

## 9. Child and youth health

This section presents the following child and youth health data:

- Demography by age, ethnic group, and deprivation
- Infant mortality by DHB, and the top ten causes of potentially avoidable mortality
- Child and youth mortality by DHB, age, ethnic group, and deprivation, and the main causes of death
- Low birth weight by DHB, ethnic group, and main classification type (preterm or small for gestational age)
- Infant hospital admissions by DHB and ethnic group.
- Summary findings of the Youth 2000 survey for South Auckland

Further detail on child and youth is available in the Paediatric Society of New Zealand's report *The health status of children and young people in the Counties Manukau region, 2005* - see [www.cmdhb.org.nz](http://www.cmdhb.org.nz).

### 9.1. Demography

Children and young people aged 0-24 years make up 40.9% of CMDHB's population and are of greater ethnic diversity than the NZ average. Maori and Pacific make up 23% and 26% respectively of the child and youth population in CM, while Asian and Other make up 15% and 35% respectively (Table 9.1.1). The number and proportion of Maori and Pacific decreases with increasing age, while the proportion of Asian and Other increases with age, most likely due to differences in migration between ethnic groups (Figure 9.1.1).

Overall, the age profile of CM's child and youth population is very similar to the NZ average, unlike DHBs with large tertiary centres (e.g. Auckland, Otago) where the youth population increases markedly after 17 years of age.

**Table 9.1.1: Number of children and youth in CM by age and ethnic group, 2004**

Ethnic group	0-4y	5-9y	10-14y	15-19y	20-24y	Total	
						Number	%
Maori	10,300	9,170	8,610	7,020	5,790	40,890	23
Pacific	11,170	9,840	9,800	7,920	6,740	45,470	26
Asian	4,596	4,671	5,000	6,474	5,496	26,237	15
Other	11,295	13,009	14,071	12,126	11,404	61,903	35
Total	37,360	36,690	37,480	33,540	29,430	174,500	100

**Figure 9.1.1: Proportion (%) of 0-4 and 20-24 year-olds in CM in each ethnic group, 2004**

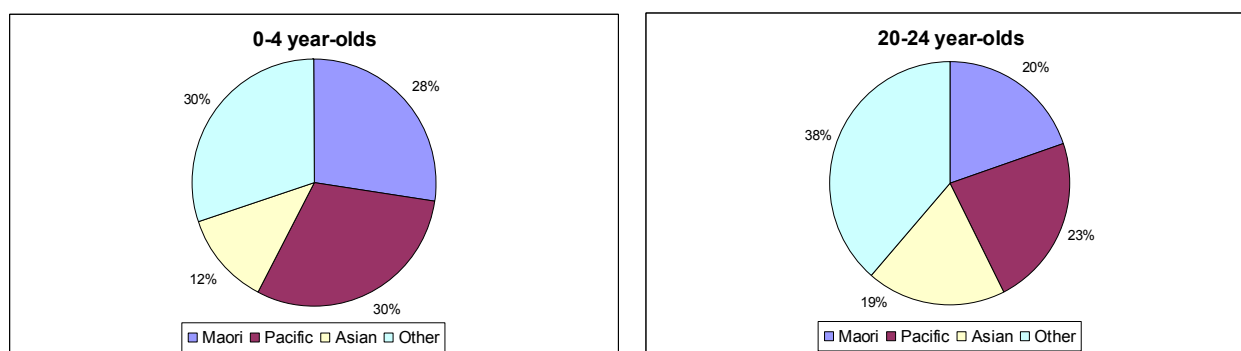
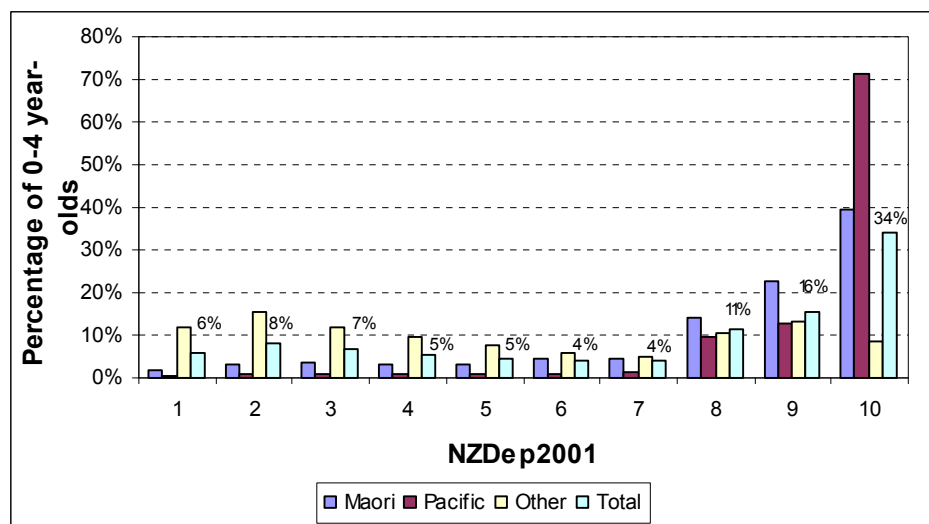


Figure 9.1.1 shows NZDep01 (the deprivation level of the area of residence within CM) for children aged 0-4 years. The total percentage values for each deprivation decile are shown, with 50% of children living in the most deprived areas (deciles 9 and 10). Of particular note is

the dramatic increase in percentage of Maori and Pacific from decile 8 to 10, with 62% of Maori and 84% of Pacific children living in decile 9 and 10 areas.

Nationally, 33% of children aged 0-14 years live in NZDep01 deciles 8-10, compared with 53% of children from CM. In CM, 27% of Other children, 68% of Maori children and 89% of Pacific children live in NZDep01 deciles 8-10 compared to 21% Other, 54% Maori, and 68% of Pacific children nationally.

**Figure 9.1.2: Proportion of children aged 0-4 years in CM by deprivation (NZDep01) and ethnic group (census 2001 data extrapolated to 2004)**



## 9.2. Infant mortality

Infant mortality is defined as the death of a live born child prior to their first birthday. Infant mortality rates are frequently compared across OECD countries as an indicator of child health status and effectiveness of preventive care, with the mortality rate for infants being higher than in any other age group of children or youth. In 2001, NZ ranked 20<sup>th</sup> out of thirty OECD countries, with an infant mortality rate of 5.5 per 1000. Counties Manukau had a higher infant mortality rate (6.8 per 1000) than the rest of the Auckland region and nationally in 2001 (Table 9.2.1). Infant mortality peaked in the year 2000 in the Auckland region and nationally, for the 1998 to 2001 time period.

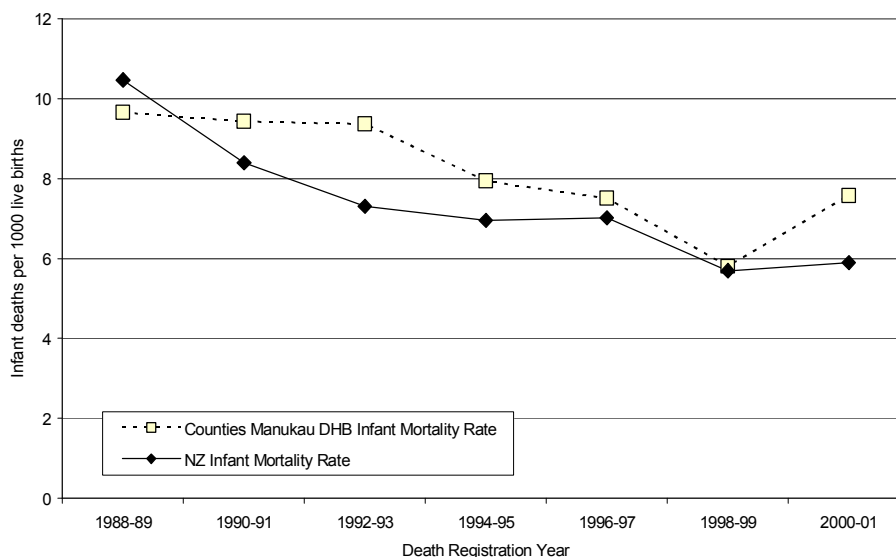
**Table 9.2.1: Infant mortality rate (per 1000) by DHB, 1998 to 2001**

DHB of residence	Infant mortality rate (per 1000)			
	1998	1999	2000	2001
Counties Manukau	5.9	5.9	8.8	6.8
Auckland	6.0	5.0	7.0	4.9
Waitemata	5.1	4.3	5.5	5.3
Northland	6.7	9.3	8.3	7.1
Other DHBs	5.1	6.4	5.7	5.3
<b>New Zealand</b>	<b>5.4</b>	<b>6.0</b>	<b>6.3</b>	<b>5.5</b>

Trends in infant mortality for CM and NZ, from 1988/1989 to 2000/2001, are shown in Figure 9.2.1 (from *The Health Status of Children and Young People in the Counties Manukau Region, 2005*). During this period, infant mortality rates were generally higher in CM than the NZ average. Although infant mortality rates have been consistently dropping since 1988 in both CM and nationally, an increase in mortality rate was observed for the first time between 1998-99 and 2000-01 (Figure 9.2.1).

Within CM, risk of infant mortality was greatest amongst Maori and Pacific babies, and those living in the most deprived NZDep01 small areas (data not shown). Once the ethnic and NZDep01 distribution of CMDHB's population was taken into account, the risk of infant mortality in CM was not significantly different from the rest of NZ<sup>12</sup>.

Figure 9.2.1: Infant mortality rates, CM vs. NZ 1988-2001



The four top causes of infant potentially avoidable mortality (PAM) in CM and nationally were low birth weight, sudden infant death syndrome, congenital abnormalities and other perinatal conditions (Table 9.2.2). The PAM rates for low birth weight and sudden infant death syndrome were higher in CM than nationally.

Table 9.2.2: Top ten potentially avoidable mortality conditions, infants, 2000 & 2001

Cause of death	New Zealand		Counties Manukau	
	N	R	N	R
Low birth weight	129	1.2	28	2.0
Sudden Infant Death Syndrome	105	0.9	20	1.4
Congenital anomalies	83	0.7	9	0.6
Other perinatal conditions	77	0.7	14	1.0
Birth trauma & asphyxia	36	0.3	8	0.6
Other infections	27	0.2	5	0.4
Neural tube defects	21	0.2	2	0.1
Respiratory infections	14	0.1	1	0.1
Road traffic injury	3	0.0	0	0.0
Enteritis & other diarrhoeal diseases	2	0.0	0	0.0
<b>Totals</b>	<b>505</b>	<b>4.5</b>	<b>88</b>	<b>6.3</b>

<sup>a</sup>N = number of deaths for 2000-2001.

<sup>b</sup>R = PAM rate (potentially avoidable mortality per 1000 0-1 year olds per year).

<sup>12</sup> The Paediatric Society of New Zealand. *The health status of children and young people in the Counties Manukau region, 2005.*

### 9.3. Child and youth mortality

This section follows on from Section 4.2 Mortality p34, presenting more detail on child and youth mortality data:

- Mortality rate for CM, other Auckland regional DHBs and NZ, from 1998 to 2001
- Number and rate of deaths in CM by age group from 1998 to 2001
- Number and rate of deaths in CM by ethnic group from 1998 to 2001
- Number and rate of deaths in CM by deprivation for 2000 and 2001 combined
- The main causes of deaths in 0-14 year-olds and 15-24 year-olds in CM from 1999 to 2001.

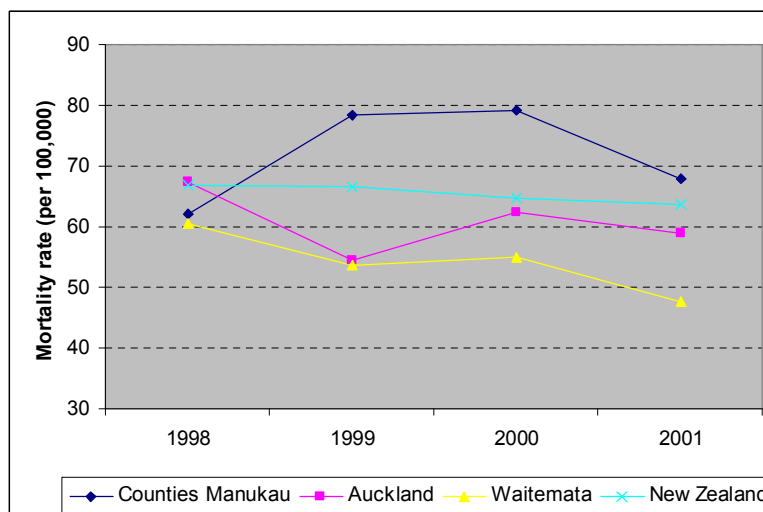
#### [Mortality rates by DHB](#)

Counties Manukau has had a higher child and youth mortality rate than the NZ average and the rest of the Auckland region since 1999 (Table 9.3.1 and Figure 9.3.1). Waitemata has had the lowest mortality rate in the Auckland region since 1998, and both Waitemata and Auckland have generally had lower rates than the NZ average. Northland has had consistently higher mortality rates than the three Auckland DHBs and NZ.

**Table 9.3.1: Mortality rate (per 100,000) for children and youth aged 0-24 years from 1998 to 2001 by DHB**

DHB	1998	1999	2000	2001	Total
Counties Manukau	62.1	78.3	79.3	68.0	71.9
Auckland	67.3	54.5	62.3	59.0	60.8
Waitemata	60.5	53.8	55.1	47.6	54.2
Northland	99.8	107.8	85.6	70.4	91.0
New Zealand	66.9	66.6	64.8	63.6	65.5

**Figure 9.3.1: Mortality rate (per 100,000) for children and youth aged 0-24 years from 1998 to 2001 by DHB**



#### [Mortality in Counties Manukau by age group](#)

Infants (age <1 year) were not included in this data as results were presented previously (Section 9.2). The highest mortality rates were in the 20-24 year-old group followed by the 15-19 year-old group, while the lowest rates were in school-aged children (5-9 and 10-14 year-olds) (Table 9.3.3 and Figure 9.3.2).

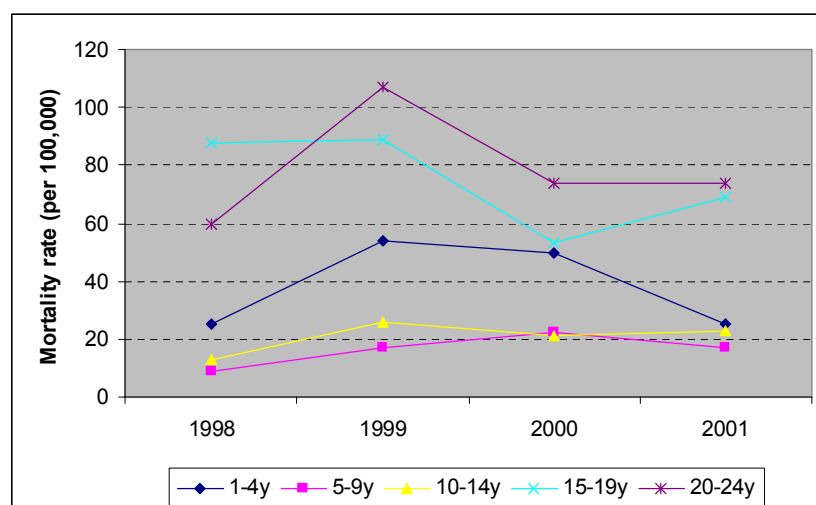
Table 9.3.2: Number of deaths in CM by age group from 1998 to 2001

Age group (years)	1998	1999	2000	2001	Total
1-4	7	15	14	7	43
5-9	3	6	8	6	23
10-14	4	8	7	8	27
15-19	25	25	15	21	86
20-24	16	28	19	20	83
<b>Total</b>	<b>96</b>	<b>122</b>	<b>125</b>	<b>110</b>	<b>453</b>

Table 9.3.3: Mortality rate (per 100,000) in CM by age group from 1998 to 2001

Age group (years)	1998	1999	2000	2001	Total
1-4	25	54	50	25	39
5-9	9	17	22	17	16
10-14	13	26	21	23	21
15-19	88	89	53	69	75
20-24	60	107	74	74	79
<b>Total</b>	<b>62</b>	<b>78</b>	<b>79</b>	<b>68</b>	<b>72</b>

Figure 9.3.2: Mortality rate (per 100,000) in CM by age group from 1998 to 2001



#### [Mortality in Counties Manukau by ethnic group](#)

The mortality rate in CM children and youth aged 0-24 years has been highest in Maori and Pacific (Table 9.3.5 and Figure 9.3.3). While the mortality rate for Others has been declining since 1999, the rate for Maori and Pacific did not decrease until 2000 (Figure 9.3.3).

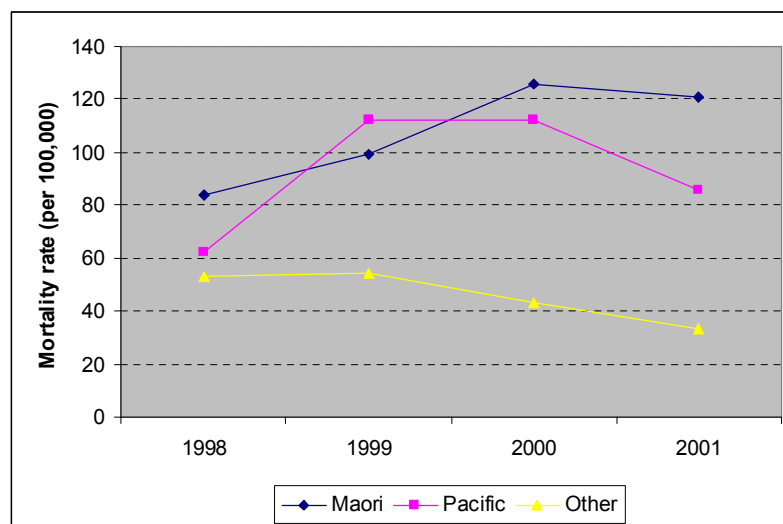
Table 9.3.4: Number of deaths, 0-24 year olds in CM by ethnic group, 1998 - 2001

Ethnic group	1998	1999	2000	2001	Total
Maori	31	37	48	47	163
Pacific	22	41	42	36	141
Other	43	44	35	27	149
<b>Total</b>	<b>96</b>	<b>122</b>	<b>125</b>	<b>110</b>	<b>453</b>

Table 9.3.5: Mortality rate (per 100,000) 0-24 year olds, CM by ethnic group, 1998 - 2001

Ethnic group	1998	1999	2000	2001	Total
Maori	84	99	126	121	108
Pacific	62	112	112	86	93
Other	53	54	43	33	46
<b>Total</b>	<b>62</b>	<b>78</b>	<b>79</b>	<b>68</b>	<b>72</b>

**Figure 9.3.3: Mortality rate (per 100,000) in CM by ethnic group from 1998 to 2001.**



#### [Mortality in Counties Manukau by deprivation](#)

This section examines child and youth mortality in CM by deprivation quintile for the years 2000 and 2001 combined. Deprivation quintile SES1 is equivalent to the 20% of CM's population that is least socioeconomically deprived while SES5 is equivalent to the 20% of CM's population that is most deprived (equivalent to deciles 9 & 10). Mortality was highest in pre-school children, especially those aged <1 year, followed by youth, and lowest in school children for all deprivation quintiles in CM (Table 9.3.6 and Table 9.3.7).

For all age groups, the highest mortality rates were generally observed for SES5 and SES4, and the lowest rates were observed for SES2 and SES3 (Table 9.3.7 and Figure 9.3.4). The most startling rate was for the under ones living in SES5 areas. These infants make up nearly half the under 1 population, and 1.2% of them die in their first year of life. The slightly higher mortality rates observed for SES1 compared with SES2 & 3 may be due to increased access to expensive, high risk activities (e.g. travel, fast cars, snow skiing) for SES1 children and youth.

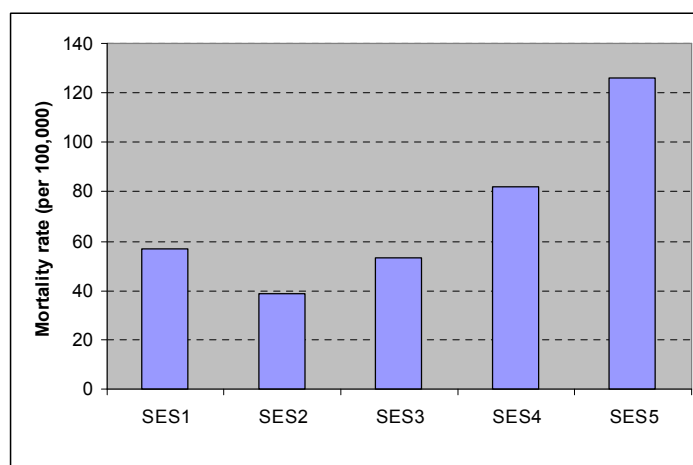
**Table 9.3.6: Number of deaths by age group and NZDep01 quintile in CM, 2000 and 2001 combined**

NZDep quintile	0y	1-4y	5-9y	10-14y	15-19	20-24y	Total	%
SES 1	5	4	0	2	4	4	19	8.1
SES 2	3	0	1	3	2	3	12	5.1
SES 3	14	2	3	0	4	6	29	12.3
SES 4	10	1	2	0	6	8	27	11.5
SES 5	78	14	8	10	20	18	148	63.0
<b>Total</b>	<b>110</b>	<b>21</b>	<b>14</b>	<b>15</b>	<b>36</b>	<b>39</b>	<b>235</b>	<b>100.0</b>

**Table 9.3.7: Mortality rate (per 100,000) by age group and NZDep01 quintile in CM, average for 2000-2001**

NZDep quintile	0y	1-4y	5-9y	10-14y	15-19	20-24y	Total
SES 1	392	78	0	20	44	64	57
SES 2	217	0	13	36	25	46	39
SES 3	490	17	20	0	34	58	53
SES 4	532	13	23	0	84	109	82
SES 5	1,199	54	25	35	82	77	126
<b>Total</b>	<b>791</b>	<b>38</b>	<b>20</b>	<b>22</b>	<b>60</b>	<b>73</b>	<b>87</b>

Figure 9.3.4: Mortality rate (per 100,000) by NZDep01 quintile in CM, 2000-2001



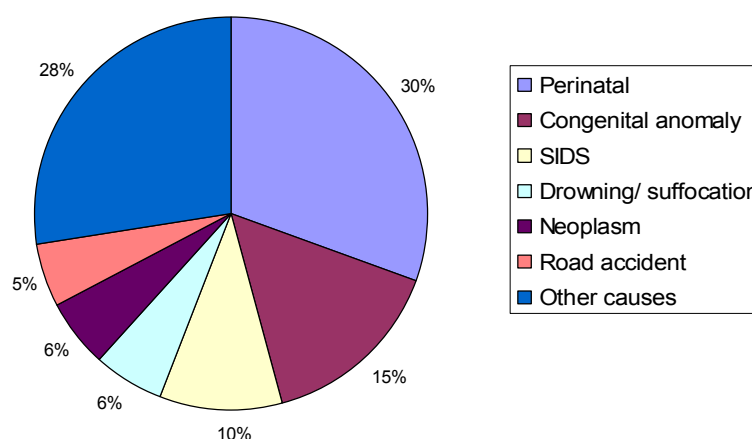
Cause of deaths in Counties Manukau children and youth

The three top causes of death in children aged <15 years all usually occur in the first few weeks or months of life, namely, perinatal and congenital causes, and sudden infant death syndrome (Table 9.3.8 and Figure 9.3.5).

Table 9.3.8: Main causes of death in children aged 0-14 years in CM, 1999-2001

Cause of death	Number	Average number per year	Percentage of deaths
Perinatal	70	23	30.6
Congenital anomaly	35	12	15.3
SIDS	23	8	10.0
Drowning/ suffocation	13	4	5.7
Neoplasm	13	4	5.7
Road accident	12	4	5.2
Other causes	63	21	27.5
<b>Total</b>	<b>229</b>	<b>76</b>	<b>100.0</b>

Figure 9.3.5: Main causes of mortality in children aged 0-14 years in CM 1999-2001

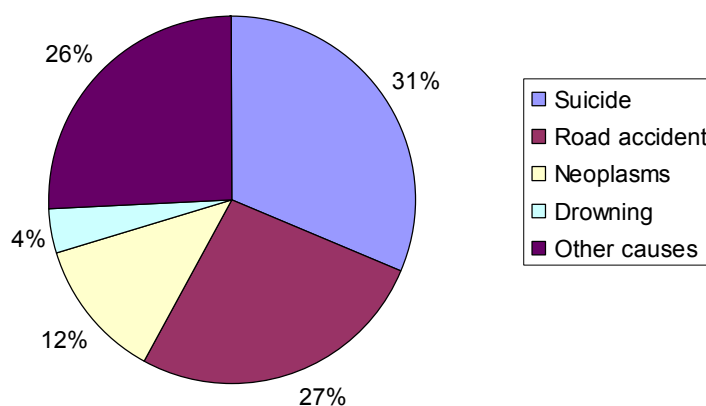


The top two causes of death in youth aged 15-24 years are due to injury resulting from suicide and road accidents (Table 9.3.9 and Figure 9.3.6).

**Table 9.3.9: Main causes of death in youth aged 15-24 years in CM for 1999-2001**

Cause of death	Number	Average number per year	Percentage of deaths
Suicide	40	13	31.3
Road accident	34	11	26.6
Neoplasms	16	5	12.5
Drowning	5	2	3.9
Other causes	33	11	25.8
<b>Total</b>	<b>128</b>	<b>43</b>	<b>100.0</b>

**Figure 9.3.6: Main causes of death in youth aged 15-24 years in CM, 1999-2001**



#### **9.4. Low birth weight**

Low birth weight (LBW) is defined as a birth weight of <2500g and is caused by premature birth (<37 weeks gestation) or because babies are born too small for their gestational age (birth weight <10<sup>th</sup> percentile for their gestational age). The main determinants of small for gestational age are poor maternal nutrition, smoking and hypertension, while the main determinants for preterm birth are genital tract infection, multiple birth, pregnancy induced hypertension and obstetric problems. Therefore, preventative measures differ between the two aetiologies and include smoking cessation, prenatal care (primary prevention), antenatal care (secondary prevention) and specialist obstetric and neonatal care (tertiary prevention). As shown in Section 9.2, LBW was the most common cause of mortality in infants in 2001 (Table 9.2.2, p137). Only public hospital births are included in this section (which will be the vast bulk of LBW babies).

Throughout the Auckland region and nationally, Maori had a significantly higher proportion of births that were LBW compared with Pacific, Asian and Others, while Pacific had the lowest proportion of LBW births (Table 9.4.1). In CM, all ethnic groups exceeded the national rate except for Asians, while the overall proportion of LBW births in CM and nationally was the same (6.3%) due mainly to the larger proportion of Pacific births in CM.

The percentage of births that are LBW may be decreasing in both CM and NZ, albeit slowly (Figure 9.4.1). Within CM, the proportion of births that are LBW appears to be increasing slowly in Pacific and decreasing slowly in Maori, while no trend is evident for Asians or Others (Figure 9.4.2).

Table 9.4.1: Percentage of births LBW (<2500g) by DHB and ethnic group, 2004

DHB	Maori			Pacific			Asian		
	<2500g	≥2500g	%LBW	<2500g	≥2500g	%LBW	<2500g	≥2500g	%LBW
CM	130	1,492	8.0	117	2,235	5.0	67	979	6.4
Auckland	50	461	9.8	62	1,129	5.2	95	1,335	6.6
Waitemata	63	945	6.3	31	821	3.6	61	929	6.2
Northland	58	893	6.1	0	25	0.0	1	12	7.7
NZ	864	10,821	7.4	263	5,516	4.6	333	4,656	6.7

DHB	Other			Total		
	<2500g	≥2500g	%LBW	<2500g	≥2500g	%LBW
CM	169	2,503	6.3	483	7,209	6.3
Auckland	163	3,023	5.1	370	5,948	5.9
Waitemata	243	3,760	6.1	398	6,455	5.8
Northland	50	860	5.5	109	1,790	5.7
NZ	2,063	31,486	6.1	3,523	52,479	6.3

Figure 9.4.1: Percentage of births LBW (<2500g), CM and NZ from 1996 - 2004

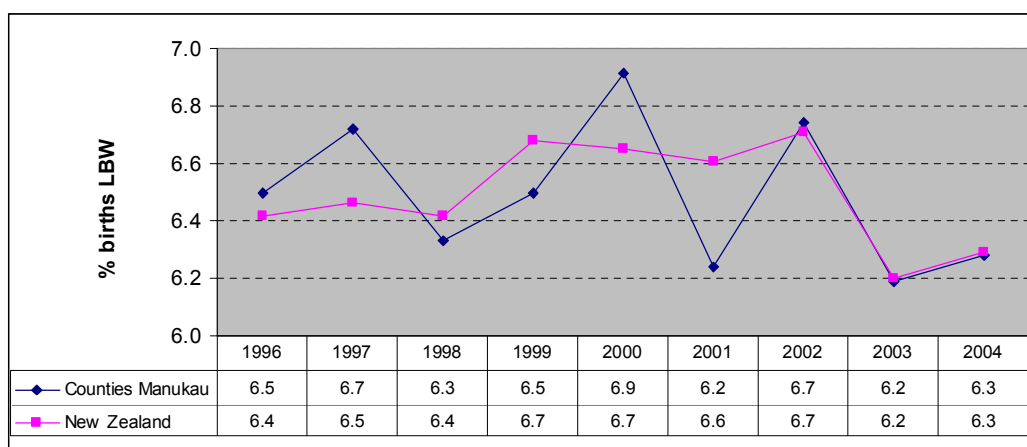
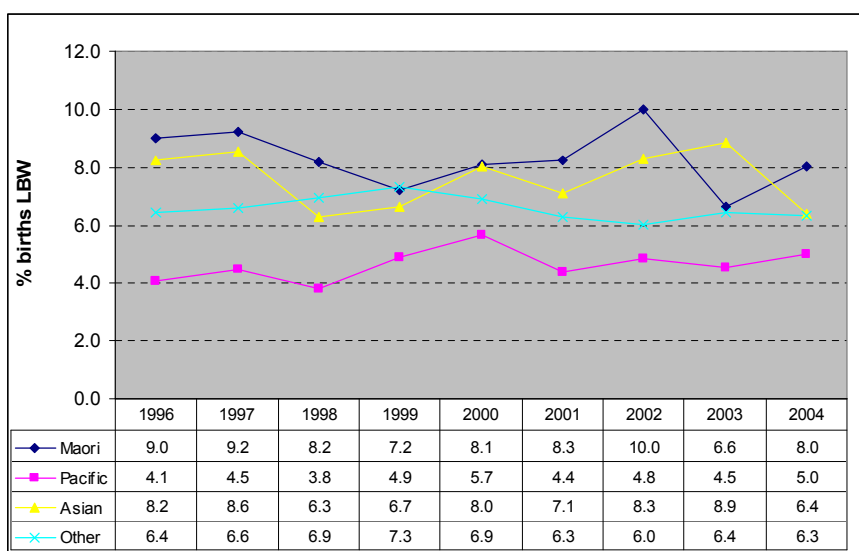


Figure 9.4.2: Percentage of births LBW (<2500g), CM by ethnicity from 1996 - 2004

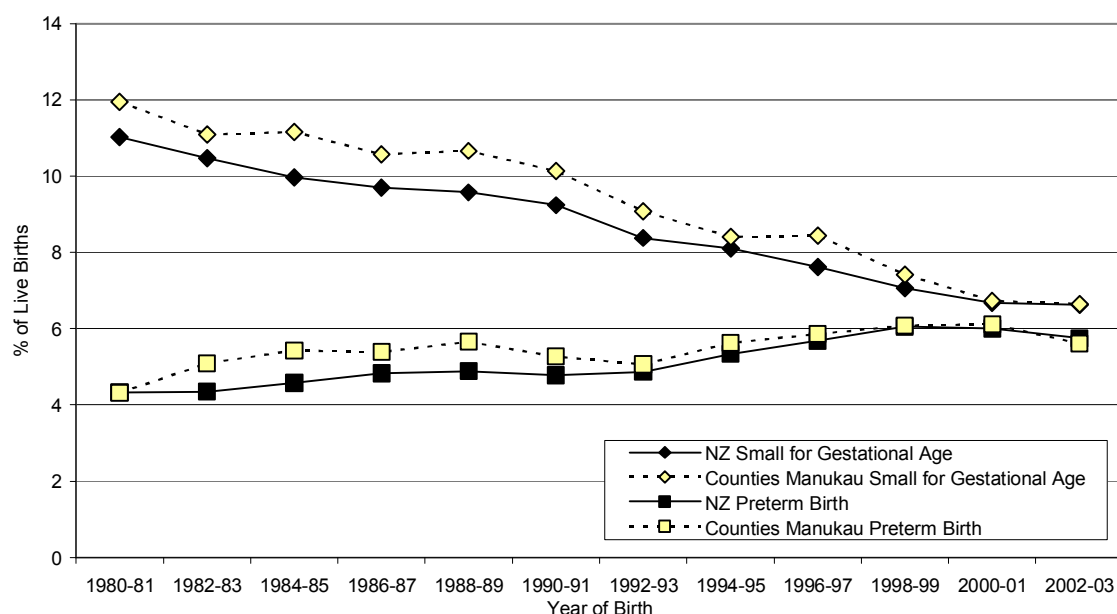


Differentiating between low birth weight babies that were preterm versus small for gestational age from 1980-2003 for CM and NZ showed that CM rates both followed the national trends and were generally higher than the national average (Figure 9.4.3). However, rates for preterm and small for gestational age births in CM were not significantly different from the

national average once ethnicity and the NZ Deprivation Index distribution of CM's population were taken into account<sup>13</sup>. Rates of preterm birth have been increasing and rates of small for gestational age declining, both in CM and nationally since 1980 (Figure 9.4.3).

Within CM during the time period from 1980 onwards, there were significant ethnic differences in rates of small for gestational age, with rates being significantly higher for Indian, Asian and Maori women than for European women (data not shown)<sup>2</sup>.

**Figure 9.4.3: Rates of small for gestational age and preterm birth, CM vs. NZ, singleton live births 1980-2003.**



## 9.5. Infant hospital admissions

Infant admissions to hospital are an indicator of child health in the first year of life. Admission rates are likely to be influenced by factors such as antenatal and natal care, parenting skills, and access to primary health care services. Dates shown below are for the year of birth, therefore, the year 2003 relates to the year a child is born and includes any readmissions that may occur in 2004 during the first year of the infant's life. Child admissions are covered in Section 5, p77.

Pacific followed by Maori children who were born in 2003 were most likely to be admitted to hospital in their first year of life in all DHBs and nationally, while Asian infants were least likely to be admitted in their first year of life (Table 9.5.1 and Figure 9.5.1). Counties Manukau infants were more likely to be admitted to hospital than infants from other parts of Auckland or nationally, and this was true for all ethnic groups (Figure 9.5.1).

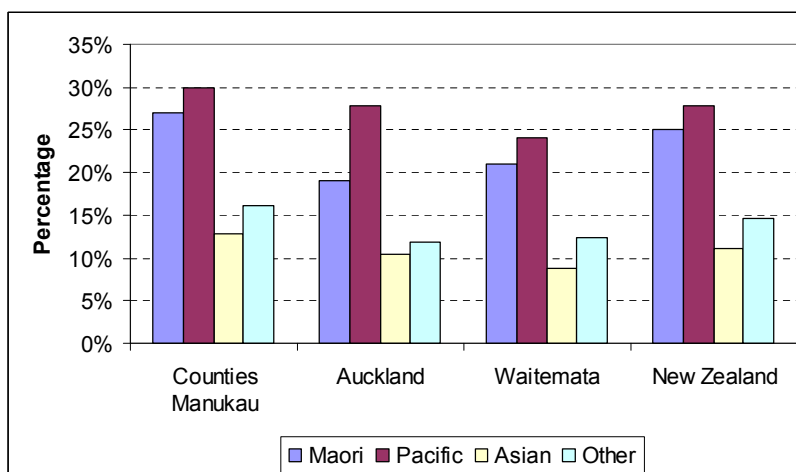
There has been little change in the proportion of infants admitted to hospital in their first year of life since the year 2000, although there may be a slight downwards trend nationally and for CM and Auckland DHBs (Table 9.5.2. and Figure 9.5.2).

<sup>13</sup> The Paediatric Society of New Zealand. *The Health Status of Children and Young People in the Counties Manukau Region, 2005.*

**Table 9.5.1: Proportion (%) of infants born in 2003 who were admitted to hospital in their first year of life, by DHB and ethnic group**

DHB	Maori	Pacific	Asian	Other	Total
Counties Manukau	27%	30%	13%	16%	22%
Auckland	19%	28%	10%	12%	15%
Waitemata	21%	24%	9%	12%	14%
Northland	28%	20%	19%	16%	22%
New Zealand	25%	28%	11%	15%	18%

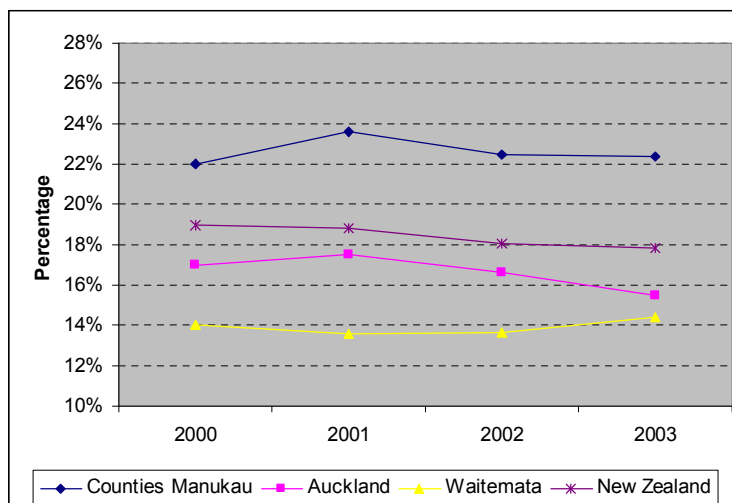
**Figure 9.5.1: Percentage of children born in 2003 who were admitted to hospital in their first year of life, by DHB and ethnic group**



**Table 9.5.2: Proportion (%) of infants born in 2000 to 2003 who were admitted to hospital in their first year of life, by DHB**

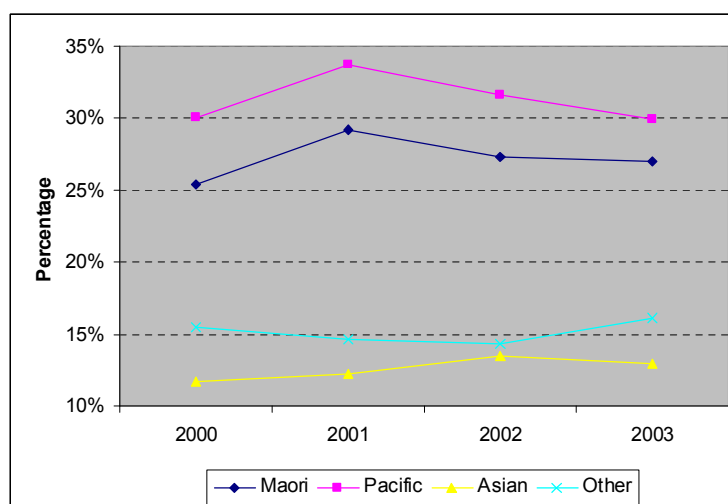
DHB	2000	2001	2002	2003
Counties Manukau	22%	24%	22%	22%
Auckland	17%	18%	17%	15%
Waitemata	14%	14%	14%	14%
Northland	25%	22%	22%	22%
New Zealand	19%	19%	18%	18%

**Figure 9.5.2: Proportion (%) of infants born in 2000 to 2003 who were admitted to hospital in their first year of life, by DHB**



Within CMDHB, Pacific and Maori have consistently had more than twice the proportion of infants admitted to hospital than Other and Asian groups, since 2000 (Figure 9.5.3). High rates of infectious disease admissions including bronchiolitis, pneumonia, gastroenteritis and ENT infections play a large part in this excess. Meningococcal disease has also contributed, though admissions are down for 2005 (to May) compared with 2004. A slight downward trend in Pacific and Maori infant admissions has been observed since 2001 while no trend is apparent for Other and Asian infants.

**Figure 9.5.3: Proportion (%) of CM infants born in 2000 to 2003 who were admitted to hospital in their first year of life, by ethnic group**



## 9.6. Youth health

The Youth 2000 survey was the biggest ever examination of the health of secondary school age children (12-18 years) in New Zealand. Six South Auckland schools were included in the national sample with more than 700 CM children participating. A specific report has been prepared – *South Auckland youth: a profile of their health and wellbeing*, available at [www.youth2000.ac.nz](http://www.youth2000.ac.nz). This section briefly summarises some of the key points made in that report – for more detail please see that report.

A very positive finding from the report was that over 88% of South Auckland students indicated they liked school, that adults cared, and they were able to talk to their families about school. (NZ average 85.5%) Most had a close friend and/or adult they could talk to about a serious problem (83% and 59% respectively), and many regarded their spiritual beliefs to be important (54%). These community and social connections are critical to the resilience and healthy development of our young people, and must be nurtured and fostered.

Most students are healthy, most have protective factors and most do not engage in multiple risky behaviours. However there are concerning numbers of youth whose health development is at risk in areas such as driving, alcohol (mis)use, emotional health and violence. There is a sense that provider and services were not meeting the needs of many youth. Of the students who thought they had a need to access health care 52% said they had not. Reasons cited included “not wanting to make a fuss”, “couldn’t be bothered”, cost and concerns about privacy.

The report makes recommendations in 5 key areas:

1. Parents continue to play a crucial role in the lives of their children throughout the secondary school years. Parents need to be supported to provide the time required to raise healthy teens.

2. Schools and families play critical roles in supporting the health development of youth. Schools and families need to be aware harmful risk behaviours, and be actively involved in keeping young people safe. Schools and families need easy access to appropriate youth health and welfare information services.
3. Attending school and feeling safe at school are important factors in the health development of youth. Schools need to develop and implement comprehensive policies that effectively reduce violence and bullying; retain and support all youth in school until the age of 16 years; and create healthy school environments.
4. Neighbourhood environments contribute to the health and wellbeing of youth. Local Authorities need to have effective youth participation in community amenities planning, transport and safety issues.
5. Healthcare services and providers are not meeting the needs of today's youth. They need to re-orient to meet the needs of youth. Schools can provide an accessible appropriate venue for healthcare provision for youth.

Finally the report endorses the New Zealand Youth Health Action Plan (MoH: *Youth Health: A Guide to Action*, September 2002, see under publications on [www.moh.govt.nz](http://www.moh.govt.nz).) and urges DHBs to prioritise and implement it.

### Summary- Section 9 child and youth health

Child and youth health has been a priority area of CMDHB since its inception. Counties Manukau's population is more youthful and ethnically diverse than the NZ average, with 41% of the population aged <25 years. Counties Manukau's children live in circumstances of greater deprivation than the NZ average, with 53% of CM children aged <15 years living in the poorest NZDep01 deciles (8-10), compared with 33% of children nationally. Deprivation also affects significantly more Pacific and Maori children in CM than Others, with 89% of Pacific and 68% of Maori children, compared with 27% of Other children, living in NZDep01 8-10.

Infant mortality has shown a consistent downwards trend from 1988 nationally and in CM. Infant, child and youth mortality rates have generally been higher in CM than the rest of Auckland or nationally. Within CM the risk of infant, child and youth mortality was greatest amongst Maori, Pacific, and the poor. The two top causes of potentially avoidable infant mortality in CM and nationally were low birth weight and sudden infant death syndrome, and the rates for both causes were higher in CM than nationally. In youth aged 15-24 years, the top two causes of death are due to injury, mainly suicide and road accidents.

Infants from CM were more likely to be admitted to hospital than infants from other parts of Auckland or nationally, and this was true for Maori, Pacific, Asian and Others. Within CM, Pacific and Maori have consistently had more than twice the proportion of infants admitted to hospital than Other and Asian groups.

Youth in CM were more likely to like school, have adults who cared about them and be able to talk to their families about school than the NZ average. Most teenagers are healthy, have protective factors and do not engage in multiple risky behaviours. More work is needed though in improving healthcare services for young people, with many not seeking health care when they thought they should.