

Quality improvement collaboratives in the age of health informatics—new wine in new wineskins

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The potential of quality improvement collaboratives (QICs) to improve the quality of primary healthcare is widely recognised. However, despite wide use, the evidence base to support QICs is surprisingly modest.¹ In this issue of the journal, Knight *et al*² provide useful information suggesting that QICs in Australia had a positive impact on diabetes care. They present convincing data showing improvement trends over the years these QICs were active. However, establishing a causal link is challenging in the absence of a randomised control or comparison group. Although several group-randomised trials of QICs for diabetes care have shown positive results,³ others have failed to improve care, and many have improved only test rates but not key aspects of care such as glucose or blood pressure (BP) control.⁴ While we all have high hopes for QICs, the jury is still out on their effectiveness for diabetes

care and care of other specific medical conditions.

As we ponder these mixed results, an important question is how to maximise the benefit of future QICs. What we have learnt about QICs so far suggests several opportunities to improve the effectiveness of QICs as we move forward with our eyes on the goal of improved quality of primary care services. I posit that a shortcoming of many QICs to date is that they often seek to implement spontaneous ideas or insights provided by practitioner participants in QICs. While such an approach has much to recommend it, many participants may not be aware that, over the last 30 years, many 'common sense' approaches to care improvement have been tested and found wanting^{5 6}—in some cases even leading to worse care outcomes than no intervention at all.⁷ Examples of this 'spontaneous combustion' approach to QICs are not hard to find.^{4 8} More structured 'evidence-based' QIC models, in which participants choose improvement strategies from a menu of approaches proven to be efficacious, may be more successful.^{9 10} I have participated in both types of QICs. The spontaneous combustion ones may be more fun, but the evidence-based ones, in my opinion, tend to have better results.^{4 8–12} With this in mind, I will suggest several promising approaches that future QICs might consider in the quest to improve the quality of outpatient chronic disease care.

IDENTIFYING AND SPREADING BEST CLINIC WORKFLOWS AND CARE SYSTEMS

It is axiomatic that, when it comes to primary care, 'one size does not fit all'.^{13 14} However, the very wide variation that now exists in workflow, staff roles, use of information systems, and organisational structure in primary care settings undoubtedly contributes to the wide observed variation in quality of care and resource use across clinics and medical groups. For example, our internal data indicate that, in 55 primary care clinics, the proportion of patients with diabetes who simultaneously achieved glucose, BP and lipid control ranged from 30% to 50% across clinics. There was an even more remarkable variation of nearly 300% in resources spent on outpatient diabetes care and diabetes pharmacy costs across these clinics. These data and other recent studies indicate that there is often no clear relationship of higher costs of care with better quality of care.¹⁵ On the contrary, many low-cost clinics had high quality of care.

What can we infer from this? Although 'one size does not fit all', it is also true that some ways of doing things in primary care clinics are more effective—and efficient—than other ways. A major research and management opportunity exists to quantify and describe variation in the daily work processes, team relationships and functioning, and care models across clinics and to identify which models of care provide superior results while using resources judiciously.

In the near future, and especially as we experiment broadly with primary care medical homes,¹⁶ some approaches will prove to be more effective than others. QICs can be used to help identify these optimal workflows and systems and to spread them to other clinics and care systems. Indeed, we know that this works.³ The trick may



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be to keep QIC participants informed of new evidence-based insights on how to optimise workflows and systems in primary care—and then move on to experiment with ‘next-generation’ innovations that take us a little closer to the goal of high-quality, affordable healthcare.

SYSTEM REDESIGN: MANAGING YOUR POPULATION OF PATIENTS

A major quality improvement opportunity now at hand is the more systematic and effective use of health information systems to guide improvement in quality of care. When outpatient clinics learn how to take advantage of sophisticated electronic medical record-linked information systems, new approaches to pre-visit, visit, and post-visit primary care become possible. For example, in registries of those with diabetes (or other conditions), patients can be ranked by degree of reversible cardiovascular risk. Those with high reversible cardiovascular risk who have not been seen regularly can be contacted proactively and invited to resume care. Those who are doing well can have follow-up visits at perhaps longer intervals, while those who are ready to change may benefit from more frequent clinical contacts. Tailoring intensity of care to risk and the patient’s readiness to change has great potential to improve the quality and the efficiency of primary care.¹⁷

HOW TO USE ELECTRONIC HEALTH RECORD BASED CLINICAL DECISION SUPPORT

Perhaps the greatest opportunity to improve quality of care in the next decade will be through effective use of electronic health record (EHR)-based clinical decision support in primary care practice. Consider this scenario: at the point of care, your EHR sends a succinct data extract to a web service that includes up-to-date

clinical algorithms that your own medical group helped develop and approve. The algorithms consider patient age, gender, personalised clinical goals, distance from clinical goals, current treatments, renal, heart and liver function, key comorbidities and medication allergies. Based on this information, the algorithms suggest evidence-based actions to improve treatment and control of BP, glucose and lipids—while also identifying and flagging clinical actions that may be especially effective or may be unsafe. This information is presented succinctly to you either on a piece of paper as you enter the room or as the first thing you see on the EHR screen. You may ignore this advice or glance at it for visit-planning purposes as you walk into the room. You have the option to print a second patient-friendly version of this information that is jargon free and can be reviewed with your patient.¹¹

Yet it is challenging to integrate such decision support systems into office practice.¹⁸ QICs can provide a forum for sharing successful and unsuccessful strategies. This sharing accelerates improvement by years by avoiding widespread repetition of failed experiments and rapidly directing attention to strategies more likely to succeed. These can then be vetted to identify which strategies may be practical and feasible for your clinic.

It is worth noting that EHR-based clinical decision support systems can now be designed to prioritise clinical actions based on relative benefit to an individual patient at a particular clinical encounter. Prioritisation of clinical actions based on benefits to a given patient, in conjunction with discussion of patient preferences based on a list of beneficial actions, opens the door to evidence-based, patient-centred care. QICs can be a powerful vector for dissemination and adaptation of these new technologies to the reality of primary care

practice—and discovering the best ways to elicit and incorporate patient preferences.

WHAT WILL ‘NEXT-GENERATION’ QICS LOOK LIKE?

In the past, QICs met face to face for a block of time at a central location that required many to travel long distances and lose clinic time. Typically, a physician leader and a nurse leader or manager participate in the QIC meetings with other clinics. Then, as ‘homework’, they begin the process of instigating change to improve care for a narrowly defined group of patients (such as those with diabetes) targeted by the QIC.

In the future, QICs themselves will need to be subject to evidence-based evaluations. As mentioned, the evidence base for their effectiveness is mixed. In the future, QICs should increasingly become oriented to changing clinic systems and workflows that can support better care for a broad set of diseases and thus move towards more patient-centred care. To do this, QIC teams will need more involvement of managers, informatics experts, programmers, patients and clinicians. Prioritised registries, transparent and accurate risk-assessment methods, and the emergence of clinical guidelines we can trust will enable more coordinated care for individual patients before, during and after different types of clinical encounters.

QICs will have to change and become more efficient to keep up with evolving opportunities to improve quality of care. The time demands of developing many of these innovations could be potentially shared across sizeable numbers of clinics and medical groups, mitigating the financial burden on individual medical groups. We should thank Knight, *et al*² for their contribution to the literature on QICs, and we should move on to new frontiers in QICs, with more broadly

constructed teams from participating groups and more emphasis on use of informatics to support evidence-based care improvement that is no longer disease specific but is increasingly patient centred. It is a new ballgame as we enter the era of sophisticated information systems, and the need to learn from each other in QICs—in new ways and new configurations—has never been greater.

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REFERENCES

- Schouten LM, Hulscher ME, van Everdingen JJ, *et al*. Evidence for the impact of quality improvement collaboratives: systematic review. *BMJ* 2008;336:1491–4.
- Knight A, Ford D, Audehm R, *et al*. The Australian Primary Care Collaboratives Program: improving diabetes care. *BMJ Qual Saf* 2012. Published Online First: 16 June 2012. doi:10.1136/bmjqs-2011-000460
- Chin MH, Cook S, Drum ML, *et al*. Improving diabetes care in midwest community health centers with the health disparities collaborative. *Diabetes Care* 2004;27:2–8.
- O'Connor PJ, Desai J, Solberg LI, *et al*. Randomized trial of quality improvement intervention to improve diabetes care in primary care settings. *Diabetes Care* 2005;28:1890–7.
- Shojania KG, Ranji SR, McDonald KM, *et al*. Effects of quality improvement strategies for type 2 diabetes on glycemic control: a meta-regression analysis. *JAMA* 2006;296:427–40.
- Tricco AC, Ivers NM, Grimshaw JM, *et al*. Effectiveness of quality improvement strategies on the management of diabetes: systematic review and meta-analysis. *Lancet* 2012;379:2252–61.
- O'Connor PJ, Sperl-Hillen J, Johnson PE, *et al*. Customized feedback to patients and providers failed to improve safety or quality of diabetes care: a randomized trial. *Diabetes Care* 2009;32:1158–63.
- Solberg L, Kottke T, Brekke M, *et al*. Failure of a continuous quality improvement intervention to increase the delivery of preventive services. A randomized trial. *Eff Clin Pract* 2000;3:105–15.
- Peterson KA, Radosevich DM, O'Connor PJ, *et al*. Improving diabetes care in practice: findings from the TRANSLATE trial. *Diabetes Care* 2008;31:2238–43.
- Margolis KL, Solberg LI, Crain AL, *et al*. Prevalence of practice system tools for improving depression care among primary care clinics: the DIAMOND initiative. *J Gen Intern Med* 2011;26:999–1004.
- O'Connor PJ, Sperl-Hillen JM, Rush WA, *et al*. Impact of electronic health record clinical decision support on diabetes care: a randomized trial. *Ann Fam Med* 2011;9:12–21.
- Solberg LI, Glasgow RE, Unutzer J, *et al*. Partnership research: a practical trial design for evaluation of a natural experiment to improve depression care. *Med Care* 2010;48:576–82.
- Stange KC, Goodwin MA, Zyzanski SJ, *et al*. Sustainability of a practice-individualized preventive service delivery intervention. *Am J Prev Med* 2003;25:296–300.
- Crabtree BF, Nutting PA, Miller WL, *et al*. Summary of the National Demonstration Project and recommendations for the patient-centered medical home. *Ann Fam Med* 2010;8(Suppl 1):S80–90; S92.
- Flottemesch TJ, Solberg LI, Asche SE, *et al*. Are characteristics of the medical home associated with diabetes care costs? *Med Care*. Published Online First: 15 June 2012. doi:10.97/MLR.0b013e3182551793
- Larson EB, Reid R. The patient-centered medical home movement: why now? *JAMA* 2010;303:1644–5.
- O'Connor PJ, Asche SE, Crain AL, *et al*. Is patient readiness to change a predictor of improved glycemic control? *Diabetes Care* 2004;27:2325–9.
- Shojania KG, Jennings A, Mayhew A, *et al*. Effect of point-of-care computer reminders on physician behaviour: a systematic review. *Can Med Assoc J* 2010;182: E216–25.