Chapter 3

Infant Health

Key points

• The New Zealand infant mortality rate has decreased over the past 50 years. Between 1985 and 1994, the rate fell from 10.9 to 7.2 deaths per 1000 livebirths.

• Internationally, the New Zealand infant death rate remains comparatively high with a current ranking of 17th out of 21 OECD countries for which information is available.

• Major causes of infant mortality include sudden infant death syndrome (SIDS), congenital anomalies and perinatal conditions. Combined, these causes accounted for 84 percent of all infant deaths in 1992–94.

• The Māori infant death rate is consistently higher than the rate for Pacific and European children.

• Reductions in the New Zealand infant death rate in the last decade have been largely due to a decrease in the SIDS rate. Between 1985 and 1994, SIDS rates halved in New Zealand.

• Most of the decrease in the New Zealand SIDS rate in the last decade was recorded over the period 1989–91. This is thought to be largely due to a change in the proportion of babies sleeping prone.

• The high Māori infant death rate and the increase in the disparity between Māori and non-Māori infant death rates over recent years is largely accounted for by the high Māori SIDS rate. The SIDS rate among Māori did not decline as much as the non-Māori rate in the period 1985–94. In 1992–94, the Māori SIDS rate was 4.5 times the non-Māori rate. SIDS rates for Pacific infants are similar to the average for all ethnic groups.

• Major risk factors for SIDS and non-SIDS infant mortality are strongly correlated with one another, and include low birthweight, maternal smoking, maternal age being less than 20 years and low maternal socioeconomic status.

• Low birthweight is a major cause and correlate of perinatal and infant mortality. Low birthweight infants are over 20 times more likely to die in the first year of life.

• Maternal smoking is strongly correlated with SIDS, with over half of all SIDS deaths each year attributable to maternal smoking. One-third of all women smoke during pregnancy. For Māori women the proportion is two-thirds.
Fertility

There were 57,791 livebirths in 1995. Between 1980 and 1990, the number of livebirths rose steadily, from 50,542 in 1980 to a high of 60,153 in 1990. Since 1990, the number of livebirths has slowly declined (Figure 3.1).

Figure 3.1: Total livebirths, 1980-95

![Graph showing total livebirths from 1980 to 1995](image)

Source of data: Statistics New Zealand 1996.

In 1995, 12.5 percent of all livebirths were classified as Māori ethnic group and 7.6 percent as one of the Pacific ethnic groups (Statistics New Zealand 1996). From 1 September 1995, a new question was asked on all birth registration forms based on the concept of self-identification of ethnicity. This replaces the old system where the ethnic group of the child was assigned according to the degree of Māori or Pacific blood of the parents. This definitional change is likely to result in an increase in the proportion of the total livebirths each year that are identified as Māori and Pacific children.

The total fertility rate (TFR) is the average number of children a woman would have in her lifetime if she experienced throughout her reproductive lifetime the age-specific fertility rates of a particular year. The TFR in 1995 was 2.04. In 1983, a low point in the TFR of 1.92 was recorded. This increased to 2.18 in 1990 and decreased again between 1990 and 1995 (Statistics New Zealand 1996).

Women aged 25–29 years recorded the highest age-specific fertility rates in 1995, followed by those aged 30–34 years (126.9 and 111.3 per 1000 respectively). Māori women are more likely to have children at a younger age than the total population. The highest age-specific fertility rate for Māori was recorded for the 20–24 year age group, followed by the 25–29 year age group (150.4 and 116.9 per 1000 respectively) (Statistics New Zealand 1996).

Age-specific fertility continues to trend towards child bearing in older ages. Between 1980 and 1995, increases in the age-specific fertility rates were recorded for women over 30 years of age. A 63 percent increase was recorded for those aged 30–34 years while a doubling in the age-specific rate was recorded for women aged 35–39 years (Statistics New Zealand 1996).
In 1995, there were 13,652 legally induced abortions recorded. The abortion ratio was 4.2, meaning that for approximately every four pregnancies resulting in a livebirth there was one pregnancy that resulted in an induced abortion. Younger women are more likely to have a pregnancy resulting in an induced abortion. One-fifth of all induced abortions occur in women aged 15 to 19 years. Between 1987 and 1995, abortion rates increased across all age groups (Abortion Supervisory Committee 1997).

Perinatal death

There were 351 perinatal deaths recorded in 1994, a rate of 6.1 per 1000 total births. Of these deaths, 190 were late foetal deaths (stillbirths) and 161 were early neonatal deaths. For Māori, 38 perinatal deaths were recorded in 1994, a rate of 5.4 per 1000 total births (Ministry of Health 1998a).

Between 1985 and 1994, the total perinatal death rate decreased by 31 percent (Figure 3.2). This is a continuation in the downward trend in perinatal deaths which has occurred in New Zealand over the past 30 years. The Māori perinatal death rate is following a similar downward trend (Ministry of Health 1998a).

**Figure 3.2:** Perinatal deaths, by death periods, 1985-94

![Graph showing perinatal deaths](chart.png)

Source of data: Ministry of Health 1998a.

Much of the decline in perinatal deaths can be attributed to the decreasing late foetal death rate. The lowest late foetal death rate of 3.1 per 1000 total births was recorded in 1993. The rate increased slightly to 3.3 per 1000 in 1994 (Ministry of Health 1998a).

Compared with other OECD countries, New Zealand has a relatively low rate of perinatal death. It has the sixth lowest perinatal death rate of 19 countries based on the most recent available data (PHC 1994a).

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1 Foetal deaths of 28 completed weeks of gestation or more (late foetal death), plus infant deaths within seven days after birth (early neonatal deaths).
Infant deaths

In 1994, infant deaths\(^2\) totalled 414, a rate of 7.2 per 1000 livebirths (Table 3.1). Of these deaths, 53 percent were male infants. In the same year, the infant death rate for Māori was around twice the death rate for infants from other ethnic groups.

**Table 3.1: Infant deaths, by sex and ethnicity, 1994**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Percent</th>
<th>Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>414</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>218</td>
<td>53</td>
<td>7.4</td>
</tr>
<tr>
<td>Females</td>
<td>196</td>
<td>47</td>
<td>7.0</td>
</tr>
<tr>
<td>Māori</td>
<td>97</td>
<td>23</td>
<td>13.8</td>
</tr>
<tr>
<td>Pacific</td>
<td>32</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>European or other</td>
<td>285</td>
<td>69</td>
<td>6.2</td>
</tr>
</tbody>
</table>

* Rate per 1000 livebirths.

Source of data: Ministry of Health 1998a.

Between 1985 and 1994, the infant death rate decreased by one-third, from 10.9 to 7.2 deaths per 1000 live births (Figure 3.3). This is an average annual decrease of 4 percent.

**Figure 3.3: Infant death rates, by ethnicity, 1985–94**

Source of data: Ministry of Health 1998a.

Over the period 1985–94, the Māori infant mortality rate was consistently higher than the rate for Pacific infants and infants from other ethnic groups. While the Māori infant mortality rate decreased 11 percent during this time (from 15.5 to 13.8 deaths per 1000 livebirths), the overall disparity between Māori infant deaths and the total infant death rate increased from 1.4 to 1.9.

The high Māori infant death rate is largely attributable to a high number of post-neonatal\(^3\) deaths (mostly SIDS) (Ministry of Health 1998a).

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\(^2\) Infant deaths include all liveborns dying within the first year of life.

\(^3\) Post-neonatal deaths include liveborn infants dying after 28 days and before the first year of life is complete.
The Pacific infant death rate, while fluctuating somewhat because of the small numbers involved, was generally similar to the rate recorded for non-Māori non-Pacific ethnic groups between 1985 and 1994.

The decline in the post-neonatal death rate had the greatest effect on the decreasing total infant death rate in 1985–94, with the rate almost halving during that period (Figure 3.4). In 1994, 51 percent of all infant deaths occurred in the post-neonatal period, compared with 57 percent in 1985 (Ministry of Health 1998a).

**Figure 3.4: Total infant deaths, by death periods, 1985–94**

![Graph showing total infant deaths by death periods, 1985–94.](image)

*Source of data: Ministry of Health 1998.

A decline in the rate of sudden infant death syndrome (SIDS) was the main contributor to the overall drop in the post-neonatal death rate that has occurred over the last decade. Between 1985 and 1994, around 80 percent of the decline in the post-neonatal death rate was due to reduced numbers of SIDS deaths in the post-neonatal period.

There are three major causes of infant mortality; congenital anomalies, SIDS and perinatal conditions. These causes accounted for 84 percent of all infant deaths in 1992–94 (Table 3.2).

**Table 3.2: Major causes of infant deaths, 1992–94**

<table>
<thead>
<tr>
<th>Causes</th>
<th>Number</th>
<th>%</th>
<th>Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital anomalies</td>
<td>362</td>
<td>28%</td>
<td>2.1</td>
</tr>
<tr>
<td>SIDS</td>
<td>375</td>
<td>29%</td>
<td>2.1</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>349</td>
<td>27%</td>
<td>2.0</td>
</tr>
<tr>
<td>Injury and poisoning</td>
<td>67</td>
<td>5%</td>
<td>0.4</td>
</tr>
<tr>
<td>Other causes</td>
<td>124</td>
<td>10%</td>
<td>0.7</td>
</tr>
<tr>
<td>All causes</td>
<td>1277</td>
<td>100%</td>
<td>7.3</td>
</tr>
</tbody>
</table>

* Infant mortality rate per 1000 livebirths.
*Source of data: Ministry of Health 1998a.
*Note: Columns may not sum to totals because of rounding.
Compared to non-Māori, Māori infants are at greater risk of death from most of the major causes of infant death. The greatest Māori, non-Māori disparity is for SIDS, with the Māori infant death rate for SIDS being 4.5 times the non-Māori death rate in 1992–94 (Table 3.3). For injury and poisoning, the Māori infant death rate 3.5 times that of the non-Māori rate.

Table 3.3: Major causes of infant deaths, by ethnicity, 1992–94

<table>
<thead>
<tr>
<th>Cause</th>
<th>Māori</th>
<th>Non-Māori</th>
<th>Rate*</th>
<th>Rate*</th>
<th>Rate ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital anomalies</td>
<td>41</td>
<td>321</td>
<td>1.9</td>
<td>2.1</td>
<td>0.9</td>
</tr>
<tr>
<td>SIDS</td>
<td>144</td>
<td>231</td>
<td>6.7</td>
<td>1.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>51</td>
<td>301</td>
<td>2.4</td>
<td>2.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Injury and poisoning</td>
<td>21</td>
<td>46</td>
<td>1.0</td>
<td>0.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Other causes</td>
<td>29</td>
<td>92</td>
<td>1.4</td>
<td>0.6</td>
<td>2.8</td>
</tr>
<tr>
<td>All causes</td>
<td>286</td>
<td>991</td>
<td>13.4</td>
<td>6.4</td>
<td>2.1</td>
</tr>
</tbody>
</table>

* Infant mortality rate per 1000 livebirths.
Source of data: Ministry of Health 1998.
Note: Columns may not sum to totals because of rounding.

By international standards, over the past two decades New Zealand’s infant mortality rate has been high. This is largely due to a high post-neonatal mortality rate (PHC 1994a). Among OECD countries, New Zealand ranks 17th out of 21 countries for its infant mortality rate (Figure 3.5).

Figure 3.5: Infant mortality rates in OECD countries

Sudden infant death syndrome (SIDS)

Out of a total of 414 infant deaths recorded in New Zealand in 1994, 118 (29 percent) were due to SIDS. Male infants are more likely to die from SIDS than female infants.

Māori infants are at greater risk of death from SIDS than infants from other ethnic groups. Over the period 1992–94, Māori infants were 4.5 times more likely to die from SIDS than non-Māori infants.

Between 1985 and 1994, the SIDS rate in the total infant population halved, from 4.2 to 2.1 deaths per 1000 livebirths (Figure 3.6). Most of the decrease occurred in the period 1989–91. This coincided with the National Cot Death Prevention Campaign, which promoted modification of three risk factors (prone sleep position, lack of breastfeeding and maternal smoking). Much of this drop in the total SIDS rate can be attributed to a decline in the incidence of prone sleeping in infants (Mitchell and Scragg 1994).

Figure 3.6: Infant deaths due to SIDS, by ethnicity, 1985–94

The decrease in the total SIDS rate is not been equally distributed across the Māori and non-Māori rates. The non-Māori SIDS rate decreased by 62 percent in 1985–94, while the Māori rate decreased by only 13 percent over the same period. The effect of this has been an overall increase in the disparity between Māori and non-Māori SIDS rates. In 1985, the Māori SIDS rate was twice the non-Māori rate (7.9 compared to 3.7 deaths per 1000 live births for Māori and non-Māori respectively). In 1994, the Māori SIDS rate was 4.9 times the non-Māori rate (6.9 compared to 1.4 deaths per 1000 livebirths for Māori and non-Māori respectively) (see Figure 3.6).

Mitchell and Scragg (1994) investigated the difference in SIDS mortality rates between Māori and non-Māori. Their findings suggest that the difference between Māori and non-Māori SIDS rates can largely be explained by differences in the prevalence of the known risk factors, as discussed later.

Reported numbers of SIDS deaths for Pacific infants suggest rates for these children are similar to the total New Zealand infant population. However, recent studies have suggested that SIDS rates for Pacific infants have not decreased in recent years in line with the total population and may even have increased (Tukuitonga 1996).
The rate of SIDS decreases with increasing length of gestation. The highest SIDS rates are recorded for those infants of less than 35 weeks gestation (Figure 3.7). Similarly, SIDS rates decrease with increasing birthweight, with the highest SIDS rates being for infants with the lowest birthweight (Figure 3.8). SIDS rates also correlate to maternal age. Rate are highest for the youngest mothers (Figure 3.9).

**Figure 3.7**: Infant deaths due to SIDS, by period of gestation, 1992–94

![Gestation (weeks) vs. Rate per 1000 livebirths](image1.png)


**Figure 3.8**: Infant deaths due to SIDS, by birthweight, 1992–94

![Birthweight (grams) vs. Rate per 1000 livebirths](image2.png)

Figure 3.9: Infant deaths due to SIDS, by age of mother, 1992–94

![Graph showing infant deaths due to SIDS by age of mother, 1992–94.](image)

**Source of data:** Ministry of Health 1998a.

Despite an overall declining SIDS rate, New Zealand still has the highest SIDS rate among the OECD countries (Figure 3.10).

Figure 3.10: Infant deaths due to SIDS, in OECD countries

![Graph showing infant deaths due to SIDS in OECD countries.](image)


**Hospitalisations**

In 1995, a total of 39,176 infant hospital discharges were recorded (excluding healthy liveborn infants born in hospital). Male infants were more likely to be hospitalised than female infants, with male infants accounting for 56 percent of all infant hospitalisations (Table 3.4). The Māori rate of hospitalisation for infants was twice as high as the non-Māori rate in 1995.
Table 3.4: Infant hospitalisations*, by sex and ethnicity, 1995

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
<th>Rate**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>39,176</td>
<td>66,600</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>22,072</td>
<td>56%</td>
<td>72,860</td>
</tr>
<tr>
<td>Female</td>
<td>17,103</td>
<td>44%</td>
<td>59,940</td>
</tr>
</tbody>
</table>

Relative risk for males 1.2

Māori       | 8,995  | 23%  | 128,540 |
Non-Māori   | 30,181 | 77%  | 58,230 |

Relative risk for Māori 2.2

* Excluding healthy liveborn infants born in hospital.
** Age-specific rate per 100,000 population.
Source of data: Ministry of Health 1998b.
Note: Sums of males and females, and Māori and non-Māori may be less than totals, as a small number of patients for whom sex and ethnicity were not recorded are included in totals.

Between 1988 and 1995, there was an average annual increase of 4.9 percent for infant hospitalisations (Figure 3.11). This is likely to be due in part to the increasing proportion of daypatient hospitalisations, with several daypatient admissions replacing a longer inpatient stay in hospital. The non-Māori hospitalisation rate increased more than the Māori rate during this time (an overall rate change of 43 percent for non-Māori compared to 34 percent for Māori).

Figure 3.11: Infant hospitalisations, by ethnicity, 1988-95

Source of data: Ministry of Health 1998b.

Perinatal conditions account for more infant hospitalisations each year than any other set of conditions. Forty percent of infants were hospitalised due to these causes in 1995 (Table 3.5). Respiratory conditions also account for a large proportion of infant hospitalisations each year (14 percent in 1995).
Table 3.5: Major causes of infant hospitalisation*, 1995

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number</th>
<th>%</th>
<th>Rate**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury and poisoning</td>
<td>1,020</td>
<td>2.6</td>
<td>1,730</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>1,968</td>
<td>5.0</td>
<td>3,350</td>
</tr>
<tr>
<td>Digestive system diseases</td>
<td>1,759</td>
<td>4.5</td>
<td>2,990</td>
</tr>
<tr>
<td>Nervous system diseases</td>
<td>851</td>
<td>2.2</td>
<td>1,450</td>
</tr>
<tr>
<td>Respiratory conditions</td>
<td>5,490</td>
<td>14.0</td>
<td>9,330</td>
</tr>
<tr>
<td>Congenital anomalies</td>
<td>3,005</td>
<td>7.7</td>
<td>5,110</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>15,816</td>
<td>40.4</td>
<td>26,900</td>
</tr>
<tr>
<td>Symptoms***</td>
<td>2,074</td>
<td>5.3</td>
<td>3,530</td>
</tr>
<tr>
<td>All other causes</td>
<td>7,193</td>
<td>18.4</td>
<td>12,230</td>
</tr>
<tr>
<td>Total, all causes</td>
<td>39,176</td>
<td>100.0</td>
<td>66,600</td>
</tr>
</tbody>
</table>

* Excluding healthy liveborn infants born in hospital.
** Rate per 100,000 population.
*** Symptoms, signs, and ill-defined conditions (ICD-9 codes 780–799).
Source of data: Ministry of Health 1998b.

Māori recorded higher rates of hospitalisation from all major causes of infant hospitalisation in 1995 (Table 3.6). The largest disparities between Māori and non-Māori were recorded for respiratory conditions, infectious diseases and nervous system and sensory system diseases (mostly related to glue ear).

Table 3.6: Major causes of infant hospitalisation*, by ethnicity, 1995

<table>
<thead>
<tr>
<th>Causes</th>
<th>Māori</th>
<th>Non-Māori</th>
<th>Relative risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate**</td>
<td>Number</td>
</tr>
<tr>
<td>Injury and poisoning</td>
<td>259</td>
<td>3,700</td>
<td>761</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>522</td>
<td>7,460</td>
<td>1,446</td>
</tr>
<tr>
<td>Digestive system diseases</td>
<td>410</td>
<td>5,860</td>
<td>1,349</td>
</tr>
<tr>
<td>Nervous system diseases</td>
<td>230</td>
<td>3,290</td>
<td>621</td>
</tr>
<tr>
<td>Respiratory conditions</td>
<td>2,091</td>
<td>29,880</td>
<td>3,399</td>
</tr>
<tr>
<td>Congenital anomalies</td>
<td>627</td>
<td>8,960</td>
<td>2,378</td>
</tr>
<tr>
<td>Perinatal conditions</td>
<td>3,086</td>
<td>44,100</td>
<td>12,730</td>
</tr>
<tr>
<td>Symptoms***</td>
<td>434</td>
<td>6,200</td>
<td>1,640</td>
</tr>
<tr>
<td>All other causes</td>
<td>1,336</td>
<td>19,090</td>
<td>5,857</td>
</tr>
<tr>
<td>Total, all causes</td>
<td>8995</td>
<td>128,540</td>
<td>30,181</td>
</tr>
</tbody>
</table>

* Excluding healthy liveborn infants born in hospital.
** Rate per 100,000 population.
*** Symptoms, signs, and ill-defined conditions (ICD-9 codes 780–799).
Source of data: Ministry of Health 1998b.
Risk and protective factors

Infant deaths, and in particular infant deaths from SIDS, have been found to be strongly associated with a number of demographic and socioeconomic factors, which are strongly correlated. These include:

- low birthweight
- maternal smoking
- maternal age of 19 years or less
- low maternal educational status
- low maternal socioeconomic status
- maternal marital status ‘single’
- Māori ethnicity.

A recent report from a British expert group found no evidence to support the hypothesis that SIDS is linked to toxic gases emitted from mattresses (UK Department of Health 1998).

Low birthweight

Low birthweight is a major cause and correlate of perinatal and infant mortality (Ministry of Health 1996). In New Zealand in 1994, low birthweight infants were 23 times more likely than other infants to die during the perinatal period and more than three times more likely to die in the post-neonatal period (Ministry of Health 1998).

Compared to other infants, low birthweight infants are more likely to die from all the major causes of infant death. Babies under 2500 grams at birth were almost twice as likely as normal birthweight infants to die from SIDS (Ministry of Health 1998).

The perinatal death rate of low birthweight babies is decreasing, with a 32 percent drop in the death rate for these babies recorded in 1985–94. Over this same time period, the proportion of infants weighing less than 2500 grams at birth increased, suggesting continuing improvements are being made in levels of obstetric and infant care. An annual average of 6.1 percent of all infants born in 1988–92 weighed less than 2500 grams (Ministry of Health 1998; De Boer et al 1990; Bourchier 1991; Midland Health 1995).

Low birthweight infants result from either short gestation or from intrauterine growth problems. In developed countries, prematurity due to short gestation accounts for most of the low birthweight infants. Factors causing short gestation births are largely unknown. However, strong associations between a number of demographic and socioeconomic indicators have been widely observed in international reviews. These include:

- maternal smoking
- maternal age less than 19 years
- low maternal educational status
- low maternal socioeconomic status

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4 A liveborn infant weighing less than 2500 grams at birth.
unmarried mother

• ethnicity of mother.

Direct analysis of New Zealand data (Morrell 1990) supports strong associations between low birthweight infants and:

• maternal age less than 19 years

• single marital status

• Māori ethnicity.

Low birthweight infants have been shown to be more susceptible to serious illness during infancy, early childhood and also later in life (Silva and Stanton 1996; Niven and Harding 1995).

Maternal smoking

About one women in three smokes during pregnancy. The proportion is higher among Māori women, where, in 1991, two-thirds smoked during pregnancy. Recent evidence suggests that differentials between Māori and non-Māori rates of maternal smoking, although wide, may be starting to narrow (Ministry of Health 1997b).

There is a strong correlation between SIDS and maternal smoking, both during pregnancy and postnatally. Over half of the SIDS deaths in recent years can be attributed to maternal smoking (Mitchell and Scragg 1994). This appears to be risk factor independent of other factors, such as low socioeconomic status. Smoking by fathers has also been found to increase the risk of SIDS (PHC 1994b).

Maternal smoking is also strongly implicated as a risk factor for low weight births, both through intrauterine growth retardation and prematurity. Thirty-five percent of low weight births due to intrauterine growth problems are attributed to maternal cigarette smoking (Morrell 1990).

Mothers who smoke have been reported to be less likely to exclusively breastfeed their babies at discharge from the obstetric hospital and less likely to be breastfeeding at all by six months of age (Clements et al 1997).

A national study of New Zealand mothers and their children in 1990/91 found that 33 percent of mothers had smoked during pregnancy (Alison et al 1993). Especially high rates of smoking during pregnancy (over 60 percent) were found in teenage mothers, Māori women (68 percent), single women and women with lower educational levels.

Breastfeeding

Lack of breastfeeding has been identified as an important SIDS risk factor in New Zealand. The National Cot Death Study found that those infants not exclusively breastfed at discharge from hospital post-delivery had twice the risk of SIDS as breastfed infants. This difference remained when confounders were removed from the analysis. Further examination of the data from this study has shown that a reduced risk of SIDS persisted during the first six months for those infants who were breastfed (Ford et al 1993).
Breastfeeding rates are high in New Zealand compared to other countries. Sixty percent of New Zealand mothers breastfeed their babies at three months. In the United Kingdom the proportion is 24 percent. New Zealand rates of breastfeeding have been found to be similar among Māori, Pacific and European women (Ford et al 1995).

Mothers under 19 years of age, mothers who do not attend antenatal classes, mothers who smoke, and mothers who use a dummy for their child have been reported as less likely to breastfeed (Clements et al 1997).

Breastfeeding is an important protective factor against a range of infant problems, such as: respiratory infections, gastroenteritis, glue ear, meningitis, and diabetes, and enhances cognitive function in later childhood (Midland Health 1995).

Sleeping position and bed-sharing

Infants who sleep prone have nearly three times the risk of SIDS compared with infants who sleep on their back or side (Mitchell et al 1992). In 1988, 40 percent of infants were placed face down for sleep. By 1991, fewer than 5 percent of infants were sleeping in this position. For Māori, the proportion appears to be just over 5 percent (Mitchell and Scragg 1994; Ministry of Health 1997b).

Sleep position is the only modifiable risk factor for SIDS that has changed significantly since 1987. It has been suggested that the decrease in SIDS identified over this period is largely attributable to the change in the prevalence of this risk factor (Mitchell 1994).

Bed-sharing was originally identified as a risk factor for SIDS. International and New Zealand research now suggests that for mothers who smoke, infants who bed-share with another person are at increased risk from SIDS. Where the mother does not smoke, the risk of SIDS while bed-sharing is not significantly altered. Fifty-one percent of Māori infants and 62 percent of Pacific infants share a bed at age three months, compared to 29 percent of European and other infants (Scragg et al 1995; Ministry of Health 1997b).

Maternal age

The infant death rate from SIDS decreases with increasing maternal age. Infants born to women under 20 years of age are at the greatest risk, with these infants dying from SIDS at a rate of 6.2 per 1000 livebirths in 1994. This is three times the infant death rate from SIDS in that year (for infants of mothers of all ages). Infants whose mothers are over 35 years of age were the least likely to die in 1994 (0.6 infant deaths from SIDS per 1000 livebirths) (Ministry of Health 1998).

Younger maternal age is also a factor linked to other known risk factors for SIDS, such as non-attendance at antenatal and postnatal clinics, low birth weight and maternal smoking (PHC 1994b).

Teenage fertility in New Zealand is high compared to other developed countries (Figure 3.12). The New Zealand fertility rate for women under 20 years of age (34.0 per 1000) was second only to the United States (60.0 per 1000) among OECD countries, and similar to rates reported for England and Wales (31.0 per 1000) and Scotland (31.2 per 1000). Japan reported the lowest teenage fertility rate (3.9 per 1000) (Statistics New Zealand 1996).

Within the New Zealand population, Māori consistently record higher teenage fertility rates than the total population. In 1995, the Māori rate of 82.3 per 1000 was over twice the rate for the total population (34.0 per 1000) (Statistics New Zealand 1996).
Infants from low income groups have three times the rate of SIDS of infants from higher income groups. In addition, infants from the low income groups have shown the least reduction in the SIDS rate during recent years. The effect of social and economic conditions is being increasingly considered as a major determinant of SIDS (Ford and Nelson 1995; Mitchell and Tipene-Leach 1996).

**References**


