

# Hospitals then and now: changes since the start of Medicare

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## Abstract

Australia's current hospital system is very different to the one that existed in 1982–83, the last full year before the introduction of Medicare. Capped budgets, new technology and rising expectations have seen the public sector lose ground to the private sector, particularly in terms of elective admissions and surgical episodes. In comparing the situation in 2004–05 with that in 1982–83, this paper focuses on hospital efficiency, casemix and the public–private balance.

*Aust Health Rev 2007; 31 Suppl 1: S4–S12*

## Hospital efficiency

The total number of separations and the separation rate (or the number of separations per 1000 population) were higher in 2004–05 than 1982–83, but the total number of available beds and the bed rate were lower (Box 1). This apparent gain in efficiency was associated with a lower average length of stay (ALOS), an increase in same-day separations, the unbundling of stays into separate episodes, an increase in inter-hospital patient transfers, and higher occupancy levels.<sup>4</sup>

The lack of national data on same-day activity in 1982–83 means that it is necessary to look to individual states and territories for this information. Data for New South Wales reveal that, between 1982–83 and 2004–05:

- same-day separations as a proportion of all separations rose from 17.8% to 51.8%;

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- the shift to same-day activity occurred across all 23 major diagnostic categories (MDCs); and
- ALOS for multi-day episodes fell from 7.7 to 5.7 days (Box 2).<sup>3,5</sup>

Output-based funding, which was introduced in the early 1990s, provided an incentive for hospitals to keep patient stays as short as possible. For example, between 1983 and 2004–05:

- ALOS for uncomplicated deliveries fell from 5.9 to 3.2 days and ALOS for uncomplicated caesarean deliveries fell from 9.8 to 4.9 days;
- ALOS for circulatory disorders with acute myocardial infarction (AMI) — commonly known as “heart attacks” — fell from 11.2 to 5.2 days;\* and
- ALOS for lens procedures fell from 7.0 to 1.0 days<sup>†</sup> (Box 3).

Faced with capped funding, public hospitals have cut bed numbers and adopted various measures aimed at reducing demand for available beds. These measures have included pre-admission screening and discharge planning; pre-admission work-ups and post-discharge care in place of in-house convalescence, as well as hospital-in-the-home and outreach services. On occasion, tighter restrictions have been placed on operating-room business hours.

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\* Nowadays people are better informed about the risk factors for heart disease (such as high cholesterol and blood pressure); possible preventative actions (such as diet, exercise and the use of low-dose aspirin); the need to treat all heart and chest pains seriously; and the benefits to be gained from immediate medical attention. This greater awareness helps explain (i) the substantial increase in the numbers admitted with chest pain, and (ii) the very slight increase in the numbers diagnosed with AMI.

† Ophthalmology has witnessed a number of major technological advances since the early 1980s, which is when extracapsular cataract extraction (ECCE) became the most common lens procedure. These advances include the development of phacoemulsification and the introduction of foldable silicone and acrylic lenses that can be placed in the eye through small incisions.

## 1 Summary bed, separation, patient day and occupancy level statistics by hospital type, Australia, 1982–83 and 2004–05

	Public hospitals	Private hospitals	All hospitals
<b>No. of beds</b>			
1982–83	74 229	20 132	94 361
2004–05	52 626	26 988	79 614
<b>Beds per 1000 population</b>			
1982–83	4.9	1.3	6.2
2004–05	2.6	1.3	3.9
<b>No. of separations (000s)</b>			
1982–83	2528.5	757.5	3286.1
2004–05	4260.6	2742.4	7003.0
<b>Separations per 1000 population</b>			
1982–83	165.4	49.5	214.9
2004–05	207.3	133.9	341.2
<b>Patient days (000s)</b>			
1982–83	17 941.0	4839.2	22 780.2
2004–05	15 879.8	7166.5	23 046.3
<b>Patient days per 1000 population</b>			
1982–83	1173.5	316.5	1490.0
2004–05	763.5	344.0	1107.5
<b>Occupancy level</b>			
1982–83	66.2	65.9	66.1
2004–05	82.7	72.8	79.3

Public psychiatric hospitals are excluded for both years, while repatriation hospitals and private free-standing day hospital facilities are included for 1982–83 and 2004–05, respectively.

Sources: Commonwealth Department of Health,<sup>1</sup> AIHW,<sup>2</sup> and AIHW.<sup>3</sup>

Despite the ongoing focus on cost containment, expenditure on public (non-psychiatric) hospitals accounted for the same proportion of gross domestic product (GDP) in 2004–05 as it did in 1982–83 — that is, 2.4%. Between 1982–83 and 2004–05, the proportion of total recurrent health expenditure devoted to public hospitals fell from 36.3% to 26.2%, largely due to rising expenditure in other parts of the health sector (Box 4).

## 2 Average length of stay (ALOS) and same-day separations as a proportion of total separations by hospital type, New South Wales, 1983 and 2004–05

	Public hospitals	Private hospitals	All hospitals
<b>ALOS including same-day separations (days)</b>			
1983	6.7	5.7	6.4
2004–05	3.7	2.3	3.2
<b>ALOS excluding same-day separations (days)</b>			
1983	7.8	7.1	7.7
2004–05	5.9	4.9	5.7
<b>Same-day separations (%)</b>			
1983	16.5%	23.0%	17.8%
2004–05	44.1%	66.1%	51.8%

Public psychiatric hospitals are excluded from both years, while repatriation hospitals and private free-standing day facilities are included for 1983 and 2004–05, respectively. Same-day separations were given a value of 0.5 days in 1983, and a value of 1.0 day in 2004–05. To compensate for this, patient days for 1983 were inflated by the inclusion of half the number of same-day separations before ALOS was calculated.

Sources: Fahey and Hardes,<sup>5</sup> and AIHW.<sup>3</sup>

Public hospitals cannot be held directly responsible for the fact that, since 1982–83, expenditure on health as a proportion of GDP has increased from 7.1% to 9.8%. However, pre-admission work-ups and privatisation of outpatient clinics would have contributed to the increase in expenditure on other health services (Box 5).

## Casemix

The casemix of admitted patient services provided by the hospital system has undergone a considerable amount of change since the early 1980s. Apart from the upsurge in same-day activity, there has also been movement of resources between MDCs. For example, MDC 19 (Mental) now accounts for more days, while MDCs 8 (Musculoskeletal system) and 14 (Pregnancy & childbirth) account for fewer days (Box 6).

Advances in technology have enabled hospital-based clinicians to adopt a more “heroic”

approach to certain cases. At the start of Medicare, there was very little neonatal surgery, and far less could be done for people with full thickness burns. There were also very few major organ transplants, and no multiple organ transplants. Although it was possible to obtain hip and knee replacements, more complex orthopaedic surgery — such as that associated with knee and shoulder reconstructions — lay in the future. It was not until years later that hospitals were able to provide microvascular surgery, angioplasties, stents, cochlear implants and the facilities necessary for monitoring sleep apnoea.

Several diagnosis-related groups (DRGs) have experienced falling separations as a result of medical and technological advances, changes to treatment regimens, the development of alternative service delivery mechanisms, and changes in community attitudes (Box 7):

- the fall in bronchitis and asthma separations can probably be attributed to the development

of asthma management plans for people with these chronic illnesses;

- coronary atherosclerosis, which would previously have been treated by either medication or bypass grafts, is now more likely to involve stents and balloon angioplasty;
- sclerotherapy, which involves the injection of fluids aimed at causing fibrosis (and eventual obliteration) of troublesome veins, has largely superseded vein ligation and stripping;
- the development of antibiotics capable of eradicating *Helicobacter pylori* infection has contributed to the fall in admissions for peptic ulcers;
- earlier identification of ulcers together with gastric acid-reducing drugs such as the H-2 antagonists (for example, Zantac) and proton pump inhibitors (for example, Losec) explain the fall in the number of cases involving gastrointestinal haemorrhage;

### 3 Separations and average length of stay (ALOS) for selected diagnosis-related groups (DRGs), all hospitals, New South Wales, 1983 and 2004–05

DRG	1983		2004–05	
	Separations (000s)	ALOS (days)	Separations (000s)	ALOS (days)
Lens procedures	8.2	7.0	58.8	1.0
Vaginal delivery w/o complicating diagnosis	62.0	5.9	54.3	3.2
Chest pain	7.1	3.9	26.4	1.7
Caesarean section w/o complication or comorbidity	9.9	9.8	18.4	4.9
Chronic obstructive airways disease	8.7	11.9	18.2	6.9
Anal & stomal procedures	9.9	5.8	17.0	1.4
Red blood disorders	4.3	6.2	15.4	2.2
Kidney & urinary tract infections	7.3	5.1	12.8	4.9
Heart failure & shock	9.0	14.0	12.1	7.6
Circulatory disorders with AMI	11.3	11.2	11.8	5.2

Public psychiatric hospitals are excluded from both years, while repatriation hospitals and private free-standing day facilities are included for 1983 and 2004–05, respectively.

The 1983 data relate to all care types, while the 2004–05 data relate only to acute care, newborns with qualified days, and episodes with an unreported care type.

Same-day separations in 1983 were given a value of 0.5 days, while those in 2004–05 were given a value of 1 day. Lengths of stay greater than 90 days were counted as 90 days only for the 1983 data, but no similar adjustment was made to the 2004–05 data. Different DRG groupers were used for the 2 years. The 1983 data were grouped using version 2 Health Care Financing Administration (HCFA) DRGs, while the 2004–05 data were grouped using version 5.1 Australian-Refined DRGs.

Before grouping, the 1983 data were mapped from the International Classification of Diseases, 9th Revision (ICD-9) diagnosis codes and International Classification of Procedures in Medicine (IC-PM) procedure codes to ICD-9-Clinical Modification codes.

w/o = without; AMI = acute myocardial infarction.

Sources: Clavarino and Gibberd,<sup>7</sup> and AIHW.<sup>3</sup>

#### 4 Recurrent expenditure on hospitals as a proportion of total recurrent health expenditure and gross domestic product (GDP) by hospital type, Australia, 1982–83 and 2004–05

	Public hospitals	Private hospitals	All hospitals
<b>% of total health expenditure</b>			
1982–83	36.3	5.8	42.1
2004–05	26.2	8.4	34.6
<b>% of GDP</b>			
1982–83	2.4	0.4	2.8
2004–05	2.4	0.8	3.2

Public psychiatric hospitals are excluded from the data for both years. Expenditure on repatriation hospitals is included with expenditure on public hospitals for 1982–83. Australian Government and non-government expenditure for 2004–05 (but not for 1982–83) was adjusted for tax expenditures in respect of private health insurance incentives claimed through the taxation system. In terms of current prices, GDP in 1982–83 and 2004–05 was \$185 918 million and \$893 704 million, respectively. Sources: AIHW,<sup>8</sup> and AIHW.<sup>9</sup>

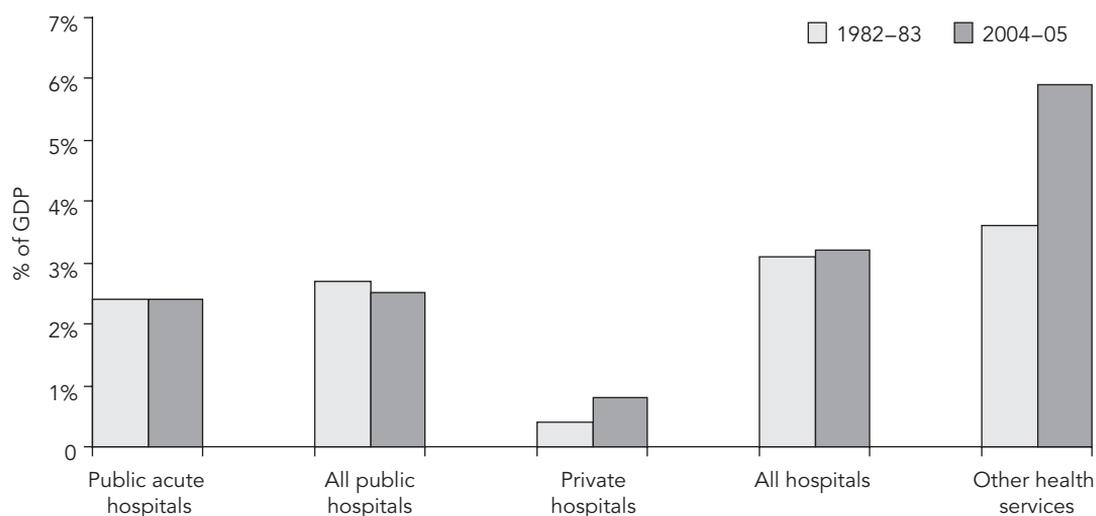
- the advent of magnetic resonance imaging (MRI) means that there is less need for arthroscopies for purely investigative purposes, while advances in endoscopic surgery mean that it is now more usual for corrective surgery to be performed as part of the arthroscopy (which results in the arthroscopy being counted as part of a more complex episode and assigned to a different DRG); and
- the fall in circumcision numbers probably reflects a change in community attitudes.

#### The public–private balance

Since 1982–83 Australia's hospital system has witnessed a massive shift of activity to the private sector (Box 8). By 2004–05 the private sector accounted for 55.8% of all surgical episodes requiring the use of an operating room.<sup>3</sup>

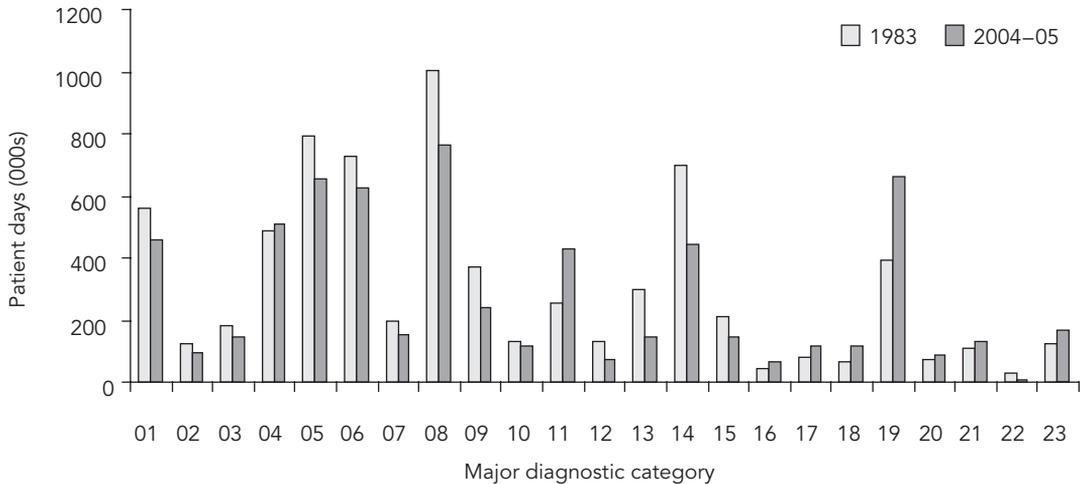
The private sector's role has increased to “dominant” player in a number of MDCs. In NSW in 2004–05, private hospitals were responsible for over 60% of all episodes assigned to MDCs 2 and 17 (Eye; and Neoplastic disorders), and over 50%

#### 5 Total recurrent expenditure on hospitals and other health services as a proportion of gross domestic product (GDP), Australia, 1982–83 and 2004–05



Expenditure on repatriation hospitals is included in both the “public acute” and “all public” figures. “All public” differs from “public acute” in that it includes public psychiatric hospitals. Sources: AIHW,<sup>8</sup> and AIHW.<sup>9</sup>

**6 Number of patient days by major diagnostic category, all hospitals, New South Wales, 1983 and 2004–05**



Public psychiatric hospitals are excluded from both years, while repatriation hospitals and private free-standing day facilities are included for 1983 and 2004–05, respectively.

MDC descriptions: 01 Nervous system; 02 Eye; 03 Ear, nose, mouth & throat; 04 Respiratory system; 05 Circulatory system; 06 Digestive system; 07 Hepatobiliary system & pancreas; 08 Musculoskeletal system & connective tissue; 09 Skin, subcutaneous tissue & breast; 10 Endocrine, nutritional & metabolic; 11 Kidney & urinary tract; 12 Male reproductive system; 13 Female reproductive system; 14 Pregnancy, childbirth & the puerperium; 15 Newborns & other neonates; 16 Blood & blood forming organs & immunological; 17 Neoplastic disorders (haematological & solid neoplasms); 18 Infectious & parasitic; 19 Mental; 20 Alcohol/drug use & alcohol/drug induced organic mental disorders; 21 Injuries, poisoning & toxic effects of drugs; 22 Burns; 23 Factors influencing health status & other contact with health services.

Sources: Fahey and Hards,<sup>5</sup> and AIHW.<sup>3</sup>

**7 Separations and average length of stay (ALOS) for selected diagnosis-related groups (DRGs) , all hospitals, New South Wales, 1983 and 2004–05**

DRG	1983		2004–05	
	Separations (000s)	ALOS (days)	Separations (000s)	ALOS (days)
Bronchitis & asthma	25.8	4.7	14.8	2.4
Appendectomy	12.8	5.6	7.4	3.3
Trauma to the skin, subcutaneous tissue and breast	8.5	3.3	6.1	2.4
Coronary atherosclerosis	7.0	8.9	5.9	3.1
Vein ligation & stripping	5.7	6.5	4.5	1.3
Circumcision	5.0	2.4	4.0	1.0
Gastrointestinal (GI) haemorrhage	4.7	5.2	3.9	3.1
Arthroscopy	3.9	2.0	1.9	1.2
Uncomplicated peptic ulcer	6.8	3.1	0.3	1.7

See Box 3 for notes.

Sources: Clavarino and Gibberd,<sup>7</sup> and AIHW.<sup>3</sup>

### 8 Private sector share (%) of hospital beds, separations, patient days and recurrent expenditure on hospitals, Australia, 1982–83 and 2004–05

	1982–83	2004–05
Beds	21.3%	33.9%
Separations	23.1%	39.2%
Patient days	21.2%	31.1%
Total recurrent expenditure on hospitals	13.7%	24.3%

Public psychiatric hospitals are excluded from both years, while repatriation hospitals and private free-standing day facilities are included for 1982–83 and 2004–05, respectively. Sources: AIHW,<sup>2</sup> AIHW,<sup>3</sup> AIHW,<sup>8</sup> and AIHW.<sup>9</sup>

of those assigned to MDCs 3, 12, 13 and 23 (Ear, nose, mouth & throat; Male reproductive system; Female reproductive system; and Factors influencing health status & other contact with health services) (Box 9).

There are 402 non-error adjacent DRGs (ADRGs) in version 4 of the Australian Refined Diagnosis Related Groups (AR-DRG) classification. Since 1994–95, the number of non-error ADRGs

with over 50% of separations occurring in the private sector has grown from 50 to 97; while the number with over 70% of separations occurring in the private sector has risen from 6 to 25 (Box 10).

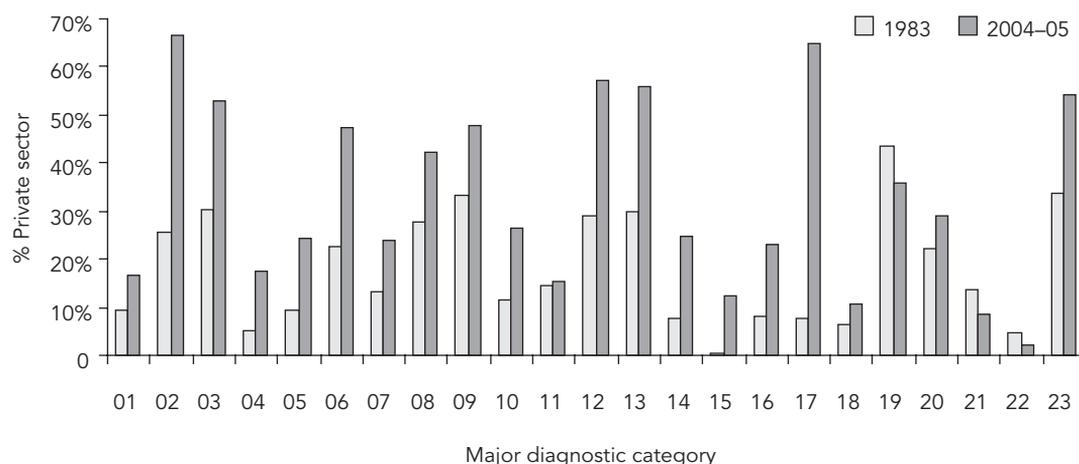
A clear division of labour has evolved in public and private hospital activity. Public hospitals with Accident and Emergency Departments are now dominant in emergency surgery and medicine, while private hospitals are now dominant in elective surgery. (At this point, the two sectors account for similar numbers of elective non-surgical admissions).<sup>3</sup>

Capped budgets and high occupancy levels mean that the public sector has only limited capacity to accommodate the growing demand for elective treatments. The private sector currently accounts for 55.7% of all elective admissions, and elective admissions account for 92.2% of all admitted patient episodes provided by private hospitals.<sup>3</sup>

### Concluding observations

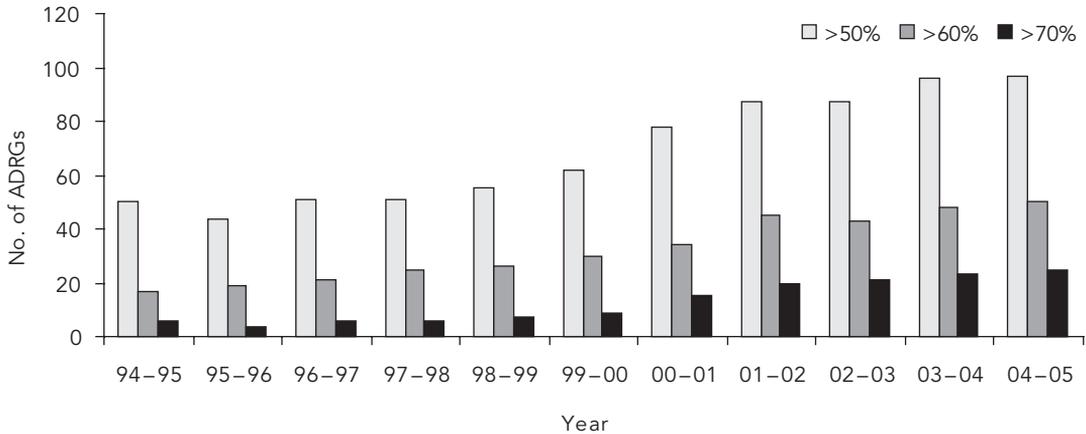
The Australian Government has still to determine what changes should be made to hospital funding

### 9 Private sector share (%) of separations by major diagnostic category (MDC), New South Wales, 1983 and 2004–05



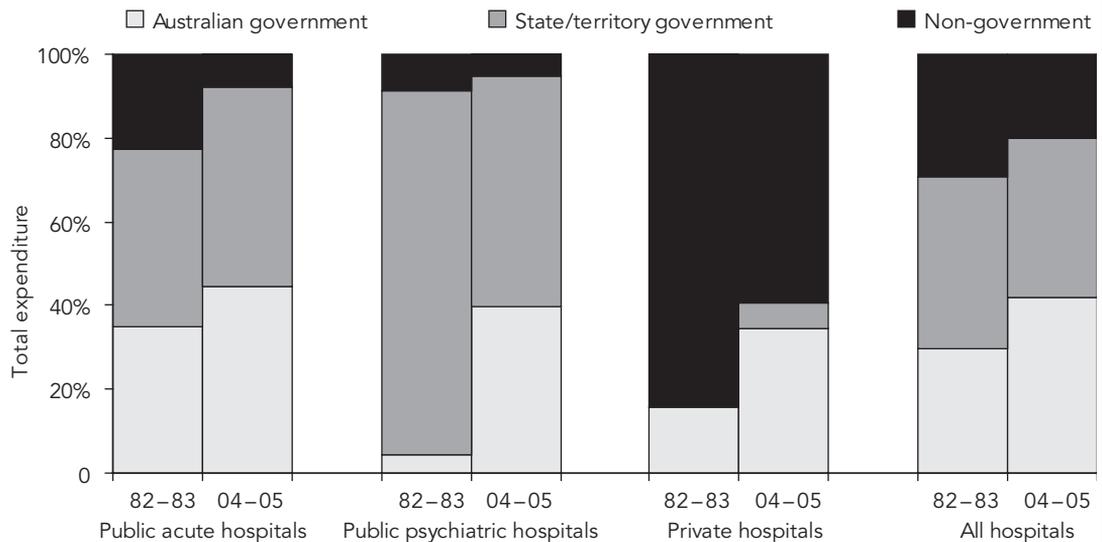
Public psychiatric hospitals are excluded from both years, while repatriation hospitals and private free-standing day facilities are included for 1983 and 2004–05, respectively. See notes to Box 6 for MDC descriptions. Sources: Fahey and Hardes,<sup>5</sup> and AIHW.<sup>3</sup>

**10 Number of adjacent diagnosis-related groups (ADRGs) (from Australian Refined Diagnosis Related Groups [AR-DRG] version 4.2) with >50%, >60% and >70% of separations occurring in the private sector, Australia, 1994–95 to 2004–05**



The National Hospital Morbidity (Casemix) Database has complete coverage of the public sector from 1991–92, and 95% coverage of the private sector from 1994–95. Before 1994–95 there were major gaps in private sector coverage. Public psychiatric hospitals are excluded, while private free-standing day facilities are included. Adjacent diagnosis-related groups (ADRGs) consist of one or more DRGs generally defined by the same diagnosis or procedure code list. DRGs within ADRGs have different levels of resource consumption and are partitioned on the basis of factors such as complicating diagnoses/procedures, age and/or patient clinical complexity level. In AR-DRG version 4, there are 661 DRGs and 409 ADRGs. The seven so-called “error” ADRGs have been excluded from this analysis. Source: Australian Government Department of Health and Ageing, National Hospital Morbidity (Casemix) Database.

**11 Percentage distribution of total recurrent expenditure on hospitals by type of hospital and source of funds, Australia, 1982–83 and 2004–05**



Sources: AIHW,<sup>8</sup> and AIHW.<sup>9</sup>

## I2 Comparison of Australia's hospital system in 1982–83 and 2004–05

### 1982–83<sup>10</sup>

Public sector dominant in beds and separations

Access to free hospital services, but only for “the disadvantaged”

32% tax rebate for health insurance  
65.1% of the population covered

Paper-based information systems and minimal performance reporting

Input-based funding

### 2004–05

Private sector dominant in elective admissions and surgical episodes

Access to free public hospital services for all, but public sector accounting for less than 50% of episodes in a growing number of diagnosis-related groups

30% tax rebate for health insurance, with higher rebates for older Australians  
43.1% of the population covered

Regional health administrative structures with population health focus

Output-based funding

arrangements once the current Australian Health Care Agreements (AHCAs) come to an end. Apart from the changes to the public–private balance noted above, there have been a number of other significant developments since Medicare was first introduced:

- The Australian Government contributed around 44.4% of recurrent expenditure on public acute hospitals in 2004–05 compared with 34.8% in 1982–83 (Box 11).
- Recent years have witnessed the establishment of regional health administrative structures, national data and coding standards, national patient casemix classifications and national performance reporting frameworks — and all of these would provide solid building blocks for future reforms.

Australia's current hospital system is very different to the one that was in place at the start of Medicare (Box 12), so new approaches to service delivery and funding may be warranted.

### Note

All views expressed in this paper are those of the author, and do not necessarily reflect those of the Australian Government, the Minister for Health or the Department of Health and Ageing. Detailed MDC-based tables for NSW hospitals in 1983 and 2004–05 are available from the author on request.

## Acknowledgements

The contributions of colleagues within the Australian Government Department of Health and Ageing are gratefully acknowledged. Gail Yapp, Assistant Secretary of Acute Care Strategies Branch, suggested this research project. Steve Nerlich, Director of Information and Performance Section, provided much of the necessary support. Dr Bernie Towler, Senior Adviser with Acute Care Division, and Dr David Barton, Medical Officer with Medical Benefits Division, commented on changes to clinical practice. Katrina Chisholm, Assistant Director of Casemix Technical Development Section, provided advice on changes to classifications and coding.

## Competing interests

The author declares that he has no competing interests.

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(Received 29/11/06, accepted 19/12/06)

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