

15. Other chronic diseases

The previous chapters covered a number of important chronic diseases which affect Australian children. These have national indicators, which are used to monitor change over time. This chapter, however, focuses on other chronic diseases and conditions which also cause considerable morbidity in Australian children, but for which there are no national indicators. This chapter will provide information on three specific conditions: cerebral palsy, epilepsy and cystic fibrosis.

Cerebral palsy

Cerebral palsy covers a range of neurological impairments and is characterised by poor control of movement or posture. Cerebral palsy is the most common physical disability in childhood. It develops in about 2 to 2.5 per 1,000 children during the first year of life (MacLennan 1995).

The causes of cerebral palsy are the subject of much debate and controversy (MacLennan 1995). The commonly held view is that it is caused by events occurring during childbirth (Bakketeig 1999). However, studies in Australia and elsewhere have shown that, in the majority of cases, the origins of cerebral palsy are likely to be related to events happening in the antenatal period (before birth). Studies have shown that hypoxia (a deficiency of oxygen reaching the tissues of the body) during birth accounts for only 10% of cases of cerebral palsy (Gilles et al. 1996; MacLennan 1999). The frequency of cerebral palsy has been stable over the last 40 years, occurring in 0.2–0.25% of births, despite improvements in technology and care during delivery. This supports the view that the majority of cases have their origin in the antenatal period.

Hospitalisations

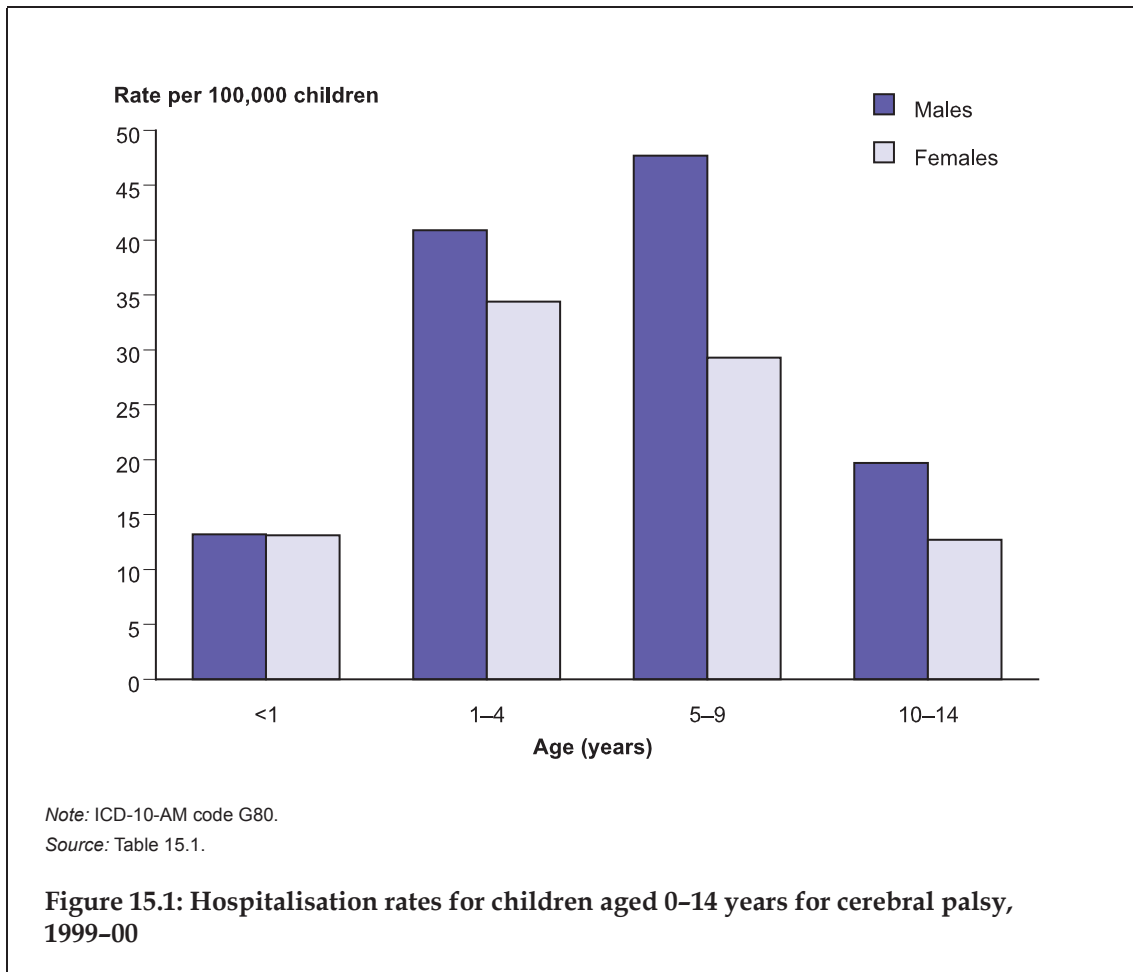
Table 15.1: Hospitalisation rates for children aged 0–14 years for cerebral palsy, 1993–94 to 1999–00 (per 100,000 children)

	Age (years)	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00
Males	<1	18.1	18.1	19.6	30.6	18.6	14.1	13.2
	1–4	43.6	12.4	24.1	54.4	60.1	46.3	40.9
	5–9	13.4	9.9	20.6	28.6	35.6	39.6	47.7
	10–14	15.9	5.0	11.5	11.9	11.8	11.1	19.7
	0–14	22.6	9.5	18.5	30.2	33.2	30.3	34.3
Females	<1	4.8	9.6	9.5	25.9	18.7	13.2	13.1
	1–4	43.3	15.0	14.6	22.9	40.2	33.5	34.4
	5–9	20.6	8.0	25.7	21.6	17.7	19.8	29.3
	10–14	11.5	4.3	5.8	8.1	10.2	11.1	12.7
	0–14	22.6	8.8	15.1	17.8	21.3	20.1	24.1
Persons	0–14	22.6	9.1	16.8	24.1	27.4	25.4	29.4

Note: ICD-9-CM code 343 (1993–94 to 1997–98) and ICD-10-AM code G80 (1998–99 to 1999–00).

Source: AIHW National Hospital Morbidity Database.

- Over the 7-year period 1993–94 to 1999–00, the hospitalisation rate for children aged 0–14 years for cerebral palsy rose from 22.6 to 29.4 per 100,000 children. The increase was greater for boys than for girls. For boys the rate increased from 22.6 to 34.3, while for girls it increased from 22.6 to 24.1.
- Hospitalisation rates for boys and girls were very similar in 1993–94 and 1994–95. However, in more recent years, boys had higher rates for cerebral palsy than girls.



- In 1999-00, there were 1,149 hospitalisations of children aged 0-14 years for cerebral palsy, with a rate of 29.4 per 100,000 children. The rate was higher for boys than for girls (34.3 compared with 24.1).
- The rate was highest for children aged 5-9 years, followed by those aged 1-4 years. The rates were 38.8 per 100,000 children aged 5-9 years compared with 13.0 for infants, 37.7 for children aged 1-4 years, and 16.3 for children aged 10-14 years.

The impact of cerebral palsy can also be examined by looking at the length of time children spent in hospital. In 1999-00, there were 5,001 hospital bed days for which cerebral palsy was the principal diagnosis, with an average length of stay in hospital of 4.4 days. Cerebral palsy was also responsible for an additional 3,955 bed days where it was not the main reason for hospital stay but where it had to be managed during hospitalisations for other conditions.

Deaths

Between 1991 and 2000, 290 children died from cerebral palsy, with approximately equal numbers of deaths of boys and girls. Deaths of all children aged 0–14 years are shown in Table 15.2.

Table 15.2: Cerebral palsy deaths in children aged 0–14 years, 1991–00

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number	30	25	30	36	30	29	20	37	28	25
Rate per 100,000 children	0.8	0.7	0.8	0.9	0.8	0.7	0.5	1.0	0.7	0.6

Note: ICD-9 code 343 and ICD-10 code G80.

Source: AIHW Mortality Database.

- The average death rate from cerebral palsy was 0.8 per 100,000 for both boys and girls.
- Rates were higher for younger children, particularly for infants.

Epilepsy

Epilepsy is a condition where a person has recurring fits or seizures that are not caused by fever or a present injury. The fit usually occurs when there is a sudden disruption in the electrical activity in the brain, accompanied by altered consciousness and/or other behavioural manifestations. Most fits are mild but a seizure that lasts a long time can lead to *status epilepticus*, a life-threatening condition characterised by continuous seizures, sustained loss of consciousness and respiratory distress. Non-convulsive epilepsy can impair physical coordination, vision and other senses.

The prevalence of epilepsy in childhood is estimated to be 4 to 8 per 1,000 children aged 0–14 years (Franklin & Nelson 1998). The incidence of epilepsy is highest in very young and older people, with some people experiencing spontaneous cure. Although the cause of epilepsy is not known for most children, some epilepsy in children can be caused by a previous head injury, infections of the brain or problems during pregnancy or birth (Braunwald et al. 2001). Other risk factors known to contribute to epilepsy include family history, congenital malformation, cerebral palsy, mental retardation and central nervous system infection.

Hospitalisations

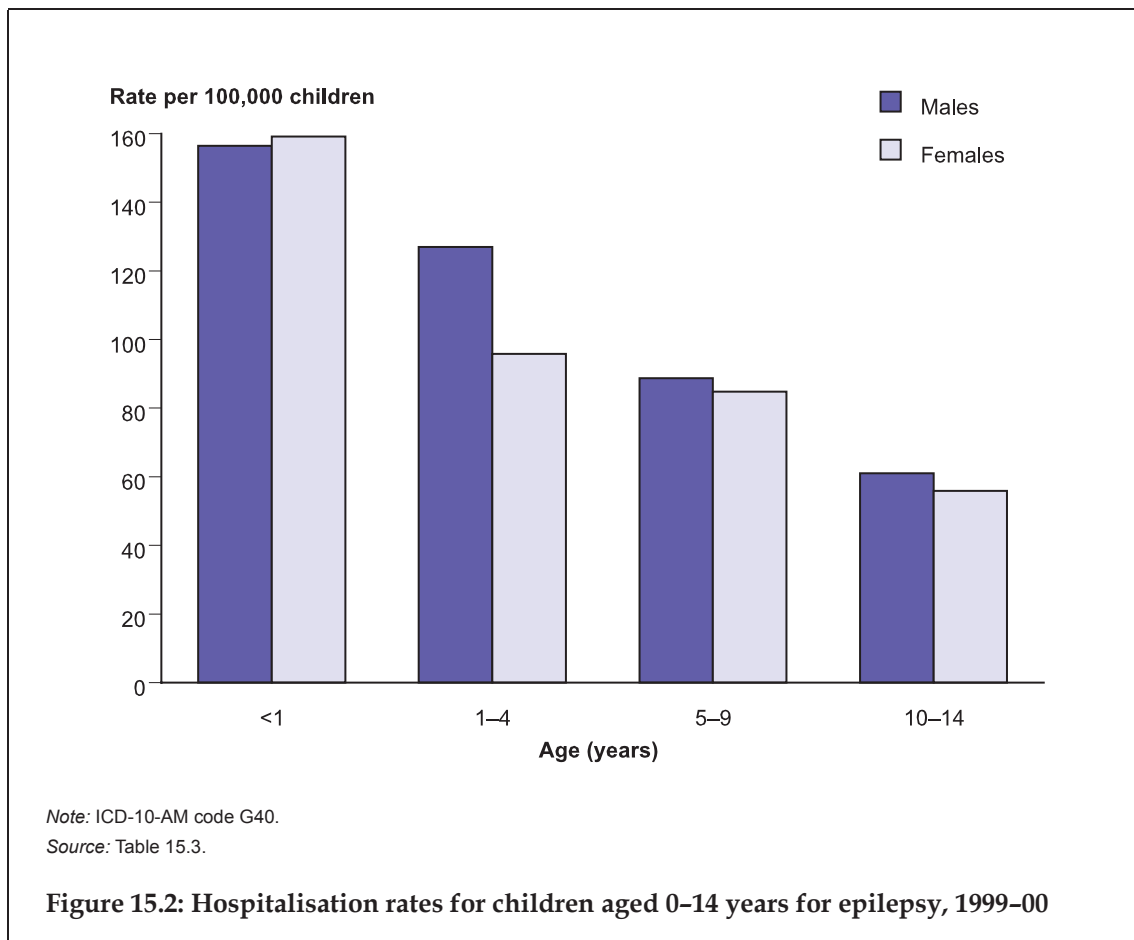
Table 15.3: Hospitalisation rates for children aged 0–14 years for epilepsy, 1993–94 to 1999–00 (per 100,000 children)

	Age (years)	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00
Males	<1	154.5	129.5	179.6	167.1	144.6	155.9	156.4
	1–4	153.1	139.5	166.4	183.3	183.7	129.3	127.0
	5–9	87.6	86.2	100.4	98.8	99.1	97.5	88.7
	10–14	74.8	67.4	20.8	24.6	22.8	64.9	61.0
	0–14	105.5	97.2	97.4	101.7	99.8	99.3	94.5
Females	<1	195.0	145.9	145.6	184.7	119.7	107.7	159.1
	1–4	146.4	133.1	131.2	145.9	135.1	114.9	95.8
	5–9	89.9	85.6	97.5	97.8	94.1	78.2	84.8
	10–14	66.0	69.0	67.3	64.3	66.8	68.7	55.9
	0–14	104.4	97.0	99.9	105.6	97.9	86.9	83.3
Persons	0–14	105.0	97.1	98.6	103.6	98.9	93.3	89.1

Note: ICD-9-CM code 345 and ICD-10-AM code G40.

Source: AIHW National Hospital Morbidity Database.

- The hospitalisation rate for epilepsy for children aged 0–14 years remained fairly constant over the period 1993–94 to 1999–00, fluctuating between 105.0 per 100,000 children in 1993–94 and 89.1 per 100,000 children in 1999–00.
- Children aged under 5 years had the highest hospitalisation rates, with rates then decreasing with age for both boys and girls.
- Over most of the 7-year period, boys had higher rates than girls.



- In 1999-00, there were 3,465 hospitalisations of children aged 0-14 years for epilepsy, with a hospitalisation rate of 89.1 per 100,000 children. The rate was higher for boys than for girls (94.5 compared with 83.3 per 100,000).
- The rate was highest for infants.

The impact of epilepsy can also be examined in terms of the length of time children spent in hospital. In 1999-00, there were 8,804 hospital bed days for which epilepsy was the principal diagnosis, with an average length of stay of 2.5 days. Epilepsy was also responsible for an additional 4,484 bed days where it was not the main reason for hospital stay but where it had to be managed during hospitalisations for other conditions.

Deaths

Between 1991 and 2000, 142 children died from epilepsy: 58% were boys, and 42% girls.

Table 15.4: Epilepsy deaths in children aged 0–14 years, 1991–00

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number	19	13	11	13	18	18	14	13	10	13
Rate per 100,000 children	0.5	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.3	0.3

Note: ICD-9 code 345 and ICD-10 code G40.

Source: AIHW Mortality Database.

- Between 1991 and 2000, the average epilepsy death rate was 0.4 per 100,000 children. The rate was slightly higher for boys than for girls (0.4 compared with 0.3).
- Mortality was highest among children aged less than 5 years.

Most deaths from epilepsy in children appear to be of those with symptomatic epilepsy (epilepsy considered to be the consequence of a known or suspected disorder of the central nervous system). Long-term follow-up studies of children with epilepsy reveal that they are between 7 and 13 times more likely to die than other children (Callenbach et al. 2001; Harvey et al. 1993). It is children with symptomatic epilepsy (those more prone to seizures) who are at greatest risk of death.

Cystic fibrosis

Cystic fibrosis is a recessive genetic disorder affecting glands which produce body secretions such as sweat, mucus and enzymes. Cystic fibrosis therefore affects many organs in the body but primarily the lungs, pancreas and the reproductive system, resulting in recurrent lung infections and failure to thrive (Waterson et al. 1997). The most serious effect is on the lungs. People who have cystic fibrosis have thick and sticky mucus in their lungs, which is difficult to shift. Children with cystic fibrosis experience a persistent cough, which helps to clear away mucus build-up in the lung. The mucus creates a breeding ground for bacteria and other infections, with regular infections leading to irreversible lung tissue scarring.

There is no cure for cystic fibrosis. However, early screening has improved disease management by optimising nutritional status and preventing lung infections (Doull 2001). Gains from early screening and better management include an improved life expectancy for people with cystic fibrosis. Comparisons of median age at death from cystic fibrosis in 10 countries (including Australia) showed an increase in the median age at death from 8 years in 1974 to 21 years in 1994 (Fogarty et al. 2000).

It is estimated that approximately 1 in every 2,500 births in Australia is a child with cystic fibrosis.

Hospitalisations

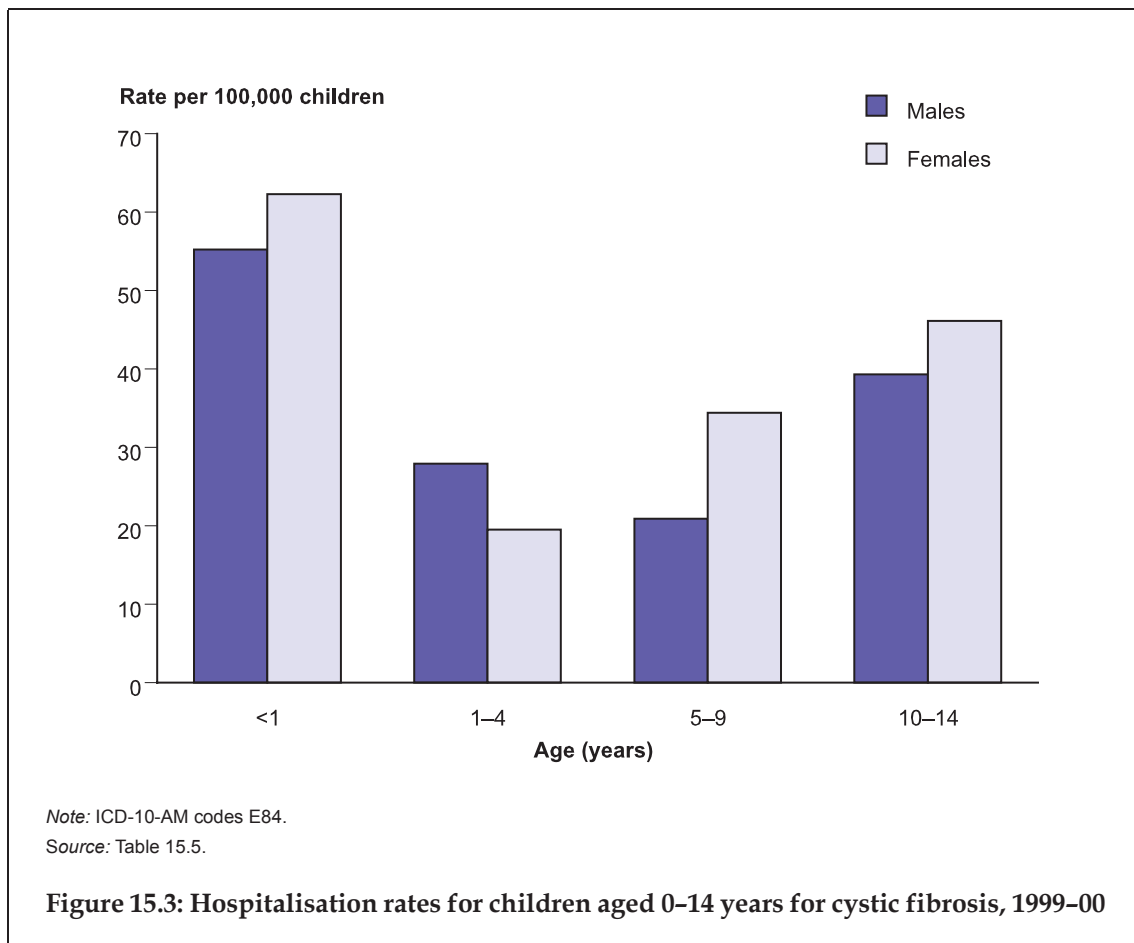
Table 15.5: Hospitalisation rates for children aged 0–14 years for cystic fibrosis, 1993–94 to 1999–00 (per 100,000 children)

	Age (years)	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–2000
Males	<1	36.2	59.5	43.8	42.9	48.7	49.4	55.2
	1–4	12.4	10.7	15.1	16.8	17.1	19.9	27.9
	5–9	15.4	15.8	24.9	27.4	22.8	23.0	20.9
	10–14	22.3	24.5	30.1	41.6	37.8	43.8	39.3
	0–14	18.3	20.2	25.3	30.3	28.0	30.8	31.2
Females	<1	47.8	35.9	35.8	55.9	79.0	58.4	62.3
	1–4	17.6	15.2	17.3	22.3	22.2	23.5	19.5
	5–9	19.0	17.9	31.4	26.9	29.2	27.7	34.4
	10–14	20.8	27.6	38.7	41.0	37.3	43.8	46.1
	0–14	21.2	21.6	30.4	32.3	33.3	34.0	36.2
Persons	0–14	19.7	20.9	27.8	31.3	30.6	32.4	33.6

Note: ICD-9-CM code 277.0 and ICD-10-AM code E84 (1998–99 to 1999–00).

Source: AIHW National Hospital Morbidity Database.

- The hospitalisation rate for children aged 0–14 years for cystic fibrosis rose from 18.3 to 31.2 per 100,000 boys (an increase of 70%) and from 21.2 to 36.2 per 100,000 girls (71%) between 1993–94 and 1999–00.
- Over the entire 7-year period, the rates were higher for girls than for boys.



- In 1999-00, there were 1,319 hospitalisations of children aged 0-14 years for cystic fibrosis, with a higher hospitalisation rate for girls than for boys (36.2, compared with 31.2). The overall rate was 33.6 per 100,000 children.
- The highest rates were observed for those under 1 year of age. This is because newly diagnosed infants are admitted for treatment after screening.

The impact of cystic fibrosis can also be examined in terms of the length of time children spent in hospital. In 1999-00, there were 13,929 hospital bed days for which cystic fibrosis was the principal diagnosis, with an average length of stay in hospital of 10.6 days. Cystic fibrosis was also responsible for an additional 377 bed days where it was not the main reason for hospital stay but where it had to be managed during hospitalisations for other conditions.

Deaths

The cystic fibrosis death rate for children aged 0-14 is relatively low, as people with cystic fibrosis usually die at older ages. Between 1991 and 2000, there were 106 deaths, of which the majority (72%) were of girls.

Table 15.6: Cystic fibrosis deaths in children aged 0–14 years, 1991–00

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number	8	7	15	10	12	9	18	11	10	6
Rate per 100,000 children	0.2	0.2	0.4	0.3	0.3	0.2	0.5	0.3	0.3	0.1

Note: ICD-9 code 277.0 and ICD-10 code E84.

Source: AIHW Mortality Database.

- Between 1991 and 2000, the average cystic fibrosis death rate was 0.3 per 100,000 children.
- The death rate for girls was twice that for boys (0.4 compared with 0.2 per 100,000). Girls appear to be at higher risk of death from cystic fibrosis than boys. This may in part be due to nutritional factors. The risk of death from cystic fibrosis has been shown to increase as weight-for-height percentage decreases (Kerem et al. 1992).
- In most years, death rates were highest among children aged 10–14 years.

