

Waitemata District Health Board's 'Package of Care' Elective Surgery Model: A costly experiment?

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Preface

A key role of the Association of Salaried Medical Specialists (ASMS or the Association) over the years has been to bring important health sector issues to the attention of its members, the public in general and other stakeholders. One means of fulfilling this role has been the publication of *Health Dialogue*, an occasional paper produced to stimulate debate and policy discussion on a particular current issue.

In this Health Dialogue we examine a controversial 'model of care' that has been introduced in Waitemata District Health Board's new stand-alone Elective Surgery Centre (ESC). Dedicated elective surgical centres, separated from acute and emergency surgery, are recognised both internationally and in New Zealand as both appropriate and beneficial under certain conditions. The controversy is over the particular development and application of this concept in Waitemata, using a slogan-like 'package of care' model.

This 'package of care' application has radically changed the way elective surgery services are provided at Waitemata DHB and it has been suggested the model could be introduced in other DHBs. The model has significant risks, however, and there is concern that it has been introduced without robust assessment of those risks, as well as the direct and indirect costs of its implementation.

The ASMS believes it is important, therefore, that the public and those involved in the health system are aware of the arguments for and against such a model and that there is free and frank discussion involving all stakeholders to ensure there is full understanding of the potential effects of such a model wherever it is used.

For these reasons this issue of *Health Dialogue* is being distributed widely to ASMS members, the medical colleges and to the general public via the media and the ASMS website.

Opinions expressed in the paper are those genuinely held by ASMS, having carefully considered all the relevant material available to it.

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INTRODUCTION

Waitemata District Health Board's new Elective Surgery Centre, which opened its doors on 11 July 2013, is a welcome addition to the region's public hospital facilities but it brings with it a new way of providing services that, international evidence suggests, has serious shortcomings.

While this 'package of care', as it is called, includes features that have shown to improve the effectiveness and efficiency of elective surgery services, it also includes features that can be seriously counter-productive.

The use of surgeons as private contractors and the payment of financial incentives to surgeons to provide 'more for less', based on crude measures of 'productivity', are especially contentious. There is evidence that these features could see the 'package of care' rapidly unravel and become a costly mistake. They have already created deep divisions among staff at the DHB at a time when, more than ever before, stronger cooperation and cohesiveness is needed to meet the significant health challenges ahead.

There is also some uncertainty on how the 'package of care' will impact on access to medical training in low-complexity elective surgery, and on the provision of services – especially acute services – at the DHB's main North Shore Hospital.

While the proponents of the new model – led by the DHB's senior management – have lauded it as a great success, based on the findings of a controversial 'pilot' study conducted at the DHB, this Health Dialogue raises substantial questions that challenge the validity of that claim. It examines the way the 'package of care' was developed (that the Official Information Act was needed to access key documents speaks volumes), and in effect provides a case study in what happens when health service change-makers attempt to short-cut the usual processes required in developing evidence-based medicine. Indeed some aspects of the process used in developing this model suggest there may have been a predetermined agenda.

This Health Dialogue also outlines a tried and tested alternative model, successfully implemented at Counties Manukau DHB but which, without a sound explanation, Waitemata DHB management rejected.

Also discussed is the extent to which increasing surgical workforce pressures appear to have been a major underlying factor in the DHB's decision to use private contractors to meet its increased services demand.

EXECUTIVE SUMMARY

- The Government has set a target for DHBs to increase the volume of elective surgery by at least 4000 discharges per year (regardless of complexity). At the same time, health workforce and surgical discharge data suggest the supply of DHB employed surgeons is not matching the increasing service demand.
- Waitemata DHB, which has one of the highest acute admissions rate in the country and has been hindered by surgical staff shortages, has been struggling to meet the elective surgery target and so in April 2010 began an elective surgery 'pilot' aimed at providing more surgery for less cost. This was to be a basis for a DHB business case for the building of the recently opened stand-alone elective surgery centre (ESC).
- The pilot, which was developed by a DHB team comprising mainly of a small number of surgeons and anaesthetists, introduced a number of changes to the usual way of providing elective services at the DHB. They included the separation of elective from acute surgery, the exclusion of resident medical officers in all aspects of care (and therefore removing all training responsibilities for the surgeons and anaesthetists), the establishment of dedicated clinical teams and dedicated surgical beds, and financial incentive-based contracts for surgeons and anaesthetists working as private contractors.
- This new 'package of care' initially involved total hip replacements for non-complex patients, but was later extended to include non-complex knee replacements and other surgical sub-specialties.
- Around March 2011 Auckland Uniservices, an arm of Auckland University, was commissioned by the DHB to undertake a scoping study of factors affecting productivity in models of elective surgery (despite the elective surgery 'pilot' already being well under way) and an analysis of the pilot.
- Uniservices' report, delivered to the DHB on 25 July 2011, said preliminary analysis (not included in the released report) indicated that surgical and related procedures carried out at the pilot site (Waitakere Hospital) were less costly than the standard care provided

by the DHB at its North Shore Hospital. The report also indicated divisiveness among pilot participants, and stated a 'rigorous cohort analysis' was needed to compare properly the two sites and that more data was needed. Uniservices was engaged to undertake the analysis. Eight days after their report was delivered to the DHB, the Minister of Health gave the go-ahead for the ESC to be built.

- In September 2011 an analysis of comparisons between the 'package of care' and North Shore Hospital was produced not by Uniservices but a 'Waitakere Orthopaedic Pilot Team', as an internal DHB document. It claimed the 'package of care' delivered increases in productivity and cost savings but had not taken into account the data deficiencies identified by Uniservices. The DHB board extended the 'package of care' approach at Waitakere Hospital until the opening of the ESC on the basis of the paper's findings.
- A paper, 'Increasing productivity, reducing cost and improving quality in elective surgery in New Zealand: the Waitemata District Health Board joint arthroplasty pilot,' based on the earlier 'Waitakere Orthopaedic Pilot Team' paper but with some revised figures, was published in the *Internal Medicine Journal* in June 2012. A second paper, "Improving the productivity of elective surgery through a new 'package of care'," was published by *Health Policy* in November 2012.
- The first paper indicated "significant increases in productivity" at the pilot site compared with North Shore Hospital and total inpatient event costs were found to be 12% and 17% lower for hip and knee replacements respectively. The cost reductions were achieved by reducing the time taken for operations and by reducing patients' length of stay in hospital. The paper says the overall costs were reduced despite the incentive payments to surgeons and anaesthetists involved in the pilot being "considerably higher than standard medical contracts offered at the DHB". (For surgeons the payments amounted to more than \$8,000 per day.) No mention was made of divisions among the clinical staff within the pilot itself, caused by some key aspects of the pilot programme.
- The published papers conceded a number of shortcomings of the pilot study, including methodological limitations, an inability to identify which aspects of the 'package of care' contributed to its effectiveness and which might have worked against it, a lack of quality indicators, data limitations that among other things "may not reflect actual

resource consumption to a high degree of accuracy,” and uncertainty about whether any gains from the new model will outweigh the additional costs of financial incentives over time.

- Other shortcomings identified in this Health Dialogue include:
 - Exclusion of resident medical officers (and therefore exclusion of training opportunities) from the ‘package of care’ services. (The authors of the above papers acknowledged that the absence of training responsibilities ‘undoubtedly’ contributed to the cost reductions in the pilot. The DHB has since accepted that training opportunities must be a part of the ‘package of care’ and, at the time of writing, a six-month education pilot programme in general and orthopaedic surgery was planned. There was no indication, however, of the extent of additional costs of training involving specialists on private contracts.)
 - There is no evidence that financial incentives contributed to any increase in productivity in the ‘package of care’. At best, the literature indicates financial incentives are an experiment; they can be expensive but there is little robust evidence to show they are cost effective or improve quality. The literature shows, however, that they present substantial risks.
- In March 2013 the DHB, after considering and rejecting an alternative model that did not involve financial incentives, announced that the Waitakere pilot model would be used for the ESC.
- In May 2013, anaesthetists, after previously rejecting the fee-for-service plan for the ESC, negotiated through the ASMS an agreement with the DHB to work at the ESC as salaried employees. This amounted to a rejection of what advocates of the ‘package of care’ ideology were insisting on in respect of the form of employment.
- At the time of publication the preparedness of surgeons (outside some orthopaedic and general surgeons) to be engaged as private contractors is unclear. There remains a noticeable level of divisiveness and opposition.

At best, the literature indicates financial incentives are an experiment; they can be expensive but there is little robust evidence to show they are cost effective or improve quality.

Risks of introducing financial incentives in health care

- **That the quality of care is compromised**
When there is an absence of good data on the quality and outcomes of patient care, as is the case with the 'package of care', it is difficult to determine if health professionals are sacrificing patients' needs to financial expediency. Claims of improvements in quality of care for patients treated in the pilot appear to be based mostly on a reported reduced need for follow-up by community therapy and occupational therapy. However, generally patients benefit from post-operative physiotherapy. Patients having surgery at the pilot site may actually have had worse outcomes in terms of mobility.

- **That access to care is compromised for non-'package of care' patients**
Increasing service levels for specific conditions can create inequities as some people with other conditions and higher levels of need remain untreated - firstly as a direct consequence of the focus on selected, low-complex cases for specific procedures and secondly through 'crowding out' other services drawing on the same limited hospital resources.

On the first matter, patient discharge data for hip and knee replacements at Waitemata DHB show a marked drop in the number of complex cases during the year of the pilot study (ie, those that do not qualify for the incentivised programme). Further, the pilot study showed evidence that the lowest risk of the low-risk patients had been 'cherry picked' for the 'package of care' programme. On the second matter, data also suggest the Waitakere pilot has contributed to a growing inequity in the provision of services between orthopaedics and other surgical departments, with musculoskeletal discharges increasing at a rate far above other discharges.

- **That general public hospital resources may be depleted**
Under the DHB's plans, around 30% of elective volumes that have up until recently been provided publicly will be transferred to the ESC (though according to Ministry of Health discharge data, that figure could be closer to 40%). This potentially puts the DHB in the position of having to reduce surgeons' public service hours as they increase their time working as private contractors in the ESC. That would result in North Shore Hospital being left to cover acute services, complex elective cases and a relatively small number of low-

complexity elective cases, leaving the hospital with higher cost cases. Given Waitemata DHB has one of the highest acute surgical admission rates in the country (acute caseweight volumes have increased by 25% in the last five years), any reduction in surgical staff would raise serious questions about how the DHB could safely cope with its acute admissions. Alternatively, the DHB could employ more surgeons (or pay for more surgeon hours) at North Shore Hospital to replace the hours lost to the ESC. This, however, would incur additional costs and therefore goes against what the ESC is intended to achieve.

- **That staff become divided**

This has already occurred. It was identified in the qualitative analysis in the scoping study, and it has been acknowledged by DHB management in different meetings. Anecdotally, deep divisions became more widespread as more became known about the ‘package of care’.

- **That the costs of the programme outweigh any direct benefits**

Questions remain about the actual costs of the ‘package of care’ in relation to other comparable services, due in part to a lack of data and a lack of clarity in how some of the costs were assessed. Perhaps most significantly, given that the DHB is now including training in the ‘package of care’, the additional cost of training will need to be factored in. This could be significant as, despite the DHB’s intentions to introduce a new model of training to reduce in-theatre training, surgeons will be involved in training as highly paid private contractors.

There are also other costs associated with the ‘package of care’ model that have not been acknowledged. The contracting of services to private providers – be it, in this case, within the public hospital setting – includes the costs of negotiating contracts (including the estimating of costs and prices), monitoring the contracts and possibly settling any disputes between the contracting parties. Determining accurate costs of specific services is not straightforward. Nor is the monitoring of contracts an insignificant task.

The ‘package of care’ model could lead to substantial costs downstream, both in relation to the impact on publicly provided services and the likelihood that the specialists working as private contractors will be in an increasingly strong position to negotiate more lucrative contracts as the model is rolled out. As publicly funded services become increasingly dependent on specialists working

privately, regardless of whether it is in a private or public facility, there is the likelihood of increasing upward pressure on contract prices, especially where there is minimal or no competition.

The costs of the 'package of care' to the DHB overall – according to its financial statements – are already increasing. In 2011/12 the DHB received \$7.7 million in additional government funding specifically for 'various programmes' including 'elective services productivity pilots' and a \$6.3 million increase in outsourced services costs compared with the previous year (making it \$12.7 million over budget for outsourced services in 2011/12). It appears the budget blow-out was due in part to the costs of the surgeons and anaesthetists contracted to the 'package of care' programme. Also, the overall DHB hospital personnel costs were above budget by nearly \$30 million. And there is more money yet to be pumped into the 'package of care' model, despite the original rationale for the 'package of care' being the delivery of more services for less cost. A DHB September/October 2012 newsletter updating developments on the ESC states "there are around 30 new, predominantly nursing, roles to be filled" for the ESC.

The Minister's 2013/14 'Letter of Expectations' to DHBs shows Waitemata is to receive funding to provide by far the largest 'health target' increase, over and above the base increase, than other DHBs. On a per population basis, the increase means Waitemata DHB will receive about 6.6% more elective funding than Counties Manukau, for example, despite the latter servicing a population with greater health needs.^a

The spending increases in 2011/12, including a specific funding injection into the pilot programme, coincide with significant increases in elective surgery discharges, including complex cases, especially for musculoskeletal procedures.

^a This estimate takes into account the \$2 million funding increase over three years for elective services at Counties Manukau DHB, announced by the Minister of Health in April 2013, assuming that \$2 million is evenly distributed over the three-year period.

Other features of the ‘package of care’

The literature generally indicates that separating elective care from emergency pressures through the use of dedicated beds, theatres and staff can – if well planned, resourced and managed – reduce cancellations, achieve a more predictable workflow, provide good training opportunities, increase senior supervision of complex and emergency cases, and therefore improve the quality of care delivered to patients.

A proviso is that it is best suited to low-complexity cases and requires a high volume of patients. Without a high volume of patients, the effects of ring-fencing elective surgery on a hospital’s overall efficiency can be small or even counter-productive.

It is also necessary to explicitly integrate such elective surgery approaches with strategies to manage other services provided by the hospital, with special attention to acute capacity demands. Normally the cancellation of elective surgery acts as a safety valve if acute surgery services are inadequately resourced or during intermittent peaks of acute demand. If that safety valve is removed because electives have been ring-fenced, other measures must be put in place to ensure acute services are able to cope at all times. Where elective services are separated from acute services in other models, such as that at Counties Manukau DHB outlined below, there is generally some flexibility where elective surgery is cancelled when necessary so resources can be redirected to acute services during times of particularly high demand. The private-public model at Waitemata DHB impedes such flexibility.

If acute surgery services are inadequately resourced the cancellation of elective surgery acts as a safety valve. If that safety valve is removed other measures must be put in place to ensure acute services are able to cope at all times.

An alternative model

Counties Manukau DHB’s Manukau Surgical Centre, which is dedicated to providing elective surgery, has been operating successfully for over a decade, along with the development of a range of acute demand management initiatives.

Key features of the Manukau Surgical Centre model include some of the main features of the Waitemata ‘package of care’ pilot, with the main differences being that surgery is fully publicly provided and medical

training is provided (which was added later to the 'package of care' model).

Today, almost all day surgery for CMDHB and over 90% of other electives are carried out at the Manukau Surgical Centre.

Since 2005, the CMDHB's elective surgery casemix discharges increased by 60% by 2010/11. Further, acute discharges were held to an annualised growth of just 1%. As a result, the proportion of elective discharges out of total surgical discharges has increased from 32% to 42%. The model is considered in the New Zealand literature, including a Ministry of Health-commissioned review of major joint orthopaedic services and cataract extraction, as a successful example of separating elective and acute services.

1. BACKGROUND

The Government has set a target for DHBs to increase the volume of elective surgery by at least 4,000 discharges per year (regardless of complexity). However, the growing and ageing population, along with workforce shortages and real funding cuts, are putting the health system under increasing pressure to maintain access and safety in acute services as well as elective services.

At the same time, employment opportunities for theatre staff in the private sector have been increasing with significant increases in the volumes of both privately funded and publicly funded surgical work carried out in the private sector over the past decade.

The number of orthopaedic procedures funded by Southern Cross, New Zealand's biggest health insurer, increased by 26% between April 2007 and March 2012. In addition, the number of tax-funded surgical procedures provided by private hospitals (excluding ACC-funded) increased from 1,450 cases in 2005/06 to over 11,700 in 2011/12.

Signs of a shifting of theatre staff towards the private sector was already occurring in 2007 when a Royal Australasian College of Surgeons' survey found more than one in six surgeons (17.5%) was working solely in private practice – matching the proportion working solely in the public system (most surgeons work in both public and private systems).¹

In orthopaedic surgery an estimated 25 new surgeons are required each year, while there has been an average of only 13 new vocational registrations over the past five years.

Further, the shift has been occurring when the supply of surgeons is struggling to match increasing service demand. A study into New Zealand's projected need for surgeons to 2026 estimates that to provide sufficient services to cover health needs requires approximately 77 new surgeons a year. The average number of new vocational registrations in surgical specialties for the last five years (2008-2012 inclusive) was 48. In orthopaedic surgery specifically, an estimated 25 new surgeons are required each year, while there has been an average of only 13 new vocational registrations over the past five years.^{2 3}

DHB surgical workforce data, obtained under the Official Information Act, show the number of permanent FTE surgeons employed by DHBs increased by approximately 13% in the four years from December 2008 to December 2012. However, caseweighted publicly funded surgical discharges from 2007/08 to 2011/12, including acute, elective and ACC-funded procedures, increased by 20.4% according to Ministry of Health data.^b

Up until now, DHBs have been managing by a combination of outsourcing to the private sector, using locums (DHB data show the use of temporary surgical staff is increasing), and increasing efficiency. But the extent of the growth in demand (in both private and public sectors) compared with the lesser growth in surgeons is leading to an increasing workforce shortfall. The Government's response to increasing service demands and increasing workforce pressures has been to focus on reorganising services and developing new service models – essentially attempting to find new ways of doing more for less.

Waitemata DHB is a case in point.

The growing and ageing population in the district has led to an escalating demand for acute and elective surgery. According to the DHB the increasing acute surgical demand has progressively restricted the availability of elective beds and operating theatre capacity (although other DHB reports, as indicated below, show the DHB's Waitakere Hospital operating theatres were under-used due to staff shortages).⁴

At the beginning of 2010 the number of patients waiting for surgery longer than six months at Waitemata DHB had been steadily increasing.⁵ In the same year Waitemata DHB had the second-lowest standard intervention rate for elective surgery in the country.⁶ The DHB was faced with a challenge of increasing the surgical intervention rate within a fixed capitated budget.

The low elective surgery rates appear to be due in part to the high number of acute admissions relative to most other DHBs. A Ministry of Health analysis in 2009 recorded Waitemata as having the highest acute admission rate in the country, well above the expected admission rate for its population. Subsequently the DHB's own analysis, standardised for age, sex, ethnicity and social deprivation, gave the DHB the fifth highest

^b Extracted from the National Minimum Data Set.

rate in the country, behind Tairāwhiti, South Canterbury, Wairarapa and Lakes.⁷

Whichever analysis is more accurate, it would appear that Waitemata services have been weighed down by the DHB leadership's failure to implement an effective strategy to reduce acute admissions.

Staff shortages appear to have been another key factor in the DHB's inability to improve its elective

surgery rates, especially at the DHB's Waitakere Hospital. A report in 2010 by the DHB's Chief Operating Officer noted:

"The principal factor in the historically relatively low utilisation [of theatres at Waitakere Hospital] is the cautious approach to the content of operating lists arising from the lack of resident or senior surgical staff based at Waitakere Hospital."⁸

Waitemata services appear to have been weighed down by the DHB leadership's failure to implement an effective strategy to reduce acute admissions.

There is also evidence of increasing competition for staff between the public and private sectors. In 2012 the Waitemata DHB region had the highest number of Southern Cross-funded surgeries in the country, with nearly 34,000 operations funded in that year. This is 20% of the total number of surgeries funded by Southern Cross nationwide, while the DHB covers just 12.6% of New Zealand's population^{9 10} (Figure 1). In addition to privately funded surgery, publicly funded procedures outsourced to the private sector accounted for around 9% of all elective operations funded by the DHB over recent years to 2010.¹¹

With privately funded and publicly funded elective surgery combined, the private sector currently carries out around half of all elective surgery in New Zealand.¹² Given the disproportionate amount of privately funded surgery provided in the Waitemata region, it may be assumed that the private sector provides more than half of the elective surgery carried out there. Workforce data released under the Official Information Act show that despite Waitemata DHB having one of the fastest growing populations in the country, it is employing fewer permanent orthopaedic surgeons than five years ago. Currently the DHB has the lowest number of full-time equivalent (FTE) orthopaedic surgeons per population in the country, yet there are no vacancies for orthopaedic surgeons at the DHB.

Instead of investigating and addressing what appears to be a staff shortage issue, in 2010 the DHB developed a business case for what has now become the new stand-alone Elective Surgery Centre (ESC). It included

proposals to test new models of care. Hence, in April 2010 the DHB began a 'trial' of a new approach for providing total hip replacements for non-complex patients, which was extended to include knee replacements in July 2010 and other surgical sub-specialties from October 2010. The trial was described, contestably, as a 'pilot'.

The 'pilot' included the separation of elective from acute surgery, the establishment of dedicated teams and dedicated surgical beds and, most controversially, the exclusion of resident medical officers in all aspects of care and having DHB surgeons and anaesthetists working on the pilot as private contractors with productivity 'incentive payments'.

The director of the Waitemata ESC, orthopaedic surgeon John Cullen^c, is reported to have suggested high incentive payments to specialists involved in the pilot were necessary to be competitive with private sector rates.¹³

In August 2011 the Minister of Health gave the go-ahead for the ESC to be built, apparently based on a preliminary analysis of the pilot, though a subsequent analysis found it achieved "significant increases in productivity and reduced overall costs".

The most potentially damaging aspects of the model concern the effects of paying financial incentives to some medical staff involved in the ESC.

However, significant shortcomings in the pilot model and the analysis prompted major concerns from the New Zealand Society of Anaesthetists and the ASMS, as well as senior medical staff at Waitemata DHB.

The DHB later conceded that the training of medical staff was "critical to the future workforce requirements of the profession" and has been investigating a new training model for the ESC. Among other things it has to find a way to avoid the high cost of having surgeons providing training while on private contract rates and without impeding 'productivity'.

The most potentially damaging aspects of the model concern the effects of paying financial incentives to some medical staff involved in the ESC.

This issue in particular has created deep divisions among the DHB medical staff. Nevertheless, the DHB, after considering and dismissing an

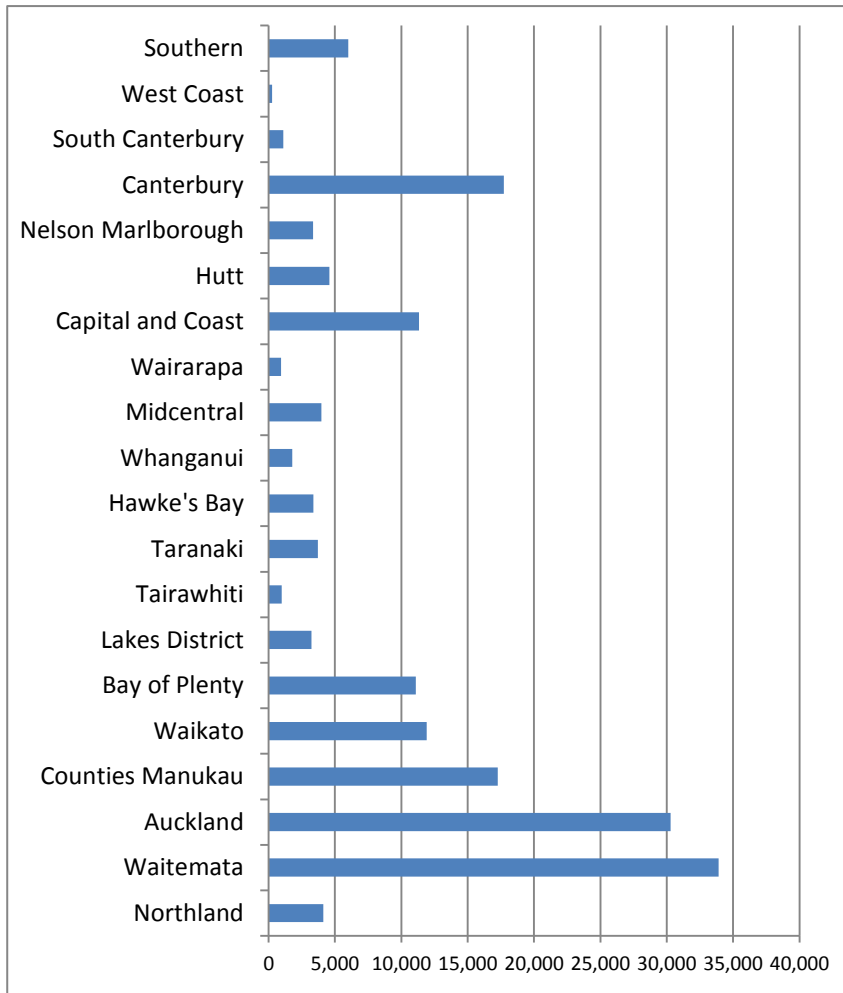
^c John Cullen is reported to have recently retired as a surgeon.

alternative model that did not involve financial incentives, announced in March 2013 that the Waitakere pilot model would be used for the ESC.¹⁴

Two months later, however, the DHB's anaesthetists, who had previously rejected the planned use of the private fee-for-service model at the ESC, negotiated (through the ASMS) an agreement with the DHB to work at the ESC as salaried employees.

The ESC opened on 11 July 2013. It provides Waitemata DHB with four operating theatres, 40 inpatient beds, 10 consulting rooms, a post-anaesthesia care unit and a theatre sterile supply unit. The facility is dedicated to elective surgery and the intention was to provide gynaecology, general surgery, orthopaedic, urology and ENT surgery.¹⁵ At the time of publication, however, ENT surgeons had declined to be involved in the ESC. (The ASMS understands that, aside from philosophical issues with the payment of financial incentives, the surgeons' main objection was that any involvement with the ESC would have entailed a reduction in overall theatre sessions and so would have reduced their capacity to meet increasing service demand.)

FIGURE 1: NUMBER OF SOUTHERN CROSS-FUNDED SURGERIES BY DHB REGION, 2011/12



Source: Southern Cross, 2012.

2. A CURIOUS TIMELINE OF EVENTS

This timeline of events up to the publication of two papers on the ESC pilot illustrates how the initially proposed analysis of the pilot project commissioned from Auckland Uniservices Ltd was, over time, pared back, and how the process for investigating the best options appears to have been overtaken by a process to advance a model developed within the DHB. The sources of much of this information are documents, including emails, obtained under the Official Information Act. The details of the sequence of events are not complete because some of the information that had been sought was not provided, without explanation (contrary to the requirements of the Act).

April 2010:

The Waitemata DHB starts the trial of a new model of care at Waitakere Hospital for total hip replacements for non-complex patients.

July 2010:

The trial is extended to include knee replacements.

October 2010:

Other surgical sub-specialties are added to the trial.

November 2010:

A Uniservices' proposal is submitted to the DHB "in response to WDHB's request to commission a formal study to identify drivers and incentives behind productive theatre models and undertake an options analysis to determine those suitable for the New Zealand environment" (though the DHB's pilot was already well under way). The proposal notes that the pilot model differs from standard care at North Shore Hospital in at least three important ways:

- It includes low-complex cases only.
- "Clinical training is confined to selected theatre sessions which have an educative value" [in fact no training was included].
- Surgeons are employed as private contractors and paid by fee-for-service rather than by salary.

"The first two will be especially important when attempting to make cost comparisons as, in order to compare like with like, such

comparisons will need to control for any differences in case mix and in training requirements.”

The study questions would be:

1. How do the costs of fast-stream elective surgery undertaken at Waitakere Hospital compare with the cost of treating similar cases undertaken at North Shore Hospital?
2. What are the key drivers and incentives that effect productivity?
3. How do changes in these drivers and incentives affect variables such as costs, throughput, and waiting time?
4. What impact might the introduction of an Elective Surgical Unit (ESU) have on the costs, throughput and waiting time at North Shore Hospital?
5. How generalisable are the results from Waitakere Hospital to the new ESU?

The study would assess the potential productivity of the new model by building a discrete-event simulation (DES) model and populating that model with data from the pilot. The DES maps each patient’s pathway through the system as a sequence of events. This enables examination of the key factors that influence the pathway of patients who are treated under different models of care, the associated use of resources and their costs.

20 December 2010:

After further discussion a revised proposal was submitted. Changes made from the initial proposal include:

- Exclusion of an options analysis to determine which elective theatre models are suitable for the New Zealand environment.
- Exclusion of Question 1 on comparing costs (though this was planned for Stage Two of the project, using the DES approach, for which a second proposal was to be submitted).
- Exclusion of Question 4 on the possible impact of the new model on surgical services and costs at North Shore Hospital. (This work, according to an email from the DHB to Uniservices, “had commenced internally”).

- Exclusion of Question 5 on the applicability of the results from the Waitakere pilot to the new ESU.
- Addition of a new question about seeking the views of anaesthetists, surgeons “and other key stakeholders” on the new model.

Stage One of the study would comprise a literature review, a series of interviews and “process map patient pathways together with preliminary data collection in preparation for Stage Two”.

Benchmarking data would also be sought from Counties Manukau DHB and Burwood Hospital, “these being sites known to have successful models of care”. However, “the density of data requirements precludes the inclusion of these latter two sites in the discrete-event simulation model”.

Subsequent emails indicate the proposal is revised further but the details have not been made available.

1 March 2011:

The DHB advises in an email to Uniservices that “in terms of the funding of this there is probably a need to get a preliminary report out end of June”.

19 July 2011:

Uniservices advises that their report would be completed by early the following week. They seek information about whether treatment costs estimated by the DHB “for a number of sub-groups of patients treated at each site, matched by ASA grade, low-co-morbidities, low post-op complications and ordinary lengths of stay” could be included in their report. They understood the information to be confidential, but “This seems to be key information that Dale [the DHB Chief Executive] is seeking from a matched cohort analysis – indeed it may answer his question – so it would be useful to cite in our report...”

20 July 2011:

The DHB advises Uniservices that the DHB cost estimates were being re-done and would not be immediately available. They suggested Uniservices send a draft report through and that costing information could be included later.

25 July 2011:

The scoping study associated with the Waitakere pilot is completed by Uniservices and emailed to Waitemata DHB. It says preliminary analysis indicates the Waitakere ‘package of care’ is less costly than standard care

provided at North Shore Hospital. (No preliminary costs comparisons are provided in the copy of the analysis provided to the ASMS. It is not clear whether they have been withheld or whether they were not included in the scoping report.)

The report continues: “However, no rigorous cohort analysis has been undertaken that compares productivity across the two sites when controlling for patient differences such as age, case mix and complexity. Uniservices was engaged to undertake such a study.” The report identifies a list of additional data requirements before a robust analysis can be undertaken.¹⁶

The proposed discrete-event simulation (DES) exercise was deemed not feasible due to problems with data availability.

2 August 2011:

The business case for the \$39 million Elective Surgery Centre (ESC), which was “based on an innovative model of care”, is approved by the Minister of Health.¹⁷

August/September 2011:

A cohort analysis is completed, not by Uniservices Ltd but a group called ‘The Waitakere Orthopaedic Pilot Team’, comprising four surgeons, two anaesthetists and three Waitemata DHB managers. It appears work on this analysis had begun at least as early as February 2011. It does not include the data that Uniservices identified as being required for a robust analysis.

1 September 2011:

Uniservices suggests to the DHB that with regard to hospital costing “it may be useful to go back a step and think about the resources used at each site. This in turn may allow us to conduct a Data Envelope Analysis which measures efficiency of resource use.” [A subsequent meeting was arranged but no documentation is provided.]

14 September 2011:

The ‘Waitakere Orthopaedic Pilot Team’ cohort analysis is presented to the DHB’s Audit and Finance Committee with a recommendation that the Board approves the continuation of the pilot until the opening of the ESC.

28 September 2011:

The Board approves the continuation of the pilot programme at Waitakere until the opening of the ESC.

25 November 2011:

The DHB advises Uniservices that it was not keen to compile a larger

sample of costs, as Uniservices had apparently earlier suggested, “because it would take a lot of extra time...and further delay the paper [on the cohort analysis] being published”. The DHB asked Uniservices if it could check the DHB’s “methods, cost calculations and statistical analysis”.

28 November 2011:

Uniservice responds saying they will look at the DHB’s work, but: “I am not sure how much of your costing we can check without asking lots more questions about assumptions behind the figures...”

14 December 2011:

Uniservice advises the DHB that they have looked at the DHB’s calculations. “It is a bit difficult to check things out at the patient level. However, we are happy with the methodology so long as the individual values for each patient are correct, then the calculations should also be correct.”

15 January 2012:

A paper, “Increasing productivity, reducing cost and improving quality in elective surgery in New Zealand: the Waitemata District Health Board joint arthroplasty pilot,” based on the earlier ‘Waitakere Orthopaedic Pilot Team’ paper but with some revised figures, is received by the *Internal Medicine Journal*. Its authors are given as John Cullen, Dale Bramley, Delwyn Armstrong, Lynne Butler, Paul Rouse and Toni Aston, the first three being from the DHB and the last two being from Auckland University. The paper is published in June 2012.

12 February 2012:

A paper, ‘Improving the productivity of elective surgery through a new “package of care”,’ is received by *Health Policy*. Its authors are given as Toni Ashton, Dale Bramley and Delwyn Armstrong. The paper is published in November 2012.

3. THE 'PACKAGE OF CARE' PILOT

The Waitakere pilot was based on new models broadly categorised as 'fast-track' surgery and 'one-stop' care. Fast-track surgery is a multi-model approach featuring enhanced recovery enabling day-stay or short-stay (1-4 days) hospitalisation. Most commonly it is used for routine procedures and is primarily targeted at low-risk ambulatory patients. Proponents of the model say advances in technology, a multidisciplinary teamwork approach and improved rehabilitative techniques enable patients to recover sooner.

'One-stop' care includes fast-track surgery but is intended to provide for a more seamless model of service. They typically include first specialist appointment, booking for surgery, and pre-operative tests and assessments in a single or two-step process. Both fast-track and one-stop approaches include pre-operative assessment clinics, reducing the likelihood of operations being cancelled due to patients being medically unfit.

These models have been used in 'Independent Sector Treatment Centres' (ISTCs) in the United Kingdom in order to reduce waiting times for elective operations but which, as discussed later in this Health Dialogue, have been found to be 'cherry-picking' the least costly patients and leaving the more complex and expensive patients to NHS hospitals.

The implementation of this model at Waitakere involved a number of changes to the usual way of providing elective services at the DHB, including:

- the separation of elective from acute surgery;
- the exclusion of resident medical officers in all aspects of care;
- retraining for nursing staff;
- a site change (a previously unused operating theatre at Waitakere Hospital);
- the establishment of dedicated teams;
- the allocation of dedicated surgical beds to receive patients post-surgery;

- cohorting of patients on theatre lists and on the wards; and
- incentive-based, risk-sharing contracts with surgeons and anaesthetists, who worked as private contractors while the rest of the surgical team practised as DHB employees. Under these contracts, surgeons and anaesthetists were paid a fee which covered their time for the whole patient episode (though the extent of the 'whole' appears to be reducing). Surgeons formed their own operating teams, with each team being responsible for undertaking a minimum number of procedures each day. After each contract period the fees would increase only if the service costs had been reduced, hence an incentive for surgeons and anaesthetists to minimise the use of consumable items as well as operating time and the length of stay in hospital – and increase patient throughput.

The pilot began in April 2010 for total hip joint arthroplasties and expanded in July 2010 to include total knee joint arthroplasties. The aim was to increase 'productivity' (ie, patient volumes), reduce cost and increase quality for patients. A previously unused operating theatre at Waitakere Hospital was chosen for the pilot site so that elective events would not be interrupted by acute surgery, as occurs at the DHB's main site, North Shore Hospital.

TABLE 1: SUMMARY OF DIFFERENCE IN PRACTICE BETWEEN NORTH SHORE AND WAITAKERE

Taken verbatim from a paper produced by a 'Waitakere Orthopaedic Pilot Team'^d. Additional comments are in red.

Element	North Shore Hospital	Waitakere
Theatre	Team composition variable. Indications of nursing staff shortages from qualitative analysis of pilot.	Same team with minimal changes to nursing staff.
Incentives	Staff remain until end of shift. Operations may be cancelled if can't be completed within shift.	If list completes early and all work is completed, staff can leave early and are not redeployed. Likewise if lists run late, last patient is not cancelled and staff stay late. Breaks are not strictly adhered to – ie, flexed to ensure flow. Surgeons work as private contractors on financial incentive-based contracts.
Into theatre	Patients wheeled into theatre.	Patients walk into theatre, reducing wait time for orderlies.

^d Matt Walker, (Clinical Director, Orthopaedics), Bill Farrington (orthopaedic surgeon), Ali Bayan (orthopaedic surgeon), John Cullen (Head of Department, Surgical and Ambulatory Services), Lance Nicholson (consultant anaesthetist), Henry Young (consultant anaesthetist), Andrew Potts (General Manager, Surgical and Ambulatory Services), Gerard Lenssen (General Manager, Clinical Development and Strategic Projects), Lynne Butler (Project Director, Electives).

Element	North Shore Hospital	Waitakere
Inpatients	<p>Patients with same procedure not cohorted together.</p> <p>Indications of nursing staff shortages from qualitative analysis of pilot.</p>	<p>Dedicated nurse to each 4-bedded bay (higher than normal ratios at early part of stay, reducing as patient recovers). Cohorting patients into same-sex 4-bedded bay (all have their surgery on the same day). Patient recovery gauged by both patients and nurse in bay. Staff can easily see whether a patient is 'falling behind' or have medical concerns as there are other patients acting as 'yardsticks' in the ward. Natural competition in human nature helps motivate patient recovery in the bay and helps lead to reduced hospital stay. Cohorting of patients may well have advantages but it is unclear whether the 'natural competition' argument has any basis other than ideology. 'Competition' to be the first out of the ward may have negative outcomes for some. More so because of the lack of monitoring for quality.</p>
Ward nursing	<p>Discharge delays occur. Indications from qualitative analysis of delays occurring through lack of equipment.</p>	<p>Senior nurses complete electronic discharge summaries on time.</p>
Allied health	<p>Physiotherapists are not necessarily present on ward rounds.</p>	<p>Physiotherapists attend ward rounds and mobilise patients early. Nursing staff are critical to supporting the physiotherapist and setting expectations with the patient. These factors have a direct impact on length of stay.</p>

Element	North Shore Hospital	Waitakere
Medical care	<p>Care provided by surgeon, registrar and house officers.</p> <p>Responsibility of care transferred during patient stay. After-hours care provided by registrar. Medical training is a core function of the service.</p>	<p>Anaesthetist and surgeon provide all ongoing medical care. Dedicated mobile phone held by staff caring for the patient ensures quick, real time relay of information between medical and nursing staff, avoiding switchboard/pager delays. Eases contact when medical staff are geographically elsewhere. Medical continuity of care is high and patients are well known to the surgeon and anaesthetist. This allows for continuity of care, leading to a low complication rate and high patient satisfaction and eliminates potential danger in 'handover'. Medical training was excluded in the pilot. There had been an attempt to shift after-hours medical care to ICU specialists. Low complication rates can be expected from selected low-complexity patients.</p>

4. THE ANALYSES

Scoping Study

A scoping study by Auckland Uniservices Ltd was completed in July 2011. It included a literature review exploring the factors (barriers and enablers) that influence operating theatre productivity in elective services. For brevity, only the most relevant international research is cited, but “nearly all identified New Zealand literature is included”. The review highlights multiple factors affecting operating theatre efficiency, including booking and scheduling for theatre utilisation, cancellations, delays, turnaround time, timely patient discharge and organisation of a wide range of peri-operative processes and structures.

The review also covers performance incentives (financial and non-financial), and examines new models of care and operating theatre performance, though advises caution in interpreting the findings due to limitations in many of the studies: “Most studies have been observational with limited or no descriptive statistics. The retrospective nature of many studies and self-report data may have introduced response biases.”¹⁸

Effective scheduling was identified by the reviewers as a ‘cornerstone’ of theatre productivity and efficiency.

An ideal balance occurs when a maximum number of surgical cases with appropriate levels of staffing are scheduled into any given workday, avoiding under-utilisation or over-utilisation of planned operating room time. Under-utilisation can occur if surgical cases are cancelled or delayed or if too few cases are scheduled. Over-utilisation can occur if too many cases are scheduled or cases extend beyond the planned workday, incurring staff overtime costs.

This is reinforced in a British study on surgical operating list efficiency, which found the most efficient surgical teams are not those that simply undertake the most procedures but those that plan their lists to fit within the time that is available to them.^{19 20} This is an important point concerning the measurement of efficient ‘productivity’ in the ‘package of care’ model. For the pilot study, it was clear that four low-complexity joint replacements were the expected ‘production’ per surgical list.

Applying the model to surgery other than low-complexity joint replacements, however, raises questions as to how the expected

‘production’ is determined while ensuring surgical lists are such as to avoid under- or over-use of theatre time.

In discussion on operating theatre delays and patient flows, the reviewers observed that procedural delays generally constitute 80% of problems hindering efficiency. Good information flows, staff familiarity and experience with surgical procedures, and the use of fixed surgical operating teams were cited as positive contributors to operating theatre efficiency.

In summary, the less the complexity of procedures and the greater use of the same team in a dedicated elective facility, the greater the capacity to address operating theatre delays and improve efficiency.

Only three pieces of research are referred to where operating theatre efficiency might be improved through the use of financial incentives to doctors, only one of which was in the public hospital sector. From these cases, the review concluded that it is ‘possible’ financial incentives may improve efficiency but questions remained about the flow-on effects and longer-term efficiency. The three cases to which the review refers are discussed further in the section on *Incentive payments for doctors*, along with the findings of other studies looking at broader applications of financial incentives in medical care.

Good information flows, staff familiarity and experience with surgical procedures, and the use of fixed surgical operating teams were cited as positive contributors to operating theatre efficiency.

A part of the scoping study included a ‘qualitative study’ based on interviews done with 18 selected surgeons, anaesthetists, nurses and managers working at the DHB (the contacts list was provided by the DHB). This relatively small number appears largely confined to those involved in the pilot in some form. Questions were focused around their perceptions of enablers and barriers to ‘productivity’ under the models of care at the two hospital sites (Waitakere, and North Shore Hospital), suggestions for improvement, and opinions about the new model of care and incentive scheme at Waitakere.

In summary, perceived enablers of ‘productivity’ at Waitakere identified by staff were:

- The physical environment of Waitakere hospital, with the smaller size of the ward enabling improved team work and communication between staff, improving the timeliness of operations.

- Cultural aspects such as stronger team work, style of leadership at Waitakere and generally higher morale in part because of “being well-staffed and not over-worked”.
- A number of organisational aspects including: established surgical teams, allowing for reduced operation times and better communication; and “the health state of patients operated on in Waitakere is significantly better than those operated on in North Shore in terms of age, fitness and general health overall”. (All interviewees who discussed the topic of patient casemix between the two sites felt direct comparisons could not be made because of the less complex cases treated at Waitakere.)
- Other aspects included ‘cohorting’ patients together, which reduces length of stay, and clarity in patient pathways leading to a more streamlined flow of patients.

Perceived barriers to ‘productivity’ improvement (at North Shore Hospital) included:

- Stricter working hours, in part because of the necessity to do acute work as well as the electives; and poor morale due to under-staffing and high workloads. As one survey respondent put it:

The number of nurses in theatre is a major issue ... A couple of weeks ago we only had two nurses in theatre, one was scrubbed and one was running or was getting the gear and finding stuff when we're asking for it, so that left no one in theatre at times. So the productivity necessarily went down because of lack of nursing staff.

- Organisational aspects included:
 - Lack of dedicated surgical teams at North Shore Hospital, contributing to breakdowns in communication and inconsistencies in a number of procedures and general patient care.
 - The mix of complex procedures with non-complex procedures undertaken at North Shore Hospital – variation which required greater levels of organisation and preparation.
 - The absence of good processes for dealing with aspects such as patient arrivals and lack of staff, both in terms of hiring and temporary cover.
 - Problems of resources and supplies, with availability of equipment being an issue at both sites. “Interestingly, one staff

member pointed out that due to budget constraints a lot of equipment is shared between Waitakere and North Shore, leading to huge inefficiencies in couriering it back and forth between the two hospitals.” [This raises the question as to which site was the most disadvantaged by delays in obtaining equipment.]

Two factors that divided survey participants concerned incentive payments to surgeons and anaesthetists, and the absence of teaching responsibilities at Waitakere. While teaching was seen as a factor contributing to lower ‘productivity’ at North Shore Hospital, it was acknowledged as an ‘essential requirement’ for New Zealand to have adequately trained surgeons coming through.

In summary, many of the interviewee comments were consistent with factors identified in the literature relating to operating theatre efficiency. Most

The two stand-out dividing issues were the lack of teaching responsibilities and financial incentives for doctors...

concern procedural matters and organisation. The two stand-out dividing issues, the lack of teaching responsibilities and financial incentives for doctors, are dealt with in more detail in Sections 6 and 7 of this Health Dialogue.

The analysis reviewers cautioned: “No rigorous cohort analysis has been undertaken that compares productivity across the two sites, when controlling for patient differences such as age, casemix and complexity.”²¹ (No mention is made of also taking into account the time and costs associated with teaching at North Shore Hospital, which was identified as an important factor in Auckland Uniservices’ initial analysis proposal, and which was raised as an issue in responses to the staff questionnaire.) The analysis report added that Auckland Uniservices had been engaged to undertake the cohort analysis.

The need for further analysis of the Waitakere pilot, however, did not appear to influence the Minister of Health’s decision on whether to fund the building of a new ESC. The Minister gave his approval to the \$39 million project on 2 August 2011, just eight days after the scoping study for the pilot was produced.

Cohort analysis

While Uniservices understood it was engaged to undertake the cohort analysis, an internal paper – which resembled a cohort analysis – was produced by a group called the ‘Waitakere Orthopaedic Pilot Team’ soon

after the scoping study was delivered to the DHB. The nine-person team comprised some of the orthopaedic surgeons and anaesthetists who participated in the pilot, supported by several DHB managers (it did not include any North Shore Hospital anaesthetists or surgeons that were not part of the pilot.)

It is this paper, with some revised figures, that formed the basis of the retrospective cohort analysis that was published in the *Internal Medicine Journal* (a curious choice for a paper about orthopaedic surgery) in June 2012. Emails between the DHB and Uniservices suggest the latter took a back-seat role in the paper's development. ESC director and orthopaedic surgeon^e John Cullen is listed as the principal author in the published paper, followed in order by Dale Bramely (DHB Chief Executive), Delywn Armstrong (DHB Decision Support Group), Lynne Butler (DHB Electives Project Director), Paul Rouse (Auckland University) and Toni Aston (Auckland University). No conflicts of interest are declared.

The study involved hip and knee replacements discharged between 1 July 2010 and 31 March 2011, comparing costs and outcomes at the pilot site compared with the North Shore Hospital site. Only non-complex procedures were included, and routinely collected data were used.

It found total inpatient event costs were 12% and 17% lower for hip and knee replacements respectively at the pilot site compared with North Shore Hospital. The cost reductions were achieved by reducing the length of operations and by reducing the patients' length of stay in hospital. The paper says the overall costs were reduced despite the incentive payments to surgeons and anaesthetists involved in the pilot being "considerably higher than standard medical contracts offered at the DHB". (For surgeons the payments can amount to more than \$8,000 per day.)

No mention was made of divisions among the clinical staff caused by the pilot programme.

The paper noted that because the pilot introduced many changes simultaneously, including the separation of elective from acute surgery, site change, financial incentives and the establishment of dedicated teams, the effects of each individual change were not known, though the absence of training responsibilities 'undoubtedly' contributed to the cost reductions.

^e John Cullen is reported to have recently retired as a surgeon.

The paper was accompanied by a supportive editorial co-authored by the Executive Chair of Health Workforce New Zealand, Des Gorman, who is also one of the journal's editors. The editorial described the pilot as a 'triumph for clinician leadership', despite the deep divisions it had caused among clinicians, which was not acknowledged. Both the paper and the editorial promoted the idea of extending the pilot model to other settings.^{22 23}

The paper noted that because the pilot introduced many changes simultaneously, the effects of each individual change were not known.

A second paper, published in *Health Policy* in November 2012, was co-authored by Toni Ashton, Dale Bramley and Delwyn Armstrong. This paper considered the pilot study from more of a policy perspective and in a number of ways is more measured than the first paper. Some of the key points it discussed, including risks and questions concerning the sustainability of the model, are included in the following sections of this Health Dialogue.²⁴

5. SHORTCOMINGS OF THE PILOT STUDY

The initial published paper which provides the technical detail of the pilot study conceded a number of shortcomings:

- The pilot had methodological limitations relating mainly to the non-randomisation of patients to each site. There was the possibility of confounders (measured and unmeasured) influencing outcomes.
- Many changes were introduced simultaneously, so it was not possible to ascertain which factors contributed and which were confounders.
- “The allocation of costs through the costing system may not reflect actual resource consumption to a high degree of accuracy.” Ward costs, for example, were recorded as the same cost for each bed day, irrespective of staff input each day. [It is unclear how the medical costs for North Shore Hospital were calculated and to what extent allowances were made for the full range of duties RMOs and SMOs undertook, including acute work and clinical governance.]
- WIES values (weighted inlier equivalent separations) were used as a measure of the relative complexity of theatre procedures between the two sites, but the WIES value is a measure of the complexity of the whole inpatient event, not just theatre complexity. The paper’s authors, however, said this would have understated the relative ‘productivity’ of the pilot site theatre sessions because of the longer ward stay in the North Shore Hospital site.
- The study used only available data so reporting of patient outcomes [ie, quality] was limited to readmissions and community allied health rehabilitation. With regard to readmissions: the pilot sample was not large enough to determine whether higher readmission rates [for hip replacements] were associated with reduced length of stay in hospital. With regard to community rehabilitation, pilot cases were less likely to receive community physiotherapy and occupational therapy than standard

Generally, patients actually benefit from post-operative physiotherapy. Patients having surgery at the pilot site may actually have had worse outcomes in terms of mobility.

care cases “but there has been no examination of the reasons for the difference”.

The second published paper on the pilot study points to some uncertainty about the effects of financial incentives in the pilot model, referred to as a new ‘package of care’ (POC):

It would be helpful to know how the costs of procedures undertaken under the POC compare with the costs of non-POC procedures undertaken at the satellite hospital. This would provide an indication of the extent to which any improvements in productivity can be attributed to the financial incentives rather than to the absence of teaching responsibilities and any other differences associated with the site itself.

It also raises a question, frequently cropping up in the literature, concerning whether any gains from the new model outweigh the additional costs of financial incentives.

The key point of interest for the budget-constrained DHB is whether any productivity gains will be sufficient to outweigh the additional payments made as a result of the clinical contracts on an ongoing basis.

Other shortcomings, additional to those conceded, include:

- It is a self-described ‘pilot’ study. The purpose of a pilot is to guide the design of a more detailed research study. Its findings should not be used as the basis to recommend the extension of this model to other hospitals – as has occurred – without first addressing its shortcomings.
- Selection bias is likely to account for some of the main differences, especially if participating specialists had a say in allocation of patients. There is a conspicuous absence of information on how allocation to each site was made. Surgeons being paid more money to treat patients at the elective site have a clear interest to ‘select’ healthier patients.
- Citing fewer post-operative referrals to occupational therapy and physiotherapy as evidence of the pilot model’s success is questionable. Without measuring the necessary outcomes (eg, joint function, patient satisfaction, quality of life, complications not requiring hospitalisation), it is impossible to know. Generally, patients actually benefit from post-operative physiotherapy. Patients having surgery at

the pilot site may actually have had worse outcomes in terms of mobility, etc.

- The costs of ‘consumables’ was calculated on the basis of theatre time, whereas most consumables are used on a per-case basis. This may have artificially inflated the cost of the control group.
- The fact that one of the study authors is the chief executive of the DHB, which is “facing the challenge of increasing surgeries within a fixed capitated budget”, would seem to represent what would appear to be a perceived conflict of interest, especially when the study is linked to a DHB business case for funding to build the ESC. No conflicts of interest were declared in the published study.
- Investigators conducting observational studies, including audits, are responsible for ensuring these studies meet ethical standards. This is the case whether or not ethics committee review is required. In order to meet established ethical standards a study must, among other things, be scientifically sound, appropriately peer-reviewed (eg, by an independent expert with “the appropriate expertise relative to the breadth and scope of research under review”), and all potential or actual conflicts of interest must be identified.^{25 26} Whether the pilot study has met these standards is open to question.
- Omitting resident doctors from this model of care in the public hospital system would have adverse implications for doctors in training. The DHB’s plans to address this matter have yet to be fully developed.

A submission to the DHB from the Society of Anaesthetists raised serious concerns about the effects on training, which are included in the discussion on training later in this Health Dialogue. The Society also said it did not support financial incentives, adding:

There is much published on the negative impact of financial incentives in the delivery of healthcare and we would welcome more detail on how you see the ESC achieving the productivity targets. We believe that productivity can be improved through improved patient selection and preparation, absence of distracting emergency workload, defined surgical pathways commonality of surgery, and active discharge planning.²⁷

ASMS statements on the ESC reflect many of the above comments, especially those relating to financial incentives and the many potential risks they involve.

The following sections of this Health Dialogue examine the key issues in more detail, including a look at what the literature says about the effects of financial incentives in health care and the risks involved, the implications for staff relations and morale, the down-stream costs and issues around training in a semi-private arrangement.

The paper also examines aspects of the pilot study that have potential to achieve the kind of efficiencies the DHB is seeking without involving financial incentives, as noted by the NZSA above, and outlines an alternative model.

6. INCENTIVE PAYMENTS FOR DOCTORS

Pay for performance may mark a naive understanding of the complexity of human motivation.

Don Berwick²⁸

The paper on the pilot study published in *Health Policy*, co-authored by three of the authors of the paper published in the *Internal Medicine Journal*, suggested the 'package of care' contractual arrangements with surgeons and anaesthetists (financial incentives) were among strategies "which have been shown in the international literature to improve the productivity of operating theatres". This was not substantiated in the paper and does not reflect the findings in the literature review that formed part of the scoping study for the pilot programme.²⁹

Indeed the evidence on the effectiveness or otherwise of incentive payments for doctors is not encouraging. The literature review in the scoping study was inconclusive on whether incentive-based contracts contributed to improvements in operating theatre performance. The study included nearly all of the 'sparse' New Zealand literature on the subject but only the most relevant international research. It found just three papers supporting the argument that incentive payments might improve 'productivity'.³⁰

One was based on a national data base of patients referred to surgeons by primary care doctors in the United States.³¹ It concluded that surgery rates increased significantly in situations where remuneration changes from capitated to open-ended fee-for-service. However, aside from questions concerning the different context of the American health system, the research had a narrow volume base, and it did not assess the quality of care, nor the potentially significant effects of possible referral requirements by health insurers.

The second example was also from the United States – a study of 31 anaesthetists who received relatively small financial incentives over a period of time to prevent operating theatre delays.³² Improved performance was noted, such as in first case of the day starts, but there were difficulties being confident of the conclusion because of the lack of differentiation between delays related to anaesthetists only and those related to all staff. The researchers acknowledged that staff morale may also have been a significant factor. They also acknowledged that the

“ability to sustain or improve this performance, and the impact of this improvement on other aspects of perioperative care, requires further investigation”.

The third example – and the only one from the public sector – was a study involving 34 dentists in Norway who were given a choice of continuing on a fixed salary, with no change to the number of patients on their books, or switching to a combined per capita and fixed salary contract where dentists received additional payment for each additional patient.³³ It found that after three years the dentists in the latter group were seeing more patients than those in the former group without either a fall in quality or a patient selection effect, and there was a reduction in the cost per patient. However, the dentists in the latter group worked 40% more hours than the dentists on a fixed salary.

It is difficult to relate the results from this study to Waitemata’s ‘package of care’, which is a very different arrangement. Further, the researchers acknowledged it was difficult to be certain that the improved productivity “is not the result of other factors than the actual change in the system of remuneration. A random allocation of dentists to the two types of contract would have been an ideal design, but this is difficult to do in practice.” They also warned: “The potential for earning that is associated with a per capita remuneration system can get out of hand, so that quality can be reduced over time, and such that ‘demanding’ patients may not receive adequate services.”

The team ‘acknowledged there may be other models which might also achieve increased productivity’, but ...

The Uniservices study could not find any examples that were similar to Waitemata’s ‘package of care’. It noted:

This review has not identified any other published studies reporting use of incentive-based contracts in the public hospital sector. It is possible that incentive-based contracts for surgeons and anaesthetists may improve public sector [operating theatre] productivity but its effect on other [operating theatre] staff, on opportunity costs, and on long-term efficiency are unknown.

A question, then, is whose idea was it?

According to the scoping study, “a review of major joint orthopaedic services and cataract extraction (Synergia, 2008) suggests that the public sector could offer surgeons and anaesthetists the opportunity to be put on

incentive-based payment contracts". That is not what the review actually said, however. It included an online survey (with 122 respondents) that asked a range of questions, some of which were open-ended, around a range of themes, one of which was: "Management of short-term service delivery requirements through the use of special fee for service arrangements outside the normal arrangements with clinicians in the public sector."

The extent of the 70-page review's discussion on the responses, where there is specific reference to fee for service, was confined to one paragraph:

The management of service levels using short term sources of capacity such as fee for service arrangements within public or private outsourcing generated an interesting divergence of views. Generally the use of these arrangements has been seen as perhaps necessary but not sustainable, drawing deeply on the good will of staff to compensate for shortfalls in core capacity at the expense of tiredness and burn out.³⁴

The review made no suggestion or recommendation about fee for service arrangements in any form. The idea, in fact, came from a small

... There is no suggestion they [the 'pilot team'] had considered other options.

group of orthopaedic surgeons, anaesthetists and managers at the DHB, called the 'pilot team'. In the initial internal paper including an analysis of the pilot programme discussed earlier, the team 'acknowledged there may be other models which might also achieve increased productivity', but they chose to build on the model 'they have created' at Waitakere. They did not discuss why they chose this model over others; in fact there was no suggestion they had considered other options.

The experience of financial incentives in health services generally

Looking at the effects of providing doctors with financial incentives more broadly, various reviews of the literature and methodological issues raise as many questions as answers on the subject. On the other hand, a number of studies identify significant risk factors.

Two decades ago American author and educationist Alfie Kohn noted: "[It] is difficult to overstate the extent to which most managers and the people who advise them believe in the redemptive powers of rewards." He described how the acceptance of 'pay for performance' schemes were so ingrained in management practice that it was very difficult even to begin

to challenge the concept, let alone describe alternatives, even though there was little hard evidence to support claims for the effectiveness of such schemes.³⁵

Two years later, in 1995, prominent American health administrator Don Berwick stated in a trenchant editorial “The Toxicity of Pay for Performance”:

The best answer I have yet found regarding merit pay for doctors or any group of workers; namely, ‘Stop it’. Merit pay, ‘pay for performance’ and their close relatives are destructive of what we need most in our health care industry — teamwork, continuous improvement, innovation, learning, pride, joy, mutual respect, and a focus of all our energies on meeting the needs of those who come to us for help.³⁶

Nevertheless, ‘pay for performance’ (P4P) schemes and their close relatives have become increasingly common, mostly in the private health sector and primary health services, and especially in the United States. Despite being the subject of numerous studies, however, their effectiveness remains as uncertain today as it was in the 1990s.

A major review of the literature and methodological issues, published in 2000, identified significant shortcomings in the research up until then.³⁷

First was the question of robustness:

The effects of financial incentives have usually been described from observational studies: simple data collection, time series, opinion polls, prospective studies, intervention studies without a control group, models, literature reviews, but seldom from randomised controlled trials. ...Of the many studies published on the impact of financial incentives on physicians and patient behaviour, few met the basic criteria proposed by the Cochrane group on professional practice. Furthermore, the results presented were often preliminary over a short follow-up period. Few studies used the same methodology to assess the impact of the same incentive, which limited the external validity of their conclusions.

Second were the confounding factors:

Different results for the same incentive were found, depending on the type of health professional, institution or patient treated. With regard to the type of patients being treated in their practice, physicians reacted to incentives differently depending on: number and type of

diseases, whether they are acute or chronic, whether diagnostic or therapeutic procedures are performed, patient sex and ability to pay. Other factors affecting physicians' responses to incentives were demographic and organisational: age, sex, experience, qualification; individual versus group practice, size of the hospital department or group practice, number of different institutions where the physician practised, level of local competition, volume of activity.

Third were the risks that go with financial incentives, the major one identified being the potential "conflict of interest between the physicians and the patient."

As George Bernard Shaw put it: "That any sane nation, having observed that you could provide for the supply of bread by giving bakers a pecuniary interest in baking for you, should go on to give a surgeon a pecuniary interest in cutting off your leg, is enough to make one despair..."

Of the many studies published on the impact of financial incentives on physicians and patient behaviour, few met the basic criteria proposed by the Cochrane group on professional practice.

The problem, according to Shaw, was that the profit motive and encouragement of doctors to become entrepreneurial create the wrong incentives for good medical practice.³⁸ At a national level such incentives have also proved to be extremely costly, as evidenced in the United States.

Lastly are questions on the transferability of incentive programmes from country to country:

The possibility of using financial incentives, and the type of incentives used, is directly dependent on the structure and financing mechanisms of a health care system – the socioeconomic and cultural context. Thus, both the experiments made with financial incentives in one country and the results obtained may not be reproduced straightforwardly in another country unless major structure reforms are undertaken.

Since that literature review a number of studies have indicated improvements in service performance through the implementation of financial incentive schemes, as outlined in the following examples.

In 2009 a literature review of physicians' remuneration models found evidence that P4P increases the quality of care, but with caveats:

...it is important to note that the framework for assessing quality benchmarks can impact how physicians report on quality criteria. For instance, in the P4P frameworks in the United Kingdom, physicians can purposely increase their quality score by selectively excluding patients in their practice.³⁹

In 2006 a financial incentive scheme was introduced in a large American hospital to encourage doctors to use health information technologies (including a new electronic medical record system and electronic radiology ordering system), and to adopt other, department-specific quality and safety measures. The scheme, which cost more than \$6 million in its first year, offered rewards of up to \$5,000 annually for physicians who met pre-established goals. A report on the scheme showed that it led to increased use of these technologies and to other quality and safety improvements (though they are not specified).⁴⁰

A study assessing the effect of financial incentives on the care for diabetes patients in GP practices in the United Kingdom between 2000/1 and 2006/7 indicates improvements in the recorded quality of care in the first year of incentives (2004/5). While these improvements included some measures of disease control, most captured only documentation of recommended aspects of clinical assessment, not patient management or outcomes of care. Improvements in subsequent years were more modest.⁴¹

A study published in 2012 analysing 30-day in-hospital mortality among patients admitted for pneumonia, heart failure, or acute myocardial infarction to 24 hospitals in Britain's NHS found modest reductions in mortality rates after the introduction of a P4P scheme, which included a range of quality improvement activities.⁴² Bonuses totalling around \$10 million were paid to hospitals during the 18-month period of the study. These bonuses were then allocated internally to clinical teams whose performance had earned the bonus. Importantly, the bonuses could not be taken as personal income but would be invested in improved clinical care. In addition, quality improvement strategies included the use of specialist nurses and the development of new or improved data collection systems linked to regular feedback about performance to clinical teams, and staff from all participating hospitals met to share problems and learning.

In contrast to the findings of this study, an earlier version of the scheme, implemented in the United States, found little evidence of an effect on hospital performance outcomes. The researchers of the NHS study said this reinforced a lesson learned from other studies that the details of incentive schemes and the context in which they are introduced may have

an important bearing on their outcome. That said, they concluded: “We cannot be certain from these results what caused the reduced mortality associated with the introduction of financial incentives for hospitals in England...”

Other recent studies have found no positive effects from financial incentive schemes.

A major study published in 2011 on the effects of financial incentives for GPs on the quality of care and outcomes among British patients with hypertension found no benefits for patients.⁴³ The study involved nearly 500,000 patients over seven years, from 2000 to 2007. A P4P scheme was introduced in April 2004 linking a portion of GPs' payments to measures of healthcare quality. The researchers looked at various measures including blood pressures over time, rates of blood pressure monitoring, and hypertension outcomes as well as illnesses. Even after allowing for variations, their analysis showed no identifiable impact on incidence of strokes, heart attacks, renal failure, heart failure or death, either in patients who started treatment before 2001 or in those who started treatment around the time when pay-for-performance targets were launched.

The researchers commented:

*Effective alternative approaches to improving quality of primary care for hypertension exist, such as case management or co-management of hypertension and other chronic conditions with allied health professionals such as nurses and pharmacists. Furthermore, evidence from studies of educational interventions suggests that fewer, simpler messages are more likely to achieve behaviour change than more complex, diffuse messages. Perhaps the resources devoted to pay for performance for hypertension would be better spent on implementing these interventions more widely.*⁴⁴

Another study, published in 2010, involved a network of publicly funded primary care clinics in the United States. Physicians in 6 of 11 clinics were given a financial incentive twice the size of the current Centres for Medicare and Medicaid Services' incentive for achieving group targets in preventive care that included cervical cancer screening, mammography, and paediatric immunisation. They also received productivity incentives. Six years of performance indicators were compared between 'incentivised' and 'non-incentivised' clinics. The study found “there were no clinically significant differences between clinics that had incentives and those that did not”.⁴⁵

Despite the popularity of these [financial incentive] schemes, there is currently little rigorous evidence of their success in improving the quality of primary health care, or of whether such an approach is cost-effective relative to other ways to improve the quality of care... Implementation should proceed with caution.

In a working paper published by Rand in 2009 the authors used data from published performance reports of physician medical groups contracting with a large network health maintenance organisation (HMO) to compare clinical quality before and after the implementation of P4P, relative to a control group. They considered the effect of P4P on both rewarded and unrewarded dimensions of quality.

They failed to find evidence that a large P4P initiative resulted in any major improvement in quality.⁴⁶

For the most part, however, the literature on the effects of financial incentives on doctors over recent years is inconclusive for largely the same reasons as those cited in the 2000 literature review quoted earlier, as illustrated in the following examples from relatively recent studies, commentaries and literature reviews.

Although there is great interest in moving to episode-based payment and performance measurement, the proposed applications remain largely conceptual. Only a handful of real-world experiments have been completed or are in the early stages of implementation.

Health Affairs 2009 ⁴⁷

Little formal evaluation of hospital P4P has occurred, and most of the eight published studies have methodological flaws... There is a need for more systematic evaluation of hospital P4P to understand its effect and whether the benefits of investing in P4P outweigh the associated costs.

American Journal of Medical Quality 2009 ⁴⁸

Despite the popularity of these [financial incentive] schemes, there is currently little rigorous evidence of their success in improving the quality of primary health care, or of whether such an approach is cost-effective relative to other ways to improve the quality of care... Implementation should proceed with caution and incentive schemes should be carefully designed and evaluated.

Cochrane Library 2011 ⁴⁹

It's not yet clear, however, whether incentive schemes, particularly those aimed at improving the processes of care, will result in improved patient outcomes and so justify the cost of implementing them.... Although the framework produced rapid changes in behaviour, particularly with respect to improvements in processes, the system is costly. Total annual expenditure on the scheme is around £1bn, and the relation between some of its performance targets and population health improvements has been questioned. Evidence is also emerging that setting targets for some areas may have reduced performance in other areas of the service. Overall, the health outcomes may not have been sufficient to justify the substantial opportunity cost of the system.

British Medical Journal 2010 ⁵⁰

A paper summarising evidence concerning P4P effects obtained from studies published between January 1990 and July 2009 found “the effectiveness of P4P programmes implemented to date is highly variable” and “the scientific quality of current evidence is still poor”.

P4P introduces one type of financial incentive, but does not act in isolation. Other interventions are often simultaneously introduced alongside a P4P programme, which might lead to an overestimation of effects...Current P4P studies only provide some pieces of this more complex puzzle.

BMC Health Services Research 2010 ⁵¹

And in the Waitemata case:

The pilot introduced many changes simultaneously... It is unknown which of these factors contribute the most to the process and cost improvements; that is, which can be considered intrinsic to the model and which confounders.

Internal Medicine Journal 2012 ⁵²

An overview of reviews that evaluate the impact of financial incentives on health professional behaviour and patient outcomes, published by the Cochrane Library in July 2011, concluded:

Financial incentives may be effective in changing healthcare professional practice. The evidence has serious methodological limitations and is also very limited in its completeness and generalisability. We found no evidence from reviews that examined the effect of financial incentives on patient outcomes.⁵³

An editorial examining the evidence on the effects of financial incentives, published in the *BMJ Quality & Safety Journal* in 2005, says the evidence suggests “incentives do not induce the rational and predictable response that some observers would have us believe”, and offers some insights as to the reasons why.

Firstly, the size of an incentive does not have a linear relationship with its impact. Indeed, there is some evidence that doctors may have a target income – perhaps a fixed sense of financial worth – above which they are no longer motivated to respond. Secondly, it also appears that the economic component of what appears to be a financially based incentive scheme is not what motivates professionals. In a local improvement project in the UK, much vaunted as a ‘successful’ example of incentivising quality improvements, the costs to some of the participating general practices of implementing more effective systems of chronic disease management were greater than the resulting financial rewards. This did not seem to dampen the enthusiasm of those involved. Similarly, in a study conducted in Ireland, incentives to change prescribing behaviour were just as effective in dispensing practices (where there is a countervailing incentive to dispense expensive drugs) as in non-dispensing practices. These examples indicate that something more than personal financial gain is driving professional behaviour.⁵⁴

In summary, the question on whether explicit financial incentives improve health service cost effectiveness or quality remains largely unanswered. As the authors of one literature review concluded: “Perhaps they [financial incentives] should be treated analogously to experimental therapies and only be used within the context of rigorous evaluations to determine their impact on health care quality and resource use.”⁵⁵

Incentives do not induce the rational and predictable response that some observers would have us believe.

7. RISKS OF FINANCIAL INCENTIVES

While the effects of financial incentives – negative or positive – remain a question, there is clear evidence of substantial risks that go with such incentives; the major one identified being the potential conflict of interest between the physician and the patient, which can lead to unintended consequences. At a national level such incentives have also proved to be extremely costly, as evidenced in the United States, the most expensive health system in the world which also has arguably the most entrepreneurial medical system in the world.

Conflicts of interest can have various negative effects.

Compromising quality

The quality of care to the patient can be compromised.⁵⁶ In the case of Waitemata's pilot study, service outcomes focused mainly on throughput and failed to adequately measure quality and effectiveness of care. As discussed earlier, key postoperative outcomes were not measured, such as joint function, quality of life, GP consultations, disability rating and complications not requiring hospitalisation. Claims of improvements in quality of care for patients treated in the pilot at Waitakere appeared to be based mostly on a reported reduced need for follow-up by community therapy and occupational therapy compared with North Shore Hospital. However, without measuring the necessary outcomes, the level of quality was unknown.

The first published paper on the pilot study itself noted that while pilot cases were less likely to receive community physiotherapy and occupational therapy than standard care cases "there has been no examination of the reasons for the difference". Generally, patients benefit from post-operative physiotherapy, so if patients having surgery at the pilot site had not been accessing these services in the community they may actually have had worse outcomes in terms of mobility.

The study also measured hospital readmission rates between the two sites but, again as conceded by the pilot study itself, the pilot sample was not large enough to determine whether higher readmission rates [for hip replacements] were associated with reduced length of stay in hospital.

So while the title of the first published pilot study report included a claim of ‘improving quality’ the paper itself indicated the quality outcomes were unknown.

The quality of care for other patients may also be compromised. These are patients who are in need of treatment that is not part of the incentivised programme. In Waitemata these patients include those requiring hip and knee replacements but who present as complex cases.

A study of a large P4P initiative in the United States shows that, rather than encouraging providers to shift resources toward quality improvement more generally, P4P may instead only persuade providers to focus on narrow, incentivised areas.⁵⁷

This result casts doubt on the promise of P4P as a transformative mechanism for improving the general quality of the healthcare system, and suggests caution in moving ahead with P4P and in interpreting the results of future studies.⁵⁸

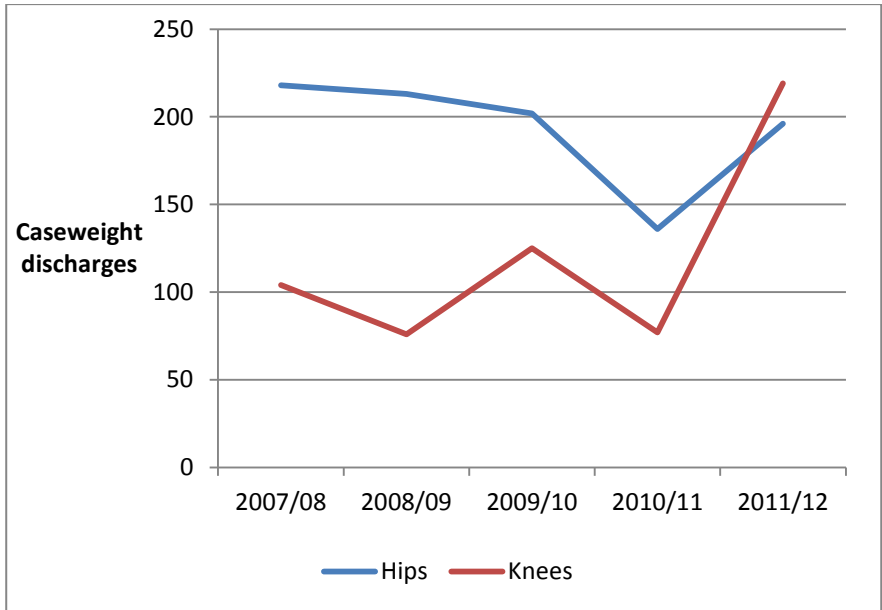
A 2008 Ministry of Health commissioned review of major joint orthopaedic services and cataract extraction acknowledged a similar issue.

As often is the case, success can have its unintended consequences. For example ... the increase in service level for specific conditions has created different inequities as some people, with other conditions and higher levels of need, remain untreated; firstly as a direct consequence of the focus on treating joint replacement or cataract patients and, secondly, through a more general effect of ‘crowding out’ other services drawing on the same limited hospital resources, eg specialist time or physical facilities.⁵⁹

The review also noted the service imbalances described above “have generated deep concern from many clinicians that this undermines their ethical responsibilities and the principles of fairness which are core to elective care”.

Patient discharge data for hip and knee replacements at Waitemata DHB show a marked drop in the number of complex cases during the year of the pilot study. Ministry of Health data show the low-complex cases at Waitemata (ie, those that may have qualified for the incentivised programme) had a caseweighting of around 3.6 to 4.2. Figure 2 indicates the trends for caseweighted discharges of 4.5 and above.

FIGURE 2: NUMBER OF DISCHARGES FOR HIP AND KNEE REPLACEMENTS FUNDED OR PROVIDED BY WAITEMATA DHB WITH AN AVERAGE CASEWEIGHT OF 4.5 AND ABOVE (IE COMPLEX CASES), 2007/08 TO 2011/12



Note: Includes all publicly funded discharges, including ACC-funded, within the DHB region.

Source: National Minimum Dataset, Ministry of Health, 2013

It is not clear why this drop occurred although one explanation may be that the pilot programme reduced the theatre staff capacity for treating patients who were not part of the pilot and in so doing upset the balance of complex and less-complex procedures carried out overall.

Given there is no indication the DHB received any additional funding for the pilot in 2010/11 and its hospital personnel costs were almost \$5 million under budget in that year, it is reasonable to assume the staffing of the pilot programme came at the expense of surgical services for non-pilot patients. The DHB's outsourced spending was also under budget (by \$3 million).⁶⁰

The surge in numbers in 2011/12 was likely due in part to the \$7.7 million additional government funding the DHB received specifically for 'various

programmes' including 'elective services productivity pilots' and a \$6.3 million increase in outsourced services costs compared with the previous year (making it \$12.7 million over budget for outsourced services in 2011/12). Also, unlike in 2010/11, the overall DHB hospital personnel costs were above budget by nearly \$30 million. The main increases were in nursing but also included SMO overtime and training costs.⁶¹

Other high-level elective surgery data also suggest the 'package of care' introduced through the Waitakere pilot contributed to a growing inequity in the provision of services between orthopaedics (ie, the musculoskeletal system) and other surgical departments. Figure 3 illustrates the trends in caseweighted surgical discharges by the seven largest of the Major Diagnostic Categories (MDCs).

Up until 2010/11 (the year of the assessed pilot programme), caseweighted discharges were increasing fairly evenly across most major MDCs. In 2011/12, after spending increases, including an apparent funding injection into the 'package of care' programme, musculoskeletal system discharges increased by 24%, compared with 16% on average for the other six MDCs.

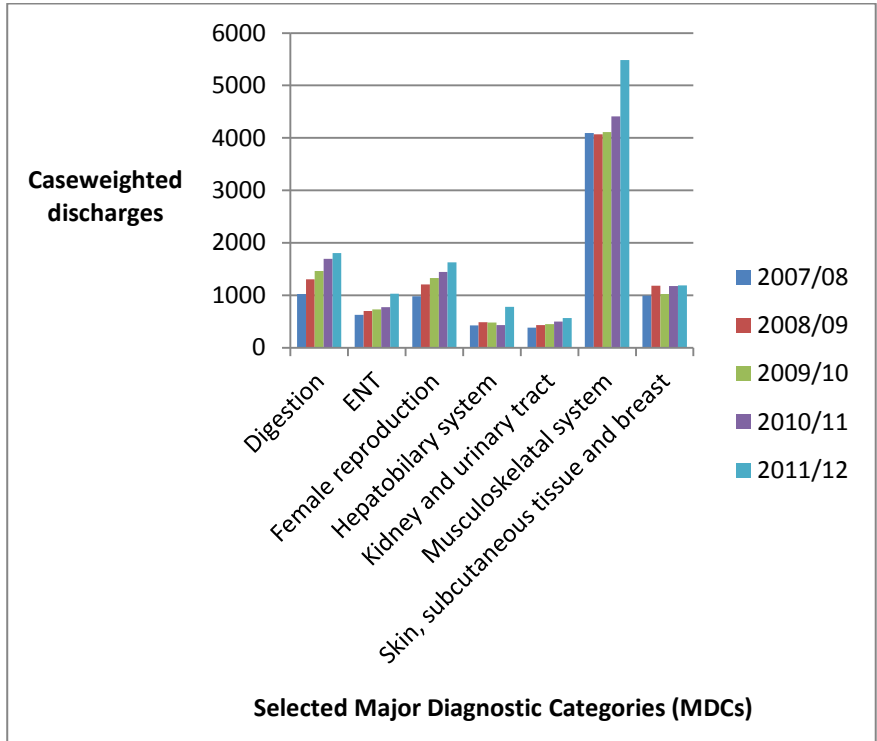
And there is more money yet to be pumped into the 'package of care' model, despite the original rationale for the model being to deliver more services and make savings at the same time. As John Cullen stated in a letter to the Society of Anaesthetists: "It is the intention that the ESC will provide elective surgery in a way which allows us to do 'more for less' ... The aim ... is for costs to be less than 80% of the current national price for that procedure..."⁶² Along the same lines, in a DHB newsletter updating developments on the ESC, a DHB manager, Mike Norton, discusses the aim of being "more efficient by using current staff and resources in new ways across our three hospitals". A separate article in the same newsletter, however, states "there are around 30 new, predominantly nursing, roles to be filled" for the ESC.⁶³

There is more money yet to be pumped into the 'package of care' model, despite the original rationale for the model being to deliver more services and make savings at the same time.

The Minister of Health's 2013/14 'Letter of Expectations' to DHBs shows Waitemata is to receive funding to provide by far the largest 'health target' increase, over and above the base increase, than other DHBs. The increase appears to be related to a 'catch-up' on expected surgical volumes for the DHB, but on a per-population basis Waitemata will

receive about 6.6% more elective funding than Counties Manukau, for example, despite the latter servicing a population with higher health needs.^f

FIGURE 3: WAITEMATA PUBLICLY-FUNDED CASEWEIGHTED ELECTIVE SURGICAL DISCHARGES BY SELECTED MAJOR DIAGNOSTIC CATEGORIES, 2007/08 TO 2011/12



Note: Includes all publicly funded discharges, including ACC-funded, within the DHB region.

Source: National Minimum Dataset, Ministry of Health, March 2013

^f This estimate takes into account the \$2 million funding increase over three years for elective services at Counties Manukau DHB, announced by the Minister of Health in April 2013, assuming that \$2 million is evenly distributed over the three-year period.

‘Cherry picking’ and ‘lemon dropping’

‘Cherry picking’ can occur when the service processes are open to ‘gaming’. One questionable assumption underlying financial incentive schemes is that measurements of doctors’ performance reflect their overall performance and not, for example, their patients’ characteristics or their ability to ‘game’ the system.⁶⁴

Researchers have identified a potential for financial incentive schemes to not only discriminate patients based on the complexity of their medical needs but also on their overall health status, which could increase health care disparities.

*P4P and public reporting might induce individual physicians and medical groups to avoid patients whom they perceive as being likely to lower their quality scores, particularly if quality measures are not adequately adjusted for the patients’ overall health status and perhaps for racial or socioeconomic characteristics as well.*⁶⁵

While focus on many P4P schemes generally is to improve quality, the same argument applies to financial incentive schemes that aim to increase productivity, as illustrated in the United Kingdom’s National Health Service.

In order to increase patient volumes and reduce elective orthopaedic surgery waiting times in Britain, financial incentives were introduced in the form of competition between NHS hospitals and private-sector owned Independent Sector Treatment Centres (ISTCs) – sometimes referred to as ‘surgicentres’.

However, studies have shown the policy has led to ISTCs ‘cherry picking’ low-risk patients while NHS hospitals are treating increasing number of patients who have a higher anaesthetic risk (through a practice described as ‘lemon dropping’) and are likely to stay longer in the hospital in the post-operative period.^{66 67}

The case mix for primary total hip replacements in large tertiary referral hospitals have changed due to altered patient flow due to cherry picking of NHS waiting lists by the ISTC. NHS hospitals should be appropriately remunerated for dealing with complex cases and for managing complications referred by ISTC hospitals. In fact, the National joint registry’s 2nd annual report confirms that 40% of

primary total hip replacements operated in ISTC's were ASA I [most healthy]^g while only 25% of primary total hip replacements operated in NHS hospitals were ASA I. None of the ISTC's performed complex primary total hip replacements.⁶⁸

The second published paper on the pilot study, whose authors include the Chief Executive of Waitemata DHB, highlights the risks of 'cherry picking':

A potential unintended outcome of the ['package of care'] is that it may encourage clinicians to increase throughput of less complex cases at the expense of more complex cases, such that population health outcomes could be adversely affected. This criticism could equally be leveled at the design of the national target as this requires an increase in the number of elective surgeries, without any weighting for complexity. Any initiative designed to meet the target is therefore likely to encourage the prioritisation of less complex cases. However, financial incentives have the potential to be especially powerful in stimulating this type of unintended – and undesirable – effect. At both DHB and the national level, the average complexity, and range of cases performed publicly should be carefully monitored to ensure this does not occur.⁶⁹

In fact evidence of cherry picking is provided in the *Internal Medicine Journal* paper as well as the scoping study for the pilot.

The *Journal* paper indicates a decision to add the criterion of age <80 was added after the initial analysis showed the pilot group had very few patients aged 80+ (n=3) compared with the North Shore Hospital group (n=27). This suggests younger healthier patients were being recruited for the pilot site.

Researchers have identified a potential for financial incentive schemes to not only discriminate patients based on the complexity of their medical needs but also on their overall health status.

Further, the reviewers conducting the scoping study were informed that treatment of ASA grade 3s was rare under the 'package of care' compared

^g ASA: American Society of Anaesthesiology Classification system is used by anaesthetists to stratify severity of patients' underlying disease and potential for suffering complications from general anaesthesia. Classification ranges from ASA 1, for a normal healthy patient, to ASA 6, where the patient is brain dead.

to the standard care. (The extent of the difference was revealed in the later internal paper produced by the 'Pilot Team', which indicated 30.6% ASA grade 3 hip replacements at North Shore Hospital compared with 7.7% in the 'package of care'.)

The scoping study made the following recommendation regarding further work:

To enable a more accurate comparison using cohorts with multiple ASA grades, it is suggested that the proportion of patients with ASA grade 3s is either matched between the two cohorts for the chosen procedures, or removed if the number of ASA grade 3s treated are small under the ['package of care'].

No details have been provided on how Waitemata DHB patients were allocated to each site to have their surgery or who was involved in this decision.

If participating specialists or the pilot architects had a role in patient allocation, they would have had an incentive to select healthier patients than those being operated at the main hospital. Differences in pre-operative health status are often too subtle to be captured in gross measures of 'complexity' and may have been major confounders to the pilot study's results.

The incentive to select the healthiest patients was strengthened because any patients seen under the pilot programme who required more complex care would have been transferred back to North Shore Hospital and the resulting costs would have been added to the pilot event costs.

Patient selection bias was identified in the qualitative study that formed part of the scoping study.

The majority of interviewees were of the opinion that the productivity of Waitakere hospital was greatly enhanced by the selection of cases.⁷⁰

Implications for training of doctors

The operating time during a training case can be 'significantly longer' than for an experienced surgeon operating without any training responsibilities.⁷¹ The median operation duration of a supervised trainee in 22 studies was 34% longer than the surgeon.⁷² This appears to be why the Waitemata pilot programme excluded RMO involvement in the pre-admission workup, operating and post-operative care. This was implied as a positive factor and cited as a reason for the pilot's claimed efficiency

when compared with North Shore Hospital, where RMOs often participate in those areas.⁷³

*The lack of dependence on junior doctors, together with the fact that senior doctors are responsible for the whole episode of care, should result in shorter theatre times as well as greater continuity of care and reduced risk of handover.*⁷⁴

But while it is generally acknowledged that training of RMOs can slow down delivery of services, and therefore cost more, experience of elective surgery procedures is a necessary and important part of RMO training, as pointed out ‘by all the staff who discussed this’ in the qualitative analysis of the scoping study.⁷⁵

The exclusion of RMOs from a significant portion of the elective surgery workload was also a concern of medical bodies such as the New Zealand Society of Anaesthetists (NZSA) and the Royal Australasian College of Surgeons (RACS).

*Training of junior doctors will be seen as slowing patient throughput, which is at odds with the 25% efficiency improvement goal. If the ESC model is deemed successful, then more elective surgery will be moved away from the public acute hospitals. This will see trainees exposed to mainly acute work and their overall training experience will suffer. Potentially ANZCA could view some public hospitals as not providing adequate anaesthesia training making these hospitals difficult to staff...*⁷⁶

NZSA, 2013

Notwithstanding the fact that the presence of a trainee can reduce theatre efficiency, their role is crucial to the sustainability of any model. Their involvement is the key component of training, which is a core function of the public sector. The exclusion of trainees from any elective workload created by a redistribution of resources is unacceptable.

RACS, 2011 ⁷⁷

RACS also notes that in the United Kingdom the separation of elective and emergency surgery has been so complete that elective surgery ‘factories’ have developed, with experienced surgeons performing the same procedure on a never-ending procession of patients.

While this might appear a model of efficiency it is in fact unsustainable, as trainees have been excluded from this elective work

[because much of it is performed in the private sector]. The result is that, over time, a situation has developed where surgeons have to be flown in to do certain elective procedures. The United Kingdom model is excellent in terms of throughput in the short to medium term but disastrous in terms of training and, therefore, in terms of long term sustainability.

RACS, 2011 ⁷⁸

A similar point was made in the scoping study for the pilot, which reports that since the NHS cataract services had been reorganised into the largely privately provided ‘fast-track’ model of surgery, “surgical registrars and senior house officers have had decreased opportunity to perform cataract extractions”.⁷⁹

Reduced opportunity for the training of RMOs and other health professionals is a well-recognised down-side of contracting out some non-acute publicly funded services to the private sector. This very point has been made by the leader of the scoping study.⁸⁰ Yet one of the defences of not including RMOs in the pilot model was that the procedures being delivered by the scheme were previously not available for teaching as they had been contracted out to private practice. “Thus, no change has occurred.”⁸¹

The problem for the DHB is how to avoid the potentially high cost of using privately contracted surgeons as trainers.

But if the pilot scheme had not made a bad training situation any worse, that would change if the model in its original form were to expand or be transferred to other DHBs, as has been advocated.^{82 83 84}

Furthermore, increased use of the private sector to provide publicly funded elective surgery, together with projected shortages of surgeons, indicate growing pressure on the apprenticeship model of medical training, signalling an urgent need to *improve* our training capacity rather than implying it is acceptable to maintain the status quo.^{85 86}

It has been suggested that extending medical training opportunities into the private sector would help to address the challenges outlined above. However, training in the private sector comes at a cost. A recent Australian study estimates the additional operating time required to accommodate the needs of trainee surgeons would cost at least \$1.2 million per trainee per year to cover private surgeons’ lost opportunity costs and private hospitals’ lost case payments. The study concludes that it is unlikely surgeons or hospitals will be prepared to absorb these costs and calls for

public debate about the funding implications of surgical training in the private sector.⁸⁷

The introduction of the 'package of care' model into Waitemata DHB has brought with it the very tensions identified in the study: time for training future surgeons means lost private income for surgeons (and at the very least a question-mark on the impact that training will have on 'productivity', as it is measured by the DHB).

Waitemata DHB has conceded that "the training of junior staff is critical to the future workforce requirements of the profession" and because of the "ethical imperatives, including the Hippocratic oath, that require those in training to receive teaching from those more skilled and fully trained. To this end the DHB is now investigating how best to give this training in a high throughput elective surgical environment."⁸⁸

The problem for the DHB is how to avoid the potentially high cost of using privately contracted surgeons as trainers.

A DHB submission to Health Workforce New Zealand for additional funding to develop a new training programme, obtained under the Official Information Act, describes a model where: "Registrars and other junior doctors will not participate in the majority of elective fast track surgery;" the model depends more on developing simulation training and receiving training "outside of surgical lists".

The DHB's Director of Clinical Training, Pat Alley, says 'productivity' need not necessarily be impaired by education. "Or vice versa for that matter."

He says it is envisaged that orthopaedic and general surgery will pilot a programme of elective surgical education for trainees where they learn the fundamentals of team-based operative strategy and their ability to work in inter-professional domains will also be evaluated. The triage of elective patients, their preoperative workup and their follow-up plans will also be a curriculum item for trainees at the ESC.⁸⁹

The plan is for a stepwise progression of education in the ESC starting with an assessment of theoretical knowledge, then moving to simulated operations which will also be assessed. When satisfactory progress in both theoretical and simulated knowledge is confirmed the trainee will commence a stepwise introduction to a given procedure.

The DHB's submission for more funding to develop the new programme totalled \$661,000 plus the ongoing costs of a coordinator. There is

uncertainty, however, as to what funding will be made available. In March 2013 ESC director John Cullen announced the additional funding had been secured from Health Workforce New Zealand (HWNZ) to support the ESC

The DHB's submission for more funding to develop the new programme totalled \$661,000 plus the ongoing costs of a coordinator.

registrar training programme,⁹⁰ but a letter from the National Health Board (NHB) to the ASMS in June 2013 said the announcement was 'premature' since an official decision on funding had yet to be made. The DHB's decision to adopt the 'package of care' model for

the ESC was therefore made without official confirmation that additional funding – considered 'imperative' in the DHB's funding submission - would be available for the training programme. In fact by the time the ESC opened on 11 July 2013 the DHB was in the position of having to find extra funding from its own budget for the appointment of an education coordinator for the training programme until such time as any additional funding was made available.

A subsequent letter from the NHB to the ASMS (24 July 2013) indicated funding was being made available for the project management of Phase One of the DHB's proposed training programme, which included the appointment of staff. However, that covers only 25% of the estimated costs for developing the programme.

Whether or not the full funding is eventually secured, a question remains concerning the costs of training undertaken by specialists on private incomes well above public sector salary rates, even where in-theatre training is minimised. In the lead-up to the opening of the ESC, Pat Alleys would say only that, "Training will be an expected part of the SMO contract and is part of the ongoing discussions with those SMOs involved with the ESC."

Costs

To assess the use of resources, and their costs, between North Shore Hospital and the 'package of care' the authors of the scoping study had provisionally proposed using a discrete-event simulation (DES) model. The DES maps each patient's pathway through the system as a sequence of events. This enables examination of the key factors that influence the pathway of patients who are treated under different models of care.

Use of this model, however, was considered problematic due in part to data inadequacies.

Other options were then suggested, but before a productivity and cost analysis could be conducted, additional data requirements were identified:

An alternative approach would be to undertake a counterfactual cohort analysis which tests various scenarios, such as calculating the percentage reduction in procedure time and length of stay required to equalise costs under the different models of care. This approach would still have some additional data requirements around case-mix [ie, the issue concerning the matching of ASA 3 cases discussed earlier], theatre capacity, theatre turnaround time and PACU time and costs.

This approach, however, “loses the variability, disruptions and interaction complexity in the system that is captured in DES”. A further option was for the DES model to be used prospectively. “For example, given a week’s pre-allocated theatre lists and (manually) scheduled lists of patients to be used for input to the model, various scenarios can be tested.”

Example scenarios included registrars performing part of the operation. “This can be modelled by varying the distribution of time (and hence costs) in the theatre.” Scenarios could also be tested against different assumptions, where, for example, the number and casemix of patients were altered to reflect future population trends.

Since the Minister of Health gave his approval for the ESC to be built shortly after the scoping study was completed, it is not clear what information was available to him to make that decision, given the DHBs business case was based on the ESC delivering ‘an alternative model of care’ and the model of care in question had yet to be properly assessed.

It is clear from various documents, however, that a DHB team had been undertaking their own analysis that appears to have been quite a separate exercise to that undertaken by Uniservices. That analysis was considered at the DHB’s Audit and Finance Committee on 14 September 2011 with a proposal to extend the pilot until the opening of the ESC. The committee recommended the proposal to the Board, which subsequently approved the extension of the pilot. The analysis on which this decision was made, however, did not take into account the additional data that were required to do an accurate comparison, as identified by Uniservices. For example, it takes no account of the imbalance of ASA grade 3 cases for hip replacements (30.6% in North Shore Hospital compared with 7.7% in the ‘package of care’).

The paper that was eventually published in the *Internal Medicine Journal* was a revised and edited extraction from the above paper. It excluded ASA

grade three cases in order to provide a more balanced comparison though, inexplicably, the result for hip replacements was virtually the same as the previous paper: a 'package of care' saving of 11% compared with 12% in the previous paper.

The 'savings' in the 'package of care' by excluding training and any RMO involvement become irrelevant when training is to be included in the 'package of care' in future.

It did not use the approaches suggested by Uniservices and, aside from exclusion of ASA grade 3 cases, there was no clear indication that the other data requirements sought by Uniservices were met and used in the published study results.

It is not clear how the costs for clinical staff were calculated. For example, "ward costs allocate the same costs to each bed day, irrespective of actual nursing input on each day," yet the 'package of care' appears to have been well staffed with nurses, as well as having higher than usual access to physiotherapy staff, in comparison with North Shore Hospital. Additionally, the cost of 'consumables' was calculated on the basis of theatre time, yet most consumables are used on a per case basis rather than a time basis. This was partially acknowledged by the authors but this discrepancy may also have incorrectly increased the costs of the control group.

Perhaps most significantly, the 'savings' in the 'package of care' by excluding training and any RMO involvement become irrelevant when training is to be included in the 'package of care' in future. In fact the 'savings' from excluding training may not just be cancelled out in the future 'package of care' but could well become a greater cost in comparison with North Shore Hospital, given the surgeons will be involved as private contractors.

Furthermore, the costs of RMOs are unlikely to be reduced at North Shore with the opening of the ESC, as the main role of RMOs is to care for acute and complex patients, and the removal of healthy elective patients will make little difference to their workload.

The question as to whether any productivity gains would be sufficient to outweigh the additional costs to pay for financial incentives was acknowledged in the second published paper on the pilot study.

...The key point of interest for the budget-constrained DHB is whether any productivity gains will be sufficient to outweigh the additional

payments made as a result of the clinical contracts on an ongoing basis.⁹¹

It is a point is repeatedly raised in the literature.

There is currently little rigorous evidence about whether financial incentives do improve the quality of primary health care, or of whether such an approach is cost-effective relative to other ways of improving the quality of care.

Fierce Healthcare 2011 ⁹²

Little formal evaluation of hospital P4P has occurred, and most of the eight published studies have methodological flaws... There is a need for more systematic evaluation of hospital P4P to understand its effect and whether the benefits of investing in P4P outweigh the associated costs.

American Journal of Medical Quality 2009 ⁹³

Despite the popularity of these [financial incentive] schemes, there is currently little rigorous evidence ... of whether such an approach is cost-effective relative to other ways to improve the quality of care....

Cochrane Library 2011 ⁹⁴

Overall, the health outcomes [of the incentive scheme] may not have been sufficient to justify the substantial opportunity cost of the system.

British Medical Journal 2010 ⁹⁵

Aside from questions discussed above, there were other costs associated with the pilot that have not been acknowledged.

The contracting of services to private providers – be it, in this case, within the public hospital setting – includes the costs of negotiating contracts (including the estimating of costs and prices), monitoring the contracts and possibly settling any disputes between the contracting parties. The size of these costs depends upon a number of factors, including the extent to which the details of a service (including dimensions of quality) can be specified within a contract.⁹⁶ As discussed in this Health Dialogue, determining accurate costs of specific services is not straightforward.

Nor is the monitoring of contracts an insignificant task. The limited (and inconclusive) measures of patient outcomes in the pilot study were an indication of how much more is needed to effectively monitor quality, for example. Waitemata DHB's *Annual Report* for 2011/12 shows that even the

basic quality indicators such as hospital readmission rates are “not able to be calculated for electives separately”.

The risks of financial incentives compromising the quality of care are outlined earlier in this Health Dialogue. Without robust monitoring of quality, the risks increase.

Any suggestion that extra financial rewards be given for the clinical care they deliver raises possible conflicts of interest because it becomes more difficult to determine if doctors are sacrificing patients’ needs to financial expediency.⁹⁷

The authors caution that although their findings lead them to believe that incentives have an impact on achieving the target quality measures, the overall impact on the quality of care is uncertain. It is possible that physicians are responding to the [the health organisation’s] incentives by producing higher measured quality and shirking on aspects of quality that aren’t measured.⁹⁸

The introduction of financial incentives for surgeons involved in the ‘package of care’ model also calls for the monitoring of services to ensure those incentives do not lead to increasing throughput of less complex cases at the expense of more complex cases. Given that government targets require DHBs to increase the number of elective surgeries without any weighting for complexity, there is a compelling case for monitoring to ensure high-complex patients do not lose out, regardless of incentive-based contracts. Though, as pointed out in the second published paper on the pilot study, adding financial incentives into the mix has “the potential to be especially powerful in stimulating this type of unintended – and undesirable – effect”. Waitemata DHB has not indicated how it might respond to that paper’s call for the average complexity and range of cases performed publicly to be ‘carefully monitored’.

Looking at the bigger picture, the use of the ‘package of care’ model could lead to substantial costs downstream, both in relation to the impact on publicly-provided services and the likelihood that the specialists working as private contractors will be in an increasingly stronger position to negotiate more lucrative contracts as the model is rolled out.

The DHB says it plans to shift around 6000 elective volumes to the ESC across a range of surgical specialties, which it estimates to be nearly 40% of its total elective surgery.^{99 100} However, Ministry of Health elective surgery data suggest that figure could be closer to 50%. Over several years before the ‘package of care’ was established, around 9% of the DHB’s elective

volumes (including those funded by ACC) were outsourced to the private sector.¹⁰¹ Even if all of the current proportion of private hospital-provided elective services are absorbed in the ESC model (and that is by no means certain because it depends on how attractive the risk-sharing contracts are to specialists compared with their current private hospital contracts), that leaves around 30% to 40% of elective volumes that have been provided publicly being transferred to the ESC.

This presents a significant problem for the DHB. It may have to reduce surgeons' public service hours as they increase their time working as private contractors in the ESC. That would result in North Shore Hospital being left to cover acute services, complex elective cases and a relatively small number of low-complexity elective cases, leaving the hospital with higher cost cases.

As the number of [less complex] cases that are contracted out increases, so does the average cost per case in public hospitals.¹⁰²

Furthermore, given Waitemata DHB has one of the highest acute surgical admission rates in the country (acute caseweighted volumes have increased by 25% in the last five years),¹⁰³ any reduction in surgical staff would raise serious questions about how the DHB could safely cope with its acute admission. Alternatively, the DHB could employ more surgeons (or pay for more surgeon hours) at North Shore Hospital to replace the hours lost to the ESC. This, however, would incur additional costs and therefore goes against what the ESC is intended to achieve.

The introduction of financial incentives for surgeons involved in the 'package of care' model also calls for the monitoring of services to ensure those incentives do not lead to increasing throughput of less complex cases at the expense of more complex cases.

In addition, the extra cost of medical training with around 40% to 50% of elective surgical services provided by private specialists could be significant, as discussed earlier.¹⁰⁴

Contracting more elective surgical procedures to private providers, albeit within a public facility, also has implications for equity of access to services, particularly if the ESC model

is picked up by other DHBs. Provincial centres which do not have private hospitals (or sufficient volumes to adopt a model of service, such as the ESC's, that separates elective from acute services), already find it especially difficult to recruit specialists, in part because there is limited opportunity to supplement their income from private practice.

Increasing private practice may exacerbate the problem if specialists are encouraged to relocate as opportunities in the private sector increase. This in turn would increase problems of access in the small centres.¹⁰⁵

Not least, as publicly funded services become increasingly dependent on specialists working privately, regardless of whether it is in a private or public facility, there is the likelihood of increasing upward pressure on contract prices, especially where there is minimal or no competition. Bearing in mind that New Zealand is already facing increasing shortages of surgeons, Waitemata DHB is most likely to find itself in a weak negotiating position against virtual monopoly providers.

As discussed earlier, there is already an indication that costs (or at least spending) are increasing. As well as additional government funding in 2011/12 for 'elective services productivity pilots', there was in the same year a \$6.3 million increase in outsourced services costs (making it \$12.7 million over budget for outsourced services in 2011/12). Data provided by the Ministry of Health¹⁰⁶ show the number of elective procedures provided in private hospitals in Waitemata fell sharply after the introduction of the pilot programme. It is therefore assumed that the DHB's increased costs for 'outsourced' service in 2011/12 are due mainly to the costs of surgeons and anaesthetists involved with the programme.

The most pressing concern, however, is the deep division among DHB staff caused by the introduction of financial incentives.

Divisiveness

Studies have highlighted the risks of divisiveness in some financial incentive schemes, and this has already become a serious issue at the Waitemata DHB.^{107, 108}

As the qualitative study in the scoping study for the pilot programme stated:

Opinions [expressed in staff interviews] were polarised on the issue of the new model of care at Waitakere, in particular the financial incentives for surgeons and anaesthetists. Few participants were unconcerned about this issue, and most either strongly supported or strongly opposed it.¹⁰⁹

The divisions are due in part because the 'package of care' model is seen to be unfair and in part because of philosophical differences.

Only surgeons, employed as private contractors, will receive a financial incentive payment (anaesthetists have rejected the incentive arrangement and, despite some strong internal opposition from within senior management, have reached an agreement through the ASMS with the DHB to work at the ESC as salaried employees; an agreement that was necessary if the ESC was to proceed). This private contractor relationship is regarded by many staff as unfair.

First, the ‘package of care’ model emphasises the importance of a strong team approach – all team members contribute to the service outcome. The response to this, included in the second published paper on the pilot study, is that nurses and other team members in the model benefit because their working day is finished once the surgical list is completed, unlike in the public hospital, where they are required to work a fixed number of hours (and, according to staff interviews in the qualitative analysis of the ‘package of care’, more stressful workloads).

That argument, however, highlights another staffing inequity between those working in the ‘package of care’ model and those working in the public hospital. While in theory each ‘package of care’ surgeon chooses who is going to work in their team, the process of appointing nursing and other non-medical staff in practice is unclear.

Secondly, the ‘package of care’ is considered unfair because surgeons working on non-complex cases in the model are paid more (understood to be more than \$8,000 a day) than those in the public hospital who are left with the more complex – and stressful – workloads. Furthermore, public hospital specialists (eg, radiologists, intensivists, etc) will be required to manage ‘package of care’ patients who develop post-operative complications, without receiving additional remuneration. (It is alleged, in fact, that a number of ‘package of care’ patients have been followed up by DHB registrars in DHB clinics.)

Reports from staff indicated surgeons were divided. In the lead-up to the opening of the ESC it appeared only a slight majority of orthopaedic surgeons support the model, and a majority of other surgeons did not.

The counter to this has been that “salaries for doctors working in public hospitals incorporate a significant component of non-clinical time as well as holiday and conference leave”.¹¹⁰ This argument is flawed, however, because it implies non-clinical time is simply a perk rather than important time for duties such as training and clinical leadership activities. Further,

the dollar value of leave entitlements do not come close to bridging the pay gap with surgeons, even for those on the top MECA salary step.

As there is no non-clinical time included in the ESC private contracts, it is unclear how private contractors will provide or contribute towards clinical governance of the ESC.

The second published paper on the pilot study acknowledges “deep philosophical differences” among staff. Some staff, it says, believe financial incentives of this type conflict with the ideals and principles of working in a public health system where “doing a good job...in itself should be a driver”. Other staff, “particularly the surgeons who are undertaking the work”, supported the ‘package of care’ model, saying it encouraged faster throughput, stronger teamwork and results in greater staff and patient satisfaction.

The internal ‘pilot team’ analysis assessed the risks of division between professional groups as ‘medium’. Mitigation of risk involved: “Ongoing consultation and communication with all parties to ensure the definition of ‘package of care’ is clearly understood...”¹¹¹

The DHB subsequently kept staff informed of ESC developments through regular newsletters. But as the ESC model became more clearly understood, rather than staff division being quelled, it appears to have become even more polarised.

DHB Chief Executive Dale Bramley acknowledged the divisiveness in discussions with ASMS representatives and, at a meeting in September 2012, the head of surgery (and director of the ESC), John Cullen, acknowledged the wider polarisation that had emerged.

The following month, an anaesthesia departmental meeting attended by 23 staff voted unanimously against the fee-for-service plans for the ESC.

In April 2013 the department voted to work on a proposal for anaesthetists working at the ESC to be paid as salaried staff, based on the MECA. With ASMS support, the proposal was developed and discussed with DHB management.

The following month anaesthetists voted with an ‘overwhelming majority’ to support the MECA-based proposal, and subsequently the Anaesthetic Department (with the ASMS) negotiated a Memorandum of Understanding with

An anaesthesia departmental meeting attended by 23 staff voted unanimously against the fee-for-service plans for the ESC.

the DHB for anaesthetists to work in the ESC as salaried staff. The agreement means that, in practice, aside from the change in the method of remuneration (and the addition of teaching responsibilities), anaesthetists will work at the ESC essentially as envisaged in the 'package of care' model, including preoperative triage and preparation, intraoperative care and being available for after-hours/call-back post-operation if required. The agreement includes a special allowance, negotiated under Clause 3 of the MECA, to account for after-hours care.

Staffing of anaesthetists at the ESC will be managed by the Anaesthetic Department, including allocation of anaesthetists to ESC sessions to provide consistent teams. This new agreement has an advantage over the private contractor arrangement in that the department can ensure there is consistency of care, including after-hours cover as well as arranging cover in the event of leave or sickness.

Meanwhile reports from staff indicated surgeons were divided. In the lead-up to the opening of the ESC it appeared only a slight majority of orthopaedic surgeons supported the model, and a majority of other surgeons did not.

Tensions had escalated further following the board's decision (announced publicly in March 2013) to run the ESC using the 'package of care' model while the original 'package' appeared to be shrinking. The initial model had the contractor surgeons taking responsibility for the whole of their patients' care, including care before and after surgery. That, in fact, formed the underlying rationale for their being paid a substantial fee.¹¹²

However, it was announced in March 2013 that first specialist appointments (FSAs) and follow-up appointments would be performed under surgeons' standard DHB contracts and would not be paid as part of the 'package of care' model. Further, DHB management began applying pressure on North Shore Hospital intensive care specialists to provide after-hours care for 'package of care' patients as required. Moreover, the DHB advised the intensivists that it would be unethical for them to refuse to comply. In effect, the DHB was requiring intensivists to add to their current workload by taking on a role that is normally the responsibility of a resident medical officer (RMO) or (non-specialist) medical officer, let alone that the ESC is effectively an off-site, semi-private service.¹¹³

The DHB subsequently backed off from this attempted approach and agreed to enter discussions with the Resident Doctors' Association (RDA) about using medical and Intensive Care Unit registrar teams for the overnight cover. Nevertheless, these changes raise the question as to why,

with the 'package of care' model barely established, have the contracted surgeons' responsibilities been reduced to cover a 'part-package of care'.

The divisiveness that is harming staff relations, and no doubt morale, at the DHB has been a feature of some other financial incentive schemes.

The ineffective implementation of such schemes has led to many studies which have illustrated how such PRP [performance-related pay] or 'merit' schemes are divisive and counter-productive and have introduced bias and discrimination.... In 1994, Alimo-Metcalf concluded that PRP tended to divide the workforce, create disaffected staff, encourage adversarial relations and kill the desire to take risks, experiment and collaborate.¹¹⁴

Where there is doubt about the fairness...performance related pay may be divisive and de-motivating.¹¹⁵

Particular problems emerge with financial incentive schemes when they apply to the performance of individuals, as is the case with the 'package of care'.

Prominent American academic and author W. Edwards Deming described how performance at work is a function of many variables, including the employee, the employee's co-workers, the job, the equipment, the materials, the customer, management and supervision, and the working environment. Thus it is the system, not the individual, that has the biggest impact on performance variance, making fair evaluations of employee performance 'inherently impossible'.^{116 117 118}

Edward Lawler, Director of the Centre for Effective Organisations at the University of Southern California, stated that "It does not make sense to combine a structure that calls for teams with a reward structure that rewards individual performance excellence."¹¹⁹

But aside from the matter of fairness of financial incentives, it is clear from other research that many health service workers believe that performance incentives are wrong and, for some, insulting.¹²⁰

A study of financial incentives in Britain's health services found, "A significant minority of participants believed that it was wrong for them to receive incentives to improve their performance. They did the best they could for their patients and were motivated by the vocation of their work. For some it was even insulting to be offered cash to improve performance, whether the offer was individual or team based. Moreover, those sites that opted for a personal cash bonus did not seem to perform better than those that chose to put their 'winnings' into an improvement fund."¹²¹

This point is especially relevant to Waitemata.

The introduction of financial incentives implies the DHB's poor elective surgery rates have nothing to do with the DHB leadership's evident failure to address increasing acute admissions and, in some areas, staff shortages, but everything to do with a notion that staff are not sufficiently dedicated to their patients and that that dedication can be bought.

There is no indication that the DHB's relatively low elective intervention rates might have been due to staff needing more incentive to work harder. On the contrary, the indications are of staff under high-workload pressure.

Finally, when one critic of a widely criticised pay-for performance scheme in Britain's NHS was asked what its replacement should look like, he replied, "What's wrong with a basic salary?"¹²²

8. OTHER FEATURES OF THE 'PACKAGE OF CARE'

The separation of elective and acute services

There is evidence to show that separating elective care from emergency pressures through the use of dedicated beds, theatres and staff can – if well planned, resourced and managed – reduce cancellations, achieve a more predictable workflow, provide good training opportunities, increase senior supervision of complex and emergency cases, and therefore improve the quality of care delivered to patients.^{123 124}

A working group set up by the Royal College of Surgeons of England (RCSE) to ascertain best practice in separating emergency and elective surgical care, including looking at the current literature on the subject, found that while there was no universal answer on what constitutes the best method of service delivery, with much depending on local circumstances, the general findings included:

- A physical separation of services, facilities and rotas works best although a separate unit on the same site is preferable to a completely separate location.
- The presence of senior surgeons for both elective and emergency work will enhance patient safety and the quality of care, and ensure that training opportunities are maximised.
- The separation of emergency and elective surgical care can facilitate protected and concentrated training for junior surgeons providing consultants are available to supervise their work.
- There is a need to provide protected time for training future surgeons.
- Separating emergency and elective services can prevent the admission of emergency patients (both medical and surgical) from disrupting planned activity and vice versa, thus minimising patient inconvenience and maximising productivity. The success of this will largely depend on having sufficient beds and resources for each service.

- Hospital-acquired infections can be reduced by the provision of protected elective wards and avoiding admissions from the emergency department and transfers from within/outside the hospital.
- The improved use of IT solutions can assist with separating workloads (for example, scheduling systems for appointments and theatres, telemedicine, picture archiving and communication systems, etc).
- High-volume specialties are particularly suited to separating the two strands of work.

The separation of acute and elective surgical streams is also endorsed by the Royal Australasian College of Surgeons (RACS):

If elective surgery waiting lists are to be reduced, the separation of surgical streams should be introduced wherever possible. The introduction of such arrangements can be achieved with

minimal extra cost, while experience indicates that it leads to cost-saving efficiencies. Significantly, no Australian or New Zealand hospital that has made this change has ever opted to revert to previous arrangements.¹²⁵

Elective surgery cannot simply be seen as an isolated product.

The greatest benefits to the patient are the reduction in hospital-initiated cancellations and improved timeliness of care. Cancellation of surgery creates great hardship for patients, who plan their working and family lives around proposed operation dates. Most such cancellations occur with less than 24 hours' notice.^{126 127}

A Norwegian study that considers the effects of separating elective and acute surgery on the efficiency of the *whole* hospital is more circumspect.¹²⁸

The critical question is...not whether the efficiency in an [elective surgery] unit may be higher than in ordinary surgical departments but whether the introduction of an [elective surgery] unit affects the total efficiency in the surgical division and the efficiency of the hospital in general.

It notes an extensive review of international literature could find no English-language studies that have analysed the effects of separate elective surgery units on the cost-efficiency of the hospital as a whole. The researchers' study and analysis of elective surgery units in Norwegian hospitals concluded that separating elective surgery from acute surgery

can produce greater efficiency, but not necessarily. It is best suited to low-complexity cases and requires a high volume of patients. Without a high volume of patients, the effects of ring-fencing elective surgery on a hospital's overall efficiency "can be small or even counter-productive".¹²⁹

*The problem, as has been outlined in this study, is that elective surgery cannot simply be seen as an isolated product. A hospital still has to perform other types of surgical procedures and still needs to give priority to emergencies and more complicated surgery. The effect is influenced by both internal and external factors.*¹³⁰

A similar perspective is taken in a Ministry of Health commissioned review of major joint orthopaedic services and cataract extraction. First, on the matter of size:

*Segregating unplanned responses from planned response, for example the separate elective surgical units at Canterbury DHB or Counties Manukau DHB, is effective if the service is large enough, but most are not.*¹³¹

The review also recognises "the issues are whole system issues".

Practically we recommend that any electives strategy or initiative is explicitly integrated with strategies to manage acute capacity demands – for most services these are inextricably intertwined yet our national strategies persist in treating them in isolation. Few hospitals are seriously undertaking programmes of acute demand management and most find it extremely difficult to invest in the sort of outward looking programmes that would make a difference.

However, some 'notable successes' in separating acute and elective streams into different facilities include Counties Manukau DHB and Canterbury DHB, which have made efforts to reduce acute demand so that they have resources to invest in elective services "that are lower cost and achieve better outcomes". Those DHB are regarded as examples "where broad and strategic investments in electives funding, models of care, professional roles and functions, facilities and capacity have substantially transformed the way elective services are provided. Few others have created a similar strategic context for success."¹³²

Canterbury DHB's Burwood Surgical Services at Burwood Hospital is primarily dedicated to orthopaedic surgery and rehabilitation. The service was developed after a whole-system review of all processes, from GP referral letters through to patients' discharge back to GP care. All stakeholders, including patients, were a part of this review. The service

model takes a multidisciplinary team approach encompassing a streamlined patient journey from pre-admission phase of elective surgery through to discharge and follow-up care.

Counties Manukau DHB's Manukau Surgical Centre, which takes a similar approach, is the subject of a case study in Section 9 of this Health Dialogue.

Other factors

Other key aspects of the Waitemata 'package of care' model include specially trained nursing staff, the allocation of dedicated surgical beds to receive patients post-surgery, cohorting of patients on theatre lists and on the wards, and streamlining service processes to establish clear patient pathways and improve patient flow.

It is beyond the scope of this Health Dialogue to examine each of these aspects in detail but generally, if well planned, resourced and managed, and taking into account the caveats discussed above, the literature indicates support for such approaches.^{133 134}

They reflect some of the features of the elective services model at Manukau DHB, which is outlined in the following section as an example of a positive alternative approach to that being taken at Waitemata DHB.

One feature of the 'package of care' model that may be difficult to sustain is the establishment of fixed surgical teams. Medical and nursing staffing levels are generally such that in the long term it may be difficult to maintain constant teams. Leave, continuing education and call make it

Practically we recommend that any electives strategy or initiative is explicitly integrated with strategies to manage acute capacity demands.

difficult to roster the same individuals to a particular theatre session. The more elective surgery performed under the model, the more challenging it becomes to choose and maintain constant teams.

One key aspect of good practice that is not covered in the pilot study concerns

the matter of surgical operating list efficiency. The Uniservices scoping study found scheduling is a 'cornerstone' of operating theatre productivity and efficiency, and a British study found the most efficient surgical teams are those that are able to plan their lists to fit within the time that is available to them, minimising both under- and over-use of theatre time.¹³⁵

In the pilot study, the management of surgical lists for low-complexity joint replacements may have been a relatively straightforward exercise, with the expected 'production' identified as four cases per list. However, it

is unclear how surgical lists are managed when other types of surgery are involved in the fee-for service arrangement, including reaching agreement with surgeons on the expected 'production' per list.

Both of the above matters touch on a broader question concerning the scalability and transferability of the 'package of care' model. However, notwithstanding the conditions required for successful separation of elective and acute services identified in this chapter, the many shortcomings of the pilot study discussed in this Health Dialogue, the divisiveness of the model, the remaining questions around actual costs and the impact on medical training, and the availability of other proven models, it is difficult to envisage a future for the 'package of care' model, let alone consider its potential transferability.

9. ALTERNATIVE MODELS

Introduction

A 'toolkit' produced by the Ministry of Health to assist DHBs in developing more efficient and effective elective services highlights 10 strategies for improvement. Each strategy includes evidence, case studies and references to relevant models to improve service delivery and reduce waiting times.¹³⁶ None of the strategies involve financial incentives in any form.

They include developing better service coordination and integrated care pathways by streamlining the patient journey, reducing variation, anticipating patient care needs and working collaboratively with key stakeholders; improving access by redesigning processes; and improving quality and productivity through better theatre scheduling and management and implementation of enhanced recovery programmes.

Four particular themes sum up the elements of improvement presented in the toolkit as follows:

1. Whole-of-system thinking

Electives are not delivered in isolation; a focus on one element of a service or one step in the pathway will lead to missed opportunities for change and ultimately prove unsustainable. System-wide thinking has been an important aspect in the recent growth of integrated care pathways (ICPs) and models to manage workflow between acute and electives. When planning service improvements, 'the system' should be viewed as the whole context of the service, spanning primary and community through secondary and tertiary aspects of care.

2. Working smarter with the team

Working smarter with the team means getting the best use out of valuable human resources: ensuring the work is done by the person most suitable to do it; ensuring people are working at the top of their scope; and working together. This not only enhances quality of care, but also builds capability for the future. Working smarter includes improvements such as more nurse-led and primary care managed services.

3. Improving the surgical experience for patients

Management of processes in and around operating theatres is pivotal

to improving elective surgical throughput. There is a large volume of literature on peri-operative processes and some great stories of improvements recently implemented within DHBs. A patient-centred approach looks at the service through the eyes of the patient; patients need us to provide care as a complete journey; not through isolated episodes.

4. A culture that supports service improvement

A supportive culture is integral to continuous innovation and improvement. This encompasses effective leadership and a focus on information sharing, collaboration and open thinking.

Each strategy of the toolkit includes case studies that provide different perspectives on each topic. The case studies, which have been written by managers, doctors and nurses, provide valuable insight into a particular model, covering benefits and barriers. They are valuable examples of a range of successful initiatives that have occurred around the country. Several of these cases studies concern the Manukau Surgical Centre and Counties Manukau DHB.

The following section gives an overview of the development and achievements of the Manukau Surgical Centre.

Case Study: Manukau Surgical Centre (Counties Manukau DHB)^h

The catchment of Counties Manukau DHB, like Waitemata DHB, is among the largest and fastest growing in the country. Both DHBs have diverse populations but a key difference is that Waitemata has a relatively wealthy population compared to New Zealand as a whole, while Counties Manukau has proportionally many more people in the most deprived section of the population than the national average, along with significant numbers of high-need patients.^{137 138}

The public system has consistently had higher intervention rates for people living in areas of higher deprivation, a difference usually attributed to wealthier populations choosing to use private surgery options.¹³⁹ This is

^h Background information and data sourced from: (a) Health Improvement and Innovations Resource Centre: Improving patient flow for electives, Case Study 20: Expansion of Manukau Surgical Centre (Counties Manukau DHB). (b) CMDHB, Improving Access to Elective Surgery, 1996/97 to 2005/06, May 2007.

reflected in the relatively higher use of privately funded elective surgery in Waitemata compared with Counties Manukau, with the former having almost twice the number of Southern Cross-funded surgeries over the latter, despite having similar numbers of residents (see Figure 1).

Counties Manukau DHB faced acute admissions increasingly encroaching on its ability to undertake elective cases – a challenge familiar to most if not all DHBs. In response, the DHB decided to separate acute and elective workflows but, in line with the approach advocated by the Ministry of Health-commissioned review of major joint orthopaedic services and cataract extraction, it also developed a number of acute demand management initiatives, which included:

- Chronic Care Management – a programme developed for people with (or at high risk of developing) diabetes, cardiovascular disease, heart failure, and chronic obstructive pulmonary disease, which all accounted for a disproportionate amount of health care utilisation in the DHB.
- Primary Options for Acute Care, available through general practice, and Middlemore Hospital Emergency Care and medical wards. The scheme pays GPs a limited amount to buy services that will keep a patient out of hospital.
- Frequent Adult Medical Admissions, offering case management services to patients with frequent admissions, in association with care coordinator nurses at Middlemore Hospital.
- Outreach specialist clinics, which are delivered in high-need areas and include paediatrics and diabetes clinics.
- Various strategies on emergency care, including a GP liaison role for emergency care, work on improving the quality of GP referrals, and a public education campaign regarding the role of Middlemore emergency care.¹⁴⁰
- Last year the DHB introduced a ‘20,000 Days Campaign’ which aimed to reduce the demands on hospital services by giving back to the community 20,000 well and healthy days by 1 July 2013. This entailed a whole-of-system approach to anticipate and prevent acute health problems, respond quickly and effectively in the community and provide timely and safe care to people admitted to hospital. By April

2013 an estimated 15,553 bed days had been saved through this initiative.

The separation of acute surgery and elective surgery occurred with the establishment of the Manukau Surgical Centre, which originally opened as a day surgery unit in 1997, then expanded to 10 theatres and two procedural rooms with 40 inpatient beds in October 2001. Initially it delivered the most straightforward procedures, operating five days a week but later grew to a full seven-day service.

In 2005 a further 38 beds were added to the centre, including a four-bed high-dependency unit (HDU). The HDU allowed a greater range of surgery to be undertaken at the Manukau Surgical Centre, and provided the clinical back-up for surgery on patients with high-risk profiles. Since then, the case selection has expanded each year.

Key features of the Manukau Surgical Centre model include:

- the separation of elective from acute surgery;
- a dedicated surgical beds to receive patients post-surgery;
- surgery is fully publicly provided;
- dedicated nursing staff;
- a strong emphasis on team work;
- training of RMOs and other staff;
- inclusion of RMOs in all aspect of care;
- registrars coordinating clinical care (rostered between the Manukau Surgical Centre and Middlemore Hospital);
- careful case selection to ensure patients are matched to resources and support at the facility; and
- streamlined processes to ensure good patient flows.

Its post-operative care includes a nurse-led approach, 'enhanced recovery after surgery' (ERAS), that starts from the time a patient gets onto a waiting list and continues until they return home post-surgery. ERAS maximises a patient's ability to get better through at least 20 components and has substantially improved the recovery of patients at Manukau Surgical Centre. As the first DHB to implement ERAS, CMDHB is now the national lead for this initiative, which has recently been rolled out to several other DHBs, including Waitemata.

Almost all day surgery for CMDHB and over 90% of other electives are carried out at the Manukau Surgery Centre , including orthopaedic surgery (including joint replacement), general surgery, colorectal surgery, breast surgery (including breast reconstruction), gynaecological procedures, plastic surgery, ORL/ENT, and ophthalmology.

Today, the only real limitation is in not being able to take on planned cases that would require admission to intensive care. A further consideration has been avoidance of duplication of expensive equipment over the two sites (for example, equipment for spinal surgery).

Outcomes

Following the 2005 additions to the Manukau Surgical Centre, the DHB's elective surgery casemix discharges increased by 60% by 2010/11 (Table 2). Further, acute discharges were held to an annualised growth of just 1%. As a result, the proportion of elective discharges out of total surgical discharges has increased from 32% to 42%.

TABLE 2: COUNTIES MANUKAU DHB SURGICAL CASEMIX FUNDED DISCHARGES, 2005/06 TO 2010/11

Admission type	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Annualised growth 2005/06 to 2010/11
Acute & arranged	19,667	19,034	19,812	19,363	19,687	20,393	1%
Elective	9,186	10,651	12,143	13,247	13,919	14,737	10%
Total	28,835	29,685	31,955	32,610	33,606	35,130	
Elective % of total	32%	36%	38%	41%	41%	42%	

Excludes dental, maternity and non-casemix funded services.

Data extracted from the National Minimum Dataset on 13 February 2012.

Manukau Surgical Centre as alternative model

The Society of Anaesthetists (NZSA) suggested Waitemata's ESC could be run employing surgeons and as public providers.

We believe that productivity can be improved through improved patient selection and preparation, absence of distracting emergency workload, defined surgical pathways, commonality of surgery, and active discharge planning. With appropriate planning, anaesthetic trainees can assist productivity and patient care while learning important skills. Examples of efficient elective units in the public hospital setting exist in New Zealand.¹⁴¹

The NZSA mentions in particular Manukau Surgical Centre and Burwood Hospital in Christchurch.

The ASMS has also proposed a similar approach, including specific arrangements where all SMOs working in the ESC could be employed under the national DHB MECA, with a special allowance in recognition of the need to meet the 'deliverables' agreed between the Government and Waitemata DHB as part of the establishment of the ESC. (This was the approach taken in the successful negotiation for anaesthetists working at the ESC to be employed as salaried staff.)

SMOs working outside the ESC but providing regular necessary support (eg, diagnostic, intensive care) would also be eligible for a special allowance.

These suggestions were dismissed by the DHB as not sufficiently developed (despite CMDHB's Manukau Surgical Centre having been operating since 1997), and they claimed that, based on their own assessment using WEIS values (weighted inlier equivalent separations) that productivity at the Manukau Surgical Centre was little better than electives done at North Shore Hospital. The WEIS measurement is not a reliable measurement for comparing between hospitals, however, in part because it is a tool to calculate funding rather than a measurement of actual service provided.

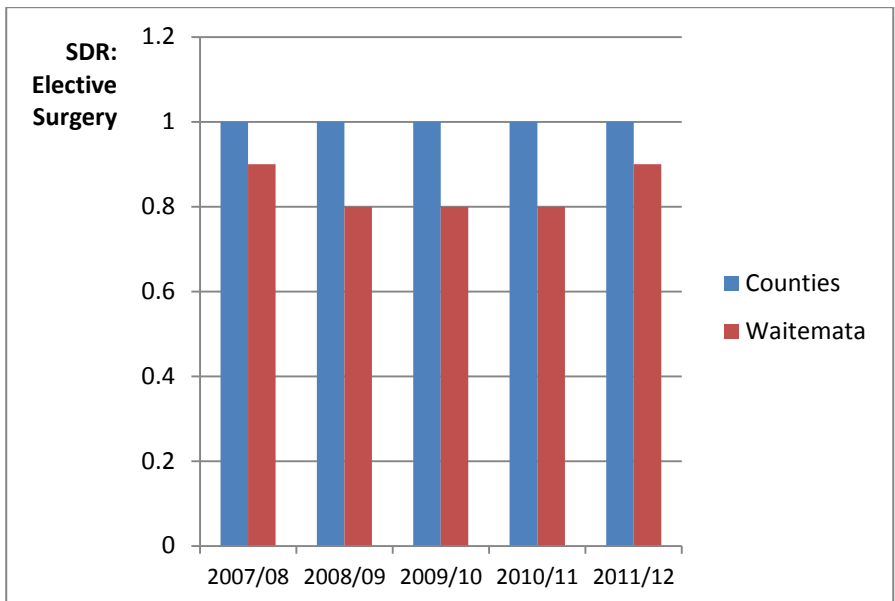
One of the Waitemata DHB's own documents states:

Theatre productivity is not determined by one single measure but needs to take into account multiple indicators of efficiency. Comparators between hospitals are also difficult and need to take into account multiple factors including casemix within a speciality, services

being provided in a facility (cardiac surgery c.f. ophthalmology), acute and elective mix.¹⁴²

Notwithstanding, the caution needed in making comparisons, one high level measure used by the Ministry of Health is the Standardised Discharge Ratio (SDR). This shows the level of surgical procedures provided by each DHB compared with a national average indexed as '1'. The ratio is standardised to take into account the particular demographics and social deprivation mix of each DHB's population. Figure 4 indicates Counties Manukau has consistently performed better than Waitemata in terms of elective surgery discharges over the last five years.

FIGURE 4: STANDARDISED DISCHARGE RATIOS FOR ELECTIVE SURGERY FUNDED OR PROVIDED BY WAITEMATA AND COUNTIES MANUKAU DHBS, 2007/08 TO 2011/12



Source: National Minimum Data Set, Ministry of Health, March 2013.

Note: Excludes ACC-funded procedures.

Discussing the challenges faced by DHBs of creating sustainable capacity and productivity generally, the Ministry of Health commissioned review of major joint orthopaedic services and cataract extraction commented:

While in aggregate the results, survey and responses in this area are mostly a story of struggle with the complexity and challenges of building real sustainable capacity within the public system, the success stories, although relatively few, stand out as demonstrating the potential and value of the initiative's original intent and design. The most notable successes in creating sustainable capacity have occurred in districts such as Counties Manukau and Canterbury, where the initiative was able to utilise and foster a platform of innovative thinking that already had some momentum.

The reviews went further:

A substantial resource of knowledge, experience, systems and practice has been generated by the [orthopaedic and cataract initiatives] and the related efforts of leading DHBs over the last few years. Whether under the umbrella of whole system redesign, models of care, patient journey or lean thinking these have sufficiently demonstrated results so that the question is not 'if they work' but 'why are they not being used everywhere'.

10. DISCUSSION AND CONCLUSION

If a DHB decides to pull out a carefully selected group of low-complex surgical cases, confined to certain procedures, sets aside theatres and wards solely for those cases, sets aside time for dedicated, handpicked teams of staff to work solely on those cases, drops the responsibility for training resident medical officers, provides optimum nurse staffing levels, and optimum post-operative access to physiotherapy rehabilitation treatment, and streamlines all patient flow processes guided by proven models, the outcome will be a substantial drop in theatre time and length of stay, which in turn will produce considerable cost savings per case.

The findings of a wealth of studies on the effects of those features make it a virtually foregone conclusion. Hence the 'success' of Waitemata DHB's 'package of care' pilot programme – although the assumptions behind some of the costings raise as many questions as answers and it may be that the extent of the 'success' is overstated.

Aside from those questions, as one study quoted in this Health Dialogue puts it, the critical question is not whether the efficiency in an elective surgery unit may be higher than in ordinary surgical departments but what impact it has on everything else the health service must do. That question is especially pertinent to Waitemata's pilot for several good reasons.

First, another study shows the median operation duration of a supervised trainee in 22 studies was 34% longer than if the surgeon operated without a trainee. The exclusion of medical training responsibilities in the Waitemata pilot, then, is likely to be a significant contributor to its cost 'savings'. The trouble is it is simply not a runner. Surgeons and anaesthetists must be trained. The DHB thankfully acknowledged this but was then faced with the problem of maintaining 'productivity' (patient volumes) and its claimed cost efficiency while fulfilling training needs. Consequently the DHB found it necessary to apply for additional funding to develop an appropriate training programme for the new service model.

The underlying problem is related to the second flaw with the pilot model: that it is contracting surgeons as private providers in a financial incentive-based risk sharing arrangement. As discussed in this Health Dialogue, training requires medical specialists' time, and when it is privately contracted time, it does not come cheaply.

Financial incentives introduce substantial risks, including compromising the quality of care, depleting public sector resources, increasing dependence on private providers, creating a two-tier system – for patients and for staff – and dividing the workforce.

We have not found any example in the literature that resembles what is being implemented in the pilot model. The use of financial incentives is increasing internationally (mostly in the United States) though, as many studies and reviews have noted, there is surprisingly little evidence they are cost effective. At best they are experimental. The pilot model is a double experiment because it has not

only introduced financial incentives but has done so in a model attempting to mix private and public provision within a public facility. It is also selective about who is eligible for the incentives, despite dependency on strong team work, and is being carried out without sufficient information systems to enable robust monitoring and evaluation.

The initial published paper on the pilot model concedes it is not known what factors of the ‘package of care’ contributed to the ‘efficiency’ of the model or what factors might have worked against it, even though the literature provide some obvious clues. The financial incentives are the stand-out feature for which there are serious doubts.

Most importantly, financial incentives introduce substantial risks, including compromising the quality of care, depleting public sector resources, increasing dependence on private providers, creating a two-tier system – for patients and for staff – and dividing the workforce. The consequences of such risks would not only be damaging to public health services in the region but would be difficult to reverse.

The scoping study warns there is uncertainty over long-term efficiency of the ‘package of care’ or its effect on other staff, or on opportunity costs. That warning could in fact be extended to uncertainty on the impact of the rest of the hospital as a whole – especially the potential effect on acute surgical services, which have seen a caseweighted volume increase of 25% in the five years to 2011/12.¹⁴³

The question is why take the risk, when there are models such as at Counties Manukau which has successfully taken a whole-of-system approach to addressing its surgical demand while avoiding the risks of financial incentives.

There is evidence to support the view that a model involving specialists working privately with a package of financial incentives may have been predetermined from the start.

The Waitakere ‘pilot team’, which initially developed the model, did not appear to be concerned about investigating the best options available for improving elective service efficiencies at the DHB. They simply chose, by their own admission, to build on their own creation. The process for investigating the best options, belatedly commenced through a contract with Auckland University, appears to have been overtaken by a process to advance the pilot team’s model. Concerns about delaying the publication of a paper about the pilot model (its selection for publication was assumed) were, it would seem, more important than Auckland University’s request to compile more data.

Competition for surgeons between the public and private sectors has evidently been growing for some years as demand in both sectors has increased faster than the growth of the surgical workforce.

While the DHB was in discussions with ASMS concerning our proposed alternative, fully publicly provided model, it was at the same time – as discovered from information that subsequently came to our attention – secretly planning a strategy to publicly attack the ASMS position. A meeting of senior DHB managers, scheduled

for 31 August 2012, included on its agenda discussion on whether to ‘proactively’ publicise a number of messages against concerns the ASMS had raised about the ‘package of care’ model. The messages ‘would form a broader strategy for action’. Interestingly, the DHB’s Human Resources General Manager, who was at the time leading the DHB in discussion with ASMS about our alternative model, had been excluded from the invitation list, and there was a question as to whether he should be asked to be involved.

The DHB has been all too ready to herald the success of the pilot model, despite the many shortcomings of the pilot analysis; it has also been all too ready to dismiss other models (with spurious arguments), including the tried and tested service provided by Counties Manukau DHB.

These are not the actions one would normally associate with the investigation and development of robust, evidence-based practice; they are, in the ASMS’s view, more closely associated with a team of people with an agenda. Which comes back to the question: why?

ESC director John Cullen was reported to have suggested a main reason the DHB had to pay high incentive payments to specialists involved in the pilot was to be competitive with private sector rates in order to recruit and retain them.¹⁴⁴ This signals an issue that goes beyond the boundaries of Waitemata DHB.

Competition for surgeons between the public and private sectors has evidently been growing for some years as demand in both sectors has increased faster than the growth of the surgical workforce, assuming surgical discharge trends reflect demand (it is virtually impossible to accurately assess unmet demand). DHB workforce data obtained under the Official Information Act show the number of permanent FTE surgeons employed by DHBs increased by approximately 13% in the four years from December 2008 to December 2012. However, caseweighted publicly funded surgical discharges from 2007/08 to 2011/12, including acute, elective and ACC-funded procedures, increased by 20.4% according to Ministry of Health data.ⁱ

Meanwhile New Zealand's biggest private health insurer, Southern Cross, has reported the number of elective orthopaedic procedures funded by the society increased by 26% from April 2007 to March 2012. Up until now, DHBs have been managing by a combination of

If the real issue facing Waitemata DHB is a problem of recruiting sufficient surgeons into the public sector then that is the issue that needs to be addressed.

outsourcing to the private sector, using locums (DHB data show the use of temporary surgical staff is increasing), and increasing efficiency. But the fact that the growth in demand (for acute as well as elective surgery) is rapidly outpacing the growth in surgeons points to an obvious need for more surgeons. Nowhere is this more evident than at Waitemata DHB.

For example, despite having one of the fastest growing populations in the country, and one of the highest rates of acute surgery admissions, Waitemata DHB is employing fewer permanent orthopaedic surgeons than five years ago and currently has the lowest number of full-time equivalent (FTE) orthopaedic surgeons per population in the country, yet there are currently no vacancies for orthopaedic surgeons at the DHB. The 'package of care' model could actually exacerbate the staffing shortfall if surgeons are required to reduce their public service hours to perform an increasing

ⁱ Extracted from the National Minimum Data Set.

proportion of the DHB's elective surgery at the ESC as private contractors. Such a development could have dire consequences for the provision of acute services.

If the real issue facing Waitemata DHB is a problem of recruiting sufficient surgeons into the public sector then that is the issue that needs to be addressed.

Finally, the 'package of care' paper published in the *Internal Medicine Journal* claims in its title that the model has achieved increased productivity, reduced cost and improved quality. This Health Dialogue challenges the accuracy of those claims. It has also attempted to shed more light on the mounting damage and potential damage that is being caused by what is essentially an experiment in providing for tax-payer funded easy private practice without overheads in a public health facility.

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