9 Summary

Introduction

This chapter presents details of the major changes noted in the data between this and the first edition, as well as summary measures of health differentials by socioeconomic status of area of residence for the health status and health service utilisation data mapped in Chapters 5 and 6.

Change between editions

The reference period for the data in the first and this second edition varies according to the dataset. In general, the Census data in this edition are ten years on from the first edition (Chapter 3: 1986 Census and 1996 Census); and the income support (Chapter 4: 1989 and 1996) and health status (Chapter 5: 1985-89 and 1992-95) datasets are seven years later. The data for hospital admissions (see *Differences in data treatment between editions*, Chapter 6) and services and facilities are not discussed in this chapter because of difficulties in comparing the available series over time.

Readers should note that some variables are not discussed below because the data were available only for the latest period.

Changes in socioeconomic status variables

Marked variations were recorded between 1986 and 1996 for a majority of the socioeconomic status variables mapped for New South Wales (**Table 9.1**). For **Sydney**, the largest increases were for the population of Aboriginal and Torres Strait Islander people (an increase of 85.3 per cent over this ten year period); the occupational grouping of managers and administrators, and professionals (41.3 per cent); people born overseas in predominantly non-English speaking countries: an increase of 41.2 per cent for those resident for five years or more, of 33.2 per cent for those resident for less than five years, and of 36.0 per cent for those with poor proficiency in English; single parent families (30.3 per cent); low income families (29.8 per cent); and housing authority rented dwellings (23.0 per cent). The largest decreases recorded over this ten year period were for the variables for unemployment among 15 to 19 year olds (down by 26.5 per cent) and early school leavers (down by 17.8 per cent).

Variations of this order were also recorded in the non-metropolitan areas of New South Wales. The major differences from the changes noted for **Sydney** were the larger increases in the population of people aged 65 years and over, the number of single parent families and dwellings without a motor vehicle; and smaller increases for the occupations of managers and administrators and professionals, Indigenous people, each of the three variables for people born overseas in predominantly non-English speaking countries, and housing authority rented dwellings.

Changes over this period for the major urban centres of **Newcastle** and **Wollongong** were relatively consistent, with the exception of the population aged from 0 to 4 years, unemployment (all ages), the three variables for the population

Table 9.1: Changes in demographic and socioeconomic status variables, by Section of State, New South Wales

Per cent change

Variable	Sydney	Other major urban centres			Rest of State	Whole State
		Newcastle	Wollongong	Total		
1986 to 1996						
0 to 4 year olds	6.7	4.3	-0.4	2.6	2.4	5.0
65 years & over	21.7	34.1	46.3	37.9	41.0	28.9
Single parent families	30.3	43.6	39.5	42.2	47.2	36.2
Low income families	29.8	42.9	40.6	42.2	27.5	30.6
Unemployed people	-2.2	3.4	-2.7	1.2	1.5	-0.6
Unemployed people aged 15 to 19 years	-26.5	-28.7	-28.2	-28.5	-25.3	-26.5
Female labour force participation (20 to 54 years)	7.5	18.1	19.6	18.8	12.8	9.8
Early school leavers	-17.8	-9.9	-14.0	-11.3	-5.5	-13.5
Unskilled & semi-skilled workers	-16.9	-17.3	-25.9	-20.6	-5.0	-14.3
Managers & administrators, & Professionals	41.3	45.0	44.7	44.9	10.8	33.0
Aboriginal & Torres Strait Islander people	85.3	135.1	132.0	134.2	57.3	72.0
People[1] born overseas & resident for less than five years	33.2	-6.8	43.7	18.7	4.4	31.2
People[1] born overseas & resident for 5 years or more	41.2	10.8	-0.6	3.5	23.8	36.8
People[1] born overseas: speaks English not well/not at all	36.0	-0.7	-7.6	-5.8	-5.2	31.6
Housing authority rented dwellings	23.0	22.3	11.0	17.1	10.8	19.2
Dwellings without a motor vehicle	6.8	12.0	21.1	15.1	25.4	11.1
1989 to 1996						
Age pensioners	-4.1	2.9	7.8	4.5	5.8	-0.1
Disability support pensioners	65.7	58.9	57.3	58.4	52.7	60.3
Female sole parent pensioners	36.8	40.6	29.3	36.5	35.6	36.4
Unemployment beneficiaries	99.8	61.3	42.3	54.2	59.3	76.9
Dependent children of selected pensioners & beneficiaries	68.6	59.8	54.5	57.9	50.0	60.1

[1]Includes people who were born in a predominantly non-English speaking country

born overseas in predominantly non-English speaking countries, housing authority rented dwellings and dwellings without a motor vehicle: the change recorded for these variables varied between the two cities. The changes in **Newcastle** and **Wollongong** were generally consistent with those recorded for **Sydney** (and frequently showed larger increases), other than for the variable for the population aged 65 years and over and the three variables for people born overseas in predominantly non-English speaking countries (which all recorded lower increases).

Substantial variations were recorded in income support payments to residents of **Sydney** for all of the payment types analysed, other than the Age Pension, for which there was a small decrease (a decrease of 4.1 per cent). The number of recipients for each of the other payment types increased substantially, with the number of unemployment beneficiaries almost doubling (an increase of 99.8 per cent) and similar increases occurring for dependent children (68.6 per cent) and disability support pensioners (65.7 per cent) (**Table 9.1**). Similar, although smaller increases were recorded in the non-metropolitan areas of New South Wales for all of these income support payments other than the Age Pension, for which there was a much smaller increase (5.8 per cent). The increases in **Newcastle** and **Wollongong** were more in line with those recorded for the non-metropolitan areas of the State than with those in **Sydney**.

Changes in health status variables

As noted in Chapter 5 (see *Background*), death rates in Australia have declined for the majority of causes. New South Wales is no exception, with lower rates for all of the major causes of death mapped in the atlas. Percentage changes between the two periods (from 1985 to 1989 and 1992 to 1995) are shown in **Table 9.2**.

In **Sydney**, the largest decreases were recorded in the infant death rate (down by 34.4 per cent); and for deaths of people aged from 15 to 64 years from circulatory system diseases (down by 42.2 per cent), respiratory system diseases (down by 30.7 per cent) and accidents, poisonings and violence (down by 28.9 per cent). All causes mortality was 25.4 per cent lower over this period, marginally more so for males than for females.

There were reductions for every category in **Table 9.2** for **Newcastle** and **Wollongong**, with the decreases being generally more pronounced in **Wollongong**.

There were also reductions in rates of premature death in the non-metropolitan areas of New South Wales for all but all cancers (for which there was a slight increase). However the reductions were all lower than those recorded for **Sydney**, at around half (52.4 per cent) for all cause mortality.

Table 9.2: Changes in selected health status variables, by Section of State, New South Wales
Per cent change[1] 1985-89 to 1992-95

Variable	Sydney	Other major urban centres			Rest of State	Whole State
		Newcastle	Wollongong	Total		
Infant deaths	-34.4	-12.8	-34.1	-21.0	-23.7	-29.7
Deaths of 15 to 64 year olds						
Males	-26.3	-20.9	-22.3	-21.4	-13.4	-22.4
Females	-24.5	-14.3	-18.6	-15.8	-13.4	-20.5
Persons, by cause						
Circulatory system diseases	-42.2	-34.9	-31.5	-33.7	-24.0	-36.4
All cancers (malignant neoplasms)	-18.5	-8.1	-15.7	-10.8	0.6	-12.9
Lung cancer	-21.7	-15.0	-33.2	-23.4	-13.7	-19.9
Respiratory system diseases	-30.7	-17.8	-30.6	-22.0	-24.4	-28.2
Accidents, poisonings & violence	-28.9	-8.3	-21.2	-13.2	-22.4	-25.5
Other causes	1.5	-8.4	0.5	-5.7	-0.7	0.6
All causes	-25.4	-18.3	-21.1	-19.2	-13.3	-21.6

[1] 'Per cent change' represents the difference (between the reference periods) in death rates: for infants, it is the infant death rate (infant deaths per 1,000 live births); and for deaths of 15 to 64 year olds, it is the rate per 100,000 population produced by indirect age (or age-sex) standardisation

Summary of findings by socioeconomic status of area of residence

Background

In order to summarise the extent of health inequalities shown in the maps in the earlier chapters, the health status and health service utilisation data are presented in chart form on the following pages. The data have been re-cast to show the average rate (or standardised ratio or percentage) by socioeconomic status of the SLA of address in the records studied. To do this, each SLA in the major urban centres (**Sydney**, **Newcastle** and **Wollongong**) was allocated to one of five categories (quintiles) based on its Index of Relative Socio-Economic Disadvantage (IRSD) score (this index is described on page 17). Quintile 1 comprises the twenty per cent of SLAs in these major urban centres with the highest IRSD scores, and Quintile 5 comprises the twenty per cent of SLAs with the lowest IRSD scores.

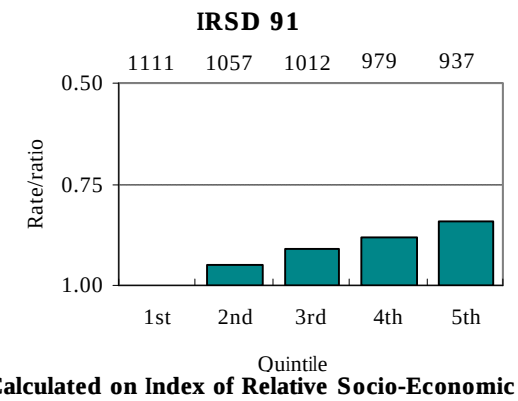
The average rate (or standardised ratio or percentage) was then calculated for each of the five quintiles. For example, the average infant death rate was calculated for the most advantaged SLAs (Quintile 1), for the most disadvantaged SLAs (Quintile 5) and for each of the intervening quintiles (Quintiles 2 to 4). These rates were then graphed, with the rate, standardised ratio or percentage for the first quintile set to 1 in order to highlight variations from the rates recorded in the most advantaged areas (**Figure 9.2**). This exercise was repeated for SLAs in the non-metropolitan areas of New South Wales.

As noted in Chapter 3, the ABS has calculated the IRSD so that low scores indicate greatest disadvantage. This is the reverse of the way in which other data in the atlas has been calculated, where higher rates, standardised ratios etc. indicate poorest health, highest utilisation of health services and greatest

disadvantage. In order to present the graph of the IRSD in a form that is visually consistent with the other graphs in this chapter (ie. with the bars increasing in size to the right, and above the base of 1), the scales on the chart in **Figure 9.1** have been reversed.

Figure 9.1 shows that the average IRSD score in 1991 for Quintile 1 (comprising the most socioeconomically advantaged SLAs in **Sydney, Newcastle** and **Wollongong**) was 1111, decreasing for each quintile to a score of 937 in Quintile 5 (the most disadvantaged SLAs). The range of index scores for the non-metropolitan areas of New South Wales was from 1053 in Quintile 1 to 944 in Quintile 5.

Figure 9.1: Differentials in IRSD scores for SLAs in Sydney, Newcastle & Wollongong, by quintile of socioeconomic disadvantage of area, 1991



Source: Calculated on Index of Relative Socio-Economic Disadvantage, ABS 1991 Census

The IRSD shown in this graph and used in the health status graphs (**Figure 9.2**) is from the 1991 Census, as the health status data generally relates to the period from 1992 to 1995. The IRSD used for the health service utilisation graphs (**Figure 9.3**) is from the 1996 Census, as the data is for periods close to the 1996 Census. At the 1996 Census, the IRSD scores were, for Quintile 1, 1130; Quintile 2, 1071; Quintile 3, 1023; Quintile 4, 981; Quintile 5, 943. All of these 1996 IRSD scores are lower than in 1991. The range of index scores for the non-metropolitan areas of New South Wales was from 1022 in Quintile 1 to 924 in Quintile 5.

Results

Health status in Sydney, Newcastle and Wollongong

Figure 9.2 shows similar graphs (to that above) for each of the health status variables for SLAs in **Sydney, Newcastle** and **Wollongong**.

The bars in the graph show the rate ratio for the variable in each quintile. The rate ratio is calculated as the value (eg. the standardised ratio (SR) in each quintile divided by the SR in Quintile 1: the rate ratio for Quintile 1 is 1.0). Using the graph of years of potential life lost (YPLL) from deaths between the ages of 15 to 64 years as an example, it can be seen that the rate ratio in Quintile 5 is almost 1.75 (ie. the SR is almost 75 per cent higher in the areas in Quintile 5 than in Quintile 1). The actual values of the SRs (shown above the bars) range from 72 in the most advantaged areas (28 per cent fewer YPLL than were expected from the Australian rates) to 122 in the most disadvantaged areas (indicating that there were 22 per cent more YPLL than were expected from the Australian rates). Large differentials were also evident for deaths of 15 to 64 year old males (from an SDR of 68 in Quintile 1 to 127 in Quintile 5) and deaths of 15 to 64 years olds from lung cancer (58 to 125), circulatory system diseases (58 to 117) and respiratory system diseases (49 to 126).

Although there is some variability across the quintiles, the pattern is generally for the highest socioeconomic status SLAs (those in Quintile 1) to have the most advantageous (ie. in the majority of cases the lowest) rates and, generally, for the most disadvantaged SLAs (those in Quintile 5) to have the highest rates. The most notable exception is the Physical Component Summary (PCS), for which low scores indicate poorer health.

Health service utilisation in Sydney, Newcastle and Wollongong

Figure 9.3 shows the rate ratios for each of the health service utilisation variables for SLAs in **Sydney, Newcastle** and **Wollongong**. Although there is some variability across the quintiles, the pattern is generally for the most advantaged SLAs (those in Quintile 1) to have the lowest admission rates, and for the most disadvantaged SLAs (those in Quintile 5) to have the highest rates. The major exceptions include the variables for admissions to a private hospital, for breast cancer of females aged 40 years and over, and for the surgical procedures of myringotomy and hip replacement, for which the standardised admission ratios decrease with increasing disadvantage. There is a less consistent pattern evident for a number of the other variables. There are only minor variations between the quintiles in the percentages for immunisation rates of children at age 12 months.

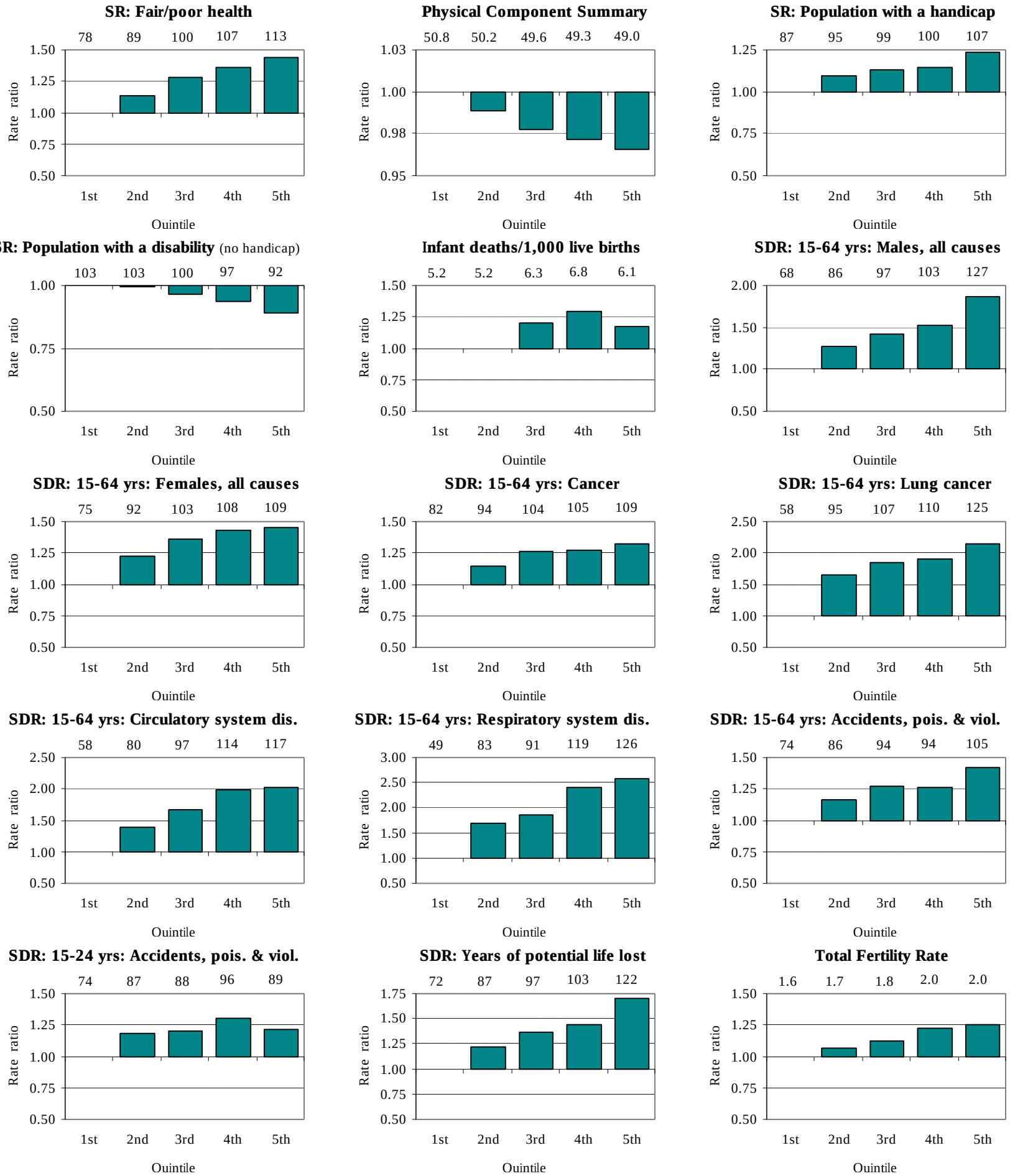
Health status in non-metropolitan New South Wales

Figure 9.4 shows the rate ratios for each of the health status variables for SLAs in the non-metropolitan areas of New South Wales. The most notable differences from the gradients evident for **Sydney** and the other major urban centres are deaths from the external causes of accidents, poisonings and violence (for the 15 to 64 year age group, the ratios are less consistent, and for the 15 to 24 year group they are substantially different) and for the Total Fertility Rate (which shows little variability by socioeconomic status).

Health service utilisation in non-metropolitan New South Wales

Figure 9.5 shows the rate ratios for each of the health service utilisation variables for SLAs in the non-metropolitan areas of New South Wales. The main differences from the gradients evident for **Sydney** and the other major urban centres are for the variables for GP services to males and females and for admissions to a private hospital and admissions for breast cancer; psychosis; neurotic, personality and other mental disorders; and for a myringotomy.

Figure 9.2: Health status differentials by quintile of socioeconomic disadvantage of area, Sydney, Newcastle and Wollongong



Note: Quintile of socioeconomic disadvantage of area is based on the ABS SEIFA Index of Relative Socio-Economic Disadvantage. Data for years of potential life lost are for the population aged from 15 to 64 years.

Source: Compiled from project sources

Figure 9.3: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Sydney, Newcastle and Wollongong

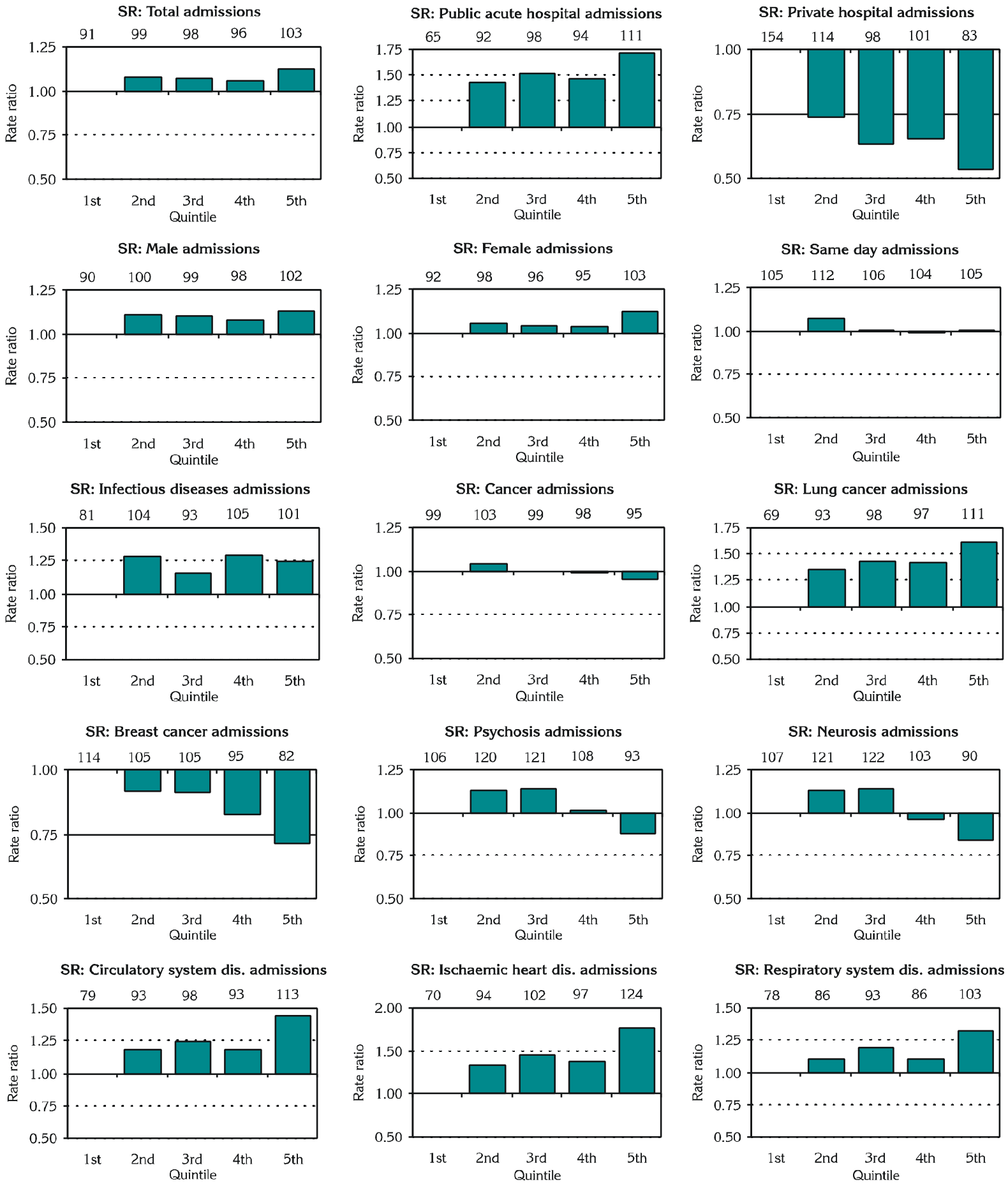
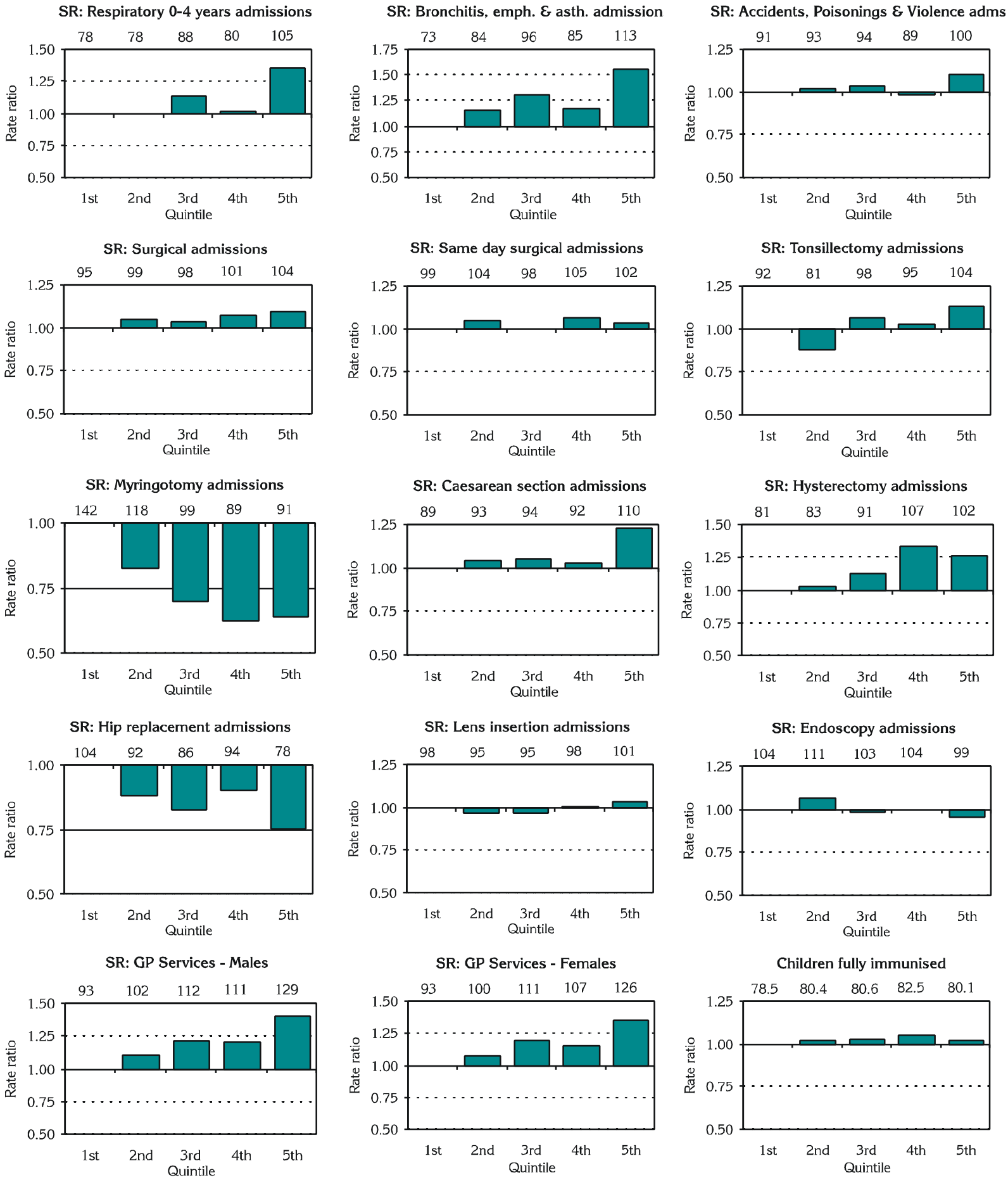
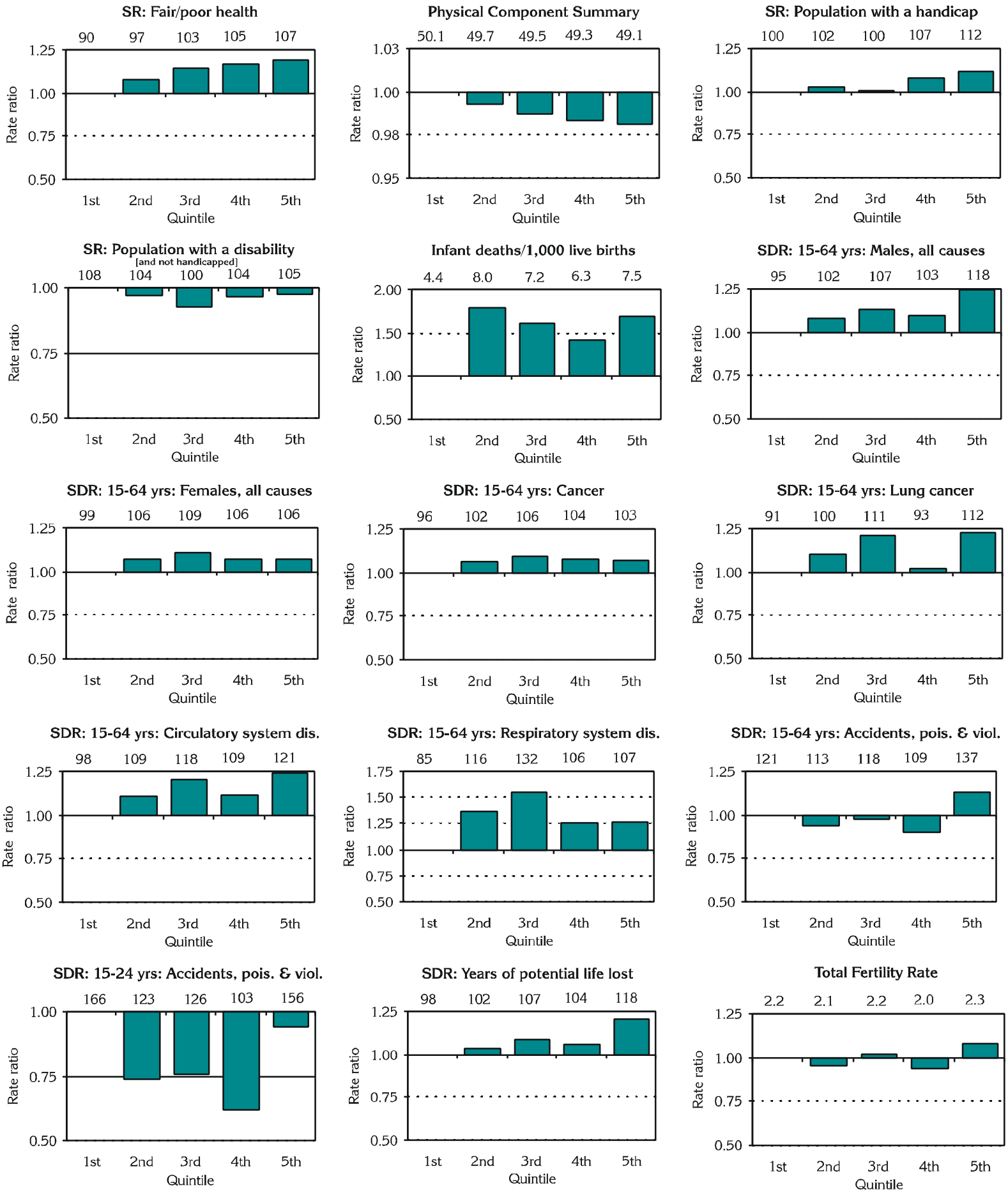


Figure 9.3: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Sydney ... *cont*



Note: Quintile of socioeconomic disadvantage of area is based on the ABS SEIFA Index of Relative Socio-Economic Disadvantage.
Source: Compiled from project sources

Figure 9.4: Health status differentials by quintile of socioeconomic disadvantage of area, Rest of State



Note: Quintile of socioeconomic disadvantage of area is based on the ABS SEIFA Index of Relative Socio-Economic Disadvantage. Data for years of potential life lost are for the population aged from 15 to 64 years.

Source: Compiled from project sources

Figure 9.5: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of State

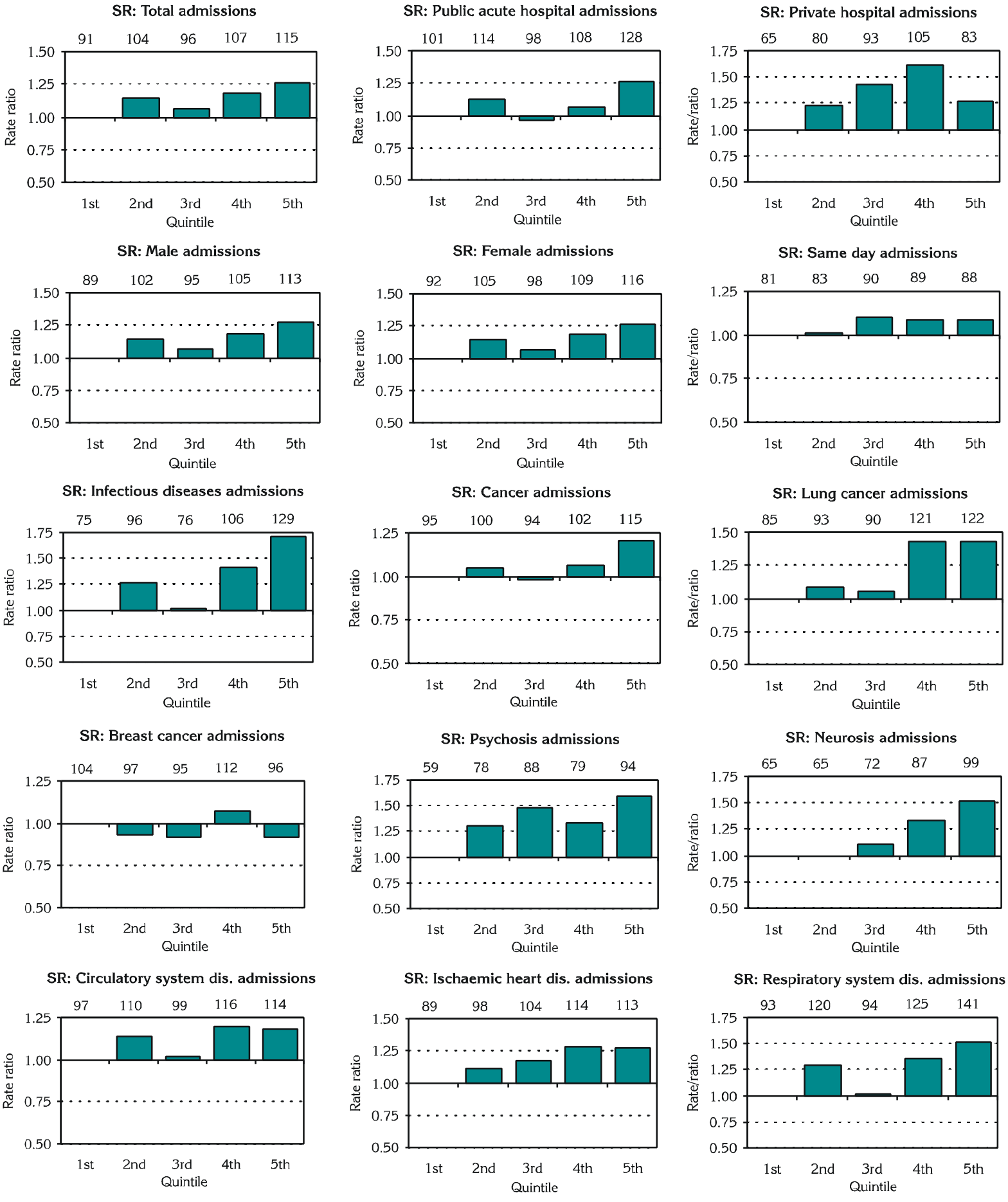
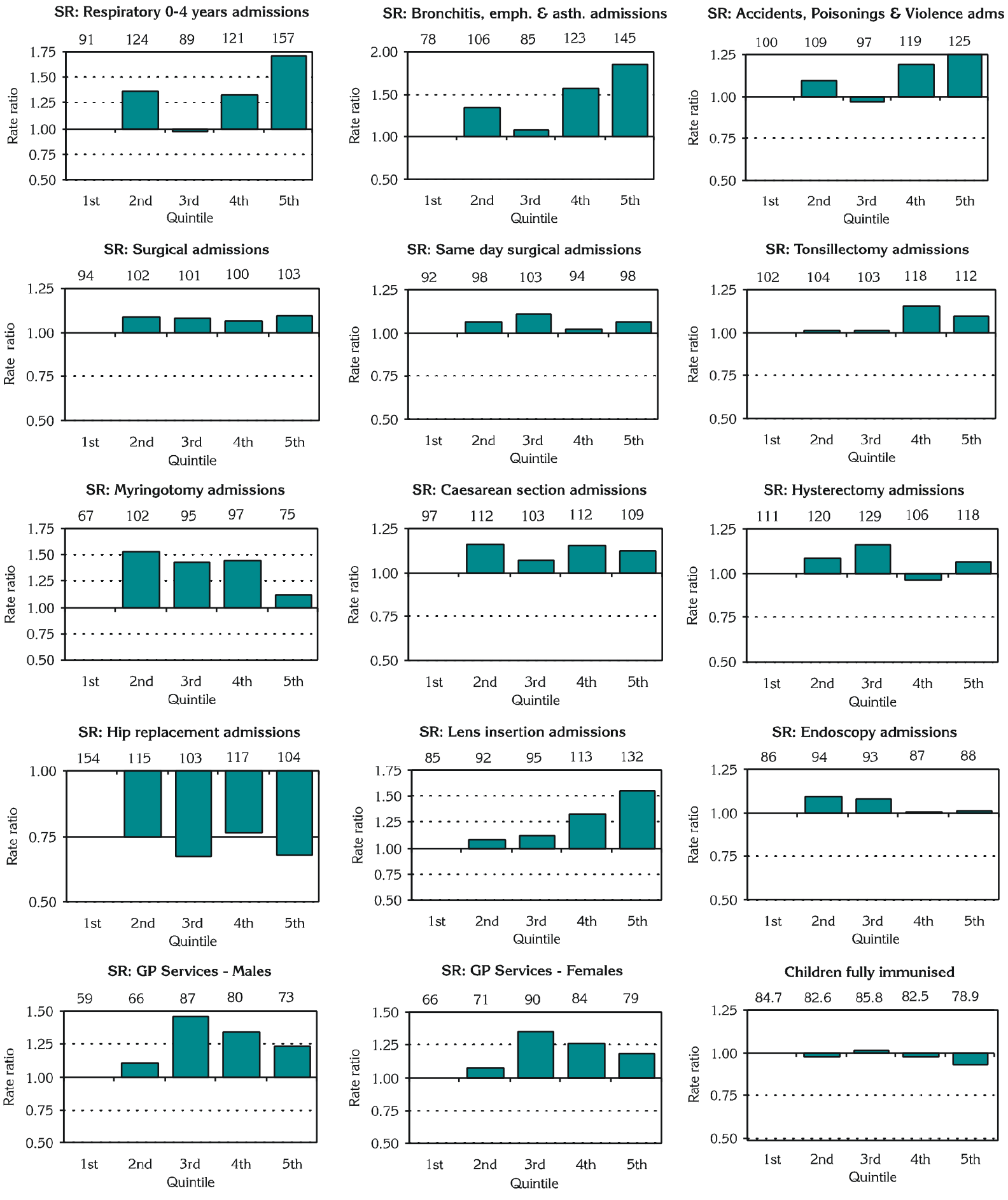


Figure 9.5: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of State ... *cont*



Note: Quintile of socioeconomic disadvantage of area is based on the ABS SEIFA Index of Relative Socio-Economic Disadvantage.
Source: Compiled from project sources

Changes over time in health status by socioeconomic status of area of residence

The two previous sections have shown the overall decrease in death rates in **Sydney, Newcastle** and **Wollongong** and in the non-metropolitan areas of New South Wales, as well as the differentials in death rates by socioeconomic status of area. In this section, the extent of the change in death rates is again shown, but in a way which highlights the differentials evident by socioeconomic status of area (**Figure 9.6**). As data was not available for non-metropolitan SLAs in the first edition of the atlas, the following comparisons have only been produced for **Sydney, Newcastle** and **Wollongong**. The non-metropolitan rates will be calculated and posted on the atlas World Wide Web site (www.publichealth.gov.au).

Infant death rates (infant deaths per 1,000 live births) in **Sydney, Newcastle** and **Wollongong** are shown by quintile of socioeconomic status of area for both 1985-89 and 1992-95. There is a gradient evident in the data for the earlier period, from the lowest rate in the high socioeconomic areas (Quintile 1, an infant death rate of 8.3) to the highest rate (10.9) in the low socioeconomic areas (Quintile 5). The rate of 9.7 in Quintile 2 breaks this pattern. Infant death rates are lower in 1992-95 than in 1985-89 for each quintile, with the largest percentage decline in Quintile 2 (down by 49.8 per cent) and the second largest in Quintile 5 (-43.6 per cent). This has resulted in the differential in the infant death rate between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreasing, from 1.31 times higher in the most disadvantaged areas in 1985-89 to 1.18 times higher in 1992-95. This is a notable reduction, although the differential remains at 18 per cent.

It is clear from the graph for males that the strong gradient evident in death rates in 1985-89 remains in 1992-95, despite overall lower death rates. In fact, the differential in death rates for male residents of **Sydney, Newcastle** and **Wollongong** aged from 15 to 64 years between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased from 1.71 times higher in the most disadvantaged areas to 1.87 times higher. The percentage decline in death rates between the two periods is similar across Quintiles 1 to 4, with a smaller decrease in Quintile 5.

Death rates for female residents of **Sydney, Newcastle** and **Wollongong** aged from 15 to 64 years are lower than for males, cover a smaller range, and have a smaller differential between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas). As shown in **Figure 9.6**, the rates in the later period are lower than in the earlier period for each quintile. The percentage decreases in death rates for females between the two periods also exhibit a gradient, from the largest decrease in Quintile 1 (25.1 per cent) to the smallest in Quintile 4 (17.3 per cent); Quintile 5 broke this pattern with a larger decrease, of 21.3 per cent. For females, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) while lower than that for males, also increased, from 1.38 times higher in the most disadvantaged areas in 1985-89 to 1.45 times higher in 1992-95.

The graph for deaths of all people aged from 15 to 64 years, the combination of the male and female rates, shows similar gradients to those discussed above. The differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased from 1.61 times higher in the most disadvantaged areas in 1985-89 to 1.72 times higher in 1992-95.

There are also clear gradients evident for premature deaths from cancer, although they are not as marked as for deaths of males or females. Death rates in each of the quintiles is lower in the later period, with the largest decrease occurring in the most advantaged areas (Quintile 1, down 18.7 per cent). Death rates in Quintile 5 dropped by a lower 13.7 per cent, with the smallest decline recorded in Quintile 3, down by 9.1 per cent. The differential in death rates between Quintile 1 and Quintile 5 increased from 1.25 times higher in the most disadvantaged areas in 1985-89 to 1.32 times higher in 1992-95.

The differential in death rates between Quintile 1 and Quintile 5 for premature deaths from lung cancer in **Sydney, Newcastle** and **Wollongong** over the period 1992-95 is larger than for all cancers (2.14 compared with 1.32). The increase in the differential from 1.78 in 1986-89 to 2.14 in 1992-95 is also greater (20.2 per cent compared with 5.6 per cent) and is the largest for the causes studied. Rates of death for lung cancer for residents of the areas in Quintile 1 decreased by 29.4 per cent between 1985-89 and 1992-95, just over twice the decrease in Quintile 5. As for all cancers, the smallest decline in death rates was recorded in Quintile 3, down by 9.1 per cent.

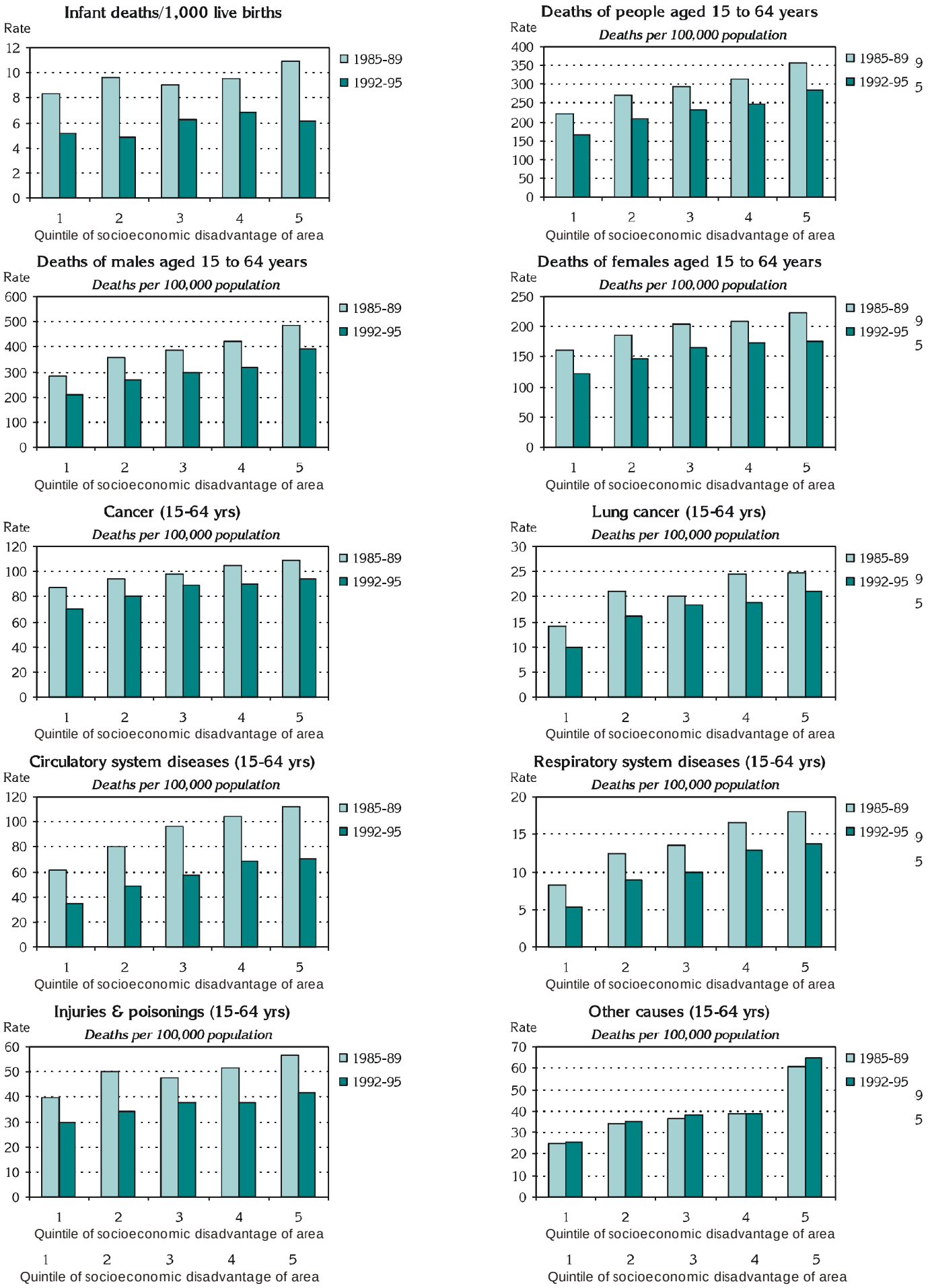
A number of points can be made from an examination of the graph of deaths from circulatory system diseases. For example, overall rates are relatively high, there is a strong gradient and, despite relatively large reductions in death rates across all areas, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased, from 1.80 times higher in the most disadvantaged areas in 1985-89 to 2.03 times higher in 1992-95.

Although death rates from respiratory system diseases are lower than those recorded for circulatory system diseases, the gradients across the quintiles of socioeconomic status of area of address of usual residence in **Sydney, Newcastle** and **Wollongong** over both periods are particularly strong. In 1985-89, the differential between Quintiles 1 and 5 was 2.20; by 1992-95 this had increased (by 17.4 per cent) to 2.58. This was the second largest increase in the differential for the causes studied.

Death rates of 15 to 64 year old people from the external causes of accidents, poisonings and violence are also highest in the most disadvantaged areas of **Sydney, Newcastle** and **Wollongong**. Unlike most of the other variables described above, the differential in 1992-95 is marginally smaller than in 1985-89 (down from 1.42 to 1.40). This is a result of the larger declines in death rates in Quintiles 2 (the largest, down by 31.7 per cent), 4 (-27.5 per cent) and 5 (-27.0 per cent).

The last graph in **Figure 9.6** shows details for all other causes of death between the ages of 15 and 64 years. Again, there is a clear gradient in the SDRs in both periods, with one of the strongest gradients in SDRs between the most advantaged and most disadvantaged areas. However, unlike the situation shown

Figure 9.6: Change in health status by quintile of socioeconomic disadvantage of area, Sydney, Newcastle and Wollongong



Note: Quintile of socioeconomic disadvantage of area is based on the ABS SEIFA Index of Relative Socio-Economic Disadvantage.
Source: Compiled from project sources

in the all causes and specific causes graphs (above), overall death rates have not decreased: nor has there been any improvement in the differential between the rates in Quintiles 1 and 5 (2.45 in 1985-89 and 2.52 in 1992-95).

Although not included in **Figure 9.6**, death rates of 15 to 24 year olds from the external causes of accidents, poisonings and violence show a different pattern. Rates are highest in Quintiles 2 and 4 in 1985-89, although in 1992-95, following substantial reductions over all the quintiles, the rate in Quintile 5 is marginally higher (at 36.6 deaths per 100,000 population) than in Quintile 2 (35.5). As is the case for deaths from these causes in the 15 to 64 year age group, the differential in 1992-95 is smaller than in 1985-89 (down by 5.6 per cent, from 1.20 to 1.13). The largest declines in death rates were in Quintiles 3 and 4 (down by more than 50 per cent); the smallest of the declines was in Quintile 1 (-33.3 per cent).

Conclusion

There is clear evidence in the data of an association at the SLA level between high premature death rates (for both deaths from all causes and from most specific causes) and socioeconomic disadvantage, as measured by the IRSD. These associations are generally evident not only between the most advantaged (Quintile 1) and disadvantaged areas (Quintile 5), but also at each of the intervening levels of socioeconomic status (Quintiles 2 to 4) (**Figures 9.2 and 9.4**).

Similarly, there are associations between socioeconomic disadvantage and high rates of use of general medical practitioner services in the major urban centres, and for most of the variables for hospital admission in both the major urban centres and the non-metropolitan areas of New South Wales (**Figures 9.4 and 9.5**). The gradients by socioeconomic status for admissions are particularly strong in the non-metropolitan SLAs.

It is also clear that, despite the overall improvement in deaths rates from all causes and for all of the specific causes studied (with the exception of the 'other causes' group) for **Sydney, Newcastle** and **Wollongong** (**Table 9.2**, **Figure 9.6**), these improvements have not resulted in a reduction in the disparities evident in death rates, for all causes and for a number of specific causes, between residents of the most well off areas and those in the poorest areas (**Figure 9.6**).

The information in this atlas adds to a convincing body of evidence built up over a number of years in Australia as to the striking disparities in health that exist between groups in the population. The challenge for policy makers, health practitioners and governments is to find ways to address these health inequities.