ACCESS ECONOMICS

Performance of public and private hospital systems

Submission to the Productivity Commission

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Contents

Glossary

ABS	Australian Bureau of Statistics
AHCA	Australian Health Care Agreement
AR-DRG	Australian Refined Diagnosis Related Group
AWE	Average Weekly Earnings
AWOTE	Average Weekly Ordinary Time Earnings
GDP	Gross Domestic Product
GP	General Practitioner
ICU	Intensive Care Unit
MLS	Medicare Levy Surcharge
NHCDC	National Hospital Cost Data Collection
NHHRC	National Health and Hospital Reform Commission
OECD	Organisation for Economic Cooperation and Development
OPP	Out-of-pocket
PC	Productivity Commission
PHI	Private Health Insurance

Executive Summary

The private sector is a significant contributor to the Australian health care system, and is essential for the continued delivery of high quality and innovative health care services, where patients can exercise choice over key aspects of their care.

Private hospitals play an important role in the delivery of health care services. They represent 42% of all hospitals in Australia and deliver around 3.1 million separations each year. They provide high-end acute care services across all types of procedures; importantly, they offer timely access to elective surgery, thereby filling gaps in public hospital service delivery.

Private health insurers also make a significant contribution to the delivery of health care. Around 11.2 million people from all walks of life are covered by private health insurance products. In the last financial year, private health insurers spent $11.2 billion on benefits (PHIAC, 2009). Private health insurers also contribute significantly towards public hospital revenues through the funding of private patients in public hospital settings. For example, in 2007-08 private health insurers contributed over $530 million to public hospitals (AIHW, 2009a).

The complementary and substitutable nature of private health care means that the Commonwealth and jurisdictional governments save significant current outlays each year on delivering health care services as well as reducing its capital outlays on investment in public health capacity.

There are broad indicators that suggest the private sector is efficient in the funding and delivery of health care services. However, measuring efficiency precisely and gaining an understanding of why differences in efficiency occur are complex tasks. This submission highlights several issues the Productivity Commission (PC) is likely to face when trying to measure the efficiency of the hospital sector. These will require careful consideration when determining appropriate policy responses to resource allocation issues within the hospital system.

The issues include:

- the exclusion of allocative efficiency (the most appropriate organisation of resources across services) and dynamic efficiency (the most appropriate allocation of resources over time) from consideration in the PC's review;
- the inability of proposed cost indicators to capture quality of care and appropriately measure the performance of a hospital;
- the need to extend hospital performance measurement to other dimensions of care, such as effectiveness, appropriateness, accessibility, responsiveness, continuity, and capability;
- non-comparable outcome and cost data due to differences in the collection and interpretation of hospital data across public and private hospitals, and across jurisdictions;
- different roles of public and private hospitals, with the former providing free treatment to public patients, and the latter providing more choice and timely access to private patients;

- potential bias introduced through model misspecification and reduced power to find statistically significant parameters; and
- exclusion of supporting health care services that can affect hospital performance, both within a hospital and across the health care sector (e.g. capacity of a hospital to discharge a patient to more appropriate sub-acute care or primary care).

The use of relative efficiency indicators as intended in the PC's review seems too simplistic to deal with the complexity of the hospital sector. Even if public hospitals are found to be more efficient than private hospitals, or *vice versa*, the implications for policy are ambiguous given the different roles of each hospital type in the health care system and the need to maintain choice and equity.

This submission extends beyond the scope of the PC's review. It highlights current challenges facing the Australian health care system in meeting ever-changing health demands. Rather than asking which hospital type is more or less efficient, the submission proposes that the PC should investigate how Medicare Select, a proposed reform by the National Health and Hospitals Reform Commission (NHHRC), could provide a framework to promote the delivery of health care such that consumer preferences are met in the most efficient, equitable and sustainable manner.

Access Economics

1 The role of the private sector in the health care system

Australia has one of the best health care systems in the world, with quality health care being delivered at modest cost by comparison with some international health care systems. This has been achieved using a mix of interrelated public and private health care providers and funders.

The private sector is an essential component of the Australian health care system. It provides health care services through private inpatient hospital services and out-of-hospital medical practitioners such as general practitioners, specialists, and allied health care professionals. It also supplies pharmaceuticals, medical devices and prostheses. Furthermore, private health care funding finances a significant share of annual expenditure on health care, contributing around $28 billion (or 32%) of total revenue each year (AIHW, 2008a).

One of the largest components of the private sector is the private hospital industry. Private hospitals comprise various ownership types, including for-profit, publically listed groups and other independent non-listed organisations, and not-for-profit religious or charitable bodies and other types of not-for-profit organisations.

In 2007-08, there were 552 private hospitals in Australia, comprising acute and psychiatric hospitals and free-standing day hospital facilities, together representing around 42% of all hospitals in Australia (AIHW, 2009). Out of 84,000 beds provided by all Australian hospitals, private hospitals accounted for around 28,000. However, this masks the contribution to inpatient service delivery made by private hospitals as they provide a large proportion of same-day separations. For example, in 2007-08 the private sector provided 3.1 million separations from a total 7.9 million separations. Of the separations in private hospitals, 66% (or 4.7 million) were same-day separations compared to 50% for public hospitals (AIHW, 2009).

The private hospital sector is also a significant contributor to aggregate employment and economic growth. In 2006-07, private hospitals employed 49,103 staff and generated $7.5 billion in revenue, of which $7.0 billion was expended for recurrent purposes and $475 million on gross capital outlays (ABS, 2008). This represented 60% of all gross capital expenditure within the health care system for that financial year.

Private hospitals provide high-end acute care services across all types of procedures. For example, of the 660 different types of procedures performed within the hospital sector, private hospitals undertake 653. For procedures where waiting lists are long within the public sector, such as hip replacements, knee replacements and lens insertions, private hospitals provide the bulk of procedures (AIHW, 2009). In this respect, private hospitals substitute directly for public hospital services and improve the timeliness of patient care.

The private health insurance (PHI) industry also plays a significant role within the health care system through funding the purchase of private inpatient and out-of-hospital health care services in Australia. In 2007-08 there were 38 PHI operators, offering over 30,000 complying health insurance products (PHIAC, 2008). The PHI industry fills a financing gap by funding health care not covered by government. However, PHI regulation prevents private insurers from funding certain health care services and products.

PHI pays for services that would otherwise have been funded wholly by government and delivered in the public hospital system. In this way, PHI relieves budgetary pressure on the Commonwealth and jurisdictional governments.

A large proportion of the Australian population is covered by PHI. As of June 2009, 11.2 million Australians were covered by a PHI product (PHIAC, 2009). The most recent National Health Survey suggests that the majority of people with private health insurance earn below the national average annual personal income (ABS, 2009). Community rating ensures that premiums are not based on age (other than age of entry under Lifetime Health Cover) or health care expenditure risks, and that private health insurers cannot preclude anyone from purchasing any type of PHI policy.

Of those Australians covered by PHI, 9.7 million had Hospital Treatment cover, while the remainder had some form of General Treatment (ancillary) cover in the last financial year (2008-09). Furthermore, around 3.1 million hospital treatment episodes were covered with a total estimated benefit expense of $7.5 billion, along with 62.8 million general treatment services were covered with a total estimated benefit expense of $3.7 billion (PHIAC, 2009).[1]

The PHI industry also contributes significantly to total health care expenditure, funding around 7.3% of outlays each year (AIHW, 2008b). In the last financial year, $13.1 billion was collected in premium revenue, and around $11.2 million was spent on benefits (PHIAC, 2009).[2] Benefits for hospital accommodation and nursing, followed by medical benefits and prostheses were the highest categories of benefits paid. The remainder of the premium revenue was allocated to management expenses and profit before tax, with the latter accounting for around 3.1% of total premium revenue.

Private health insurers also contribute to public hospital revenue through private patients being treated in public hospital settings. In 2007-08, private health insurers funded 1.8 million public hospital days and 117,000 day-only stays within public hospitals, totalling around $452 million (PHIAC, 2008).

The significant use of private hospitals and private health insurance by the Australian population, and the willingness for Australians to pay out-of-pocket for private hospital services and PHI products, signals the value added by the private sector over and above public sector health care service delivery and funding.

Private hospitals offer timely access to hospital care. This is highly valued by many people given the long waiting lists in the public hospital system. For example, in 2007-08 around 10% of people on elective surgery waiting lists in acute public hospitals waited more than 234 days, while 3.4% of patients waited more than 365 days. For some specialties, an even greater proportion of patients had to wait. For example, 6.2% of people requiring ear, nose and throat surgery waited more than 365 days (AIHW, 2009). Treatment in private hospitals for most elective surgery procedures involves far shorter waiting times, reducing pain and discomfort to patients and the risk of clinical deterioration in their ailments. This obviously benefits patients

[1] These figures were estimated using company financial statements. As such they include benefits paid and liabilities incurred (PHIAC, pers. comm. 28 September 2009). Actual benefits paid for Hospital treatment and General treatment in 2008-09 were $5.7 billion and $2.8 billion respectively (PHIAC, 2009).

[2] This includes actual benefits paid and liabilities incurred.

but also the entire health care system, and has flow-on effects to the economy through improved workforce productivity.

Private hospitals offer additional choice, in terms of the treating hospital, medical specialist within the hospital, and the accommodation type (e.g. private rooms versus shared rooms). They also offer greater choice within elective surgery procedures that require a medical device or a prosthetic. Furthermore, competition induces private hospitals to offer greater flexibility in meeting changing health care needs and stimulates innovation in the use of health technology and the management of the health care continuum.

The PHI industry provides significant value added over out-of-pocket expenditure and public financing of health care. These additional benefits are delivered either through complementary services, where insurance covers services not offered within the public system, or supplementary services, where PHI provides a higher level of care.

Through the PHIAC-administered risk equalisation scheme and community rating, PHI offers discounted PHI products to people expected to be high users of the health care system, such as the elderly and those with a chronic condition. This translates directly into increased access to private hospital services as those receiving benefits effectively experience a reduced premium. Similarly, PHI offers greater access to additional out-of-hospital health care services not funded by public sector funding, including dental, chiropractic, physiotherapy, optical, and ambulance services. These high users of the private health system can pay around a quarter of the premiums their counterparts pay in the UK and the US.

Heavy regulation of the PHI industry has resulted in relatively homogenous PHI products offered on the market (in terms of the services and products that can be covered). However, the industry has recently invested in other ways to add value to the health care system. For example, there have been significant investments in co-ordinating care across alternative health care services among PHI funds, including a greater focus on prevention, chronic disease self-management and corporate wellness.

The process the PHI industry uses to purchase health care services from private hospitals and other health care providers introduces competition within the health care sector and generates an incentive to reduce cost growth and improve health care quality. As such, there are broad indications that private hospitals are an efficient supplier of health care services when compared with public hospitals. For example, the PC's draft report on public and private hospitals (the 'Draft Report') finds that almost 75% of surgical diagnostic related groups (DRGs) had a lower cost in private hospitals compared to public hospitals, and nearly half of all DRGs investigated had higher average costs in public hospitals of greater than 10%.[3] The Draft Report also finds that private hospitals have lower infection rates and lower rates of adverse events, leaner staffing levels and exhibit shorter lengths of stay (PC, 2009).[4]

Gaining a true understanding of relative hospital efficiency and the factors that drive improved efficiency is a complicated task. It requires detailed input data (such as costs) and output data (such as hospital outputs and health outcomes) that are comparable across hospitals, and tools

[3] The Draft Report also indicated that around 20% of DRGs had a lower cost of at least 10% in public hospitals when compared to private hospitals.

[4] These results are only experimental and should be considered in the context of the Draft Report's qualifying statements on the limited comparability of data between public and private hospitals.

that can appropriately measure efficiency and identify reasons why one hospital might be more efficient that another.

Although the PC is commended for investigating such an important and multifaceted topic, we believe that complexities with the analysis need to be addressed if appropriate policy conclusions are to be drawn on whether one type of hospital ownership is more efficient than another.

These include:

- defining efficiency;
- using appropriate indicators of performance;
- comparability of data;
- accounting for differing roles of public and private hospitals; and
- alternative methods for estimating efficiency.

These issues are further explored in Chapter 2 of this submission. We conclude that, as a result of the paucity of comparable quality data, the PC will be unable to achieve the level of robustness required to reach firm policy conclusions regarding a reallocation of resources within the hospital sector to improve efficiency.

2 The Productivity Commission's hospital performance study

Since health care resources are scarce and demand for health care is increasing, efficiency is of paramount importance for the future sustainability of the Australian health care system. Quite simply, a more efficient system can treat more people and deliver a higher average quality of care. Allocating resources to where they are deployed most efficiently is an unambiguously desirable policy objective, albeit one among many competing objectives.

However, several issues need to be addressed within the PC's review if appropriate policy conclusions regarding efficiency within the hospital sector are to be drawn. Our intention in this chapter is not to be prescriptive but to ensure that attention is drawn to some major obstacles to making reliable and consistent conclusions regarding the relative efficiency of public and private hospitals.

2.1 Defining efficiency

In its broadest sense, health care efficiency is a measure of the relationship between health care outputs and inputs. Outputs include health care services themselves and other health care system attributes, such as access to care, choice, and continuity of care. Inputs comprise resources used to produce health care services, such as labour (e.g. doctors, nurses, allied health care workers, administration staff, etc), infrastructure (e.g. medical equipment, and buildings), and land.

Three definitions of efficiency are used to evaluate health care: technical (productive) efficiency, allocative efficiency, and dynamic efficiency. Each is important for improving social welfare but each requires different measurement techniques and leads to different policy responses.

Technical efficiency is defined as producing outputs at the lowest possible cost. In more theoretical terms, a technically efficient health care provider lies on its 'production possibilities frontier'. A health system that is more technically efficient produces the same amount of outputs using fewer inputs into production. Alternatively, a more technically efficient health care system produces more outputs for the same level of inputs.

The definition of efficiency proposed in the PC's Issues Paper specifically relates to technical efficiency. This is apparently considered the most relevant measure in evaluating the relative performance of hospitals.

However, technical efficiency is concerned with the delivery of a specific health care service (or group of services) and does not take into account whether resources could provide a greater benefit if allocated elsewhere in the health care system. Given that resources available for health care are scarce, choices need to be made as to how to allocate resources across the health care system. This question is best addressed by measuring allocative efficiency.

Allocative efficiency is defined as providing the maximum net benefit from a health care system for a given level of resources. An increase in allocative efficiency occurs when a change in the allocation of resources results in a higher level of net benefit to society. In a health care system with limited resources, an 'optimal' resource allocation is one where no alternative resource allocation could deliver higher net benefits.

Allocative efficiency is clearly relevant to the hospital sector and its consideration should be incorporated as part of the PC review. This might include (but not be limited to):

- the allocation of resources across different types of health care provided by hospitals, such as inpatient services, outpatient services and hospital-in-the-home care;
- an assessment of whether lengthy waiting times in the public hospital system is a cost effective method of delivering hospital care given the cost to individuals, employers, families and the economy;
- the allocation of resources across alternative types of health care technologies, such as medical devices, diagnostic techniques, pharmaceuticals, health promotion activities, and co-dependent technologies;
- substitutability and complementarity of inpatient care with other types of care, such as primary care facilities, in-home ambulatory care, and rehabilitation services; and
- an investigation of the value consumers place on different health care services (not just the cost of providing those services in different institutional settings), including basic services and extended services (e.g. choice of specialist and individual patient rooms).

Technical and allocative efficiency are both static measures of efficiency. However, investing in research and development (including education) can generate technological change and influence levels of technical and allocative efficiency over time. Dynamic efficiency measures the optimality of health care investments over time. A hospital's ability to capture the surplus generated by investing in new technologies is a key determinant of the dynamic efficiency of its operations.

Since health care needs and preferences are constantly changing, the dynamic efficiency of hospital systems is a pressing issue and should fall within the scope of the PC review. For example, regulation of the private health insurance market may weaken incentives for funds to innovate, thereby affecting demand for care and diminishing the supply of new initiatives in private hospital care delivery, with flow-on effects to the public sector. For example, the PHI industry cannot reward customers who take action to maintain or improve their health. Innovation in the public sector may also be reduced if government funding is too prescriptive.

Investigating dynamic efficiency would also allow the PC to assess whether current levels of research and development within the hospital system are appropriate, and whether they are aligned with clinical areas where R&D can deliver the greatest benefit. By ignoring dynamic efficiency, the PC review may inadvertently support policies that improve the hospital system in the present at the expense of welfare gains that might be achieved in future.

Stepping back to view the horizon reveals that the PC review focuses on hospital care at a moment in time, whereas the forecast over the next generation indicates 70% of health care costs will be absorbed in the non-hospital or pharmacy care sector. For example, the NHHRC reform agenda emphasised pressure on hospitals would be most effectively reduced through action to strengthen services outside the hospital. Chronic disease and the need for care coordination should have productivity measurement centred on relationships between GPs, pharmacy and other allied health professionals and not on acute hospital care.

2.2 Indicators of performance

The PC notes that hospital and medical costs for clinically similar procedures (based on the Australian Refined Diagnosis Related Groups or 'AR-DRGs') will be used as partial performance indicators for hospital services. However, a simple comparison of costs across selected AR-DRGs does not measure the relative performance of a hospital. Performance is determined by measuring the quality of services delivered for a given level of cost.

Using cost measures can lead to erroneous conclusions about the relative efficiency of hospitals. For example, a more costly hospital may be deemed a poor performer when it is actually performing better than other hospitals measured against the quality of care delivered and the resulting health outcomes. Using a relative cost comparison to measure performance can bias decisions in favour of low-cost providers of hospital services, regardless of the cost effectiveness of those services.

Conclusions derived from cost indicators (and all performance indicators) are complicated by variations in the severity of conditions and co-morbidities within each procedure. Health outcomes depend on a multitude of factors in addition to inpatient care, such as the demographic and case-mix profile of the patient, and health behaviour after a hospital separation. These need to be considered when measuring the performance of a hospital. A hospital that is found to be high cost with below average health outcomes may be performing well when proper account is taken of the complex case-mix in the population it services, for example, one with a high number of chronic conditions or which exhibits a number of co-morbidities (e.g. diabetes and obesity).

Hospital performance extends beyond health outcomes. A distinction can be drawn between curing and caring, with the latter less appropriately measured through resulting health outcomes. A change in welfare is a better indication of quality of care. Furthermore, government health care officers, hospital management teams, and individual hospital workers pursue multiple objectives in delivering services that are not directly related to health. For example, one objective is to provide care in a timely fashion. For hospitals that offer emergency care, another objective is to ensure sufficient excess capacity since the presentation of emergency patients is variable and unpredictable.

Dimensions of care other than productivity are also recognised within the National Health Performance Framework (NHPC, 2001) and the health component of the Report on Government Services (SCRGSP, 2009). These include effectiveness, appropriateness, efficiency, accessibility, responsiveness, continuity, capability, safety, sustainability, and equity. The NHHRC developed its own set of performance benchmarks for use in the Australian Health Care Agreements, which are based on 12 identified health and health care challenges (NHHRC, 2008). Furthermore, international health care systems strive to measure performance across other dimensions, such as consumer participation in decisions, patient or carer experience, prevention, and respect (OECD, 2000).

Measuring the performance of hospitals should be based on meeting society's health care preferences more broadly, including health outcomes and additional attributes of care valued by consumers, family and friends. But this is a difficult task and beyond the purview of the PC, as there are no reliable Australia-wide data that allow direct comparison of non-health outcomes across hospitals.

Further work is needed to develop performance indicators that appropriately measure health and non-health attributes of care, along with investment in the collection, analysis, interpretation, and dissemination of hospital performance data – for both public and private hospital systems.

The use of reliable performance data within a performance measurement and management cycle could generate significant benefits for the health care system and for different types of stakeholders. As evident in the United States, health care providers could use performance information to improve the appropriateness of care, identify poor performance and industry best practice, and to inform change within hospital processes and structures so as to improve performance and increase responsiveness (OECD, 2002).

Furthermore, reliable performance information is useful for purchasers of health care, including public funding bodies and private health insurance providers. It allows them to better inform their purchasing decisions in comparing quality and price, and therefore empowers consumers. This will provide additional benefits through an incentive for providers to increase quality given they face a more informed purchaser.

Finally, policy makers and regulatory bodies are likely to find reliable performance information useful in setting policy and monitoring changes within the health care system once policy has been implemented. Financial incentives can also be introduced to the hospital sector by setting targets and measuring outcomes against these targets.

2.3 Comparability of data

Although small scale studies have compared the efficiency of hospitals within specific Australian regions, to date there has been no large scale study of hospital performance across Australia. This is probably due to limitations with the quality and quantity of data available to researchers.

As an ideal, an appropriate measure of relative hospital efficiency requires reliable measures of a change in health status resulting from health care delivered within a hospital. This is because other factors beyond hospital care affect health status (e.g. health behaviours and adherence to rehabilitation plans outside the hospital) and these need to be isolated. It also requires measures of non-health hospital outputs.

The PC proposes to investigate 'relevant' indicators of hospital performance, including unplanned re-admissions and returns, selected adverse events, accreditation, responsiveness (through patient satisfaction), access to care, and the average length of stay of the hospital relative to other hospitals (the relative stay index). While these indicators have been used by the PC in its *Report on Government Service*s, they are generally incomplete and unreliable measures of hospital performance.

- Unplanned re-admissions and returns and adverse events may not indicate ineffective or unsatisfactory treatment but may instead reflect inappropriate patient behaviours beyond the control of the hospital. The low adherence to rehabilitation after cardiac surgery across some hospitals is one telling example of this possibility (Access Economics, 2009). Furthermore, these indicators are not adjusted for alternative case-mix or patient risk factors and so are not directly comparable across hospitals.
- Accreditation relies on records of policies and processes rather than actual observations and measurements of quality outcomes. As noted by the PC itself, 'it is not possible to

draw conclusions about the quality of care in those hospitals that do not have accreditation' (PC 2009a, pp. 10.50).

- Patient satisfaction surveys generally measure the responsiveness of the hospital to patient needs. However, they are not directly comparable across jurisdictions because they have not been standardised (SCRGSP, 2009).
- Access to care measures the ability to use hospital services ('curing') rather than the ability to achieve good health through quality care ('caring').
- The average length of stay provides no indication of the quality of care provided. For example, a longer period of stay may be due either to better quality of care or alternatively to a preventable adverse event.

Given the importance of adequate hospital performance indicators in measuring and monitoring health care quality and efficiency, further research is needed to develop more appropriate outcome-focused hospital performance indicators. Rather than developing new performance indicators around current data sources (an activity recently completed by the NHHRC (2008)), the database should be reviewed to ensure that data being collected is meaningful for the purposes of comparing performance across hospitals in both the public and private sectors and to consider whether new data needs to be collected.

There are also concerns about the comparability of cost data across public and private hospitals. Public hospitals (and some charitable, not-for-profit private hospitals) are exempt from State payroll tax and local government rates, as well as enjoying concessional fringe benefits tax arrangements, whereas private hospitals face these taxes. There are significant management overheads in the public system because of the large administrative structures which oversee public health care, and the associated demands for information and accountability by central agencies at Commonwealth and jurisdictional levels.

Different jurisdictions have different arrangements in place for public hospitals to access capital. In general, public hospitals have favourable borrowing arrangements, underpinned by the debt ratings of the relevant jurisdictional government. Furthermore, most jurisdictions do not require public hospitals to account for the cost of capital, or require a return on invested capital. Private hospitals explicitly incorporate the cost of capital within total cost. They also need to generate a return on investment commensurate with their market risk. Alternative measures of the cost of capital will affect the perceived level of relative efficiency within the hospital sector.

These issues complicate a direct comparison of technical efficiency between public and private hospitals. The gradual move to full activity-based costing including capital expenditure will make comparisons easier but, considering the PC review is retrospective, significant adjustments to cost data will be needed to ensure a valid comparison of 'apples with apples' given the current state of play.

2.4 Different roles of public and private hospitals

The primary role of public hospitals is to provide emergency care services and free hospital care.[5] As these services are unplanned, and resources must be placed on stand-by for such

[5] Private hospitals also supply emergency care services. For example, in 2006-07, 47 private hospitals treated accident and emergency cases, and 24 of these had formal emergency departments (PC, 2009).

occasions, there is some offset in measured efficiency (unless efficiency is more broadly defined). For example, providing emergency services for complex cases requires significant resources to be available, such as empty beds and specialist medical teams, at short notice.

Associated with the requirement to accept emergency patients is the inefficiency generated from multiple cancellations and rescheduling of procedures within the public hospital sector. This is not due to the types of patients being treated through emergency care, but through poor management of hospital resources. This has a negative impact on the use of valuable resources, such as additional time and further tying up resources associated with rescheduling. Furthermore, it inconveniences the patient, which is a direct cost excluded from the PC's proposed methodology. Although a significant number of larger private hospitals have emergency centres, multiple cancellations of procedures are less common in the private hospital sector given the more planned nature of hospital services. This is consistent with the NHHRC recommendation that some separation of emergency and planned procedures would lead to gains in efficiency (NHHRC, 2009).

Many public hospitals have a research and teaching role, which adds costs to the public sector, and the extent to which this is included in estimates of public hospital inpatient cost is unclear. Significant numbers of staff specialists in a teaching hospital devote a substantial proportion of their time to teaching, research, clinical management and service to specialist societies and professional colleges. These costs are also not distinguished from the general budget of public hospitals. However, research and teaching do provide additional benefits to a hospital by granting access to students, collaborative research facilities, and personnel to undertake some tasks (at a small internalised cost).

Research and teaching are not the exclusive domain of public hospitals, and the private hospital system is becoming more involved in these roles. For example, the private sector is estimated to spend around $35 million per year on training, while in the financial year 2007-08 Ramsay Health Care trained 6,020 undergraduate health care students and provided over two million clinical placement hours to undergraduate nursing and medical students (Ramsay Health Care, 2009).

Notwithstanding, without extensive cost comparisons, the net difference in costs after accounting for research and teaching is difficult to ascertain. For example, a public teaching hospital may have six registrars, three of whom are undertaking research for 50% of their time and yet are costed as part of service delivery through lack of a well-defined system of separately quantifying costs of teaching and research. The NHHRC has recommended the introduction of dedicated activity-based payments to enhance clinical education and training and to promote innovation (NHHRC, 2009).

2.5 Proposed methods of estimation

The PC proposes to use two well known multivariate frontier techniques, namely, data envelope analysis and stochastic frontier analysis. Although these techniques are well recognised within the health economics literature, and have been used to measure hospital efficiency in Australia and internationally, they suffer a number of limitations.

The success of frontier techniques in measuring hospital efficiency depends on the availability of suitable data. To detect statistically significant differences in hospital efficiency, a large sample with data collected over time is required.

A larger sample will capture more variation in hospital efficiency across Australia, providing greater power to determine statistically significant model parameters. Collecting data over time allows for unexpected expenditures within a hospital to be incorporated within the model (e.g. through capital investment or a temporary high level of unobservable disease severity such as swine flu), and the important time dimensions associated with health outcomes. It can also identify trends in hospital efficiency, such as whether an inefficient hospital was more or less efficient in the past.

Sample sizes will decrease significantly once public and private hospitals are disaggregated into various categories, such as jurisdictions, regions, and peer groups of similar sized hospitals. The power of frontier techniques to find statistically significant parameter estimates will decrease as the sample size diminishes.

Pooling hospitals together in order to avoid small sample sizes is no solution and leads to further problems in estimation. Pooling is likely to generate specification bias within the parameter estimates and composed errors as the true cost function of different hospitals types will differ. For example, the cost function for public hospitals will be different from that for private hospitals given differences in services offered, and the different roles each type of hospital plays (see Section 2.4 above). Similarly, a private hospital in a rural area is likely to have a different cost function from a private hospital in a capital city.

The PC proposes to capture the heterogeneity of hospital outputs and associated health outcomes (quality of care variables) by using in-hospital mortality or the number of separations involving adverse events. These are poor indicators of quality of care as they are a function of more than just the curative procedures undertaken in hospitals. Furthermore, quality of care related to morbidity outcomes (e.g. cataract surgery and hip replacements) will not be captured. These indicators also do not capture other health care dimensions related to quality.

The cost of hospital care will also depend on the support network surrounding a hospital, with greater support improving the efficiency of hospitals. The PC has not addressed how it intends to incorporate differences in access to primary and community care that affect hospital efficiency. For example, hospitals operating in an environment where primary care and community care services are relatively rare will have a reduced capacity for discharging patients to more appropriate care settings.

Such hospitals are likely to be more costly as longer episodes of care must be provided within the hospital. Higher costs do not always represent inefficiency on the hospitals' part so much as an allocative inefficiency within the wider health care system. Even if non-hospital resources are available, the lack of care coordination within a health care region will also undermine health care outcomes and reduce the perceived efficiency of the hospital system.

A similar complication results from the sometimes reduced access to planned resources within the public hospital system. For example, the performance of public hospitals may be affected by various limitations on access to resources due to interruptions by emergency cases. This could be particularly relevant in periods of pandemics, such as the recent swine flu. The PC has not recognised that supply-side constraints within hospitals may compromise efficiency.

Results from the frontier techniques will provide an indication of how far a particular hospital operates from the efficient cost frontier. The further away from the frontier, the more

inefficient a hospital will be deemed relative to the rest of the sample. However, the measurement of inefficiency is represented by only one model parameter. This is a blunt instrument for policy purposes because it does not indicate why a hospital, or hospital type, is less efficient. Moreover, it provides no indication of how efficiency can be improved within the hospital sector.

2.6 Conclusion

In theory, an analysis of relative efficiency within the hospital sector provides an opportunity to identify the relative performance of each hospital, and to reallocate resources in favour of hospitals that are more efficient. There is also scope to set performance targets for subsequent funding negotiations.

However, theory and practice often diverge. Given the issues outlined in this submission, it is difficult to imagine how results from the PC review could be interpreted appropriately or used to inform policy in any meaningful way. The Draft Report has already indicated that data comparability is poor across public and private hospitals, mainly due to inconsistent collection methods and missing information. This is acknowledged as limiting the usefulness of the experimental results in drawing any conclusions regarding public versus private hospital efficiency (PC, 2009).

On the one hand, even if private hospitals were categorically found to be more efficient than public hospitals, there would still be a role for public hospitals, including inpatient care at no cost to the patient. This is particularly important for the most disadvantaged patients and for the maintenance of universal access. On the other hand, even if public hospitals were categorically found to be more efficient than private hospitals, it does not follow that public hospitals should therefore play a greater role in the delivery of health care services. Other models of delivery not covered by the PC review may be more efficient, including, for example, a greater focus on community based care.

Furthermore, private hospitals offer a choice of health care services to consumers. People generally value the option to choose between public and private services. Removing choice in hospital care will erode the significant amount of revenue the private sector contributes to the hospital system each year. For example, the private sector spent around $11.3 billion in 2007-08 on public and private hospitals, patient transport services and medical services (AIHW, 2009a).[6]

Straight efficiency comparisons tell only part of the story. A 'one size fits all' approach through the use of relative efficiency indicators is too simplistic to deal with the complexity of the hospital sector. It is highly likely that private hospitals are more efficient in some areas, while public hospitals are more efficient in others. The challenge for health care system reform is to improve their complementary contribution in order to meet our national health needs as the population ages.

The PC's Draft Report suggests the Review is unlikely to constitute a reliable basis for assessing relative hospital efficiency and performance for public policy purposes. At best a clearer path to developing a comprehensive, comparable, relevant and reliable dataset for policy purposes might emerge. We commend the PC for recommending the development of a nationally consistent data reporting framework for public and private hospitals. This should extend

[6] The private sector also spent $21.1 billion on dental services, other health practitioners, community health public health, medications, aids and appliances, administration, research, and capital expenditure (AIHW, 2009a).

across hospital costs and outputs. Such a dataset should measure individual public and private hospital performance across multiple dimensions over time. While highly desirable for the purposes of designing an optimal health care delivery system in Australia, the collection of the data should nevertheless strive to avoid unnecessary administration costs and be independently audited.

Information is powerful - what gets measured gets done. Care should be taken in the process of data collection to avoid creating adverse incentives for behavioural change among policy makers, hospital management and staff.

Measuring hospital efficiency is highly complex and goes well beyond measuring technical cost differences. Greater efficiency gains could be achieved by restructuring the roles of public and private health care financing such that consumer and producer incentives are better aligned with what society actually wants out of its health care system. Rather than asking which hospital type is more or less efficient, the PC should ask what is the best health care system structure that delivers consumer oriented health care in the most efficient, equitable and sustainable manner?

3 Indexation of the Medicare Levy Surcharge

The Medicare Levy Surcharge (MLS) was introduced in July 1997 to help reverse the decline in private health insurance membership and support the viability of private health care more generally. The income thresholds had remained unchanged at $50,000 for individuals and $100,000 for families for around 12 years, based on the total of taxable income including total reportable fringe benefits (so that taxpayers cannot avoid or minimise the surcharge through salary packaging). The Commonwealth government increased these thresholds to $70,000 and $140,000, respectively in 2008.

Under fixed thresholds, the increase in taxable income over time meant that more Australians were obliged to purchase private health insurance if they wished to avoid the MLS. Changes to the MLS income thresholds were invoked by the Commonwealth government to address the increase in the proportion of Australian workers captured by the threshold, and to refocus the legislation on 'high' income earners. Accordingly, amendments also included an indexation of threshold amounts to Average Weekly Ordinary Time Earnings (AWOTE). The thresholds were indexed at the start of July 2009 to $73,000 and $146,000.

The PC concludes within its Draft Report that AWOTE is the most appropriate indexation factor (PC, 2009). However, the Australian Bureau of Statistics (ABS) acknowledges problems in relation to the survey based AWE and AWOTE measures. For example, they are significantly affected by changes in the composition of employment. Alternatively, the Labour Price Index (LPI) (Cat No 6345.0) accounts for such compositional changes and may therefore bear a closer relationship to the income experience of the typical household. We submit that the PC should reconsider its preference for AWOTE over the LPI as the most appropriate indexation factor for the MLS income thresholds.

4 Future health care reform for enhanced productivity

The Australian population is expected to grow significantly, from approximately 22 million people in 2009 to a high estimate of 42 million people by 2056 (ABS, 2008a). In addition, Australia's population will continue to age due to sustained levels of low fertility and increased life expectancy.

Population growth and ageing will place significant pressure on the health care system. Not only will there be more people demanding health care services, health care needs will change due to a different mix of health conditions as society ages. Although cancer will continue to constitute the largest burden of disease, conditions that are typically experienced by the elderly, such as dementia, hearing and vision loss, and osteoarthritis, are expected to contribute a greater proportion to the total burden of disease in the future. This will increase demand for health care service delivered within non-hospital contexts. However, demand for inpatient acute care is also expected to grow due to growth in obesity and its associated co-morbidities such as diabetes and cardiovascular disease (AIHW, 2007).

Based on the current structure of the health care system, the Australian Institute of Health and Welfare (AIHW) estimates that by 2033 total health and residential aged care expenditure will be around $246 billion per annum (in 2006-07 dollars) and constitute 12.4% of GDP (AIHW, 2008). This is up from around 9.5% of GDP today. The bulk of the increase is expected to occur through an increase in the volume of services provided per treated case, accounting for around $81 billion, or 50%. Population ageing is expected to contribute $38 billion to the increase, while population growth is expected to contribute $34 billion. Excess health price inflation and net disease rate changes will also increase total expenditure.

An increase in overall health care spending may not be a problem in itself. Many countries currently spend more on health care as a proportion of GDP than Australia does. We are ranked 11th among 30 OECD countries when comparing health care expenditure as a proportion of GDP, with countries such as the United States, Switzerland, France, Germany, and Canada spending a significantly higher proportion of GDP on their health care systems (OECD, 2007). Thus an increase in overall spending on health care should be considered within the context of health care outputs and health outcomes, and the willingness of the taxpayer and government to fund additional public services.

However, there are current problems with the health care system that will impede society's capacity to meet changing health demands in an efficient, equitable, and sustainable manner. Some of these include (but are not limited to):

- inequity in access to health care services across ethnicity, health conditions, socioeconomic factors, hospital services, and locations;
- lack of immediate incentives for individuals and the private sector to invest in the prevention of and early intervention in poor health conditions;
- limited information within the health care system, especially regarding quality of care (e.g. no reliable publically available information on the quality of hospitals);
- limited choice for patients across alternative models of care (e.g. inpatient versus out-of-hospital services for the chronically ill);

- care co-ordination across different types of health care services is limited, especially within the public sector;
- payment structure and governance arrangements within the public hospital system reduce incentives for efficiency and responsiveness (e.g. supply is not contested);
- *ex post* moral hazard by the consumer and provider continues to place upward pressure on health care expenditure;
- Commonwealth and jurisdictional governance arrangements are cumbersome, administratively burdensome, create adverse cost shifting, and can expose consumers to discontinuities in health service provision; and
- regulation of private health insurance restricts competition and innovation within health care funding (e.g. regulation restricts PHI from covering some health care services and products, thereby reducing the capacity for PHIs to tailor insurance contracts to consumer needs).

The National Health and Hospital Reform Commission (NHHRC) has recognised some of these problems and offered directions for future health care service delivery and governance (NHHRC, 2009). In particular, the NHHRC recognised that other health care service delivery models are of paramount importance to delivering efficient health care services that are valued by consumers. Their recommendations aim to address unequal access to health care, lack of investment in prevention and early intervention, lack of primary and community care facilities, and fragmentation of health care information and delivery.

The NHHRC also discusses alternative financing and governance arrangements under the rubric of 'Medicare Select'. The structure of health care financing can play an important role in providing incentives for providers and consumers to behave in a manner that maximises health care system benefits while still adhering to fundamental equity principles.

As society ages, greater scope, choice and speed of access are demanded. We believe the dual objectives of delivering quality and accessible health care to everyone, while ensuring that services are appropriate to an individual's demands, can best be met by a mixed (and complementary) system of public and private financing and provision.

The role of mixed public and private financing in delivering choice within health care is evident in international trends as well (OECD, 2007). Countries where health care systems have been publicly financed for the most part are increasing the share of private financing, through out-of-pocket payments and third-party payment arrangements such as private health insurance and employer contributions. Countries with health care systems that have a greater proportion of private financing are increasing their public share, from consolidated revenue or hypothecated levies.

The NHHRC recommends investigating an evolution to Medicare Select within our current health care system and suggests some areas that could be extended to better promote choice and efficiency. Medicare Select represents a promising approach to reforming Australia's health care system. Rather than the narrow and complex question of the relative efficiency of public and private hospitals, fleshing out Medicare Select, with its promise of a greater role for patient choice and articulation between public and private funders and providers, should be the focus of the PC's investigations.

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