9 Summary

Introduction

This chapter presents details of the major changes noted in the data between this and the first edition.

Care should be taken when interpreting the health status and health service utilisation data for the non-metropolitan areas of the Northern Territory, due to the small number of cases and sparsely populated areas.

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 the Northern Territory (**Table 9.1**). For **Darwin**, the largest increases were for the population aged 65 years and over (an increase of 77.3 per cent over this ten year period); low income families (49.1 per cent); dwellings without a motor vehicle (37.4 per cent); the occupational grouping of managers and administrators, and professionals (34.0 per cent); Aboriginal and Torres Strait Islander people (33.1 per cent); and single parent families (32.3 per cent). The largest decreases recorded over this ten year period were for the variables for people born overseas in predominantly non-English speaking countries and resident in Australia for less than five years (down by 35.4 per cent) and unemployment among 15 to 19 year olds (down by 22.7 per cent).

Variations of this order were also recorded in the non-metropolitan areas of the Northern Territory. The major differences from the changes noted for **Darwin** were the larger increases for the occupations of managers and administrators and professionals and the number of single parent families; smaller increases in the population of people aged 65 years; and larger decreases for people who reported poor proficiency in English.

Substantial variations were recorded in income support payments to residents of **Darwin** for all of the payment types analysed. The number of recipients for each of the payment types increased substantially, with the number of disability support pensioners increasing by 67.9 per cent (**Table 9.1**). Similar, although smaller, increases were recorded in the non-metropolitan areas of the Northern Territory for recipients of the Age and Disability Support Pensions, while larger increases were recorded for people receiving unemployment benefits and dependent children in families receiving income support.

Table 9.1: Changes in demographic and socioeconomic status variables, by Section of Territory, Northern Territory
Per cent change

Variable	Darwin	Rest of Territory	Whole Territory
1986 to 1996			
0 to 4 year olds	5.9	17.0	12.1
65 years & over	77.3	59.0	66.7
Single parent families	32.3	40.5	36.6
Low income families	49.1	36.1	40.0
Unemployed people	-6.7	-22.3	-15.1
Unemployed people aged 15 to 19 years	-22.7	-29.5	-26.3
Female labour force participation (20 to 54 years)	3.2	2.9	2.4
Early school leavers	-2.0	15.6	8.0
Unskilled & semi-skilled workers	4.9	27.6	18.5
Managers & administrators, & Professionals	34.0	51.3	41.8
Aboriginal & Torres Strait Islander people	33.1	33.2	33.2
People[1] born overseas & resident for less than five years	-35.4	-32.1	-34.5
People[1] born overseas & resident for 5 years or more	23.3	14.0	20.6
People[1] born overseas: speaks English not well/not at all	-8.8	-96.7	-9.8
Housing authority rented dwellings	-10.9	16.0	-1.4
Dwellings without a motor vehicle	37.4	36.6	36.9
1989 to 1996			
Age pensioners	31.3	12.1	20.3
Disability support pensioners	67.9	51.4	59.1
Female sole parent pensioners	23.6	23.6	23.6
Unemployment beneficiaries	51.9	142.7	108.9
Dependent children of selected pensioners & beneficiaries	43.9	51.4	48.7

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

Changes in health status variables

As noted in Chapter 5 (see *Background*), death rates in Australia have declined for the majority of causes. The Northern Territory is no exception, with lower rates for all of the major causes of death mapped in the atlas, excluding deaths of 15 to 64 year olds from lung cancer (which increased by 33.3 per cent). Percentage changes between the two periods (from 1985 to 1989 and 1992 to 1995) are shown in **Table 9.2**.

In **Darwin**, the largest decreases were recorded for deaths of people aged from 15 to 64 years from diseases of the circulatory system (down by 32.8 per cent), accidents, poisonings and violence (down by 13.9 per cent) and respiratory system diseases (down by 13.7 per cent). All causes mortality was 19.1 per cent lower over this period, marginally more so for females (20.6 per cent) than for males (16.9 per cent).

There were also reductions in rates of premature death in the non-metropolitan areas of the Northern Territory for all but lung cancer, for which there was a marled increase (54.5 per cent). The reductions were all greater than those recorded for **Darwin**.

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

Variable	Darwin	Rest of Territory	Whole Territory
Infant deaths	9.6	-10.4	-2.8
Deaths of 15 to 64 year olds			
Males	-16.9	-31.5	-27.9
Females	-20.6	-34.3	-31.8
Persons, by cause			
Circulatory system diseases	-32.8	-39.3	-39.1
All cancers (Malignant neoplasms)	-8.7	-10.5	-10.1
Lung cancer	11.5	54.5	33.3
Respiratory system diseases	-13.7	-33.4	-33.2
Accidents, poisonings & violence	-13.9	-24.5	-20.8
Other causes	-8.6	-40.3	-33.5
All causes	-19.1	-33.1	-29.9

[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

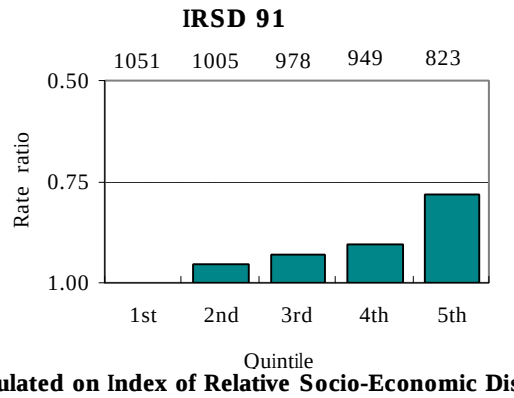
Background

In order to summarise the extent of health inequalities shown in the maps in the earlier chapters, the health status data (for both **Darwin** and the non-metropolitan areas of the Northern Territory) and the health service utilisation data (for the non-metropolitan areas) 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 **Darwin** 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 18). Quintile 1 comprises the twenty per cent of SLAs in **Darwin** 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 the Northern Territory.

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 the average IRSD score in 1991 for Quintile 1 (comprising the most socioeconomically advantaged SLAs in **Darwin**) was 1051, decreasing for each quintile to a score of 823 in Quintile 5 (the most disadvantaged SLAs).

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



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

The range of index scores for non-metropolitan Northern Territory was from 993 in Quintile 1 to 740 in Quintile 5.

The IRSD shown in **Figure 9.1** 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, 1176; Quintile 2, 1147; Quintile 3, 1117; Quintile 4, 1083; Quintile 5, 1026. All of these 1996 IRSD scores are higher than in 1991. The range of index scores for the non-metropolitan areas of the Northern Territory was from 1129 in Quintile 1 to 719 in Quintile 5.

Results

Health status in Darwin

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

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 deaths between the ages of 15 to 64 years from lung cancer as an example, the rate ratio in Quintile 5 is 3.63 (ie. the SR is more than three and a half times higher in the areas in Quintile 5 than in Quintile 1). The actual values of the SRs (shown above the bars) range from 41 in the most advantaged areas (59 per cent fewer deaths from lung cancer than were expected from the Australian rates) to 149 in the most disadvantaged areas (indicating that there were 49 per cent more deaths from lung cancer 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 39 in Quintile 1 to 99 in Quintile 4 and 88 in Quintile 5) and deaths of 15 to 64 years olds from circulatory system diseases (26 in Quintile 1 to 96 in Quintile 5) and accidents, poisonings and violence (32 in Quintile 1 to 111 in Quintile 4 and 77 in Quintile 5).

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 Quintiles 4 and 5) to have the highest rates. The most notable exceptions are the variables for people with a handicap, people with a disability and the Total Fertility Rate.

Health status in non-metropolitan Northern Territory

Figure 9.3 shows the rate ratios for each of the health status variables for SLAs in the non-metropolitan areas of the Northern Territory. The most notable differences from the gradients evident for **Darwin** are for the variables for people with a handicap, infant deaths and the Total Fertility Rate. Again, the pattern is 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 exceptions are the variables for the Physical Component Summary (PCS) score (for which low scores indicate poorer health) and people with a disability.

Health service utilisation in Darwin

It has not been possible to produce this analysis for the health service utilisation data mapped in Chapter 6, as this data was only available for the four postcode groupings, too few areas to be allocated to the five quintiles.

Health service utilisation in non-metropolitan Northern Territory

Figure 9.4 shows the rate ratios for each of the health service utilisation variables for SLAs in the non-metropolitan areas of the Northern Territory. As can be seen from the graphs, there is considerable variability across the quintiles. Even where the most advantaged SLAs (those in Quintile 1) have the lowest admission rates and the most disadvantaged SLAs (those in Quintiles 3 and 5) have the highest rates, the pattern is often broken in Quintile 3 and 4. Quintile 3 includes the remote areas of Groote Eylandt and Elsey-Balance as well as the town of Tennant Creek and Cox-Finniss, which is located near **Darwin**. On other occasions the most disadvantaged (and also the most remote) areas have the lowest admission rates. The rates in these areas, in particular, are likely to be affected by a lack of access to hospital facilities.

The variables which consistently have higher rates of admission in the high socioeconomic status areas are those for admissions to a private hospital, same day admissions and admissions for psychosis; for neurotic, personality and other mental disorders; and for bronchitis, emphysema and asthma. The standardised ratios for admissions involving a surgical procedure (other than for Caesarean sections) also generally decrease with increasing disadvantage. A gradient is also evident for the use of GP services for both males and females, and immunisation rates of children at age 12 months, which is likely to reflect a lack of access to these services.

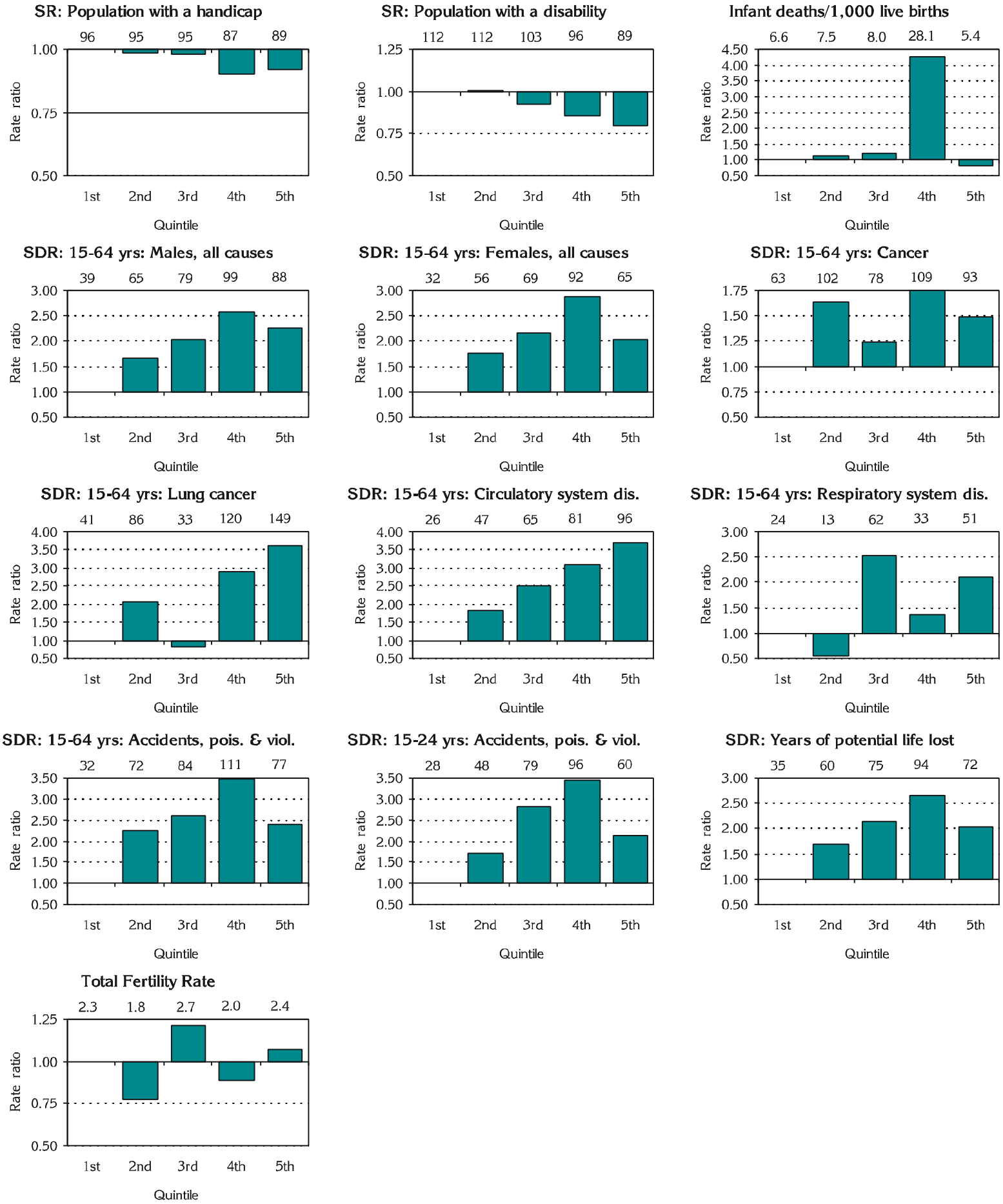
Changes over time in health status by socioeconomic status of area of residence

The two previous sections have shown the overall decrease in death rates in **Darwin** and in the non-metropolitan areas of the Northern Territory, 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 9.5**).

Caution should be exercised in interpreting these data. Although there is a clear gradient in socioeconomic status at the suburb level in **Darwin** (**Figure 9.1**), the suburbs have relatively small, and often diverse, populations which can affect the results of this analysis. Despite these limitations, the analysis has been undertaken and the data included below.

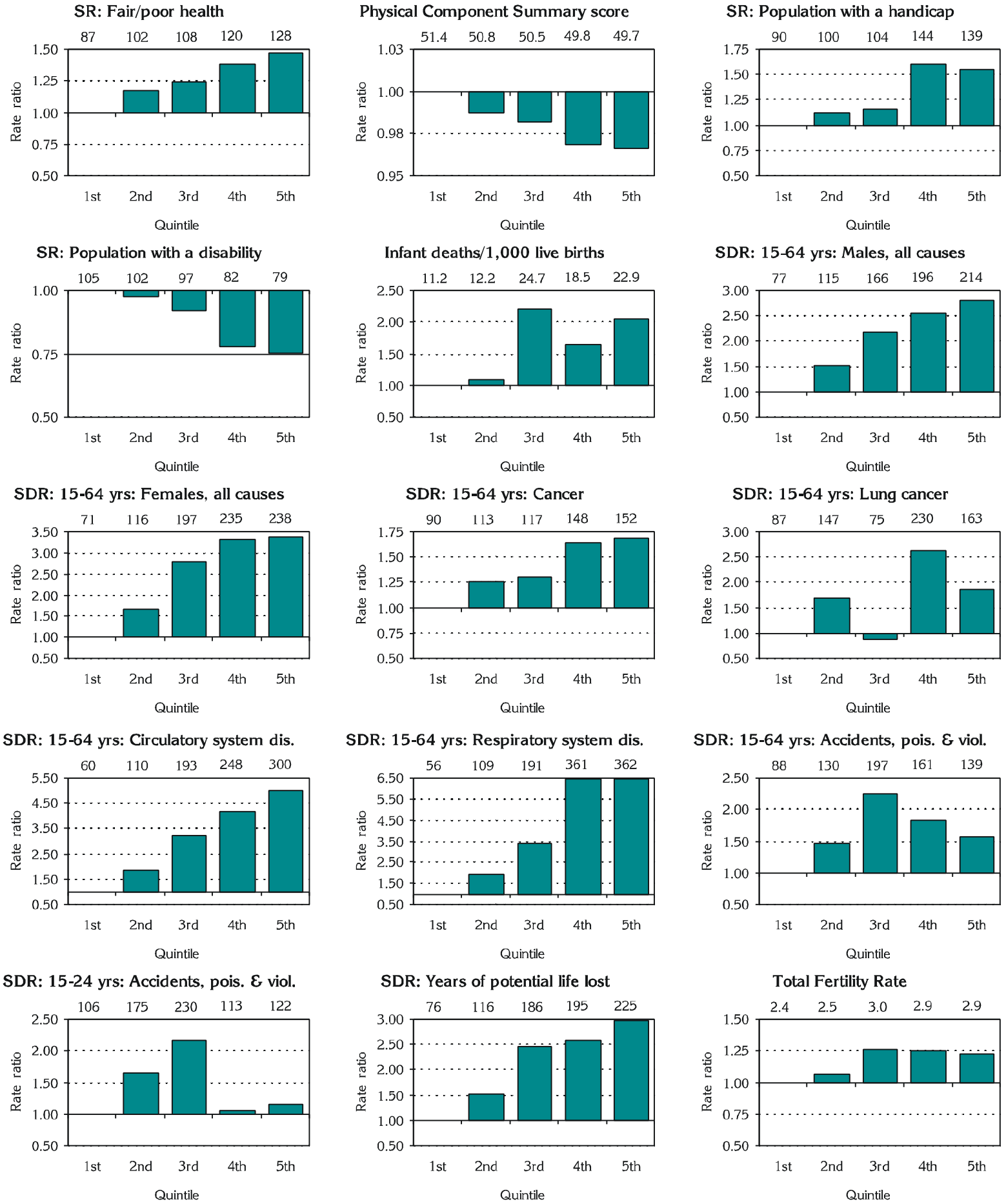
As data was not available for non-metropolitan SLAs in the first edition of the atlas, the following comparisons have only been produced for **Darwin**. The non-metropolitan rates will be calculated and posted on the atlas World Wide Web site (www.publichealth.gov.au).

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



Note: 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 status differentials by quintile of socioeconomic disadvantage of area, Rest of Territory



Note: Data for years of potential life lost are for the population aged from 15 to 64 years
Source: Compiled from project sources

Figure 9.4: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of Territory

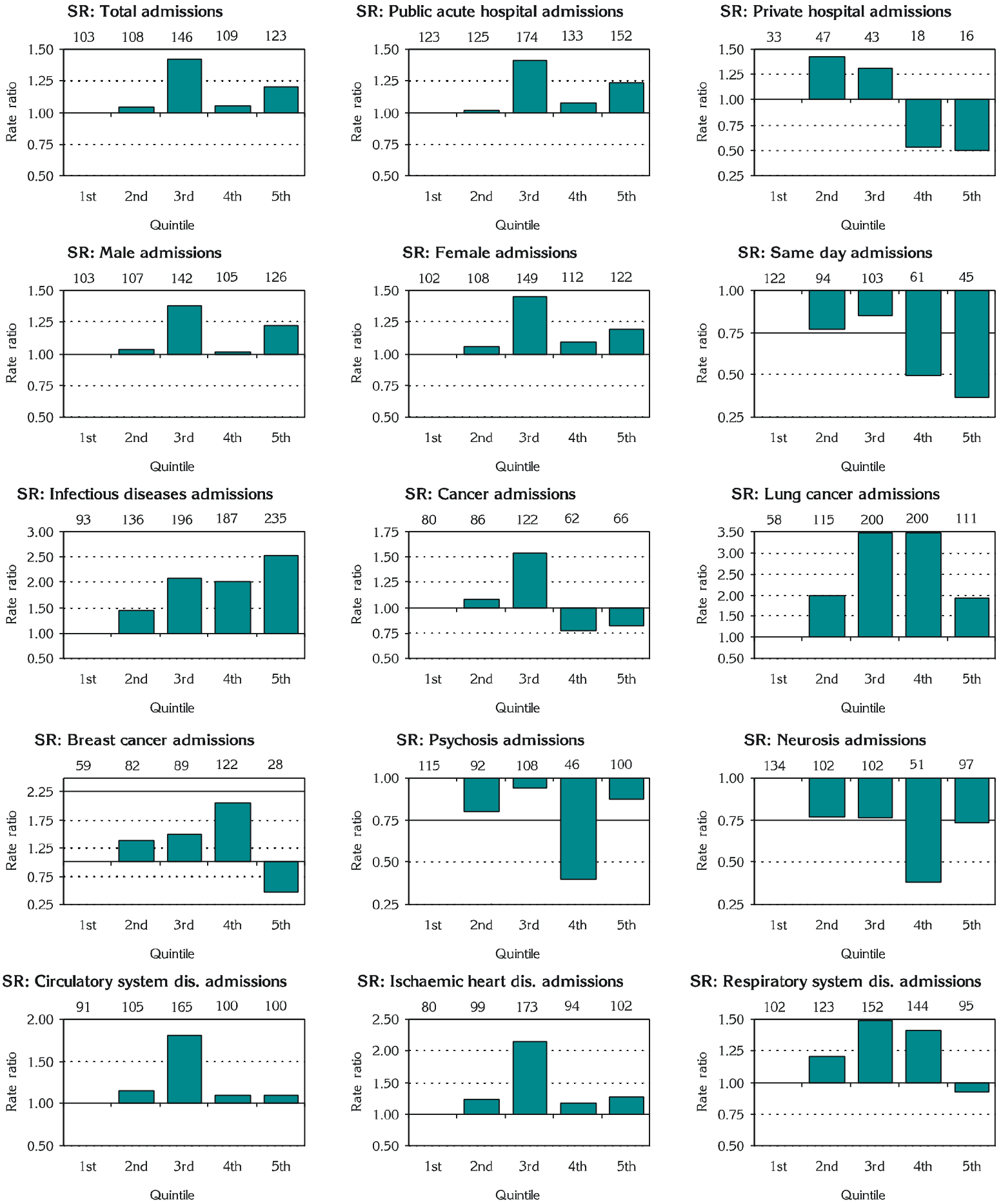
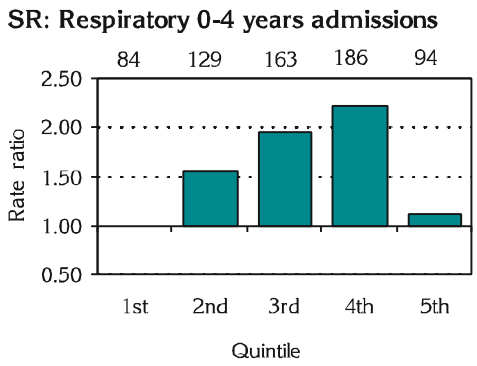
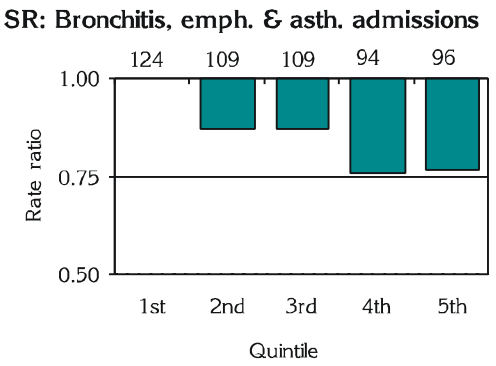
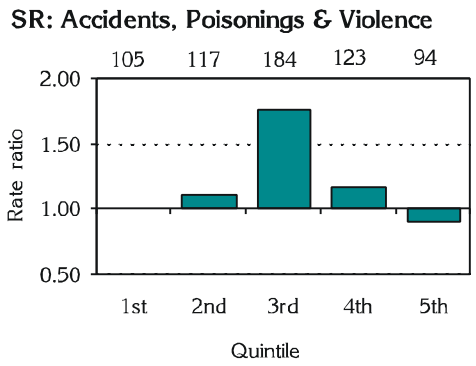
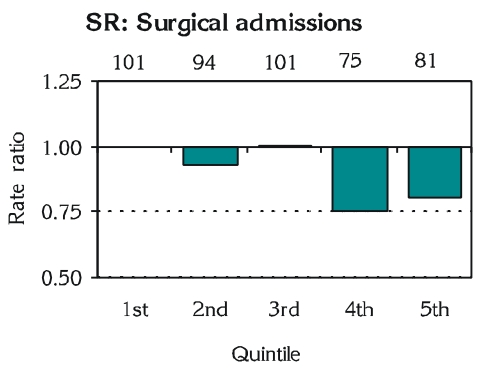


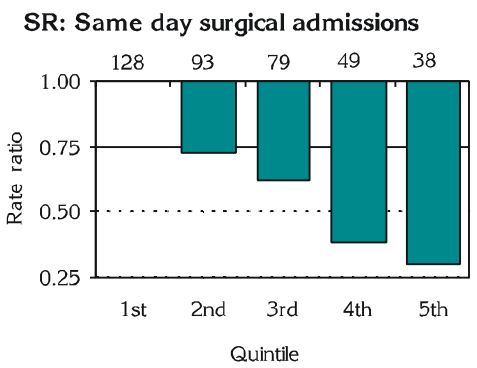
Figure 9.4: Health service utilisation differentials by quintile of socioeconomic disadvantage of area, Rest of Territory ... *cont*

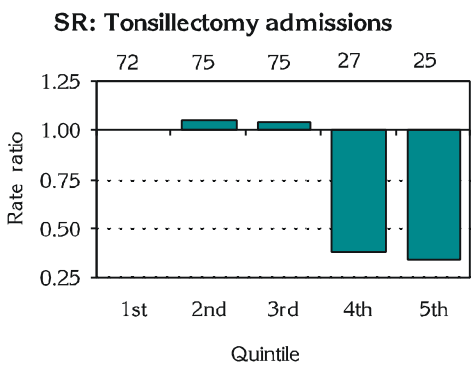


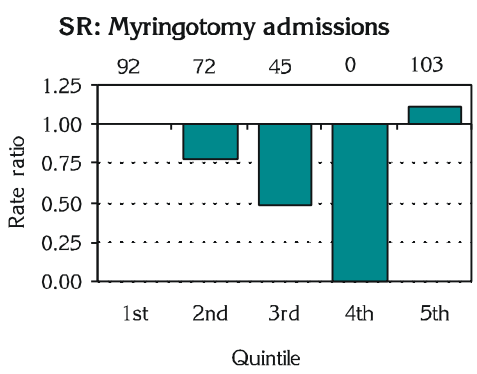


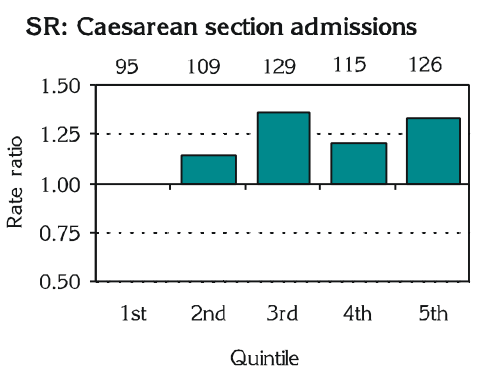


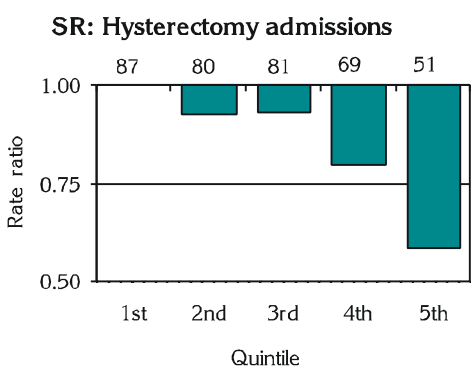


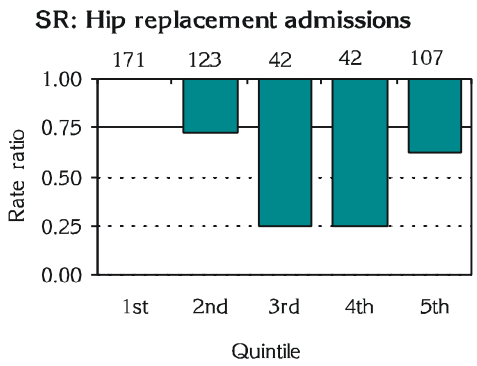


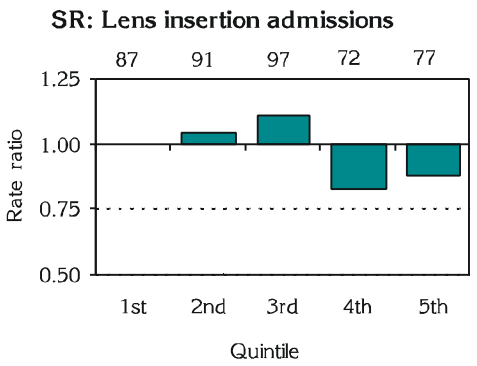


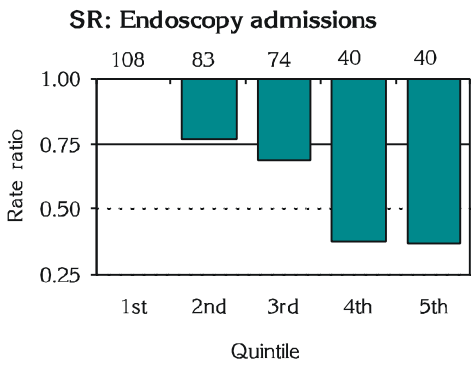


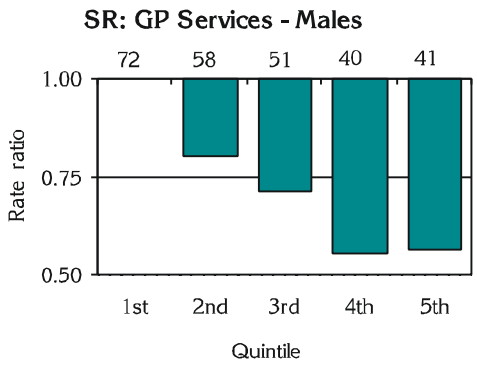


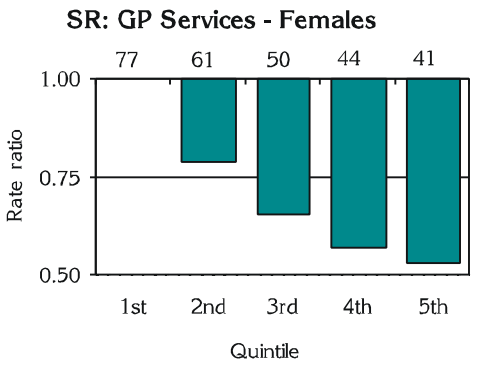


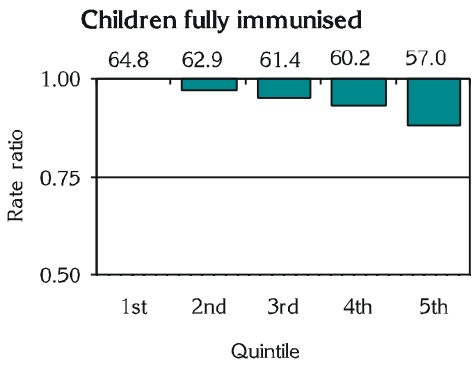












Source: Compiled from project sources

Infant death rates (infant deaths per 1,000 live births) in **Darwin** 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 rates in Quintiles 1 and 2 (the highest socioeconomic status areas), with infant death rates of 7.3 and 5.0, respectively to the highest rate (14.0) in Quintile 4 (the second lowest socioeconomic status areas). The rate of 5.7 infant deaths per 1,000 live births in Quintile 5 breaks this pattern. Infant death rates are lower in 1992-95 than in 1985-89 in Quintiles 1, 3 and 5, with the largest percentage decline in Quintile 3 (down by 39.7 per cent). In 1992-95, the infant death rate in Quintile 4 doubled, rising from 14.0 to 28.1 (an increase of 100.6 per cent). The differential in the infant death rate between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) also increased, from 0.78 in 1985-89 to 0.81 in 1992-95.

In both 1985-89 and 1992-95, death rates for male residents of **Darwin** were highest in Quintile 5 (with rates of 473.1 and 421.3 male deaths per 100,000 population, respectively). However, in 1985-89 the lowest rate was recorded in Quintile 2 (a rate of 312.4), while in 1992-95 the lowest rate occurred in Quintile 3 (253.3). Male death rates were lower in 1992-95 than in 1985-89 in all quintiles except Quintile 2. The differential in death rates for male residents of **Darwin** aged from 15 to 64 years between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) decreased from 1.21 times higher in the most disadvantaged areas to 1.15 times higher. The percentage decline in death rates between the two periods is largest in Quintiles 3 and smallest in Quintile 1.

Death rates for female residents of **Darwin** aged from 15 to 64 years are lower than for males. As shown in **Figure 9.5**, the rates in the later period are lower than in the earlier period for each quintile, other than for Quintile 5 where the rate is slightly higher. The largest percentage decreases were recorded in Quintiles 3 (40.8 per cent) and 4 (29.8 per cent), while there was an increase of 2.1 per cent in Quintile 5. For females, the differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) increased, from 0.80 in 1985-89 (more deaths of residents of the high status than in the disadvantaged areas) to 1.01 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 1.14 times higher in the most disadvantaged areas in 1985-89 to 1.10 times higher in 1992-95.

There is a gradient evident for premature deaths from cancer for the period 1992-95, from the highest rate in the high socioeconomic areas (Quintile 1, 86.2 deaths of 15 to 64 year olds from cancer per 100,000 population) to a low rate of 67.0 in low socioeconomic status areas (Quintile 5). The rate of 44.7 in Quintile 3 breaks this pattern. Only in Quintiles 3 and 4 is the death rate lower in the later period, with the largest decrease occurring in Quintile 3 (down 54.9 per cent). The largest increase incurred in Quintile 5 (29.9 per cent), resulting in an increase in the differential in death rates between Quintile 1 and Quintile 5 from 0.71 in 1985-89 to 0.78 in 1992-95.

The differential in death rates between Quintile 1 and Quintile 5 for premature deaths from lung cancer in **Darwin** over the period 1992-95 is also lower than in 1985-89 (1.22, compared with 1.30).

There is no clear gradient evident in the rates of premature death from circulatory system diseases in either period. However, death rates in each of the quintiles are lower in the later period (with the exception of Quintile 5). The differential in death rates between Quintile 1 (the most advantaged areas) and Quintile 5 (the most disadvantaged areas) has almost doubled, increasing from 1.02 times higher in the most disadvantaged areas in 1985-89 to 1.99 times higher in 1992-95.

Similarly, there is no clear gradient evident in the death rates from respiratory system diseases in either of the periods shown, although in both 1985-89 and 1992-95 the death rates are considerably higher in Quintile 4 (31.2 and 33.3 deaths per 100,00 population, respectively) than in the other quintiles. In 1985-89, the differential between Quintiles 1 and 5 was 0.84; by 1992-95 this had increased (by 116.2 per cent) to 1.81, as a result of the large decrease in death rates in Quintile 1. This was the largest increase in the differential for the causes studied.

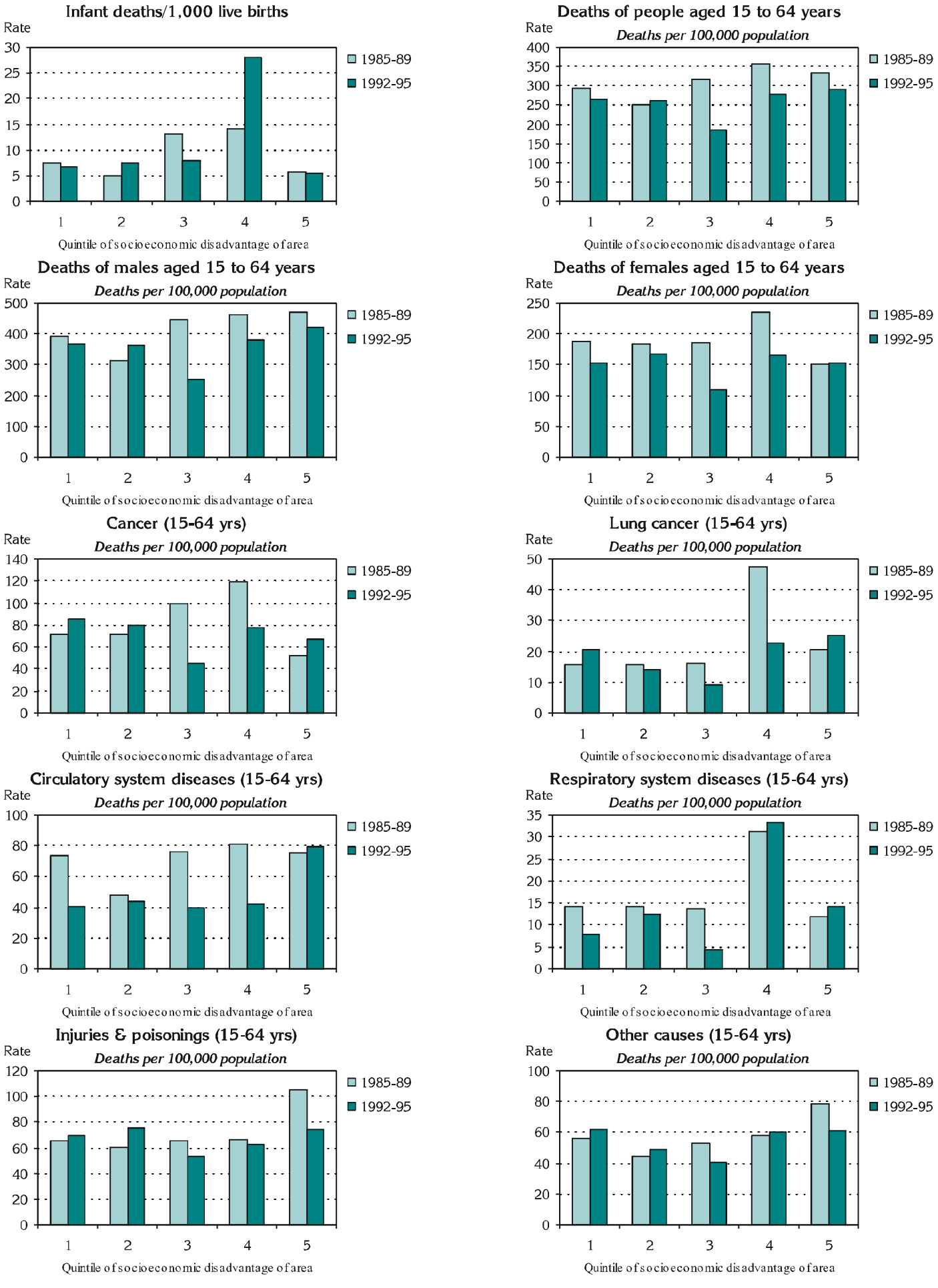
Death rates of 15 to 64 year old people from the external causes of accidents, poisonings and violence are highest in the most disadvantaged areas of **Darwin**. The differential in 1992-95 is smaller than in 1985-89 (down from 1.60 to 1.07). This is a result of the increase in death rates in Quintile 1 and a decrease in Quintile 5.

The last graph in **Figure 9.5** shows details for all other causes of death between the ages of 15 and 64 years. After higher rates in Quintile 1, there is a gradient in the death rates in both periods from Quintile 2 to Quintile 5. However, as a result of the increase in death rates in Quintile 1 and a reduction in Quintile 5, the differential between these quintiles has decreased, from 1.39 in 1985-89 to 0.98 in 1992-95.

Although not included in **Figure 9.5**, 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 the rates in the most advantaged and disadvantaged quintiles are similar. 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 that in 1985-89 (down by 63.1 per cent, from 2.62 to 0.97).

In summary, the overall impression is that death rates for these causes vary between the quintiles; and that the rates have fallen in more of the quintiles than have seen an increase (35 quintiles have a lower death rate and 15 have a higher death rate).

Figure 9.5: Change in health status by quintile of socioeconomic disadvantage of area, Darwin



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 9.3**).

Similarly, there are associations between socioeconomic disadvantage and high rates of hospital admission and low rates of use of GP services and childhood immunisation in the non-metropolitan areas of the Northern Territory (**Figures 9.4**).

Despite the overall improvement in deaths rates from all causes and for all of the specific causes studied (**Table 9.2**), it is unclear whether these improvements have resulted in a reduction in the disparities evident in death rates in **Darwin** between residents of the most well off areas and those in the poorest areas (**Figure 9.5**).

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.