Studying the issues around the reporting of complete and quality data by private hospitals across New Zealand.

By

Urwashi Singh

(300055904)

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Acknowledgements

Contents

Executive Summary

The policies of the Ministry of Health (MOH) around information collection and reporting are mainly focused on DHBs, who are allocated more than three quarters of the health funding and are responsible for planning, purchasing and providing health services within their regions (Ministry of Health, 2014a). The focus of the national health collections therefore, has always been to collect information about publically funded hospital services. Due to this weighted focus on public health service providers, over four hundred private hospitals across New Zealand (NZ) are under-represented in the National Minimum Data Set (NMDS) (Ross, 2012). MOH has a strong focus on providing New Zealanders with better health care through improved health information (Ministry of Health, 2013b), thus discharge data is extensively used by them in a number of applications to achieve this goal. For optimal success, it is vital for MOH to improve their own datasets and to ensure that their data is put to its best use by researchers and analysts. Part of this improvement requires a push towards ensuring better data collection from the private healthcare sector of NZ.

This study explored the views of private hospitals staff on improving the quantity and quality of the data reported by private hospitals across NZ. Semi structured interviews with 12 participants covering 32 private hospitals across NZ were conducted to collect the data. The data was analysed using thematic framework analysis.

The participants acknowledged that reporting full clinical information around each patient's condition, especially for surgeries, would involve a change in traditional

ways of entering and coding the clinical information. This is because their work is influenced by the mode of funding they receive and the type of treatment they provide to their patients. Most of the participants supported the idea of having full patient clinical information in the National Collections; however, since full patient diagnosis information is only usually accessible by the GP, specialist or the surgeon, they questioned how easily they as private hospitals could access and enter this information into their system with their current resources. Added to this is the fact that they do not employ clinical coders. This is because hiring the coders to record information which is not required for their funding or operational purposes is of no value to their business.

Different options for motivating the hospitals to maintain a minimal level of reporting were discussed. Participants emphasised the need for an increased level of collaboration from the Ministry in terms of feedback to their data as well as consideration of private hospitals as part of healthcare community. There was also a strong emphasis on the need to unify private and public sectors in order to reach the full potential of the whole healthcare sector. The participants' view on the change included a desire to better understand the benefits to them from reporting which they hoped would lead to an improved level of engagement between MOH and the private surgical sector. Above all they saw a need to implement new ideas and methods of collaboration with the health sector as a whole that take into account both the service providers and patients.

The reporting of full datasets is both an issue of information availability and cost for private hospitals. Policy initiatives which combine private hospitals with the rest of

the health sector are likely to meet with the challenges posed by the health

improvement programs required to achieve improved healthcare for the whole

nation.

1 Introduction

1.1 Research Background

The Ministry of Health (MOH) leads and has overall responsibility for the management and development of Health and Disability system in New Zealand (NZ). Through its 'Building for Our Future' programme during 2013-2016, MOH intends to create a more integrated health sector through its partnerships with District Health Boards (DHBs), service providers, clinicians, Crown entities and others (Ministry of Health, 2013b). For these changes to be effective there needs to be better and more up-to-date health data in one of MOH's largest collections known as the National Minimum Data Set (NMDS). In turn this requires the engagement and co-operation of the wider private sector including more than 400 private hospitals across New Zealand.

1.2 Research Objectives

The health system's funding comes mainly from Vote Health, and totalled $15.557 billion in 2014 (Ministry of Health, 2014a). MOH allocates more than three-quarters of the public funds to DHBs, who use this funding to plan, purchase and provide health services to their region, including public hospitals and the majority of public health services. (Ministry of Health, 2014a). MOH's policies around information are mainly focused on DHBs, who are responsible for spending this public money (Ministry of Health, 2014d). The focus of the National Minimum Data Set has been to collect information about publically funded hospital services which are largely provided by DHB because these are some of the most expensive health care

episodes. As a result, data from private hospitals of NZ are under-represented in the NMDS (Ross, 2012).

The aim of this research is to objectively assess the level of reporting from private hospitals by engaging with the people responsible for collecting and reporting the data to the NMDS. This is the first qualitative study done to explore private hospitals' staff views on reporting discharge data to the NMDS. It is specifically focussing on the issues that are relevant to data reporting, including diagnosis reporting. Using this study as a baseline, there is an opportunity to establish further research in this area.

1.3 Research Question

The research objectives set above lead to the following broad question:

"What can be done to improve the level of reporting of quality data coming from private hospitals?"

2 Literature Review

The MOH has a strong strategic focus to provide New Zealanders with better health care through an improved and independent health information system (Ministry of Health, 2013b). Thus it is vital for the MOH to improve their own datasets and to ensure that their data is put to its best use by researchers and analysts. MOH discharge data is used in the MOH and other organisations to improve Public Safety, Injury Surveillance, Disease Surveillance, Public Health Planning and Community health assessment. In addition NMDS discharge data is also used for health policy research and informing decision making (Ministry of Health, 2014a).

The Ministry uses hospital discharge data for a lot of analysis, for example to examine the rates of hospitalizations for spinal cord injury and monitoring the incidence and risk factors associated with injuries resulting from falls, drowning, and motor vehicle accidents (Ministry of Health, 2014b). MOH promotes self-management of chronic and long term conditions through monitoring of the effectiveness of chronic disease interventions e.g. through studies such as the New Zealand Burden of Diseases, Injuries & Risk Factors Study (NZBD) which assesses the health loss from a comprehensive set of 217 diseases and injuries and 31 behavioural and biological risk factors (Ministry of Health, 2014b). MOH assesses the performance of hospitals for selected conditions including cancer and cardiovascular diseases and also for procedures using outcome measures derived from NMDS discharge data.   This information is also used to measure the status of bookings made for elective surgeries (Ministry of Health, 2013a). Using discharge data, they have been able to develop an information and evidence based profile of

Pacific youth health in order to plan health strategies that tackle their specific risk factors of poor diet and physical inactivity (Ministry of Health, 2008). Using an indicator supplied in the diagnosis information, known as the Condition Onset Flag, NMDS data is used to inform prevention strategies in relation to conditions arising during hospital stays (which include) complications in surgical or medical care (Ministry of Health, 2012).

The Ministry has a strong focus on collecting high-quality information to better inform Maori policy research and focus on the health outcomes for this ethnic group (Ministry of Health, 2000, p. 10). The Ministry has a responsibility to provide the Minister of Health with clear and practical advice that is supported by strong analysis (Ministry of Health, 2014a). This includes advising government on the policies around smoking cessation services and tobacco taxation which are based on the correlation between tobacco smoke and health problems discovered through data analysis. (Ministry of Health, 2009) ; (Ministry of Health, 2000, p. 14).

2.1 Applications of Hospital Discharge Data

Information collected from literature indicates that discharge data is accessed by a variety of users including various government agencies, provider associations and individual health care providers, as well as by consumer organizations, individual patients, policymakers, researchers, and private-sector including health care insurers and other health care purchasers (Schoenman, et al., 2005).

2.1.1 Public safety and injury surveillance and prevention

According to Schoenman, et al. (2005), discharge data is commonly used to monitor and address the issues of public safety. An example of this is its usage in injury surveillance and prevention, where discharge data forms the basis of modelling rates of injury and their associated costs, as well as to provide data to assist in development of injury prevention programs.

2.1.2 Public health, disease surveillance and disease registries

Passive approaches to disease surveillance, such as those that rely on physician reporting have been criticised because it is believed that health providers tend to underreport the occurrence or presence of a condition (Backer, 2001). Hospital discharge data is particularly useful for surveillance of conditions that always or frequently result in hospitalization and, because of the large number of persons represented in the hospital discharge data, for monitoring conditions that are rare (Schoenman, et al., 2005, p. 11).

2.1.3 Public health planning and community assessment

Discharge data is used to determine the number of hospitalizations in a given geographic area for particular conditions or populations and, when combined with information on area population, to compute hospitalization rates (Schoenman, et al., 2005, p. 15). Although some applications rely exclusively on inpatient data, more robust planning and assessment applications incorporate a wealth of data from other health care settings such as emergency departments and outpatient settings and use other indicators, including vital statistics, behavioural risk factors, morbidity

information, availability of health resources, environmental statistics, and socioeconomic characteristics. (Schoenman, et al., 2005, p. 15).

2.1.4   Quality Assessment and Performance Improvement

Discharge data is used for many purposes. One of them is quality assessment and performance improvement activities relating to the treatment of a specific health condition – which can apply in a single hospital or a broader health care system. Discharge data is also used for designing and evaluating quality improvement initiatives (Schoenman, et al., 2005). Since 1997, Vermont (Canada) has used its hospital discharge data and national discharge data to compare state performance with national benchmarks in hospitalisation rates for high volume surgical procedures. Vermont also uses these data to monitor progress in achieving its *Healthy Vermonters 2010* goals and to plan future analyses related to hospital-acquired infections. The Canadian Agency for Healthcare Research and Quality (AHRQ) uses discharge data for Patient Safety Indicators (Vermont Program for Quality in Health Care, Inc., 2004).

2.1.5   Health Services and Health Policy Research Applications

Schoenman, et al. (2005) provides evidence of extensive use of hospital discharge data in a wide range of research.   Examples range from measuring the impacts of changes in healthcare programs and to monitoring factors that enhance the health and wellbeing of a population. Hospital discharge data is also a key component in research where the goal is to establish a foundation of knowledge of health services or health policy (Schoenman, et al., 2005, p. 27).

2.1.6 Informing Policy Deliberations and Legislation

According to Schoenman, et al.(2005), hospital discharge data holds the potential to be of great value for informing policy decisions and legislation, especially in arguments to state legislatures when (Canadian) state data organizations face their periodic reauthorizations. A California project used discharge data to quantify a diverse set of environmental indicators including Asthma hospitalization rates for a neighbourhood in Oakland. This provided local residents with the solid evidence they needed to advocate for improvements to their neighbourhood (Costa et al., 2002).

2.2 The current state of discharge data in NZ

2.2.1 Completeness

According to Ross (2012), there are data quality issues around the completeness, quality, timeliness, and availability of data coming from private hospitals across NZ. As shown in Figure 1, over 1,000,000 discharges are submitted on average per year by all DHBs and just fewer than 130,000 discharges are submitted by the private hospitals per year (Ross, 2012). The data shown in Figure 1a and 1b also reflect the issues around timeliness, the data for the year 2013/2014 cannot be seen in the snapshot taken in Oct 2014.

Public versus private hospitals data in NMDS during 2012/13

103,991

1,054,407

■ 20122013 DHBs Data

■ 20122013 Private hospitals Data
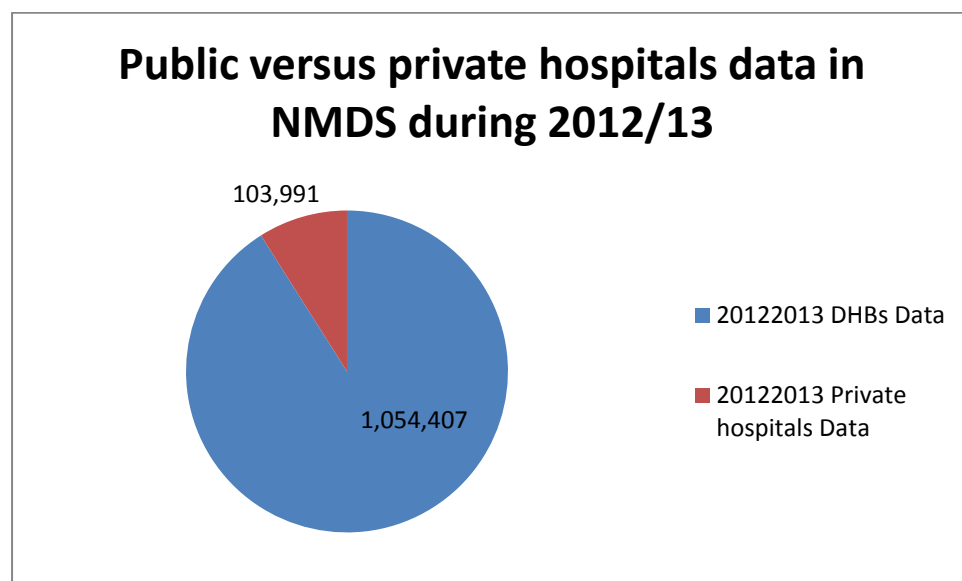
Figure 1a – Snapshot of Private versus public hospitals data during 2012/13 as 01 October 2014 (Data source - MOH NMDS database).

Public versus private hospitals data in NMDS during 2013/14

52,914

1,063,467

■ 20132014 DHBs Data

■ 20132014 Private hospitals Data
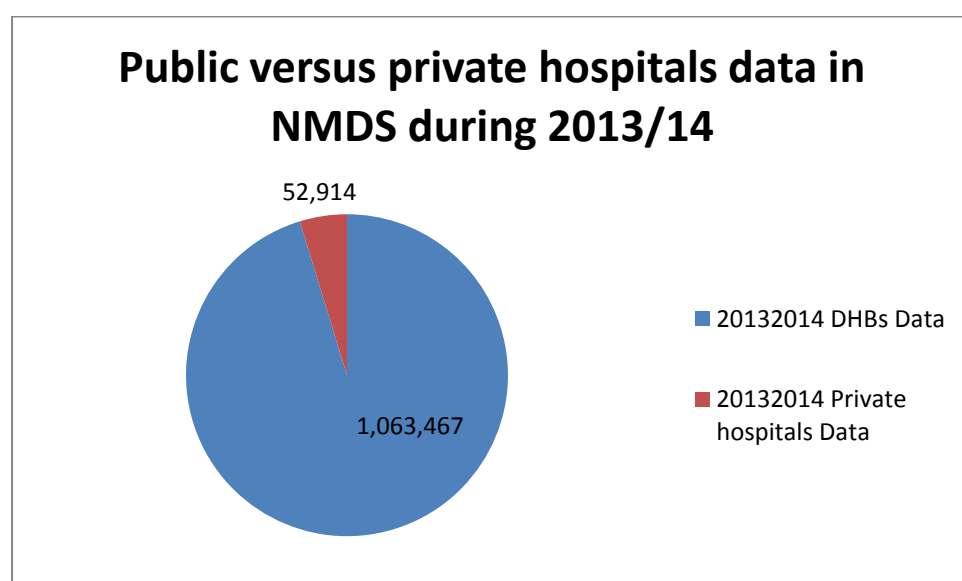
Figure 1b – Snapshot of Private versus public hospitals data during 2013/14 as 01 October 2014 (Data source - MOH NMDS database).

"The Southern Cross Healthcare Group, consists of 20 hospitals across NZ, and

reaches more than one million patients each year, representing about one third of

the private elective surgery market in NZ across a wide range of medical specialties"
(Southern Cross Hospitals, 2011). These include GP and hospital contacts.
According to the current state of NMDS database at MOH, Southern Cross has the
highest contribution at around 70,000 hospital discharges per year making 53% of
the total of around 130,000 discharges received by private hospitals in the NMDS.
As shown in Figure 2, out of 406 hospitals, 27 never reported and 51 hospitals have
stopped reporting since 2001. A number of medium to large hospitals that provide
privately funded surgical services do not report, despite being requested to do so
(Fowler, 2014).
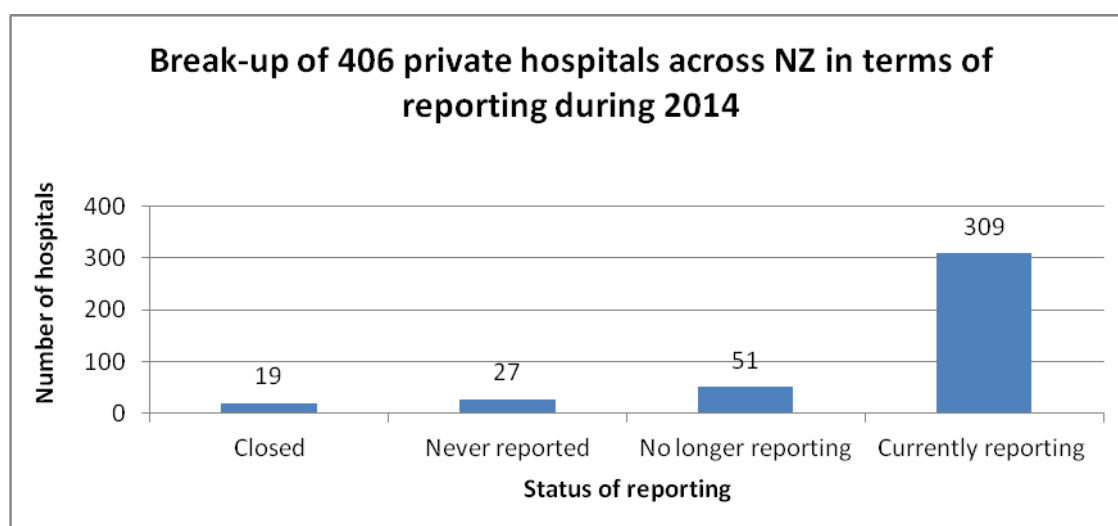
Figure 2 – Status of Private hospitals in terms of reporting data in 2013/14 (Data source - MOH NMDS database)

Anecdotal evidence suggests that this is because reporting is additional work at
some cost with no perceived benefit to the private hospitals. Publicly funded events
that are provided in private hospitals are reported to the NMDS (often by the DHB
who manage each contract). It can be seen that the majority of the hospitals do
provide some data to MOH (directly or indirectly). However, it is difficult to comment
on the completeness of the data coming from each hospital (because of increased

DHB sub-contracting to them). Nevertheless a continuous decline has been seen in the volume of data received from private hospitals as shown below.

- In 2011/12 there were 68,736 privately funded discharges received from hospitals, a decrease of 1.9 percent from 2010/11 (Ministry of Health, 2014c)

- Inpatient hospitalisations (28,727) were 41.8 percent of total discharges with the remaining 40,009 discharged as day cases (Ministry of Health, 2014c)

- In 2011/12 there were 143,191 privately funded procedures reported in hospitals, a decrease of 0.8 percent from 2010/11 (Ministry of Health, 2014c)

2.2.2 Quality

Quality is another significant issue that has been found in the data that is currently received from the private hospitals. One apparent reason for that may be that a large percentage of private hospitals report on a paper form as shown in Figure 3. These are rest home and long term care facilities – not surgical hospitals.   Typically these hospitals have very few discharges per year.
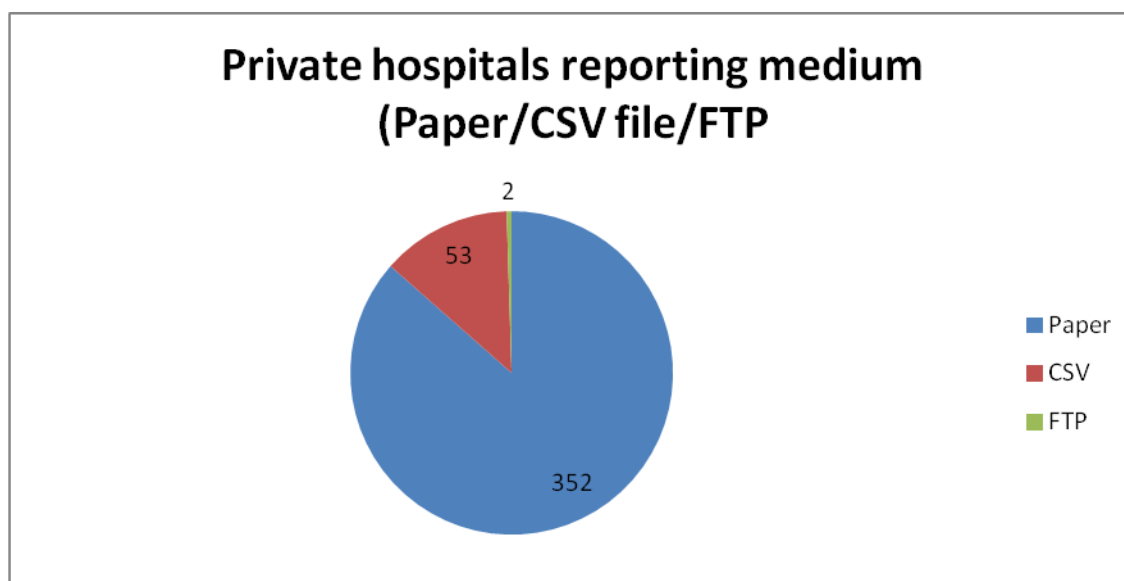
Figure 3 – Overview of how private hospitals report their data in NMDS in 2014 (Data source - MOH NMDS database).

Among the most common data quality errors cited by the staff engaged in processing private hospital data are the inaccuracies that may occur for National Health Index (NHI) and in the patient addresses reported in the data. (Note that patient addresses are reported in order for the domicile code to be assigned and stored in the NMDS). These problems will be due to a number of reasons including the small number of hospitals that have access to the NHI database (typically via the tool NHI Online Access for Health (NOAH). There may also be a poor understanding of address concepts eg if a patient lives in the retirement hospital is that their address or should it be their home before coming in to hospital? There are also issues relating to the clinical information that is reported - primary and secondary diagnoses, and the additional information that is collected around the patient's condition – for example causes of injuries (subsequently coded as External Cause Codes). The NMDS has a field 'Condition Onset' flag which identifies if the patient's condition was present before they were admitted to hospital – but those hospitals reporting on paper forms do not have the opportunity to report this field.

Further, there is evidence that co-morbidities (reported as secondary diagnosis codes) may be underreported or truncated in private hospital data, particularly for some conditions (Kieszak et al., 1999; Malenka et al., 1994). Since this data is not used for funding or reimbursements to the hospitals there is little incentive for their reporting to be as detailed as public hospitals where this data can influence funding.

2.3 Consequences

2.3.1 Lack of data quality

Due to concerns about the data discussed above the data coming from private hospitals isn't included in many analyses as evidenced in the literature.

If the wrong NHI has been assigned to an NMDS record, gathering all the discharge records for the same patient will not be possible and raises the potential risk of the same patient being counted multiple times. Inconsistencies in the reporting of address data make it difficult to calculate the patient specific geographic identifier (domicile code) and may bias population based analysis of the data.

Diagnosis codes, external cause codes and condition onset codes in the discharge data are used to estimate the incidence of specific types of injuries in order to build injury surveillance systems. Underreporting of the condition onset flag field limits the ability to measure quality of private hospital care; since knowing whether the condition was present on the admission or it was acquired during the hospital stay is significantly important (Ministry of Health, 2012)

2.3.2 Incompleteness

Incomplete data in NMDS hinders the ability to see the full patient population picture. In order to be complete, data related to privately funded surgeries must be included. This inclusion is even more important following ACC's tightening of constraints around funding accident treatment – these surgeries are more inclined to be funded via personal purchase private insurance (New Zealand Council of Trade Unions, 2010). Personal private insurance may also be used by patients who prefer rapid treatment from private healthcare facilities as opposed to longer waiting times for care in public hospitals.

2.4 Existing research

2.4.1 Health Care Canada

This section is based on the 'incentive effect of reward' system, as studied by Wranik & Durier-Copp (2009). It is an example from the Canadian Healthcare system to assess the reasons and expectations behind the implementation of different remuneration methods, and the extent to which these have been achieved. The study compares two methods; the Simple Salary system (least variable payment system) and the Blended Payment system (composed of Salary and Fee for Service (FFS). The report presents an analysis of the quality of work performed under each approach.

The Canadian Healthcare system faces increasing problems in recruiting and retaining health care providers (Wranik & Durier-Copp, 2009), especially with those

paid via the simple salary system who work in remote and rural regions of Canada. Patients in these areas often cannot find a physician and are forced to travel long distances to receive health care. To try and rectify this issue, Canadian health policy makers have experimented with Alternative Provider Remuneration Methods (APRM) at the primary care level for last few years (Wranik & Durier-Copp, 2009, p. 36). Their objectives were fourfold; to improve retention and recruitment of health care providers in rural and remote areas, to increase collaboration between service providers, to provide improved care continuity and quality, and to increase the delivery of preventative services (Wranik & Durier-Copp, 2009).

In summary the Wranik & Durier-Copp (2009) study found that the Blended Payments system motivated healthcare providers to invest in patient care, which resulted in increased productivity, and provided the health authorities with good information and statistics. Fee for Service (variable payments) blended with capitation (less variable payments) encouraged more patient encounters and a higher level of services with each patient encounter. Bonuses encouraged the provision of desirable target activities, and time based payments encouraged more labour and time intensive forms of care (Canadian Institute of Health Information, 2005)

Following the implementation of the blended APRM system, some of the affected areas reported higher levels of success than others in terms of increased quality of care with the goal of increasing preventive care and health promotion (Wranik & Durier-Copp, 2009, p. 50). Furthermore the blended APRM and the addition of FFS component to a salary structure not only improved service but also forced physicians

to shadow bill, thereby allowing for monitoring of physicians activity while the physicians on salaries without a blended FFS component failed to shadow the bill even when compelled to do so (Wranik & Durier-Copp, 2009, p. 52).

2.4.2 Strategic Review of National Hospital Cost data Collection in Australia

According to ADOHA (2011), some larger private hospitals in Australia have expressed their interest in participating in hospital reporting up to some extent. However, the sector has indicated that such reporting incurs a cost to the hospitals, particularly when considering the diverse range of reporting required, including complex data supply chains. Keeping that in view the Independent Hospital Pricing Authority (IHPA) commissioned a review of the data collection known as National Hospital Cost Data Collection (NHCDC) in 2013. The review was not only aimed at improving the governance of the collection but also improving the various data processes at all organisational levels including public hospitals, State and Territory jurisdiction and nationally at IHPA. It also addressed the issues around private hospitals participation in the voluntary collection (IHPA, 2013). A number of concerns were addressed in this study along with the recommendations.

> *Finding 1*
>
> There was an overall lack in quality and regularity of data as a result of absence of participation on the collection by standalone private hospitals day facilities since 2009 (IHPA, 2013, p. 48).
>
> *Recommendation*

Work with the sector through the engagement of the advocacy groups (locally known as peak bodies) or the NHCDC Advisory Committees, to address their concerns and achieve consistent and sufficient participation levels for future round (IHPA, 2013, p. 48).

Finding 2

Private Sector Technical Working Group (TWG) being ineffective and thus disbanded by the Commonwealth during the round 14 Collection and Data Analysis phase due to lack of mechanisms to resolve arising issues amongst TWG (IHPA, 2013, p. 48).

Recommendation

Private sector representation was recommended in the NHCDC Advisory Committee to ensure their participation (IHPA, 2013, pp. 48-49).

Finding 3

Perception of Private Sector that the Australian Hospital Patient costing standards (AHPCS) lack clarity around key areas of concerns to private sector (e.g. treatment of corporate costs and the different treatment of taxes between non-profit and for profit hospitals) (IHPA, 2013, p. 49).

Recommendation

IHPA needs to address the issues raised by private hospitals in this regard (IHPA, 2013, p. 49).

Finding 4

In 2012, the analysis of participation rates and minimum sample sizes for private hospitals revealed that the private sector in general sees little value in reporting. It was found that to be representative, the collection needs to include app. 90 hospitals and 10 hospital 'groups' (IHPA, 2013, p. 50). In terms of stand-alone hospitals, the minimum participation level for a 95% level of confidence was determined to be 37%, and 23% for private standalone hospitals (IHPA, 2013, p. 50).

Recommendation

IHPA need to work with the Australia Day Hospital Association (ADHA) to rally the participation in future rounds by addressing the concerns of the sector that are included in this section (IHPA, 2013, p. 50).

Finding 5

The key concern of the private sector in terms of this collection is the commercial sensitivity of the data released and the negative impact this published data may have on the relationship of the sector with private health insurers (IHPA, 2013, p. 50).

Recommendations

IHPA needs to work with the private sector to determine what data can and cannot be released and thus establish an accepted format for the collection reports for future years. The format should be such that it includes the required information and at the same time maintains commercial sensitivity (IHPA, 2013, p. 50).

2.5 Literature Review Summary

The review of use of discharge data, the current state of discharge data in NZ and overseas health systems with similar issues yields three conclusions.

The first conclusion is that discharge data is used by a wide group of organisations across the NZ health and disability system which is led by MOH. MOH uses the discharge data in a variety of applications with a goal of providing New Zealanders a high quality care that is affordable, innovative and sustainable (Ministry of Health, 2010, p. 1).

The second conclusion is that the MOH's polices around information collection and monitoring revolve around DHBs. As a result, discharge data from the wider private sector is less well represented in their largest collection, NMDS. This limits the way that NMDS information can be used. The full potential of usage has not been reached, in the way that it would have been had MOH been in possession of the complete dataset.

The third conclusion is that the MOH in New Zealand is not alone in having poor access to private hospital discharge data - Canada and Australia have had similar experiences in their health systems. Similar to the NZ situation, Canada and Australian private hospitals perceived that reporting discharge data requires extra work with unclear benefits.

This paper has suggested a number of initiatives that have been found to be useful internationally and could be adopted in NZ. However in order to be successful with

these initiatives, not only does MOH Management need an increased level of engagement with the private hospital sector but they also need to ensure that the right incentive mechanisms are in place to motivate the private sector to report their data.

From these conclusions we can ask the following question:

"What can be done in NZ to improve the quality and completeness of private hospital reporting?"

3 Methodology

3.1 Research Philosophy

The research methodology used in this study was qualitative in nature. The project was conducted from a phenomenological perspective, to describe commonalities, themes or differences through the examination of descriptions provided by several individuals of their lived experience (van Manen, 1994). Van Manen (1994) describes the process as "discovery oriented" (p.29). Epistemologically, phenomenological approaches are powerful for understanding subjective experience, and for gaining insights into people's motives and actions because they emphasise the importance of personal perspective and interpretation (Lester, 1999).

According to Patterson et al. (1999), qualitative research does not lend itself to eliciting generalisable findings. However, Schofield (1993) emphasises that the

differences in the report would not generally raise serious questions related to validity and generalisability as long as other researchers' conclusions are not inconsistent with the original account.

3.2 Identification of researcher's biases

In order to achieve objectivity and neutrality in research, it is important to reflect on how bias may creep into the qualitative research and thus threaten validity (Ritchie & Lewis, 2003). In particular, it is essential to reflect on how the interviewer was "placed" by participants (Rose, 2007). Being an employee of MOH, while conducting this study for MOH, it was important for me to look at the data I collected leaving behind any biases, prejudices, world views and paradigms that may consciously or subconsciously affect my perceptions. I tried to engage with those who were interviewed as an objective observer, I tried not to appear as a 'specialist' or 'expert' to the interviewee. Nevertheless, it is possible that the views and experiences presented by the interviewees were influenced by participant placing bias.

3.3 Ethical considerations

Standard ethics processes were followed for this study. It was approved by the Victoria University Ethics Committee. After the ethics approval was sought, the targeted participants were contacted via email with a consent letter confirming that their names would remain anonymous however their titles and / or organisation may be transparent. To ensure anonymity each participant was identified using their job title or a generic code in the analysis.

3.4 Overview of the research design

Semi structured interviews were conducted with the staff from several NZ private surgical hospitals, mainly those who are members of New Zealand Private Surgical Hospitals Association (NZPSHA). The use of semi-structured interviews provided a chance to obtain open responses, while still ensuring coverage of all relevant topics (Kvale and Brinkmann, 2009; Britten, 1995). Interview questions were based on reported research covering lack of reporting from private hospitals across NZ. The topics covered by interview questions are given in Box 1. A complete set of questions can be found in Appendix 7.

Part of the discussion included participants' perceptions on what was going well and their recommendations for change. The discussions with the participants were recorded and documented. Themes, patterns and insights arising from these discussions were also documented. In the end the appropriate categories reflecting prominent themes within the dataset were formed to analyse the data collected during the interviews.

3.5 Sample and recruitment

A number of participants from clinical, managerial, information technology and data analysis were nominated by the hospitals' CEOs. The project was endorsed by both the NZPSHA and the MOH - both organisations thought it created research value and validity was achieved through their tacit monitoring of the research. Participant's selection was undertaken in consultation with MOH and NZPSHA staff to ensure a wide representation of views and perspectives in the findings. CEOs from the hospitals selected for the study were invited through email to nominate between one

and two staff who had experience and knowledge in data collection and reporting processes. Data collection continued until data saturation was achieved (Bradley et al.,2007). Table 1 show the hospitals included in the research.

Table 1 - List of hospitals included in the study / interviews.

Category of hospital fall into from reporting perspective	Name of the hospital
Reporting through an automated extract on a standard file format with optimum level of quality.	1. St. George's Hospital
Reporting a partially completed dataset on a CSV file.	1. Southern Cross Hospital Ltd 2. Boulcott Hospital, Lower Hutt 3. Bidwill Trust Hospital, Timaru
Reporting a partially completed dataset on paper.	1. Kensington Hospital, Whangarei

Stopped report but have reported a partially completed dataset on a CSV file in the past.	1. Acurity Health Group
	2. Mercy Hospital, Dunedin
	3. Mercy Ascot Hospitals Group
	4. Churchill Private Hospital Trust, Blenheim
	5. Anglesea Hospital, Hamilton

3.6 The Interview Process

Topics included in the interviews are given in Box 1 below. Each interview lasted from 45-60 minutes and they were conducted on the phone at an agreed time. Probing was used where required to get further information on the selected topic. The interviews were recorded with the prior permission from the interviewees. The recordings were transcribed and checked for accuracy. Emerging themes and researchers impressions were then documented.

Box 1 – Topics covered in Semi-structured interview.

1. Current level of reporting
2. Quality of the incoming data
3. Issues around continuation / cessation of reporting
4. Value Versus Cost of reporting
5. Motivation/ reward mechanisms behind reporting

4 Data Analysis

The data was analysed using thematic framework (Ritchie & Spencer, 1994) where themes are developed based on research questions and narratives from the respondents (Pope et al, 2000). For the purpose of analysis the data was analysed using five stages of the framework as shown in Table 2.

Table 2 – Five stages of Thematic Framework method used for analysis.

Familiarisation	This was to ensure that all the interviews were recorded and listened to many times to become more familiar with the data collected during the interviews.
Identification of thematic framework	This is to identify the main segments of the text and label it with a keyword and add some notes alongside that. Describe the content of each passage with a label or a code.
Indexing	This is to organise the codes or labels that are important for addressing the research question into categories reflecting prominent themes within the dataset. The themes identified for the purpose of this research include: Provision of treatment; Value Versus Cost; Incentives sought.
Charting	A matrix is a means of summarising the data for each code for a theme by having one row per participant and one column per code.
Mapping and interpretation	This step was related to thematic analysis where different codes created were connected to the participants. The interpretation is mainly based on what is happening in the collected data.

5 Results

A total of 21 organisations were contacted for this research project. Some of the hospitals considered in this study were a part of larger organisations consisting of more than one hospital. The 21 organisations considered in this study constituted 43 hospitals across New Zealand. Out of 21, 10 organisations that covered 32 hospitals responded. 12 nominations were received from these organisations. Some respondents represented more than one hospital because their data was collected and reported via one centralised patient management system (PMS).

The sample, consisting in total of 12 participants, included people from the following roles:

    3 hospital Chief Executive Officers (CEOs),

    1 Principal Nurse,

    1 Director of Clinical Services,

    2 General Managers (GM),

    1 Clinical Coding Manager,

    1 Manager,

    2 IT Managers, and

    1 Senior Analyst (SA).

Three main themes were discussed:

1. Provision of Treatment

2. Cost of reporting

3. Perspective to Change

5.1 Provision of treatment

Under this theme, the following categories are discussed:

1. Current state of reporting

2. Plan to restart

3. Future of coding

5.1.1 Current state of reporting

Table 3 shows an overview of the hospitals included in the study.

Table 3 - Overview of the hospitals included in the study.

Category of the hospital based on reporting level	Type of discharges	Hospitals	%age
Automated extract in standard file format with optimum level of quality	All discharges	1	3%
Partially completed data in a CSV file	All discharges	22	67%
Partially completed data on paper	Inpatient only	1	3%
Have stopped reporting now but have reported a partially completed dataset on a CSV file.	Stopped reporting now but has previously before	7	24%

	Never reported	1	3%
	Total	32	100%

Out of the 32 hospitals included in the study, 23 hospitals are reporting 100% of their discharge data to NMDS, and one hospital is reporting only inpatient discharges, as that is believed to be the required level of reporting. From the remaining eight hospitals, one has never reported while the other seven stopped reporting after successfully being able to report in the past. A range of different reasons were found behind this cessation of reporting. Three of these hospitals (as a part of one organisation) changed their PMS to a new one that wasn't compliant with NMDS, and therefore stopped reporting. Two other hospitals from this non-reporting group merged into one organisation and the remaining two hospitals stopped reporting as they did not receive any feedback on their data and thus assumed that it was not mandatory for them to report.

"The PMS being used at our hospital originated in Australia; it is not compliant with New Zealand standards (Manager 5)."

"As per my understanding we only need to report inpatient discharges" (SA 1)

"No benefit for us to report the data. We feel isolated - whenever the Ministry talks about the Health Sector they exclude the private health sector (Manager 7)."

"Confidentiality is a major issue for us; we don't want our information to be publicly available under the Official Information Act" (CEO 2).

"The data being reported was difficult to extract out of our system and the data that was sent was it was assumed by the hospital that it would not be easy for the MOH to load it into their system (Manager 7)."

"We never reported as we never had to" (CEO 1).

I wanted to confirm the findings from the interviews regarding completeness of the data reported by the private hospitals included in the study. I used a sample of 10 files containing data from 10 of the hospitals (including hospitals that have stopped reporting). I reviewed these data to see the extent of completion of record fields in the NMDS. The files sent during 2014/2015. Table 4 shows the overview of the mandatory information required in the NMDS dataset as sent by the private hospitals who were interviewed for this study.

Table 4 – Overview of the mandatory information reported by private hospitals (Data source - Raw NMDS files sent by private hospitals held at MOH).

Field Name	% of rows where data was reported.
Patient's Name	100%
NHI	88%
Domicile code (patient	44%

address)	
Date of birth	100%
Ethnicity	97%
Health Specialty (note is derived from other information provided)	0%
Admission date	100%
Admission type (note this is derived from other information provided)	0%
Discharge date	100%
Discharge type	100%
Diagnosis (note this is derived from other information provided)	0%
Procedure (free text)	100%
Procedure date (note this is derived from other information provided)	0%
External Cause Codes	0%
Condition onset code (note this is not included in the csv format or the paper reporting form)	0%

Consistent reporting of NHI and domicile code was seen in most of the files that are received electronically. However, it is difficult to say that this data is without quality issues. It was found that the data quality varied due to inconsistencies across hospitals in their data submission methods. It was seen that the hospitals belonging to bigger organisations that are reporting electronically reported more consistent NHI and domicile code information.

Each participant's views on the quality of their data were discussed with them. The findings from the NMDS file analysis (above) were found to be largely consistent with the participants' own views of their data. The participants from the hospitals reporting electronically on CSV files were more confident about their data quality, especially regarding health event details. Those reporting on paper, using ADF96 form were less confident about the quality of the information they reported. Also, two of the hospitals currently reporting on paper admitted to be reporting incomplete demographic data.

"The overall quality of the demographic information being sent by us is low as our system is not capturing all the fields like gender, occupation etc."(GM 1).

"We reckon the quality of the information like NHI and other info is good. The issue is around being able to send all the required fields in the extract. We only report admission discharge along with NHI as far as the demographic information is concerned" (SA 1).

The respondents were aware of, and broadly acknowledged, the clinical information being reported as being inadequate from an NMDS perspective. They agreed that the private hospitals are not reporting the patients' co-morbidities as DHBs do.

"We cannot provide primary and secondary diagnosis as it is not our role to provide such info. We only carry out elective surgery; it is only the procedure description that we can provide" (Manager 6).

At present only two private hospitals are reporting the full patient story that is coded using ICD-10-AM codes. Only one of these two hospitals was included in the study.

5.1.2 Plan to restart

The participants from hospitals that are not currently reporting were asked about their ability to start reporting discharge data to the NMDS. While most did not express any readiness to start reporting, there was one respondent (representing three hospitals as part of one organisation) who expressed a desire to start reporting. They acknowledged that they would need to obtain compliance with the MOH system which may be a problem.

"If asked to report on paper, it depends upon the individual hospital but they may strike a resource issue. If it can come out of the PMS it is unlikely that they would manually provide it. NHI compliance is in progress at our hospital" (Manager 5).

"We used to report before, then we stopped reporting as we found it too much work, we never received any feedback on how we were doing" (GM 2)*.*

"We don't have the capacity to handle the compliance required by MOH. It is too much cost for us with no added benefit to the business" (CEO 2).

5.1.3 Future of coding

Insufficient reporting of appropriately coded information was also discussed. All respondents described this issue to be associated with the way private hospitals work and are funded in New Zealand.

"We only rely on the information that is being provided by the surgeon and the GP. We don't have the full medical picture as required by NMDS event coding" (Manager 5).

Respondents emphasised that due to the way their organisations operate, they do not require a full knowledge of the patients' history, and thus do not store such information.

"No primary and secondary diagnosis could be provided as it is not our role. We are just elective surgery; the procedure description is all we can provide" (Manager 6).

As well as full patient history being supplementary to the information required for elective surgeries, respondents reported an actual lack of access to these records,

which are generally held by the patient's GP, specialist, and surgeon. Apparently, for private hospitals to access this data would be quite difficult, if not impossible.

"We have a referral letter outlining the patient's co-morbidities, but it would be hard for us to have the complete picture in relation to that treatment" (Manager 7).

Another hospital reported difficulty in providing the ICD-10-AM coded clinical information. Private hospital funding mainly comes from insurance companies. The coding required to fund the insurance based surgeries is entirely different from ICD-10-AM coding.

"The reimbursement for the surgeries we do is not based on the clinical diagnosis as opposed to public hospitals where the reimbursement is based on how well an event is coded; including all the primary and secondary diagnoses, including the severity of the surgeries done. If we were to adopt that approach it would be fundamentally changing everything in our system" (Manager 4).

A significant theme of "Provision of Treatment" arose from this discussion. The key issues were: the role of the hospitals as elective surgery providers, a lack of access to the patient's history and the difference between the context of coding performed in private hospitals and that required by the NMDS.

5.2 Cost

Under this theme, the following categories are discussed:

1. Costs of Reporting Data

2. Employing of Clinical Coders

5.2.1 Data Reporting

An emerging theme within the study was the (perceived) significant cost of reporting

discharge data, compared to the perceived value of the information that was

reported. Rather than being perceived as something of value, reporting was seen as

an overhead by most of the hospitals including those who are currently reporting and

those who have stopped reporting. At this stage only two hospitals in NZ report using

ICD-10-AM codes. The remainder send a free text description of the procedure

codes and the MOH has clinical coders assign the ICD-10-AM code. This coded

information is them loaded into the NMDS along with the other details sent by the

private hospital.

Survey participants acknowledged that NMDS reporting requires a significant

amount of resources and time, in order to extract data from their system and put it

into a format appropriate for reporting to MOH.   In theory this is a one off investment

– the same extraction process can be used for each file sent.

"The cost of capturing the coded information would be far higher than the value we

would gain from that. It is interesting information but it is not going to help us to

manage the patient any better. Private hospitals are dealing with the discrete

episode rather than dealing with all the medical illness that the patient has. To be

able to do it accurately and comprehensively would cost quite a lot in terms of time and effort and system cost, resources. We don't see value in that information if we look at their business alone" (Manager 4).

"Cost is the major issue as it has no value to the business" (CEO 2).

"In a private hospital it doesn't make any difference because it doesn't increase the payments we receive - even if we completely code all the patient information" (Manager 6).

"In the first place the data being reported was difficult to extract out of our system and the data that was sent was assumed by the hospital that it will not be even easy for MOH to process at their end" (Manager 7).

It is an overhead. Given the only funding we have is from nongovernment sources, it is a significant overhead. If the reporting process is simple and straight forward then no problem. If it starts getting more complex and hence require more labour then it would become an issue" (GM 1).

One participant (representing two hospitals) was classified as being totally cost-focussed. He highlighted why reporting is not an option for them; not only did they require MOH to pay for their time and resource required for extracting the information from their system, but confidentiality was also a major issue for them.

"Cost is the major issue as the data has no value to our business. We don't want our info to be publicly available under Official Information Act" (CEO 2)

While the majority of the respondents considered reporting as an overhead, there was one respondent with a different view. They represented a hospital that is reporting complete and accurate information, and considered their organisation to be benefiting from the quality information they are reporting to the National Collection. They believe it has improved the accuracy and quality data of information internally in their hospital*.*

"Many times a question has been brought up by the Board if it is worth spending all the money on the collecting and reporting data, but in fact, we as a hospital have become dependent on that data and have always seen it to be valuable enough not to stop even though it costs us money" (Manager 1)*.*

5.2.2 Hiring Clinical Coders

When asked about the value of hiring clinical coders to supply fully coded information to NMDS, the participants were of the view that private hospitals are not the right people to ask this question. It is all down to cost/benefit. Private hospitals don't see the benefits of hiring ICD-10-AM coders. Most of the participants who are already reporting partially coded surgeries into the NMDS reported on the non-feasibility of hiring a clinical coder. This included the high cost of hiring the coders as well as the cost of capturing the patient's clinical information to code.

"We are dealing with the discrete episode rather than dealing with all the medical illness that the patient has. To be able to do it accurately and comprehensively would cost quite a lot in terms of time and effort as well as the system costs" (Manager 4).

"No, as unlike DHBs who are trying to log all of the patients information (because of its impact on their funding), the private hospitals are only focused on surgeries, so they don't feel any necessity of employing in-house coders" (Manager 6).

"No – it is too much cost without any added value to our system" (CEO 2)*.*

Relatively smaller hospitals reported that they are too small to bear the cost of employing clinical coders. Some of those in the process of upgrading their PMS reported to be looking at the coding side of reporting in the future, but not currently.

"*Part of an upgrade may look at the coding side of reporting but at the moment there is no coding"* (GM 1).

A participant from a hospital using ICD-10-AM coding viewed clinical coders as a useful resource. They spoke in terms of providing their organisation with fully coded data which is used not only to help their own organisation's analysis and data mining but also to help other organisations like ACC to map their codes to ICD-10-AM codes.

 "With all the coded info sitting in our PMS we are able perform data mining and thoroughly analyse our entire throughput and statistically make assumptions from

that. We use those procedures to book patients into our theatre system" (Manager 1).

"Transparency, being able to produce reports based on the data that is in our system. Easy to analyse financially if it is coded using standard codes as you are comparing apples to apples" (Manager 1).

5.3 Perspective to change

Under this theme, the following categories are discussed:

1. Greater Access to National Collection Reports

2. Engagement form the MOH

3. Recognition as part of New Zealand's Healthcare Community

In the final phase of the interview the participants were asked about incentives and rewards that they expected from the MOH in order to initiate a change in their own current level of reporting. The following findings were made.

5.3.1 Greater Access to National Collection Reports

There were perceptions that respondents would be given access to a wider range of reports from the National Collections in return for complete reporting. Participants expressed uncertainty as to the benefits of this greater access to their businesses, however overall a certain level of interest was apparent. The main attraction for

some hospitals was being given the opportunity to see the national data from a 'big picture' perspective and given access to specific datasets was of interest to others. Suggestions from the latter group are expanded below.

The respondents expressed an interest to know about intervention rates because this information could have an impact on the number of procedures they do in their hospitals.

"*Of particular interest is where intervention rate increases eg if the rate of grommet increases significantly then that could have an impact on the number of procedure we do in our hospitals*" (Manager 4).

"*There is one initiative they (the MOH) have undertaken with the public hospitals for infection control. There is probably more value in clinical reporting in terms of patient health.*" (Manager 5).

Many respondents also saw the importance of receiving a report of the number of procedures undertaken by DHBs versus private hospitals on a regional basis. According to them, this would give them much clearer guidance on what is really happening in the private sector.

Another respondent expressed an interest in receiving mortality data and details of those who are recently deceased, to help them close files for their patients who have passed away.

The respondents overall strongly agreed on one point. They agreed that it would be very useful if discharge data from each member to NZPSHA were provided to the NMDS and then made available as required. This would improve the quality of data currently available and remove duplication of work across the sector.

5.3.2 Engagement from the MOH

Participants who had never reported and/or who had stopped reporting confirmed that they had taken this action largely because they felt there were not enough reasons for them to invest in reporting. Cessation of reporting was also partly due to a lack of engagement from the MOH in terms of requesting data and valuing the data already provided by private hospitals.

"We reported through public hospitals before, but did not see much value in continuation of this reporting. When this stopped; for us alone it was too much work." (GM 3)

"DHB gets the information back but the private hospitals does not seem to" (Manager 7).

The majority of participants from the hospitals currently reporting were also of the view that they would like more feedback from the MOH on the data they currently report.

"We don't know what is required in terms of quality and quantity of the data we are sending to NMDS. There is no feedback provided so are not sure what to do in-terms of improving the quality" (Manager 3).

Regarding compliance, participants emphasised the need for the MOH to engage with private hospitals about the quality of data reported to the national collection. Also, according to them, there is very little dialogue between the MOH and their systems vendors in terms of compliance or system upgrades.

"*We would prefer the Ministry to talk to the vendor directly. The vendors have got the programming expertise that the hospitals do not have. It slows the whole process down when it comes back to the hospital and they talk to the vendors*" (Manager 5).

Finally opinions were voiced that the provision of healthcare in NZ is such that the MOH needs to engage more with DHBs, and less with private hospitals. An example of this is new systems rollouts (maternity and ED modules have been delivered to DHBs). Also the Ministry leads development of regional DHB IT programmes, and supports that with funding. If the MOH wants data contribution from the private hospital sector there does not appear to be a regional or national plan in place to support it.

The participants emphasised that as opposed to a system where the focus is on the data reported by DHB only, the MOH should work collaboratively with the private sector to promote their participation. They thought this approach would be effective.

"We need to be innovative in our arrangements in terms of what facilities are available in the country and be creative in the contractual arrangements within the health sector. Focus on health sector as a whole as oppose to focus on just DHBs" (Manager 7).

5.3.3 Recognition as part of Healthcare Community

Participants claimed that more than 60% of NZ's elective surgeries take place in private hospitals. Therefore they believe it is important that the private sector should be recognised nationally for the amount of work they put into supporting the nation's healthcare.

"Feel isolated – whenever the Ministry talks about the health sector they exclude private sector. The private sector is 60% of elective surgery in NZ, when they talk about elective surgery they never talk about the private hospitals" (Manager 7). (Note that publicly funded elective surgery is included in all MOH statistics, but it may not be clearly acknowledged).

Many participants also saw the need to provide more value, more recognition, and more involvement of private hospitals on MOH working groups and committees. Some highlighted a need to make current processes that involve the MOH and private hospitals more innovative and meaningful. For example, a participant suggested that rather than having the current paper based private hospital licensing process, there could involve more engagement between the MOH and the hospital.

"We would need Ministry's support around what form you need your information in and whether we could do that easily from our PMS" (Manager 7)

Some respondents thought the idea of incentives rather than monetary benefits would be more effective. They put an emphasis on the involvement of private hospitals in Ministry's IT rollouts, shared patient records, IT support platforms and government collective for health pricing.

"Hospitals have to offset their costs, maybe through involvement in the shared patient record, IT support in platforms etc. More incentives would work rather than monetary benefits. Improving patient outcomes and care quality is the biggest driver for us." (Manager 5)*.*

"Private hospitals have to look very carefully to their costs, any benefit in terms of incentives would be great. An aggravation to private hospitals is that they don't get offered the same discounted Microsoft software for example. Also licensing costs for operating software like Windows. Microsoft views private hospitals as part of the health community when they want us to use their health products but when they come to sell their products they charge private hospitals the same price as any other business" (Manager 5)*.*

"Don't mind reporting if it is easy to do without much manual intervention ie through tools or automation" (CEO 1)*.*

6 Discussion

In this study many of the participants held senior management positions in their respective hospitals. Participants from the hospitals that are currently reporting to the NMDS were of the opinion that their data was optimum in terms of its completeness. They further emphasised that it may be difficult to change the way they report especially around clinical information (diagnoses). They described the lack of reporting around clinical information to be associated with the way private hospitals work in New Zealand. These findings are similar to the Australian experience (IHPA, 2013) where private hospitals raised a concern about a lack of relevance of the collection to the private sector.

As most private surgical hospitals in New Zealand provide (government funded) elective surgery, their PMS information is only concerned about discrete episodes of care – not the whole patient history. The complete patient information either sits with the GP who made the referral, the specialist assessing the patient for surgery or the surgeon performing the surgery. The participants reported that private surgical hospitals exist for a very specific purpose which is to perform surgeries. Their information therefore does not exist in the same context as required by NMDS and as is reported by DHBs. While most participants accepted the benefits of reporting detailed clinical information, from a healthcare service delivery perspective, they also expressed concern about the fundamental changes to their system should they need to capture and report that level of information.

The participants acknowledged the value of coded information however they did not think it appropriate for the type of information they have in their PMS systems. Aside from one private surgical hospital the rest report free text information for the procedures that take place and no diagnosis information. However this approach does meet health insurance companies' reporting requirements and therefore supports their main funding streams.   All of the hospitals were required to keep a paper file for each of their patients at their premises, they didn't record all of that information in their PMS, and none of it was ICD-10-AM coded.   None of the private surgical hospitals were planning to recruit clinical coders.

The participants had different views about the value of reports from the National Collections. Some identified them as being of no value to their business directly, but others thought they were potentially helpful in reducing their burden of information reporting to other organisations eg NZPSHA. In their view, having a robust system in place which supports collective Private Surgical reporting (rather than individual reporting, as is the current system) would be helpful.

This study shows (the perception) that private hospitals data are rarely acknowledged in Ministry's policy initiatives. When two major hospitals included in the study underwent restructuring in 2001, they never considered MOH reporting as part of their IT requirements. Further they didn't consider the need to obtain compliance of their upgraded system with the National Collections when they started reporting from their new system. Similarly, three other hospitals interviewed in this study had changed their patient management system in 2009. They also disregarded the need to obtain compliance for NMDS reporting. The new hospitals

included in the study never considered a requirement to report to the National Collections, they believed it was only mandatory for DHBs.

The study demonstrated that over 75% of private hospitals in NZ are reporting to the NMDS on paper forms – the vast majority of these are small elder care facilities. They typically have very few discharges. The larger private surgical and birthing hospitals are reporting via spreadsheets or directly to the NMDS. The participants in study acknowledged that NMDS reporting, specifically the extraction and appropriate formatting of data, requires a significant amount of ongoing resource. That is the main driver for the decision to stop reporting.

This is a similar experience to that found in Australia by DOAHA (2011). In that study private hospital managers suggested that if reporting was rationalised by removing the unnecessary complexities around the process, the reporting burden on private hospitals would be reduced and more active involvement from private sector would follow.

New NZ hospitals said that they would be willing to begin reporting if they find that it is within their capacity to do so without investment of extra resources. The hospitals that have stopped reporting also claimed to be unable to report manually unless an easy-to-use automated reporting system is put in place. It may be difficult to change the mode of their reporting without considering the introduction of a reward mechanism which motivates and supports a switch to a better system for reporting. This finding, which resonates with Wranik & Durier-Copp (2009), suggests that

having some incentive / reward mechanism in place for private hospitals may not only improve the reporting level but may also help keep them motivated to report. This could include a number of things comprising automated tools developed by the MOH, regular training on the reporting requirements of the collection as well as assuring regular and ongoing support.

Finally it is suggested that relations would improve if there was an increased level of engagement between the MOH and the private surgical hospital sector. In addition to expressing their confusion around the actual purpose of reporting, the participants often highlighted how they felt about their part in the health community and shared their ideas around how interventions put in place at the MOH level could help overcome these barriers. Most of the participants saw private hospital as a key part of the health care community – it is not made up just of DHBs. Similar to the findings of (IHPA, 2013), the participants were enthusiastic for greater participation of the private sector in the development of the National Collections. Respondents reported different ways of incentivising private hospitals to participate. These included the consideration of private hospitals into national IT rollouts, and other government priorities including clinical integration, shared patient records, and IT support in platforms.

The study shows that the private hospital sector is keen to be a more integrated part of the NZ healthcare system. They believe that new ideas and methods of collaboration with the health sector as a whole are required. This should take into account both the service providers (hospitals) and patients. At an information level the MOH could engage with the private surgical sector to improve their understanding of the value of NMDS data. When this integration occurs (and private

hospitals report to the NMDS) it will enable the full potential of the national collections datasets to be realised. Investment in these initiatives would also improve healthcare and follow up care to the people of NZ, which is the ultimate goal.

7 Conclusion

The study demonstrates that from a private hospitals perspective cost is not the only issue around reporting; clarity of the purpose of reporting is also significant, and access to the data in a way which benefits private organisations. The NMDS reporting requirements are designed for public hospitals and do not take account of the different business models used by these two health providers.   They cannot currently meet the clinical reporting requirements and there are high costs and limited benefits to changing their coding system to ICD-10-AM. The findings suggest that in order for NMDS reporting to be implemented, there needs to be;

- changes to the traditional public and private hospital boundaries,

- increased collaboration between the private sector and the MOH, including acknowledgement of the role private hospitals play in the health sector.

- a Ministry led programme which demonstrates the purpose and benefits of collecting the data. There is a need for the whole health sector to be taken into consideration – which means the needs and views of the private as well as public sector.

7.1 Future research

This is the first qualitative study undertaken to explore private hospital staff views on reporting discharge data to the NMDS. The findings have highlighted issues that are relevant to data reporting including health diagnosis reporting. There is opportunity for further research in the following areas:

1. This study has identified that the private hospitals do not have access to their patients' full clinical history. A qualitative study could be conducted with the private hospitals, GPs, specialists and surgeons to find out the best ways for private hospitals to access that information without having to manually enter it into their PMS systems. In addition to getting the fuller picture of the patient's clinical information from private hospitals, this study could benefit by exploring the ways to integrate different services including GP, specialist and surgeon systems.

2. Some of the participants in this study claimed that more elective surgeries are taking place in private hospitals than public hospitals. Confirmation of this claim could proceed via a further study employing quantitative research through surveys, for example by approaching private and public hospitals about the elective surgeries they conduct, specifically in terms of frequency. The general public who have gone through elective surgery could also be approached and asked the reasons behind their preference of type of service chosen for their surgery. The actual distribution of elective surgeries occurring

in NZ in terms of public versus private hospitals can be determined through this study.

3. Another potential area of further study could include examining the ability of private hospitals to report external cause of injury codes (E-codes). This could be a useful study from an ACC point of view to devise the policies around injury prevention.

4. The certification of healthcare services by Healthcert authorities ensures that private hospitals and rest homes provide safe and reasonable levels of service for consumers, as required under the Health and Disability Service (Safety) Act 2001. This study shows there is room for further improvement in the process that is currently in place to license private hospitals. Keeping in mind the role of data in improving patient safely, a further study could be undertaken to find out the areas of improvement and requirements that could be put in place to certify the hospitals in terms of data reporting.

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Appendices

Appendix 1 - List of top 25 private hospitals reporting to NMDS.

Private hospital is a hospital that is a legal entity and is set up for the purpose of producing goods and services and is capable of generating a profit or other financial gain for their owners (OECD Health Statistics, 2014).

S.No	Name	Address
1	St Georges	Milford Street, Christchurch 1
2	Birthcare Parnell	20 Titoki Street, Parnell, Auckland
3	Southern Cross Christchurch	131 Bealey Avenue, Christchurch 1
4	Grace Hospital	218 Cheyne Road, Pyes Pa, Tauranga
5	Southern Cross, North Harbour	232 Wairau Road, Glenfield, Auckland
6	Auckland Surgical Centre	9 St Marks Road, Remuera, Auckland
7	Southern Endoscopy Centre	21 Caledonian Road, St Albans, Christchurch
8	Gillies Hospital	156 Gillies Avenue, Auckland
9	Southern Cross Hamilton	9 Von Tempsky Street, Hamilton
10	Ormiston Hospital	125 Ormiston Road, Botany Junction, Auckland
11	Southern Cross New Plymouth	205 St Aubyn Street, New Plymouth
12	Southern Cross, Brightside	3 Brightside Road, Epsom, Auckland
13	Southern Cross Invercargill	108 Deveron Street, Invercargill
14	Boulcott Clinic	666 High Street, Lower Hutt
15	Southern Cross Wellington	90 Hanson Street, Newtown, Wellington
16	Hamilton Birthing Ltd	P.O.Box 4388, Hamilton
17	Bidwill Trust	Bidwill Street, Timaru
18	South Island Mobile Surgery Unit	Christchurch
19	Manuka Street Trust	36 Manuka Street, Nelson
20	Sevenoaks Continuing Care	Lodge Drive, Sevenoaks, Paraparaumu Beach
21	Laparoscopy Auckland	148 Gillies Avenue, Epsom, Auckland
22	Southern Cross QE Hospital	58 Otonga Road, Rotorua, Rotorua
23	Kensington Hospital (includes Prime Care)	12 Kensington Avenue, Whangarei
24	Venturo	Bay of Plenty
25	Queen Elizabeth Trust	Whakaue Street, Rotorua

Appendix 2 - Structure of Health and Disability Sector (Ministry of Health, 2011).
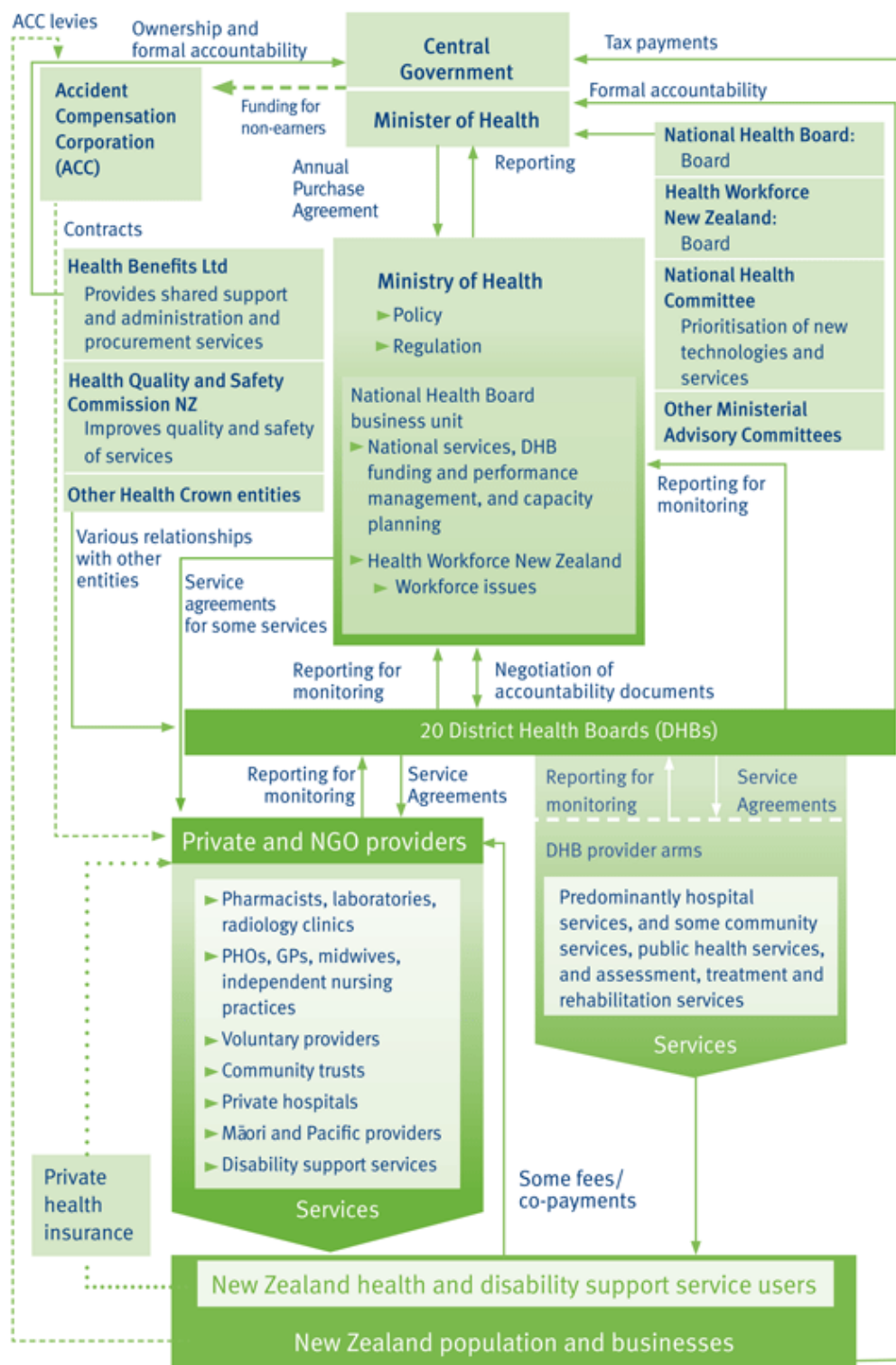
Appendix 3 – Glossary

Accident Compensation Corporation (ACC) - ACC is the organisation that provides no-fault personal injury cover for all the residents and visitors to New Zealand.

Clinical code – A code used to classify the clinical description of a condition.

Condition on set flag (COF) - COF is a means of differentiating those conditions which arise during, or arose before, an admitted patient episode of care. Collection of this information will provide an insight into the kinds of conditions patients already have when entering hospital and what arises during the episode of care.

Diagnosis related group (DRG) - DRG is one of the payment categories that are used to classify patients and especially Medicare patients for the purpose of reimbursing hospitals for each case in a given category with a fixed fee regardless of the actual costs incurred and that are based especially on the principal diagnosis, surgical procedure used, age of patient, and expected length of stay in the hospital.

District Health Board (DHB) – DHBs in New Zealand are organisations established by the New Zealand Public Health and Disability Act 2000, responsible for ensuring the provision of health and disability services to populations within a defined geographical area.

Domicile code - Statistics NZ Health Domicile Code representing a person's usual residential address, the address of the dwelling where a person considers himself or herself to usually reside

Elective Services - Elective Services are medical or surgical services for people who do not need to be treated right away and can be put on the waiting list for their surgeries to be done.

External Cause code - A code that is used to describe the circumstances of injury including the place of occurrence of the injury.

Health and disability system - Health and disability system in New Zealand is a complex network of organisations and people working together as shown in the Appendices – A2, to achieve better health for New Zealanders.

Independent Health Pricing Authority (IHPA) - IHPA is an independent government agency established by the Commonwealth as part of their National Health Reform Act 2011. Its primary function is to calculate and deliver an annual National Efficient Price. (NEP).

Ministry of Health (MOH) - Ministry of Health is a public sector organisation that leads New Zealand's health and disability system and has overall responsibility for the management and development of that system.

National Health Board (NHB) - NHB is a unit within the Ministry which is described as a whole-of-system health planning, advice, and funding organisation made up of a Ministerial appointed Board whose role is to improve the quality, safety and sustainability of health care for New Zealanders.

National Health Index (NHI) – it is a unique 7-character number that uniquely identifies each patient availing health care service. The NHI number assigned to a healthcare user by the National Health Index (NHI) database and used to link the patient records in the different collections held in the Ministry's data warehouse.

National Minimum Dataset (NMDS) - NMDS is a national collection of public and private hospital discharge information that includes patient's demographics and coded clinical data for inpatients and day patients.

National Hospital Cost Data Collection (NHCDC) - The NHCDC is the primary data collection in Australia that is used to develop the National Efficient Price

NHI Online Access for Health (NOAH) - NOAH is a web-based application that enables Health Care Providers to connect to the Ministry's NHI database to register and assign NHI to the new patients. It also allows Health Care Providers to search for the existing patients in the database.

Primary diagnosis code - The principal diagnosis is defined as the diagnosis that is chiefly responsible for beginning an episode of admitted patient care,

Secondary diagnosis code – Secondary or Additional is defined as a condition or complaint either coexisting with the principal diagnosis or arising during the episode of admitted patient care

Appendix 4 – Letter to CEO Organisation for nominations

Date 14 August 2014

Dear CEO

Researcher: Urwashi Singh, Victoria School of Management, Victoria

University of Wellington.

I am an MBA student at Victoria University of Wellington. As part of the mandatory course requirement for MMBA532, Business Research Project, I am undertaking research leading to a report.

In this project I am studying ways to improve the quality and quantity of discharge data coming from Private Hospitals to the Ministry's largest collection known as the National Minimum Data Set (NMDS). This is done with a view to overcome the differences that have been seen in the data that has been received from private hospitals in comparison to the data coming from the DHBs. Also is the part of study, the private hospitals that have stopped reporting their data to national collections after being able to do so for a number of years in the past.

I am also a Ministry of Health employee and have been dealing with this collection for the last 8 years. While, the Ministry has endorsed my research, It is not strictly a Ministry project. Primarily, I will be conducting this research as a student and if there are some positive constructive solutions that come out of my work, the ministry may consider including them going forward as part of their strategy to help / support private hospitals to improve their reporting.

As part of this research, I am planning to interview 1 or 2 staff from about 10 private

hospitals (during the first two weeks of September) across New Zealand by inviting the hospitals Managers / CEOs for a nomination from their organisation who I could talk in relation to my project. I intend your hospital to be part of that.

Before I ask you for a nomination, I thought it is appropriate that I discuss my project and its intent with you and accordingly seek your advice.

Would it be possible for me to have a chat with you sometimes this week (if possible) or early next week?

Urwashi Singh

Appendix 5 – Targeted respondent email

Date: 01 September 2014

Researcher: Urwashi Singh, Victoria School of Management, Victoria University of Wellington.

I am an MBA student at Victoria University of Wellington. As part of the mandatory course requirement for MMBA532, Business Research Project, I am undertaking research leading to a report.

In this project I am studying the quality and quantity of discharge data reported by Private hospitals into New Zealand National Health Collections especially the National Minimum Data Set (NMDS) held at Ministry of Health. In addition to seeing the level of reporting and the quality of the data being reported, I will also be studying the reasons behind successful reporting as well as the issues in case there is lack of reporting. Also will be the part of study, the private hospitals that have stopped reporting their data to national collections after being able to do so for a number of years in the past.

I would like the opportunity to interview you as part of this project. I have allocated an hour on Wednesday, 3 September, 2014 from 10.30 to 11.30 for the interview. The interview is designed to take between 60 - 90 minutes. I am based in Wellington and prefer it to be face to face interview at your workplace. However equally happy to give you a call otherwise. The Hospital Manager, Dorothy Shaw has agreed to your participation in this research.

The success of this research is reliant upon your honest opinion so maintaining

confidentiality is of the utmost importance. **Under no circumstances will the information presented during the interview be attributed to any one individual other than my supervisor. The organisation will be identified but your name and title will remain anonymous.** Interview tapes and transcripts will be kept in a locked office, and will be destroyed at the conclusion of the research. The research findings will be published in the Victoria University library and excerpts may be included in academic publications and/or academic conferences. **I have attached a consent form here. Please sign and send it to me.**

Victoria University of Wellington has granted ethical approval as a teaching activity and this project has been reviewed by the Course Coordinator.

With your permission the interview will be recorded and a transcript will be provided for your approval before the project is submitted for examination. You may withdraw from this research before the interview starts. If you for any reason would like to make contact regarding this research please contact one of the following:

Urwashi Singh   021 122 5643   [urwashi_sing@moh.govt.nz]

Bronwyn Howell   04 463 5563   [bronwyn.howell@vuw.govt.nz]

Also attached is set of questions to include in the interview.

Please let me know if time (and venue) allocated for the interview suits.

Urwashi Singh

Appendix 6 – Consent form

I agree to be interviewed by Urwashi Singh for the purposes of her MBA Business Research Project and consent to the use of my opinions and information. I understand that none of the opinions or statements that I make during the interview will be attributed to me personally, and that I may withdraw from the research before the interview start date. I am also aware that the findings derived from this study will be published in the Victoria University Library and excerpts may be included in academic publications and/or academic conferences.

I have been informed of the purpose of the research and the confidentiality conditions.

I understand that raw data collected during the interview will only be available to the researcher, Urwashi Singh, and her supervisor, Bronwyn Howell.

Name: Date:

Signed: ……………………………..

If you would like a copy of the executive summary please add your email/address below:

……………………………………………………………………….

Appendix 7 - Interview Questions

The following four categories of private hospitals were included in the study.

1. Reporting through an automated extracted standard file with optimum level of quality

1a How many health specialties do you have in your hospitals?

1b How many patients / discharges do you have per month?

1c How many patients / discharges do you report per month?

1d Issues from most difficult to easiest behind lack of reporting (if any)

1e Do you share your discharge or patient information with other hospitals in your group (if there is one), or with the Private Hospital Surgical Association, or other research and monitoring organisations in NZ or internationally?

1f Do you have any contracts with DHBs and how does that work in terms of reporting? Would you prefer reporting in this case? If so, why? What advantages do you think this would hold for you?

1g Value of data Vs Cost, how do you measure it. Is the running cost of the system an overhead in comparison to the value attained from the information collection and reporting?

1h What value do you see in reporting the complete and quality data to the ministry, how could you get more value for your data from the national system?

1i What are your thoughts around having in-house coders, from your own organisation's perspective? Does it add value to your own system?

1j What do you think could be motivating for your organisation to report complete and accurate information to NMDS?

   i.   Engagement at higher level

   ii.   Continuous Monitoring by the Ministry

   iii. Technical support in initial set up

   iv.   Access to Ministry's shared record ie NHI, Immunisation system, Information related to Allergies

   v.   Any other technical support

   vi.   Performance reporting / other reports in terms of consumer satisfaction, success outcome containing comparative data amongst different hospitals.

   vii. other pecuniary reward mechanism

2. Reporting a partially completed data on a CSV file

2a How many health specialties do you have in your hospitals?

2b How many patients / discharges do you have per month?

2c Do you collect discharge data? Do you share your discharge or patient information with other hospitals in their group (if there is one), or with the

Private Hospital Surgical Association, or other research and monitoring organisations in NZ or internationally?

2d How many patients / discharges do you report per month?

2e Issues from most difficult to easiest behind lack of reporting (if any)

2f Do you have access to online NHI?

2g Do you have any contracts with DHBs and how does that work in terms of reporting? Would you prefer reporting in this case? If so, why? What advantages do you think this would hold for you?

2h How do you rate the quality of the data i.e. NHI, domicile code, procedure description of the data you report to NMDS?

2i Is there any other way you could report more complete and better quality information to the ministry? If so what are the issues that are restricting you from doing so? Please describe these briefly, ranked from most difficult to least difficult.

2j Is there any way of reporting more clinical information with the information that is being reported by you i.e. primary and secondary diagnosis? Would your organisation support this idea?

2k Value of data Vs Cost, how do you measure it. Is the running cost of the system an overhead in comparison to the value attained from the information collection and reporting?

2l What value do you see in reporting the complete and quality data to the ministry, how could you get more value for your data from the national system?

2m What are your thoughts around having in-house coders, from your own organisation's perspective? Does it add value to your own system?

2n What do you think could be motivating for your organisation to report complete and accurate information to NMDS?

    i. Engagement at higher level

    ii. Continuous Monitoring by the Ministry

    iii. Technical support in initial set up

    iv. Access to Ministry's shared record ie NHI, Immunisation system, Information related to Allergies

    v. Any other technical support

    vi. Performance reporting / other reports in terms of consumer satisfaction, success outcome containing comparative data amongst different hospitals.

vii.   other pecuniary reward mechanism

3. Reporting a partially completed data on a paper

3a How many health specialties do you have in your hospitals?

3b How many patients / discharges do you have per month?

3c Issues from most difficult to easiest behind lack of reporting (if any)

3d Do you collect discharge data? Do you share your discharge or patient information with other hospitals in their group (if there is one), or with the Private Hospital Surgical Association, or other research and monitoring organisations in NZ or internationally?

3e How many patients / discharges do you report per month?

3f Do you have access to online NHI?

3g Do you have any contracts with DHBs and how does that work in terms of reporting? Would you prefer reporting in this case? If so, why? What advantages do you think this would hold for you?

3h How do you rate the quality of the data i.e. NHI, domicile code, procedure description of the data you report to NMDS?

3i Is there any other way you could report more complete and better quality information to the ministry? If so what are the issues that are restricting you from doing so? Please describe these briefly, ranked from most difficult to least difficult.

3j Is there any way of reporting more clinical information with the information that is being reported by you i.e. primary and secondary diagnosis? Would you organisation support this idea?

3k Value of data Vs Cost, how do you measure it. Is the running cost of the system an overhead in comparison to the value attained from the information collection and reporting?

3l What value do you see in reporting the complete and quality data to the ministry, how could you get more value for your data from the national system?

3m What are your thoughts around having in-house coders, from your own organisation's perspective? Does it add value to your own system?

3n What do you think could be motivating for your organisation to report complete and accurate information to NMDS?

     i.   Engagement at higher level

    ii.   Continuous Monitoring by the Ministry

   iii.   Technical support in initial set up

   iv.   Access to Ministry's shared record ie NHI, Immunisation system, Information related to Allergies

    v.   Any other technical support

   vi.   Performance reporting / other reports in terms of consumer satisfaction, success outcome containing comparative data amongst different hospitals.

  vii.   other pecuniary reward mechanism

4. Have stopped reporting now but have reported a partially completed dataset on a CSV file.

4a How many health specialties do you have in your hospitals?

4b How many patients / discharges do you have per month?

4c How many patients / discharges do you report per month?

4d Issues from most difficult to easiest behind lack of reporting (if any)

4e Do you share your discharge or patient information with other hospitals in their group (if there is one), or with the Private Hospital Surgical Association, or other research and monitoring organisations in NZ or internationally?

4f Do you have any contracts with DHBs and how does that work in terms of reporting? Would you prefer reporting in this case? If so, why? What advantages do you think this would hold for you?

4g What were the issues behind the cease in data reporting? Are these issues still relevant?

4h Do the issues exist at organisation / hospital level?

4i What level of reporting could you easily start or would prefer to start from your hospital / organisation perspective (manual / automated)?

4j Is there something Ministry could intervene with or help to resolve the issues?

4k What benefits do you see in reporting data electronically from your own organisation perspective? This may include patient history, patient outcome, and patient demographics.

4l What are your thoughts around having in-house coders from your own organisation perspective? Does it add value to your own system? If so how? If not why?

4m Value of data Vs Cost, how do you measure it. Is the running cost of the system an overhead in comparison to the value attained from the information collection and reporting?

4n What value do you see in reporting the complete and quality data to the ministry, how could you get more value for your data from the national system?

4o What are your thoughts around having in-house coders, from your own organisation's perspective? Does it add value to your own system?

4p What do you think could be motivating for your organisation to report complete and accurate information to NMDS?

    i. Engagement at higher level

    ii. Continuous Monitoring by the Ministry

    iii. Technical support in initial set up

    iv. Access to Ministry's shared record ie NHI, Immunisation system, Information related to Allergies

    v. Any other technical support

    vi. Performance reporting / other reports in terms of consumer satisfaction, success outcome containing comparative data amongst different hospitals.

vii.   other pecuniary reward mechanism

5. **Open ended questions for all hospitals**

5a What is the motivation for reporting the data? What value proposition are

you seeking from the Ministry?