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# The quest for integrated health and social care

A case study in  
Canterbury, New Zealand

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Ideas that change health care

# **The quest for integrated health and social care**

A case study in Canterbury,  
New Zealand

Nicholas Timmins  
Chris Ham

*Has the Canterbury health system been transformed? No.*

*Is it transforming? Yes.*

*Is what it is doing transformational? Certainly.*

*And there is data to demonstrate the appreciable progress Canterbury has made on this journey. But despite the huge effort that has already gone in, more will be needed to provide a completely positive answer to the first question. The 'more' includes additional data around the quality of care, clinical outcomes and patient experience plus, ideally, some clearer attribution of which changes have produced what improvement.*

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# 1 Introduction

Providing integrated care – care that crosses the boundaries between primary, community, hospital and social care – is a goal of health systems worldwide.

So too is achieving that care within resources that are likely to be heavily constrained for the immediately foreseeable future as countries and individuals recover from the impact of the global financial crisis.

In New Zealand, the District Health Board for Canterbury, the south island's largest and most populous region, has been engaged on such a journey for more than five years now. It has moved from a position where, back in 2007, its main hospital in Christchurch regularly entered 'gridlock' – with patients backing up in its emergency department and facing long waits as the hospital ran out of beds – to one where that rarely happens.

Canterbury can demonstrate that it has low rates for acute medical admissions compared to other health boards in New Zealand. Its average length of stay for medical cases is not the lowest in New Zealand, but it is low. Its acute readmission rate is low.

These three gauges combined point to a system that has good-quality general practice that is keeping patients who do not need to be in hospital out of it; is treating them swiftly once there; and discharging them safely to good community support.

Reduced strain on the hospital and greater efficiency within it has prompted fewer cancelled admissions. The proportion of elective work in Canterbury has risen from less than 23 per cent of its activity in 2006/7 to 27 per cent in 2011/12. Many thousands more elective procedures are being performed.

Waiting times for elective surgery are down. General practitioners (GPs) have been provided with direct access to a range of diagnostic tests. That has shortened the wait for them, in some cases dramatically. As a result growing numbers of patients arrive for outpatient appointments already 'worked up' – with their need to see a specialist established.

A range of conditions that once were treated purely or mainly in hospital are now provided in general practice – for example, the removal of skin lesions in a country with a high incidence of skin cancer, and treatment for heavy menstrual bleeding.

The Canterbury health system can claim it has saved patients more than a million days of waiting for treatment in just four clinical areas in recent years. Fewer patients are entering care homes – 'aged residential care' in New Zealand terminology – as more are supported in the community. A rising curve of demand for residential care has been flattened. Better, quicker care, with more of it provided without the need for a hospital visit, is being delivered. A health system that in 2007 was almost NZ\$17m in deficit on a turnover of just under \$1.2bn was in 2010/11 on track to make an \$8m surplus.

On 22 February 2011, however, Christchurch was struck by an earthquake that devastated its centre and caused immense damage to other parts of the city. It killed 185 people, injuring some 6,600 more. Christchurch Hospital itself survived. But most health buildings, including all the hospitals, were damaged in varying degrees of severity. On the day, five general practices were completely destroyed – with 11 clinicians among the dead – and many other practices and pharmacies were severely disrupted as power and water supplies

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disappeared. Around 14 per cent of the city's residential care beds were destroyed.

More than two years later, as the city regenerates, buildings in its centre are still being demolished. Some general practices and pharmacies will still have to relocate, as structural surveys show they are insufficiently sound to withstand another shock. Parts of Christchurch Hospital remain unusable. It lost 103 inpatient beds in the quake – though all but 33 of those were later provided at Princess Margaret Hospital in Christchurch. Parts of Burwood, an elective orthopaedic centre in the north-east of the city, are also still unusable, as are parts of the mental health facility at Hillmorton in the city's south-west, and Ashburton Hospital, an hour's drive south of Christchurch. As a tiny but stark reminder of what happened, the clock on the shored-up memorial to Queen Victoria's jubilee stands frozen at 12.51, the moment the earthquake struck.

Despite the earthquake, the improvements to Canterbury's system of health and social care outlined above have continued. Indeed, the response to the quake accelerated some changes that were already in place and introduced several new ones – a classic demonstration of the rule that good can come out of crisis.

But it would be a mistake to believe that the earthquake is largely responsible for the progress that has been made. The response would not have been what it was without the foundations already laid to move to a more integrated, patient-centred health and social care system.

Canterbury provides much food for thought for the many clinicians, funders and managers interested in better demand management in primary care, allied to significant improvements in hospital efficiency that in turn have an impact on the use of social care.

It is important to note that Canterbury has not succeeded in shrinking its hospital base – other than at the margins through the loss of beds caused by the earthquake. To be fair that was not its goal. But it can make a strong case that without the drive since 2007 to 'transform' the way the health and social care system functions the main hospital rebuild, already planned before the earthquake, would have required many more beds and a much larger capital investment to meet future demand.

None of this has come at the expense of financial control. Indeed in April 2013 New Zealand's Auditor General rated Canterbury's management control for the previous financial year 'very good' – one of only two district health boards to get this top rating. Its financial information systems were described as good (no other health board did better) while Canterbury became the only health board, and one of only 4 per cent of all New Zealand public bodies, to be judged to have 'very good' service performance information.<sup>1</sup>

This journey of transformation is still incomplete. Indeed, given the way both medicine and technology are evolving, it is always likely to remain a process, not a fixed event that can one day be said to have been achieved. But the progress made is such that it may hold lessons for other health care systems. This report attempts to chart that journey and analyse some of its outcomes. Some features are unique to Canterbury and unique to New Zealand: but some elements of this approach may help others towards a goal that is a worldwide ambition – more integrated, patient-orientated, efficient and high-quality care.

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<sup>1</sup> Provost L, Controller and Auditor General (2013). *Health Sector: Results of the 2011/12 audits*, p 21–5. [www.oag.govt.nz/reports/2013/health-audits](http://www.oag.govt.nz/reports/2013/health-audits)

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## 2 Origins

A whole bunch of starting dates could be chosen for the beginning of this journey. In the 1990s and early 2000s, the New Zealand health care system went through a series of rapid changes that included – certainly in terms of its rhetoric if not necessarily its actual application – a fairly extreme example of the purchaser/provider split adopted in England and elsewhere. In New Zealand generally, and Christchurch in particular, this produced a bitter stand-off between managers and hospital clinicians – one so bruising that senior consultants at Christchurch Hospital, and much younger consultants who were junior doctors at the time, shudder when they recall it.

In 2006, the New Zealand government took a more stringent approach to waiting time targets. In an attempt to meet them, some 5,000 patients with the longest waits were simply lopped off the list in Canterbury. GPs found their referrals to hospital being kicked back on review by hospital specialists, but without any clear understanding of why.

Gruesome headlines accompanied it all. It generated a sense of shock and dismay within the Canterbury health system. *'It was,'* says Vince Barry, then elective services manager for the health board, now Chief Executive of Pegasus Health, Christchurch's large and powerful independent general practice association, *'bloody. Just awful. And a load of us said, "this just can't be allowed to happen again".'*

The Canterbury system had some notable strengths, not least well-organised general practice. The largest, though not the only, manifestation of that is Pegasus Health, Christchurch's equivalent of an independent practitioner association (IPA), to which 85 per cent of the city's GPs belong.<sup>1</sup> Its origins go back to 1987, when some of the city's family doctors first developed a co-ordinated out-of-hours service that they themselves staffed. From that Pegasus itself was formed in 1992, partly as a defensive response to the introduction of a purchaser/provider split. It took on budget-holding on behalf of GPs for pharmaceuticals and lab tests, generating large surpluses – \$40m plus. Unlike some of the other newly emergent IPAs elsewhere in New Zealand, it was able to retain these to spend on new health and education services. And, unlike the savings made by GP fundholders in the United Kingdom in the 1990s, these surpluses could not be spent to the financial benefit of GPs themselves, either directly or indirectly. The savings enabled Pegasus to build the extensive organisation it is today.

Retained funds from budget-holding were spent on innovative programmes that included, for example, end-of-life care and some early screening programmes that were not national at the time.

Any system for distributing funding around a country is always controversial among the few who understand it or claim to understand it. Partly as a result of the apparent ease with which Pegasus built up its surpluses, a perception grew elsewhere in New Zealand in the 1990s and early 2000s that Canterbury was

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<sup>1</sup> For a much broader and deeper explanation of the development and history of IPAs in New Zealand, see Thorlby R, Smith J, Barnett P, May N (2012). *Primary Care for the 21st Century: Learning from New Zealand's independent practitioner associations*. London: Nuffield Trust. [www.nuffieldtrust.org.uk/sites/files/nuffield/publication/new\\_zealand\\_ipas\\_260912-update.pdf](http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/new_zealand_ipas_260912-update.pdf)



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over-funded, although those involved in Pegasus would argue that the savings were the result of hard, peer-led educational work by the Christchurch GPs themselves.

Pegasus had introduced, early on, an extensive, best evidence-based, education programme by GPs for GPs about which tests to order and when, reducing high-end variation.

Twenty years on, this education programme, which has sometimes been described as the 'glue' that holds the membership organisation together, continues. Meetings take place in the evenings, are run strictly to time, and GPs, practice staff and pharmacy clinicians are paid to attend as a signal that their time is valued – though the level of payment, at \$150 (around £75), has not changed in 17 years. In the late 1990s, Canterbury also hosted one of a series of nationally funded integrated care pilots aimed at bridging the divides between primary, secondary and disability support services for elderly patients. That was wound up in 2001 with the abolition of the health funding authority that had financed it. However, in 2000 Pegasus began running a relatively small programme – \$6m a year – aimed at limiting acute demand on the hospital by diverting into general practice and community settings some patients who would otherwise have been in hospital.

In the mid-2000s senior figures on the Canterbury board – notably Mary Gordon, the Chief Nurse who joined in 2002, and Dr Nigel Millar, a geriatrician who became the board's Chief Medical Officer in 2003 – began to take an interest in 'lean' production techniques. They launched a programme called 'Improving the Patient Journey' that sought to harness these techniques.

In 2006, Gordon Davies returned to take his final post before retirement as Chief Executive of the Canterbury District Health Board. A Cantabrian, Gordon Davies had been general manager of the former Canterbury Area Health Board in the early 1990s but then moved to become deputy director for funding and performance at the Ministry of Health in Wellington.

At this time, the district health board had a business development unit headed by Richard Hamilton, a former employee of New Zealand Post where he had been part of its attempt to adjust to the rapidly changing, much more competitive, global postal environment.

Under Gordon Davies two crucial events occurred. One was that an analysis began, as part of the development of a health services plan, that concluded that the current way of operating was unsustainable. The board was already running a deficit. Amid rising admissions, growing waiting times and a population that was ageing rapidly even by the standards of other parts of New Zealand and other developed countries, it was calculated that, if nothing changed, Canterbury would need another hospital the size of the 500-plus bed Christchurch hospital by 2020. It would need 20 per cent more general practitioners and a similar increase in practice nurses. It would need another 2,000 residential care beds for the elderly on top of the 4,500 already in existence.

This, the analysis judged, was simply unaffordable. The money to do all that would not be available. Even if it were, it would almost certainly be impossible to find the 8,000 additional employees and contractors to staff the new hospital – a near 50 per cent increase of all the staff who work across health and social care in Canterbury, or a near doubling of the workforce that the board itself

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directly employs. What this analysis deliberately and effectively did was create a 'burning platform' that required change.

In parallel with this, the business development unit ran a number of projects, starting with a programme called Xceler8. These continued throughout the change of chief executive as David Meates succeeded Gordon Davies at the beginning of 2009.

Xceler8 originally involved two groups, each of 40 staff, undergoing a week-long exposure to 'lean', 'six sigma' and other management techniques and thinking. The programme included outside visits to Air New Zealand, New Zealand Post, the large local department store Ballantynes, and other customer service industries that had used these approaches. These senior staff, who included direct employees of the board and also, in the second session, a wider spread of those who work within health and social care, were asked to develop a vision for what the health system should look like in 2020, and how it should be changed. At the end they were handed a wallet-sized card signed by the chief executive giving them 'permission' to change the system. David Meates, the incoming Chief Executive, was involved in the second of these events in late 2008, ahead of taking up his post.

To spread the messages that Canterbury had to change, that those within it could change it, and indeed that *only* those within it could effect change, an event called 'Showcase' was developed. Staff were taken through the challenges that the system was facing and were, in effect, asked what they could and would do, given the opportunity. Those attending had been personally invited by one of the 80 who had attended the two earlier 'Vision 2020' exercises, because they judged the invitee to be someone who could make a difference. Invitees ranged across the health system and included porters and secretaries. The event took place in a warehouse in which people were walked through various 'scenes' that set out the challenges facing the system and they were asked fundamental questions such as: How would you like to be treated? Who would you work with to achieve that? and How would you, personally, transform the system?. As they went round, and at the end of the event, their ideas were captured by a graphic artist. Those in the larger group were then themselves asked to invite others – and an event originally planned to last a fortnight ended up running for six weeks, with more than 2,000 people out of the 18,000 working in the 'Canterbury Health System', as the showcase dubbed it, passing through. Intentionally or not, Canterbury had harnessed some of the networking tools that lie behind social media.

Out of these processes came a number of key messages. That despite the many parties involved in providing health and social care in Canterbury, there has to be 'one system' – and that in reality there is only 'one budget'. 'One system, one budget' is a mantra that many of the senior people in Canterbury, and many more junior ones, now volunteer when discussing how the health and social care system is changing.

This is a crucial piece of rhetoric in a country that does not, in fact, have one system. There are two very different major sources of public funding for health, plus a lively private sector, appreciable co-payment for the public part of the service, a wide range of contractors for community nursing, ambulance, laboratory and other services and aged residential care services that are privately run (see Figure 1 below). The word rhetoric is used here not in its more modern, pejorative sense of false or artificial language, but in its original meaning – the use of language to persuade people of an argument.

A set of strategic goals and principles were drawn up, laying out how the health system should develop and what it should look like. These were illustrated by a pictogram that placed the patient at the centre of the service and displayed connected services radiating out from their home – with the hospital on the outside of the ring, not at the heart of the health system. This is not the traditional view of a health system where the first thing that normally comes to the public mind is the hospital. Versions of the pictogram are still visible on walls all around Canterbury.

**Figure 1: Pictogram of health care system in Canterbury**



The goals adopted for the health service plan were that:

- services should enable people to take more responsibility for their own health and well-being
- as far as possible people should stay well in their own homes and communities
- when people need complex care it should be timely and appropriate.

To achieve these goals a new way of working, a new set of principles so to speak, was essential. The key requirements were:

- those in the health system – from primary to community to hospital to social care, and whether working as public employees, independent practitioners, or private and not-for-profit contractors – had to recognise that there was 'one system, one budget' in Canterbury
- Canterbury had to get the best possible outcomes within the resources available, rather than individual organisations and practitioners simply arguing for more money
- that the goal was to deliver 'the right care, right place, right time by the right person' – and that a key measure of success was to reduce the time patients spent waiting.

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Crucially, according to Dr Nigel Millar, Chief Medical Officer in Canterbury throughout this period, *'the board signed off to the principles not the plan'* in August 2008. In other words it endorsed this approach to redesigning services, rather than merely agreeing to the next, immediate, service changes that the plan set out.

All this may sound like motherhood and apple pie coming round again to the jaundiced ear of clinicians and managers across the world. They have heard many such grand visions before – usually from a chief executive who has been and gone and taken their vision with them, long before there was time for any of it to be implemented, while seeing a new one come in with another set of modern mantras from whatever is the latest authorised version of the bible of management speak.

Indeed, one of those who has – approvingly – examined what has been happening in Canterbury for the New Zealand government's State Services Commission in a study on public sector innovation,<sup>2</sup> says *'when you write this all down and read it back, it all sounds a bit naff. But it is real and it works'*. In Canterbury, to a considerable degree, it clearly has.

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<sup>2</sup> Washington S, Groves R (2013). 'Seismic shifts: designing and growing innovation capability'. *Policy Quarterly*, vol 9, issue 1, pp 41–7.

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## 3 Background

### *National*

The New Zealand health and social care system bears appreciable similarities to that in England and the rest of the United Kingdom. But it has some crucial differences.

Care is funded out of general taxation. Hospital care is free at the point of use. With some relatively minor exceptions, however, there is a co-payment for visits to the GP. These vary around the country, and there are some controls over the level (or rather the ability to increase) GP visit fees. In Christchurch, a typical GP visit costs around \$40 to \$50 (around £25) and more for out-of-hours, typically \$75. A typical Canterbury general practice receives roughly half of its income from public monies, half from patient co-payments. As in the United Kingdom, GPs are independent contractors, not salaried employees of the health system. Hospital doctors are salaried, though consultants are free to undertake private practice and many of them do, as in the United Kingdom.

Around 30 per cent of the New Zealand population has private medical insurance, though it is rather more focused on elective surgery than in the United Kingdom. Relatively few higher-end procedures are performed in the private sector. The Ministry of Health estimates that private health expenditure in all its forms – including insurance and out-of-pocket payment for treatment – accounts for around 20 per cent of all New Zealand health expenditure, a proportion that has remained relatively stable for a decade.<sup>1</sup>

New Zealand also uses 'clinical priority assessment criteria' – essentially a points system – to decide which elective procedures the public system will provide. It is in effect a national scoring tool for rationing care, though the threshold at which patients then qualify for publicly funded treatment does vary by health board. In Canterbury, for example, many treatments for hernias and haemorrhoids are currently excluded. Patients either put up with the condition or go private. There is a greater cultural acceptance than in the United Kingdom, the United States or much of Europe, that there are limits to what the public system can provide. This does not mean that the issue is uncontroversial. There is a small prescription charge of \$5 per item, currently capped at 20 items, or \$100, per year.

By contrast, and unlike the United Kingdom, most social care is part of a health board's allocation. The budget covers both care in people's own homes and residential and nursing care, both being subject to a needs assessment. Residential care is both asset and means tested, though the asset test is relatively generous by current English standards. Most of what in the United Kingdom would be defined as 'personal care' at home – bathing and feeding, for example – is included and is provided free, subject to the resources that individual district health boards decide to put into community-based services. Domestic care – cleaning and shopping – is means tested and charged for. The health ministry itself purchases care for people with disabilities under the age of 65. Although health and social care funding are combined at national level, that does not mean that they are necessarily well integrated on the ground across

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<sup>1</sup> Health expenditure trends in New Zealand, 2000–2010. New Zealand Ministry of Health.



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New Zealand<sup>2</sup> – a situation that bears some similarities to Northern Ireland in the United Kingdom.<sup>3</sup>

In addition, New Zealand has a no-fault compensation scheme for accidents and injuries – which includes self-harm – that is run through the Accident Compensation Commission (ACC). It is run on a fee-for-item-of-service basis and injected an additional \$2.6bn into health care in 2011/12, on top of the health ministry's \$13.7bn health and social care budget. A small part of this expenditure occurs in Canterbury's hospital (ACC makes up only around 1.5 per cent of the board's income), some in general practice, and some in other privately provided services ranging from specialist consultation and treatment to private physiotherapy, radiology and laboratories. One effect of ACC's fee-for-item-of-service approach is that New Zealand has an appreciably larger range of such services in the private sector than currently exists in the United Kingdom.

New Zealand ended its experiment with a formal purchaser/provider split in 2001, so that the previously semi-autonomous hospitals became the 'provider' arms of the new district health boards. In addition, since 2002, New Zealand has had primary health organisations (PHOs), which contract with district health boards to provide a range of primary and community services, part of their task being to channel health ministry money to general practice. In early 2013 Pegasus and the local PHO merged into one organisation.<sup>4</sup>

### *Local*

Canterbury District Health Board spent \$1.45bn in 2011/12 on its population of around 510,000. The board has 9,000 direct employees. But its expenditure employs approximately 18,000 people in total, many of them on contract. Ambulance services are not provided directly but by St John Ambulance. Much out-of-hospital nursing and community care also comes on contract – and to an unusually high degree by New Zealand norms – through organisations such as Nurse Maude, Access and Health Care New Zealand. Christchurch is the main city, and at around 400,000 accounts for the bulk of the population. But the board's geographical remit spreads westwards to the Southern Alps, about 150 miles or 240km north to Kekerengu and some 60 miles or 90km south to just beyond Ashburton. Its management team also runs the West Coast District Health Board on the other side of the Southern Alps.

The board has some 130 general practices in its area, 115 community pharmacies, 110 dentists, 100 or so aged care facilities (residential care homes) and more than 50 mental health providers. Christchurch is the main hospital, providing 650 out of the 800 beds that the board runs in total. It provides secondary care in Canterbury and much of the tertiary care for the whole south island, with a separately managed Women's and Children's hospital immediately adjacent to it. There is an elective orthopaedic and spinal injuries

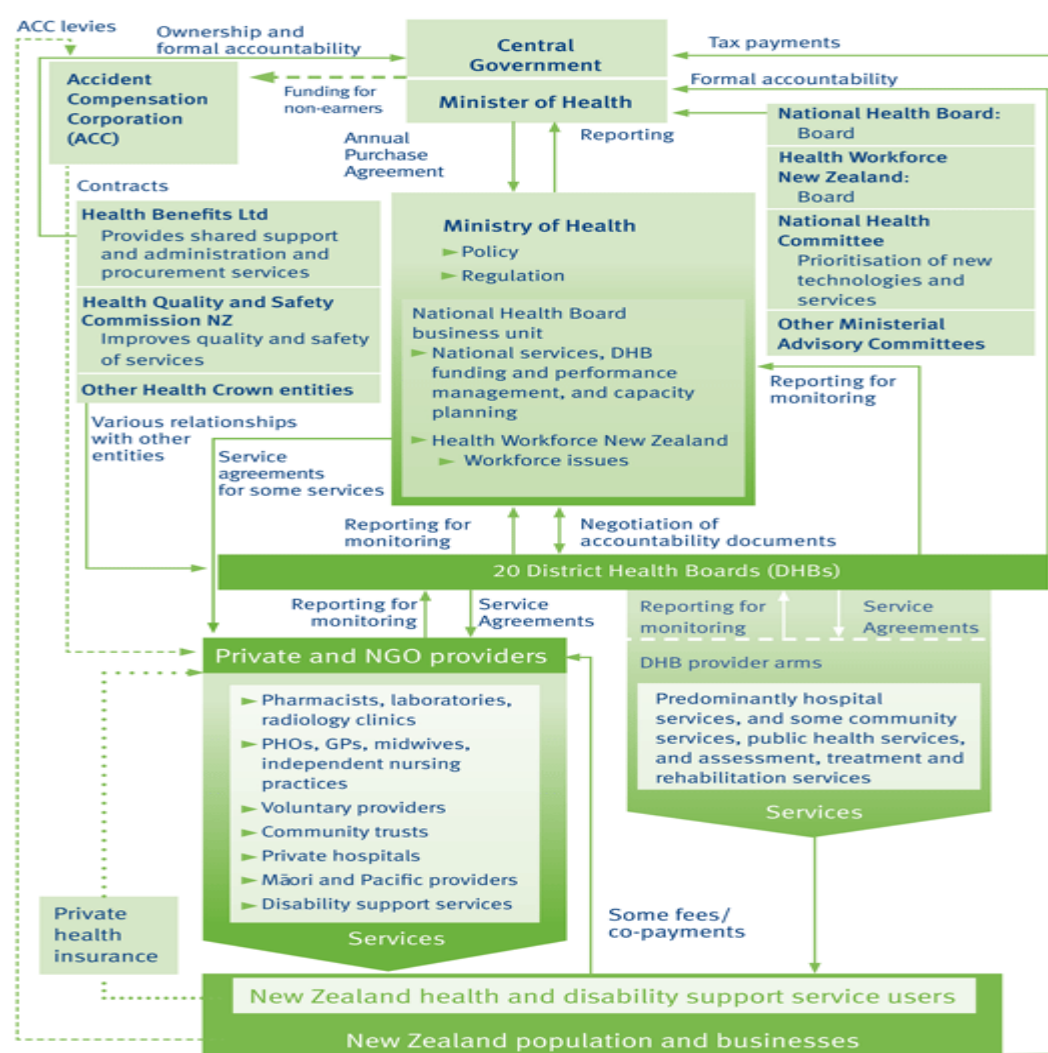
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2 Mays N (2012). *Long-term Care and Fiscal Sustainability: Treasury paper for long term fiscal project external panel*. [www.treasury.govt.nz/government/longterm/externalpanel/pdfs/ltfep-s4-02.pdf](http://www.treasury.govt.nz/government/longterm/externalpanel/pdfs/ltfep-s4-02.pdf)

3 European Observatory on Health Systems and Policies (2012). 'Health Systems in Transition', *United Kingdom (Northern Ireland) Health System Review*, vol 14, no 10; *Integrated Care in Northern Ireland, Scotland and Wales: Lessons for England* (2013). London: The King's Fund

4 [www.partnershiphealth.org.nz/what-we-do/pho-services](http://www.partnershiphealth.org.nz/what-we-do/pho-services)

**Figure 2: New Zealand funding and regulatory structures for health and social care**



Source: New Zealand Ministry of Health

centre at Burwood. A mix of services includes day case general surgery and gynaecology at Ashburton. The Princess Margaret Hospital in Christchurch provides a range of elderly care and mental health services and beds, and Hillmorton provides mental health, including forensic mental health services.

Canterbury's ethnic mix is more European than the other chief centres of population in Auckland and Wellington. Around 82 per cent of the population is of European origin, 7 per cent Maori, 6 per cent Asian and 2 per cent Pacific, the last three groups being younger and growing faster.

The population was increasing up to the earthquake and declined by only around 2 per cent in its immediate aftermath. Numbers are now back to pre-earthquake levels and the population is expected to continue to grow, even after allowing for a largely temporary surge of some 35,000 construction workers as the rebuild of the city takes place.

Overall, the population is ageing and doing so relatively rapidly by both New Zealand and most international standards. More than 13 per cent of the population is aged over 65. Canterbury already has the largest population aged

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over 75 of any New Zealand health board and the numbers are expected to rise from around 31,500 in 2006 to just short of 55,000 by 2026, with the number over the age of 85 expected to double to 15,000.

Concomitantly, the board's workforce is also ageing. With no compulsory retirement age, Canterbury's oldest working nurse is aged 80.



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## 4 Key enablers for change

There are essentially three enablers:

- first, the creation of the vision
- second, a sustained investment in providing staff and contractors with the skills needed to innovate, and supporting them when they do
- and third, new forms of contracting.

These interlock. They provide the background that helped Canterbury and Christchurch react so effectively to the earthquake, with the earthquake in turn creating a huge additional impetus in the changed approach.

Certainly among the leaders of the Canterbury Health System – whether board management, senior hospital clinicians, GP leaders, including those leading Pegasus Health, community pharmacy, mental health services, and senior executives in Nurse Maude and others who contract to provide out-of-hospital care – the mantra that there is only ‘one system, one budget’ is firmly held and articulated – as is the thinking that each dollar can be spent only once. Among these leaders, the view has without question become established that the constituent parts of the health system – the hospitals, general practice, community and laboratory contractors, social care – need to work together in new ways as a single integrated health and social care system if patient services are to improve and the budget be balanced.

As David Meates, the Chief Executive, puts it: *‘We need the whole system to be working for the whole system to work.’*

*What we have tried to do is not focus on the marginal edge of money that we have not got, and not worry about the million we are short. Rather we have tried to say ‘we have \$1.4bn here, and how we use it is what matters.’*

Dr Nigel Millar, Chief Medical Officer

That idea has also penetrated the various organisations by way of continued, sustained investment in building the managerial and innovation skills needed to achieve it, involving those who contract with the board and not just its employees. More than 1,000 staff have now taken part in these programmes. This is the opposite of an approach based merely on sending an organisation’s senior staff on a one-time course in such matters, and believing that that will make the difference.

An additional 560 people have now completed the eight-and-a-half day Xceler8 course aimed at developing clinical and other leaders across the whole health system, over and above the original 80 participants ahead of the 2009 Showcase. Approaching 200 have taken part in Particip8, a 14-hour course spread across three days. More than 250 have been on Collabor8, which involves two separate days three months apart and aims to develop a change project between the two workshops.

As part of the courses staff are asked to come up with projects for change. These are put through a ‘Dragon’s Den’ style review and improved with help

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*When you first talk to doctors about using lean and industrial processes, they say 'hang on a minute, we are not making cars or baked beans here. This is real people'. But a core part of lean is looking at it from the product's perspective. You don't want them stacked up in a pile, or falling off the production line or having defects. And that's even more important, when you think about it from the patient's point of view. Being in a pile waiting is not good. Falling off the production line is not good. Having a defect is not good. So we came up with the idea of not wasting the time of the product ... That if we valued the patient's time as the most important thing we would start to get results.*

Dr Nigel Millar, Chief Medical Officer

where needed from planners, funders and the business development unit. Those of a sufficient standard are then supported. They are not, however, subjected to the traditional full business case of cost/benefit analysis. While resource use is clearly taken into account, the underlying question is whether the changes proposed will improve the patient experience, and, ideally, improve staff experience at the same time.

The '8' programmes are an 'underlying enabler,' according to David Meates. *'They are fundamental parts of enabling, of developing the leadership capability, and continuing to expose and challenge those who work in health to look at the problems through a different context. They are the last thing we would cut if times get tough.'*

*'We want everybody in the health system to be part of changing the system. A deliberate strategy of everybody feeling, and being, part of change – believing they are the health system's architects.'*

In addition, the dozen-strong business development unit employs a small number of process engineers – typically six of them. Most did not originally have a background in health. But they work with clinical and other staff on particular projects – normally the projects that the staff themselves have volunteered as a better way to do things; for example, the redesign of the flow of business into and out of the hospital's radiology department, or the redesign of the way acute medical and surgical admission wards work. When necessary, additional such skills are hired from outside.

Quite how far down into the various component parts of the health and social care system both the vision and the skills-building have reached is not easy to judge. Not everyone wants to be a leader. Not everyone welcomes change. A consultant urologist bemoans the fact that, a year or two back when going to a mid-level manager with ideas for streamlining the service, he was greeted with the message that *'yes, we know all about Particip8, but we don't do that here'*.

Equally, the raising of expectations that individuals can change the system can produce frustration. One general surgeon who has significantly redesigned one part of the hospital's operation boils with irritation that he cannot persuade his colleagues of the merit of a much bigger change – although one day, he says, it may come.

On the other hand, there are views such as that of a senior respiratory physician, who on the face of it would not be a natural convert to such programmes or the idea of a grand 'vision' for the health system. When asked how far down both the vision and the enabling programmes have reached into

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the hospital, he replies: *'I don't know. But there are more people who feel they have a voice and an influence on what can be done than last year, and than two years ago, and than five years ago. And that is good.'* These twin enablers have produced changes big and small – for instance, the redesign of radiology cited above; a rehabilitation project that pulls patients out of hospital as soon as they are ready to go; a scheme produced by a secretary that will save tens of thousands of dollars by rationalising the letterheads used across the organisations; or a better way of handling desktop computer crashes in the hospital that was devised by a ward clerk.

Pauline Clarke, General Manager of Christchurch Hospital, acknowledges that:

*Some people are more engaged than others. Some are busy working in private practice as well. Or they have other areas of interest. Or they take a particular view that it remains the role of the secondary or tertiary consultant to do things this way, and they are not necessarily as welcoming or embracing of change as others are. Interestingly enough it is not necessarily an age thing. It is not that the old ones fit one category and the young ones another. So it is just a matter of encouraging, getting the information out and gradually, dare I say, converting people to this way of thinking.*

David Meates says:

*Some people will always be innovators, regardless. Five to 10 per cent won't give a damn. The rest will change when offered the opportunity to be genuinely involved in creating a different future. And it is that group that we are working to harness.*

The third big change was to reshape the contracting environment, both internally and externally.

Canterbury used to run its hospital using a price/volume schedule that was introduced as part of New Zealand's experiment with the purchaser/provider split. In essence it is the equivalent of the NHS tariff, paying hospitals per procedure. When the purchasing and providing sides of the health system were brought back together under the new district health boards in 2001, that provided the opportunity for the boards to decide themselves how to fund their hospitals. In Canterbury, that resulted in the price/volume schedule being scrapped. Instead the budgets for hospital departments have been built from the base up. This change is crucial, according to Carolyn Gullery, General Manager of Planning and Funding at the board since 2007.

The price/volume schedule *'gave the hospital a sense of entitlement over how much money it "ought" to have [in return for its work],'* she says. *'It basically said that "if you want more revenue, you have to do more activity".'*

*But it also meant they were not interested in engaging in things that made them more efficient or which reduced demand – because that meant losing resources. So we needed to shift away from that way of thinking. So everything we have done is to get people focused on managing resources and reducing cost; not chasing revenue. All of that old contractual framework drove the concept of chasing revenue. The position we want them in now is saying that 'I have the resources I need to deliver what we have to deliver. So how do I pull cost out of the system', rather than 'how do we generate revenue?'.*

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*Clinicians have really bought into the concept that resources are scarce and need to be managed. They can see that if one part is unfairly resourced, that impacts on everybody.*

Equally important, according to Gullery and Meates, is that clinical teams were told that if they changed the way things were done to create greater efficiency, they would not lose resources.

David Meates says:

*We say to the hospitals that 'there is a capacity we are funding you for. We are not funding you by procedure. We are wanting you to do as much as you can and do the right things. We don't want you to say we have done five patients more, so where is the funding? But equally if you have done five patients less we are not going to penalise you for that'.*

*We want people in hospital for less time, with lower readmission rates, and if we do that we have the ability to handle more patients for exactly the same resource – rather than having the debate about costs and budgets and those sorts of things. And people start getting hooked on this because it is not a win/loss situation. If you make things work more efficiently your working life gets better and so does the patient's life. There is no pain in this, only the ability to make it better for the patient and, incidentally, also make your own working life much more rewarding.*

*As soon as you raise the concept of taking money away when it is saved, you have removed all the incentives for doing the right thing, or for innovating or creating. If you say there is no threat of that happening ... the way they work and the productivity behind it goes up.*

*So for example, we want more virtual outpatients, or direct consults on the phone between consultants and GPs. Under the traditional funding mechanism, that doesn't get captured. But it is where we want people to spend more of their time – because if that happens we end up having fewer people in hospital. So that is the value proposition.*

*As soon as we call something a saving, savings have really negative connotations in health. You work your butt off and make it really efficient and the reward for that is your budget next year is less.*

*So we say, 'do the right thing and you will have the resourcing to do it. It will be very different as a way of working for today from yesterday. But we are giving you the flexibility to do it'.*

Pauline Clarke says that however much tariffs may in theory motivate organisations and managers, 'in my limited experience I have never found that medical, nursing or allied health staff were motivated by the price/volume schedule. Ever. What they are motivated by is just wanting to provide care to people and having the resources to do it.'

*The biggest waste we have in our health system is patients' time. Historically we have designed health systems that build in waiting at every point and which bounce patients from one part of the system to another. By focusing on removing waiting we can make far better use of the existing resource. We are convinced that 30 per cent of what we do is wastage.*

David Meates, Chief Executive

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These changes have happened not just because of the change to the funding mechanism but because of other developments – such as HealthPathways, detailed below – which have helped make doctors' lives more rewarding. So there is a level at which the changes in Canterbury have reduced the conflict between managers and clinicians by appealing to the professionals' pride in their work and in their ability to achieve more.

If scrapping the price/volume schedule was the big internal contracting change, there was an equally large change in the external contracting environment.

Canterbury switched the nature of its contracting for a whole range of external services – district nursing, mental health, professions allied to medicine ('allied health' in New Zealand parlance) and laboratory services (where the board originally had its own service and two external contracts). Instead of input-defined, competitive and often fee-for-item-of-service contracts with penalties for under-performance, it moved towards a form of 'alliance' contracting.

This is an adaptation of a model used in the construction industry. It essentially assumes that multiple organisations can achieve better things by working together on agreed pain/gain contracts in which 'everyone wins, or everyone loses'. It involves a recognition that if one partner is struggling it is in the interest of the others to help solve the problem. It is a collective contract with pre-agreed gains and losses dependent on the overall performance of all the parties, rather than with penalties solely for whoever fails within it. It involves open book accounting.

*'We have moved as much as possible away from fee-for-service, demand-driven expenditure, into more capacity-based contracts designed to create a joint incentive for both the referrers and providers to manage the cost,'* Carolyn Gullery says.

For example, in Canterbury's acute demand management programme and its community rehabilitation and support service (see below) an alliance type model is used. Contractors are not-for-profit so the financial sharing of pain and gain that would be typical in a construction contract is absent – though the labs' contract, which is with a for-profits company, does retain an element of that.

All the contractors have agreed margins and a fixed amount of money to work with. Their performance is visible to the other partners in the alliance. Each can thus be benchmarked against the others and 'profits' go back into the system in ways the alliance partners agree in order to improve services. The agreement rules out litigation as far as it can. Problems and tensions – and they certainly arise within these contracts – are to be solved as closely as possible at the point of delivery and by the contract's management teams before being progressed to the alliance board. If still unresolved, mediation is preferred to arbitration. Failure does still carry the eventual risk of loss of contract. However, Carolyn Gullery says that because the alliance as a whole is responsible for the contract, *'the first thing we do when there is a problem, and because this is an alliance, is ask "How can we help? You are not performing. What's the problem? Can anyone else in the alliance help?" And we put resources in. Because the idea of an alliance is that nobody fails. We either all fail or all succeed. So they compete on quality and cooperate with keeping each other going. And the clients have some choice, so to an extent they are competing for the client.'*

The idea is to create a 'high trust, low bureaucracy' approach to contracting that encourages innovation over the means of delivery because it is the broad outcome – 'What is best for the patient? What is best for the system?' – that

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is the overarching goal. Interviewing managers in the various alliances sees them volunteering, unprompted, the proposition that this is a 'high trust' environment in which problems are aired rather than hidden from competitors and the funder.

*Behaviour has generally improved a lot. People are a lot more trusting, a lot more willing to listen and learn and then contemplate and come back with a different view ... We are in a very different health system now.*

Canterbury GP

The alliance concept also helps drive home in the community setting, and in the interface between the community and the hospital, the idea that there is only 'one system, one budget'.

Even within the alliance contract, however, an element of competition remains as patients are, within certain constraints, still able to choose a provider. GPs are able to decide which of the three providers they will refer to; clients who have used the service before, or who know relatives or friends who have, can express a preference for the same or a different supplier. Otherwise patients are allocated in turn in equal numbers to the providers.

Alliance contracting involves the board giving away some of its power to the partners in the contract, Carolyn Gullery says. The board is only one part of the alliance. But the gain is that *'we now have a whole heap of people working with us to make things work. So you have gone from being solely accountable to having a collection of people trying to make the whole system work.'*

The approach has been favourably reviewed by New Zealand's Auditor General.<sup>1</sup>

Two further elements are important. The first is the so-called Canterbury Initiative, which emerged back in 2007 as, effectively, an operational arm of planning and funding. It brought together Carolyn Gullery and two very experienced GPs, Drs David Kerr and Graham McGeoch (who is also a consultant in hyperbaric medicine at Christchurch Hospital), along with Bruce Penny, a civil engineer with project management and facilitation skills. It has helped drive many of the changes listed below and remains highly active. The other is the Canterbury Clinical Network, which essentially brings together all the key leaders and organisations to reinforce these approaches.

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<sup>1</sup> Provost L, Controller and Auditor-General (2013). *Health sector: Results of the 2011/12 audits*, p19. [www.oag.govt.nz/reports/2013/health-audits](http://www.oag.govt.nz/reports/2013/health-audits)



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## 5 Innovation and change in Canterbury

Over the past five years the Canterbury health system has seen a bewildering array of initiatives. Some have roots that go right back into history. Some were initiated by Vision 2020 and projects launched following participation in the various '8' programmes. Some were triggered, or given new urgency and salience, by the earthquake – and were then implemented at speed. The key changes include the following.

### *HealthPathways*

This is arguably one of Canterbury's most innovative and most effective changes. At a superficial glance, HealthPathways looks very like a set of guidelines for treatment, or the Map of Medicine. But in their application they are much more than that.

Developed from 2008 on, HealthPathways are in essence local agreements on best practice. They are created by bringing together hospital doctors and GPs in order to hammer out what the patient pathway for a particular condition should be. They spell out which treatments can be managed in the community; what tests GPs should carry out before a hospital referral; where and how GPs can access such resources (including referral to other GPs whose practices have particular skills – spirometry, for example, or the removal of skin lesions or the insertion of IUDs – not things that all GPs undertake).

Pathways grew out of the Health Ministry's drive in 2006 to cut waiting times to six months, referred to above, and the parallel introduction of an early referral management system under which hospital doctors reviewed referrals, rejecting those they believed to be unsuitable.

It is another example of a Canterbury solution being built out of a crisis. Dr Graham McGeoch, one of the key instigators of HealthPathways, says that GPs were finding their referrals declined in the drive to control waiting times, but without really knowing why.

From the GPs' point of view, he says, *'it felt like an arbitrary collection of clinicians would look at the referrals and, without any rules – though in fact there were some – decline a random selection. And quite a few hospital consultants were reluctant to subscribe to this approach.'*

This was happening just as 5,000 patients were being thrown off the waiting list. A small group of hospital doctors and GPs from Pegasus Health and Partnership Health, the local primary health organisation, trawled through these patients. *'We went through the 5,000 patients and we managed a lot of them back into the system,'* Dr McGeoch says. *'A third went back into the system; a third were managed in other ways – so they were sent back to the GP with advice, or had a private investigation, or went to allied health professions. And about a third really did not need to be seen [at the hospital] at all. There was a question that the GP had which could easily be answered.'*

*So we realised there were a number of things that could be done to improve the interaction between hospital and general practice, and that the only way hospital services can manage demand is by working with their referrers. Not just imposing a gateway, without putting a whole load of other things in place.*

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*We started sitting down with groups of hospital specialists and GPs with a blank whiteboard and saying how can we do this better?*

Although far from an overnight transition, what emerged were HealthPathways, an electronic request management system [ERMS], and HealthInfo, a patient-centred website that provides essentially the same information as HealthPathways but in lay language. HealthInfo is shorn of the medical shorthand and jargon that populates the HealthPathways site, which is written as tightly as possible so that a GP can consult it on screen while listening to the patient.

Outsiders tend to look just at the published pathways, Dr McGeoch says. But he stresses that it is the process by which they are agreed that is crucial. He and those from general practice who have drawn them up say that what is essential is the specialists and the GPs discussing what the problems are – too many referrals, too few, the wrong sort, and so on. The trust that is gradually built from these exchanges is crucial, they say.

The sessions do produce 'robust conversations', according to Vince Barry, Chief Executive at Pegasus Health. *'When you put the hospital practitioners and GPs in the same room they have often known each other's names but not known each other at all. There had been relatively little interaction between hospital-based and community-based clinicians. They had lost an understanding of each other's worlds. So putting them in the same room was quite an experience. They had to be polite to each other. To be honest with each other. And they had to listen. Which was really important.'*

*It's quite easy to be dismissive of people you don't know – specialists saying of general practitioners 'they send terrible letters, you can't read them, etc, etc'. And they were triaging to see people because the letters were bad – 'we should see this patient because the GP is obviously incompetent'. While when they got a really good covering letter from the GP who knew what they were doing, and had much greater acuity, and they would say 'oh, well, that's clear, so they [the patient] can wait' – so all sorts of absurd perverse behaviour was going on.'*

On the other side, GPs were complaining, 'why are you following up my patient for five years when I could be following it up, and you could be seeing the patient I can't get in?'.

Initial conversations were purely between doctors, because *'no clinician will have a go at a fellow clinician in front of another profession,'* one GP says. *'You end up with something politically correct where everyone smiles but you don't get to the heart of the issue. And that hasn't been easy, because clinicians work in a multi-disciplinary way and people like to be involved.'*

In the later stages of drawing up a pathway, however, nurses, allied health professionals and funders would be brought in. Once a pathway is agreed, *'we then put the services around it'*.

The pathways, in the main, follow international best practice, Dr McGeoch says, so they are evidence-based. But, he stresses, *'they are local agreements on best practice. They are what our local general practitioners and hospital specialists think is right'* and they are built around the resources available. *'We try to make sure they follow the evidence and best practice. And where they don't – usually because we haven't got the resources – we try to make that very explicit.'*



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*'So for example we can't deliver colorectal investigations to international clinical best practice. We don't have enough endoscopists or other facilities.'*

So Canterbury uses a scoring tool that sets a higher threshold for such investigations but states, in the pathway, that that is what is happening. *'So we are very explicit about what is evidence-based, what is local specialist opinion-based, and what is resource available.'*

The pathways spell out precisely what should be done, and where the resources to do it are available, and what is and is not publicly funded. Referrals go through an ERMS, which means they don't get lost. There is an audit trail. GPs and specialists review referrals, rejecting those that have not followed the pathway but with a reference to it, and to what should be done instead, either to remove the need for referral or to work the patient up. GPs are given feedback on their referral rates compared to others. Rates of rejected referrals have declined over the years. For radiology there is a reward system where once 80 per cent of a GP's referrals are accepted they are not routinely reviewed, merely sampled less frequently.

There are too many pathways for all of them to be audited. *'But we audit regularly where the method of delivery has shifted more towards the community,'* Dr McGeoch says.

There are now more than 480 pathways. They are all routinely reviewed at one year, and then once every two years. But they can also be changed when services move because of earthquake repairs, if demand forces a tightening of the referral criteria, or if powerful new evidence emerges. In total more than \$500,000 a year is spent on devising and monitoring the pathways and keeping them up to date – another example of sustained investment in change.

Changes the pathways have brought include some GPs being trained to remove more complex skin lesions without referral to hospital. Spirometry is now available in general practice. More cases across a wide range of conditions are investigated and as a result sometimes treated entirely in general practice. More patients arrive at hospital when they do need to be seen there, more fully 'worked up' with investigations such as radiology already undertaken – with the radiology being privately provided as well as through the hospital, but publicly funded if the request conforms to the pathway.

The result is that increasingly *'specialists are seeing the patients who really need to be seen,'* Dr McGeoch says. *'And they are finding that hard work too. Because all the patients turn up, but they really need to be seen. And they are all important and they all need surgery or treatment, and that is hard work in a clinic. So we are making the hospital doctors work harder. But we are also making general practice work harder because they have to do all the early stuff, investigate patients better, work them up better, make sure their referrals meet the criteria. But it is more rewarding on both sides.'*

*We are trying to reach the position where the specialist needs to do what only they can do.*

Dr Graham McGeoch

Given that GPs in Canterbury are independent practitioners, and given also that patients pay to see the doctor, it is worth exploring the drivers that have seen the vast majority of GPs adopt HealthPathways. Many are also willing to refer

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patients from one general practice to another for some of the more specialist treatments or investigations now provided in the community.

Pathways in part appeal to professional pride. They have improved access to hospital for patients who need to be seen there. Those involved also argue that they make for a better working life in general practice, with GPs having the satisfaction of being able to do more.

One of those involved says: *'There's also a real incentive to do the job once and properly. Because each time the patient comes in they pay a fee, and the patient is not excited about that, or the GP forgives the fee and the GP is not excited about that. And if you get a referral declined, it doesn't look good for you and it doesn't look good to the patient – because you made a plan for them, and the plan failed. A lot of GPs take great pride in making sure that all their referrals are accepted.'*

Furthermore, Dr McGeoch says, *'GPs are not short of work, even though they are 50 per cent funded by patients. But GPs often feel they are working way under their potential. So to be working to a higher level is rewarding, and to know that work is going to be approved of by their peers who might be more specialised than them and know a lot more about that particular topic, is most important as well. We might only see that condition once every few years. So you either go away and read the books and then try to manage it, wondering whether you have read the right text book, or you go to HealthPathways and it is all there.'*

Referring to another GP for skin lesion removal, for example, might be thought to risk losing a patient in a system where the patient fee matters. But set against this is the fact that treatment in the community can be more convenient for the patient than treatment at hospital – and it has cut waiting for certain conditions dramatically. In 2007, 2,000 people waited an average of 196 days – more than 6 months – to get skin lesions removed. In 2011, 4,100 waited an average of 53 days, a reduction in waiting time of almost three-quarters despite larger volumes of patients being treated. Far more cases of heavy menstrual bleeding are now treated purely in the community.

With virtually all GPs now following the pathways, patients have also learned that they won't get different treatment, or swifter access, or treatments that their own GP will not provide, by switching to another doctor. That, in turn, has made cross-referral to another GP for a specialist test or treatment feel less threatening.

As one GP puts it, they are able to say: *'Here's what we do in the public system and how we do it. You are in the prime of life, you can go private. There is no longer, or much less, of a temptation to give in to the patient who shouts loudest, or refer them to get rid of them when you know that the referral will be rejected if it does not follow the pathway. So there is professional pride [that comes from using the pathways], but there is also the feeling that you are dealing with patients in an equitable manner. And that appeals.'*

Equally, when questions arise about referrals when they reach hospital, hospital doctors can discuss cases directly with the GP, with each able to view the agreed pathway online during the conversation.

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## *Acute Demand Management System*

ADMS is aimed at preventing hospital admission. The system dates back to 2000. It provides both a means for general practice to give patients support so that they do not need to go to hospital, and a means for the hospital to discharge patients from the emergency department, or from medical and surgical admission wards, without the need for a hospital stay.

For any patient who would otherwise have been sent to the emergency department or admitted to hospital, general practice teams can access funding from the board, and services, in order to prevent that. Funding allows observation and follow-up of unwell patients without them having to pay repeat consultation fees. It also allows repeat home visits for the elderly unwell, and, for example, observation of a child with gastroenteritis, while teaching their care givers how to look after them.

GPs can call on the ADMS for patients with chest pain, cellulitis, or exacerbations of long-term conditions – patients who may need observation or some tests rather than an admission. In the hospital, two nurses seek to ‘pull’ patients out of the emergency department to prevent an admission – identifying those, for example, who simply require nursing for mild pneumonia or whose intravenous antibiotics, or treatment for wound infections, can be delivered at home. ADMS is a short-term programme – typically three to five days. Started more than a decade ago, around 12,000 patients a year were receiving the service in 2011 when the earthquake struck. Since then the numbers have been ramped up to approaching 24,000 patients annually. Most referrals are from general practice.

Elements include, for example, a specific programme for chronic obstructive pulmonary disease (COPD). This was introduced after analysis showed that once patients reached the emergency department they had very high admission rates. The analysis also demonstrated, however, that the peak of emergency attendances were not, as might have been expected, out of hours or at weekends but during the normal working day – and particularly on a Monday when patients presented having struggled through the weekend short of breath. Patients are given care plans and something as simple as a fridge magnet which has their normal oxygen saturation and exercise tolerance on it. That allows St John Ambulance, the ambulance service, to know what is ‘normal’ for the patient, so that – supported by telephone access to a respiratory physician – it can decide whether the patient needs to go to the emergency department, or to the 24-hour surgery for observation, or can be handled in the community by the GP or by acute demand management. In the winter of 2012, Canterbury estimates that some 40 per cent of COPD patients who would previously have been taken to the emergency department were diverted to other forms of care.

## *Community Rehabilitation Enablement and Support Team*

CREST is aimed at reducing length of stay once in hospital, reducing the chances of readmission, and delaying admission to aged residential care – for which the district health board also pays.

The service had been planned, but not implemented, before the February 2011 earthquake. It was launched at speed thereafter to help cope with the loss of hospital and residential care beds. It was rolled out in three weeks using a

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model drawn from the Waikato district in New Zealand that is similar to many intermediate care programmes in the United Kingdom.

Case managers seek to 'pull' patients out of hospital, with clients receiving varying levels of support of up to four visits a day, seven days a week at the most intensive. Goals are agreed with patients and, depending on severity, the service lasts from two to six weeks, though typically four to six weeks. The model focuses on rehabilitation, the support being not just medical or nursing but assisting patients in being able to shop again, reconnect with friends and rebuild social networks. As one case manager puts it: *'Why scrub the shower to death once a week when it has been used only twice? Do that once a fortnight and use the time to get them walking to the post box again, or the shop, or reconnecting with friends.'*

### *Falls management*

This seeks to reduce falls by eliminating trip hazards – in hospital, at home, in care homes – and raising vitamin D intake. Again this was introduced after the 2011 earthquake. It followed analysis showing 40 falls a week requiring medical attention among the over-75s, 60 per cent of which resulted in a hospital admission. Referrals are heading towards 2,000 a year and the service is too new yet to be certain of its direct impact, as opposed to a natural variation in numbers. Initial results do, however, suggest a 7 per cent reduction in the number of over-65s arriving at the emergency department following a fall.

### *Medication management*

Another post-earthquake initiative that links in to ADMS and CREST, it uses pharmacists to review the medication of patients taking multiple therapies in their own homes. The aim is to reduce medication-induced admission to hospital or rest homes.

### *Hospital changes*

A wide range of changes have taken place within Christchurch Hospital driven by the 'vision' of where the health system needs to go, the continuing impact of the '8' programmes, the existence of a business development unit that includes process engineers, and good use of IT. The triple effect of these changes has been to reduce waiting time for patients, make the hospital more efficient, and allow more care to take place closer to home.

For example, detailed analysis of patient flows and how consultants were spending their time, along with use of queuing theory, has produced a huge improvement in the efficiency of the hospital's radiology department. From waits of two days for an X-ray result or scan being not uncommon, 70 per cent of requests are now reported within an hour. Radiologists report much higher job satisfaction. *'When we presented this, someone from another department said "this is outrageous, you are simply making people work harder";' Dr Nigel Millar, the board's Chief Medical Officer says. 'But the radiologists turned round and said, "no, this is much better. We actually enjoy it. We can go home knowing the job has been done."*

The hospital has radically changed its approach to cholecystectomy – gall bladder removal – after analysis of what was happening to patients admitted

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with gallstones. Saxon Connor, a general surgeon at the hospital, says that aside from the small percentage who needed emergency surgery, *'we would see them, give them antibiotics, put them in a ward for an average of five or six days until their pain settled and send them home. But when we looked at the data, within three months most were being readmitted back into the emergency department, often five times as they waited for an elective operation. The waiting list on any given day was around 300 – and that is a year's work for us.'* Theatre availability and other elements of the service were reorganised to do many more acute cases on first admission. The change saved 3,000 bed days a year in the hospital for use for other purposes, and has reduced the elective waiting list for cholecystectomies to 100, Saxon Connor says – while saving patients long waits, recurrences and pain. This service currently operates only five days a week, though ideally he would like to run on all seven days.

The hospital also now runs a 12-bed acute surgical assessment unit to which GPs can refer directly, bypassing the emergency department, aided by the use of HealthPathways. Assessments by consultant surgeons, who do two rounds a day, lead to around a third of patients going to theatre, a third going home armed with a treatment plan and number to call for direct return if there is a problem thus bypassing the emergency department, and a third having a short-term admission. This is in part possible because the radiology department handles scans and X-rays swiftly. Saxon Connor says this has, again, released about 3,000 bed days a year. Readmission rates are low – one or two a month – or 1.7 per cent in a survey of 630 patients conducted over 10 months in 2008 and 2009. Fewer than 5 per cent felt that their pain was poorly managed.

A sophisticated computer programme now tracks bed and patient activity in the hospital and analyses it, allowing acute demand in the hospital on any given day to be predicted three days in advance with something like 99 per cent accuracy. That allows better workforce planning – how many nurses and other staff need to be on when and where – and better management of peaks in demand.

When new reporting requirements on pharmaceutical management were introduced by the government, the chief pharmacist calculated that some 26 new pharmacists would be needed to implement them. *'When we went to the board and told them, they threw their arms up in horror and said "no way",'* according to Paul Barrett, the Pharmacy Services Manager.

Instead the business development unit was recruited, along with some outside expertise, to examine the existing staff's workload and workflow and the value it added. The result was a major restructuring of the way pharmacists worked, with new standardised forms, and a new team approach that the pharmacists themselves say has significantly improved both the service and job satisfaction for the addition of just two pharmacy technicians.

Underpinning all these changes, both in the hospital and in the community, is good use of data, good IT and well-organised general practice.

### *24-hour general practice*

A key strength of Canterbury's health system is general practice. GPs take direct responsibility for out-of-hours care, with a centralised nurse triage system, along with a number of centres that provide extended opening hours.

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Christchurch itself has two 12-hour-a-day surgeries, which provide extended care including radiology and fracture care. A smaller emergency service is provided in Ashburton, one hour south of Christchurch, while rural areas, with the support of the primary health organisations, also have 24-hour GP and nurse cover. The 'jewel in the crown' so to speak is the Pegasus purpose-built 24-hour surgery – more accurately a care facility – staffed chiefly by local GPs. In concept it is not dissimilar to the purely clinical element of the 'polyclinics' that Lord Darzi proposed in his 2007 report on health care for London.<sup>1</sup> The 24-hour surgery has a 5-bed observation unit, X-ray, bloods and a range of other diagnostic tests. Over the years – backed by HealthPathways and telephone access to hospital specialists – it has increasingly handled more complex cases. It now sees 75,000-plus patients a year, almost as many as the 80,000 attendances at the emergency department. It takes more patients out of hours and at weekends than the emergency department. This is despite a non-subsidised visit to the 24-hour surgery costing \$75.

Quite why patients choose to go to general practice and pay, rather than attend the emergency department for free is not an easy question to resolve. The answer probably lies in a mix of convenience and culture, and the relative affluence of Canterbury's population. Because the 24-hour surgery takes less serious cases, waits are shorter and surroundings more pleasant than in an emergency department. But there is also the cultural factor that New Zealand patients are used to paying for access to general practice. They are used to getting themselves to out-of-hours care, rather than expecting a doctor's visit. Whatever the reason for its popularity and use, the 24-hour surgery – reflecting the degree of organisation of general practice in Canterbury in general but Christchurch in particular – is an important contributor to the changes the health system has been able to make. For a range of less serious exacerbations of pre-existing conditions, the ambulance service can now take suitable cases to the 24-hour surgery rather than the emergency department, with such cases now running at around 1,000 a year.

The attendance fee is covered when patients who would otherwise have gone to the emergency department are diverted to the 24-hour surgery. Some GPs feel that they are starting to work beyond the limits of their expertise as more complex cases are handled by the surgery, an issue the surgery plans to address by additional training.

### *Electronic Request Management System*

Launched in 2010, ERMS is in effect an electronic referral system between general practice and other parts of the system. It replaces fax requests and letters, which can only too easily be lost or mislaid. GPs can use it to request tests, outpatient referrals, community assessments and specialist advice. It is used to cover requests not just for health board services but ACC and private referrals, so it operates seamlessly across the various parts of Canterbury's health system.

A distinguishing feature of ERMS is that, unlike some other electronic referral systems, the data goes to a central repository and is available for re-routing.

Its existence also makes it far easier to review GP referrals, test requests and the like, allowing individual feedback and education to GPs on their practice.

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<sup>1</sup> *Healthcare for London: A Framework for Action* (2007). NHS London



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Furthermore it is building into a database of activity that offers rich possibilities for further analysis of what is happening within the health system – with a view to improving its operation and getting the right capacity in the right place.

Designed by GPs and hospital specialists, ERMS was brought in with no financial incentives for GPs to use it. Increasingly, however, they do, because it makes life easier. As one of those involved in its conception puts it: *'If you design it right, people will use it.'* Almost all practices now do. Some 70 per cent of referrals now go through it. The system is installed on the GP's desktop and referral request forms are pre-populated from the GP's clinical system with information that includes the patient's condition aligned to the criteria in the HealthPathway. An evaluation by the National Institute for Health Innovation at the University of Auckland in 2011 concluded that even then, when less use was being made of it, the system had already achieved *'substantial transformation of referral management in the Canterbury region.'*<sup>2</sup> A more recent study by the same authors describes it as New Zealand's *'most comprehensive approach'* to the management of e-referrals.<sup>3</sup>

### *Electronic Shared Care Record View*

Another post-earthquake development, and a classic example of how a crisis can get very thorny issues resolved quickly, is the eSCRV (Electronic Shared Care Record View). It is not yet a full electronic health record, rather a portal that draws on existing hospital, GP and other data to provide a very full summary care record that, compared to what is available in many other parts of the world, is still pretty rich. Because it is modular, building on data in existing systems rather than replacing them, its reach can be extended over time.

It contains common patient identifier and demographics, a summary of recent and long-term medical conditions, diagnostic codes, hospital visits, lab and X-ray results, discharge letters, medication dispensed in the community and allergies, along with details of community care, including who is providing it and the type of care. It is accessible across general practice, community nursing and pharmacy, and the hospital. It does not contain hand-written notes, actual scans or X-rays. It does not yet provide a full record of hospital prescribing or community nursing notes, though that is starting to be rolled out.

Its rapid adoption stemmed from the earthquake when some practices were destroyed, others were out of action for varying lengths of time, and some held the GP record on computers within their own building rather than on external servers, thus making them inaccessible. Patients were turning up at other practices – and indeed in other parts of the country – with no medical notes available, no medication and no idea what pills they were on.

Some initial planning for this had taken place before the earthquake. *'I hoped we could get it in place in six weeks,'* Dr Nigel Millar said, *'in fact it took six months'* – a timescale that would be the envy of anywhere else in the world. Under pressure, key issues that have plagued the introduction of shared records elsewhere – who owns the record, access and privacy concerns – were settled at speed. Patients can opt out of all or part of the record.

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2 Warren J, Gu Y, White S, Day K, Pollock M (2011). *National eReferral Evaluation: Findings for the Canterbury Initiative*. Wellington: Ministry of Health.

3 Warren J, Gu Y, White S, Day K, Pollock M (2012). 'Approach to health innovation projects: learnings from eReferrals'. *Health Care and Informatics Review Online*, vol 16, issue 2, pp 17–23.

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Still a work in development, one doctor locally has described it as '*the best thing since the invention of the stethoscope*', the information available, for example, giving doctors at the 24-hour surgery more confidence to handle more complex cases than in the past without the need to send patients on to the emergency department. It is argued that the record increases safety, allows faster diagnosis, prevents unnecessary repetition of tests, allows quicker referral to the right provider and saves patient and staff time. The patient does not have to endlessly repeat their details as they move around the health system, staff do not have to chase or check test results by phone.

## *Finance*

In the early 2000s Canterbury was running a deficit of more than \$21m on a \$650m turnover, a situation that recovered by 2005/6 to a surplus of a little more than \$3m before deteriorating again to a deficit approaching \$17m on a turnover of just under \$1.2bn in 2007/8.

Since then the board has undertaken its 'transformation' to a more integrated system of care, providing more diagnostic tests and many more services outside of hospital – all of which cost money.

For example, HealthPathways costs in excess of \$550,000 a year to devise, monitor and maintain. The Canterbury Initiative – the group of hospital and general practice clinicians, funders and planners who help facilitate change programmes – costs an additional \$860,000 a year with the initiative also funding an extensive GP education programme independently to that run by Pegasus. Some \$8m a year is budgeted for the acute demand management programme, and a similar sum, and rising, is spent on CREST.

Despite this additional expenditure on new initiatives, the board was on track to make an \$8m surplus on its \$1.4bn turnover in 2010/11, just ahead of the earthquake – although the quake, needless to say, changed that into a deficit.

Of the 200 buildings owned by the board, 21 have been abandoned. Services are still being delivered out of 30 structures judged to be at risk in another earthquake, while a further 30 have critical structural weaknesses, according to the board. Extensive and continuing repairs will be a feature of the Canterbury environment for many years to come.

Over the two financial years 2010/2011 and 2011/12, the district health board absorbed an estimated \$25m of immediate earthquake costs while the ministry injected \$26m. For 2012/13 a deficit of \$40m has been agreed, and the board says it is on course to break even over the next two years. The complexity of the insurance process, however, which will govern what money becomes available when for either rebuild or refurbishment may well produce some strange effects on the board's apparent 'bottom line' figures over the next few years, an analysis that the Auditor General has noted and supported.<sup>4</sup>

The investments outlined above, for example, in HealthPathways, CREST and acute demand management took place at the same time as the hospital staff were being told that if they changed the way they did things, and generated efficiencies and savings, they would not be penalised for that by having money taken away from them.

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<sup>4</sup> Provost L, Controller and Auditor-General (2013). *Health Sector: Results of the 2011/12 audits*. [www.oag.govt.nz/reports/2013/health-audits](http://www.oag.govt.nz/reports/2013/health-audits)



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This sounds like financial alchemy. So how was it done?

Canterbury, like other health boards, is funded on a population basis, with the level of growth decided by government. Its revenue from the Ministry of Health since 2007/8 has risen from \$1.05bn to \$1.37bn in 2011/12 – a \$350m or 30 per cent increase in cash. Over these years, real terms health spending increases in New Zealand have bounced around at between 3 and 6 per cent a year. So there has been a real terms increase in funding. In addition, funding from ACC, which makes up a relatively small part of the board's income – around 1.5 per cent – has also grown.

This growth has provided some headroom, though offset by the usual pressures on health spending – an ageing population, plus the costs of medical advance and pressure to meet government targets on waiting times and access to elective care.

In addition, according to Carolyn Gullery, General Manager of Planning and Funding, the board reviewed spending in a number of areas, including community support workers, pulling out low-value spend on patients who no longer needed support but whose cases had not been reassessed. That alone released around \$360,000. Support was switched to those in greater need, with the aim of reducing reliance on residential care by keeping people longer in their own homes – a programme since significantly boosted by the creation of CREST.

Some surgery that had been outsourced to the private sector was pulled back in-house, saving money. Alliance contracting was introduced, providing non-governmental and for-profit providers with a degree of certainty about their income and margins, subject to performance, while removing fee-for-item-of-service contracts that were driving expenditure upwards. That, according to Carolyn Gullery, saved several million dollars over the years.

The key aim of the changes – both in terms of load on the hospital and demand for aged residential care – was to 'change the rate of growth,' Carolyn Gullery says. *'Rather than pull money out, you aim to change the rate of growth. So next year when our funding goes up, because it usually does because our population has changed, you have some play because you have changed the trajectory. And that allows you to do more new things.'*

*'And as we started to do better home-based support, and more restorative services, so that people do not end up in residential care, we started to see big dollars fall out of the system.'*

Asked if this approach could be taken in a period of little or no growth – the scenario a number of industrialised countries are facing – her answer is yes. *'There are always areas where you are not spending well, and steps you can take to alter the trajectory of demand.'* But, she says, of a programme that has taken more than five years to date and which is still maturing, with little or no growth *'it would have taken longer'*.

In April 2013, Canterbury was one of only two district health boards to be rated by the New Zealand Auditor General as having a 'very good' control environment in 2011/12. Its financial information systems and controls were rated as 'good' – no district health board got a 'very good' top rating. It became the first to be rated as having 'very good' service performance information and controls, a ranking achieved by only 4 per cent of all of New Zealand's public entities.<sup>5</sup>

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<sup>5</sup> *Ibid.* pp 21–5.

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## Performance

There is no doubt that Canterbury has taken significant steps to provide care that is more integrated between hospital, general practice and the community, essentially by changing the interface between the hospital and primary care. Furthermore, appreciably more care is being provided 'closer to home'. It is clear that the health system as a whole is operating notably more efficiently than it was five years ago.

Measuring that, however, is not easy. There is plenty of process data to show more activity outside hospital. More than 35,000 referrals were made for community radiology, and paid for by the board, in 2011/12, without the need for a hospital appointment. Ninety per cent of those were accepted, indicating close adherence to HealthPathways. Some 1,500 spirometry tests were conducted in the community. More than 2,200 skin lesions were excised without the need for hospital attendance. In the eight months after it went live, more than 1,000 patients had their medication reviewed through the new Medication Management Service. And so on.

Such activity, however, does not in itself demonstrate higher-quality care or good value for money. One measure Canterbury has devised for itself is to measure waiting time saved for a selection of its most effective pathways, for example skin lesion removal and heavy menstrual bleeding. Over three years, Canterbury can claim to have saved patients 1.5m days of waiting – a measure that provides an impressive headline, although it is not one that can be used cumulatively, for ever, to illustrate impact. Neither does the fact that waiting time has been saved necessarily demonstrate value for money.

Part of the problem is one of definition. Canterbury's argument is that it is delivering integrated care. There is, however, no agreed definition, nationally or internationally, on precisely what the term means. At times it seems there are more definitions of it than there are letters in the word.

Does it mean the integration of primary and secondary care? Of primary, secondary and the community? Of any and all of those with social care, given all the differing arrangements internationally for the delivery of social care? Of physical and mental health? Of all of these? Ideally, of course, it would be all of them – and ideally beyond that to better integration with some of the key determinants of health status such as housing, education and income.<sup>6</sup>

Once you have defined the undefined, how do you then measure it? In a systematic review of 24 studies from around the world in the *International Journal of Integrated Care* in 2009, Martin Strandberg-Larsen and Allan Krasnik of the University of Copenhagen concluded that 'there is no consensus on how to measure the concept, which makes it difficult to monitor progress'.<sup>7</sup>

A second part of the problem is that most measures of health care are based around hospital activity – a historical hangover from the hospital being seen as the centre of health care, a concept from which Canterbury and many others are trying to escape.

When the goal, as in Canterbury, is to reduce hospital activity to what is necessary, it is difficult to find measures of either quality or volume that clearly

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<sup>6</sup> Here, too, Canterbury has made some advances, with the health board having a positive input into the rebuild of the city's housing so that it features at least some elements of 'lifetime' design.

<sup>7</sup> *International Journal of Integrated Care*, 4 February 2009 – ISSN 1568-4156.

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demonstrate the gains from more integrated care, as opposed to merely demonstrating that demand management in primary care has improved.

This problem is anything but unique to New Zealand or Canterbury. A recent attempt to compare progress on integrated care in Scotland, Wales and Northern Ireland was hampered by the differing measures available, and the differing measures being used, in those three countries.<sup>8</sup>

A recent paper by Nick Goodwin, a senior fellow at The King's Fund and Chief Executive of the International Foundation for Integrated Care, set out a range of measures that could be used and developed. These included some measures that Canterbury in particular and New Zealand more generally either does not have, or does not have systematically, such as patient reported outcome measures (PROMs) and patient reported experience measures (PREMs). It also included some that New Zealand does have, but does not necessarily have systematically or in a form that would allow serious comparison of outcomes, such as routine measures of activities of daily living, the existence of effective care plans, the scale and utilisation of social care packages and of rest homes and nursing homes, along with more traditional data on hospital activity measures such as emergency admissions, length of stay, bed days and readmissions.<sup>9</sup>

These two problems combined – the definition of integrated care and how then to measure it – helped lead to the conclusion of a recent paper from The King's Fund<sup>10</sup> that integrated care will be achieved as much by discovery as design; frustrating though that is for those who would like a package, or a pick-and-choose menu, of neat, precisely measured and clearly articulated steps to get there.

The scope of this study did not allow for the development of any new measures of integrated care in Canterbury. It also had to look at the available data retrospectively, as opposed to helping design prospective measures of success or failure. It therefore had to use the existing data that the board was able to supply, along with some additional work that it commissioned. The scope of this study did not allow for the data to be independently verified.

On the range of individual measures of hospital activity that are available, Canterbury is sometimes, though only rarely, the best performer in New Zealand or Australia, two countries that share data on performance across 77 hospitals through the Health Roundtable.<sup>11</sup> However, it is very rarely at the bottom end of performance, frequently towards the top.

There are, however, a series of measures that do indicate that Canterbury has indeed made significant strides towards 'transforming' its system to one that provides more integrated care and/or much better demand management in primary care, allied to significant improvements in hospital efficiency, with the two changes combined in turn having an impact on the use of social care. There is little data on the absolute quality of care, which often has to be inferred from other indirect measures.

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8 *Integrated Care in Northern Ireland, Scotland and Wales: Lessons for England* (2013). London: The King's Fund

9 Goodwin N (2013). 'Integrated care: Approaches to measuring patient experience and outcomes', Paper to Best Brains Exchange, CIHR, Ottawa, Canada, 25 February 2013.

10 The King's Fund (2013). *Making Integrated Care Happen*. London: The King's Fund. [www.kingsfund.org.uk/sites/files/kf/field/field\\_publication\\_file/making-integrated-care-happen-kingsfund-mar13.pdf](http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-integrated-care-happen-kingsfund-mar13.pdf)

11 [www.healthroundtable.org/default.aspx](http://www.healthroundtable.org/default.aspx)

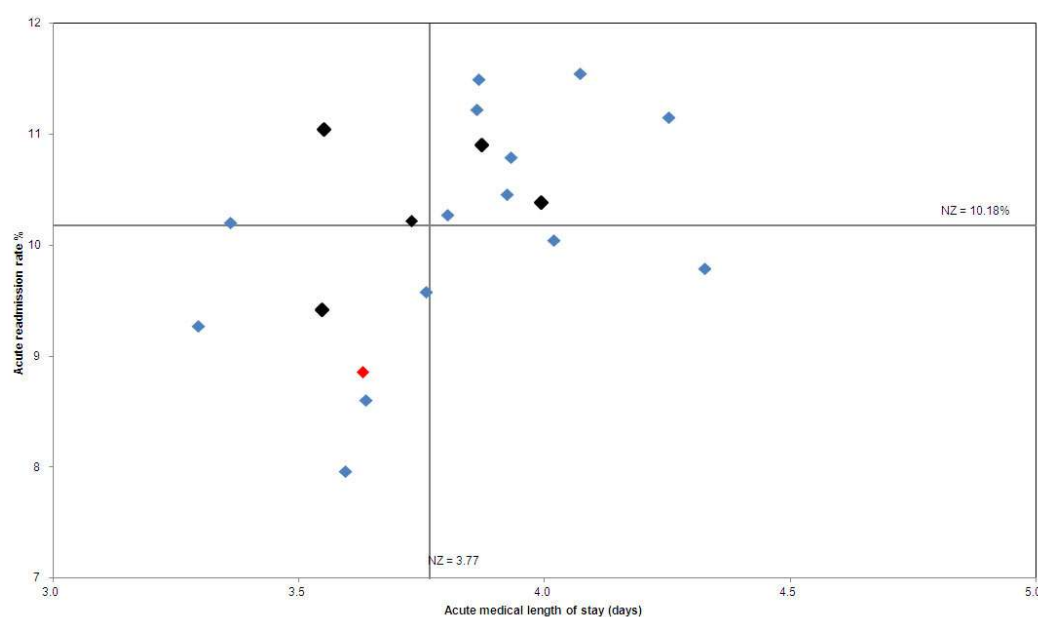
Back in 2006/7, Canterbury already had a low ratio of acute, age-standardised admissions compared to the New Zealand average – a ratio of 0.81 to 1 or almost 20 per cent lower (see Appendix Figure A1). Compared to the other larger district health boards (Auckland, Waitemata, Counties Manukau, Capital and Coast, and Waikato), the admission ratio was even lower. This is likely to reflect the quality of primary care in Canterbury at the time, which had developed significantly in the 1990s and 2000s, as outlined above.

In succeeding years, as Canterbury has sought to transform the way it worked, its acute admission rate has fallen further, while the rate for other major district health boards has remained broadly constant.

A low acute admission rate does not of course in itself indicate either good-quality primary care, or good integration of care. It could reflect poor hospital performance, low-quality care, and much unmet need.

However, when acute medical length of stay and readmission rates are plotted against each other, Canterbury comes out third lowest among the 20 health boards in New Zealand and the lowest of all major district health boards. Canterbury is not the best performer among these on either acute medical length of stay or acute readmission rate. But it is the best when the two measures are combined.

**Figure 3: Acute medical length of stay against acute medical readmission rate 2011/12**



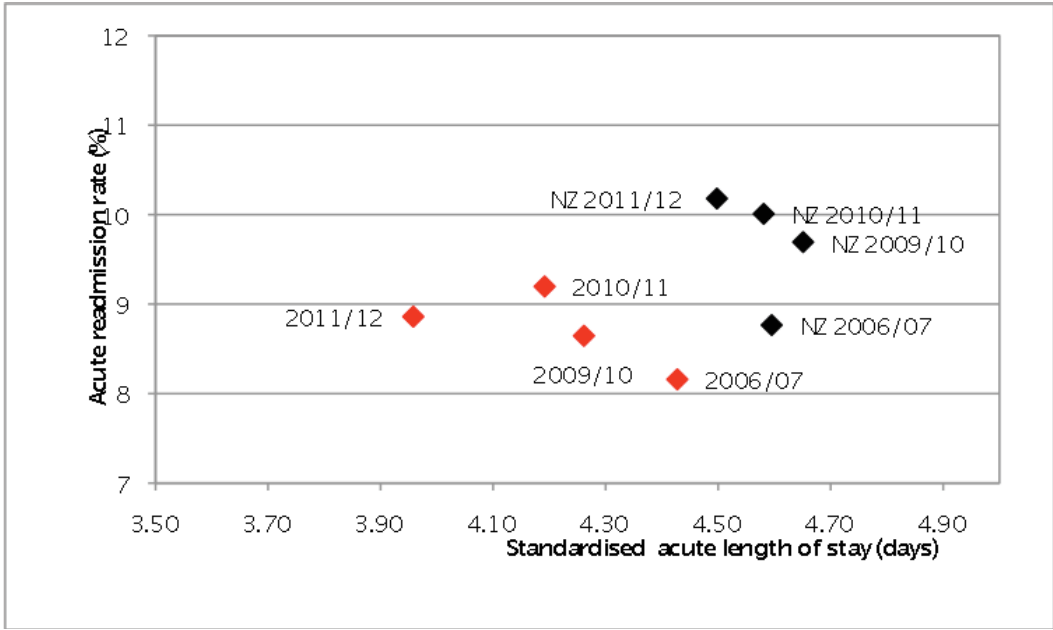
- ◆ Canterbury
- ◆ Other major district health boards
- ◆ Other district health boards

Even on that combined measure, however, interpretation of the figures requires thought. As Dr Nigel Millar, Canterbury's Chief Medical Officer, argued in an interview for this study, would it necessarily constitute poor service if the acute demand management system, or supported discharge from the acute medical or surgical assessment units, were to result in a small increase in readmissions – readmissions that are planned to bypass the emergency room producing a swift return to care for the patient? The overall readmission rate might rise

slightly. But that would not be a poor service given that many patients are being accommodated where they would rather be – at home.

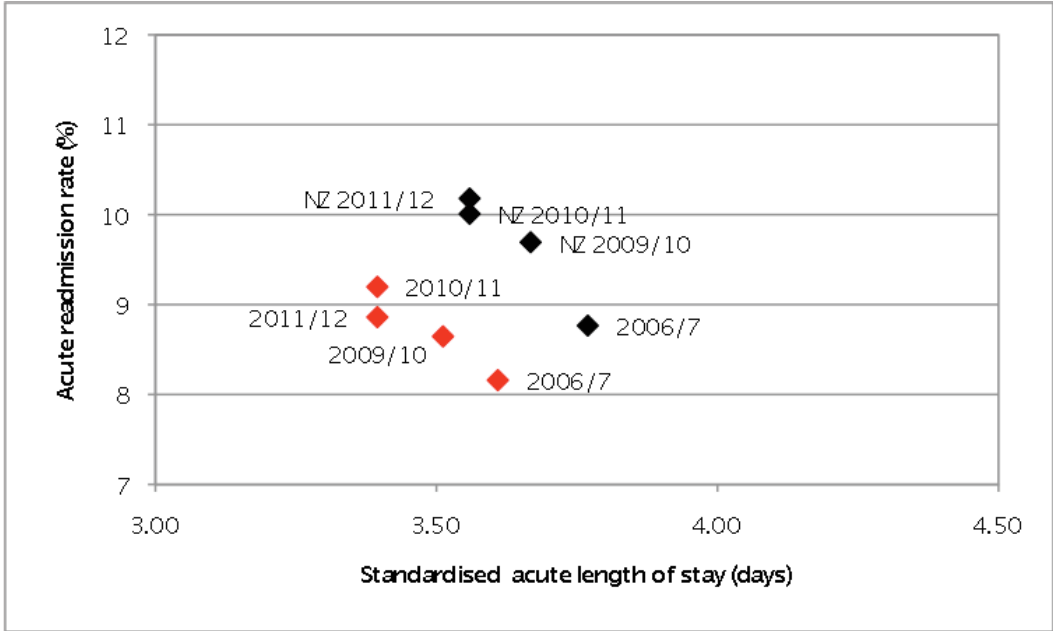
On the surgical side, for both acute and elective admissions, Canterbury presents a similar picture of short length of stay combined with low readmission rates. Furthermore, in broad terms, it has improved its performance against the rest of New Zealand since 2006/7.

**Figure 4: Acute surgical length of stay against readmission rate: time series**



- ◆ Canterbury
- ◆ Other major district health board

**Figure 5: Elective surgical length of stay against readmission rate: time series**



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A further analysis was undertaken for the Canterbury board by Tom Love of the Sapere Research Group for 2006/7 and 2011/12, the most recent year for which data is available. It compares Canterbury district health board to the rest of New Zealand. It shows that the level of hospital resource devoted to acute medical conditions has declined in Canterbury relative to the rest of the country, while access to arranged surgery has increased in proportion to the rest of New Zealand.

The figures demonstrate *'a substantial medium-term shift of resources from acute hospital care,'* he says, and one that *'is likely to have been in favour of community care and arranged and elective hospital services.'*

Using a difference-in-difference regression, the figures *'are consistent with Canterbury performing fewer acute medical admissions and, for those which it does perform, having a higher level of average acuity.'*

That *'is consistent with lower acuity events being managed in a community setting,'* according to the study. They also fit with the much lower crude rate of increase in acute medical discharges in Canterbury over the five years to 2012 than in the rest of New Zealand – a 13 per cent rise against 37 per cent in the rest of the country. Meanwhile, access to arranged surgery has risen in proportion to the rest of New Zealand. The figures provide support for the argument that Canterbury *'is moving resource from acute care to arranged care.'*

Overall, this amounts to *'a systematic rebalancing of health resources for the people of Canterbury,'* the study concludes.

Tom Love adds that this high-level data does not provide *'definitive proof of system transformation'*. A number of other measures would be valuable in judging that, including for example primary care diagnosis and activity, and other hospital figures such as outpatient events, were they available in a way that would allow comparison with the rest of New Zealand. However, he notes that these data-sets have limited consistency nationally and have changed in completeness over time. The findings nonetheless provide some *'corroborative evidence'* for system transformation.

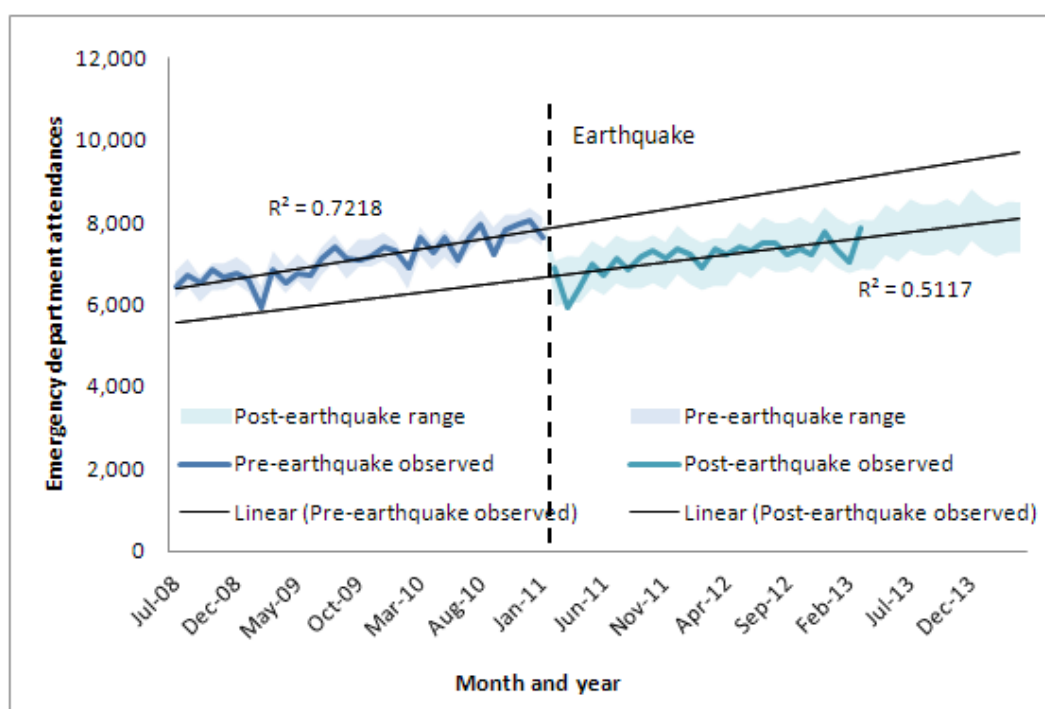
Further evidence that there has been a real change in Canterbury is that while Christchurch Hospital used regularly to go into *'gridlock'* – with no available beds and with patients backing up in the emergency department – that now rarely happens. During 2012 only very rarely, and then only very briefly, did bed occupancy in the hospital reach 100 per cent (see Appendix Figure A2).

Trends in attendances at the emergency department have also changed. Following the earthquake in February 2011 there was a sharp drop in attendances at the emergency department, with attendances then rising again, but at an apparently slightly lower level than before.

These figures are not that easy to interpret because all sorts of behaviour may have changed in the wake of the earthquake and the repeated aftershocks that ran on for more than 18 months. For example, some people remain wary of entering large buildings. Others, having survived a major trauma in which people died, may have taken a different view of how unwell they need to be to seek medical attention.

The drop does, however, coincide with the expansion of the acute demand management service and the introduction of CREST. When attendances are analysed by age, reduced demand is most notable among the 60 to 80 year olds

**Figure 6: Total emergency department attendances, Christchurch Hospital, Jul 2008–Dec 2013**



(down 4 per cent since February 2011) and the 80 years old and above (down 2 per cent since February 2011), the two groups who are most likely to be affected by such programmes. Equally there are data to show that GP referrals to the emergency department in these age groups have also fallen – again reflecting the impact one would hope for from the changes that have been made (see Appendix Figures A3–A6)

The numbers involved in these programmes do not map perfectly to the change in demand. But they indicate that a range of measures, such as acute demand, CREST, nurse triage of out-of-hours calls, and some ambulance diversion to the 24-hour surgery, appear to be having a lasting effect on emergency department attendances.

Furthermore, data from the Health Roundtable shows Canterbury to have relatively few patients returning to the emergency department within two weeks of discharge following an inpatient episode (see Appendix Figure A7). Again this suggests that in spite of a generally low average length of stay, Canterbury does not discharge patients prematurely, and does discharge them into effective primary and community care.

Lack of gridlock, and less acute strain on the hospital, have allowed elective surgical activity to rise, as outlined above.

There are other indicators to show that the combination of efficiency in the hospital and better preparation of patients in the community through access to diagnostics and HealthPathways is producing more effective activity.

For example, in gynaecology, since the introduction of HealthPathways and community access to diagnostics, the number of follow-up outpatient appointments has dropped 37 per cent. First specialist assessments have also declined marginally, but many fewer referrals from GPs are being rejected.



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More are now managed 'virtually' by a telephone call or letter to the GP giving advice, or suggesting alternative management options. Specialists and GPs can and do discuss by phone what needs to be done with the health pathway on screen in front of both of them (see Appendix Figures A8 and A9).

The conversion rate to surgery following a specialist assessment has increased in gynaecology, suggesting that specialists are seeing more patients who really need to be seen thanks to better preparation and treatment in primary care through HealthPathways.

Various examples illustrate how activity is shifting into primary care. In 2007 all 104 publicly funded pipelle biopsies were performed in hospital. In 2012, 711 such procedures were performed, 332 of them, or 47 per cent, in primary care. Again in 2007, almost all spirometry was undertaken in hospital. In 2012, the numbers taking place were broadly similar to those in 2007, but almost 22 per cent, or 1,500, took place in primary care. In 2007 all 1,142 publicly funded removals of skin lesions took place in hospital. In 2012, there had been a five-fold increase in such procedures to 5,711 and almost 39 per cent of these (or 2,209), were undertaken in the community – though it should be noted that this refers to the number of procedures not the number of lesions excised. In both 2007 and 2012, the hospital will have undertaken the more complex cases, some involving more than one lesion.

These significant changes in the community are all measures of activity not quality. In September 2012, the *New Zealand Herald* obtained hospital mortality rates from the ministry under a freedom of information request.<sup>12</sup> These appeared to show Canterbury having a slightly high standardised mortality rate in 2010/11, although the precise method of standardisation was not clear. However, data from the Health Roundtable, which presents mortality rates standardised consistently across all the main Australian and New Zealand hospitals, shows Christchurch (as opposed to the whole of Canterbury) to have a hospital standardised mortality rate (HSMR) between July and December 2012 of 98 against an average of 100, a statistically insignificant difference. In the second half of 2008, the Health Roundtable figures did point to a high HSMR in Christchurch. Since then the figure has more or less consistently declined, suggesting that, on this measure, the hospital's performance has, if anything, improved (see Appendix Figure A10).

In some limited areas, Canterbury does have some patient-reported outcome measures. For example, there is a small-scale study of 29 patients who are using a new, physiotherapy-based musculoskeletal service in the community and a much larger sample of 1,500 patients who have been through CREST. On a response rate of 28 per cent, 90 per cent of clients were satisfied or very satisfied with the overall CREST service; 78 per cent believed the service worked well with other health services in the home; and more than three-quarters believed they could do what they wanted to do with the assistance of their support worker.

The New Zealand Health Quality and Safety Commission has continued, with more independent rigour, a six-year-old exercise in collecting data on 'serious and sentinel events' across New Zealand's health boards. This relies to a considerable degree on honest self-reporting. A serious event is one that leads

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<sup>12</sup> Johnston M (2012). 'Death-rate figures reveal best, worst of our hospitals'. *New Zealand Herald*, 17 September, [www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=10834510](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10834510)



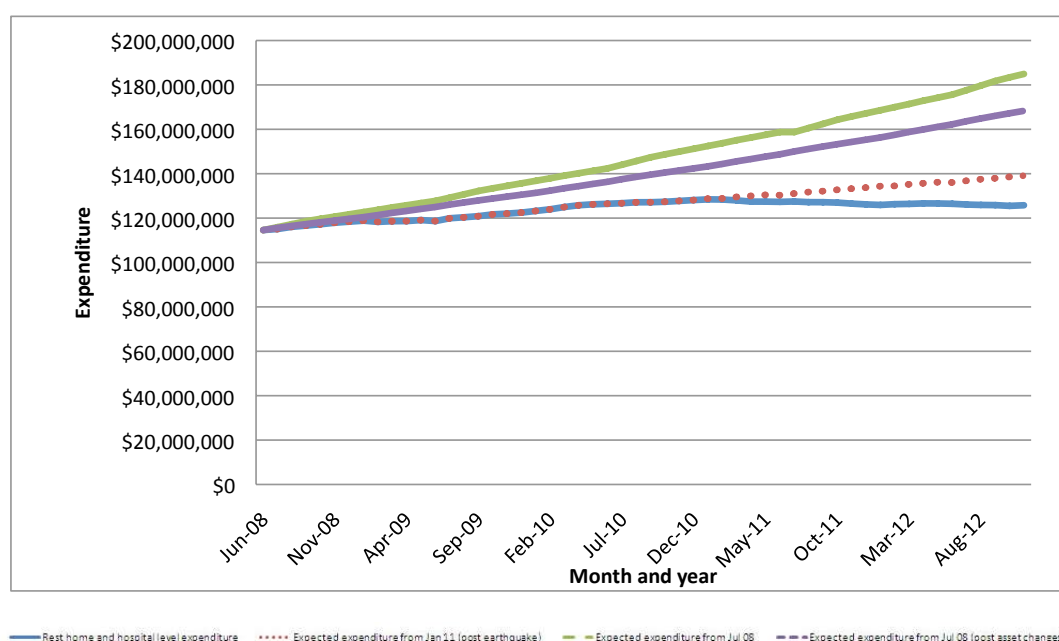
to significant additional treatment but is not life threatening, and does not result in a major loss of function. A sentinel event involves either or both of those last categories. On this measure, Canterbury is right in the middle of the pack, the figures giving no particular cause for concern.<sup>13</sup>

A further, soft measure illustrating that HealthPathways is not compromising access or quality of care can be seen in the number of queries received when GP referrals to the hospital are rejected. A letter is sent to both the patient and the GP explaining the other steps to be taken. *'It also says that if you are not happy with this then you contact me,'* Pauline Clarke, the hospital's General Manager says. *'I don't get one a week. That letter goes to both the patient and the GP. So they are at liberty to comment.'*

If those figures provide some illustration of the impact on hospitals of more integrated care with more provision in the community, Canterbury's data also suggests that programmes such as ADMS and CREST and the new alliance approach to contracting, are reducing admissions to aged residential care. Although there is marked seasonal variation, the long-term trend shows fewer clients entering care homes and fewer days spent in residential care (see Appendix Figures A11 and A12).

The actual cash expenditure on rest homes and nursing home care has been broadly flat since 2008 – indeed it has even declined a little for the two-and-a-half years since March 2010. It is well below projections of future spend whether made in 2008 or post-earthquake in 2011. Again, these figures point to an increased degree of integration between health and social care.

**Figure 7: Expenditure on aged residential care (12 monthly): comparison with expected**



13 New Zealand Health and Quality Safety Commission (2012). *Making Our Hospitals Safer*, pp 20–1. [www.hqsc.govt.nz/assets/Reportable-Events/Publications/Making-our-hospitals-safer-Serious-and-Sentinel-Events-Report-2011-12.pdf](http://www.hqsc.govt.nz/assets/Reportable-Events/Publications/Making-our-hospitals-safer-Serious-and-Sentinel-Events-Report-2011-12.pdf)

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## Analysis

Canterbury has made impressive strides towards producing a more integrated system of health care. It has moved towards one that manages demand more effectively in primary care and allows the hospitals to run more efficiently, thus concentrating more of their care on those who actually need to be in hospital.

What is notable is that very little of what Canterbury has done has been invented locally – with the possible exception of HealthPathways, which provide a highly detailed, highly monitored, and very applied guide to best, and agreed, *local* practice, including whom to contact and what to do. ERMS is also novel in that the centrally managed request system allows the flow of referrals to be managed across all parts of health care in Canterbury, private as well as public, while producing valuable data.

Most of Canterbury's other programmes are adaptations of lessons learned from elsewhere, whether from other parts of New Zealand, the United States or parts of the English NHS. This is part of Canterbury's strength – a willingness to look around the world and learn. That learning embraces not just health care programmes, but also learning from other industries about *how* to achieve change – not about *what* to change.

It is also worth noting that there are things that other health care systems do – rarely as a whole but some of them in parts – that Canterbury does not yet do. For example, it does not provide chemotherapy at home, although chemotherapy is provided by nurses in the local hospitals on the west coast whose district health board shares its management with Canterbury. It does not yet provide direct access from opticians for cataract surgery, although that is planned. Aside from its use for consultations with patients and clinicians on the west coast, it makes relatively little use of telehealth and telecare – although debate continues about how cost-effective such approaches are where they are used.<sup>14</sup> Psychiatrists are present in the emergency department and police custody suites but are not yet present in, for example, cardiology clinics to spot as early as possible patients who present with chest pain but have no physical cause for it – the apparent persistent symptoms being due to stress or anxiety.

HealthPathways is a deeply impressive clinical and administrative tool. But its two-year-old patient-facing portal, HealthInfo, while good, is not as comprehensive and powerful as the NHS Direct website, for example. Although changes are actively being made, mental health care is also still somewhat more institutionalised than in some other parts of the world.

Far from everything Canterbury is doing is unique. Other parts of New Zealand also have or are developing versions of some of the elements discussed above. What appears clear, however, is that Canterbury is advancing on more fronts in a more integrated way with a clearer vision of where it is going and what it is trying to achieve, and with mechanisms in place that are putting all that into practice.

Not everything has gone smoothly. Canterbury is currently working on a collaborative care management system aimed at allowing the management of patients with long-term conditions to be set out more clearly, the intention being that anyone across the health care system can see what needs to be

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14 Steventon A, Bardsley M (2012). *The Impact of Telehealth on Use of Hospital Care and Mortality*. London: Nuffield Trust. [www.nuffieldtrust.org.uk/sites/files/nuffield/publication/120622\\_impact\\_of\\_telehealth\\_on\\_use\\_of\\_hospital\\_care\\_and\\_mortality.pdf](http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/120622_impact_of_telehealth_on_use_of_hospital_care_and_mortality.pdf)

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done, or should have been done next, and then getting it done. Unlike the shared care record it is a care planning tool, rather than a record of what has occurred. Getting the software to provide an easy-to-use interface is proving a challenge, however. It is running in pilot form, but has so far defeated one of Canterbury's slogans – that if the way GPs work is going to change, 'it has to be simpler.' As Carolyn Gullery puts it, *'it has got to be easier on Monday. You can't implement something that makes the clinicians' jobs harder.'*

Furthermore, amid the welter of initiatives that Canterbury has taken, it is impossible to unpack their individual impact. An outsider asking 'which of these is most effective, if we were to pick only one or two?' will struggle to find an answer. There is very limited cost/benefit analysis available for the various programmes. Measures of changed performance or activity within the hospital are difficult to relate with confidence to the specific elements introduced outside it.

Carolyn Gullery acknowledges that. *'You can do some contribution and attribution. But it is not clean. But it is an integrated system, and by definition an integrated system is not going to be clean, from a data perspective.'*

This problem is partly due to the nature of the change programme that Canterbury has undertaken. By seeking to empower both clinicians and other staff to introduce change, it has in many ways been opportunistic. When a good idea looks likely to save patient time, improve patient experience, bring an element of care closer to home and also – often – improve job satisfaction for staff, the instinct is to back it. This can create the impression of 'initiative-itis'. On occasion it leads to potential duplication. The ADMS and CREST share many characteristics yet at present are separate programmes. There are occasions when GPs have not been sure to which to refer.

Canterbury's management is unapologetic about that. Carolyn Gullery says: *'There is overlap'* – and in the case of ADMS and CREST a single point of contact is being built *'so that general practice doesn't have to think do I want CREST or acute demand, or district nursing? They can ring one point.'*

But, she argues, *'what we quite often do is get the health system to move, and then pull it together. And what you get from that is the drive and enthusiasm of a whole lot of people in the system. Where if we sat down and laid it all out and said "we are going to have this, and this, and this," you drag people to that point. What we end up doing is enabling people to fly, and then you pull it together. And then you do it again, and pull it together.'*

What is clear is that the combined effect of all these initiatives is having a significant impact on the health system as a whole, even if precise attribution of value for money between the various initiatives is impossible.

Canterbury has had certain advantages to help it achieve that. Its funding system covers both health and social care. But it has itself taken advantage of that to arbitrage between the two. The message that there is only 'one health system, one budget' has been a powerful driver of that. Investment in improved community provision has reduced the rate of growth of spend on residential care, which appears to have released funds for further investment in more integrated, preventative care – preventative not in the sense of preventing people developing disease in the first place, but by reducing unnecessary hospitalisation and unnecessarily early admission to residential care.

General practice shares many characteristics with general practice in the United Kingdom. But it is highly organised not least – though not only – through

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Pegasus. Over time it has developed a surprising degree of collegiality – despite on the face of it being more competitive than in the United Kingdom thanks to the fee payable to see a doctor. These co-payments make up an appreciable proportion of general practice income but also tend to make it easier in practice in New Zealand, as opposed to in theory in England, to change the choice of family doctor.

Canterbury has had the advantage of long continuity of leadership in many of its most senior positions, about which more below. It also has the advantage that after a period of significant experimentation in the 1990s, the organisational structure of health in New Zealand has been stable for more than a decade now. District health boards were established in 2001 and there has been no significant change to their structure since. By contrast, the NHS in England has been subject, depending precisely how you count it, to at least four major reorganisations of health authorities and commissioning organisations over the same period.

Canterbury has also taken some significant steps away from the direction of health system reform in New Zealand in the 1990s, and from the path that some other countries have followed. England, for example, has reinforced the use of market mechanisms through the so-called ‘Lansley reforms’ in the 2012 Health and Social Care Act. Canterbury, by contrast, has scrapped the price/volume schedule – its equivalent of the tariff.

Equally, the development of alliance contracting for many other services has entailed a move towards a more collaborative form of contracting which again relies less on funding by volume; partners in the alliance have a mutual interest in success, with the contracts set to be re-competed at some point in the future. How far this proves to be a much better way of doing things in the long run cannot yet be judged with certainty as the contracts are in their first round and have yet to come up for renewal. The early indications, however, are distinctly encouraging.

It should not be imagined that all this does not produce its own tensions. But after New Zealand’s vigorous experimentation with market-like mechanisms in the 1990s, Canterbury has moved to a distinctly different place.

It remains subject to national targets for performance, as well as its own definitions and drivers for success. Canterbury feels strongly that at times the activity targets set by national government – many of which involve the hospital just doing more, rather than trying to do it better – cut across its own goals.

Arguably the biggest change Canterbury has made, however, is to re-invest in the professional pride of clinicians and other staff – taking significant steps to re-empower them to make change themselves after a long period of managerialism. This was a view that stemmed in large measure from the 1980s analysis in many anglophone countries that one of the biggest problems in public services in general, and health in particular, was ‘provider capture’.

That has been done not just by presenting a coherent vision of what the future needs to look like – patient-centred, integrated, removing duplication and waste, founded on an assumption that saving the patient’s time will also often save staff time and improve job satisfaction – but by the board acting on it and enabling staff and contractors to initiate change themselves, from the bottom up. That in turn has been achieved through significant and sustained investment in business change tools such as the various ‘8’ programmes.

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These factors combined may be Canterbury's biggest single lesson for elsewhere, allied to highly organised general practice and the advantages of being able to handle health and most of social care as a single budget.

It is crystal clear that the earthquake accelerated a whole set of programmes for change in Canterbury – though clearly volunteering for an earthquake is not a health policy option. But the speed and effectiveness with which Canterbury was able to introduce new programmes – the electronic shared record, CREST, falls and medication management, for example – would not have been possible without firm foundations laid in the preceding years.

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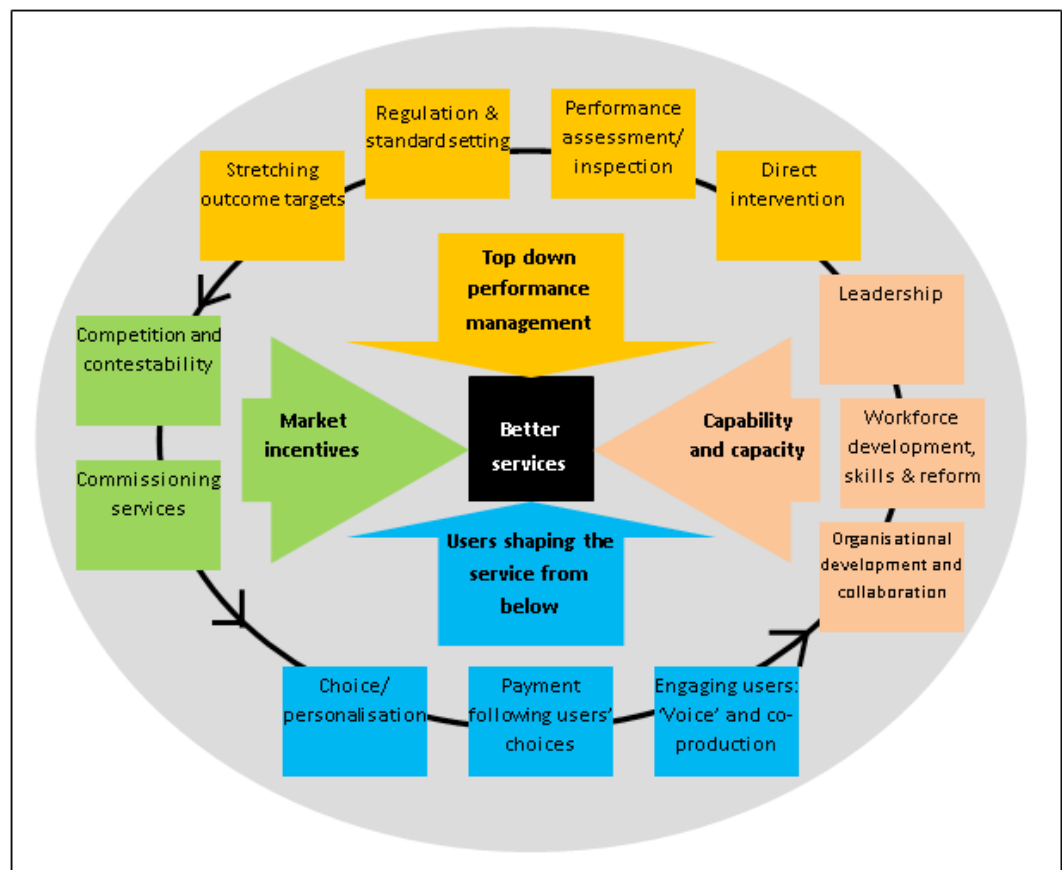
## 6 Conclusion

This final section locates the Canterbury experience in the broader context of the existing literature on what it takes to produce a high-performing health care organisation. It also seeks to draw out lessons from this particular case study for those involved in service transformation both in New Zealand and further afield. It does so in the full knowledge that the local context is a well understood variable in research on change in health care organisations – but also in the belief that at least some of the experience from areas such as Canterbury can be adapted to other settings.

### *Concepts for reform of public services*

There are many approaches that can be taken when seeking to improve public services in general and health in particular. The chart below, adapted from a study undertaken by the UK government's Cabinet Office in 2006, is one way of analysing them.

**Figure 8: Approaches to improving public services**



Source: Adapted from UK Cabinet Office 2006

Approaches range from a decidedly market-driven set of incentives, through heavy regulation and performance management, through capacity building among the workforce, and round to using patient choice and voice as a means of driving improvement. Although this is a helpful way of thinking about the

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issue, the reality is that most approaches to public service in practice use more than one part of this quadrant, and sometimes elements from all four.

Starting at the top of the quadrant, characterised in the diagram as 'top-down performance management,' central government in New Zealand has a range of targets in health covering various forms of access, waiting time, immunisation rates and so forth. Canterbury does, of course, face some elements of regulation – not least of the medical and nursing professions.

In the absence of a purchaser/provider split, however, there is no equivalent in New Zealand of Monitor, the Foundation Trust regulator in England, but, notably, there is also no equivalent of the CQC, the English health and social care inspectorate. A Health Quality and Safety Commission was established in 2011, but it is not an inspectorate. Its role might best be described as a cross between England's Patient Safety Agency and the NHS Institute for Innovation and Improvement, seeking to raise the quality of care by hospital improvement programmes. New Zealand also has a powerful Health and Disability Commissioner who seeks to uphold rights to care and treatment. It has a complaints handling and arbitration role. But it also has significant powers of investigation, backed up by the possibility of criminal sanctions. It is not, however, a routine inspector of either health or social services.

If serious concerns emerge about a district health board's performance, the Ministry and the National Health Board have a tiered approach to intervention that in a worst-case scenario can see the health minister appoint a commissioner to take over a board's responsibilities.<sup>1</sup>

Moving to the bottom section of the diagram, Canterbury does have a consumer council of patient representatives. On the left-hand side, there remain, even within alliance contracting, elements of competition and contestability in the way Canterbury contracts with community and nursing services, general practice and other providers such as laboratory services and the board's use of private facilities to treat public patients.

In the 1990s, when the country had a purchaser/provider split, any description of New Zealand's approach would have placed it decidedly on the left hand side of this diagram. That approach to the provision of health care came to an end in 2001 with the creation of district health boards, which brought the semi-autonomous hospitals back under the direct management of the boards.

In addition to that change at national level, however, what has happened in Canterbury over the past five or so years is a marked shift away from the left-hand side of this diagram towards the right-hand side. The nature of contracts with outside providers has changed to a more co-operative approach through alliance contracting. The price/volume schedule has been scrapped. A significant and sustained investment has been made in equipping the workforce first with the insight that it is employees and contractors who can change the way care is delivered and then giving them access to the tools to help achieve that.

It is an illustration of how change can be brought about primarily 'from within' by empowering clinicians and others who are prepared to take responsibility for changing the way things work, instead of seeking to drive change through

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<sup>1</sup> Provost L, Controller and Auditor-General (2013). *Health Sector: Results of the 2011/12 audits*, pp 46–7. [www.oag.govt.nz/reports/2013/health-audits](http://www.oag.govt.nz/reports/2013/health-audits)



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external stimuli such as top-down performance management and market incentives.

### *Parallels from elsewhere*

Canterbury's story has many similarities with other examples of improvement in the health care literature. The two that stand out are Jonkoping County Council in Sweden and Intermountain Healthcare in the United States. Both have been on a journey of quality and service improvement that has emphasised the need to strengthen capacity and capability through the development of the workforce.

In each case organisational leaders have made a long-term commitment to training and development that has brought impressive results. In effect, they have drawn on the intrinsic motivation of staff to provide high standards of care by providing them with skills to review how services are currently provided and change them. In this sense, the approach is in stark contrast to the dominant theme of public services reform in the later 1980s and 1990s that emphasised the risk of 'provider capture' – the view that services were arranged to suit the convenience of staff rather than of the consumer, which, in the case of health, meant the patient.

Jonkoping and Intermountain were two of the six organisations in the United States and Europe that were included in a study of high-performing health care systems led by G Ross Baker, Professor of Health Policy, Management and Evaluation at the University of Toronto.<sup>2</sup>

Baker identified 10 key characteristics in these organisations, which we have used as a framework for capturing the learning from Canterbury.

The list of characteristics comes with a number of important qualifiers, not least that they do not form a 'checklist' against which to assess other systems. Baker's study also notes that developing a high-performing system '*is a journey that cannot be judged solely by examining current performance*'. Instead, he says, '*we must assess the environment and challenges the organisation faced; understand the strategies and investments its leaders have made; assess the learning, mid-course corrections and current efforts made to maintain and spread high performance.*'

A similar view was taken by Paul Bate and colleagues in their own analysis of eight high-performing health care organisations in the United States, the Netherlands and the United Kingdom.<sup>3</sup>

These studies make clear that there are many different paths to sustained improvement, and that there are often complex interactions between many different variables in getting there.

Baker's 10 characteristics were as follows:

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2 (2008) *High Performing Healthcare Systems: Quality by Design*. Longwoods Publishing.

3 Bate P, Mendel P, Robert G (2008). *Organizing for Quality: The improvement journeys of leading hospitals in Europe and the United States*. London: Nuffield Trust.

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## **1. Consistent leadership that embraces common goals and aligns activities throughout the organisation**

A number – though not all – of the high-performing systems that Baker cites have had long-term consistent leadership by the same people over many years. In Canterbury, the change programme has, on the face of it, survived three changes of governing board (district health boards in New Zealand are partially elected for three-year terms) and two chief executives. That is encouraging for those who live in health systems where the stability of chief executive jobs is more a mirage than a reality.

But the headline figure of changing boards and chief executives hides the fact that Canterbury is notable for the large number of senior figures – in the board, in Pegasus and in other parts of general practice, and in NGOs such as Nurse Maude – who have been around the system for a considerable length of time. Many have been in place for at least five years. Some for much longer. In several instances they have worked in different parts of Canterbury's health system over the years, helping provide a non-siloed approach that reinforces the 'one system, one budget' thinking. A number of them shared some fairly searing experiences that they have no wish to repeat.

Thus Carolyn Gullery, General Manager of Planning and Funding since 2007, and seen by many as a key figure, worked for the Health Funding Authority in the 1990s in the days of New Zealand's purchaser/provider split, before working for the then Southern Regional Health Authority. She was, for example, one of the main negotiators of some of the early Pegasus contracts for budget-holding and for the development of the original acute demand management programme. She then worked in the early 2000s for Partnership Health Canterbury, the new primary health organisation, whose role involved general practice and community services, before moving to her current post where she removed the lock from the door to planning and funding in symbolic support for her statement that innovation would be funded – that planning and funding was there to be an enabler of change, not an obstacle to it. She also created the Canterbury Initiative, which helps engineer change in the diverse elements of Canterbury's health system – the board, general practice, for-profit and not-for-profit providers – and which essentially acts as the change agent at the interface between the hospital, general practice and community services.

Mary Gordon, Director of Nursing, has been in post since 2002 having been a cardiology nurse in Canterbury earlier in her career. Dr Nigel Millar has held the position of Chief Medical Officer since 2003. Dr David Kerr, who was the founding chairman of Pegasus Health in 1987, is now a key driver of the Canterbury Initiative, while Dr Graham McGeoch was involved from the start of Pegasus's education programme, developed the original acute demand management programme with Carolyn Gullery and others, and is now heavily involved with the Canterbury Initiative and HealthPathways. Vince Barry, now the Chief Executive of Pegasus, was elective services manager for the health board. Bruce Penny has been a sustained progress chaser and facilitator throughout. Richard Hamilton has been head of the business development unit for a decade, helping create the workshops and Showcase event for the original '2020 Vision' and a similar programme in 2012 to help design the new hospital. Les Toop, who has played a key role in the primary care education programmes, has been a GP in Canterbury since 1986 and Professor of General Practice since 1997. Jim Magee has been Chief Executive of Nurse Maude since 2006 and was previously general manager of Christchurch Hospital.

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By these standards, David Meates, the board Chief Executive, looks like a relative newcomer. He was appointed in 2008 after a career that embraced private sector retail in the United Kingdom as well as health in New Zealand. Even he, however, is Canterbury-born and educated and at one point managed Greymouth Hospital on New Zealand's west coast.

Stable and consistent leadership can also be a recipe for closed minds, lack of challenge and resistance to change. In the case of Canterbury, however, partly because people have moved around the health system and been there a long time, it has produced an alignment of goals and an understanding of other people's problems, not only within one organisation but across many. As one of our interviewees put it, there is a 'Christchurch way' of doing business, in health and other sectors.

It should not be imagined, however, that any of this happens without tensions. Indeed, circulation of an early draft of this study revealed some of them. But as one key participant put it, '*we have to manage difference to get where we need to be*' – namely developing integrated care across the whole of the Canterbury health system when it is not, on paper or in practice, simply one system.

*People tend to stay here and transfer across the system, working in different parts of it at different times. And a number of us here have done that. From primary care to hospital and back again. It allows a level of knowledge and comfort and relationships and trusts to be built over time. And I think that might be one of the ingredients that might be helpful.*

Senior executive in Canterbury

Though Baker makes the point that high-performing organisations tend to be highly adaptable to changes in their broader environment – able in effect almost to ignore or bypass them – Canterbury, along with the rest of New Zealand, has enjoyed relative stability in terms of its health management structure. District health boards took effect in 2001 and have not been subject to any major structural change since. Primary health organisations were created in 2002, more than a decade ago. That does not mean there has been no change. Over time, the relative standing and influence of the primary health organisation, the board, and the independent practitioner associations, including Pegasus, has changed. Indeed the primary health organisation and Pegasus have just amalgamated.<sup>4</sup>

## **2. Quality and system improvement is seen as a core strategy**

Quality is not the first word volunteered by the Canterbury system's leaders, but system improvement certainly is. Rather than an emphasis on quality as such, there is an unspoken assumption in the strategy that designing services from the patient's point of view, avoiding wasting the patient's time, and working hard to make a reality of the mantra of 'right care, right place, right time by the right person' will itself deliver quality care. Sound financial performance has not been ignored. Indeed it has been delivered. Deficits were being reduced and were projected to become a surplus before the earthquake. Canterbury's performance has been singled out for praise in the most recent Auditor General's report on the health sector.

System improvement has been the principal focus. That resonated not just with clinical leaders but with an appreciable portion of the broader clinical and other

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<sup>4</sup> [www.pegasus.health.nz/what-we-do/pho-services](http://www.pegasus.health.nz/what-we-do/pho-services)

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staff without whose support and commitment it would have been unthinkable to achieve this level of change.

### **3. Significant investment in developing the skills and capacity to support performance improvement**

Here Canterbury clearly scores highly. There is an ongoing commitment to enable change to take place 'from within' demonstrated by the continuing investment in Xceler8, Particip8 and Collabor8 for staff of all grades – not just clinicians – and increasingly for staff who work in the community but are not directly employed by the board. In addition to pointing staff towards techniques that help them analyse and solve clinical and organisational problems, the process engineers working in Canterbury's business development unit bring additional design skills to problem-solving. To date, more than 1,000 staff in Canterbury have been through the various '8' programmes.

### **4. Robust primary care at the centre of the system**

Baker identified this factor as a key ingredient in a number of the systems he and his colleagues studied. Canterbury had the advantage of strong primary care in the first place. But that has continued to develop as a result of sustained clinical education over many years, the development of HealthPathways, and the evolution of Pegasus and other primary care providers and funders. A notable feature is the level of organisation that allows a network of practices to agree to collaborate to bring about improvements in care. They are supported in this by the infrastructure supplied by the independent practitioner associations that are found elsewhere in New Zealand but which are much less common in the NHS. This approach enables practices to retain their identity and relative autonomy – something that many family doctors prize – while benefiting from the peer support and expertise that a wider network can deliver. Examples of the benefits of this include the sophisticated level of IT support, clinical education programmes, the ability to engage better with hospital specialists, and the 12- and 24-hour surgeries, analogous to the polyclinics advocated by Lord Darzi in his report on the NHS in London.<sup>5</sup>

### **5. Engaging patients in their care and in the design of care**

The central question that Canterbury asks when re-designing services is 'how will this improve life for patients?'. In other words, this is patient-centred design, although it receives relatively little formal patient input. There is a consumer council, which does have a voice and which produces, typically, reports every six months on its involvement and activities.<sup>6</sup> It is not, however, one of the most powerful drivers in Canterbury's approach. Indeed, on the health board's website the opening sentence about it states 'The DHB's Consumer Council would like you to know they exist!'. Consumers also sit on the Alliance leadership team and on the leadership teams of all the service level alliances. Even so, in this respect, Canterbury has to date focused less on

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5 Darzi A (2007). *Healthcare for London: A framework for action*. London: NHS London.

6 Report for December 2012: [www.cdhb.govt.nz/planning/consumercouncil/documents/Consumer%20Council%20report%20to%20CEO%20Dec%202012%20FINAL.pdf](http://www.cdhb.govt.nz/planning/consumercouncil/documents/Consumer%20Council%20report%20to%20CEO%20Dec%202012%20FINAL.pdf)

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patient involvement in the design of change than has been the case in some of the other high-performing systems cited by Baker.

## **6. Promoting professional cultures that support teamwork, continuous improvement and patient engagement**

That is central to the suite of '8' programmes that Canterbury runs. It is planned to make participation in Xceler8 a requirement for new clinical directors. *'They have to be immersed in system-wide thinking,'* David Meates says.

## **7. More effective integration of care promoting seamless care transitions**

This is at the heart of everything that Canterbury is seeking to achieve – and is at the heart of this study. The key to the lock, so to speak, has been recognising the crucial interface between community services, primary care and hospital services in the management of the whole system – and the impact that this then has on the demand for, and the level of, social care.

It is that which led to HealthPathways, electronic management referral across all the players, the creation of CREST, the expansion of acute demand management and the electronic patient record.

In turn, these changes have been made possible by the rhetoric of 'one system, one budget' and 'the right care, right place, right time by the right person.'

In the New Zealand context it is also a relatively rare example of the board using the reality of its combined health and social care budget to practical effect, as opposed to the two budgets being only nominally joined.

Canterbury has, in effect, used its purchasing power and its moral influence to harness others into a joint endeavour aimed at effecting change beyond the board's purely technical reach. An important part of this lesson is that in some areas – for example through alliance contracting and through the Canterbury Initiative – it has, at least on the surface, surrendered some sovereignty, sharing and delegating powers to intermediating bodies. In the last analysis, the board remains, of course, the dominant funder and to that extent it still calls the shots. The board's leaders – despite some of them being extremely strong and even domineering personalities – have, however, recognised that simply calling the shots does not in itself make anything happen. For lasting change to be achieved, those who will actually have to make it happen must have a real responsibility and a real say in *how* it takes place.

## **8. Information as a platform for guiding improvement**

All parts of the Canterbury health system now appreciate the central importance of information, and particularly IT-enabled information, for analysing activity, performance, clinical information, care planning and changing the pathways of care. Hence electronic request and referral systems and the shared care record portal. In some areas, including clinical, these systems as yet lack the sophistication of world leaders in the field such as the Veterans Health Administration, Kaiser Permanente and Intermountain. But while there are further improvements to be made – some of which are happening as this report is written – Canterbury already has a system that has

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started to operate across primary, secondary and community care, and one that is bringing demonstrable benefits.

Intriguingly Canterbury resolved many of the local issues around information governance in a matter of weeks rather than years in the wake of the earthquake. For those who still struggle with these issues in a more normal world, examining Canterbury's answer to them could well prove instructive.

## **9. Effective learning strategies and methods to test and scale up**

Canterbury is open to ideas from around the world and has demonstrated the ability to pilot and scale up through the expansion of acute demand management, the introduction of CREST, a shared record and in a number of other initiatives. Lean thinking was an idea that was originally picked up by Mary Gordon and Dr Nigel Millar, ahead of the arrival of Carolyn Gullery and David Meates, but coinciding with Richard Hamilton's tenure at the business development unit.

As outlined above, many of Canterbury's initiatives are not novel. Many have been garnered from elsewhere and adapted to local circumstances. It may be a cliché, but the idea of a learning organisation is an apt description of what has happened. Indeed it has been a highly pragmatic, indeed opportunistic, approach in which seemingly good ideas are given the opportunity to breathe, and are then sustained, aborted or amalgamated depending on their success. The movement of more spirometry into primary care, for example, was a limited achievement from a much broader attempt to shift more respiratory care into the community.

## **10. Providing an enabling environment to buffer short-term factors that undermine success**

Baker makes the point that short-term factors that undermine success can take many forms. Canterbury has had its differences with the health ministry over the government's target-driven approach to improving health care in New Zealand. While by no means as extreme, or as performance-managed as the experience in England over the past decade, the central government's approach can still clash with Canterbury's own goals. There has been a dispute, for example, over the process-driven target for assessing coronary heart disease risk factors, which leading clinicians in Canterbury do not believe add value, with Canterbury maintaining that its own approach is providing entirely acceptable results.

Senior figures in the ministry also acknowledge privately that the some of the ministry's measures for success cut across what Canterbury is seeking to achieve. *'The ministry hands out the cash and creates measures for success to help ensure accountability,' one official says. 'But typically it then requires that we measure that activity by volume ... So we send the wrong message when we count the widgets that come out of the hospital when what Canterbury is seeking to do – and we through 'Better, Sooner, More Convenient' [the national programme aimed at encouraging more integrated care] – is integrate care and shift it. Canterbury has tried to resist that a bit from the centre.'*

As short-term factors go, there is little so dramatic as an earthquake. That unleashed a huge amount of creativity and energy. But it has certainly brought problems that the board is still working its way through three years on.



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## *Five key lessons*

The Canterbury experience illustrates the wider applicability of Baker's characteristics. The first key lesson is that, as in other transformation programmes, the stimulus for what happened was the perception of a health system that was under pressure and beginning to look unsustainable. In New Zealand, Canterbury was not alone in that. Given the fall-out from the global financial crisis, it is now anything but alone. The analysis undertaken into that perception, however, was deliberately used to create both a 'burning platform' for change and a broad vision of what the future ought to look like. The earthquake – the 'shaking ground' – added a large dose of impetus to changes that were already under way.

Second, Canterbury adds to the small stock of examples of organisations and systems that have made the transition from fragmented care to integrated care with a degree of measurable success. The best-known examples include the Veterans Health Administration in the United States and Torbay Care Trust in England. That these remain few in number illustrates how integration of care does not come easily and is often hampered by professional, organisational and financial silos.

The organisations that have been on the integration journey have often been on different paths even though they have shared similar objectives. They have usually faced an existential crisis that has stimulated radical thinking about the changes needed to turn around their performance. Canterbury provides further evidence of how this can be achieved with the emphasis on 'one system, one budget' providing powerful rhetorical support for thinking and acting differently when the starting point was overlapping systems and multiple budgets.

A third lesson is the time it takes. As this report is being written, Canterbury has been working to create 'one system, one budget' for at least six years, and some would say for appreciably longer. The journey to genuinely 'transform' the system to fully integrated care is far from complete. The time taken reflects the inherent complexity of health and social care. Any major organisational change in which a business cannot simply abandon its most awkward or unprofitable clients or lines – and publicly funded health and social care systems cannot do that – is a marathon not a sprint. It takes stamina, persistence and resilience in the face of adversity.

This links to the fourth lesson – namely the part played by many people in the transformation that is under way. A small number of key leaders have been at the heart of this transformation. But they could not have succeeded without the support of many others throughout the Canterbury Health System. The point is that leadership rapidly became collective, shared and distributed, not focused on just a few heroic individuals in formal leadership roles, even though those leaders have been crucial.

Collective leadership encompassed clinicians as well as managers, and engaged people who had often worked together in different roles over several years. Continuity underpinned the relationships that helped to make the notion of 'one budget, one system' the reality and not simply the rhetoric. This was undoubtedly assisted by a degree of organisational stability that from a UK perspective, and particularly from an English one, is both unusual and enviable. In the absence of the inevitable distractions caused by constant restructuring, the collective leadership of the system was able to make steady progress towards implementing the vision they had articulated and shared.



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The fifth lesson is more of a question. Having got this far, are the changes underway in Canterbury sustainable, and indeed can they be extended? The reason this question must be posed lies in the experience of the six organisations studied by Baker and the fate of the nine reviewed by Paul Bate and colleagues. The performance of some of those included in both studies has since fallen back, illustrating that the journey of improvement in health care is rarely linear and never complete.

In the corporate world, the exemplars of company performance cited in 1982 by Tom Peters and Robert Waterman in their multi-million selling business book *In Search of Excellence* have not all prospered.<sup>7</sup> Some of the 43 – Atari and Wang Laboratories, for example – have gone bust and disappeared. Kodak, having failed to adapt its camera film business to the digital age, is a shadow of its former self. Others underwent hostile takeovers even though a significant proportion of the 43 are still alive and prospering.

In Canterbury's case, sustainability depends in part on being able to retain the collective leadership that has brought the system to this point – and in avoiding the potentially damaging consequences of large-scale organisational change were that to re-emerge on the New Zealand government agenda.

It also hinges critically on embedding the ways of working that have been responsible for the improvements that have occurred to the point that they are part of the culture or 'the way things are done around here' – and are therefore less vulnerable to the effects of leadership changes or organisational shocks. From this perspective, the auguries are positive. A number of pieces of steel have been inserted into the infrastructure, including the '8' development programmes, which have involved 1,000 staff to date and more yet to come; the continued investment in HealthPathways; the business development unit; and the alliance contracting approach, though that has yet to be fully tested by a contract renewal. If they are sustained, the chances of continued improvement remain high. One external interviewee judged that '*among the most senior five or six people you could substitute any one of them and this approach would still continue*'. If several left, or a major external reorganisation was imposed, that would be more questionable.

The chief safeguard may well be the emphasis on improvement occurring 'from within'. By drawing on the intrinsic motivation of those working in health and social care in Canterbury and appealing to professional pride, Canterbury's leaders have wittingly or unwittingly tapped into evidence that shows a clear and positive relationship between staff engagement and organisational performance – for example the work of Michael West, professor of organisational psychology at Lancaster University Management School.<sup>8</sup>

The approach of these leaders eschews the dominant pace-setting style found among top NHS leaders and is characterised by working across organisational and system boundaries to motivate, engage and inspire staff to make their contribution to implementing a vision for the future.

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<sup>7</sup> Peters T, Waterman R (1982). *In Search Of Excellence: Lessons from America's best-run companies*. Harper Collins Publishers.

<sup>8</sup> [www.kingsfund.org.uk/audio-video/michael-west-developing-cultures-high-quality-care](http://www.kingsfund.org.uk/audio-video/michael-west-developing-cultures-high-quality-care)

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## Finale

What the Canterbury experience demonstrates is that it is possible to provide better care for patients, reduce demand on the hospital, and flatten or reduce elements of the demand curve across health and social care by improved integration – particularly around the interface between the hospital, primary care and community services.

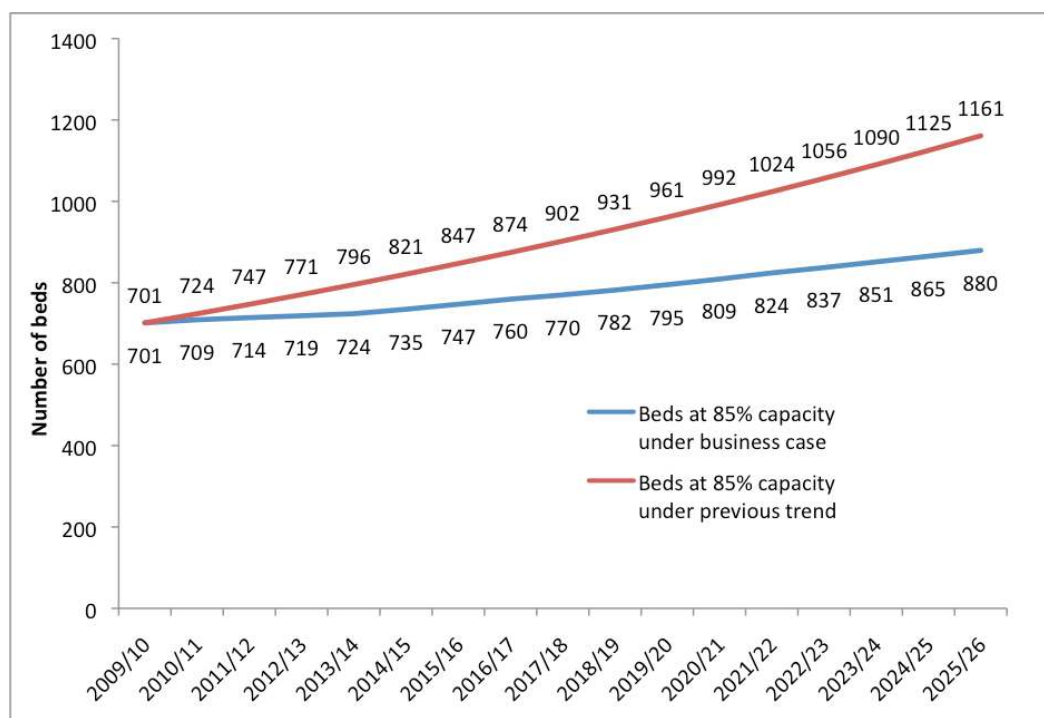
What it has not demonstrated is that it is possible substantially to shrink the hospital. That, to be fair, was not the goal. Canterbury did lose 106 medical and surgical beds at Christchurch Hospital as a result of the earthquake, although re-provision elsewhere, chiefly at Princess Margaret Hospital in the city, eventually reduced that loss to 33.

There were already – before the earthquake – plans for a \$600m rebuild on the Christchurch Hospital site, the largest and most complex public sector building project in New Zealand's history.

Plans for the new hospital still envisage an increase of around 11 per cent in its beds compared to the position before the earthquake – an increase of around 70. But that, according to Carolyn Gullery, is simply the impact of demography, with Christchurch's population expected both to continue to grow and to age. *'Had we been running at our 2007 level of performance, we would have needed another 200 to 300 beds,'* she argues. Canterbury will still have fewer wards and beds than comparable district health boards.

The figure below sets out projected bed numbers for Christchurch Hospital if they operate at an ideal of 85 per cent capacity.

**Figure 9: Bed capacity, Christchurch**



*'What we are doing,'* David Meates says, *'is flatten the demand curve. In some areas we have actually reduced it, and over future years that is billions of dollars in capital that does not have to be spent.'*

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*'We are changing the demand curve and getting away from "we need more and more resources to see more patients". The language we use, very deliberately, is "right care, right place, right time". So you have to demonstrate this is the right path for the patient and it is removing wastage of their time. And what we have been increasingly able to demonstrate is that by removing that wastage, that is where the unnecessary spend is. Once you start getting the whole system to work as one system, it starts flushing out unnecessary expenditure. So you can do more and/or do it better.'*

But can this approach actually shrink the hospital base – given the demographics that affect most of the developed world, including New Zealand in general and Canterbury in particular, and new technology, which can move investigation, monitoring, procedures and treatment outside hospital, but can also create new costly procedures within it?

*'I am not sure,' David Meates says. 'But from our experience I do believe you can broadly leave the hospital where it is in terms of overall resources, and invest in the community in a way that delivers much better and much more integrated care for patients across health and social care. At the same time that can also provide a much more rewarding life for our professionals and staff, wherever they work in the system.'*

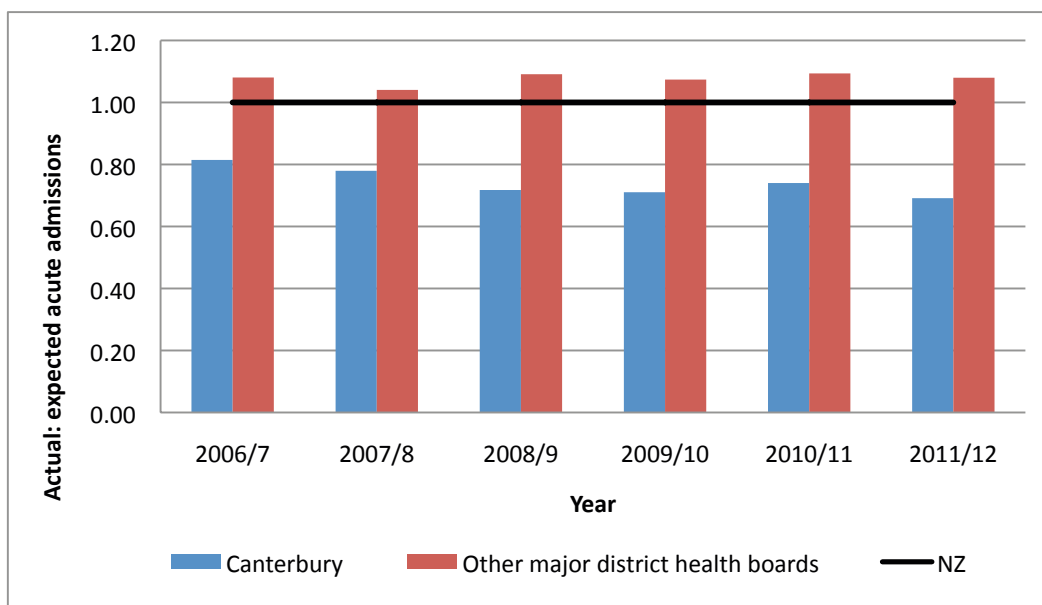
The final answer to the question 'has Canterbury transformed its health service?' has to be no. Transformation is a large word, and transforming health care is not a journey to a destination but a journey down a road that probably never ends as medical technology and patient capability changes, endlessly altering what can be done where and by whom.

However, if the question is 'is Canterbury transforming?' – the answer is undoubtedly yes. And what it is doing is certainly transformational.

To provide a completely positive answer to the first question, more data around the quality of care, clinical outcomes and patient experience and satisfaction would be needed, and ideally some clearer attribution of which changes have produced which improvement. But huge progress has clearly been made, and Canterbury is far from alone in facing the challenge of measuring the impact of more integrated care.

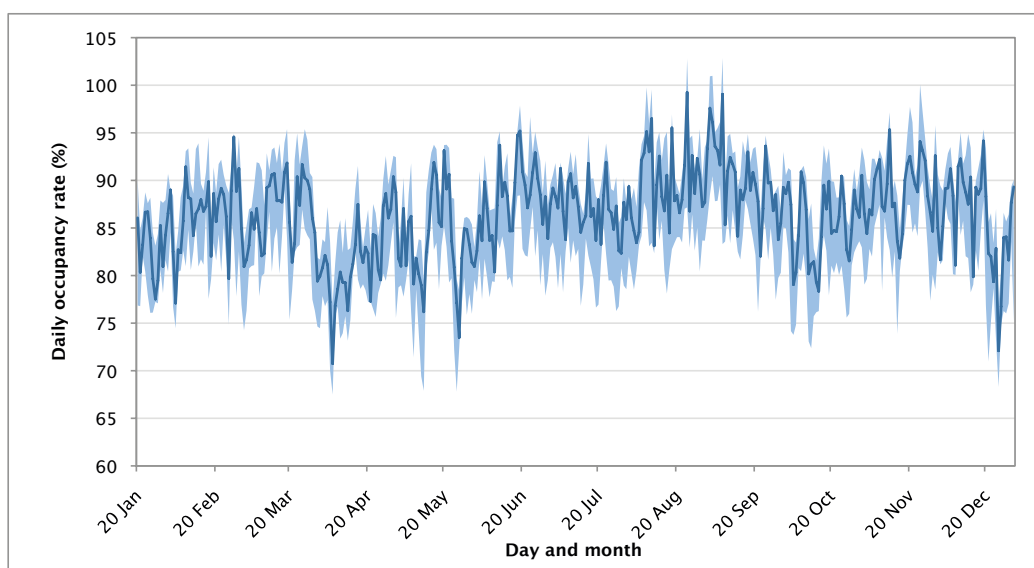
## 7 Data appendix

**Figure A1: Age-standardised rates of acute medical admissions per annum, Canterbury health board, other major district health boards and New Zealand**



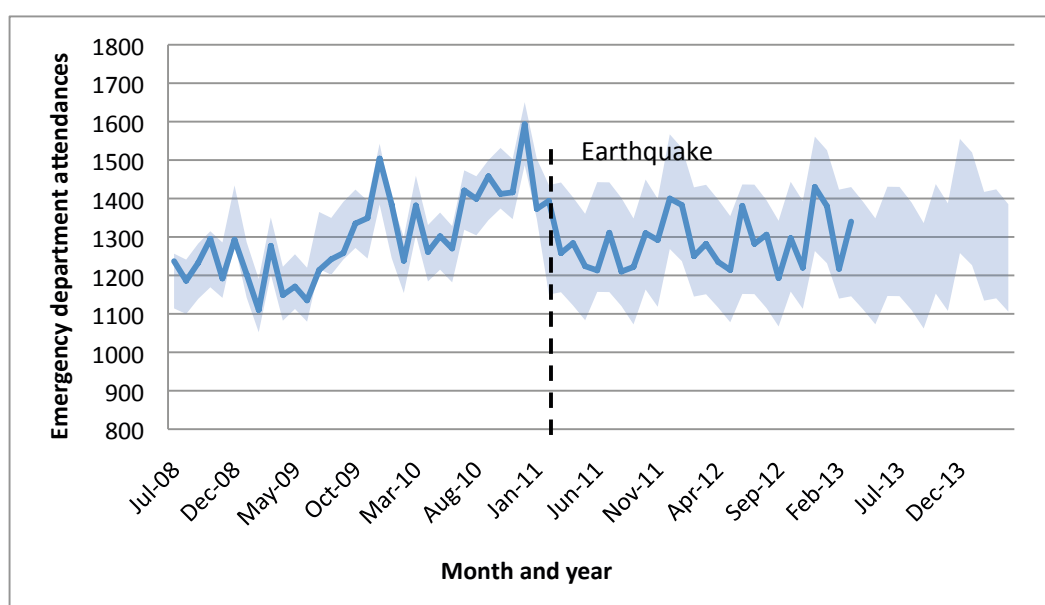
Source: Canterbury District Health Board calculations from Ministry of Health data

**Figure A2: Christchurch Hospital daily occupancy range, 2012**



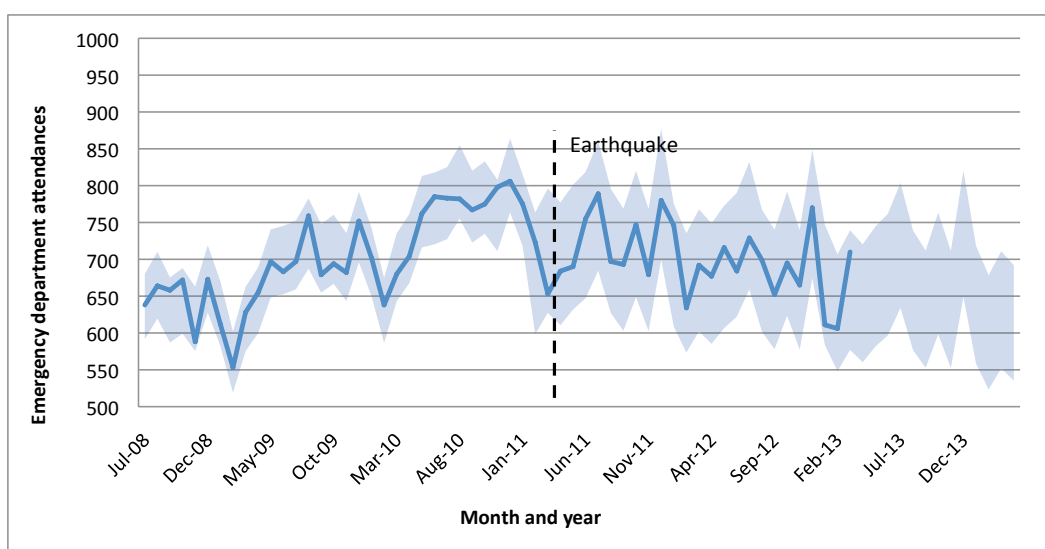
Source: Canterbury District Health Board

**Figure A3: Emergency department attendances for patients aged 60–80, Christchurch Hospital, 2008–2014 (forecast)**



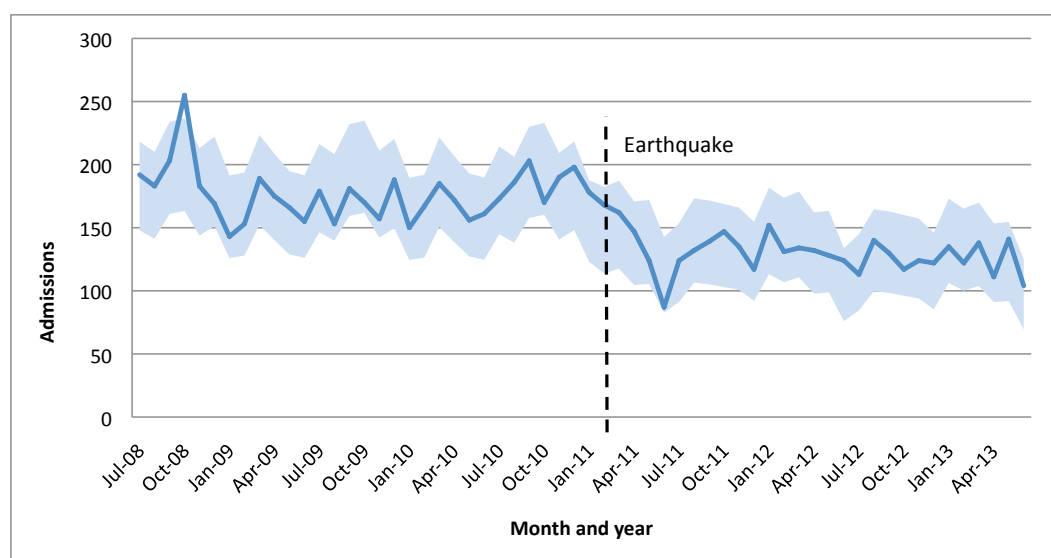
Source: Canterbury District Health Board

**Figure A4: Emergency department attendances for patients aged 80+, Christchurch Hospital, 2008–2014 (forecast)**



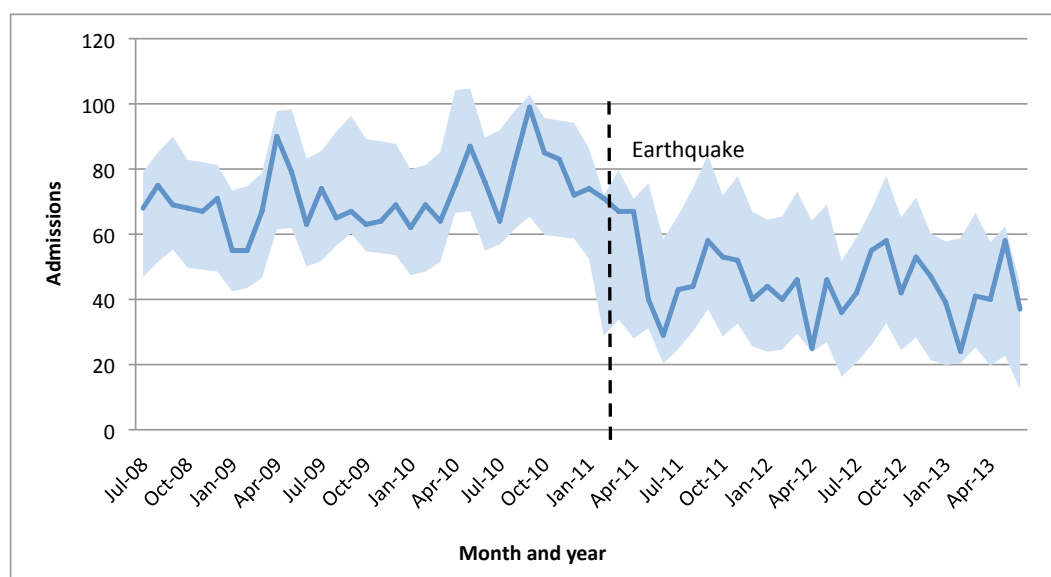
Source: Canterbury District Health Board

**Figure A5 Acute inpatient admissions from the emergency department following GP referral, patients aged 60 to 80**



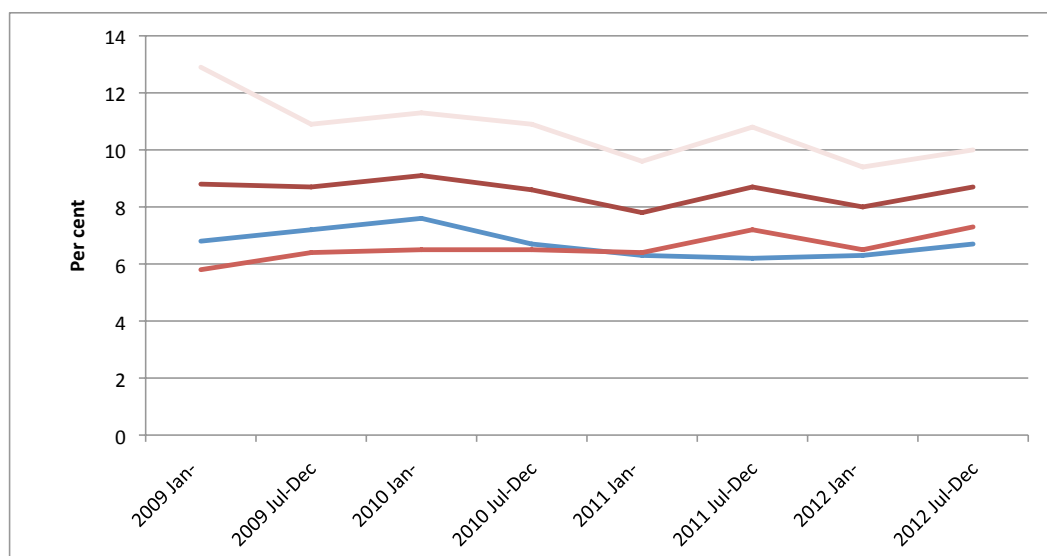
Source: Canterbury District Health Board

**Figure A6 Acute inpatient admissions from the emergency department following GP referral, patients aged 80+**



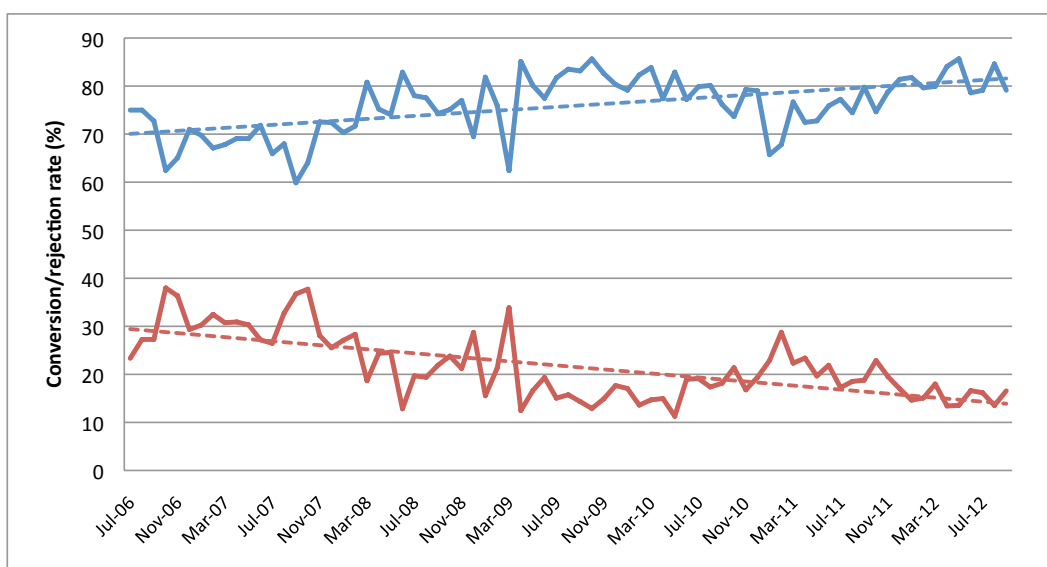
Source: Canterbury District Health Board

**Figure A7 14-day readmission rate: Canterbury in comparison to all major Australian and New Zealand hospitals**



Source: Health Roundtable

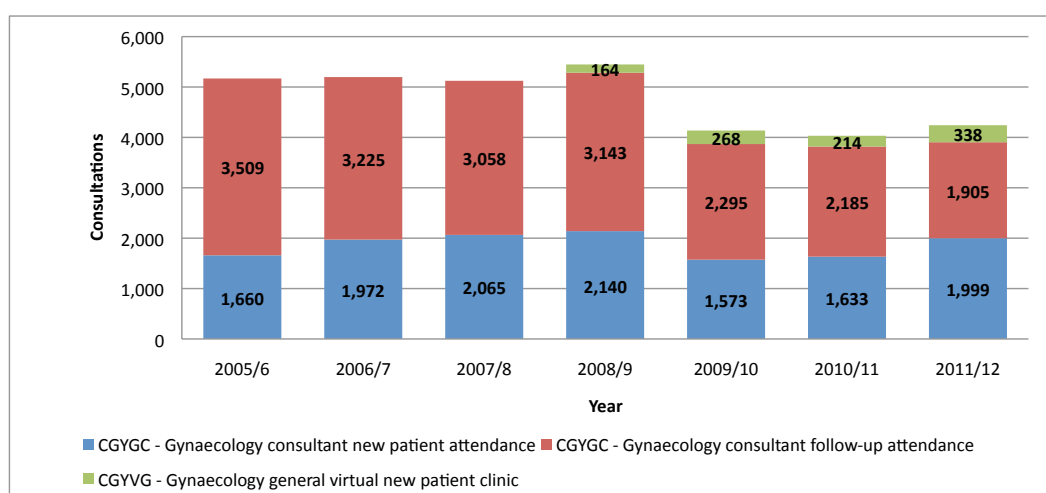
**Figure A8 Rate of conversion of Christchurch Hospital gynaecology outpatient referrals to first specialist appointment**



Source: Canterbury District Health Board

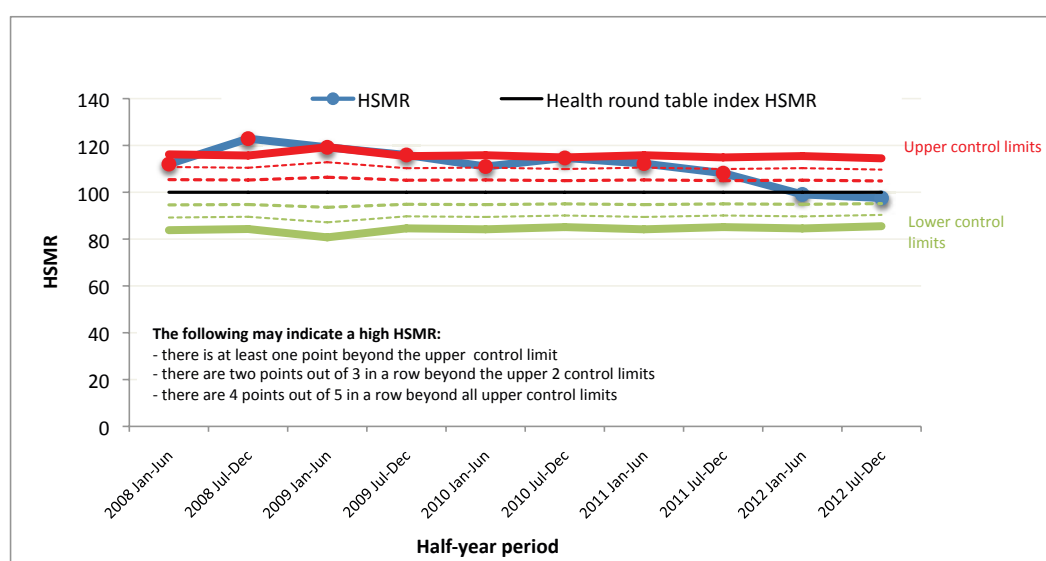


**Figure A9: Christchurch Hospital gynaecology consultations by attendance type, per annum**



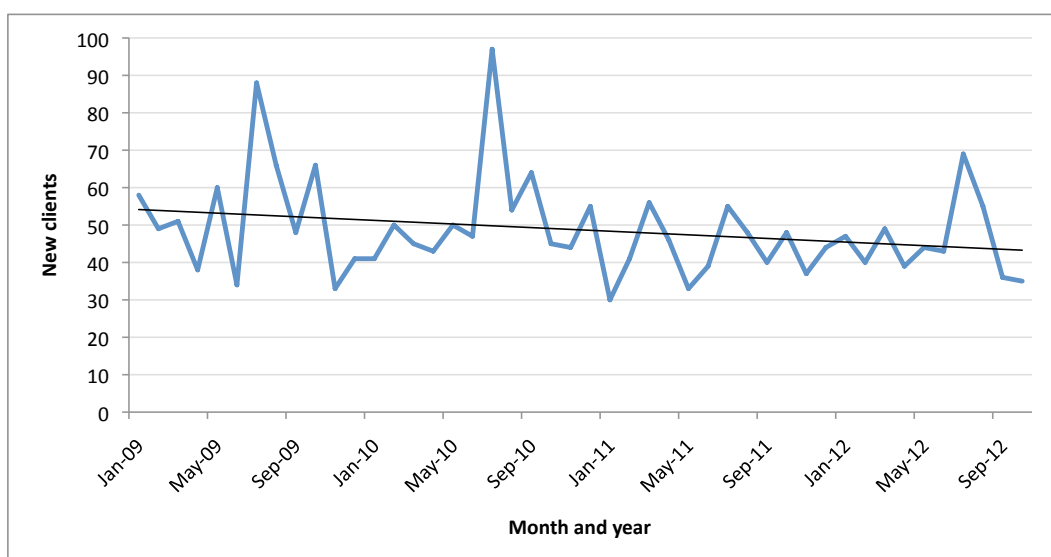
Source Canterbury District Health Board

**Figure A10 Canterbury's hospital standardised mortality rate (HSMR) per half-year period, 2008–2012**



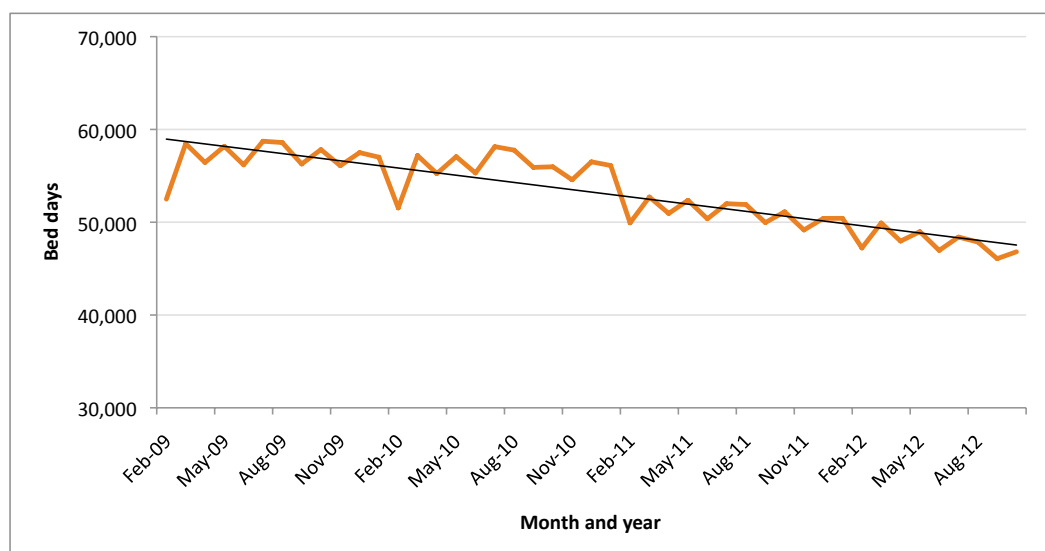
Source: Health Roundtable

**Figure A11 New clients in aged residential care (residential homes), Jan 2009–Sept 2012**



Source: Canterbury District Health Board

**Figure A12 Bed days for rest home care, Feb 2009–Aug 2012**



Source: Canterbury District Health Board

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## Acknowledgements

This study would simply not have been possible without literally dozens of people giving up their time, and in some cases considerable amounts of their time, to explain the way of the world in Christchurch and Canterbury.

It is invidious to name names. But we would in particular like to thank, in Christchurch and in no particular order, David Meates, Carolyn Gullery, Dr Nigel Millar, Vince Barry, Dr Graham McGeogh, Mr Saxon Connor, Tom Love, Dr David Kerr, Mary Gordon, Stella Ward, Professor Les Toop, Carol Limber, Dr Ruth Spearing, Richard Hamilton, Dr Angus Chambers, Kathy O'Neill, Kay Fletcher, John Baird, Frank Cook and Jim Magee, Simon Berry, Greg Hamilton, Roger Sutton and Dr Rod Elford. Many others, however, also helped, and without the awesome organisational skills and good humour of Susan Fitzmaurice, none of this would have happened.

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A considerable number among those named above read drafts of this at various stages, correcting errors and misinterpretation, and offering alternative views. All the remaining errors of fact, judgement and tone remain entirely the responsibility of the first author.