9 Summary

Introduction

This chapter presents details of the major changes noted in the data between this and the first edition, as well as some summary measures of the health differentials calculated from the health status and health service utilisation data mapped in Chapters 5 and 6.

Changes in data rates 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 Western Australia (**Table 9.1**). For **Perth**, the largest increases were for the population of Aboriginal and Torres Strait Islander people (an increase of 70.5 per cent over this ten year period); the occupational grouping of managers and administrators, and professionals (55.5 per cent); low income families (41.6 per cent); people born overseas in predominantly non-English speaking countries: an increase of 39.6 per cent for those resident for five years or more, of 24.9 per cent for those resident for less than five years, and of 23.9 per cent for those with poor proficiency in English; people aged 65 years and over (35.5 per cent); single parent families (35.4 per cent); and housing authority rented dwellings (21.7 per cent). The largest decrease recorded over this ten year period was for the variable for unemployment among 15 to 19 year olds (down by 17.9 per cent).

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

Table 9.1: Changes in demographic and socioeconomic status variables, by Section of State, Western Australia
Per cent change

Variable	Perth	Rest of State	Whole State
1986 to 1996			
0 to 4 year olds	12.0	1.3	8.4
65 years & over	35.5	47.2	38.3
Single parent families	35.4	26.1	33.0
Low income families	41.6	20.4	34.7
Unemployed people	12.2	-2.4	8.1
Unemployed people aged 15 to 19 years	-17.9	-37.9	-23.9
Female labour force participation (20 to 54 years)	9.8	13.7	10.8
Early school leavers	-3.2	2.4	-1.5
Unskilled & semi-skilled workers	1.0	2.7	1.6
Managers & administrators, & Professionals	55.5	15.9	41.9
Aboriginal & Torres Strait Islander people	70.5	21.3	34.4
People[1] born overseas & resident for less than 5years	24.9	-44.5	16.0
People[1] born overseas & resident for 5 years or more	39.6	-0.7	33.3
People[1] born overseas: speaks English not well/not at all	23.9	-42.0	16.4
Housing authority rented dwellings	16.3	0.5	10.9
Dwellings without a motor vehicle	21.7	26.9	22.8
1989 to 1996			
Age pensioners	3.2	1.2	2.7
Disability support pensioners	36.8	30.5	35.1
Female sole parent pensioners	41.5	52.2	44.4
Unemployment beneficiaries	140.2	138.4	139.6
Dependent children of selected pensioners & beneficiaries	65.3	54.3	61.5

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

Substantial variations were recorded in income support payments to residents of **Perth** for all of the payment types analysed, other than the Age Pension, for which there was a small increase (an increase of 3.2 per cent). The number of recipients for each of the other payment types increased substantially, with the number of unemployment beneficiaries more than doubling (an increase of 140.2 per cent) (**Table 9.1**). Similar, although smaller increases were recorded in the non-metropolitan areas of Western Australia for all of these income support payments other than the Female Sole Parent Pension, for which there was a larger increase (52.2 per cent).

Changes in health status variables

As noted in Chapter 5 (see *Background*), death rates in Australia have declined for the majority of causes. Western Australia 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 **Perth**, the largest decreases were recorded for the infant death rate (down by 36.9 per cent); and for deaths of people aged from 15 to 64 years from respiratory system diseases (-45.0 per cent), circulatory system diseases (-41.2 per cent) and cancer (-23.9 per cent). All causes mortality was 26.6 per cent lower over this period, marginally more so for males than for females.

There were also reductions in rates of premature death in the non-metropolitan areas of Western Australia for all the major causes of death. However the reductions were all lower than those recorded for **Perth**, at around two thirds (60.9 per cent) for all cause mortality.

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

Variable	Perth	Rest of State	Whole State
Infant deaths	-36.9	-22.8	-32.2
Deaths of 15 to 64 year olds			
Males	-29.3	-15.8	-25.5
Females	-21.8	-15.7	-20.2
Persons, by cause			
Circulatory system diseases	-41.2	-32.8	-38.8
Cancer (Malignant neoplasms)	-23.9	-9.5	-20.4
Respiratory system diseases	-45.0	-20.2	-36.9
Accidents, poisonings & violence	-14.8	-2.2	-11.3
Other causes	-12.8	-12.0	-13.0
All causes	-26.6	-16.2	-23.8

[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

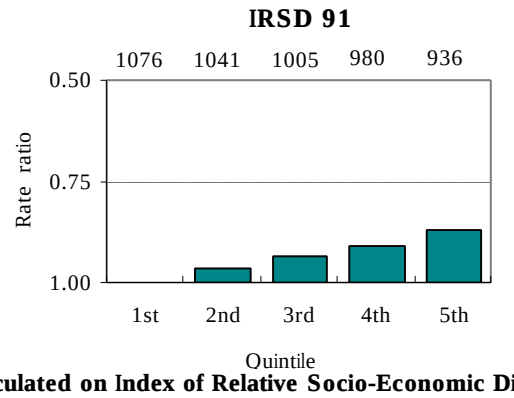
In order to summarise the extent of health inequalities shown in the maps in the earlier chapters, the health status and health service utilisation data are presented in chart form on the following pages. The data have been re-cast to show the average rate (or standardised ratio or percentage) by socioeconomic status of the SLA of address in the records studied. To do this, each SLA in **Perth** 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 **Perth** 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 approach was repeated for SLAs in the non-metropolitan areas of Western Australia.

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 advantaged SLAs) was 1092, decreasing for each quintile to a score of 935 in Quintile 5 (the most disadvantaged SLAs). 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.

Figure 9.1: Differentials in IRSD scores for SLAs in Perth by quintile of socioeconomic disadvantage of area, 1991



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

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, 1062; Quintile 2, 1015; Quintile 3, 983; Quintile 4, 970; Quintile 5, 921.

Results

Health status in Perth

Figure 9.2 (overleaf) shows similar graphs (to that above) for each of the health status variables for SLAs in **Perth**.

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 around 1.3 (ie. the SR is almost one third higher in the areas in Quintile 5 than in Quintile 1). The actual values of the SRs (shown above the bars) range from 87 in the most advantaged areas (13 per cent fewer YPLL than were expected from the Australian rates) to 114 in the most disadvantaged areas (indicating that there were 14 per cent more YPLL than were expected from the Australian rates). In fact, the differential is even greater (1.54 times) between Quintile 2 and Quintile 5. Large differentials were also evident for deaths of 15 to 64 year old males (from an SDR of 81 in Quintile 1 (and even lower, at 72, in Quintile 2) to 121 in Quintile 5) and deaths of 15 to 64 years olds from lung cancer (54 to 123), circulatory system diseases (66 to 119) and respiratory system diseases (56 to 107).

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 exception is the Physical Component Summary (PCS) score, for which low scores indicate poorer health. Despite the narrow range of these mean values, there is a clear gradient evident across the quintiles of socioeconomic disadvantage of area..

Health service utilisation in Perth

Figure 9.3 shows the graphs for each of the health service utilisation variables for SLAs in **Perth**. 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 rates of admission, and for the most disadvantaged SLAs (those in Quintile 5) to have the highest rates. The exceptions include the graphs for admissions to a private hospital, for breast cancer of females aged 40 years and over, for psychosis and for neurotic, personality and other mental disorders. Others, including the graphs for admissions for myringotomy, hip replacement, lens insertion and endoscopy, reveal a less consistent pattern.

Health status in non-metropolitan areas

Figure 9.4 shows the graphs for each of the health status variables for SLAs in the non-metropolitan areas of Western Australia. The main differences from the gradients evident for **Perth** are for people with a handicap, infant deaths, premature deaths of females, premature deaths from circulatory system diseases, and the Total Fertility Rate.

Health service utilisation in non-metropolitan areas

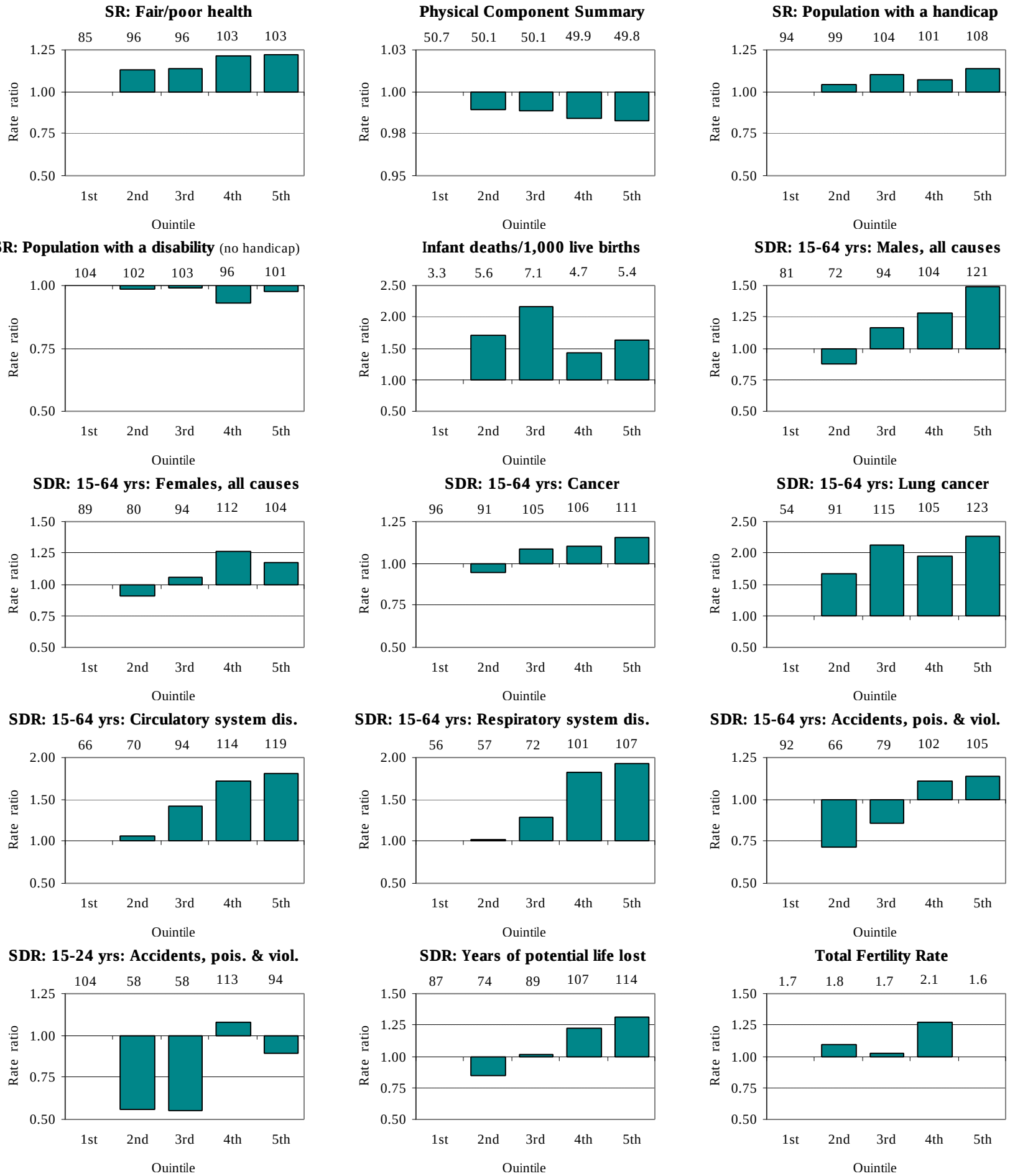
Figure 9.5 shows the graphs for each of the health service utilisation variables for SLAs in the non-metropolitan areas of Western Australia. The associations evident between the gradients in the health service utilisation data and socioeconomic status in **Perth** are much less evident in the non-metropolitan areas.

Change in health status by socioeconomic status of area of residence

The two previous sections have shown the overall decrease in death rates in **Perth** and in the non-metropolitan areas of Western Australia, 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 **Perth**.

Infant death rates (infant deaths per 1,000 live births) in **Perth** 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 6.9) to the highest rate (11.1) in the low socioeconomic areas (Quintile 5). In 1992-95, however, there is a different pattern. A gradient is evident in the rates between Quintile 1 (the high socioeconomic areas), with the lowest infant death rate, of 3.3, and Quintile 3 (an infant death rate of 7.1), with lower rates in Quintile 4 (4.7) and Quintile 5 (5.4). Infant death rates are lower in 1992-95 than in 1985-89 for each quintile, with the percentage declines in excess of 50 per cent in Quintiles 1 and 4 and 5. 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 1.66 times higher in the most disadvantaged areas in 1985-89 to 1.33 times higher in 1992-95. This is a notable reduction, although the remaining differential of 33 per cent is still substantial.

Figure 9.2: Health status differentials by quintile of socioeconomic disadvantage of area, Perth



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, Perth

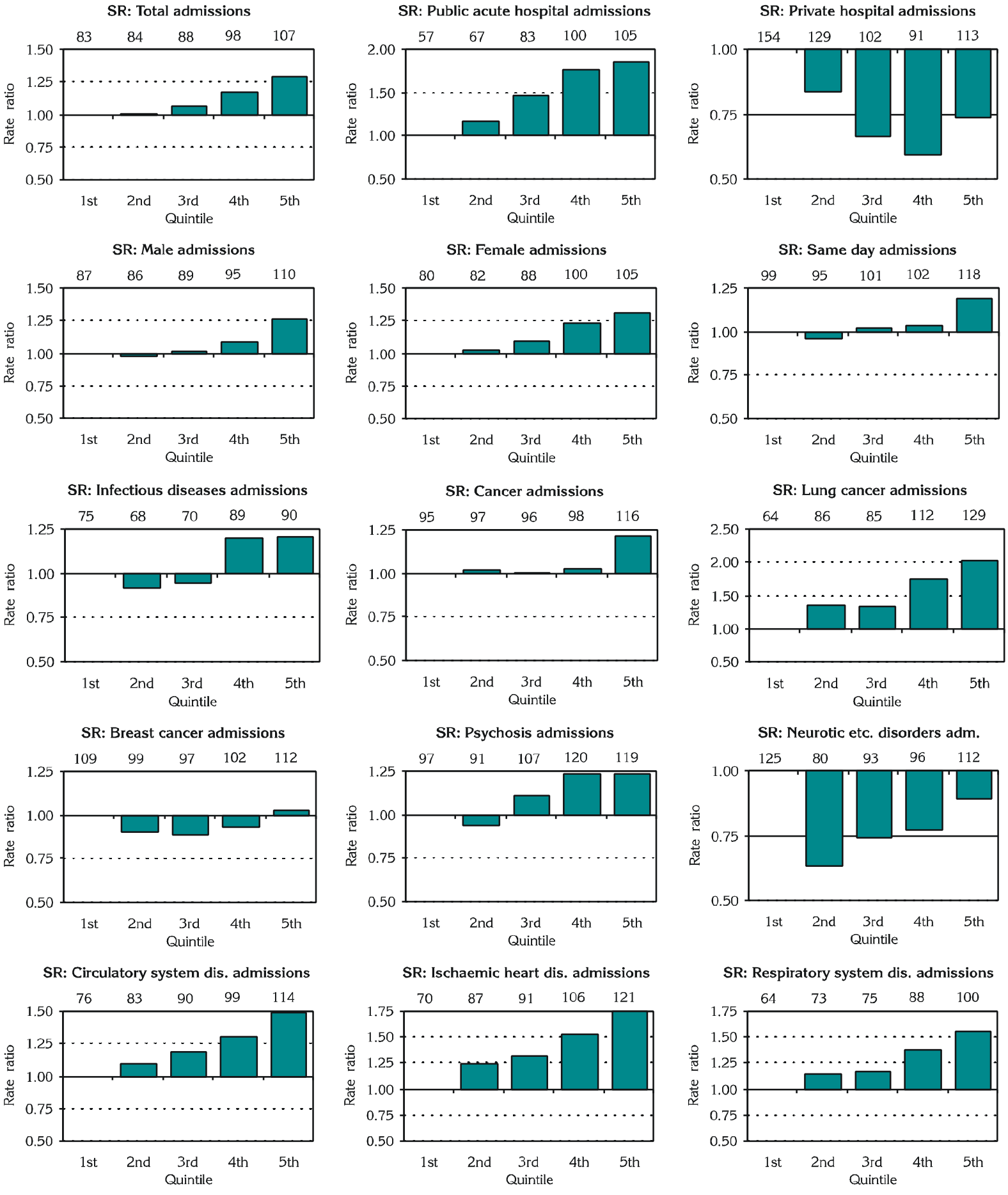
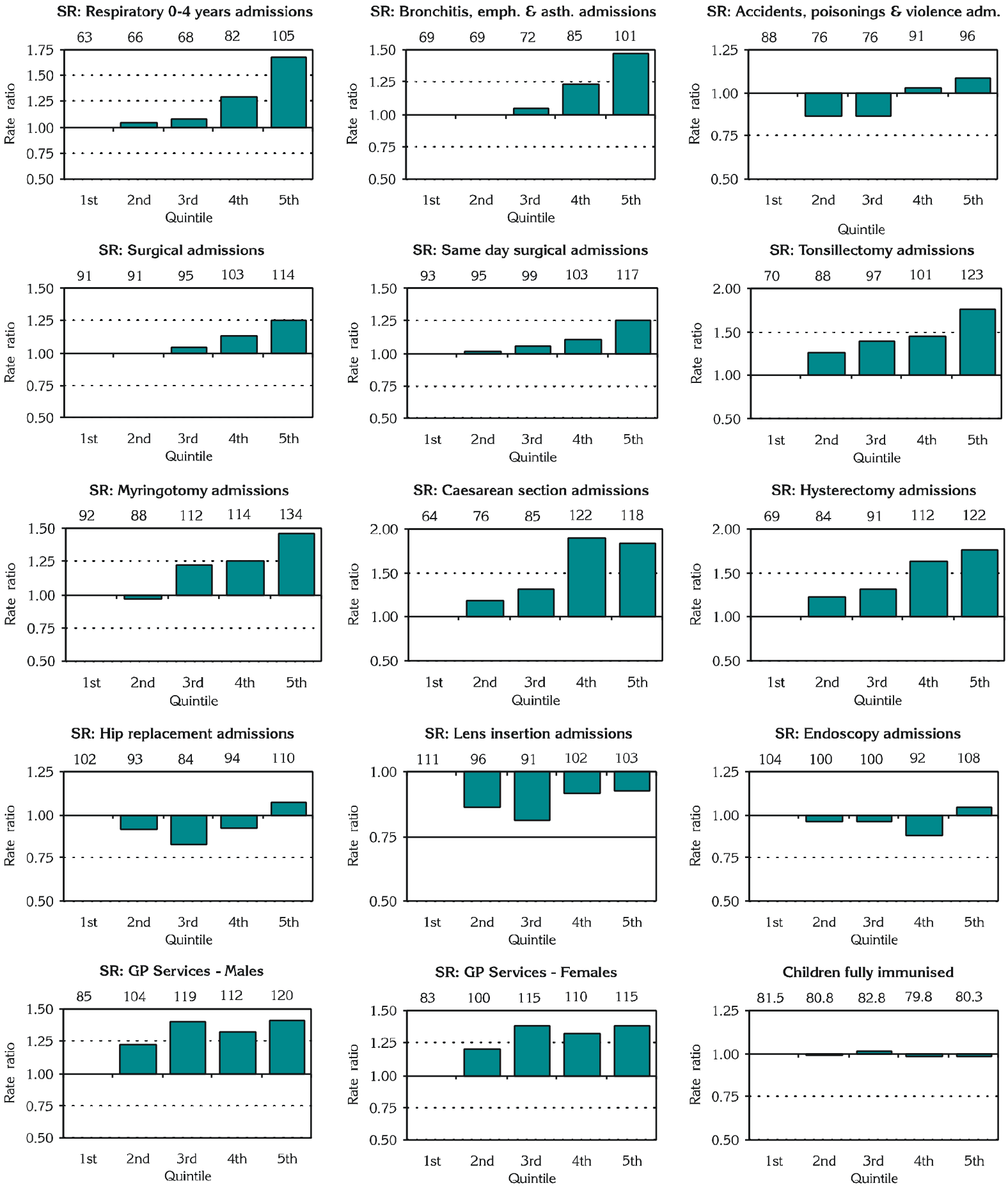
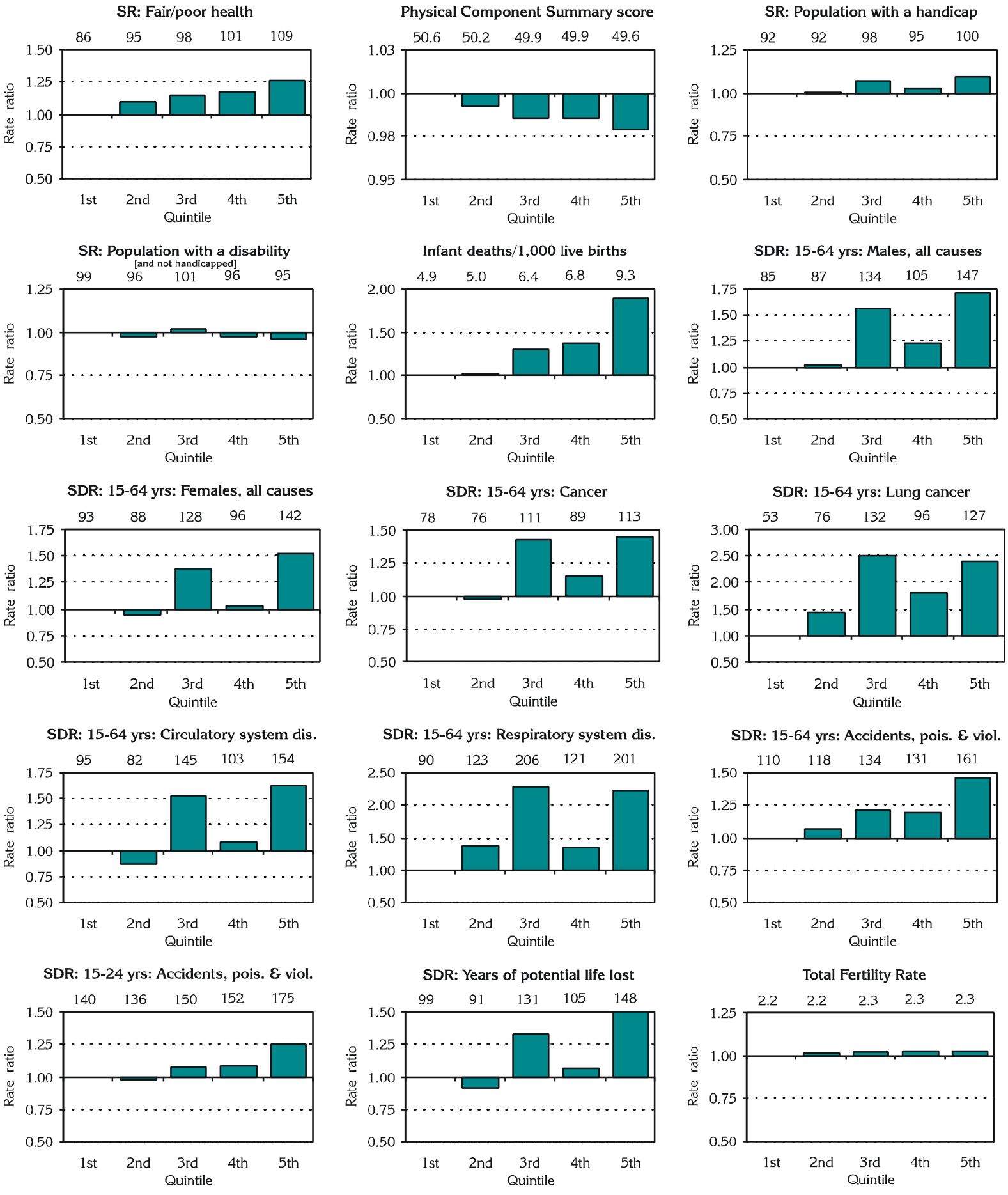


Figure 9.3: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Perth ... *cont*



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

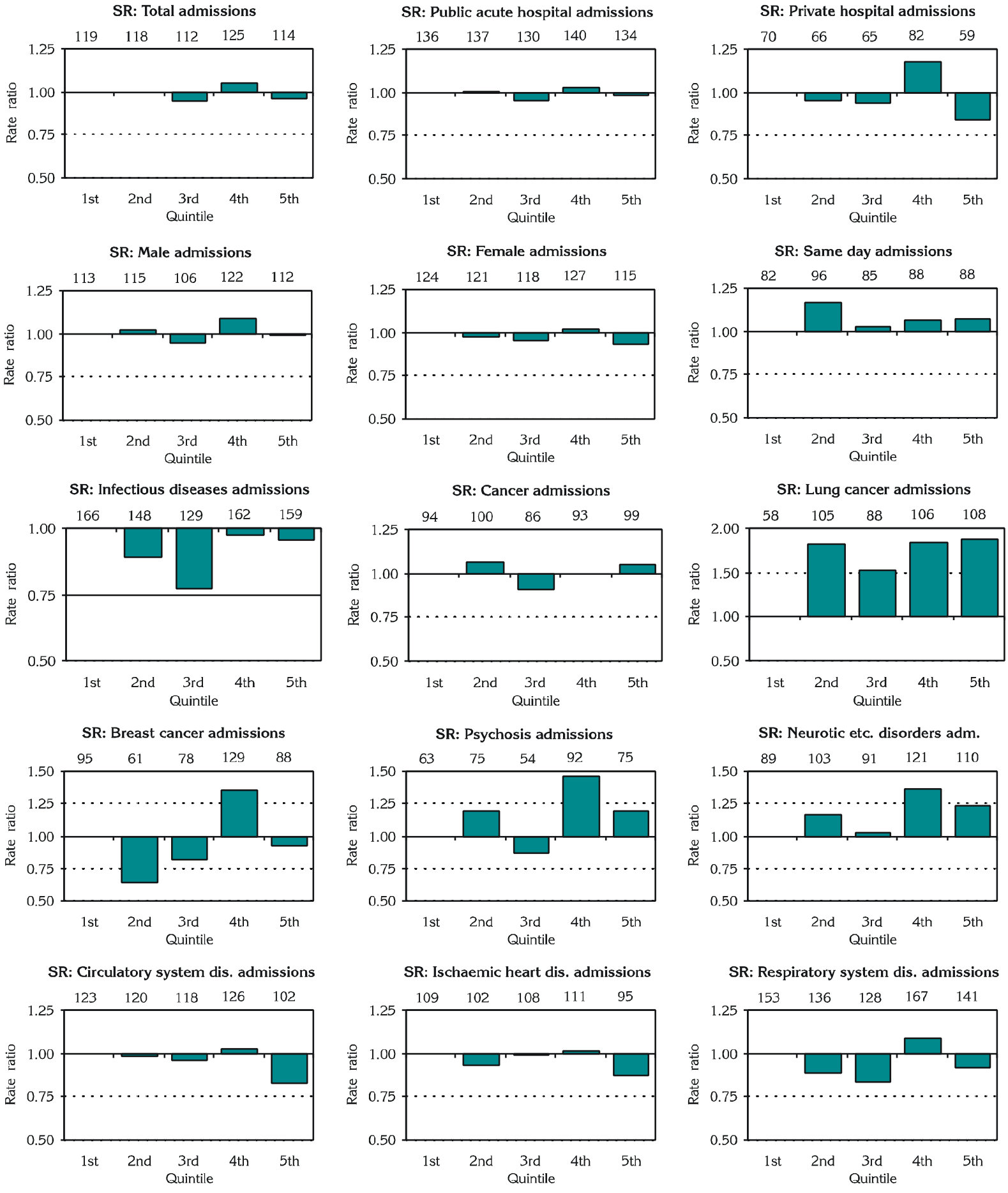
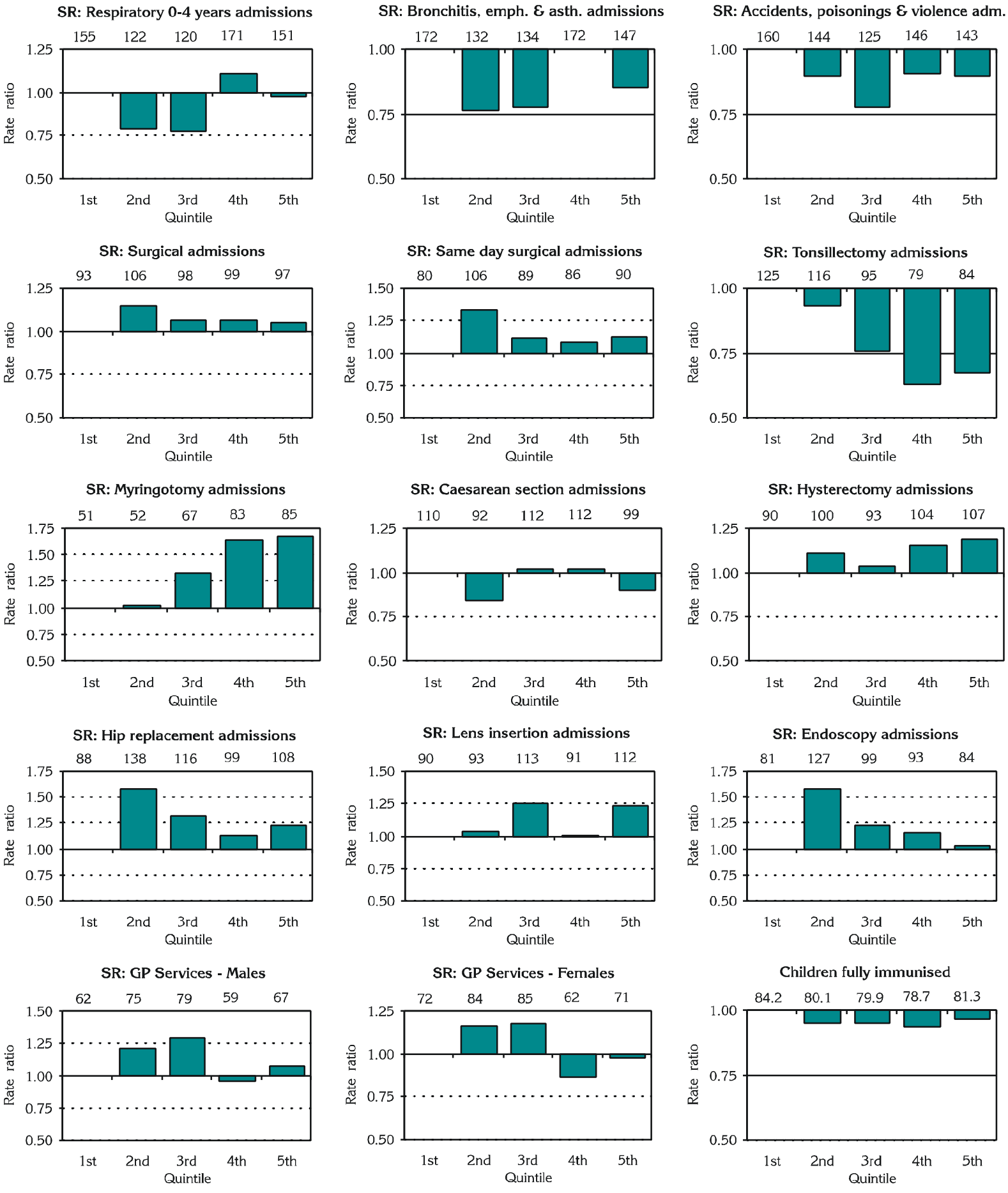


Figure 9.5: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of State ... *cont*



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

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. The differential in death rates for male residents of **Perth** aged from 15 to 64 years between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreased from 1.48 times higher in the most disadvantaged areas to 1.39 times higher. The percentage decline in death rates between the two periods is similar across all Quintiles.

Death rates for female residents of **Perth** 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 largest percentage decrease in death rates for females between the two periods is in Quintile 5 (down by 30.5 per cent) to the smallest in Quintile 4 (3.8 per cent). For females, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) while higher than that for males, also decreased, from 1.27 times higher in the most disadvantaged areas in 1985-89 to 1.11 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) decreased from 1.44 times higher in the most disadvantaged areas in 1985-89 to 1.29 times higher in 1992-95.

There is no clear gradient evident for premature deaths from cancer. However, death rates in each of the quintiles is lower in the later period, with the largest decrease occurring in the second most advantaged area (Quintile 2, down 29.1 per cent). Death rates in Quintile 5 dropped by a lower 20.7 per cent, the smallest decline recorded. The differential in death rates between Quintile 1 and Quintile 5 remained consistent in both periods, at 1.10.

The differential in death rates between Quintile 1 and Quintile 5 for premature deaths from lung cancer in **Perth** over the period 1992-95 is larger than for all cancers (2.08 compared with 1.10). The increase in the differential from 1.98 in 1986-89 to 2.08 in 1992-95 is also greater (5.2 per cent). Rates of death for lung cancer for residents of the areas in Quintile 1 decreased by 46.9 per cent between 1985-89 and 1992-95, with the smallest decrease in Quintile 3 (22.4 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 1.63 times higher in the most disadvantaged areas in 1985-89 to 1.71 times higher in 1992-95.

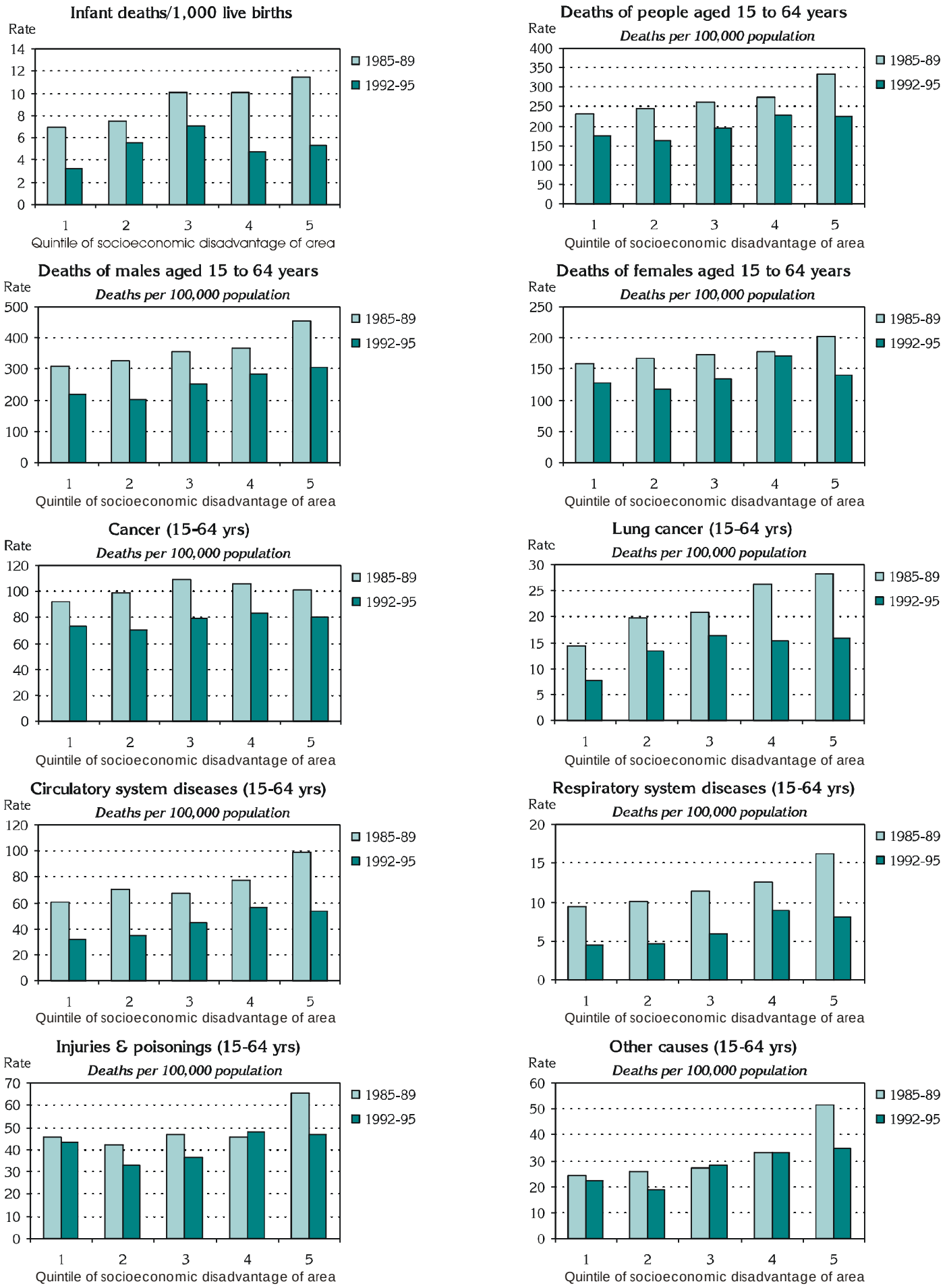
Although death rates from respiratory system diseases are lower than those recorded for circulatory system diseases, the gradients across the quintiles of socioeconomic status of area of address of usual residence in **Perth** over both periods are similar. In 1985-89, the differential between Quintiles 1 and 5 was 1.71; by 1992-95 this had increased (by 5.6 per cent) to 1.80.

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 **Perth**. Unlike the other causes of death, the differential in 1992-95 is smaller than in 1985-89 (down from 1.43 to 1.09). This is a result of the larger declines in death rates in Quintiles 5 (the largest, down by 28.0 per cent), 3 (-21.7 per cent) and 2 (-21.3 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 in the all causes and specific causes graphs (above), overall death rates have not decreased in all Quintiles. Although the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreased substantially from 2.11 times higher in the most disadvantaged areas in 1985-89 to 1.57 times higher 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 3 and 5 in 1985-89, although in 1992-95, the rates in Quintile 1 and 4 are highest. 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 15.7 per cent, from 1.05 to 0.88). The largest declines in death rates were in Quintiles 3 and 2 (down by more than 20 per cent), while increases are recorded in Quintiles 1 (an increase of 10.5 per cent) and 4 (50.2 per cent).

Figure 9.6: Change in health status by quintile of socioeconomic disadvantage of area, Perth



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

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 **Perth**, and for most of the variables for hospital admission (**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 a majority of the specific causes studied (**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.