health care; quality improvement

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## Introduction

Over the last 50 years, high-income countries experienced a dramatic epidemiological shift away from acute infections and injuries towards a predominance of chronic or long-term health conditions.<sup>1,2</sup> Common contributing risk factors

include ageing populations, changes in people's lifestyle and developments in medicine.<sup>3</sup>

Within New Zealand, long-term conditions now account for 70–86% of all deaths and 70–78% of all health care spending.<sup>4</sup> The 2006 National Health Survey<sup>5</sup> confirmed two out of three adults

and over one in three children have (or had) a long-term health condition expected to last six months or more. Multiple comorbidities are now commonplace among both higher needs and older populations.

Historically health systems were designed to provide acute episodic care.<sup>6,7</sup> This approach works less well for patients with long-term conditions who report poor coordination, lack of continuity, repeated investigations, miscommunication and inadequate follow-up in both general practice and hospital-based settings.<sup>8</sup>

Numerous studies and reports demonstrate the following:

1. the quality gap between evidence-based care and usual care<sup>9,10</sup>
2. the benefit of a strong primary care system for improving population-wide health outcomes<sup>11</sup>
3. chronic care models and quality improvement approaches for optimising chronic care,<sup>12,13,14</sup> and
4. escalating costs if radical improvements are not achieved within the near future.<sup>15</sup>

International and local experts have called for system-wide change;<sup>16,17</sup> however, such change has proved difficult to implement given the strongly political, cultural, social and fiscal nature of complex health systems.

In 2007, ADHB developed a Long-Term Conditions Framework and identified the Institute for Healthcare Improvement (IHI) Collaborative<sup>18</sup> as a potential approach for supporting change. The approach is designed to help health care organisations make 'breakthrough' improvements in quality, closing the gap between best and usual care. A BTS (Breakthrough Series) Collaborative uses short, action learning cycles to achieve incremental, rapid and locally relevant improvements across a broad range of clinical and practice business issues. Collaboratives range in size from 12 to 160 teams at a time, and have been used extensively across the world.<sup>19,20,21,22</sup>

The Collaborative methodology incorporates the selection of key topic areas, an expert advisory panel, facilitators and a series of learning work-

## WHAT GAP THIS FILLS

**What we already know:** The Institute for Healthcare Improvement Breakthrough Series (BTS) Collaborative is an evidence-based approach for quality improvement used widely in both primary care and hospital settings internationally.

**What this study adds:** This paper describes the first formal BTS Collaborative to be reported in New Zealand and provides insights on adaptation and learning for the New Zealand context.

shops with action periods over 12 to 18 months duration. The process utilises the improvement model, first described by Langley et al.<sup>23</sup> The improvement model consists of two equally important parts:

- the thinking part with three fundamental questions, and
- the doing part that is made up of plan, do, study, act (PDSA) cycles.

Support during action periods is provided to participating teams by both the facilitators and project team.<sup>18</sup>

The basic premise of the Collaborative approach is:

1. a substantial gap exists between knowledge and practice in health care
2. broad variation in practice is pervasive
3. examples of improved practice and outcomes exist but they need to be described and disseminated to other organisations
4. collaboration of professionals working towards clear aims enables improvement
5. health care outcomes are the result of processes, and
6. understanding the science of rapid cycle improvement can accelerate demonstrable improvement.<sup>24</sup>

In 2008, a cooperative relationship was forged with the Improvement Foundation Australia (IFA) due to their experience with primary care Collaboratives. Representatives from IFA worked alongside the Auckland team. The Auckland District Health Board (ADHB) EQUIPPED proposal was one of four initiatives supported by Ministry of Health funding to explore quality improve-

ment approaches. The objective in Auckland was to apply the BTS methodology to encourage and support general practice teams to make improvements in long-term condition care, and to trial the Collaborative methodology in the New Zealand setting. From the outset it was decided that the structured Collaborative framework would be followed closely as it was this approach that had been shown to deliver significant improvements internationally.<sup>25,26</sup> Lessons were also available from the research to aid the planning of the Collaborative.<sup>27</sup>

## Methods

Fifteen practices within the ADHB area were recruited via their Primary Health Organisations (PHOs). Five PHO-based facilitators (one for each PHO) provided support to the practices. Three learning workshops were held over nine months. To promote a shift from reactive, acute and episodic care to proactive, planned, systematic care, topic areas were chosen to support changes in both delivery systems and clinical activity and outcomes.

These topics were:

- system redesign (access and care redesign)
- optimising clinical management of cardiovascular disease and diabetes
- self-management support.

Measurement and benchmarking are key parts of the process; measures relevant to the topic areas and national performance indicators were chosen by the expert advisory panel (Table 1).

Participating teams set aside protected time to review the measures, do improvement work, assess if the previous month's changes had made an improvement and plan their next month's PDSA cycles.

Electronic population health audit tools were used in 13 of the practices enabling them to report practice-based information on their improvement measures (two of the practices' management systems were not compatible with any available electronic audit tools). A web-based management tool developed by one of the authors (MG) was used to submit data to a central repository. All practices were provided with feedback on their measures on a monthly basis to track their progress. This also allowed aggregation of cohort results and the ability to compare performance with other practices anonymously. A workbook was developed and information for practices was supplemented by a website and regular newsletters.

The evaluation included the following:

1. the analysis of measures documented in Table 2 for the 15 practices involved
2. the analysis of pre- and post-intervention assessments of chronic illness care as reflected by PACIC (Patient Assessment of Chronic Illness Care) and ACIC (Assessment of Chronic Illness Care) questionnaires before and after the Collaborative
3. a mid-point online survey of participating practices in December 2009, and
4. qualitative interviews with practice representatives.

The PACIC and ACIC questionnaires were chosen as they are based on the chronic care model that also underpins the BTS Collaborative method-

Table 1. Measures used to document improvement

Topic area	Measures
<b>System redesign</b>	<ul style="list-style-type: none"> <li>• Number of patients who could not get an appointment each day (unmet demand)</li> <li>• Number of patients who do not attend a scheduled appointment</li> <li>• Number of invitations issued to attend planned visit with either nurse or doctor for people with cardiovascular disease (CVD) and/or diabetes each month</li> </ul>
<b>CVD/diabetes</b>	<ul style="list-style-type: none"> <li>• Number of enrolled population with known CVD</li> <li>• Percent of enrolled population with CVD prescribed statin and antiplatelet</li> <li>• Percent of people with CVD with BP <math>\leq 130/80</math> mm Hg</li> <li>• Percent of enrolled eligible population who have had CVD assessment recorded (within last 5 years)</li> <li>• Number of enrolled population with diabetes</li> <li>• Percent of people with diabetes with BP <math>\leq 130/80</math> mm Hg</li> <li>• Percent of enrolled population with diabetes whose last recorded HbA1c (%) is:               <ul style="list-style-type: none"> <li><math>\leq 7</math></li> <li><math>&gt;7</math> but <math>\leq 8</math></li> <li><math>&gt;8</math> but <math>\leq 9</math></li> <li><math>&gt;9</math></li> </ul> </li> </ul>
<b>Self-management support</b>	Percent of people with CVD or diabetes who have documented care (wellness) plan reviewed within last 12 months

ology.<sup>28,29</sup> Practices completed the ACIC with their practice teams and the PACIC was given to patients with long-term conditions attending the practices. To be able to accurately measure any changes during the course of the EQUIPPED programme, only the ACIC and PACIC data from practices that reported at both the beginning and end of the programme were used.

For the midpoint survey, responses were received from 55 people—a 43% response rate. In the qualitative interviews, a total of 30 people participated, comprising 20 members of nine practices, together with four PHO facilitators, four ADHB staff and two from the IFA.

The questions were divided into thematic sections as per the standard ACIC and PACIC groupings and the average score for each section was used. The individual responses from within each practice were combined to give a dataset encompassing all of the before and after ACIC and PACIC data. An unpaired two-tailed *t*-test was used to determine statistical significance, where  $p < 0.05$  was considered moderately significant, and  $p < 0.01$  was significant.

A series of qualitative telephone and face-to-face interviews was undertaken. Focus groups were held with the PHO facilitators and ADHB staff and many practice interviews were held with two or more members of the practice team. Interviews followed a semi-structured schedule and were a mixture of individual and team-based discussions. Interviews were analysed thematically to add insight to the quantitative analysis.

## Results

The 15 practices that participated had a higher-needs population than the ADHB average, although the age group was similar (Table 2).

There was a 100% retention rate with all 15 practices remaining actively involved. For those practices that had no electronic audit tool, alternative ways were used to identify measures that could guide improvement. Practices became more engaged when they understood more about the process and its objectives. Improvements were identified in the number of people recorded

Table 2. Comparison of Collaborative and ADHB practices

		Collaborative practices %	All Auckland practices %
Ethnicity	Maori	10.9	5.7
	Pacific	25.9	14.1
	Asian	25.5	22.3
	Other	37.7	57.9
Socioeconomic deprivation	NZDep 5	24	15
	NZDep 1	27	35
Age group	0–4 years	7	7
	5–14 years	13	12
	15–64 years	71	70
	>64 years	8	11

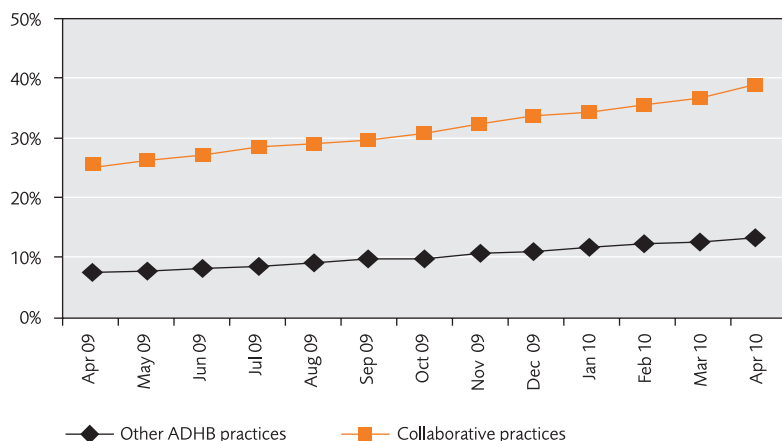
with CVD or diabetes on practice registers and the number of cardiovascular risk assessments undertaken. The number of people with diabetes and CVD on practice registers increased by 26.4% (from 3700 to 4675 patients) for diabetes and 23.3% for CVD (from 1812 to 2234 patients) over the period of the Collaborative.

There was also an increase in enrolled patients with an HbA1c >9 from 14.5% to 18.1%. This was thought to reflect improvements in diabetes coding and the addition of a large group of diabetes patients who enrolled during the Collaborative period.

There were increases in the percentage of patients having cardiovascular risk assessments among those practices taking part in the Collaborative. The gradient of change was greater among Collaborative practices than other practices within the same ADHB. At the start of the process (April 2009), the gap between Collaborative and other practices was 18% and, one year later, the gap had increased to 26%. Among Collaborative practices, the percentage of patients with CVD risk assessments was 25% in April 2009, increasing to 39% by April 2010. We compared this result with the corresponding change for all other practices in the ADHB (i.e. all practices excluding Collaborative participants). The results for non-Collaborative practices were 7.5% in 2009 and 13% in 2010 (Figure 1).

Data was only available from the ACIC and PACIC both pre- and post-Collaborative from

Figure 1. Percentage of Collaborative and other ADHB practice patients with CVD risk assessments



improvement ( $p < 0.05$ ) in self-management (the systems in place to support self-management) and community linkages (between health delivery and local community resources) was also apparent.

Although for the domains of 'integration of CCM' (the extent to which elements of the Chronic Care Model are incorporated in the practice), 'clinical systems information' (timely and useful information about patients and populations), and 'decision support' (access to evidence-based information to support patients) appeared to show improvements, these were not statistically significant. Overall, however, a general trend can be seen of improvement across participating practices.

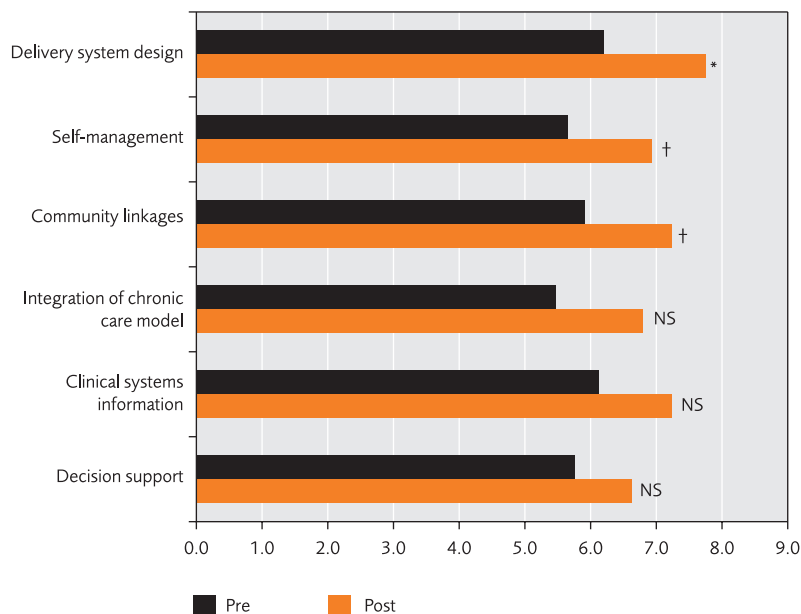
From a patient perspective, the main improvement was in the 'follow-up and coordination' domain, where a statistically significant improvement was recorded. Although a trend is evident of improvement across all other domains, none were statistically significant (Figure 3).

Qualitative and survey research indicated that the Collaborative was an important catalyst for better coordination and multidisciplinary teamwork in the participating practices. Practice teams reported improvements in team functioning as a result of participation in the Collaborative. Examples included increased involvement of nurses in patient care and a shift in some practices from monthly operational/administrative meetings to more frequent clinical meetings across teams. One practice described how previously they 'just had monthly team meetings, whereas now we get together more frequently to discuss progress'.

Participation in the Collaborative required a disciplined process of learning, data gathering, reflection and change through systematic processes to foster quality improvement. Many respondents saw the PDSA cycles as important drivers of quality improvement by providing timely feedback to support change. For one participant, it brought the realisation that 'I'm not just a GP, I can make a difference'. Another commented on the systematic approach of 'little changes makes a big difference'.

Participants all rated the learning workshops and networking sessions very highly for the ideas and

Figure 2. Assessment of chronic illness care data, pre- and post-Collaborative 2009–10



NOTE:

NS signifies non-significant

\*  $p < 0.01$

†  $p < 0.05$

four practices. The ACIC data analysis (Figure 2), indicates that the main effect of the EQUIPPED programme was changing how these practices delivered care. The ACIC data showed a significant ( $p < 0.01$ ) improvement in Delivery System Design (which covers the organisation of practice that impacts provision of care) before and after the EQUIPPED programme. A moderately significant

learnings generated and for the ability to talk of experiences and activities with a range of practitioners. As an indication of successful buy-in to EQUIPPED Long-Term Conditions Collaborative at ADHB, nine of 10 participants who were asked said they would recommend the initiative to others. One participant said, 'the fact that people stayed on board despite H1N1, Labtests and the measles outbreak shows its value'.

A key difficulty for all practices was the complexity in getting population health data from practice systems. Despite familiarity with their own systems, few practices had the means to extract and analyse data at a population level as and when they wanted. This made an essential part of the Collaborative—providing information on outcome measures and changes in measurement in a timely fashion—very difficult. The functionality of available tools was limited and not all practices had used such a tool. In reference to this, one said, 'There's no way any doctor could do this without a clinical audit tool.'

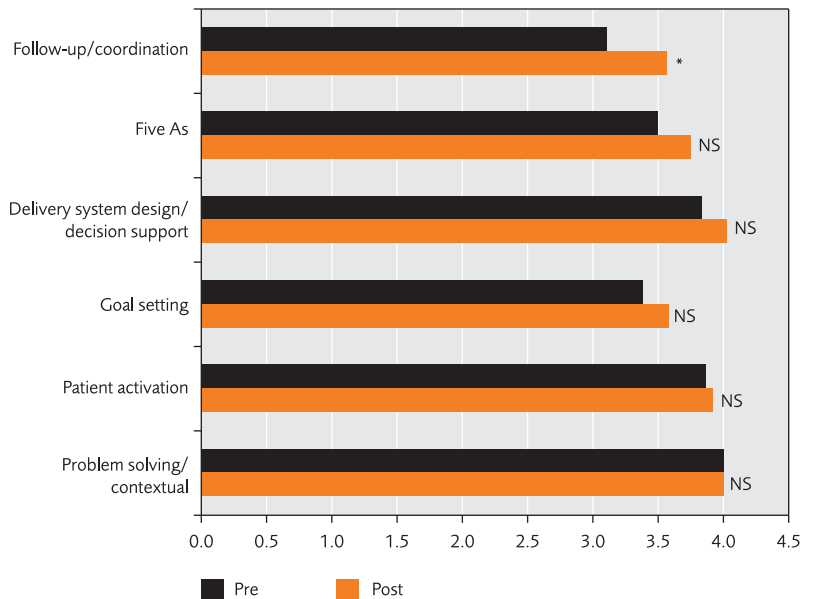
Taking the time out to dedicate to this process was also a challenge for practice teams. The workshops were held over one-and-a-half days and some teams were unable to send the same people each time.

Although their contribution was largely endorsed in the online survey, more mixed views of the PHO facilitators was expressed in the qualitative interviews. Feedback from practices on the facilitators ranged from a 'fabulous [person] but too busy and spread across too many practices' to 'other than saying we had to provide data, there was basically no support'. There seemed to be a lack of support and inadequate time given to facilitators by most PHOs, and this, combined with a lack of understanding among some of quality improvement processes, limited their impact.

## Discussion

Despite the challenges, the Collaborative made small, but clinically significant improvements. Due to unforeseen circumstances the Collaborative was undertaken at a time when practices were extremely busy. Major disruption was occurring due to the H1N1 epidemic and many

Figure 3. Patient Assessment of Chronic Illness Care, pre- and post-Collaborative, 2009–10



NOTE:

NS signifies non-significant

\*  $p < 0.01$

practices were already dedicating time to achieving practice accreditation in addition to the workload of a normal winter.

Practices made gradual improvements in the quality outcomes over a short period of time. The qualitative data identified clear positives from the Collaborative, including the stimulation of discussion, practice teamwork, and practices learning from each other. The approach of having dedicated time to discuss quality improvement was appreciated by the practices. Few practices had previously taken time as a team to consider the practice systems and quality improvements they could make together.

Real changes took some time to start and seemed to occur once practices had been provided timely data that showed them the progress they were making. The data was a revelation for some, with one practice discovering they had 600 patients with diabetes; they knew the numbers were high, but did not realise how high. Practices were also able to see how they were doing compared to other Collaborative practices (the data was, how-



ever, anonymised so they did not know specific practices' results). Many practices were not aware of variation that occurred between practices and recognising that was in itself a motivator for change.

All PHOs were given funding to pay for practices to have an electronic audit tool. At first this proved controversial as some PHOs were supporting tools that the practices did not necessarily like. However, over time, the benefits of these tools and the value of benchmarking (using aggregated anonymous data) for health outcome monitoring and sustainable planning purposes became clearer. In New Zealand there are many systems utilised across the country, but few have the flexibility and comprehensiveness to act as a generic population management tool. A validation process is needed to ensure that all tools meet a minimum standard of operation.

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Leaders within practices and across programmes were important drivers of change. The practices that embraced the Collaborative process the most tended to have a motivated and respected advocate or champion for change from within the practice; this person was able to turn data reporting into reflections on quality improvement. The Collaborative process stimulated development of some leaders who were not always apparent at the beginning. Collaboratives in Australia that have worked well have engaged a clinical leader who is respected by his or her peers, and is able to take a leadership role in learning workshops and can be seen to be driving quality improvement in their own practices. Participating practices included clinical leaders from all PHOs and some of these leaders are now working with their PHOs to extend the use of the Collaborative approach.

Protected time for clinical team meetings, and undertaking PDSAs and other quality improve-

ment work was frequently cited as a key enabler for the Collaborative's quality improvement processes. The Collaborative provided an important opportunity for participants to learn and engage in quality improvement and offered a forum for a useful exchange of ideas and practice that spread innovation. Maintaining these learning and networking opportunities will be an important enabler for embedding quality improvement.

Delivery of quality improvement programmes by funding agencies is problematic. Although the DHB project team provided significant support, analysis and encouragement to practice teams, their historical role of contract monitoring and compliance responsibilities created a degree of suspicion among some groups. Initially the DHB favoured employment of one full-time facilitator to support all practices. PHOs, however, wished to take on responsibility for this given their existing relationships with their practices—hence, funding was divided between five PHOs with five facilitators who all prioritised the Collaborative activity differently. Consequently most facilitators had little time for supporting Collaborative activity. Feedback from participants confirmed this approach was not ideal. Other Collaboratives employ dedicated individuals/teams, well trained in quality improvement approaches, to work directly with practices to support and sustain quality improvement. Such an approach may have improved the efficiency and effectiveness of the programme.<sup>30</sup>

The budget for the Collaborative of \$20,000 per participating practice appears high, but in fact was low in comparison to others that have taken place around the world. This included many set-up costs that would not be recurring if the same resources were used again or additional practices participated. Additional practices could have been added at minimal extra cost.

Strengths of this study included the percentage of high-needs practices that participated and the retention of all practices throughout the Collaborative period. In addition, all five ADHB-based PHOs (at that time) were involved, plus support and guidance was available from an international and widely experienced quality improvement organisation (IFA). The commitment of practices

was also strong through what was an unexpectedly busy period, and there was a stable team at the ADHB providing leadership and support. Local experts were willing to give up time to talk at the learning sessions, as were members of the team from IFA who came over for them. Limitations included the low response rate for completion of pre- and post-ACIC and PACIC scores, which meant that the amalgamated score could be biased towards the most interested practices, in turn making extrapolation less realistic. There were also delays obtaining equivalent datasets from all practices leading to a shortened study period. Finally, those practices involved were volunteers and not randomly selected,

## Conclusions

Both the Australian and UK experience indicate that implementing a Collaborative requires significant resources as well as specific skills and knowledge. This was true of our Collaborative. The fact that the process was led by the DHB made it harder initially to get engagement with practices; however, over time inter-organisational trust and collaboration developed. Taking a national approach would allow greater efficiencies to be achieved rather than duplicating tasks across multiple DHBs. It would also build the requisite competencies in performance improvement and change management across the sector.

Few practices have the tools and skills to analyse the health of their population for key outcomes whenever and however they want. The Collaborative highlighted this gap as a significant factor, reducing the ability of primary care practices to deliver on population health outcomes. Practices need access to an electronic audit tool that allows them to continually assess the quality of care they provide for their population, as well as to receive feedback for their own practice and its performance relative to others. The Royal Australian College of General Practitioners supported the introduction of a comprehensive tool some years ago, and this was a significant enabler for optimal functioning of the Collaboratives (personal communication, IFA). The benefits of these tools used at the grassroots level to identify issues, guide improvement work and make real changes is clear.<sup>31</sup>

Additional incentives for primary care practices to undertake quality improvement are needed. This Collaborative showed the benefit that can occur when practice teams both undertake quality improvement programmes and meet with other practices to share ideas and experiences. Protected time for this activity seems to be an essential ingredient.

The results of the Collaborative included improvements in performance, greater understanding of practice populations, spread of innovative ideas and greater interdisciplinary working which are important steps in improving outcomes.<sup>32</sup> The importance of collecting data, timely performance feedback, clinical champions and protected time to focus on quality improvement were highlighted. The challenge now is to build on these lessons and overcome the barriers to making such initiatives a routine part of primary care practice.

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## COMPETING INTERESTS

None declared.

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