

GROWING EMPLOYMENT AND MANAGERS IN AUSTRALIAN HEALTH SERVICES: 2006-2021

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ABSTRACT

INTRODUCTION

This research is a continuation of the authors past contributions on this important subject, that has included the first comprehensive analysis of the composition and characteristics of health service managers in Australia, in terms of their service, qualifications and other important attributes.

OBJECTIVES

This article contains an analysis of the number and characteristics of health service managers in relation to health services provided in Australia in 2006 compared with that of 2021.

DESIGN

Design of the analyses follows specifications set by the authors for tabulations prepared by the Australian Bureau of Statistics (ABS) from the censuses of population conducted by ABS in 2006 and 2021. The analysis of health service managers in terms of growth in numbers and change in their characteristics will be reviewed.

FINDINGS

A substantial increase was found in the number of health service managers in relation to the population and people employed. Also, there have been considerable changes in the characteristics and qualifications of health service managers during the 15-year period. The study also reported on the nature of the changes in hospitals and medical and other health services, and the surge in the number of managers in medical and other services, that in 2021 outnumbered those in hospitals.

IMPLICATIONS

The findings are relevant to policy development aimed at improving the health status of the population. There were implications as well to the planning of health services, training of their labour force and related educational resources. An agenda is also put forward for additional research in view of its findings.

KEYWORDS

health service manager; health management; Australia

ABBREVIATIONS

ABS	Australian Bureau of Statistics	M (nfd)	Manager no further defined
CEO/GM	Chief executive officer/general manager	Med & Other	Medical & other health services
GDP	Gross Domestic Product	SD	Standard deviation
		CV	Coefficient of variation

INTRODUCTION

Managers in the Australian health system are concerned with the improvement of the health status of people in Australia. Therefore, it is relevant to note that that life expectancy, at birth, in Australia rose from about 81 years in 2005 to 83 in 2021 [1], the period that the following enquiry is concerned with. Although the proportion of people in full health has remained about constant, the number of years in good health has increased in line with the longer life expectancy [2]. In addition to their concerns with health outcomes, managers of health services are also dealing with the efficiency of health services that in 2020/21 involved expenditures of about \$220.9 billion, 10.7% of the gross domestic product (GDP), or \$8,671 per head of population. This represents a substantial increase since 2005/06 when health services accounted for 8.7% of GDP. Most of the expenditure in 2020/21 was concerned with operational activities (94.7%), as only \$11.7 billion was spent on capital works (5.3%). Health services in Australia are mainly financed by the public sector (70.6% in 2020/21), at federal and state/territory levels. [3].

Health service managers are engaged in both the effectiveness and efficiency of the health system, and the assessment of their number in relation to the services they manage and their attributes are important because of the vital role that they play. It is in this context, the analysis of the growth in their numbers and change in their characteristics will be reviewed from data in the 2006 and 2021 censuses of population conducted by the Australian Bureau of Statistics (ABS). The findings from the following analysis are relevant to policy development aimed at improving the health status of the population. They are also pertinent to planning of health services, training of their labour force and related educational resources.

This research is a continuation of the authors past contributions on this important subject, that has included the first comprehensive analysis of the composition and characteristics of health service managers in Australia, in terms of their service, qualifications and other important attributes.

DATA SPECIFICATIONS

The data specifications were prepared by the authors in the context of the 2006 and 2021 population censuses to ensure compatibility and comparability. Therefore, the

data follows ABS' Australian occupation and industry classifications. Further details regarding ABS' classifications have been given and available in Martins & Isouard [4] [5]. However, detailed specifications of manager categories are given in the Appendix. The data for 2006 and 2021 were collected by ABS in its population censuses for those two years, in relation to the resident population of Australia. Although the data relied on answers to questions posed in those two censuses, they were subjected to post-enumeration surveys conducted by ABS to ensure their accuracy and reliability. The data is concerned with managers in hospitals and medical and other health services in the public and private sectors. However, it does not include pharmacists in private retailing because of their mixed businesses and difficulty in sorting out their activities in the provision of pharmaceutical drugs from those involving cosmetics, toiletries and other products.

As stated, the classification follows the occupation and industry classification used by ABS, with managers in four categories: managers no further defined, chief executive officers and general managers, specialist managers, and service managers.

The data is in accordance with ABS' coding for age, sex, marital status, field and level of education, indigenous status, country of birth, hours worked and individual income. To allow comparison of characteristics of health service managers, the authors requested similar data for managers in all sectors. To protect confidentiality, ABS made slight changes to some cells. They posed small differences in some cases that the authors adjusted, without significant material impact. The sources of other data used is in accordance with references given. The figures for 2021 provided by ABS are slightly different from those in previous reviews in regard to the number of employees and managers for all industries. The 2021 figures include those involved in agriculture. However, this does not lead to any differences in findings regarding health service managers, or in any material way for managers in general. Further, the authors have followed ABS' definitions of sex and gender [6]. Sex is defined as the biological characteristics of males and females. Gender refers to psychological and social characteristics that are culturally determined from belief systems of what masculine and feminine behaviour is or ought to be.

It is relevant to indicate that data used in the analysis were from tabulations provided by ABS. However, the information provided in the tables and figures are the result

of the analysis made by the authors. Thus, while the sources given are usually those from ABS' original sources the results shown are those from the authors' work.

GROWING EMPLOYMENT

In the 15-year period 2006-2021 the Australian population grew by about 23.3% to 25.4 million and that of older people over 64 years of age, who use health services more frequently, rose more so by 51.7% to 4.2 million [7].

However, this substantial growth rate in population, including the higher rate of increase in people 65 years of age and over, was well below that of the number of health services employees that rose by 78% in the same period, in

contrast to the much lower growth of people employed in all industries in Australia of 32.3% (Table 1).

FLOURISHING MANAGEMENT

Moreover, the number of health service managers grew, not only at a higher rate than that of the population, but even more than the rate of increase in the number of health services employees (Tables 2 and 3). Especially in the case of medical and other services. Accordingly, while the number of hospital employees grew by 80.9% during the period 2006-2021, the number of hospital managers rose by 95.1%, but the number of managers in medical and other services increased even more by 150.4% in comparison with 74.8% in the case of employees in the same services (Tables 2 and 3).

TABLE 1. NUMBER OF PEOPLE EMPLOYED IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Industry	Number people employed 000s		Change 2006-2021 %
	2006	2021	
All industries	9,104.2	12,049.4	+32.3
Hospitals	303.9	549.8	+80.9
Medical & other health services	270.0	471.9	+74.8
All health services	573.9	1,021.7	+78.0

Sources: References [8] [9]. Analysis made by the authors

TABLE 2. NUMBER OF PEOPLE EMPLOYED IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Industry	Number of managers 000s		Change 2006-2021 %
	2006	2021	
All industries	1,202.3	1,505.3	+25.2
Hospitals	10.9	21.2	+95.1
Medical & other services	8.5	21.4	+150.4
All health services	19.4	42.6	+119.4

Sources: References [10] [11]. Analysis made by the authors.

TABLE 3. NUMBER OF PEOPLE EMPLOYED BY MANAGER IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Industry	Employees per manager		Ratio change 2006-2021
	2006	2021	
All industries	7.6	8.0	+0.4
Hospitals	27.9	25.9	-2.0
Medical & other health services	31.7	22.1	-9.6
All health services	29.6	24.0	-5.6

Sources: References [10] [11]. Analysis made by the authors.

It is a characteristic of health services that the ratio of employees per manager is rather large. While there were on average about 8 employees per manager in all industries, the number of employees per manager in health

services was in the 20s. Nevertheless, the large increase in the number of health service managers, especially in the case of medical and other services, meant that the

number of employees per manager in health services fell from 29.6 in 2006 to 24.0 in 2021 (Table 3).

In terms of health services expenditure, on average \$4.2 million was spent in hospitals in 2020/21 per manager, \$5.2 million in the case of medical and other services, or \$4.8 million on average per all health service managers (Table 2; [3]).

RISING MIDDLE LEVEL MANAGERS

In a highly technical service, specialist managers usually concerned with the provision of more direct services made

up 70.7% of managers in health services in 2021. Their proportion was substantially higher in hospitals (76.4%) than in medical and other health services (69.6%). This contrasted with a much lower proportion in all industries (57.5%).

Chief executive officers and managers no further defined constituted 16.5% of the total number of health managers. Their proportion in hospitals was much lower (12.7%) than that in medical and other health services (19.9%), possibly due to the larger scale of operation of hospitals. This compared with an average of 13.1% for all industries.

TABLE 4. HEALTH AND ALL INDUSTRIES MANAGERS BY CATEGORY, AUSTRALIA, 2006 AND 2021

Industry	Category percentage distribution			
	CEO/GM & M (nfd)	Specialist	Service	All
Hospitals				
2021	12.7	76.4	10.9	100.0
2006	13.2	69.6	17.2	100.0
Med & other				
2021	19.9	65.0	15.1	100.0
2006	21.1	62.7	16.2	10.00
Health services				
2021	16.3	70.7	13.0	100.0
2006	16.6	66.6	16.8	100.0
All industries				
2021	13.1	57.5	29.4	100.0
2006	13.2	50.3	36.5	100.0
Difference 2021-2006				
Hospitals	-0.5	+6.8	-6.3	
Med & other	-1.2	+2.3	-1.1	
Health services	-0.3	+4.1	-3.8	
All Industries	-0.1	+7.2	-7.1	

Note: (CEO/GM & M (nfd) represent the sum of chief executive officer/general manger category with managers no further defined. Health services is the sum of hospital and medical and other health services. (Med & Other) is Medical and other health services.

Sources: References [10] [11]. Analysis made by the authors.

In the same year, managers concerned with services such as cleaning and food constituted 13.0% of health service managers. Their proportion in hospitals was much lower (10.9%) than in medical and other health services (15.1%), but the proportions in both types of services was considerably lower than the average for all industries (29.4%). No doubt, these substantial differences may reflect the contracting out of services by hospitals and other health services to providers of such services.

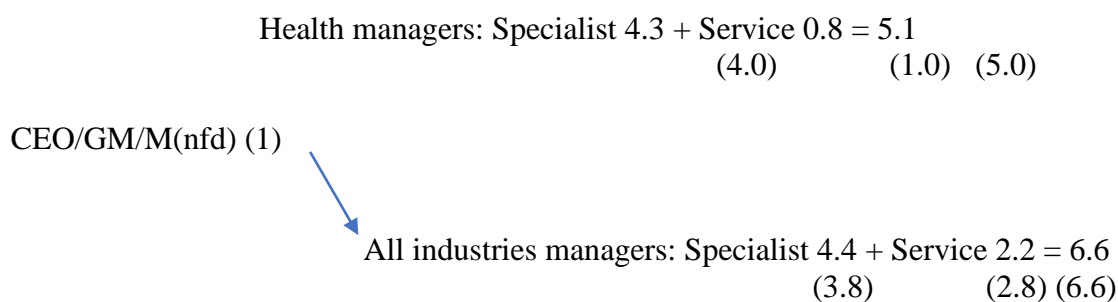
There were some noticeable changes since 2006 in management categories, not only in health services but also in all industries. The most noticeable was the rise in the proportion of specialist managers. This might have arisen from a concern with middle management more directly involved in the oversight of operations. Accordingly, their proportion rose by 6.8% in hospitals and to a lesser extent by 2.3% in other health services during the 15-year period. While the proportion concerned with service provision that might be outsourced declined by 6.3% in hospitals and 1.1% in medical and other health services. The proportion of

chief executive officers and managers no further defined remained about the same in hospitals (-0.5%) and declined slightly in medical and other health services (-1.2%). The more substantial changes in proportions in hospitals were in line with those in all industries (Table 4).

In spite of the large increase in the number of managers, the structure in the numerical relationship between top and middle management changed only slightly from 2006 to

2021. Thus, top health service managers were responsible for 5.1 middle managers in 2021 and 5.0 in 2006, but with a bigger trade-off between specialist and service managers, as indicated earlier, as the proportion of specialist managers rose while that of service managers declined. This was similar to the change in all industries (Figure 1).

FIGURE 1. AVERAGE SPECIALIST AND SERVICES MANAGERS PER CHIEF EXECUTIVE OFFICER, HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2021 AND 2006



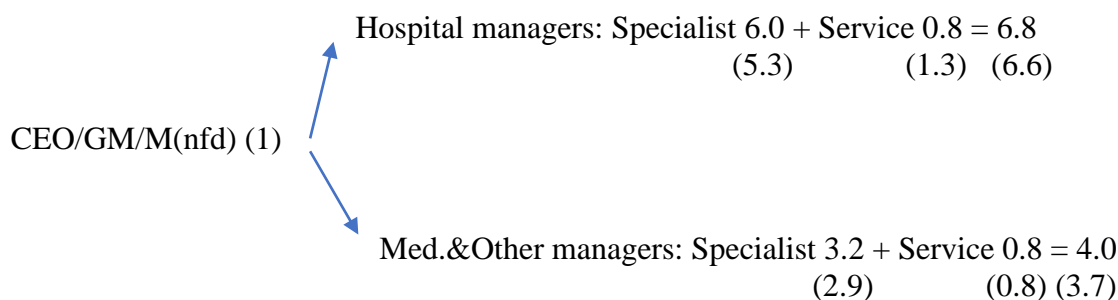
Note: (CEO/GM/M(nfd) is the combined categories of chief executive officer/ general manager/manager no further defined. The figures in brackets are the related ratios for 2006.

Sources: References [10] [11]. Analysis made by the authors.

However, the data for health services mask major differences in structure partly due to the scale of operations between hospitals and medical and other health services.

Accordingly, the changes in hospitals were more considerable in the case of specialist managers employed in hospitals that rose from 5.3 per top manager in 2006 to 6.0 in 2021, but also in the case of service managers that dropped from 1.3 per top manager to 0.8 in 2021. The change in related ratios were relatively small by comparison in the case of medical and other health services (Figure 2).

FIGURE 2. AVERAGE SPECIALIST AND SERVICES MANAGERS PER CHIEF EXECUTIVE OFFICER, HOSPITAL AND MEDICAL AND OTHER HEALTH SERVICES, AUSTRALIA, 2021 AND 2006



Note: (CEO/GM/M(nfd) is the combined categories of chief executive officer/ general manager/manager no further defined. (Med.&Other) is Medical and other health services. The figures in brackets are the related ratios for 2006).

Sources: References [10] [11]. Analysis made by the authors.

AGING MANAGERS

The average age of health managers at 47.3 years was higher than the average for managers in all industries, in 2021. This was particularly so in the case of hospital managers with an average age of 48.9 years compared with that of medical and other health services that at 45.8 years, that was close to the average for all industries. It is noticeable that the spread of age years of the older hospital managers was lower than in the average for all

industries and also that in medical and other health services (Table 5).

The average age of hospital managers rose by almost two years (+1.8 years) in the period 2006-2021. This was about the same increase as that in the younger aged managers in all industries (+1.8), but higher than the increment in the age of managers in medical and health services (+1.1 years) (Table 5).

TABLE 5. AGE OF MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021.

Age (years)	Hospitals	Medical & other	All health services	All industries
2021				
Average	48.9	45.8	47.3	45.3
Median	49.3	45.5	47.4	45.0
Standard deviation	10.7	11.5	11.2	12.1
Coef. of variation	0.22	0.25	0.24	0.27
2006				
Average	47.0	44.7	46.0	43.5
Median	47.6	45.2	46.6	43.5
Standard deviation	9.4	10.6	10.0	11.6
Coef. of variation	0.20	0.24	0.22	0.27

Sources: References [10] [11]. Analysis made by the authors.

TABLE 6. AGE OF MANAGERS BY CATEGORY, HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Manager category	Health services age (years)				All industries age (years)			
	Average	Median	SD	CV	Average	Median	SD	CV
2021								
CEO/GM	50.0	50.1	11.3	0.23	49.9	49.7	11.3	0.23
M(nfd)	48.3	47.9	11.2	0.23	47.9	47.4	12.2	0.26
Specialist	47.1	47.2	10.9	0.23	45.3	44.9	11.3	0.25
Service	45.8	46.0	12.4	0.27	43.4	42.7	13.3	0.31
All	47.5	47.4	11.2	0.24	45.3	45.0	12.1	0.27
2006								
CEO/GM	47.8	48.1	9.3	0.19	47.4	47.2	10.6	0.22
M(nfd)	47.4	47.4	10.3	0.22	47.2	47.1	11.7	0.25
Specialist	45.7	46.3	9.7	0.21	43.5	43.4	10.8	0.25
Service	45.4	46.6	11.0	0.24	41.9	41.9	12.5	0.30
All	46.0	46.6	10.0	0.22	43.5	43.5	11.6	0.27

Note: (CEO/GM) means chief executive officer and general manager; M(nfd) means managers no further defined; (SD) means standard deviation; (CV) means coefficient of variation.

Sources: References [10] [11]. Analysis made by the authors.

The average age of the top executives (CEO/GM: chief executive officers and general managers) in health services (50.0 years) was about 2.5 years higher than that of the average for all health service managers in 2021, and about the same as that in all industries (49.9 years). However, the average age of the more numerous specialist and service managers was older than that in all industries, leading to a difference of 2.2 years between the average age of managers in health services and all industries. It is noticeable that the average age of service managers in health services (45.8 years) was lower than the average for managers (47.5). This also applied in the case of the younger managers in all industries. However, the age range was

wider, as indicated by their higher age standard deviation (Table 6).

The estimation of the average age of managers for 2006 and 2021 indicates that the age of managers both in health services and all industries rose during the 15-year period. The rise in average age was highest in the case of top managers in health services (+2.2 years) and specialist managers (+1.4 years). This was similar to the increase in the average age of these two groups in all industries. This shows a common trend towards older average age for managers in Australian health services, and a wider age range as shown in the estimated age standard deviations for 2006 and 2021 (Table 6).

TABLE 7. AGE OF MANAGERS BY CATEGORY, HOSPITALS AND MEDICAL AND OTHER HEALTH SERVICES, AUSTRALIA, 2006 AND 2021

Manager category	Hospitals age (years)				Medical and other health services age (years)			
	Average	Median	SD	CV	Average	Median	SD	CV
2021								
CEO/GM	51.6	52.1	11.4	0.22	49.0	48.9	11.2	0.23
M(nfd)	49.2	49.3	10.1	0.21	47.7	46.9	11.8	0.25
Specialist	48.4	48.7	10.5	0.22	45.6	45.2	11.3	0.25
Service	49.8	51.0	11.8	0.24	43.0	42.2	12.0	0.28
All	48.9	49.1	10.7	0.22	45.8	45.5	11.5	0.25
2006								
CEO/GM	48.6	48.8	8.9	0.18	47.1	47.3	9.6	0.20
M(nfd)	47.2	47.4	9.4	0.20	47.4	47.4	10.7	0.23
Specialist	46.5	47.0	9.2	0.20	44.6	45.2	10.4	0.23
Service	48.1	49.2	9.9	0.21	41.7	41.7	11.4	0.27
All	47.0	47.6	9.4	0.20	44.7	45.2	10.6	0.23

Note: (CEO/GM) means chief executive officer and general manager; M(nfd) means managers no further defined; (SD) means standard deviation; (CV) means coefficient of variation.

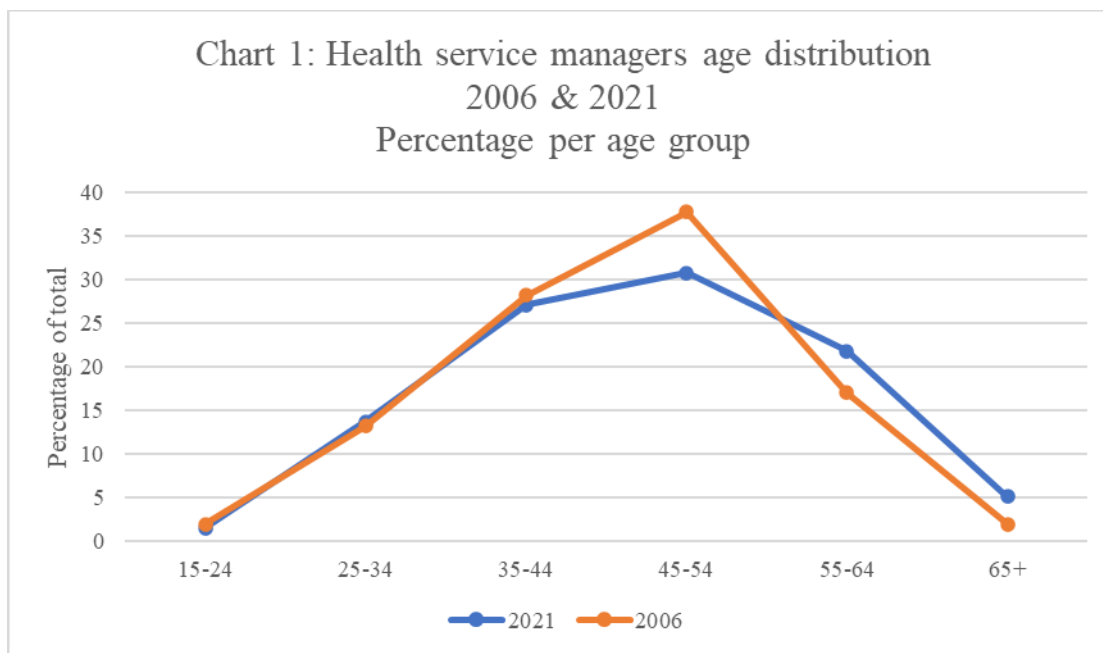
Sources: References [10] [11]. Analysis made by the authors.

Further analysis of managers age within health services indicates substantial differences between those in hospitals and medical and other health services. Hospital managers in all categories were older on average than those in medical and other health services, both in 2006 and 2021. Although the average age of all categories rose in both hospitals and medical and other health services, the age of the older CEO/GM in hospitals rose by 3.0 years in hospitals and much less by 1.9 years in medical and other health services. Similarly, while the average age of the larger group

of specialist managers in hospitals increased by 1.9 years, that in medical and other health services rose only by 1.0 year. Thus, although average age of managers in all categories and health services increased during the period under review, that in hospitals rose more, especially in the case of top and specialist managers. Another feature of the changes that took place is that the dispersion of ages became larger in 2021 than 2006 for all categories, both in hospitals and medical and other health services. This might

be due to managers staying longer at work before retirement (Table 7; Chart 1).

CHART 1: HEALTH SERVICE MANAGERS AGE DISTRIBUTION 2006 & 2021 PERCENTAGE PER AGE GROUP



Sources: References [10] [11]. Analysis made by the authors.

FEMALE AND MALE MANAGERS

Females constituted 76.1% of all employees in health services in 2021 compared with 48.5% in all industries. The proportion was higher in hospitals (77.3%) than in medical and other health services (74.7%). This represented a small increase in the proportion of male employees in both health services, while the inverse happened for all industries (Table 8).

In a service where most employees are females, they also constituted the majority of managers (63.6%) in contrast with the proportion in all industries (40.7%) where the majority of employees were male in 2021. Nevertheless, the proportion of female health managers was considerably lower than the proportion of female employees (76.1%), leaving a considerable gap of 12.5%. The gap was larger in the case of medical and other health services (13.0%) than in hospitals (11.7%) and has been reduced since 2006 (Table 9).

TABLE 8. SEX DISTRIBUTION OF PEOPLE EMPLOYED IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Sex	Percentages			
	Hospitals	Medical & other	All health	All industries
2021				
Females	77.3	74.7	76.1	48.5
Males	22.7	25.3	23.9	51.5
2021				
Relative difference index	28.8	26.2	27.6	Standard
2006				
Females	79.1	72.8	76.2	46.1
Males	20.9	27.2	23.8	53.9
2006				
Relative difference index	33.3	26.9	30.3	Standard

Note: The relative difference index = $[\sum \{ (a_i/b_i) * 100 \} - 100] / (2 * n)$; where (a_i) is the proportion of employees of sex (i) in given health services; (b_i) is the proportion of employees of sex (i) in all industries; (n) is the number of sex groups.

Sources: References [10][11]. Analysis made by the authors.

TABLE 9. SEX DISTRIBUTION OF MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Sex	Percentage			
	Hospitals	Medical & other	All health	All industries
2021				
Females	65.6	61.7	63.6	40.7
Males	34.4	38.3	36.4	59.3
2021				
<i>Female managers to employees % gap</i>	-11.7	-13.0	12.5	-7.8
2006				
Females	61.5	58.8	60.4	35.2
Males	38.5	41.2	39.6	64.8
2006				
<i>Female managers to employees % gap</i>	-17.6	-14.0	-15.8	-10.9

Note: The female to employee % gap is the difference between the proportion of female employees and the proportion of managers in the given activity. Sources References 10 [11]; Table 8. Analysis made by the authors.

The lower proportion of female managers than the proportion of female employees is particularly noticeable in the case of top executives (CEO/GM). Females made up 55.6% of top executives (CEO/GM) in contrast with the average of 63.6% for all manager categories in 2021. Nevertheless, the proportions in 2021 represent an increase from those in 2006 (Table 10).

As stated earlier, health manager ages have grown older from 2006 to 2021. This applied on average for female and male health managers. However, female managers in all categories were younger (46.9 years) than male managers (48.1 years) in 2021. In a similar pattern as that in 2006 (Table 11).

TABLE 10. HEALTH SERVICE MANAGERS BY CATEGORY AND SEX, AUSTRALIA, 2006 AND 2021

Sex	Percentage				
	CEO/GM	M(nfd)	Specialist	Service	All health
2021					
Females	55.6	60.3	65.9	59.8	63.6
Males	44.4	39.7	34.1	40.2	36.4
2006					
Females	51.6	61.0	62.6	57.4	60.4
Males	48.4	39.6	37.4	42.6	39.6
<i>Female % change 2006-2021</i>	+5.0	-0.7	+3.3	+2.4	+3.2

Note: (CEO/GM) are chief executive officers and general managers; (M(nfd)) are managers no further defined. Sources: References [10] [11] Analysis made by the authors.

TABLE 11. HEALTH SERVICE MANAGERS AVERAGE AGE BY CATEGORY AND SEX, AUSTRALIA, 2006 AND 2021

Sex	Average years of age				
	CEO/GM	M(nfd)	Specialist	Service	All health
2021					
Females	49.5	47.6	46.8	44.5	46.9
Males	50.6	49.3	47.5	47.7	48.1
Persons 2021	50.0	48.3	47.1	45.8	47.5
2006					
Females	47.6	46.7	45.2	45.1	45.5
Males	48.1	48.3	46.5	45.8	46.7
Persons 2006	47.8	47.4	45.7	45.6	46.0
2006-2021 Persons' age years difference	+2.2	+0.9	+1.6	=0.2	+1.3

Note: (CEO/GM) are chief executive officers and general managers; (M(nfd)) are managers no further defined.

Sources: References [10] [11]. Analysis made by the authors.

GROWING SEX DIFFERENCES IN THE FIELD OF STUDY

The fields of study of health service managers has been predominantly those of health and management/commerce, with a slight change from 2006 to 2021. While in 2006 health studies made up 28.9% and management/commerce 26.2%, by 2021 29.2% were from management/commerce and 28.4% health. As might be expected, while the proportion of management/commerce graduates in health services was about the same as that in all industries (28.6%) in 2021, the proportion of health study graduates was much higher than that in all industries (3.7%). With the exception of social and related studies which graduates made 12.1% of the total in

2021 and 9.5% in 2006, the remainder was distributed among a wide range of disciplines, both in 2021 and 2006 (Table 12).

There was a degree of field of study specialisation between female and male health service managers. Even though the proportion of female managers rose in all fields of study, with the exception of information technology during the period 2006-2021. Accordingly, female managers were predominant in the fields of education, social and related fields, health, food and hospitality, management/commerce and natural and physical sciences, while the proportion of male managers was greater in the case of engineering, architecture/building and information technology studies (Table 13).

TABLE 12. FIELD OF STUDY OF HEALTH SERVICES AND ALL INDUSTRIES MANAGERS, AUSTRALIA, 2006 AND 2021.

Field of study	Percentage			
	2006		2021	
	Health	All industries	Health	All industries
Management & commerce	26.2	20.5	29.2	28.6
Health	28.9	2.5	28.4	3.7
Social & related fields	9.5	8.0	12.7	12.1
Natural & physical sciences	5.1	2.5	5.5	3.0
Engineering	4.1	12.7	3.6	11.2
Education	2.9	4.2	2.4	4.2

Food & hospitality	1.9	2.8	1.7	3.3
Information technology	1.6	2.2	2.8	4.0
Architecture & building	1.0	5.3	1.0	5.5
Other & not well defined	18.8	39.3	12.7	24.4
All fields of study	100.0	100.0	100.0	100.0

Sources: References [10][11]. Analysis made by the authors

TABLE 13. FIELD OF STUDY OF HEALTH SERVICES MANAGERS BY SEX, AUSTRALIA, 2006 AND 2021

Field of study	Percentage			
	2006		2021	
	Females	Males	Females	Males
Education	73.1	26.9	75.8	24.2
Social & related fields	67.2	32.8	73.3	26.7
Health	69.9	30.1	71.3	28.7
Food & hospitality	55.7	44.3	65.0	35.0
Management & commerce	56.3	43.7	61.8	38.2
Natural & physical sciences	52.3	47.7	61.0	39.0
Engineering	7.6	92.4	15.5	84.5
Architecture & building	2.2	97.8	19.7	80.3
Information technology	29.5	70.5	24.5	75.5
Other	65.4	34.6	65.8	34.2
All fields of study	60.4	39.6	63.6	36.4

Sources References [10] [11]. Analysis made by the authors

ASCENDING LEVEL OF EDUCATION OF MANAGERS

There was a substantial rise in the level of educational of managers between 2006 and 2021. This applied across the board in both hospitals and medical and other health services. It was particularly accentuated in terms of postgraduate education that rose to 38.1% from 29.9% in the case of hospitals from 2006 to 2021. Advancement was also high in the case of medical and other health services from 20.7% in 2006 to 27.2% in 2021. This was associated with the substantial rise in the proportion of managers in all industries at postgraduate level from a relatively low of 9.6% in 2006 to

17.4% in 2021. The increase in proportion of managers in health services at bachelor level was relatively small by comparison, with an 4.0 % rise in the case of medical and other health services and an actual small drop of 0.5% in the case of hospitals. However, the growth in proportion of managers in all industries at bachelor level was again much greater from 19.9% in 2005 to 28.5% in 2021. This meant that in spite of the larger proportional rise in the case of managers in all industries, the difference between the level of education between them and those in health, and especially those in hospitals, remained quite large (Table 14).

TABLE 14. LEVEL OF EDUCATION OF HEALTH SERVICES AND ALL INDUSTRIES MANAGERS, AUSTRALIA, 2006 AND 2021

Level of education	Percentage of all levels			
	Hospitals	Medical & other	All health	All industries
2021				
Postgraduate	38.1	27.2	32.6	17.4

Bachelor	29.6	35.2	32.4	28.5
	67.7	62.4	65.0	45.9
Diploma/certificate	21.6	24.7	23.2	31.9
Other & not stated	10.7	12.9	11.8	22.2
All	100.0	100.0	100.0	100.0
<i>2021 Relative difference index</i>	25.9	18.0	21.9	<i>Standard</i>
2006				
Postgraduate	29.9	20.7	25.8	9.6
Bachelor	29.1	31.2	30.0	19.9
	59.0	51.9	55.8	29.5
Diploma/certificate	22.0	26.8	24.2	31.5
Other & not stated	19.0	21.3	20.0	39.0
All	100.0	100.0	100.0	100.0
<i>2006 Relative Difference index</i>	42.4	29.1	36.5	<i>Standard</i>

Note: The relative difference index = $[\sum \{(a_i/b_i) * 100\} - 100] / (2 * n)$; where (a_i) is the proportion of managers with level of education (i) in given health service; (b_i) is the proportion of managers (i) in all industries; (n) is the number of levels of education groups. Other and not stated includes those who did not state their level of education or with other than the stated levels of education.

Sources: References [10] [11]. Analysis made by the authors.

An outcome is that the proportion of managers at diploma/certificate level in health services remained lower (23.2% in 2021) than that in all industries (31.9% in 2021), especially so in the case of hospitals (21.6% in 2021) (Table 14).

The level of education of chief executive officers and general managers (CEO/GM) was considerably higher than for the other levels of management in 2021. In the case of hospitals 46.1% had postgraduate qualifications and 37.5% in medical and other health services. Specialist managers both in hospitals (41.4%) and medical and other services

(29.5%) followed. In both cases, they also had high proportions at bachelor level, that made their proportions at graduate levels at respectively 76.7% and 73.2% in the case of hospitals and 73.1% and 66.9% in medical and other health services. It is noticeable that managers in both hospitals and medical and health services concerned with service functions had only 23.9% and 33.3% of their total numbers at graduate level, with respectively 48.1% and 41.7% at diploma/certificate levels. While the education at graduate level of managers no further defined was 60.3% and 59.9% respectively at hospitals and medical and other health services (Table 15).

TABLE 15. LEVEL OF EDUCATION OF MANAGERS IN HOSPITALS AND MEDICAL AND OTHER HEALTH SERVICES BY CATEGORY, AUSTRALIA, 2021

Level of education	Percentage of all levels of education				
	CEO/GM	M(nfd)	Specialist	Service	All
Hospitals					
Postgraduate	46.1	35.2	41.4	8.8	38.1
Bachelor	30.6	25.1	31.8	15.1	29.6
	76.7	60.3	73.2	23.9	67.7
Diploma/certificate	16.1	24.0	18.4	48.1	21.6

Other & not stated	7.2	15.7	8.4	28.0	10.7
All	100.0	100.0	100.0	100.0	100.0
Medical & other health services					
Postgraduate	37.5	25.8	29.0	9.7	27.2
Bachelor	35.6	34.1	37.9	23.3	35.2
Diploma/certificate	73.1	59.9	66.9	33.0	62.4
Other & not stated	17.7	25.5	22.3	41.7	24.7
	9.2	14.6	10.8	25.3	12.9
All	100.0	100.0	100.0	100.0	100.0

Note: (CEO/GM) are chief executive officers and general managers; (M(ndf)) are managers no defined. (Other & not stated) include those managers who did not state their level of education or with other than the levels of education stated in the table.

Source: Reference [11]. Analysis made by the authors.

The proportion of male CEOs/GMs at postgraduate and graduate levels (79.1%) was higher than that of females (70.8%) in health services in 2021. However, close to the reverse happened in the case of specialist managers where the proportion was 70.7% for females and 69.6% for males. Males also had a higher proportion of postgraduate qualification in the case of managers no further defined and service managers, but the proportion of graduates was about the same for both sexes, with a higher proportion of males with diploma/certificate in the service manager category (Table 16).

LAGGING GROWTH IN INCOME

The average income of health managers was substantially higher than that in all industries both in 2021 and 2006. This was especially so in the case of hospitals that in 2021 was

\$2,385 per week (about \$124,300 per year) in comparison with average in all industries of \$2,154 (about \$112,200 per year) in all industries. The difference was lower in the case of managers in medical and other health services with an average weekly income \$2,221 (about \$115,700 per year). It is noticeable that dispersion in the range of income of hospital managers was lower than that in either medical and other health services or that for managers in all industries.

Further, the proportional average increase in managers of health services (+53.6%) was considerably lower than that of lower paid average managers for all industries (+60.6%) in the period 2006-2021. Thus, reducing, the difference between the average income of managers in health services and the average for all industries. (Table 17).

TABLE 16. LEVEL OF EDUCATION OF MANAGERS OF HEALTH SERVICES, BY SEX AND CATEGORY, AUSTRALIA, 2021

Level of education	Female and male percentage in level by category				
	CEO/GM	M(ndf)	Specialist	Service	All
Females					
Postgraduate	39.2	28.6	36.2	8.3	32.8
Bachelor	31.6	29.3	34.5	20.4	32.2
Diploma/certificate	70.8	57.9	70.7	28.7	65.0
Other & not stated	20.0	24.2	19.9	40.3	22.6
	9.2	17.9	9.4	31.0	12.4
All	100.0	100.0	100.0	100.0	100.0

Males					
Postgraduate	42.9	30.9	34.7	10.8	32.3
Bachelor	36.2	32.6	34.9	19.1	32.7
Diploma/certificate	79.1	63.5	69.6	29.9	65.0
Other & not stated	13.4	25.9	20.7	50.3	24.1
	7.5	10.6	9.7	19.8	10.9
All	100.0	100.0	100.0	100.0	100.0

Note: (CEO/GM) are chief executive officers and general managers; (M(ndf)) are managers no further defined. (Other & not stated) include those managers who did not state their level of education or with other than the levels of education stated in the table.

Source: Reference [11]. Analysis made by the authors

TABLE 17. AVERAGE WEEKLY INCOME OF MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Weekly income	Weekly income (\$)			
	Hospitals	Medical & other	All health	All industries
2021				
Average	2,385	2,221	2,303	2,154
Median	2,303	1,993	2,177	1,892
Standard deviation	954	1,111	1,039	1,167
Coefficient of variation	0.40	0.50	0.45	0.54
2006				
Average	1,548	1,436	1,499	1,341
Median	1,411	1,261	1,362	1,108
Standard deviation	769	827	799	882
Coefficient of variation	0.50	0.58	0.53	0.66
2021-2006				
% change of average	+54.1	+54.7	+53.6	+60.6

Note: The average and median are for the weekly gross income of managers. The figures exclude those managers that did not declare their income at the time of the censuses that constituted about 0.3% of health managers and 0.6% of managers in all industries. The change in the relative weights of hospital and medical and other health services between 2006 and 2021 has led to the lower % change in averages between 2006 and 2021 for all health managers.

Sources: References [10] [11]. Analysis made by the authors.

As might be expected, managers at chief executive/general manager level in health services earned about a fifth more on average (+23.8%) than the average for all managers in those services, but the difference was lower than that in all industries. Specialist managers earned about as much as the average and service managers considerably less than the average (-31.4%). This trend

tended to be followed both in hospitals and medical and other health services (Table 18).

The average weekly income of females in health services at \$2,316 in 2021 was lower than that of males of \$2,583 in 2021. The difference between them prevailed across their age and became larger above 64 years of age (Chart 2).

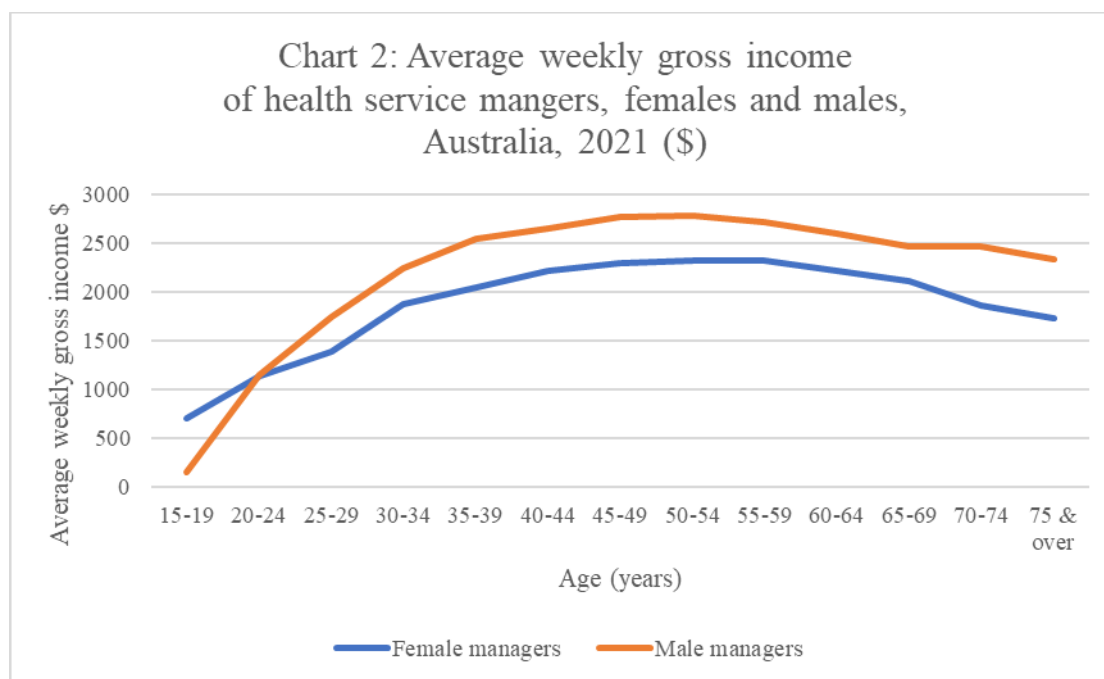
TABLE 18. AVERAGE WEEKLY INCOME OF MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, BY CATEGORY, AUSTRALIA, 2021

Category	Percentage above (+) or below (-) average weekly income			
	Hospitals	Medical & other	All health	All industries
CEO/GM	+20.5	+27.6	+23.8	+32.5
M(nfd)	-1.3	-5.4	-4.7	+2.3
Specialist	+2.1	+0.9	+1.9	-11.4
Service	-32.2	-29.9	-31.4	-33.1
<i>All mangers</i>				
Average weekly income (\$)	2,385	2,221	2,303	2,154

Note: The average and median are for the weekly gross income of managers. The figures exclude those managers that did not declare their income at the time of the censuses that constituted about 0.3% of health managers and 0.6% of managers in all industries.

Source: Reference [11]. Analysis made by the authors.

CHART 2: AVERAGE WEEKLY GROSS INCOME OF HEALTH SERVICE MANAGERS, FEMALES AND MALES, AUSTRALIA, 2021 (\$)



Source: Reference [11]. Analysis made by the authors

HOURS WORKED BY MANAGERS

The hours of work of managers in hospitals at an average of 41.9 in 2021 remained the same as in 2006, while the average of those in medical and other health services declined a little from 41.9 in 2006 to 40.4 in 2021. This was a small change in comparison with that of the average for all industries that fell by 4.1 hours to the still higher average of 42.8 hours in 2021. The standard deviations from the average indicate that there was a wider range around the average in both medical and other health services and all industries than in hospitals in 2021 (Table 19).

Chief executive officers/general managers worked longer average hours in health services (45.6 hours) than those in other positions, especially those in service areas (37.7 hours) in 2021. Nevertheless, the top executive average in health services was somewhat lower than the average for all industries (48.3 hours). In general, the averages for other levels of management in medical and other health services tended to be lower than those in hospitals (Table 20).

On average, in 2021, female managers tended to work a lower number of hours both in hospitals (40.2 hours) and medical and other health services (38.3 hours) than males (respectively 43.9 and 43.9 hours) (Table 21).

TABLE 19. AVERAGE HOURS WORKED THE WEEK BEFORE THE CENSUS BY MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Weekly work hours	Hours worked per week			
	Hospitals	Medical & other	All health	All industries
2021				
Average	41.9	40.4	41.1	42.8
Median	40.3	40.1	40.2	40.4
Standard deviation	16.5	17.3	16.9	18.3
Coefficient of variation	0.39	0.43	0.41	0.43
2006				
Average	41.9	41.9	41.9	46.9
Median	39.7	39.8	39.7	43.6
Standard deviation	17.2	18.5	17.8	19.6
Coefficient of variation	0.41	0.44	0.42	0.42
2021-2006				
change of hours average	Nil	-1.5	-0.8	-4.1

Note: The figures exclude 0.4% of health managers in hospitals and medical and other health services who did not state their hours of work and 0.7% of managers in all industries.

Sources: References [10] [11]. Analysis made by the authors.

TABLE 20. AVERAGE HOURS WORKED THE WEEK BEFORE THE CENSUS BY MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, BY CATEGORY, AUSTRALIA, 2021

Category	Average hours worked per week			
	Hospitals	Medical & other	All health	All industries
CEO/GM	45.7	45.6	45.6	48.3
M(nfd)	41.8	37.7	39.3	42.4
Specialist	42.0	40.6	41.4	44.2
Service	37.7	35.2	36.2	38.3
All managers	41.9	40.4	41.1	42.8

The figures exclude 0.4% of health managers in hospitals and medical and other health services who did not state their hours of work and 0.7% of managers in all industries.

Source: Reference [11]. Analysis made by the authors.

TABLE 21. AVERAGE HOURS WORKED THE WEEK BEFORE THE CENSUS BY MANAGERS IN HOSPITALS AND MEDICAL AND OTHER HEALTH SERVICES BY SEX, AUSTRALIA, 2021.

Weekly work hours	Hours worked per week			
	Hospitals		Medical & other	
	Females	Males	Females	Males
Average	40.2	43.9	38.3	43.6
Median	40.2	40.5	39.8	40.5
Standard deviation	16.9	15.6	16.8	17.7
Coefficient of variation	0.43	0.36	0.44	0.41

The figures exclude 0.3% of hospitals and 0.4% in medical and other health services who did not state their hours of work.

Source: Reference [11]. Analysis made by the authors.

This difference is partly due to the much larger proportion of female managers both in hospitals (24.5%) and medical and other health services (30.2%) who worked less than 35 hours per week in comparison with males (10.7% and 16.6% respectively). This represents a proportional increase in comparison with 2006 (Table 22).

However, most managers worked 35 hours or more in 2021: 80.3% in hospitals and 74.6% in medical and other health services in 2021. As was the case in 2006. Accordingly, in 2021, full-time managers in hospitals worked on average 47.3 hours per week and those in medical and other health services 47.4 hours. Following the pattern, full-time female

managers in medical and other health services worked on average a lower number of hours (46.2 hours) compared with full-time male managers (49.0 hours), but the averages in hospitals was about the same (males 47.5 and females 47.1 hours) (Table 23).

The established pattern of female and male managers practice regarding average hours of work is apparent when the hours of work above 49 hours and those below 16 hours is examined. In 2021, males constituted 22.9% of health managers who worked 49 hours or more per week and females 16.7%. Of those who worked 15 hours or less per week, females made up 8.8% and males 6.5% (Table 24).

TABLE 22. MANAGERS WORKING LESS THAN 35 HOURS THE WEEK BEFORE THE CENSUS, HEALTH SERVICES AND ALL INDUSTRIES BY SEX, AUSTRALIA, 2006 AND 2021

Sex	% managers working less than 35 hours per week			
	Hospitals	Medical & other	All health	all industries
2021				
Females	24.5	30.2	27.3	29.5
Males	10.7	16.6	14.3	15.2
2021 All managers	19.7	25.4	22.6	21.0
2006				
Females	21.3	28.5	24.4	24.8
Males	9.0	12.0	10.3	9.7
2006 All managers	16.5	21.7	18.9	15.0

Note: The figures exclude 0.4% of health managers in hospitals and medical and other health services who did not state their hours of work and 0.7% of managers in all industries.

Sources: References [10][11]. Analysis made by the authors

TABLE 23. AVERAGE HOURS WORKED THE WEEK BEFORE THE CENSUS BY FULL-TIME MANAGERS IN HEALTH SERVICES AND ALL INDUSTRIES, BY SEX, AUSTRALIA, 2021

Sex	Average hours worked per week			
	Hospitals	Medical & other	All health	All industries
Female	47.1	46.2	46.9	47.1
Male	47.5	49.0	48.1	50.6
All managers	47.3	47.4	47.4	49.3

Note: The figures exclude 0.3% of hospitals and 0.4% in medical and other health services who did not state their hours of work. Full-time managers are defined as those who work 35 hours or more per week.

Source: Reference [11]. Analysis made by the authors.

TABLE 24. MANAGERS WHO WORKED MORE THAN 48 AND LESS THAN 16 HOURS THE WEEK BEFORE THE CENSUS, HEALTH SERVICES AND ALL INDUSTRIES, BY SEX, AUSTRALIA, 2021

Sex	Hospitals	Medical & other	All health	All industries
	% managers working 49 hours or more per week			
Female	18.6	14.8	16.7	16.7
Male	21.0	24.6	22.9	29.3
All managers	19.4	18.6	19.0	24.4
Sex	% managers working 15 hours or less per week			
	Hospitals	Medical & other	All health	All industries
Female	7.6	10.0	8.8	11.9
Male	5.2	7.7	6.5	7.0
All managers	6.7	9.1	8.0	9.0

Note: The figures exclude 0.3% of hospitals and 0.4% in medical and other health services who did not state their hours of work.

Source: Reference [11]. Analysis made by the authors.

MARITAL STATUS

The married status of managers in Australia portrayed a tendency to later marriage, or never married status, as the proportion of never married rose from 2005 to 2021. The proportion of managers in health services whose marital status was divorced/separated and widowed remained

about the same, but that of never married rose from 17.9% in 2006 to 21.9% in 2021. The change was higher in medical and other health services (+4.5%) than hospitals (+2.7). Nevertheless, the proportion of married managers in health services was larger (63.0%) in 2021 than the average for all industries (61.9%) (Table 25).

TABLE 25. MARITAL STATUS OF HEALTH SERVICE MANAGERS AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Marital status	Percentage			
	Hospitals	Medical & other	All health	All industries
2021				
Never married	19.6	23.8	21.7	25.7

Married	64.3	61.8	63.0	61.9
Divorced/separated	14.9	13.4	14.2	11.5
Widowed	1.2	1.0	1.1	0.9
All managers 2021	100.0	100.0	100.0	100.0
2006				
Never married	16.9	19.3	17.9	21.9
Married	66.0	66.1	66.2	65.9
Divorced/separated	15.5	13.4	14.5	11.3
Widowed	1.6	1.2	1.4	0.9
All managers 2006	100.0	100.0	100.0	100.0

Note: (Married) includes those in a partnership.

Sources: References [10][11]. Analysis made by the authors.

COUNTRY OF BIRTH

The country of birth of managers changed somewhat between 2006 and 2021. This change reflects to some extent the higher proportion of population and managers born outside Australia between the two censuses. Accordingly, the proportion of health managers born in Australia dropped from 74.3% in 2006 to 69% in 2021. This change is similar to that for all industries. However, the proportion of hospital managers (71.7%) in 2021 showed a smaller change

(75.6% in 2006) than that in medical and other services and all industries. Although the proportion in 2021 born in the United Kingdom and Ireland (9.4%) dropped somewhat (11.1%) since 2006, it remained the largest of those born outside Australia. The major proportional increase since 2006 was in health managers born elsewhere, including China and India, while those born in other European countries fell considerably from 8.4% in 2006 to 2.9% in 2021 (Table 26).

TABLE 26. COUNTRY OF BIRTH OF HEALTH SERVICE MANAGERS AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Country of birth	Percentage			
	Hospitals	Medical & other	All health	All industries
2021				
Australia	71.7	66.3	69.0	67.6
New Zealand & Oceania	3.5	3.4	3.5	3.5
United Kingdom & Ireland	9.4	8.4	8.9	7.1
Other Europe	2.7	3.2	2.9	3.6
Other	12.7	18.7	15.7	18.2
All managers 2021	100.0	100.0	100.0	100.0
2006				
Australia	75.6	72.5	74.3	73.1
New Zealand & Oceania	2.8	3.2	3.0	3.5
United Kingdom & Ireland	11.1	10.1	10.7	8.4
Other Europe	7.5	9.7	8.4	10.9
Other	3.0	4.5	3.6	4.1
All managers 2006	100.0	100.0	100.0	100.0

Note: The figures do not include 0.3% of health managers who did not state their country of birth and 0.3% of managers in all industries for the same reason. Sources: References [10] [11]. Analysis made by the authors.

INDIGENOUS STATUS

The proportion of health managers with indigenous status almost doubled from 1.2% in 2006 to 2.1% in 2021. This rise is similar to that in all industries from 0.6% to 1.3%, over the same period. However, the proportions were substantially

higher in the case of health services, especially in medical and other health services: 1.5% in 2006 and 2.5% in 2021. The proportion of female managers in health services who had indigenous status in 2021 was 2.4% compared with that of males 1.6%. This difference between female and male was higher in 2021 than in 2006 (Table 27).

TABLE 27. INDIGENOUS STATUS OF HEALTH SERVICE MANAGERS AND ALL INDUSTRIES, AUSTRALIA, 2006 AND 2021

Sex	Indigenous percentage			
	Hospitals	Medical & other	All health	All industries
2021				
Females	1.9	2.9	2.4	1.6
Males	1.4	1.9	1.6	1.1
All managers 2021	1.8	2.5	2.1	1.3
2006				
Females	1.0	1.5	1.3	0.8
Males	0.8	1.5	1.1	0.5
All managers 2006	1.0	1.5	1.2	0.6

Note: The figures exclude 0.2% of health managers and 0.2% of managers in all industries who did not state their status.

Sources: References [10] [11]. Analysis made by the authors.

DISCUSSION

A major finding from the analysis is the large growth in employees and managers of health services during the 15-years under review. That was accompanied by the growth of 2.0% in GDP expenditure on health services. This has meant that the trends in the growth of health personnel (+78.0%) and managers (+119.4%) surpassed the growth in the population over 65 years of age (51.7%) in that period. This might be associated with the greater intensity of use of services by older people that is more than proportional as age progresses.

It is noticeable that the proportional increase in managers was highest at the middle management specialist level concerned with more direct services to users, both in hospital and medical and other health services. The growth in managers was particularly high in medical and other health services (+150.4%) compared with hospital services (95.1%) during the 15-year period. And the ratio of employees per manager also declined more substantially in medical and other health services (-9.6) than in hospitals (-2.0). This meant that the number of employees per

manager in medical and other health services remained lower than that in hospitals, a contributing factor might be the smaller size of health services organisation outside hospitals.

Another important feature of the changes that took place in the 15-year period was the continuing rising average age of health service managers, both in hospitals (+1.9 years) and that of the older medical and other health services (+1.1 years). This reflects the tendency for health service managers to retire at older ages. Although, the average increase in the age of female and male managers was about the same (+1.4 years), that of male chief executive officers/general managers rose substantially more (+2.5 years) than that of females in the same category (+1.9 years).

The difference between the more numerous female and male health service managers is also apparent in their field of study and level of education. Accordingly, female health managers constituted 60% or more of managers with the study fields of education, social and related fields, health, food and hospitality, management and commerce

and natural and physical sciences, while males made up 75% or more of those in engineering, architecture and building, and information technology. This difference in fields of study prevailed during the 15-year period. A related feature is the level of education of health service managers. The proportion of health managers at graduate level was higher than the average for all industries during the 15-year period and rose to 67.7% in 2021 in the case of hospitals from 59.0% in 2006. The proportional increase was even greater in the case of managers of medical and other health services that rose from 51.9% in 2006 to 62.4% in 2021. Female and male differences prevailed during the 15-year period, even though on average 65.0% both female and male health service managers had graduate level academic qualification both in 2006 and 2021. However, on average 70.8% female chief executive officers/general managers had graduate level of education compared with 79.1% of males in 2021. The difference was relatively small at specialist manager level (70.7% and 69.7% respectively).

Health service managers on average, and associated with their higher level of education, had a higher average income than those in all industries. However, their average income rose by 53.6% from 2006 to 2021 while that of managers in all industries increased on average by 60.6% over the same period. It is a feature of health service that on average female managers earn less than males. Part of this difference arises from the average hours worked by female and male managers, as a larger proportion of female managers worked less than 35 hours per week (27.3%) than male managers (14.3%) in 2021. This difference also prevailed in 2006.

The proportion of health service managers who were married declined somewhat between 2006 (66.0%) and 2021 (64.3%), as the proportion of never married rose (16.9% in 2006 and 19.6% in 2021). This change followed the trend for the average marital status of managers in all industries. Another and more accentuated change was the country of birth of health service managers in the period from 2006 to 2021. Accordingly, the proportion of health managers born in Australia declined from 75.6% in 2006 to 71.7% in 2021, but those born elsewhere than Australia, New Zealand and Oceania and Europe rose from 3.0% in 2006 to 12.7% in 2021. Among them, those born in Asia, including China and India, constituted the largest group. Another aspect of change has been the increasing proportion of health managers of indigenous status that almost doubled from 1.2% in 2006 to 2.1% in 2021. These proportions were

much higher in the case of females than those of males in 2021 and also higher than the average for all industries.

Thus, major changes have taken place in the number and characteristics of health service managers from 2006 to 2021. They reflect the evolution of services with a greater emphasis on medical and other health services outside hospitals, but also changes in the middle management of hospitals. Nevertheless, hospitals continue to employ most of the people engaged in the provision of health services. But the number of managers in medical and other health services grew much more and was about the same as that in hospitals in 2021.

One of the significant features of this research is that enables a clearer understanding of the health management labour force in Australia. It also provides a more factual basis for improved labour force planning for present and future managers and leaders, including their career and development paths. Given the nature and complexity of the healthcare sector, any lack of information on those who manage and lead the system can result in detrimental consequences.

LIMITATIONS

This paper provides an analytical insight into the level and characteristics of managers of health services in Australia. This could be considered a major and unique contribution to the assessment of health care services. Nevertheless, it should be stated that this contribution has limitations. By its nature, the analysis is limited by the data provided in the Australian censuses of population for 2006 and the latest in 2021. Further, the analysis is concerned with health managers at national level. Consequently, it cannot deal with differences that are likely to prevail at state and territory level. Thus, it encompasses an important but limited view of the management of health services in Australia, and by implication of the quality and appropriateness of services provided.

CONCLUSION AND AGENDA FOR FUTURE RESEARCH

The contribution made in this paper to the understanding of the changes that have taken place in health service management raises a number of questions that could be the subject of research from different sources than those used in this paper. One of these is the factors that

contributed to the large upsurge in numbers at middle management level. Another is the possible consequences of longer working lives of health service managers. Thus, the limitations of the analysis of this paper should be an encouragement for further research from alternative sources. Further, research might be undertaken on the influence that existing professional boundaries exert on the various categories of health service managers in general and specialist managers in particular.

References

- 1 Australian Bureau of Statistics (ABS). Life tables 2019-2021. Canberra: ABS; 2022a.
- 2 Australian Institute of Health and Welfare (AIHW). Australian burden of disease study 2022. Canberra: 2022a.
- 3 Australian Institute of Health and Welfare (AIHW). 2022b. Health expenditure in Australia 2020-21. Canberra: AIHW; 2022b.
- 4 Martins, J M & G Isouard. 2012a. Health service managers in Australia. Part 1: service, geographical and category distribution. *Asia Pacific Journal of Health Management*, Vol 7:2.
- 5 Martins, J M & G Isouard. 2012b. Health service managers in Australia. Part 2: age, and sex characteristics. *Asia Pacific Journal of Health Management*, Vol 7:2.
- 6 Australian Bureau of Statistics (ABS). 2021. Standard for sex, gender, variations of sex characteristics and sexual orientation variables. Canberra.
- 7 Australian Bureau of Statistics (ABS). 2022c. Census of population and housing. Household and families data summary. 2021. Canberra: ABS; 2022c.
- 8 Australian Bureau of Statistics (ABS). 2006 Census of population and housing. Census tables. Industry of employment. Cat. No. 2068.0. Canberra: ABS; 2007.
- 9 Australian Bureau of Statistics (ABS). Census of population and housing. Income and work data summary. 2021. Canberra: ABS; 2022b.
- 10 Australian Bureau of Statistics (ABS). 2006 Census of population and housing. Customised data report. (Tabulations prepared in accordance with specifications made by the authors). Canberra: ABS; 2012.
- 11 Australian Bureau of Statistics (ABS). 2023. 2021 Census of population and housing. Customised data report. (Tabulations prepared in accordance with specifications made by the authors). Canberra: ABS; 2023.
- 12 Australian Bureau of Statistics. (ABS). (2021). Managers. ANZSCO – Australian and New Zealand standard classification of occupations. Canberra: ABS; 2021.

MANAGERS CLASSIFICATION

The classification of managers in this paper is in accordance with ABS's adopted ANZCO: Australian and New Zealand Standard Classification of Occupations. According to it, managers are engaged in the planning, organisation, direction, control, coordination and review of organisations and/or departments. In other words, managers set the overall direction and objectives of organisations and/or their departments to make certain that set objectives are met. They are concerned with the allocation of assets and resources. They direct, control and/or coordinate the activities of organisations and/or their departments, either personally or through subordinates. They are concerned with monitoring and evaluating the overall or departmental performance of the organisation and changing policies and processes to make certain that set objectives are met. They are also engaged in the representation and/or negotiation of the interests of their organisations and/or departments.

Chief executive officers and general managers are engaged and responsible for the planning, organisation, direction, control, coordination and review of the overall operations of organisations, their major activities and representation of and negotiation on behalf of their organisations. Their tasks include the setting of the overall direction and goals of their organisations. They are concerned with the overall setting of the operations of their organisations. In addition, they are responsible for the performance of their organisation in line with set objectives. Further, they represent their organisations in public relations and negotiations with other organisations and regulatory authorities.

Specialist managers have more direct duties in the planning, organisation, control and coordination of given functions within the overall organisational setting, such in the production and distribution of services, the management of human and financial resources and other ancillary functions. Thus, their tasks include development and implementation of strategies concerned with monitoring and ensuring that policies and plans are followed and evaluation of their outcome, in terms of work progress, performance, and adjustment of processes and resources to achieve set goals. They control budget planning and report on performance and control of expenditure in their area of responsibility. They are involved in personnel planning and training and their performance. They may be involved in the representation of their organisation at given levels and also negotiations with other departments and other outside organisations, such as suppliers of goods and services.

Hospitality and service managers are concerned with the organisation and operation of accommodation, cleaning, transport and provisions such as food. They are concerned with the selection, training and supervision of related staff [12].