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# OVERVIEW

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## Key points

- Although there is significant diversity within and between the public and private hospital sectors, there are sufficient similarities to warrant comparing them, ideally in a way that takes account of differences in the services provided and patients treated.
- Existing datasets on hospital costs are limited by inconsistent collection methods and missing information. The Commission has sought to address these limitations by drawing on various data sources and incorporating adjustments to make the data more comparable. Nevertheless, the resulting estimates should be considered experimental.
- The Commission's experimental cost estimates suggest that, at a national level, public and private hospitals have similar average costs. However, significant differences were found in the composition of costs. General hospital costs were higher in public hospitals. Medical and diagnostics costs and prostheses costs were higher in private hospitals. Capital costs were higher in public hospitals, but this result is particularly reliant on a range of data sources and adjustments to make the data comparable.
- Australia does not have a robust nationally-consistent data collection on hospital-acquired infections. The limited available evidence suggests that private hospitals have lower infection rates than public hospitals, but this result could be misleading because private hospitals on average treat patients who have a lower risk of infection.
- Other partial indicators show that:
  - private hospitals have higher labour productivity and shorter lengths of stay than public hospitals, but this is at least partly due to casemix and patient differences between the public and private sectors
  - elective surgery in public hospitals is more accessible for disadvantaged socioeconomic groups, but tends to be less timely than in the private sector.
- A multivariate analysis of hospital-level data suggests that the efficiency of public and private hospitals is, on average, similar. The output of individual hospitals in both sectors is, on average, estimated to be around 20 per cent below best practice.
- Improvements could be made to data collections to improve the feasibility of future comparisons. Foreshadowed changes under the National Healthcare Agreement will help in this regard, but more improvements could be made, such as consistent national reporting of costs and infections for both public and private hospitals.
- Only a small proportion of patients incur out-of-pocket expenses without receiving sufficient prior information to give informed financial consent. The medical profession has facilitated best practice by educating practitioners and using internet-based packages to inform consumers.
- The most appropriate indexation factor for the Medicare Levy Surcharge income thresholds is average weekly ordinary time earnings.

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# Overview

This study examines three aspects of Australia's health care system:

- the relative performance of public and private hospitals, with particular regard to the cost of performing clinically-similar procedures and the rate of hospital-acquired infections
- rates of informed financial consent and out-of-pocket expenses for privately-insured patients in public and private hospitals
- the most appropriate factor for indexing the Medicare Levy Surcharge income thresholds.

The first task — comparing the relative performance of hospitals — has been the most challenging part of the study, particularly in the short time available. This is because hospital complexity and diversity make like-for-like comparisons difficult, and existing data collections are not well suited to the task.

Hospitals are complex organisations, with many essential services delivered by a range of health professionals in a location supported by available technologies, with management oversight and administrative support. This makes comparisons particularly challenging, especially to distinguish genuine differences in performance from variation caused by differences in what hospitals do and who they treat.

Study participants emphasised the importance of taking account of:

- variations in the types of services that hospitals provide, recognising that some hospitals provide more complex health services that are relatively costly to provide and are inherently more risky for patients
- the resource and service implications of providing emergency services (including the need to keep staff and facilities on standby) and clinical training (which can affect the rate of patient throughput), with its potential impact on efficiency and service quality
- the impact of patient characteristics on the performance of public and private hospitals, recognising that patients with more complex conditions and those from lower socioeconomic groups are likely to require more intensive and

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expensive health treatment and be more susceptible to hospital-acquired infections

- the additional tax burden that for-profit hospitals face compared to public and not-for-profit hospitals.

Existing datasets have made the task of robust comparison more difficult, with data often defined and collected in different ways between the public and private sectors. To the greatest extent possible, the Commission has sought to adjust for these differences in providing estimates of hospital performance that are as robust and comparable as possible. However, the Commission also readily acknowledges that a number of significant data shortcomings has limited its ability to construct fully comparable estimates.

A common theme throughout this report is that improvements could be made to data collections to improve the feasibility of future comparisons. Foreshadowed changes — such as strengthened national reporting under the new National Healthcare Agreement (NHA) between the Australian, State and Territory Governments — will help in this regard. However, more improvements could be made, such as adopting consistent national reporting of costs and infections across both public and private hospitals.

The Commission encountered significant delays in accessing hospital-related data for this study beyond what could reasonably be expected to address legitimate privacy or confidentiality concerns. Making these data more accessible to a range of users could drive improvements in health care, especially as competitive markets only have a limited role in the health sector. It could also encourage future improvements in data collections.

The community fully meets the cost of data collections in the public hospital sector — including national statistical collections compiled by the Australian Bureau of Statistics (ABS) — and, through public and private contributions to the cost of private hospital care, also contributes to the cost of data collections in the private sector. There is a strong case for maximising the benefits that the community achieves from the data it has paid for. More extensive research and analysis of these data collections could deliver significant improvements in the efficiency and effectiveness of health care.

## **Australia’s public and private hospital systems**

Australian hospitals are part of a comprehensive system of services that together contribute to the nation’s health outcomes. Australia spends about 9 per cent of its

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gross domestic product on health care, and hospital services account for around one-third of this. There are currently 768 public hospitals and 556 private hospitals, providing 4.7 and 3.1 million episodes of care respectively for admitted patients in 2007-08. The main service provided by hospitals is the treatment of acutely ill people, but many also provide a range of services to the wider community, including radiology and pathology and outpatient care (such as rehabilitation and physiotherapy).

Governments have assumed responsibility for delivering public hospital services in Australia, largely to ensure equity of access. While the provision of services is undertaken by state and territory governments, funding is shared with the Commonwealth Government. Some public hospitals are operated by religious or charitable organisations. Public hospitals are required to provide free treatment to public patients, and are also assigned specific functions under the NHA, including the provision of emergency services, clinical teaching and research, and equity of access. Given that they are funded primarily by governments, the operational incentive for public hospitals is therefore to manage demand within the given budget constraint. Non-price factors, such as elective surgery waiting lists, serve as the 'escape valve' that absorbs excess demand. Additionally, public hospitals face growing community expectations concerning access to hospital services.

Private hospitals do not have the same degree of service obligations as public hospitals, and have more scope to raise revenue from fees. The incentive for private (particularly for-profit) hospitals is to generate returns on their capital investment and labour force, for the benefit of owners/shareholders. However, not-for-profit private hospitals may be more strongly driven by other objectives. Around 60 per cent of private acute and psychiatric hospitals operate on a for-profit basis, while the remainder are run by not-for-profit bodies, such as religious and charitable groups.

Diversity exists not just between the public and private sectors, but also within them. For example, while many large metropolitan public hospitals provide a full range of services and have a large teaching role, many small public hospitals in remote areas offer fewer acute services and may be called upon to deliver other health services, such as primary care and aged care, to regional and remote communities. Many private hospitals specialise in a limited range of surgical procedures, although some offer services akin to the large public hospitals, including an increasing share of the clinical teaching load.

Private hospitals tend to be concentrated in major cities. In comparison, public hospitals are more widely distributed across the country (table 1).

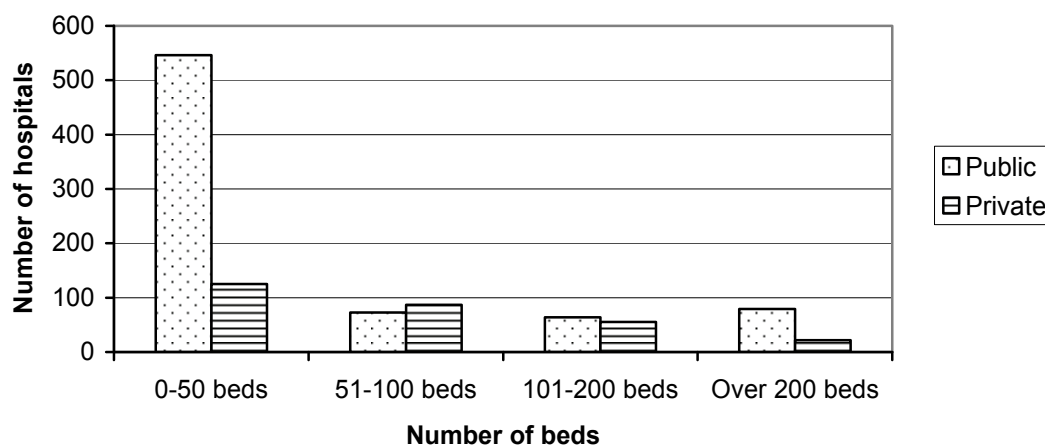
**Table 1 Number of public and private hospitals by region, 2009<sup>a</sup>**

Region <sup>b</sup>	Public hospitals	Private hospitals		Total
		Day hospitals	Other <sup>c</sup>	
Major city	164	233	203	436
Inner regional	205	31	64	95
Outer regional	234	7	18	25
Remote	79	–	–	–
Very remote	81	–	–	–
Unable to be classified <sup>d</sup>	5	..	..	..
Australia	768	271	285	556

<sup>a</sup> September 2009. <sup>b</sup> Regional classifications are based on the Australian Standard Geographical Classification. <sup>c</sup> 'Other' comprises private acute and psychiatric hospitals. <sup>d</sup> Unable to be classified due to missing postcodes. – Nil or rounded to zero. .. Not applicable.

Around half of Australia's hospitals have 50 beds or fewer. Although the concentration of small-scale hospitals is higher in the public sector, there is diversity in hospital sizes in both sectors (figure 1). Almost three-quarters of public hospitals have 50 beds or fewer (predominantly in regional and remote areas), while almost 20 per cent have more than 100 beds. In the private sector, over 40 per cent of hospitals have 50 beds or fewer, while over one-quarter have more than 100 beds.

**Figure 1 Number of hospitals by sector and bed numbers<sup>a</sup>**



<sup>a</sup> Acute and psychiatric hospitals. Data for private hospitals are for 2006-07, and for public hospitals are for 2007-08.

Although most patients in public hospitals are treated as public patients, around 14 per cent are treated as private patients, the majority of whom have private health insurance (table 2). Most patients in private hospitals have private insurance or are self-funded. Several state governments have arrangements that allow a small

number of public patients to be treated in contracted private hospitals, particularly for elective surgery procedures.

**Table 2 Hospital separations by sector and patient election status, 2007-08<sup>a</sup>**  
Per cent of separations in sector

Sector	Patient election status					Total
	Public	Private insurance	Self-funded	Dept of Veterans' Affairs	Compensation or other <sup>b</sup>	
Public hospitals	85.9	8.8	1.2	2.6	1.5	100.0
Private hospitals	2.4	79.8	8.5	6.4	2.9	100.0
All hospitals	52.7	37.0	4.1	4.1	2.1	100.0

<sup>a</sup> Includes same-day facilities. <sup>b</sup> Compensation or other includes workers compensation, other compensation, motor vehicle third party personal claim, other public authorities and other funding sources.

As many study participants commented, public and private hospitals complement each other to some extent by specialising in the provision of different services and treating different patient populations. For example:

- Public hospitals handled around three-quarters of all medical separations (episodes of care), while private hospitals performed around 60 per cent of all surgeries and nearly 70 per cent of other procedures in 2007-08 (table 3).
- Around 95 per cent of outpatient occasions of service (including emergency department presentations) were handled by public hospitals in 2007-08, while nearly two-thirds of elective surgery separations were performed by private hospitals.
- Patients treated in public hospitals are, on average, from lower socioeconomic groups, and have more complex medical conditions.
- A greater proportion of patients in public hospitals are aged under 35 years, while private hospitals treat proportionately more patients aged 35–64 years.

However, there is also overlap between the two sectors, which suggests that, to some extent, public and private hospitals compete to offer substitutable services. For example, the most frequent types of same-day separations in both sectors are renal dialysis, chemotherapy, non-complex colonoscopy and lens procedures (although the respective order of frequency in each sector varies slightly). In addition, a number of private hospitals display features typical of larger public hospitals. In 2006-07, 47 private hospitals treated accident and emergency cases, of which 24 had formal emergency departments, and 47 provided teaching to medical staff and undergraduates.

**Table 3 Types of treatments in public and private hospitals, 2007-08<sup>a</sup>**

	<i>Public hospitals</i>		<i>Private hospitals</i>	
	<i>Number of separations</i>	<i>Per cent of separations</i>	<i>Number of separations</i>	<i>Per cent of separations</i>
Surgical	919 109	20	1 232 428	41
Medical	3 397 595	74	1 132 851	38
Other	291 297	6	634 350	21
Total	4 608 001	100	2 999 629	100

<sup>a</sup> Includes same-day facilities. Separations are assigned to the surgical, medical or other categories on the basis of the type of procedure involved. A procedure is a clinical intervention that carries a procedural or anaesthetic risk, and/or requires specialised training, facilities or equipment. A separation is classified as surgical if it involves at least one operating-room procedure; medical if there is no procedure; and other if it involves a procedure performed outside of an operating room, such as dental extractions and colonoscopies.

Many study participants commented that the boundaries between the two sectors are not clear cut, and are complicated by the fact that the two sectors do not operate in isolation from each other, but are inter-related. For example, some public and private hospitals share resources in co-located establishments, a single provider may deliver services in both sectors, and medical staff can work across both sectors.

## **Costs, productivity and access**

The terms of reference ask the Commission to report comparative hospital and medical costs using data to be provided by the states and territories under the NHA and already reported by private hospitals. However, recent policy developments — such as a foreshadowed move to nationally-consistent activity-based funding — have yet to lead to the reporting of all costs on a consistent basis between jurisdictions, or between public and private hospitals. It has therefore been a major challenge to report comparable cost data. It should also be noted that costs are a partial indicator of hospital performance, since they do not include information on other aspects of performance, such as quality and patient safety.

Two commonly-used measures of hospital costs were estimated for this study:

- cost per casemix-adjusted separation — the average cost of treating a range of different diagnoses, after controlling for differences in the complexity of required treatments (casemix adjustment)
- cost per separation — the average cost of treating a group of diagnoses that are clinically similar.

Clinically-similar diagnoses were grouped according to the widely-accepted system of Diagnosis-Related Groups (DRGs), which provides a clinically-meaningful way

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of relating types of patients treated to required resources. The DRG system only applies to admitted-patient services, and so costs for other services were excluded. Admitted-patient services accounted for 71 per cent of the costs incurred by overnight acute-care hospitals in 2007-08. Furthermore, around 12 per cent of DRGs (about 3 per cent of total annual separations) were excluded from the analysis because there were few separations in at least one sector, and/or activity was confined to less than three hospitals.

Most of the cost data were sourced from the Australian Government Department of Health and Ageing, which has gathered the best available information as part of its regulatory and oversight functions. However, the data collections have significant limitations for this study (box 1). The Commission sought to address these limitations by drawing on various data sources and incorporating adjustments to make the data more comparable, including in response to comments made by study participants on the Discussion Draft. Nevertheless, the cost estimates presented in this report should be treated as experimental.

Overall costs were estimated by summing the various items that contribute to an episode of care. Cost data on these items have varying degrees of accuracy and comparability, and so the Commission distinguished between them using six categories:

- general hospital — ward nursing, ward supplies and other overheads, allied health, critical care, operating rooms, specialist procedure suites, hotel costs, non-clinical salaries, and on-costs
- pharmacy
- emergency departments
- prostheses
- capital — depreciation and the user cost of capital
- medical and diagnostics.

Not all of the above components are under the control of hospitals, and so care should be exercised in interpreting differences in the total cost of an episode of care in public and private hospitals. In particular, it should be noted that medical costs in private hospitals are predominantly a matter between patients and their relevant specialist(s), although private hospitals generally engage a number of salaried doctors.

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## Box 1 Hospital cost data and their limitations

Most of the cost data used in this study were provided by the Australian Government Department of Health and Ageing from two collections:

- National Hospital Cost Data Collection (NHDC) — a voluntary annual survey of hospitals, with the latest published results (2007-08) based on responses from hospitals that accounted for 89 per cent of public acute separations and 72 per cent of private acute separations
- Hospital Casemix Protocol (HCP) — a regular census of private health insurance claims in public and private hospitals, collected as part of the regulation of private health insurance. HCP data exclude both public patients, and private patients who do not make a private health insurance claim (who comprised around 90 per cent of separations in public hospitals and 20 per cent in private hospitals in 2007-08).

A key difference between the collections is that the NHDC has data on hospital expenditure (costs), whereas the HCP has data on amounts charged to patients.

The NHDC was used as the primary data source because it is designed for cost analysis and covers a significant share of separations in both public and private hospitals. The HCP was only used for private-patient medical and diagnostics costs, as these are not captured in the NHDC.

While the NHDC is the best available data source for the purpose of analysing costs, it does have major limitations. For example, the NHDC data provided to the Commission are from an unweighted sample, and so may not be representative of all hospitals; do not identify how the different tax treatment of for-profit and other hospitals affects costs; and exclude the asset-value data required to calculate a user cost of capital. Other data sources were used to fill some of these gaps, such as ABS surveys of private hospitals and state government asset records.

The Commission also obtained data from the Department of Veterans' Affairs (DVA) on the cost of procuring hospital services for war veterans and their families. While DVA data are not necessarily representative of the whole population, they may provide a broad indication of the robustness of the Commission's estimates. It could be argued that DVA patients are often treated in the same hospitals and by the same clinicians as other private patients. Furthermore, DVA patients may receive broadly comparable treatments in public and private hospitals.

## Cost per casemix-adjusted separation (all DRGs)

The Commission's experimental cost estimates suggest that, at a national level, public and private hospitals had a broadly similar cost per casemix-adjusted separation in 2007-08 (table 4).

There do, however, appear to be differences between jurisdictions. In New South Wales and Victoria, private hospitals were estimated to have a higher cost per

casemix-adjusted separation than public hospitals. In other jurisdictions, private hospitals were estimated to have a lower cost per casemix-adjusted separation than public hospitals, with the gap particularly large in Western Australia. To some extent, these differences between jurisdictions may also be attributable to inconsistencies in how each jurisdiction measures and reports costs.

**Table 4 Cost per casemix-adjusted separation by jurisdiction and sector, 2007-08<sup>a</sup>**

Dollars

<i>Cost component</i>	<i>NSW</i>		<i>Vic</i>		<i>Qld</i>		<i>SA</i>	
	<i>Public</i>	<i>Private</i>	<i>Public</i>	<i>Private</i>	<i>Public</i>	<i>Private</i>	<i>Public</i>	<i>Private</i>
General hospital <sup>b</sup>	2 511	1 944	2 106	2 004	2 683	1 948	2 800	1 803
Pharmacy	164	42	235	87	174	45	146	53
Emergency	205	16	251	50	211	40	135	61
Medical & diagnostics <sup>c</sup>	733	1 497	900	1 226	794	1 404	621	1 214
Prostheses	137	620	108	527	121	491	140	495
Capital <sup>d</sup>	439	210	359	240	560	223	381	158
Total <sup>e</sup>	4 189	4 330	3 960	4 133	4 543	4 151	4 223	3 783

<i>Cost component</i>	<i>WA</i>		<i>Tas, NT &amp; ACT<sup>f</sup></i>		<i>Australia</i>	
	<i>Public</i>	<i>Private</i>	<i>Public</i>	<i>Private</i>	<i>Public</i>	<i>Private</i>
General hospital <sup>b</sup>	3 094	1 845	3 243	2 236	2 552	1 953
Pharmacy	202	144	186	55	187	68
Emergency	147	11	238	21	208	34
Medical & diagnostics <sup>c</sup>	1 048	1 275	725	1 391	798	1 346
Prostheses	155	555	141	540	131	542
Capital <sup>d</sup>	359	281	447	345	426	230
Total <sup>e</sup>	5 006	4 111	4 980	4 586	4 302	4 172

<sup>a</sup> Costs are casemix adjusted using DRG-level cost weights for public and private hospitals combined.

<sup>b</sup> NHCDC cost buckets for ward nursing, non-clinical salaries, allied health, critical care, operating rooms, ward supplies and other overheads, on-costs, hotel costs, and specialist procedure suites. <sup>c</sup> Combination of data from the NHCDC (ward medical, imaging and pathology) and HCP (medical charges, which in the HCP includes diagnostics). <sup>d</sup> Depreciation and the user cost of capital. <sup>e</sup> Totals may not equal sum of components due to rounding. <sup>f</sup> Data for Tasmania, the Northern Territory and the ACT are aggregated to protect the confidentiality of the small number of hospitals in each of these jurisdictions.

There were significant differences between public and private hospitals in the composition of costs. For general hospital costs, public hospitals were estimated to have a higher cost per casemix-adjusted separation than private hospitals (\$2552 versus \$1953 at the national level). This was also the case with the experimental estimates of capital costs (\$426 versus \$230). Conversely, average prostheses costs

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were estimated to be much lower in public hospitals (\$131 versus \$542). Average medical and diagnostics costs were also estimated to be lower in public hospitals (\$798 versus \$1346).

A similar pattern in the cost components was evident at the jurisdiction level, and when costs were disaggregated by hospital size and region. The estimates do suggest, however, that private hospitals in outer regional areas had a significantly lower cost per casemix-adjusted separation than public hospitals.

However, the Commission suggests that these estimated differences between public and private hospitals in the composition of costs should be used cautiously. In particular, the Commission found that a significant proportion of public-patient medical costs in the NHCDC are embedded in the general hospital and emergency categories (estimated to be in the order of \$270 per separation nationally). Hence, the experimental estimates overstate the cost advantage that public hospitals have in medical and diagnostics, and the cost disadvantage that public hospitals have in general hospital and emergency departments.

### **Average cost per separation (individual DRGs)**

The broad similarity between public and private hospital costs was also evident at the level of individual DRGs (as shown by clustering around the 45 degree line in figure 2). Nevertheless, around one-fifth of DRGs had a cost per separation in public hospitals that was at least 10 per cent lower than in private hospitals, and nearly half of DRGs had an average cost in public hospitals that was more than 10 per cent higher than in private hospitals.

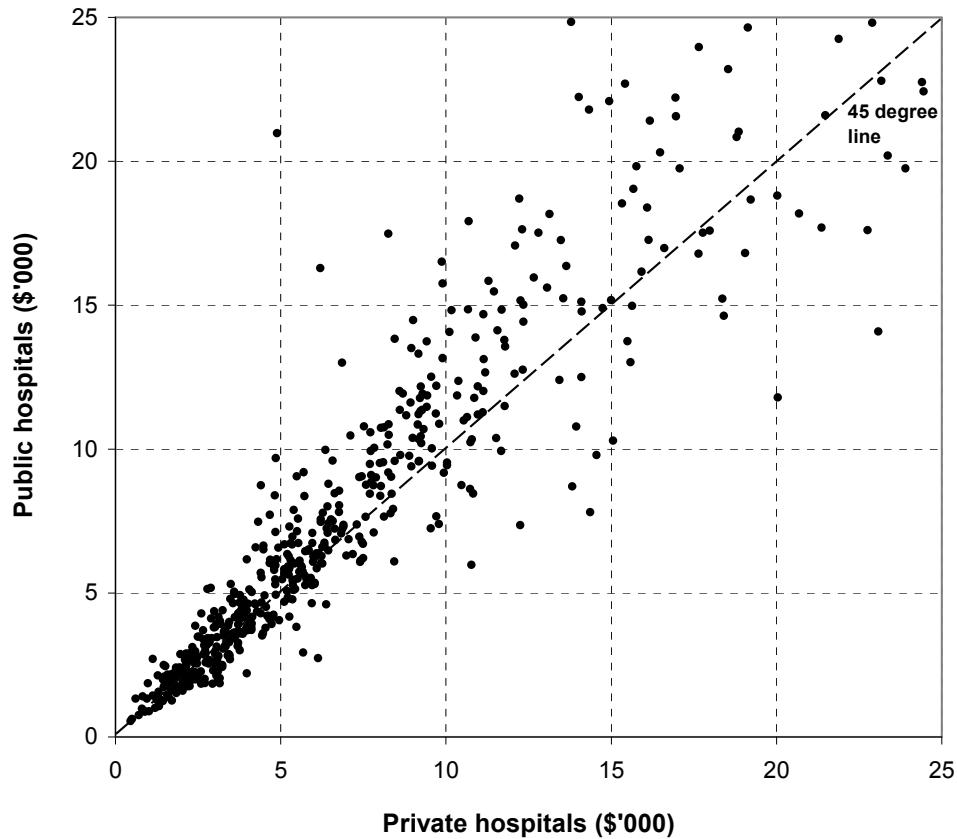
Under the DRG classification system, individual DRGs can be grouped into the ‘partitions’ of surgical, medical or other. The experimental estimates suggest that almost three-fifths of surgical DRGs had a cost per separation in private hospitals that was at least 10 per cent lower than in public hospitals (figure 3). Medical DRGs were where public hospitals performed most strongly in terms of cost relative to the private sector, with almost a quarter of medical DRGs having a cost per separation in public hospitals that was at least 10 per cent lower than in private hospitals.

The DRG classification system also enables DRGs to be grouped into over 20 different Major Diagnostic Categories (MDCs). The Commission’s experimental estimates suggest that, in 2007-08, cost per separation in public hospitals was:

- over 10 per cent *higher* than in private hospitals for almost half the MDC groups
- between 90 and 110 per cent of that in private hospitals for half the MDC groups

- over 10 per cent *lower* than in private hospitals for only one MDC (diseases and disorders of the circulatory system).

**Figure 2 Comparison of cost per separation for individual DRGs in public and private hospitals, 2007-08<sup>a</sup>**



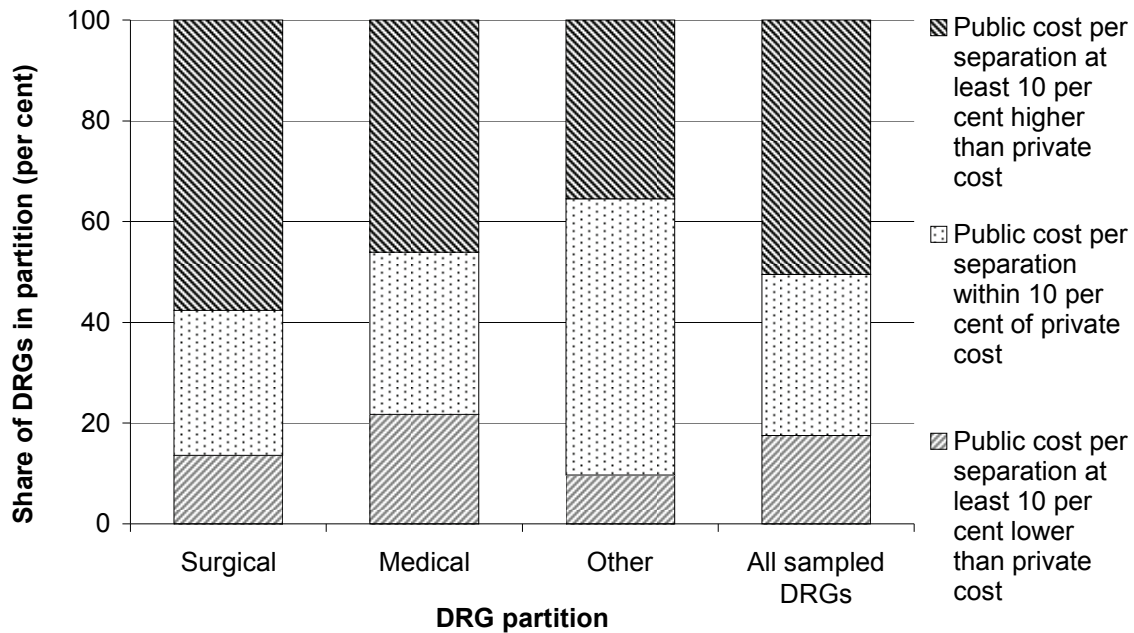
<sup>a</sup> A point is located above (below) the 45 degree line if the relevant DRG has a higher (lower) cost per separation in public hospitals than in private hospitals. DRGs with a cost per separation of more than \$25 000 in at least one sector are not shown on the graph. These excluded DRGs accounted for less than 2 per cent of separations among the sampled DRGs and hospitals.

Data from the Department of Veterans' Affairs (DVA) on the cost it incurs in procuring hospital services for veterans and their dependants provide a useful point of comparison with the Commission's DRG-level cost estimates. Data were obtained for the 20 most significant DRGs for DVA on the basis of expenditure. The data indicate that:

- Cost per separation for DVA patients in public hospitals was within 90 to 110 per cent of the Commission's estimates for about one-third of the 20 DRGs, with the remainder evenly split between more than 10 per cent below and 10 per cent above the Commission's estimates.
- Cost per separation for DVA patients in private hospitals are more comparable with the Commission's estimates. Half of the 20 DRGs had a cost for DVA

patients in private hospitals that was within 90 to 110 per cent of the Commission's estimates. The cost for DVA patients in private hospitals was more than 10 per cent below the Commission's estimate for three DRGs, and more than 10 per cent above for the remaining seven DRGs.

**Figure 3 DRG partitions by whether lower cost in public or private hospitals, 2007-08<sup>a</sup>**



<sup>a</sup> Separations are assigned to the surgical, medical or other partitions on the basis of the type of procedure involved. A procedure is a clinical intervention that carries a procedural or anaesthetic risk, and/or requires specialised training, facilities or equipment. A separation is classified as surgical if it involves at least one operating-room procedure; medical if there is no procedure; and other if it involves a procedure performed outside of an operating room, such as dental extractions and colonoscopies.

### Partial productivity measures

A major determinant of cost differences between hospitals will be their productivity (quantity of outputs relative to inputs). Ideally, this would be measured in terms of total factor productivity (TFP), which takes account of all inputs and outputs simultaneously. However, the necessary data to measure TFP for hospitals are not available. Instead, the Commission has examined partial productivity measures, which quantify output per unit of a single input, such as labour or medical supplies.

At a national level, public and private hospitals have similar separations per bed (a measure of capital productivity). However, separations per non-medical staff member (a measure of labour productivity) are higher in private hospitals than public hospitals. This suggests that private hospitals have leaner staff-to-bed ratios.

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Since 2002-03, both public and private hospitals have increased the intensity with which they use drug, medical and surgical supplies.

Patients in private hospitals have a shorter average length of stay per separation than in public hospitals. This appears to be because surgical procedures in private hospitals have shorter associated patient stays than other DRGs, and private hospitals undertake relatively more surgical procedures than public hospitals.

These findings on hospital productivity should be interpreted with care, since they do not control for the different characteristics of public and private hospitals, such as whether there is an emergency department, patient-risk characteristics, and the geographic remoteness of a hospital. In addition, partial productivity measures do not control for differences in the use of inputs other than those included in the measure.

## **Access to hospital services**

### *Waiting times*

The ability of patients to access timely medical and surgical services is an important objective of governments and motivator for private health insurance. Under the NHA, state and territory governments have agreed to provide hospital services based on clinical need within a clinically-appropriate period.

Emergency department data are collected using nationally-consistent definitions. However, care needs to be exercised when interpreting emergency department waiting data. There are significant differences in the way states and territories assign clinical-urgency categories. In addition, recent findings by the Victorian Auditor-General raise questions about the accuracy of waiting-time data.

The available data suggest that the rates at which patients are seen within emergency department triage benchmarks have improved nationally. The proportion of patients attending emergency departments that were seen on time increased from 66 to 69 per cent between 2002-03 and 2007-08. The proportion of semi-urgent patients that were seen on time increased from 61 to 66 per cent during the same period. However, there were major differences between jurisdictions, with relatively fewer patients seen on time in the ACT and Northern Territory.

The number of people seeking elective surgery grew 4.8 per cent per year between 2002-03 and 2007-08, while the number of elective surgery admissions only grew by 1.8 per cent per year. The average number of days that the 50th percentile patient

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waited for elective surgery rose from 28 days in 2002-03 to 34 days in 2007-08. On the other hand, the share of patients waiting more than a year fell in New South Wales, Victoria, Queensland, Western Australia and Tasmania, and grew in South Australia, the ACT and the Northern Territory. However, surgery waiting-list times tend to underestimate the actual wait for surgery as they do not account for the time elapsed between referral to and consultation with a surgeon, or between the surgical consultation and being put on a waiting list.

### *Capacity utilisation*

While it is desirable to have utilisation close to capacity in most sectors, and this is generally viewed as an indicator of efficiency, in hospitals there is a tipping point above which a high rate of bed occupancy can impede efficient patient flows, especially if the hospital is subject to the uncertainty of emergency admissions.

The Australian Medical Association and Australasian College for Emergency Medicine noted that a hospital's bed occupancy rate is a useful indication of the likelihood that a patient will have timely access to a hospital bed. Occupancy rates above 85 per cent were claimed to lead to regular bed shortages and periodic bed crises. In 2007-08, public hospitals had an average bed occupancy rate of 87 per cent, although this had declined since 2002-03. Private hospital occupancy rates were, on average, 76 per cent in 2007-08 and had increased since 2002-03.

### **Improving future comparisons of costs, productivity and access**

The Commission's analysis of hospital costs, productivity and access has revealed significant shortcomings in available data for the purpose of comparing public and private hospitals. A foreshadowed shift to nationally-consistent activity-based funding for public hospitals by 2014-15 should lead to more robust cost estimates for the public sector. It would be desirable for private hospitals to report cost data using the same methodology to ensure data consistency with public hospitals, together with some rationalisation of existing private-hospital reporting requirements to minimise the extent of any additional reporting burden. There is also scope for significant improvement in the collection of data on capital costs for both public and private hospitals.

Implementation of the NHA, under which governments have agreed to report nationally-consistent 'progress measures' through the COAG Reform Council, is expected to improve the reporting of partial productivity and access indicators. It would be useful to also have private hospitals report such data using the same methodologies.

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## Hospital-acquired infections and other safety indicators

Hospital-acquired infections are the most common complication affecting hospital patients, and in many cases are preventable. A recent study estimated that Australia has 180 000 hospital-acquired infections annually and these occupy around two million bed days.

Infections are typically categorised by organism, body location and/or patient population. Organisms that have developed resistance to standard antibiotics — such as methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *enterococci* (VRE) — are often the focus of reporting regimes because they have the greatest impacts on health systems in developed countries. Another organism that is gaining prominence is *Clostridium difficile*, which usually causes diarrhoea and is the most common cause of health care-associated gastrointestinal infection. The body locations of greatest concern, and hence often reported, are surgical sites and the bloodstream. It is also common to report infections for high-risk populations, such as patients in intensive-care units.

The measurement and comparison of infection rates is not straightforward. A hospital could have a relatively high infection rate simply because its workload is concentrated on procedures and patients that have a high risk of infection. It is difficult to disentangle this risk effect from genuine differences in how hospitals perform on infection rates. A common approach is to subdivide infections data into groups with a similar risk of infection, and only compare infection rates within those groups. Such groups could be defined by patient characteristics, procedure and/or type of hospital. For surgical-site infections, many countries stratify data according to a risk index which controls for a patient's physical condition, length of surgery and wound cleanliness. However, none of these risk-adjustment methods fully controls for all of the sources of risk differences between hospitals.

A further problem is that Australia does not have a robust nationally-consistent data collection for comparing hospital-acquired infections. Data from the best available source of national data — the Australian Council on Healthcare Standards (ACHS) — indicate that infection rates rarely differ between public and private hospitals.

ACHS data show that only four out of 47 infection indicators had a statistically significant difference between public and private hospitals in 2007. Where differences existed, the ACHS data suggest that private hospitals consistently have lower infection rates than public hospitals (table 5). However, the ACHS data collection was not designed for inter-hospital comparisons. It is limited by potential sample-selection bias, small sample sizes, self reporting without external validation, and no risk adjustment to reflect patient differences.

**Table 5 ACHS infection indicators that differed between public and private hospitals, 2007<sup>a</sup>**

Indicator no. and description <sup>c</sup>	Units	Infection rate <sup>b</sup>		No. of reporting hospitals	
		Public	Private	Public	Private
1.2 Deep incisional SSI in hip prosthesis procedures <sup>d</sup>	per 100 procedures	0.99	0.63	38	96
1.17 Superficial incisional SSI in abdominal hysterectomy	per 100 procedures	2.02	0.94	16	37
5.2 ICU-associated new MRSA healthcare-associated infections in a nonsterile site	per 10 000 ICU overnight occupied bed days	16.70	7.18	25	23
5.4 Non ICU-associated new MRSA inpatient healthcare-associated infections in a nonsterile site	per 10 000 non-ICU overnight occupied bed days	2.77	1.11	68	59

<sup>a</sup> The ACHS identified an indicator as differing between the public and private sectors if public/private status explained at least 10 per cent of the variation in sampled infection rates, and statistical testing showed that the probability of a difference between public and private rates was at least 95 per cent. However, the data may be misleading due to sample-selection bias, small sample sizes, self reporting, and no risk adjustment to reflect differences in patient characteristics. <sup>b</sup> Mean infection rates after applying the shrinkage estimation method to the data. <sup>c</sup> The following abbreviations are used: ICU (intensive-care unit); MRSA (methicillin-resistant *Staphylococcus aureus*); and SSI (surgical-site infection). <sup>d</sup> The ACHS (sub. 13) advised that unpublished data for 2008 showed that indicator 1.2 was 0.68 per 100 procedures for private hospitals and 1.02 for public hospitals.

More suitable data are collected by state governments as part of their infection-surveillance programs. Such data are not collected and reported on a nationally-consistent basis, but public and private hospitals are included in most cases. The data collected by state governments suggest that private hospitals have lower infection rates than public hospitals, but this result could be misleading because private hospitals generally undertake procedures and treat patients with a lower risk of infection, such as planned (elective) surgery. A more definitive finding will require the development of data collections and methods that enable risk differences between hospitals to be more comprehensively distinguished from genuine differences in performance.

Foreshadowed developments, such as performance reporting under the NHA, will move Australia closer to a robust nationally-consistent data collection on hospital-acquired infections. However, more actions will be required to enable meaningful infection-rate comparisons between public and private hospitals. An important step in this regard would be to include private hospitals in national reporting arrangements. The Australian Commission on Safety and Quality in

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Health Care (ACSQHC) is leading and coordinating improvements that should improve the feasibility of future comparisons.

### **Other safety and quality indicators**

Apart from hospital-acquired infections, the Commission examined a number of indicators of quality and patient safety. Many of these were identified for future reporting against the NHA.

ACHS data suggest that there is little difference between public and private hospitals in rates of readmission to hospital within 28 days, and rates of return to operating theatre or intensive-care unit. There are no discernible differences for patient falls, pressure ulcers, adverse transfusion and adverse drug events, intentional self harm, and certain obstetric indicators. ACHS data, however, must be treated with caution, as noted for infection rates.

Data on adverse events, such as those published by the Australian Institute of Health and Welfare (AIHW), suggest that the rate of adverse events in public hospitals is about 5.5 per cent compared to 3.7 per cent for private hospitals. However, these data do not account for differences in the activities undertaken by public and private hospitals, and the extent to which some adverse events, such as adverse reactions to medications, occurred prior to hospitalisation.

The AIHW, at the request of the ACSQHC, has proposed a set of quality and patient safety indicators. A similar set of indicators is being proposed for the NHA. Given the paucity of data in this area, the Commission supports this development.

### **Multivariate analysis**

Partial indicators, such as costs and infection rates, have at least two limitations. First, no single indicator provides an overall assessment of a hospital's performance, since they are by definition partial indicators. Second, there is a large range of factors outside the control of a hospital that can influence its performance, including patient mix and geographic location.

To address the limitations of partial indicators, the Commission also undertook a multivariate analysis of hospital-level data. This involved the use of statistical methods that enable the many different factors influencing a hospital's performance — such as types of patients treated and services provided — to be factored into an overall assessment of performance. Such an approach has been used in many overseas studies of hospitals.

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To undertake the multivariate analysis, the Commission used 2006-07 data for:

- 368 acute public hospitals operated by governments, covering all jurisdictions
- 18 acute public hospitals operated by nongovernment bodies, covering all mainland states
- 122 private acute hospitals that collectively account for around 50 per cent of all private hospital separations.

The results of the multivariate analysis suggest that, after controlling for differences in services provided and types of patients treated, the efficiency of public and private hospitals is, on average, similar. It was estimated that the output of individual hospitals in both sectors is, on average, about 20 per cent below best practice among the sampled hospitals.

The multivariate results also suggest that the scope for improvement varies somewhat with hospital size (defined by annual casemix-adjusted separations), particularly for private hospitals. It appears that, among large and very large hospitals (more than 10 000 annual casemix-adjusted separations), the scope to improve efficiency is greatest for public hospitals. At the other extreme, it appears that the scope to improve efficiency among small and very small hospitals (5000 or fewer annual casemix-adjusted separations) is higher for private hospitals, although this result may be partly due to a number of factors that could not be accounted for in the analysis.

There is potential to extend the multivariate approach by also using data that is available for the three preceding years, and to take account of differences in input prices by also modelling a cost function. The Commission intends to undertake this analysis in coming months and publish the results in March 2010.

## **Informed financial consent**

The terms of reference ask the Commission to examine aspects of informed financial consent (IFC) for privately-insured patients. IFC occurs when patients receive relevant cost information, including notification of likely out-of-pocket expenses (gaps), prior to agreeing to treatment. The provision of relevant cost information prior to treatment is desirable as it allows patients to make more informed choices.

It appears that most patients do not face a problem with a lack of IFC. The latest available data show that around 85 per cent of hospital medical services currently provided to privately-insured patients do not have an associated gap payment

(excluding excesses and co-payments, which are due to patient choice about insurance cover). For the remaining 15 per cent of services that do have a gap, 4 percentage points involve known-gap agreements where there is a legal requirement to provide IFC. Thus, it could be argued that no more than 11 per cent of services lack IFC. A portion of this 11 per cent would be emergency cases, for which it is not always realistic to expect IFC. Furthermore, there has been a declining number of complaints to the Private Health Insurance Ombudsman about a lack of IFC in recent years. Nevertheless, it is undesirable for any non-emergency patients to incur out-of-pocket expenses without IFC, and desirable for as many emergency patients to receive IFC as is practicable.

The Australian Government Department of Health and Ageing commissioned surveys on IFC in 2004, 2006 and 2007. The surveys were undertaken by Ipsos Australia and asked individuals who had recently made a private health insurance claim for an episode of hospitalisation about the costs they incurred and the information they received about those costs prior to treatment. This is the best available data source to consider IFC and out-of-pocket expenses in the way stipulated by the terms of reference.

However, the Ipsos surveys have a number of potential limitations. There might be sample-selection bias because individuals were more likely to respond to the survey if they did not receive IFC or incurred significant out-of-pocket expenses. This would lead to an understatement of IFC rates and overstatement of gap payments. Another potential limitation is that the surveys relied on patient recollections. The possibility of sample-selection and self-reporting bias was tested by comparing the Ipsos results with (census) data collected by the health insurance regulator (the Private Health Insurance Administration Council, PHIAC). That comparison indicates that the Ipsos surveys overstate the incidence and average size of out-of-pocket expenses (table 6). Analysis of the Ipsos data should therefore be considered in light of the aforementioned data limitations.

**Table 6 Comparison of Ipsos and PHIAC data, 2007**

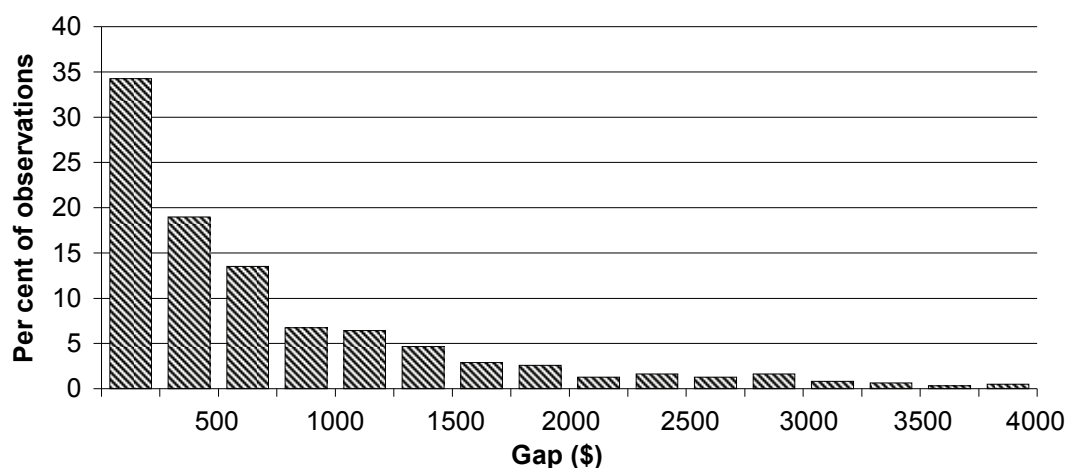
	<i>Unit</i>	<i>Ipsos</i>	<i>PHIAC<sup>a</sup></i>
Share of services with a gap payment <sup>b</sup>	%	28	18
Share of patients with a gap payment <sup>c</sup>	%	42	na
Average gap across all services <sup>b</sup>	\$	131	23
Average gap across all services where a gap occurred <sup>b</sup>	\$	465	126

<sup>a</sup> Year to June 2007. <sup>b</sup> Excludes accommodation fees. <sup>c</sup> Excludes test-related specialities. **na** Not available.

The 2007 Ipsos data show that the IFC rate for pre-planned admissions was lowest in private hospitals (around 80 per cent, compared to about 90 per cent in public

hospitals) and for treatment by paediatricians (61 per cent). The data also show that, for people who did not provide IFC, the average out-of-pocket gap was greatest in private hospitals (\$858, compared to \$637 in public hospitals) and for treatment by an orthopaedic surgeon (\$753). There was a large range from the minimum to maximum gap (\$5 to \$19 827), but this was due to a small number of very low and high reported gaps. Of the out-of-pocket gaps where no IFC was provided, around 55 per cent were less than \$500, 75 per cent less than \$1000, and 90 per cent less than \$2000 (figure 4). Only 2 per cent of the gaps were greater than \$4000.

**Figure 4 Distribution of non-IFC out-of-pocket gap payments, 2007<sup>a</sup>**



<sup>a</sup> Only patients who considered their admission to be pre-planned are included. Maternity/obstetrics admissions are considered pre-planned. Gaps over \$4 000 represented approximately 2 per cent of observations.

The medical profession has sought to promote best practice with respect to IFC in recent years, including through educational campaigns. In addition, some individual specialists are using internet-based packages to inform individual patients about their likely out-of-pocket expenses.

## Medicare Levy Surcharge

The Medicare Levy Surcharge (MLS) is imposed on taxpayers who earn above a specified income threshold and do not have private patient hospital cover for themselves and all family members. The MLS is currently calculated at the rate of 1 per cent of taxable income. It was introduced in 1997 as part of a suite of measures designed to arrest a decline in the share of the population with private health insurance (PHI) policies, and to maintain the private hospital system as a complement to the public hospital system. Other measures included a 30 per cent

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rebate on PHI premiums (introduced in 1999) and the Lifetime Health Cover community rating scheme (introduced in 2000).

There are different MLS income thresholds for singles and couples. The thresholds were originally set in 1997 and remained unadjusted until the 2008-09 financial year, when there was a one-off increase in the thresholds and the introduction of annual indexation for subsequent years. As taxable incomes generally increased between 1997 and 2008, an increasing proportion of taxpayers became subject to the MLS legislation. In 1997-98, around 8 per cent of single taxpayers exceeded the singles income threshold. However with no indexation of the MLS thresholds, this proportion increased to approximately 33 per cent of single taxpayers by 2007-08.

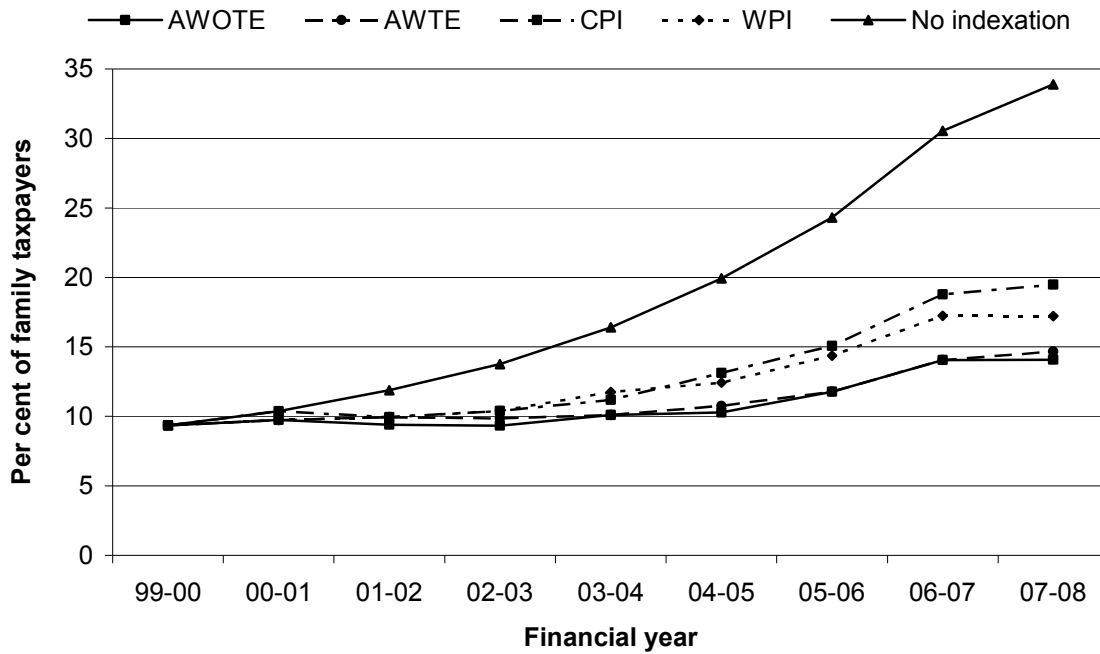
The Commission has been asked to consider the most appropriate indexation factor for the MLS income thresholds. The thresholds are currently indexed by average weekly ordinary time earnings (AWOTE). This was compared to three alternatives:

- average weekly total earnings (AWTE)
- consumer price index (CPI)
- wage price index (WPI).

The Australian Government has stated that the primary reason for indexing the income thresholds is to ensure that the MLS remains targeted at the ‘high’ income group for which it was intended. The suitability of the alternative indexation factors was therefore assessed by determining how successful they would be in keeping the share of taxpayers subject to the MLS stable over time. The assessment involved estimating how the thresholds would have changed if there had been indexation since 1999-2000.

If the MLS income thresholds had been indexed since 1999-2000, the proportion of taxpayers subject to the MLS would have risen (by varying amounts) using each of the potential indexation factors assessed by the Commission (figure 5). In theory, this could be avoided by using an indexation factor based on the ninth decile (90th percentile) of the income distribution, as it would specifically measure income changes for higher income earners. However, such a measure is not currently available in a form suitable for the regular updating of the MLS income thresholds. The Commission has therefore concluded that AWOTE is the most appropriate indexation factor, since among the available options it would keep the share of taxpayers subject to the MLS most stable.

**Figure 5 Proportion of family taxpayers subject to the MLS under alternative indexation options, 1999–2008<sup>a</sup>**



<sup>a</sup> For simplicity, the \$1500 threshold increase for a second and each additional child was not taken into account in the calculations. Therefore, the figure slightly overstates the proportion of family taxpayers who would have been subject to the MLS.