The Productivity Commission's Inquiry: Measuring and Improving State Sector Productivity

District Health Boards Submission

27 November 2017

Table of Contents

Response to the Inquiry questions 4

Appendix 1: National data systems 17

Appendix 2: Role delineation model 18

Appendix 3: Response to recommendations to Statistics New Zealand's feasibility study 19

Appendix 4: Heterogeneity 22

Appendix 5: Health System Performance Framework 28

Disclaimer: The information contained in this response is from individuals within the health sector and do not necessarily reflect the views of the District Health Boards as a collective.

Foreword

The 20 District Health Boards (DHBs) are responsible for providing or funding the provision of health services across New Zealand. The New Zealand Public Health and Disability Act 2000 created DHBs and it sets out their objectives, which include:

- improving, promoting and protecting the health of people and communities
- promoting the integration of health services seeking the optimum arrangement for the most effective and efficient delivery of health services in order to meet local, regional, and national needs
- promoting effective care or support of those in need of personal health services or disability support[1].

The health sector is data rich, focused on quality and safety metrics. Whilst complex, measuring productivity is also regularly undertaken in parts of the system. DHBs must balance delivering productive and efficient services with meeting the health needs of its population. DHBs have a responsibility for health system performance. This is beyond hospital centric services and extends to primary care, community care, and the wider integrated social sector.

The heterogeneity of stakeholders in health is outlined in Appendix 4. DHBs recommend that the Productivity Commission (the Commission) also seeks input from these wider groups to better inform the inquiry of into state sector productivity.

For any further information or clarification of this response on behalf of the 20 DHBs, please contact TAS on (04) 801 2566.

[1] Ministry of Health: http://www.health.govt.nz/new-zealand-health-system/key-health-sector-organisations-and-people/district-health-boards

Response to the Inquiry questions

This response to the Commission's Issues Paper '*Measuring and Improving State Sector Productivity*' has been prepared on behalf of the all 20 DHBs. To encompass the entire perspective of the 20 DHBs, TAS coordinated a variety of surveys, meetings, and teleconferences. As a result, this response incorporates responses from a variety of DHB stakeholders, including but not limited to Chief Executive Officers, Chief Operating Officers, Chief Financial Officers, Chief Information Officers, General Managers Planning and Funding, clinicians, and other subject matter experts.

The replies received have been edited for clarity and to provide an overarching response from the sector.

Q1 Which types of government services most readily lend themselves to the direct measurement of outputs? Which services don't lend themselves to this?
The view in the health sector is that most patient based services lend themselves to some form of direct measurement of outputs. DHBs have well-developed infrastructure and processes to inform the measurement of productivity within the different health care settings that DHB and service providers work in. There is, however, some reservations about using productivity measures in health due to technical efficiency needing to be balanced against quality and safety and patient satisfaction. For instance, reducing hospital bed days would be seen as a technical efficiency, but would not be an increase in productivity if it resulted in an increase in re-admissions. A challenge, viewed by some, is how to fairly allocate the inputs accurately over the outputs to measure productivity. To date the following areas have been difficult for DHBs to gauge from a productivity perspective; mental health, primary care, and other community health services. Some of the difficulties are due to the lack of consistent, quantitative data. Time lags in the data can also make it difficult to measure outcomes.
Q2 What progress has been made in implementing the recommendations of Statistics NZ 2010 report "Measuring Government Sector"?
In many cases, the data or information exists in the health sector, but it is up to Statistics NZ to integrate it into their model, in alignment with the required methodology. DHBs are willing to work with Statistics NZ to implement the 2010 recommendations that require implementation. Responses submitted in response to this question did not categorically confirm the actual progress that had occurred around implementation. Refer to Appendix 3 for the in-depth responses received in response to this question.
Q3 Which, if any, of the recommendations in Statistics New Zealand's 2010 feasibility study should the commission re-examine?

DHBs recommend the continuation of learning and understanding the health system, with focus on the data that is available especially newer datasets. An approach for better measuring mental health services would be helpful to DHBs. It may be that the national mental health collection (PRIMHD) could be used to provide enough throughput information for a productivity view but further understanding of the dataset would be required.

It was noted that funders diminish the value of productivity measures when they contract services based on inputs rather than outputs. Contracting on an input basis often means that processes and systems are not established to capture outputs in a consistent way.

The Commission could also re-examine the cost model and the role of Hospital Costing Index (HCI). It is believed that adequate tools exist for Statistics NZ to work with the health system to incorporate it into their appropriate models and methodologies.

Q4 What do government agencies currently do to measure their productivity? How do Government departments use productivity measures to improve the productivity of core services?

DHBs measure their productivity over a range of services regularly, including undertaking comparative benchmarking across a number of services. Sources of these measures include their Health Roundtable (HRT) memberships, Ministry of Health (MoH) sponsored improvement programmes and Health Quality and Safety Commission (HQSC) reporting. Productivity measures are a regular part of performance reporting both internally and externally.

In the nursing and midwifery area, DHBs have systems to monitor safe staffing levels that measure workload against nursing and midwifery inputs. This programme is called Care Capacity and Demand Management (CCDM) and it utilises validated patient acuity data to create productive and safe environments.

Primary care, aged care facilities, dentists, pharmacies, radiology and others are private business holding service provision contracts funded by the DHBs. These businesses would want a share of increased productivity. The challenge is to have a business model which enables all parties to benefit from increased productivity while ensuring the best use of public funding for patient benefit.

Some of the challenges have been a lack of agreement on methodologies for consistency and the lack of longitudinal comparison. DHBs have started a national programme to better inform health system performance insights (HSP Insights). The programme will enable DHBs to understand their productivity and opportunities to improve, balanced against a wider suite of indicators from a whole of system perspective, as shown in the framework in Appendix 5. This programme is currently engaging with the Commission to ensure there is a shared view of productivity in the sector as well as other government entities (MoH, HQSC, the Treasury) to ensure a joined-up understanding.

Q5 How should the selection of outputs differ for different users of productivity data (Ministers, Chief Executives, and Managers)? What principles should guide these decisions?

The principles for selecting output measures depends on role, purpose and the decisions that the user is responsible for, or influence, for example:

- Ministers – macro / high-level measures relating to specific policy initiatives, international comparisons and between DHBs and other health entities.

- DHB Boards – measures informing the productivity and performance of key areas in the DHB and between DHBs.

- DHB Chief Executives – areas of accountability within the DHB with a focus on operational delivery, and macro measures between DHBs.

- Managers – areas of accountability with a focus on operational delivery.

For additional information about the users of data refer to Appendix 4. Compiled by the HSP Insight programme, it identifies the various stakeholders, their role and their likely use of health information.

Q6 Are there instances where a subset of core outputs would provide a reasonable indicator of the efficiency of the state sector organisation [DHB] or [health] programme? For which service or organisations is this most likely to be the case?

Health is a continuum from primary, community, secondary, and tertiary services with a range of datasets and core outputs, of which some are better markers than others.

The outputs are wide and varied, reflecting the complex service settings that DHBs operate in. Within each service setting, there are multiple measures for the activities being provided as outlined in the table below. Also, the patient is interacting with a highly skilled and multidisciplinary workforce.

Community	Primary setting	Ambulatory setting	Hospital Setting
Length of Stay Discharge Home support	Enrolment Items dispensed Attendances Consultations Treatments	Attendance Tests Treatment type Clinical measurement	Discharge Length of stay Case weight Operating theatre procedures

The Trendcare© system is a validated patient acuity and workload measurement system for nursing and midwifery. There could be the opportunity to benchmark validated nursing and midwifery patient acuity data at a national level.

Access to primary care data is a challenge, especially data that would better inform outcome-based analysis. Most of the information that is readily available is collected as part of the payment and contracting process.

Health has a range of IT systems that support the delivery of services in an operational context for example theatres, radiology, laboratories. Often these systems do not directly feed into national collections but generally support clinical coding processes and other analytical processes such as costing and production planning. Appendix 1 identifies the key information collections that DHBs

contribute to, as well as information maintained outside of national collection systems. Information in the resulting collections contains both clinical and activity information.

Health has developed methodologies that enable comparison between different DHBs for medical and surgical activity. Refer appendix 2.

Q7 Should the Commission explore willingness-to-pay methodologies further for the purpose of valuing government non-market outputs? Are there any viable alternatives to cost weighting as a way of valuing and aggregating public sector outputs?

The health sector system has a mixed funding model with private contributions made through co-payments or purchased directly from private care providers. Willingness-to-pay is difficult in health because of the perception that the system should be publicly funded. There are also vulnerable communities who have an inability to pay for health services.

Case weighting for health makes sense but there is a need to ensure this is measured against the right cost base. DHBs are required to report costs split into prevention, early detection/management, assessment/treatment and rehabilitation/support. The assessment/treatment and rehabilitation/support would predominantly relate to case-weighted discharges, whilst the early detection/management and prevention would relate to lowering demand over time and improving health outcomes and not the delivery of case-weighted discharges.

Co-payments could be examined, however, they can be a barrier to access to health services and can often redirect where people go to receive their care. Currently there are some anomalies such as x-rays taken after referral from General Practitioners are charged to the patient, however, if you go to Emergency Departments it is free, placing pressure on DHBs. Another anomaly is blood supplied to the private hospital system is paid for by DHBs. These costs are incurred in one part of the system and are not reflected in another. For prescription costs, there are different levels of co-payment depending where a person receives treatment.. The Commission could explore other areas suitable for co-payments, however, co-payments in the hospital system have been in the past politically difficult to consider. Refer to comments in Q15.

The Commission could explore where the cost/ Disability-Adjusted Life Year (DALY) or cost/ Quality-Adjusted Life Year (QALY) line to be drawn for the provision of health services – essentially what do we aspire to deliver as a sector? Current status is to deliver as much as we can afford to deliver, which doesn't reflect the reality of unmet demand nor identify aspects where we over service.

The Commission could consider how funding mechanisms of health providers impacts on productivity – incentivise value productivity that is look very carefully at current funding of elective operations as a case study of how to dis-incentivise productivity. For example, the United Kingdom's National Health Service (NHS) tariff system as case studies in productivity improvement. When looking at the measurement of impact the need to move to social return on investment could be looked at.

The Commission could also look to the Australian funding models (the insurance model in Australia), to see if they are getting better outcomes than New Zealand.

Q8 For which services would it be reasonable to assume quality remains unchanged over time?

Over time, DHBs would expect all health services to have changed in some way, through the implementation of continuous quality improvement cycles. Some the key factors which influence the quality improvement cycle are:

- Innovations
- New clinical pathways of care
- New technologies
- Changing scope of practices and workforce dynamics.

Q9 What services need to be quality-adjusted? What indicators of quality should be used for different state sector services?

Most health services need to be both demographically and quality adjusted, and there is a need to incentivise and adjust for all aspects of quality for example Institute of Medicine (IOM) 6 domains Health Care Quality:

> **"Safe:** Avoiding harm to patients from the care that is intended to help them.
> **Effective:** Providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively).
> **Patient-centred:** Providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.
> **Timely:** Reducing waits and sometimes harmful delays for both those who receive and those who give care.
> **Efficient**: Avoiding waste, including waste of equipment, supplies, ideas, and energy.
> **Equitable:** Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status." (Reference: https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/sixdomains.html).

Quality and demographic adjustment is required for the following reasons but not limited to:

- Model of care changes over time
- Changes in clinical setting
- Greater integration between primary, community, and hospital
- New technologies
- Infrastructure investment
- Changes in workforce.

Q10 Is case mix adjustment of productivity measures feasible in state services other than for the outputs of Hospitals?

Case mix is an analytical approach that has transferability across different sectors for different types of outputs. In health case mix approaches work particularly well in distributing health funding equitably and measuring activity in a consistent way.

The population-based funding formula (PBFF) could be regarded as a type of case mix distributor that takes account of socio-economic status and ethnicity.

Q11 How should the Commission think about developing productivity measures in the areas of the state sector where services are collectively consumed?

There are public health programmes that are for the benefit of the whole population (as opposed to an individual intervention such as campaigns for smoking cessation, water quality initiatives etc). These programmes could be looked at in regards to total expenditure – how much of the health dollar is being spent on health promotion? The challenge is how to balance the investment into 'whole of population' activities over time, whilst measuring the long-term population health outcomes.

The social determinants of health affect all New Zealanders, although some groups more than others, and create an impact across various sectors but often the consequences are felt in the health. An example of this is poor housing insulation, which can lead to respiratory disorders. When developing productivity measures it is, therefore, necessary to consider the cross-sector inputs which lead to consequences for the health system.

Q12 How well are agencies and service providers (e.g., schools, DHBs) able to cost their activity at an output level?

A DHBs ability to cost their outputs varies from excellent to limited depending upon their capabilities, costing systems, and infrastructure. Hospital data is viewed as costed and/or able to be costed as it consists of throughput and direct activities. Within contracted providers, for example Primary care, and Age Related Residential Care, the same level of information may be available; however, there are commercial 'in confidence' arrangements to be considered.

Q13 How good are government agencies [DHBs] at "activity-based costing"? How well do they understand "cost to serve"? What are the barriers to agencies [DHBs] doing this well?

DHBs undertake activity-based costing on a regular basis and these are used within the National Cost Collection and Pricing Programme (NCCP) where they produce generally good results.

There are a range of views on how well DHBs use activity-based costing and other costing information. Some DHBs believe that the resources and skills are good; others consider there are significant opportunities for improvement. There is a belief that the event level cost data submitted to NCCP produces good results when joined with other data.

Not all DHBs have an activity-based costing systems (generally smaller DHBs) as it is perceived this would not make a significant difference to the results already being obtained in NCCP.

Q14 How well do agencies' [DHBs'] financial management systems line up with their outputs?

As for questions 12 and 13, financial management systems line-up with outputs but this varies between DHBs depending upon their system capabilities and cost structures.

Some DHBs cost down to patient episode level, so for treatment aspects this aligns well. It is much harder to make connections between costs and outcomes for longer-term preventative activities where volume reduction is expected.

Q15 For which state [health] services are co-payments most common? For these services does good data exist on the share of cost covered by co-payments? How should the commission treat co-payments into account when developing productivity measures?

The service coverage schedule which is issued annually by the MoH identifies where co-payments can be charged for services: (https://nsfl.health.govt.nz/accountability/service-coverage-schedule/service-coverage-schedule-201718).

The financial treatment of co-payments could be variable across the sector, sometimes it could be netted off costs others it could be treated as revenue. Also refer to DHB s common costing standards for guidance around treatment.

In respect to community pharmacy, the national data collection for community pharmacy claims ('Pharmhouse') will contain details of patient contributions (the $5, $10 or $15 co-payment inclusive of GST). Some pharmaceuticals are not fully subsidised by the government and the patient is expected to pay the standard co-payment plus a contribution towards the unsubsidised proportion of the pharmaceutical cost plus any additional mark-up at the discretion of the community pharmacy. These additional charges are not recorded in Pharmhouse although the unsubsidised proportion of the pharmaceutical cost can be inferred. Pharmhouse records a proportion of the costs to the DHBs of the pharmaceuticals and fees paid to community pharmacies both gross and net of patient contributions (co-payments). Since 2012 additional payments have been made to community pharmacies that are not recorded in Pharmhouse. Just over 60 percent of service fees are paid and recorded outside of Pharmhouse. These payments are collated and recorded by TAS.

General Practice visits attract co-payments along with some ACC funded services. Co-payments for a standard consultation are subject to the fees framework and negotiated as part of the PMO Services Agreement.

In contrast to those services which attract co-payments currently, there are some social services where there can be unfunded parts of the service such as palliative care and ambulance services.

Q16 What public sectors/services should the Commission focus on as case studies for developing productivity measures? Why?

The health system could benefit with an impartial look at the following:

- Mental Health is a key government priority. It is generally funded on an input basis. Having guidance on consistently measuring outputs would be of system benefit.
- Community Pharmacy - DHBs are currently considering a more integrated model.
- Care Capacity and Demand Management (CCDM) Programme – Local measures have been developed but a national measure would be highly beneficial within a consistent way
- Primary care - as previously mentioned in this submission, primary care information is an area where there is a well-formed opinion that information flows are less than ideal. Having advice that identifies the gaps would be useful for the sector as a whole.
- Local DHB innovations which could have a wider application across the sector.
- Hospital episodes of care.
- Aged Related Residential Care/interRAI - it would be good to explore if interRAI assessment data has a broader application in informing sector measurement/funding. interRAI is for a small population cohort generally aged over 65, requiring DHB funded supports. interRAI is a patient-level assessment across different care settings which identify patient risks and vulnerabilities.

Q17 What challenges are there to measuring productivity of the health system, or the productivity of health services? How can these challenges be overcome?

As previously mentioned DHBs use and apply productivity concepts to improve service delivery. There are multiple ways of measuring productivity in the medical and surgical hospital services; however the measurement of services outside of these settings can be more difficult.

One challenge in all settings is in recognising the treatment versus prevention aspect, and within prevention the tension between 'costs now' to 'save cost' later. The outcome and impact of treatments are important to assessing the value of the treatment for the patient.

Other challenges in health to measuring productivity are culture, consistent methodology, and anomalies due to attributions of timeliness (when measurement occurs).

Cultural barriers could be at an individual level or at a wider organisational level – the perception of 'what productivity is' in health is a challenging concept.

To overcome these challenges productivity measurements needs to balance:

- Not introducing a burden in reporting on an already stretched workforce.
- Undertaking the required investment at the outset
- The methodology needs to be clear and easily adopted.

Q18 What challenges are there to measuring productivity of the education system, or the productivity of education services? How can these challenges be overcome?

Q19 What challenges are there to measuring productivity of the justice system, or the productivity of the justice sector? How can these challenges be overcome?

Q20 What challenges are there to measuring productivity of the social services system, or the productivity of particular social services? How can these challenges be overcome?

Not applicable.

Q21 How are current performance indicators used in the state [health] sector? Are performance indicators used for different purposes in different parts of the state [health] sector? If so, what factors explain the different use?

The health sector has performance metrics for financial performance (funding and pricing), monitor accountability, service delivery, service access and equity, government policy/initiatives, quality and safety of services.

Of the above, there will be different interpretations of the meaning of these measures depending on position in the sector. For example provider versus funder views, DHB versus a crown entity view, or consumer versus DHB view.

DHBs acknowledge that different commentators will view performance from their own perspective. DHBs have a role in measuring and reporting on their performance (HSP Insights programme).

Q22 What are the different needs of ministers, chief executives, and managers in using productivity measures?

Refer to question 5.

Q23 Assuming reliable efficiency measures can be developed, what factors would influence the use of these measures by decision makers within the state [health] sector? How could the use of efficiency measures be promoted?

The measures would be used if they were seen to assist the achievement of stakeholder goals for example:

- Ministers – performance of system performance, specific policy initiatives, comparisons internationally and between DHBs and other health entities.

- DHB Boards, CEs, and Managers – performance of the DHB, productivity improvements.

See the principles articulated in question 5.

Q24 Would measures of efficiency strengthen the existing performance framework? Why? Why not? Which aspects of the existing performance framework would gain the most from an efficiency measure?

Measures of efficiency would strengthen the measures, but health decisions need to be based at the patient level and consider a range of factors like quality and safety.

The Institute for Healthcare Improvement's Triple Aim framework, adopted by HQSC for New Zealand (Figure 1) captures the essence of productivity i.e. inputs, outputs, and outcomes. Importantly, the outputs and outcomes are two dimensional:

- Population health outcomes (which must include inequalities between key population groups).

- The 'patient journey', which captures quality and the extent of integration across the system. But, organisational health and sustainability is a further dimension.

Figure 1: NZ Triple Aim

HSP Insights programme will provide a range of measures that strengthen the current understanding of health system performance.

Q25 How could measures of efficiency augment existing performance measures?

Balancing measures against other measures is important to better understand how different parts of the system are impacted due to change elsewhere. Having consistent longitudinal time measures is important to measure performance and change over time.

Having consistent and meaningful high-level measures is an excellent starting point.

Q26 What other countries have good processes in place to measure and improve state [health] sector productivity?

Listed below are countries that are known to have processes in place to measure and improve productivity, but at a population and organisational level these are often not easily overlaid in the New Zealand context. It should also be noted that these same countries do look to New Zealand in many instances.

- United Kingdom - NHS, particularly NHS Scotland.
- Ireland (Looking to New Zealand for the Care Capacity and Demand Management (CCDM) Programme for Nursing and Midwifery).

- Australia - Australian Institute Health and Welfare, Victoria (case mix), New South Wales (quality and safety). The Australian Health Productivity Commission appears to be championing a number of similar issues and opportunities that DHBs and the wider New Zealand health sector are also trying to grapple with.
- Canada – Canadian Institute for Health Information.

There are many examples such as Inter-Mountain Healthcare and Kaiser Permanante (USA) where measurement work has been progressed, however, these do not reflect a whole of system approach, but rather an organisational approach.

Q27 What examples from the private sector illustrate best practice in understanding and improving productivity?

Many areas of health are a mixture of both public and private. Parts of the health workforce work across public and private sectors, and learning and experiences can be transferred across as a result. However in some parts of the private system like general practice, age residential care, community pharmacy, DHBs as funders might not be aware of productivity gains and there may not be a mechanism for the benefits being achieved in one setting to be passed through to another.

Private hospitals do planned and scheduled interventions, with the public system doing the more complex, urgent and emergency procedures. This means private hospital risks are capped; should an acute event occur during a private hospital stay the patient can be transferred to the public system. Productivity in the private hospital sector is not published and is usually unavailable contractually to DHBs.

Q28 Does the capability exist within the state [health] sector to measure and interpret productivity? Where is capability weak and strong?

There is capability in the sector and across the sector (DHBs, shared services agencies, crown entities, private providers and such like) and a key strength is that the measurement and interpretation is done by those who are involved in the planning, funding, and delivery of services.

There are numerous data systems to enable the sector to manage, collect and measure productivity.

Whilst it is possible to measure productivity, currently measurement is stronger in hospital settings and screening areas and weaker in prevention areas and promotional activities.

Weaknesses in harnessing the sector information available are:

- The size of the DHB and how many resources can be put towards data and analytics determines its ability interpret it.
- When information is held by another agency, there can be a reluctance to ask for or share information. This may mean the development of duplicate datasets as well as disparate understanding.
- There may be capacity or capability issues in the agency from which information is required. For example NGOs may be contractually required to report their information, but may not have the resource to do this efficiently and comprehensively.

Q29 What actions could the government take to help state [health] sector organisations measure and understand their productivity?

Suggested actions include:

- Ensure that all stakeholders inform the required methodology as well as the implementation approaches.
- Methodologies will require development and there should be sufficient lead-in time for the development and reasonable implementation timeframes.
- Investment by the sector to contribute to any development required.
- Ensure all DHBs and providers contribute to the process and enable open access to the resulting information to those who contribute.

Q30 What systems and processes would support the regular and rigorous measurement of productivity at a [health] sector and Service level?

Decision making across the sector would be strengthened with a better cost understanding of the inputs involved within the various settings for the different populations involved. A systematic approach and agreed methodologies are important along with consistent definitions for counting, coding and attributing costs across settings..

Q31 How innovative are New Zealand's state sector agencies [DHBs]? What are the barriers to innovation in the state [health] sector? What examples or case studies are there of successful attempts to change government processes to improve efficiency?

The health sector is constantly innovating through changing technologies and practices which have led to innovations such as stroke thrombolysis, telemedicine and primary percutaneous coronary intervention (PCI).

Some of this is sector-wide but most innovation is at local level. It is sometimes difficult to transfer and disseminate innovations across the sector and there are those who see innovation in health as limited due to culture, infrastructure, and Government policy. Other challenges to innovation can be where standardised contracting stifles innovation such as robotic dispensing, integrating hospital and community laboratories and such like. There are exceptions to this such as the *Health Innovation Hub* which aims for innovation beyond individual DHBs.

A measure for innovation could be the time taken between innovation and that innovation becoming 'usual universal practice'. This could be used as a proxy for performance and to measure diffusion of knowledge. For more examples of innovation see NHS Scotland.

Q32 How effective is the state [health] sector in using ICT to realise productivity improvements? What are the barriers to the Government [health sector] doing this well?

There is a wide range of views around the use of Information and Communications Technology (ICT) in the health sector. This is largely due to the varying levels of ICT available to different areas. Some of these views include:

- The use of new ICT technologies at the clinical level, such as new innovations like health portals, however they need further adoption to realise the full potential.
- There was a view expressed, that there are too many top-down, ambitious, overly engineered ICT projects. DHBs need to focus on architecture, standards and key enablers.

DHBs need to find ways to free up public sector innovation, to move from old ways of thinking and old models of working. DHBs are not taking risks and doing small things to get progress, or 'fail fast' and learn.

- Procurement rules can be a hindrance. Department of Internal Affairs common capabilities are not always delivering benefits, and in some cases are barriers to productivity.
- Parts of the health sector are making good use of ICT to realise productivity but there is room for improvement. An issue is the use of technology (or non-use as may be the case), but a big part of it is to do with a lack of process re-engineering/new service delivery models. It is hard to automate/digitise poor process/service delivery models and realise meaningful productivity gains.
- ICT investment may not be viewed favourably, where any savings made are reinvested to keep the service funded. To do this well, there needs to be upfront investment on top of the normal Operating Expenses budget.
- The speed in which innovations can be taken up across the entire system is a challenge for the system especially when it is being applied on a large scale.
- There are multiple and disconnected systems within the sector making it difficult to use ICT to realise productivity improvements.

Q33 What are the incentives that encourage and discourage productivity improvement in the state sector?

Productivity measures help organisations to be more efficient and allow for the saving or redirection of resources. For DHBs who are often running on a tight budget, they are incentivised to use productivity measures to support organisation sustainability.

The disincentive to this approach is the patient/client demand. DHBs are responsible for providing health care to New Zealanders, so are unable to have a sole focus on productivity at the expense of patient/client care. For further information about how a health system reacts to increased demand and funding pressures see The Kings Fund report 'Understanding NHS Financial Pressures'.

Q34 How do public sector cultures support or discourage efforts to improve productivity in the State [Health] Sector?

DHB culture is highly patient-focused; to provide a more person-centred, effective, timely and safer care to their patients. There are however cultural barriers such as 'we've always done it this way mind set and underfunding of 'soft-skills' development. Sustained and aligned leadership is the key to changing this culture and DHBs do influence and instigate change over time.

In relation to productivity, public sector cultures are influenced significantly by agency demands and resourcing, creating a long-standing focus on improving productivity and efficiency. However, a common perception by staff when discussing productivity is that it is primarily about reducing cost or waste in their department, and not fundamentally about where the dollar should be spent to help achieve our overall health objectives.

Q35 Does the public finance management system inhibit agencies from redirecting their activity to more productive ways of delivering public services?

When productivity initiatives are within the remit of DHBs they have the ability to move resource to meet need. When they have to respond to Government policy and direction their ability to manage productivity is constrained. Where policy is not fully funded they have to compromise in other parts of the system to achieve the required gains.

DHBs do have areas of low yield but for political, social or historical reasons often cannot change the service delivery.

Q36 What other barriers are there to government agencies taking steps to improve the efficiency of their operation?

There are numerous barriers in health. Some of these are:

- The tension between the crown entity operating model and the role of central agencies and their direction/leadership/decision making.
- Discrepancy between the role of the Ministry of Health in health system leadership, strategy, policy, and their monitoring role.
- Agreeing and understanding the key indicators of performance aside from financial.
- Lack of appetite for reinvestment and reprioritisation.
- Regulations.
- Perverse incentives around performance expectations.
- Economies and diseconomies of scale.
- Co-ordinating funding across different appropriations and agencies.
- Sunk infrastructure costs.
- Underinvestment in ICT.

Appendix 1: National data systems

The health sector is data rich. There are multiple systems within the health sector to track inputs and outputs however these may not be integrated.

The Operational Policy Framework section 13.15, details the national collections that DHBs must contribute to. Outside of National Collections, there are other data repositories that support health delivery and understanding of what is being delivered.

Data repositories supporting health service delivery outside of national collections

Financial	Clinical	Other (Benchmarking)
• Case mix / Costing Systems • NCCP cost data cube	interRAI Clinical Assessment Tools ○ Contact Assessment ○ Home Care Assessment ○ Long-Term Care Facility (LTCF) Assessment ○ Emergency Department Screener ○ Community Health Assessment ○ Palliative Care Assessment • Trendcare© (Workforce – Nursing and Allied Health) • All New Zealand Acute Coronary Syndrome Quality Improvement (ANZACS QI) registry at Auckland University • Major Trauma National Clinical Network, maintains a major trauma registry	• Trendly (Māori access) • DHB Contracted FTE Data collection (HWIP- collected by TAS) • Health Roundtable • Health Quality and Safety Commission

Appendix 2: Role delineation model

DHBs have a methodology that enables like for like comparisons within the hospital sector by applying the New Zealand Role Delineation Model (NZRDM).

The NZRDM is a validated tool that categorises clinical services by complexity for 48 specialties (excluding mental health). It enables the accurate clinical description of hospital facilities and services at a local, district and regional level.

It enables comparison by level of complexity, including the level of clinical and patient support provided. The services are categorised within facilities (not facilities as a whole), ensuring different service configurations across districts and regions can be accurately described.

The clinically relevant hierarchy (taxonomy) of clinical services is based on indicators of capability, levels of patient support services and enablers of sub-specialty relationships.

The NZRDM was commissioned by the Ministry of Health. It replaced the New South Wales (NSW) RDM that until then was being used to classify New Zealand hospitals.

The NZRDM was last applied by the Ministry of Health in 2009, when all service and hospital facilities across New Zealand were classified to inform the Tertiary Adjustor (within the Population Based Funding Formula) and to inform health services planning with a particular focus on capital investment. The model has been validated and is informed by relevant professional standards.

NZRDM classification enables consideration of access to and distribution of services. For example:

- the long-term population demand for services and changes in service complexity – either up or down the six-point scale by specialty
- the sub-specialty clinical relationships across the region and the pathways of patients
- the impact of planned or anticipated capital investment that will change the level of service complexity
- access for populations by age and need across different levels of service complexity.

Appendix 3: Response to recommendations to Statistics New Zealand's feasibility study

It is the DHBs understanding that the last formal inquiry regarding measuring productivity was in 2010 and that the following questions are seeking to understand how the recommendations have been adopted or taken up. DHBs would like to point out that some of subsets identified when viewed on a whole of system basis, are very small, in comparison to the total healthcare spend.

Page H1 the available information on the number of day patients should be incorporated into the existing method of calculation of Statistics NZ's health care output.

This can be done from existing data but is a technical issue for the Statistics NZ model that Statistics NZ would be best placed to answer.

36 H2 Revisions to estimates of case mix-adjusted throughput should be incorporated into the existing method of calculation of Statistics NZ's healthcare output.

This data is available for a significant proportion of DHB hospital services; Statistics NZ should develop their methodology. Techniques are already known in the health sector, so agreement on some of the decision making required between Stats NZ and the health sector would be helpful.

36 H3 Changes in the number of day patient discharges should be broken down by type of service. Along with information on average costs of these different types of service, this information will help to introduce an element of quality change into Statistics NZ's measure of day patient output.

Certainly possible, and has been for a long time.

36 H4 Consideration should be given to combining the number of inpatient and day patient activities, where these are substitutes, in order to improve the price/volume breakdown.

With help from the health sector, Statistics NZ should be able to develop the methodology.

37 H5 Revisions to estimates of the number of day patients treated should be incorporated into the existing method of calculation

See last point; these are linked.

37 Measuring government sector productivity in New Zealand: a feasibility study 169 of Statistics NZ's healthcare output. H6 Consistent with recommendation.

3.3.5 *on comprehensiveness and representativeness, consideration ought to be given to incorporating all of the available information on activities in hospitals and other settings in order to maximise the comprehensiveness of Statistics NZ's measure of healthcare output.*

It can be done for hospitals, but most non-hospital services are provided by private businesses. Combining the two could be difficult, however, there could be some effectiveness measures that reflect on non-hospital services and their relationship with hospital services.

37 H7 the number of bed-nights should not be used as part of a measure of healthcare output for all types of hospital patient. It might be appropriate to consider using number of bed-nights as an appropriate indicator of the volume of health care output associated with 'boarders'.

Agree with the second sentence. For some services, resource input may be less intense than, say, a surgical stay, so that bed days are an appropriate volume measure. For costing, any costs associated with boarders would be assigned to the treated patient. It is known that there is a high bed turnover in some DHBs which would have short lengths of stays.

38 H8 the weighting scheme should be updated, possibly as frequently as annually, to reflect the changing relative costs of providing the different services.

DHBs update their inter-district flow prices and funding weights annually in the National Cost Collection and Pricing (NCCP) program. However, these are not always accepted by the sector (DHBs and MoH) but rolled over with (sometimes) some price uplift. Despite occasional price rollovers, case mix funding weights have been updated annually for a decade now.

38 H9 The method for aggregating the different sub-components of the healthcare output index should conform to the standard method involving weighting together changes in the volume of different activities using relative weights (rather than weighting together different index series).

This is a technical aspect of the Statistics NZ methodology and they are best placed to answer this. We understand (though possibly not correct) that the sampling basket needs updating.

38 H10 Given the development infancy of system-level measures of change in the quality of healthcare provided in New Zealand, and until there is broad discussion and agreement on how to construct such measures and combine these with the existing quantity measures, care should be taken in presenting such information.

Agree, but need to have a current (as at August 2017) discussion with MoH as to their status.

115 H11 New Zealand should draw on the guidance already available globally on how to construct system-wide measures of change in the quality of healthcare provided in New Zealand, in deciding exactly what specification is appropriate for New Zealand.

Agreed. The DHBs' HSP Insights programme has a framework which is about to be populated with indicators (appendix 5). HSP Insights seeks to have buy-in from both DHBs and central agencies including MoH, Productivity Commission, and Treasury. MoH has also developed a Service Level Measurement Framework (SLMF) for Primary Care (Refer to MoH).

115 H12 Statistics NZ should formally register its interest in information on the effectiveness of hospital treatment as part of an information suite that could be used in measuring healthcare output at the national level.

Agreed, however, information on the quality or effectiveness of outcomes is not easy to find, from a post-event stance. NZ needs to have better advice available from the outset in the form of new technology assessments (HTAs) to ensure new investment is directed to the new approaches that represent the best cost and outcome possibilities.

117 H13 Statistics NZ and the Ministry of Health should study the relationship between the WIES weights and total hospital costs, including all sources of funding, to confirm whether use of WIES weights as the measure of relative importance of different types of hospital inpatient and day carte activities introduces any bias.

TAS has discussed possible methods with MOH. Various parts of the health sector appear to have a poor understanding that Weighted Inlier Equivalent Separation (WIES) weights are for case mix

funding and strictly speaking do not fit with other admitted patient purposes. There are better ways to assign a volume measure to (a high proportion of) total hospital costs. This item is closely related to one of the earlier items.

Appendix 4: Heterogeneity

The health sector has a wide variety of agencies taking a view of its performance and these stakeholders are outlined below.

Segmentation (group)	Stakeholder	Role	Decision Making
Minister of the Crown	Minister of Health	As a member of the Executive, they influence the decision making of Cabinet and exercise statutory functions and powers under legislation within their portfolio. As Minister of Health their role is centred on the improvement of wellbeing and health of New Zealanders.	Government Policy for health services, Cabinet Decision Making Process, Better Public Services, Minister's letter of expectations
Minister of the Crown	Minister of Finance	As a member of the Executive, they Influence the decision making of Cabinet and exercise statutory functions and powers under legislation within their portfolio. As Minister of Finance their role is centred on the overall capacity and performance of State services.	Government Policy, Cabinet Decision Making Process, Budget, Better Public Services, Minister's letter of expectations
Crown Agencies	Ministry of Health	Advisor to the Minister of Health, directly purchases a range of national health and disability support, and provides health sector information and DHB payment services for the benefit of New Zealanders.	Advice on the Governments health-related regulations and policies, management and allocation of funding, decisions regarding their statutory duties. Also contract services and act as a payment agent in the health sector.
Crown Agencies	The Treasury	The Government's lead advisor on economic and financial and regulatory policy.	Advise to Ministers for purchase and regulation of health services. Advise DHBs on financial matters including capital investment
Crown Agencies	Productivity Commission	Independent Crown entity that provides advice to the Government on improving productivity.	Responsible for in-depth inquiries when referred to by the Government, productivity related research, and promoting productivity issues.

Segmentation (group)	Stakeholder	Role	Decision Making
Crown Agencies	Health Quality and Safety Commission (HQSC)	Works with clinicians, providers, and consumers to improve health and disability support services. They aim to have fewer people harmed, more lives saved, and financial savings within the sector.	Monitor and report on improving safety quality and access to health services, healthcare associated with infections, surgery, medication, and falls.
Crown Agencies	Health Workforce NZ (HWNZ)	Provides national leadership in the health workforce in NZ to ensure that the health workforce is fit to meet the needs of New Zealanders currently and in the future.	Decision making regarding the health workforce planning by ensuring that there is enough to meet current and future demands and decisions on desired training.
Crown Agencies	Social Investment Unit	Aims to better understand the social system in NZ and to help inform social agencies on decisions and investment to create improved outcomes for vulnerable New Zealanders.	Influencers of policy and undertaking work in the Mental Health area.
Crown Agencies	Ministry of Vulnerable Children	Works with vulnerable children and young people who are at risk.	
Crown Agencies	Superu	To increase the use of evidence by people across the social sector to help them make funding, policy and service decisions to improve the lives of New Zealanders.	Funding, policy and service decisions.
Crown Agencies	Institute of Environmental Science and Research	ESR (Institute of Environmental Science and Research) specialises in science relating to people and communities. Under contract with MOH it contributes to the national public health surveillance effort.	Research and surveillance

Segmentation (group)	Stakeholder	Role	Decision Making
DHB Executive Roles - Governance	Boards of DHBs	DHBs are responsible for providing or funding the provision of health services in their district. A DHB Board set policy, approve strategy and monitoring progress toward meeting objectives. They also aim to improve, promote and protect the health of the community and its people and the services they provide. They also arrange the more effective and efficient delivery of health services in order to meet the needs of all levels.	Planning and funding, and strategic decisions regarding the health services in a district
DHB Executive Roles - Governance	Chief Executive (CE)	Accountable for operational delivery management and is concerned with implementing policy and strategy at an operational level	Planning and funding, and strategic decisions regarding operational and management matters in a DHB
DHB Executive Roles - Governance	Chief Financial Officer (CFO)	)Accountable of managing financial management and risk of the DHB	Planning and funding, and strategic decisions regarding DHB financial matters. May influence sub-regionally, regionally and nationally.
DHB Executive Roles - Governance	Chief Operating Officer (COO)	Accountable for the day to day delivery of the services in the DHBs.	Planning and funding, and strategic decisions regarding day to day operations within a DHB. May influence sub-regionally, regionally and nationally.
DHB Executive Roles - Governance	General Manager Planning & Funding (GM P&F)	GM P&F advise CE's on strategy and investment from funding received from the Government.	Planning and Funding, and strategic decisions. May influence sub-regionally, regionally and nationally.
DHB Executive Roles - Clinical	Chief Medical Officer (CMO)	Accountable for the clinical governance, medical workforce management and compliance with professional standards across the DHB. Also expected to contribute to the strategic and operational management of the DHB	Strategic and planning decisions within own DHB. May influence sub-regionally, regionally and nationally.

Segmentation (group)	Stakeholder	Role	Decision Making
DHB Executive Roles - Clinical	Allied Health Director	Works with the DHB executive team and Allied Health staff to improve patient outcomes and improvement across Allied Health.	Strategic and planning decisions within own DHB. May influence sub-regionally, regionally and nationally.
DHB Executive Roles - Clinical	Director of Nursing (DON)	Looks after nursing workforce and ensuring the fit is right for the DHB and aids in the leadership of the strategic direction for the workforce.	Strategic and planning decisions within own DHB. May influence sub-regionally, regionally and nationally.
Advisory Groups	Clinical network	Regional and National networks that provide clinical advisory support, service development and improvement.	Advise on operational needs and approaches to service delivery.
Advisory Groups	National Programmes	The national programme is a body which impacts across the National sector at various levels to improving system performance, based around triple aim.	Advise on operational needs and approaches to service delivery.
Advisory Groups	Shared support agencies	Provides strategic, governance and management support across multiple areas of health	Advise on operational needs and approaches to service delivery.
Advisory Groups	Regional Programmes	Regional programme is a body of impacts across the Region at various levels to improving system performance, based around triple aim.	Advise on operational needs and approaches to service delivery.
Contracted Providers	Primary Health Organisation (PHO)	Ensures the provision of essential primary healthcare service mostly through general practices to people who are enrolled with a PHO.	Ensuring GP services are better linked with other health services to ensure a seamless continuum of care
Contracted Providers	General Practice NZ	Supports and advocates for General Practices in NZ.	

Segmentation (group)	Stakeholder	Role	Decision Making
Contracted Providers	Community providers, ARRC providers, private medical or laboratory providers Etc.		
Research and Benchmarking Organisations	Ko Awatea	To lead an innovative approach to achieving sustainable, high-quality healthcare services.	Not applicable
Research and Benchmarking Organisations	Health Roundtable	Non-profit membership organisation of health services across Australia and New Zealand. Focus on opportunities to achieve best practice, collect, analyse and publish information comparing organisations and promote collaboration and networking amongst health organisation executives	
Research and Benchmarking Organisations	Non-government Organisations (NGO's) for example. cancer society	NGO's have a diverse range of deliveries in the NZ health and disability service, including communicating with the local communities.	Planning and Funding decisions
International Comparisons	OECD	Provides a comprehensive source of comparable statistics on health and health systems from OECD countries and provides a tool for comparative analysis.	Not applicable
Employment Partners	Unions	Unions are organisations that support employees in the workplace by acting as an advocate for them collectively (and with the consent of the employee, individually). Unions bargain for collective employment agreements with employers and help employees with information and	Not applicable

Segmentation (group)	Stakeholder	Role	Decision Making
		advice about work-related issues within health they play a key role around both patient and clinical safety.	
Consumers	Patients	Interested in particular parts of the DHB performance as it relates to care/access etc.	Medical related decisions
General Public	General Public interest	Interests in the NZ health system, policies, and processes.	Not applicable
General Public	Media such as NZ Institute of Economic Research (NZIER)	Report to consumers the decisions, policies, and services of state services and officials. Seek to educate and encourage debate on economic issues affecting New Zealand.	Not applicable

Appendix 5: Health System Performance Framework

DHBs understand the need to better tell the health system performance story. It is essential to DHBs managing their business at a local, regional and national level. The wealth of data that DHBs can collectively bring together can also support the cross-sector social investment approach and ensure health intelligence is part of all government policy development.

With this in mind, the 20 DHBs are leading a joint HSP Insights programme. This programme will undertake analytics across the range of DHB operations which cover $12.6 billion of the government's health spend. The programme includes representatives from DHBs, the Treasury, the Ministry of Health, HQSC, the university sector, the Productivity Commission, and private health research organisations.

One of the first tasks of the project has been to develop a framework to enable a balanced view of performance covering all aspects of DHBs operating model. The framework is outlined in the below table which has been adopted and amended from the Australian Institute of Health and Welfare.

Health System Performance Framework

Determinants of Health *Effects of a New Zealander's environment on their health*			
Environmental factors *Physical, chemical and biological factors such as air, water and soil quality.*	**Community and socioeconomic** *Community factors such as social capital, support services, and socioeconomic factors such as housing, education, employment, and income.*	**Health behaviours** *Attitudes, beliefs, knowledge, and behaviours such as patterns of eating, physical activity, smoking, and alcohol consumption.*	**Biomedical factors** *Genetic-related susceptibility to disease, and other factors such as blood pressure, cholesterol levels, and body weight.*
Health Status *An overview of the health of New Zealanders*			
Health conditions *Prevalence of disease, disorder, injury or trauma, or other health-related states.*	**Disability/Human function** *Alterations to body structure or function (impairment), activity limitations and restrictions in participation.*	**Wellbeing** *Measures of physical, mental, social and spiritual wellbeing of individuals.*	**Population** *A measure of birth, life and mortality rates of the New Zealand population.*
DHB Health Sector Performance *How efficiently does the DHB health sector perform? (Primary, Community, Secondary, Tertiary)*			
Effectiveness *Care, intervention, or action provided is relevant to the client's needs and based on established standards. Care, intervention or action achieves desired outcome.*	**Safety** *The avoidance—or reduction to acceptable limits—of actual or potential harm from healthcare management or the environment in which healthcare is delivered.*	**Accessibility** *People can obtain healthcare at the right place and right time irrespective of income, physical location and cultural background.*	**Responsiveness** *Service is client oriented. Clients are treated with dignity and confidentiality and encouraged to participate in choices related to their care.*
Resources *Achieving desired results with the most cost-effective use of resources.*			
Sustainability *Resourcing and productivity to maintain the core system, new activities, and future demands.*	**Infrastructure** *Capacity of the infrastructure to sustain the system.*	**Workforce** *To optimise a workforce that can sustain and enhance the system.*	**Innovation** *Innovate and respond to new ways of dealing with needs that will aid the health system in the long term.*