

# **The health of children in Capital and Coast District Health Board – a background document**

*May 2004*

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## 1. Executive Summary

When viewed overall, many health outcome statistics for children living in C&CDHB are consistent with the national average. However, clear disparities are apparent in a range of conditions. Without exception, the key areas requiring action within C&CDHB are those identified nationally by the Ministry of Health as child health indicators:-

- Low birth weight
- Breastfeeding
- Immunisation
- School entry hearing
- (School entry) oral health
- Asthma
- Ambulatory sensitive admissions
- Exposure to second hand smoke
- Injury prevention
- Teenage pregnancy

Other important health issues identified in this report are disability and mental health issues in children, obesity and cultural, social and home environments which have a detrimental impact on the mental health of children.

While data point to disparities in the health of Maori and Pacific children, socio-economic disadvantage is clearly associated with poor health outcomes in these groups and compounds the disparity for Maori and Pacific children. Consequently, it is believed that an improvement in health status will not be achieved by better access to treatment services alone. There is a need for continued health education and health promotion in a range of priority areas, and at a national level, actions to improve the determinants of health, for example employment, education, and housing. Improved access to effective primary health care services and a more culturally-competent workforce will also assist.



## 2. Introduction and Overview

### Introduction

Capital and Coast District Health Board (C&CDHB) is holding a Child Health Summit in March 2004. In preparation for this forum, Service Planning and Funding invited the Technical Advisory Service to develop a background document on the health status of children in C&CDHB which may assist in identifying priority health areas for the Board. This report provides a summary of information on child health status and child health services in the region.

### Background and context

It is important that child health services are considered in the context of national policy which outlines relevant priorities and provides the framework for the way in which child health services should be delivered. These are identified below:-

#### *The New Zealand Health Strategy*

The New Zealand Health Strategy<sup>1</sup> identifies seven fundamental principles that should be reflected across the health and disability sector. Any new strategies for the development of child health services should relate to these principles:-

- Acknowledging the special relationship between Maori and the Crown under the Treaty of Waitangi
- Good health and wellbeing for New Zealanders throughout their lives
- An improvement in health status of those currently disadvantaged
- Collaborative health promotion and disease and injury prevention by all sectors
- Timely and equitable access for all New Zealanders to a comprehensive range of health and disability services, regardless of ability to pay
- A high-performing system in which people have confidence
- Active involvement of consumers and communities at all levels

The New Zealand Health Strategy also highlights 13 priority population health objectives chosen for their ability to improve the health status of the population and their potential to reduce health inequalities. A number of these are relevant to child health services, namely the need to:-

- Reduce smoking
- Improve nutrition
- Reduce obesity
- Increase the level of physical activity
- Reduce violence in interpersonal relationships, families, schools and communities

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<sup>1</sup> Minister of Health. 2000. *The New Zealand health strategy*. Wellington: Ministry of Health.

- Ensure access to appropriate child health services including well child, family health care and immunisation
- Improve oral health

Public health programmes support the New Zealand Health Strategy, and several of these are relevant to child health services, for example preventing Sudden Infant Death Syndrome and improving levels of breastfeeding.

### *He Korowai Oranga – Maori Health Strategy*

*He Korowai Oranga – Maori Health Strategy*<sup>2</sup> expands on the Government's principles and objectives for Maori health. The vision for achieving these objectives is the concept of whanau ora. Key ways to realise this vision are whanau, hapu, iwi and Maori community development, increasing Maori provider capacity, service integration between providers, and re-orienting the health services to a strengths-based approach for whanau. There is also a need for health services to examine their own practices critically, to invite Maori input and to focus on health priorities which improve Maori health outcomes and reduce inequalities.

### *The Pacific Health and Disability Action Plan*

The *Pacific Health and Disability Action Plan*<sup>3</sup> outlines the Government's strategic direction for improving health outcomes for Pacific people. Two key health priorities identified in the plan relevant to child health services are the need to strengthen primary health care and preventive services, and promoting healthy lifestyles and wellbeing. Ways in which these priorities will be achieved include developing the capacity of Pacific providers, supporting mainstream providers to be more responsive to the health needs of Pacific communities, coordinating care across service areas, and supporting Pacific-led initiatives.

### *The Child Health Strategy*

The *Child Health Strategy*<sup>4</sup> provides the strategic direction for child health services until 2010. The report outlines a series of principles upon which child health services should be based, as well as the key ways in which an improvement in child health status may be realised. Recommendations include a greater focus on health promotion, prevention and early intervention, better coordination of services, and development of a national child health information strategy. Four priority populations are identified - tamariki Maori, Pacific children, children with high health and disability support needs, and children from families with multiple social and economic disadvantage.

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<sup>2</sup> Ministry of Health. 2002. *He korowai oranga - Maori health strategy*. Wellington: Ministry of Health.

<sup>3</sup> Ministry of Health. 2002. *The Pacific health and disability action plan*. Wellington: Ministry of Health.

<sup>4</sup> Ministry of Health. 1998. *Child health strategy*. Wellington: Ministry of Health.

## *The New Zealand Disability Strategy*

The *New Zealand Disability Strategy*<sup>5</sup> outlines fifteen objectives that will facilitate change towards a “non-disabling and fully-inclusive” society. Key objectives that are relevant to child health services are the need enable disabled children and youth to lead full and active lives and the need to value families, whanau and people providing ongoing support. There is also a need to support quality living in the community for disabled people, and to foster an aware and responsive public health service.

## *The views of children*

Another important philosophical stance is that the views of children need to be taken into consideration. A recent national youth symposium<sup>6</sup> resulted in a call on Ministry of Health and health care providers to:-

- Implement fully the child health and suicide prevention strategies that exist
- Make sure that services are child and youth friendly and have a holistic approach
- Recognise that health services begin pre-conception and that the first three years are very important
- Provide health services to schools and fund peer support services
- Teach nurses and health professionals about children’s rights

## **Methodology**

Most data in this section has been obtained from the New Zealand Health Information System (NZHIS). Some hospital admission data has been obtained from the C&CDHB Perinatal Information Management System (PIMS), and from the C&CDHB hospital database (Allegra).

Maternity data is largely taken from the Ministry of Health publication *An Indication of New Zealander’s Health*<sup>7</sup>, the *Report on Maternity 1999*,<sup>8</sup> and the *Report on Maternity: 2000 and 2001*<sup>9</sup>. The sources for this data are primarily the Maternity and Neonatal Information System (MNIS) and the National Minimum Data Set (NMDS). Neither of these data sets gives a complete representation of births for the following reasons.

- The MNIS is based on Lead Maternity Carer (LMC) claims made through HealthPac (about 70% of all births), and does not include information from non Section 88 LMC Providers.

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<sup>5</sup> Minister of Disability Issues. 2001. *The New Zealand disability strategy – making a world of difference – Whakanui oranga*. Wellington: Ministry of Health.

<sup>6</sup> Office of the Children’s Commissioner. 2004. Report back on the key issues identified by youth participants during the pre-symposium. *Children – a newsletter from the Office of the Children’s Commissioner*, No 49.

<sup>7</sup> Ministry of Health. 2002. *An indication of New Zealander’s health*. Wellington: Ministry of Health.

<sup>8</sup> Ministry of Health. 2001. *Report on maternity 1999*. Wellington: Ministry of Health.

<sup>9</sup> Ministry of Health. 2003. *Report on maternity 2000 and 2001*. Wellington: Ministry of Health.

- The NMDS system collects hospital admission data only, so home birth data is missing from the NMDS data set.

Unless otherwise stated, the age groups referred to in this paper include children aged 0-14 years. This is consistent with the age groups used in the *Child Health Strategy*<sup>10</sup>, the document *Our Children's Health*,<sup>11</sup> and standard age bands for most service utilisation reporting. However, within this age band, three or four more detailed age bands may be used. These are 0, 1-4 years, 5-9 years and 10-14 years.

Primary Care utilisation information is provided for age categories 0 to 5 years inclusive (Y category), and for dependent children aged 6 and over (J category). The J category includes all children from 6 to 15, and teenagers aged 16 to 18 who are still dependent on parents.

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<sup>10</sup> Ministry of Health. 1998. *Child health strategy*. Wellington: Ministry of Health.

<sup>11</sup> Ministry of Health. 1998. *Our children's health: key findings on the health of New Zealand children*. Wellington: Ministry of Health.

### 3. Demographic Profile of Children

#### Socio-economic profile

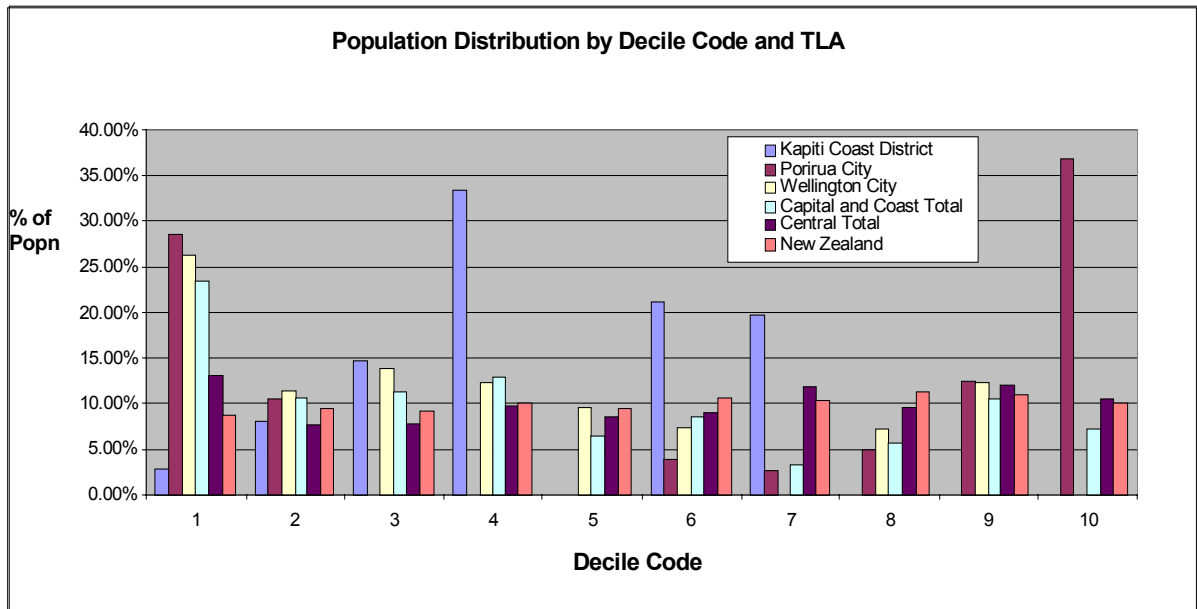
The C&CDHB district comprises Wellington City, Porirua City, and most of the Kapiti Coast TLA. Each area has distinct demographic and income distributions. The weighted average deprivation indices<sup>12</sup> are 3.99 for Wellington, 6.12 for Porirua and 4.62 for Kapiti. These differences in deprivation, together with the distribution of ethnic groups and recent immigrants influence the observed differences in health outcomes.

The percentage of Wellington region households that do not have a car (15.4%) is higher than the national average (11.5%). This difference is even more marked in Porirua where 16.1% of households do not have a motor vehicle. In the Kapiti area, 10.2% of households do not have a car.<sup>13</sup>

Fewer Wellington region households do not have access to a telephone (3.61%) compared to the national average of 4.96%. The number of Porirua households without a telephone is much higher at 7.64%.

The socio-economic distribution of the population of each TLA compared to the C&CDHB district and New Zealand as a whole is provided in the graph below. The key feature in this graph is that a higher proportion of Porirua residents are in both the lowest and highest decile groups, while the Kapiti population is almost entirely distributed in the middle range deciles.

Figure 3.1: Population Distribution by Decile Code and TLA, 2001



Source Census 2001

<sup>12</sup> 2001 Census

<sup>13</sup> 1996 Census

As shown in the table below, utilising a weighted average deprivation index people living in C&CDHB are less deprived than either the central region or New Zealand as a whole<sup>14</sup>. Within the C&CDHB district, Wellington City is the least deprived area, and Porirua has the highest deprivation weighting.

Table 3.1: Average Deprivation by TLA, 2001

	Territorial Local Authority Area	Weighted Average Deprivation
Capital and Coast	Kapiti Coast	4.62
	Porirua City	6.12
	Wellington City	3.99
C&CDHB Total		4.49
Central Region Total		5.61
New Zealand Total		5.67

Source Census 2001

## Age profile

Table 3.2 shows the number of children by age band in each TLA area of C&CDHB compared to the central region and New Zealand as a whole. The proportion of the C&CDHB population who are aged 0-14 (20.6%) is slightly less than for the central region (22.67%) and the national average (22.7 %). However, within the C&CDHB district there is considerable variation, with children aged 0-14 making up 28.1% of Porirua's total population, but only 18.5% of Wellington City's population.

Table 3.2: Number of Children aged 0-14 by TLA, 2001

	Kapiti Coast	Porirua City	Wellington City	C&CDHB Total	Central Total	NZ Total
00 Years	405	924	2,376	3,705	11,481	54,624
01-04 Years	1,698	3,603	8,277	13,578	45,192	216,195
05-14 Years	5,055	8,766	19,716	33,537	119,760	577,032
Total Children 00-14 Years	7,158	13,293	30,369	50,820	176,433	847,851

Source Census 2001

<sup>14</sup> Dep 2001

## Ethnic profile

In Porirua, the percentage of Maori (19.8%) and Pacific people (22.9%) is significantly higher than in the Wellington region or New Zealand as a whole.

Table 3.3 outlines the ethnic proportion of children in C&CDHB aged 0-14. In Porirua, the percentage of Maori (28.2%) and Pacific people (28.4%) aged 0-14 is significantly higher than in Wellington City (11.3% and 6.9% respectively). Children aged 0-14 yrs in Kapiti and Wellington City are predominantly of Other ethnicity (80%), while in Porirua the proportion of children in this group is 43.2%.

In all TLAs, the percent of children who are Maori or Pacific is much higher than the proportion in the population as a whole. For example, Maori make up 8.59% of Kapiti's total population, but are 17.69% of Kapiti children.

Table 3.3: Percent of children aged 0-14 by ethnicity, 2001

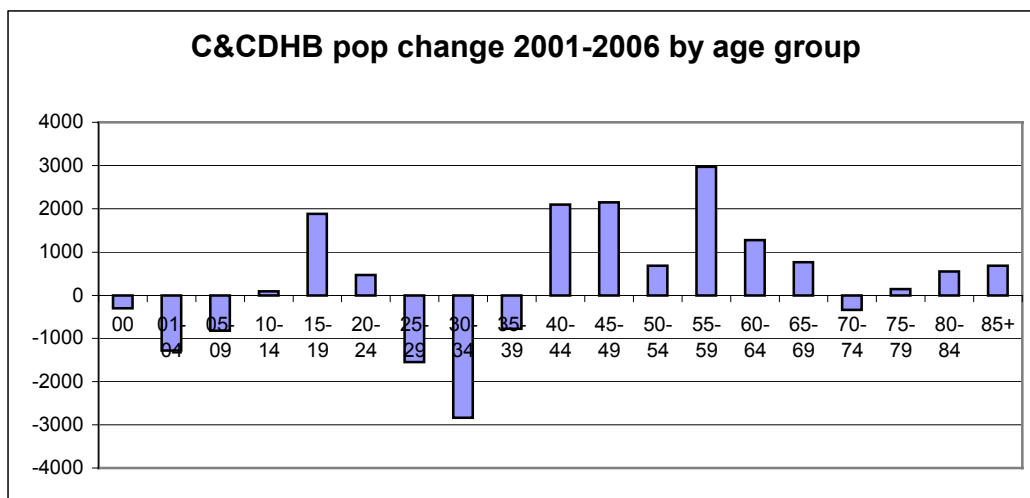
	Kapiti Coast	Porirua City	Wellington City	C&CDHB Total	Central Total	NZ Total
Total Children 0-14	7,158	13,293	30,369	50,820	176,433	847,851
Maori children as % of all children	17.69%	28.26%	11.33%	16.65%	25.30%	23.17%
Pacific children as % of all children	2.14%	28.48%	6.89%	11.87%	6.70%	8.22%
Other children as % of all children	80.18%	43.26%	81.78%	71.48%	67.99%	68.61%

Source Census 2001

## Projected demographic trends

The C&CDHB population is expected to grow by 2.4% from 2001 to 2006. However, the population of people under 20 is expected to decrease slightly to 26.5% by 2006, a reduction of 1% from 2001. Figure 3.2 demonstrates the projected population change by age group in C&CDHB between 2001 and 2006. As can be seen, very little change is expected in the 0-14 year age group.

Figure 3.2: Population change 2001-2006 by age group in C&CDHB



Source Census 2001

In 2006 very little change is also predicted in the relative percentages of Maori, Pacific and Other ethnic groups within C&CDHB (Table 3.4).

Table 3.4: Predicted relative percentages of ethnic groups, 2001 and 2006

	2001	2006
%Maori Ethnicity	9.9%	10.2%
%Pacific Ethnicity	7.6%	7.8%
%“Other” Ethnicity	83.0%	82.0%

Source Census 2001

Table 3.5 outlines population projections by age group, ethnicity and TLA for C&CDHB in 2006. Overall, in 1996 people under 20 will comprise 26% of the population in the district. However, different percentages are apparent within ethnic groups. People under 20 years are expected to make up almost half of the Maori population in Kapiti and Porirua and 36.7% of the Maori population in Wellington City. Similarly, it is expected that about 40% of Pacific people in Porirua and Kapiti will be under 20 years of age, and 36% of the Wellington City Pacific population will be in this age group. For people of Other ethnicity, the percent of the population under 20 years is expected to be 25% in Porirua, 22% in Kapiti and 23% in Wellington City. However, due to the size of Wellington City the largest number of children of Other ethnicity will be living in this area.

Table 3.5: Population projections by age group, ethnicity and TLA for C&CDHB, 2006

TLA	Age Group	Ethnicity							
		Maori	Other	Pacific	Grand Total	% of Maori Pop	% of Other Pop	% of Pacific Pop	% of Total TLA Pop
Kapiti	00	89	303	9	401	2.5%	0.9%	1.6	1.1%
	01-04	309	1297	44	1,650	8.71%	4.0%	7.6%	4.5%
	05-09	503	1821	46	2,370	14.2%	5.6%	8.0%	6.5%
	10-14	483	1946	85	2,514	13.6%	6.0%	14.8%	6.9%
	15-19	366	1843	44	2,253	10.3%	5.7%	7.6%	6.2%
Kapiti Pop 00-19		1,750	7,210	228	9,188	49.3%	22.2%	39.6%	25.1%
Kapiti Total pop		3,549	32,458	575	36,582				
Porirua	00	249	336	232	817	2.6%	1.3%	2.1%	1.7%
	01-04	953	1,317	898	3168	9.9%	5.0%	8.0%	6.7%
	05-09	1,357	1,655	1279	4291	14.1%	6.3%	11.4%	9.1%
	10-14	1,104	1,584	1145	3833	11.5%	6.0%	10.2%	8.2%
	15-19	990	1,830	1200	4020	10.3%	7.0%	10.7%	8.6%
Porirua Pop 00-19		4,653	6,722	4754	16,129	48.5%	25.7%	42.4%	34.3%
Porirua Total Pop		9,601	26,183	11202	46,986				
Wellington	00	259	1,738	144	2141	2.08%	1.2%	1.8%	1.3%
	01-04	877	6,031	532	7440	7.1%	4.1%	6.7%	4.4%
	05-09	1,264	7,405	762	9431	10.8%	5.0%	9.6%	5.6%
	10-14	1,056	8,574	713	10,343	8.5%	5.8%	9.0%	6.2%
	15-19	1,111	10,354	711	12,176	8.9%	7.0%	9.0%	7.3%
Wellington Pop 00-19		4,567	34,102	2,862	41,531	36.7%	23.1%	36.0%	24.8%
Wellington Total Pop		12,430	147,371	7,937	167,738				
CCDHB Pop 00-19		10,970	48,034	7,844	66,848	42.9%	23.3%	39.8%	26.6%
CCDHB Total Pop		25,580	20,6012	19,714	251,306				

Source Census 2001

## Summary

Overall, people living in C&CDHB are less deprived than the central region or NZ as a whole. Porirua is the TLA with the highest level of deprivation. The population in Porirua is more youthful than other TLAs with 34.3% of people in the area <20 years of age.



## 4. Health Status

### Child health indicators

The Ministry of health has outlined a range of child health indicators. Data relating to these indicators are regularly reviewed and reported on. The indicators are as follows:-

- Low birth weight babies
- Breastfeeding
- Immunisation
- Injury prevention
- School entry hearing
- Oral health
- Ambulatory sensitive admissions
- Asthma admissions
- Teenage pregnancy
- Tobacco control

These indicators are further discussed in this report, and also a range of health problems affecting children. The full range of indicators relevant to child health are outlined in Appendix 1.

### Low birth weight

Low birth weight is defined as a baby born with a birth weight <2500g, and very low birth weight is a baby born weighing <1500g.

Low birth weight is a major cause of perinatal and infant mortality. In New Zealand low birth weight infants are 23 times more likely to die in the post-natal period compared to other infants, and are more likely to have poor health outcomes and increased disabilities. They are also more susceptible to serious illness during infancy and early childhood and in adulthood.<sup>15</sup> Thus, the costs of low birth weight babies to the health care sector are significant.

Risk factors for low birth weight include low maternal socio-economic status, a younger or older mother, living with an abusive partner, maternal smoking, maternal alcohol use and poor maternal nutrition. Low birth weight is also related to obstetric complications and lack of prenatal care.<sup>16</sup> A comparison of wealthy countries found countries with higher income inequalities to be strongly associated with a greater proportion of low birth-weight infants.<sup>17</sup>

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<sup>15</sup> Ministry of Health. 2003. *Health and independence report 2003. Director-General's annual report on the state of public health*. Wellington: Ministry of Health.

<sup>16</sup> Ministry of Health. 2003. *Health and independence report 2003. Director-General's annual report on the state of public health*. Wellington: Ministry of Health.

<sup>17</sup> Lynch et al 2001 in Public Health Intelligence Occasional Report No 1: An Indication of New Zealanders Health-2002, pp53

The table below provides NMDS data from 2001-2003 indicating that in 2002/3 the overall discharge rate of babies in C&CDHB with a birth weight of <2,500g was 56.7 per 1,000. In the same period the Maori rate was 73.0 and the Pacific rate 51.5.<sup>18</sup> This represents an improvement from 2000/1 in which the overall rate in C&CDHB was 69.6 and the Maori rate was 96.4. Across the three years a lower proportion of Pacific babies were discharged with a low birth weight.

Table 4.1: Discharge rate of low birth weight babies (<2500g)  
C&CDHB compared to NZ (rate per 1000 hospital births), 2000/1 – 2002/3

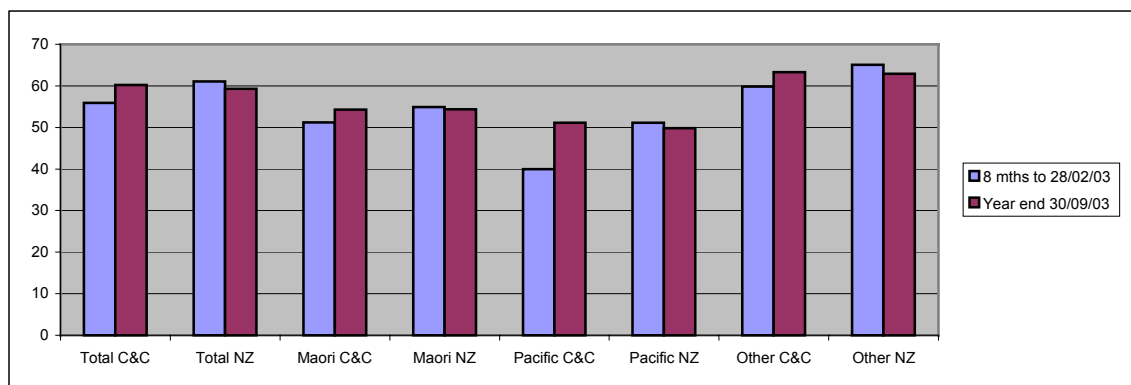
	Total	Maori	Pacific	Other
C&CDHB 2000/1	69.6	96.4	60.8	66.3
National 2000/1	63.6	77.3	49.8	61.8
C&CDHB 2001/2	71.4	56.9	55.4	76.4
National 2001/2	63.4	79.1	44.2	61.9
C&CDHB 2002/3*	56.7	73.0	51.5	54.7
National 2002/3*	60.7	71.3	45.7	59.9

Source NMDS

\*Provisional data

More recent data is available for the year ending September 2003 (Figure 4.1). This data is consistent with earlier statistics identifying that Pacific babies are less likely to be low birth weight. In 2001/2 “Other” babies were more likely to be low birth weight than Maori or Pacific babies, or the district as a whole (Table 4.1). This trend is also apparent in 2002/3 and the year ended 30 September 2003 (Figure 4.1).

Figure 4.1: Discharge rate of low birth weight babies per 1000 births



Statistics from PIMS provide additional information on birth weight related to ethnicity (Table 4.2, Figure 4.2). Figure 4.2 demonstrates the pattern for Asian babies born at  $\geq 37$  weeks gestation to have a lower birth weight and for Pacific babies to have a higher birth

<sup>18</sup> Ministry of Health. 2004. *Negotiation brief – 2004/5 indicators of DHB performance*. Wellington: Ministry of Health.

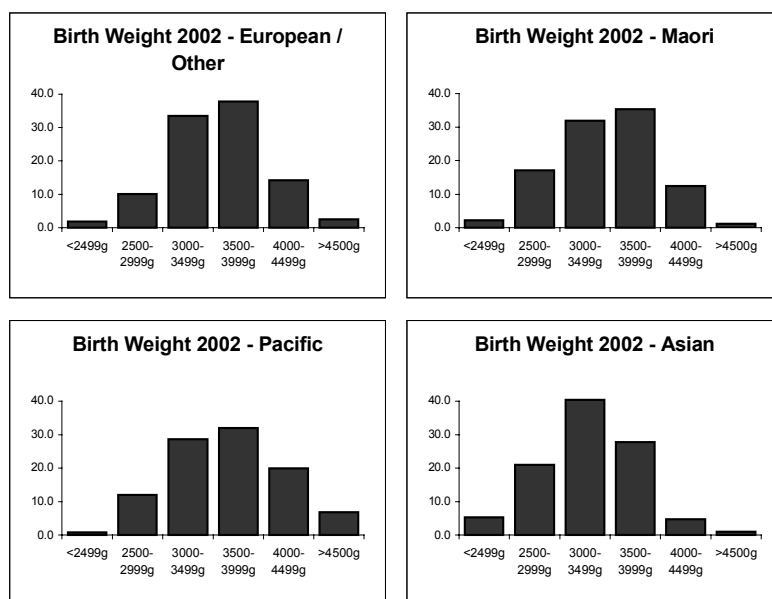
weight compared to other ethnic groups. In 2002 at least a quarter (26.3%) of Asian babies born at term were <3000g. However, next to Asian babies Maori babies (19.3%) were more likely to weigh <3000g.

Table 4.2: Birth weight (%) in term babies ( $\geq 37$  weeks gestation) in C&CDHB, 2002

	European/other	Maori	Pacific	Asian	Total
<2499g	1.8	2.2	0.8	5.3	2.1
2500-2999g	10.1	17.1	12.0	21.0	12.1
3000-3499g	33.5	31.9	28.6	40.3	33.4
3500-3999g	37.8	35.3	31.9	27.7	35.9
4000-4499g	14.2	12.4	19.9	4.7	13.7
>4500g	2.5	1.1	6.8	1.0	2.6

Source PIMS

Figure 4.2: Birth weight (%) in term babies ( $\geq 37$  weeks gestation) in C&CHDB, 2002



Source PIMS

Certain medical conditions increase the risk of low birth weight. This includes high blood pressure, kidney disease, diabetes, chronic infections of the urinary or reproductive tracts or other chronic problems. Smoking during pregnancy also increases risk. However, evidence suggests that the rate of low birth weight will not be reduced by medical treatment alone. A population health approach involving attention to social and economic factors, personal health knowledge and behaviours and health services is required.<sup>19</sup>

### Stillbirths and perinatal deaths

A stillbirth is a birth that takes place after 20 weeks gestation, and/or over 400grams, where the baby shows no signs of life. Perinatal deaths are all stillbirths and babies from 20 weeks gestation and/or over 400 grams who died within 7 days of birth.

In 1999 C&CDHB had a high perinatal death rate of 13.4 per 1000 births compared to the national average of 10.7. This rate had reduced to slightly below the national average in 2001. Between 1999 and 2001 the rate of stillbirths in C&CDHB was slightly higher than national average (Table 4.3). One reason for an increased stillbirth and perinatal mortality rate in C&CDHB is that data include late terminations of pregnancy for fetal abnormality. Wellington Hospital is one of two tertiary materno-fetal medicine services in New Zealand and undertakes a high number of mid-trimester pregnancy terminations for fetal abnormality. Thus, stillbirths and perinatal deaths are expected to be higher than the national average.

Table 4.3: Live births, stillbirths and perinatal deaths C&CDHB & NZ, 1999-2001

		Live Births (Number)	Stillbirths	Deaths <7 Days	Total Perinatal Deaths	Deaths 7-28 Days
			Rate per 1,000 births			
1999	C&CDHB	3,536	10.6	2.8	13.4	0.0
1999	National	52,834	8.2	2.4	10.7	0.3
2000	C&CDHB	3,759	9.5	0.8	10.3	0.0
2000	National	55,447	7.3	3.0	10.2	0.5
2001	C&CDHB	3,657	7.6	1.1	8.7	0.0
2001	National	54,228	6.9	2.1	9.0	0.4

Source NMDS

<sup>19</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

A recent review of maternity services<sup>20</sup> looked more closely at perinatal mortality in babies born to women with a Porirua domicile code. Results identified that perinatal mortality rates were higher in Porirua babies compared to C&CDHB and the rest of New Zealand. As data relating to 1999 is now relatively old, this will require further investigation.

## Premature Delivery

Pre-term labour is defined as labour before 37 completed weeks of gestation.<sup>21</sup> In 2002 8.7% of babies born in C&CDHB were preterm ( $\leq 36 +6$  weeks) and required admission to the Neonatal Intensive Care Unit.<sup>22</sup> Early delivery is a significant factor in perinatal death and babies born with a low birth weight. Neonates born at less than 37 weeks gestation make up between 65% and 70% of perinatal deaths and have a high risk of long term disability.<sup>23</sup> Smoking in pregnancy increases the risk of preterm birth due to reduced placental blood flow and decreased oxygen supply.<sup>24</sup>

Data from PIMS<sup>25</sup> identified that in 2002 Maori women experienced the highest rate of pre-term birth (14.3%) and Pacific women the lowest (9.0%). For European/other and Asian women 10% were in this category. In the same year, Pacific women had the highest percentage of post-term birth ( $\geq 42$  weeks) at 4.2%, and Asian women the lowest (1.5%). Two percent (2%) of European/other and Maori women were in this category.

Utilising NMDS data 7.7% of babies were born prematurely in C&CDHB in 2001/02 (Table 4.4). This compares to a national average of 6.9%. In the same period Kapiti women had a slightly higher percentage of premature deliveries compared to women living in Wellington and Porirua. Also, the average case weight (CWD) per premature birth to Kapiti women was almost double the C&CDHB average. This indicates that, on average, children born prematurely to Kapiti women required more complex care than children born prematurely to either Porirua or Wellington women. Babies born prematurely to women in Porirua also had a higher case weight than the C&CDHB average. However, small numbers may skew the data.

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<sup>20</sup> Ministry of Health, 2004. *Porirua maternity project* (unpublished).

<sup>21</sup> Ministry of Health. 2003. *Report on maternity 2000 & 2001*. Wellington: Ministry of Health.

<sup>22</sup> C&CDHB. *Maternity Report 1997-2002*. Women's Health Service, Wellington: Capital and Coast District Health Board.

<sup>23</sup> Ministry of Health. 2003. *Health and independence report 2003*. Director-General's annual report on the state of public health. Wellington: Ministry of Health.

<sup>24</sup> Health Funding Authority. 2000. *Maternity services: A reference document*. Hamilton: Health Funding Authority.

<sup>25</sup> Capital and Coast District Health Board. 2003. *Maternity report 1997-2002*. Wellington: Women's Health Service, Capital and Coast District Health Board.

Table 4.4: Premature birth and average case weight by mother's residence, 2001/2

	Total Births	Premature Births	Prem Births as % of total	Tot Prem CWD	Average CWD per Prem Birth
Kapiti Coast	307	26	8.4%	183	7.04
Porirua	767	56	7.3%	247	4.40
Wellington City	2,364	186	7.8%	550	2.96
C&CDHB Total	3,438	268	7.7%	980	3.66
New Zealand Total	53,004	3,662	6.9%	13,614	3.72

Source NMDS

Detail on service utilisation by gestational age for babies born under 37 weeks gestation is provided in Appendix 2.

### Readmission of newborns

After 1999 there were changes to the definition of what constituted the postnatal period<sup>26</sup> hence changes in NMDS data in 2000 and 2001. As can be seen, between 2000 and 2002 C&CDHB had a higher readmission rate of neonates compared to the national average (Table 4.5). This data requires further analysis as preliminary investigation suggests this may relate to data quality, with postnatal transfers of babies to Kenepuru and Paraparaumu Maternity Units re-counted as a second admission.

Table 4.5: Readmission to hospital within 6 weeks of newborns born in hospital  
C&CDHB & NZ 1999-2002 – rate per 1000 live births

	1999	2000	2001	2002
C&CDHB	52.9	110.4	123.4	103.2*
National	71.0	78.1	78.4	76.8

Source NMDS

\*Provisional data

<sup>26</sup> In 1999 the definition of the postnatal period was a month; in 2000 and 2001 it was 42 days (Ministry of Health. 2003. Report on maternity 2000 & 2001. Wellington: Ministry of Health).

## Notifiable diseases

As identified in the table below, the overall rate of communicable diseases in Wellington area children aged 0 to 14 years is lower than the national average.

Table 4.6: Rates of communicable disease per 1000 children 0-14, 2001-2002

	Measles		Meningo-coccal Disease		Pertussis		Rheumatic Fever		Tuberculosis		Total	
	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No	Rate	No
2001												
Kapiti Coast	0.14	1	0.14	1	2.65	19	-	0	-	0	2.93	21
Porirua	-	0	0.68	9	1.13	15	0.15	2	0.23	3	2.18	29
Wellington	-	0	0.20	6	1.71	52	0.03	1	0.07	2	2.01	61
C&CDHB	0.02	1	0.31	16	1.69	86	0.06	3	0.10	5	2.18	111
National	0.01	62	0.33	432	2.14	962	0.05	91	0.09	30	2.61	1577
2002												
Kapiti Coast	-	0	0.14	1	1.68	12	-	0	-	0	1.82	13
Porirua	0.08	1	0.68	9	0.83	11	0.15	2	-	0	1.73	23
Wellington	-	0	0.26	8	0.92	28	-	0	0.03	1	1.22	37
C&CDHB	0.02	1	0.35	18	1.00	51	0.04	2	0.02	1	1.44	73
National	0.01	19	0.29	352	1.17	782	0.04	63	0.01	43	1.52	1259

When different diseases are considered separately, in most cases the numbers are too low for statistical analysis, and any conclusions should be treated with caution. However, there are several trends which indicate potential problem areas:-

- There is an indication that the rate of rheumatic fever in Porirua is higher than the national average.
- The rate of meningococcal disease in Porirua appears to be higher than the national average in both 2001 and 2002.
- The rate of pertussis in the Kapiti area is considerably above the national rate, in both 2001 (24% above) and 2002 (44% above national rate). In this case, the numbers are probably high enough for this to be a significant finding.

Table 4.7: Number of notified cases of communicable diseases, 2001 and 2002

2001	Measles	Meningo-coccal	Pertussis	Rheumatic Fever	Tuber-culosis	Total	Pop 0-14	Rate per 1000	% Var from National
Kapiti Coast	1	1	19	0	0	21	7,158	2.93	58%
Porirua	0	9	15	2	3	29	13,293	2.18	17%
Wellington	0	6	52	1	2	61	30,369	2.01	8%
Wellington Total (0-14)	1	16	86	3	5	111	50,820	2.18	17%
National (0 to 14)	62	432	962	91	30	1577	847,851	1.86	0%
Wellington total as % of National total	1.61%	3.70%	8.94%	3.30%	16.67%	7.04%	5.99%		
2002	Measles	Meningo-coccal	Pertussis	Rheumatic Fever	Tuber-culosis	Total	Pop 0-14	Rate per 1000	% Var from National
Kapiti Coast	0	1	12	0	0	13	7,158	1.82	22%
Porirua	1	9	11	2	0	23	13,293	1.73	17%
Wellington	0	8	28	0	1	37	30,369	1.22	-18%
Wellington Total (0-14)	1	18	51	2	1	73	50,820	1.44	-3%
National (0 to 14)	19	352	782	63	43	1259	847,851	1.48	0%
Wellington total as % of National total	5.26%	5.11%	6.52%	3.17%	2.33%	5.80%	5.99%		

When the combined rate of all communicable disease is considered by TLA, as shown in the table above, the overall rate for Kapiti is highest and Wellington City is the lowest.

## Hearing loss

New school entrants are screened for hearing disorders using audiometry and tympanometry. These examinations measure hearing loss. In three year olds tympanometry only is used, which estimates the presence of a persistent middle ear disorder, but does not test hearing. Infants who are identified by the Lead Maternity Carer as being "at risk" for sensori-neural hearing loss should be referred for audiological assessment. Early assessment enables babies with permanent hearing loss to be managed more appropriately.

Nationally, a target has been set that 95% of 5 year old children will pass school entry hearing screening. Although some DHBs have achieved a 95% pass rate at school entry, most have not achieved this for all population groups.

Data on hearing screening is not available for C&CDHB – only combined data which includes Hutt Valley DHB (Table 4.9). Data from 2002 demonstrates that the percentage of children failing school entry hearing screening test is below the national average for all groups, except for Asian children who are above the national average. There is considerable difference in the hearing failure rates of different ethnic groups, with Pacific children having a hearing failure rate which is much higher than European children. Maori children also have a higher rate.

Table 4.8: Percentage of children failing school entry hearing screening, 2002

	Overall	Maori	Pacific	European	Asian	Other
Hutt / Capital Coast	5.7	6.7	13.7	3.6	5.8	5.6
National Average	7.8	12.1	17.1	5.0	4.3	6.1

Data source: National Audiology Unit

National Audiology Centre statistics from 2000/01 indicate that nationally a high percentage of new entrants are screened for hearing disorders (99%) compared to three year olds (77.2%). In the Wellington-Hutt Valley area the coverage of new entrants and three year olds is 97% and 85.1% respectively. A similar picture is evident in three year olds with the overall percentage of all children failing hearing tests in Hutt Valley/Capital Coast lower than the national rate, and also rates by ethnicity (Table 4.10).

Table 4.9: Percent of three year olds failing hearing tests by ethnicity, 2000/01

District Health Board	2000/01 Three Year Old Failure Rates (%)			
	Overall	Maori	Pacific	Other
Hutt Valley/Capital Coast	4.4	7.6	8.2	3.5
New Zealand Totals:	6.3	13.1	11.4	4.7

In summary, data suggests that hearing screening services in C&CDHB/Hutt Valley DHB are reasonably effective compared to other regions. However, disparities are noted in Maori and Pacific populations.

As a way to improve screening coverage the following is recommended<sup>27</sup>:-

- Consideration is given to improving access to hearing screening for Maori and Pacific populations.
- Supporting improved coordination between the multiple providers involved in the prevention, education, identification and treatment of hearing loss.
- Encouraging the development of local protocols for the referral of clients to audiology and other specialist services.
- Monitoring ENT waiting lists to ensure appropriate access for clients.

<sup>27</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

- Encouraging all primary care providers to work at preventing subsequent problems by appropriate health education and ensuring clients receive follow-up.
- If not already, developing a local register of children screened and treated for hearing impairment.

## **Oral health**

Early tooth loss caused by dental decay can result in impaired speech development, failure to thrive, absence from preschool, inability to concentrate, reduced self-esteem and other psychosocial problems. As a result of the School Dental Service, in the 15 years to 1988 New Zealand went from having one of the highest levels of dental disease in the developed world to having a very low level. Caries rates in New Zealand children continued to decrease through the early 1990s but have remained relatively static since or increased slightly. However, while overall the rate of caries has reduced in all children there are substantial inequalities between population groups, with Maori and Pacific children and adolescents having a higher prevalence and severity of dental caries. Children from lower socio-economic families have poorer dental health than those from middle and upper socio-economic groups.<sup>28</sup>

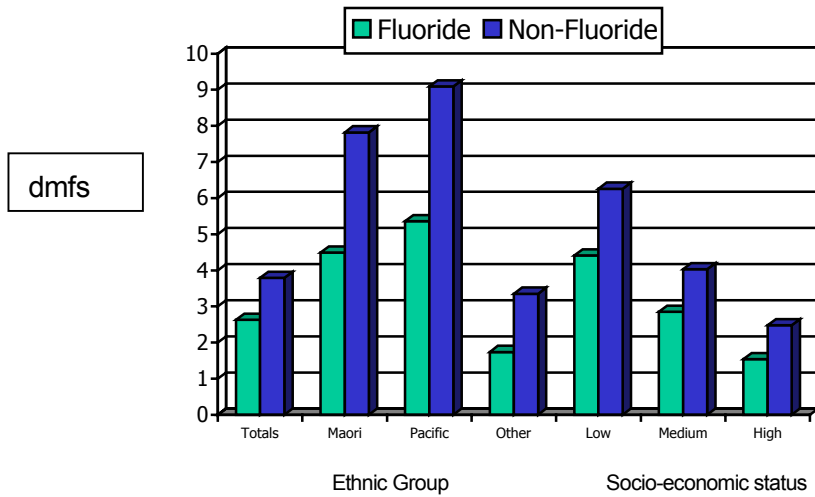
The graphs below identify the positive impact of fluoridation on the dental health of 5 and 12 year old children. The way in which access to a fluoridated water supply reduces both ethnic and socio-economic inequalities in oral health is also demonstrated.<sup>29</sup>

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<sup>28</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

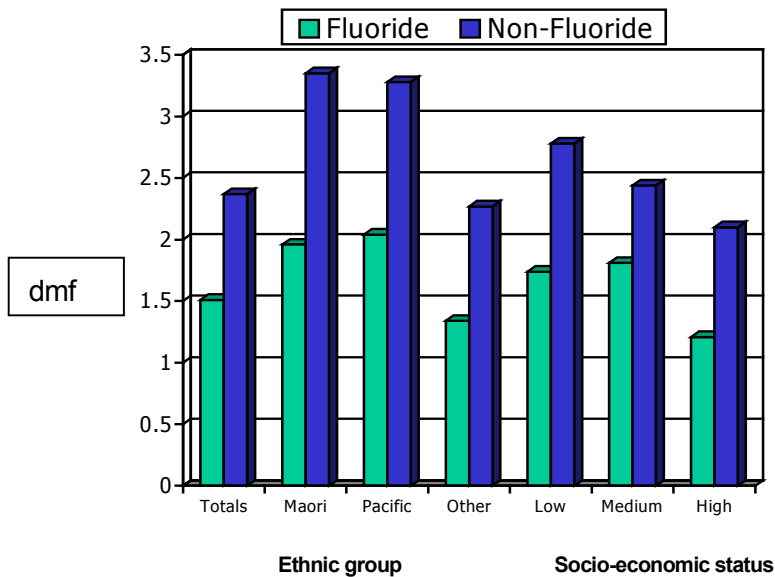
<sup>29</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

Figure 4.3: DMFS 5 yr-olds: Wellington/Christchurch – by fluoride status and demographic background



Cited in the Child Health Toolkit, 2003<sup>30</sup>

Figure 4.4: DMFS 12 yr-olds: Wellington/Christchurch – by fluoride status and demographic background



Cited in the Child Health Toolkit, 2003<sup>31</sup>

<sup>30</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

<sup>31</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

Statistics identify that between 1990 and 1999 the oral health of 5 and 12 year olds in the Wellington and Hutt Valley area was considerably better than the national average with respect to the average MF score (missing or filled teeth) and percent of children who are caries free (Figure 4.5 & Figure 4.6). In both indices, and for both groups of children the dental health of children improved in this period.

Figure 4.5: Dental health of 5 year olds, 1990 – 1999

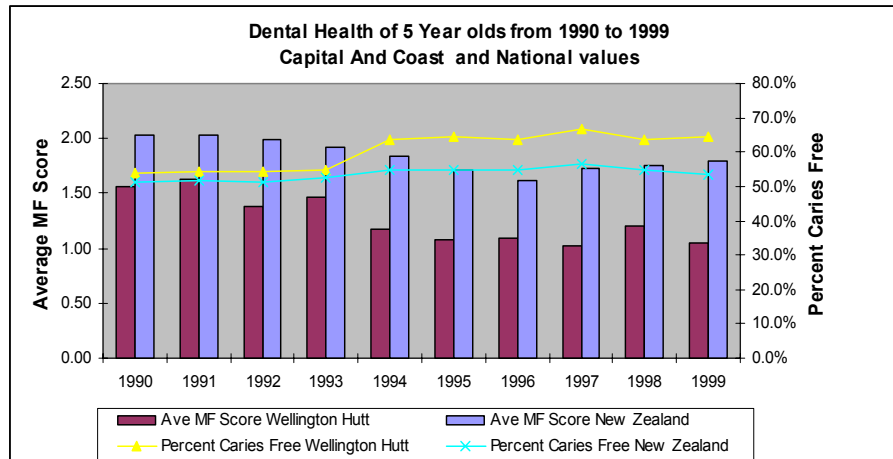
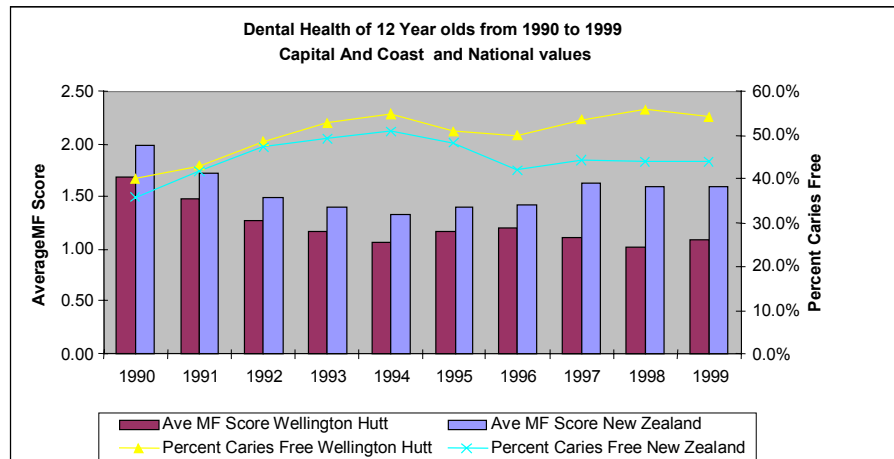


Figure 4.6: Dental health of 12 year olds, 1990 – 1999



Tables 4.10 & 4.11 provide an outline of dental health status in 5 and 12 years old children in C&CDHB by ethnicity in 2003. At 5 years of age 68.1% of 5 year old children of Other ethnicity were caries-free. This is very close to the target of 70% of children being in this category. This compares to 30.4% of Pacific and 41.8% of Maori children of the same age being free of caries. The mean DMFT score<sup>32</sup> in 5 year old children of Other ethnicity was 1.24 compared to a mean of 2.90 in Maori and 3.78 in Pacific children. Data relating to 12 year old children appear to be considerably better.

The data suggest that the oral health of 5 year old Pacific and Maori children is considerably worse than 12 year olds. However, it is understood that enrolment statistics are incomplete with the number of children enrolled between 50% and 75% of expected, thus conclusions can not be made in either age group until further analysis of the data is undertaken.

Table 4.10: Dental health status of 5 year old children in C&CDHB, 2003

Ethnicity	Target % Caries Free	Fluoridated		Non-Fluoridated	
		% Caries Free	Mean DMFT	% Caries Free	Mean DMFT
Maori	50%	41.8%	2.90	0%	3.00
Pacific	43%	30.4%	3.78	0%	0.00
Other	70%	68.1%	1.24	40%	1.10

*NB Data may be incomplete, with children enrolled between 50-75% of expected*

Table 4.11: Dental health status of 12 year old children in C&CDHB, 2003

Ethnicity	Target Mean DMFT	Fluoridated		Non-Fluoridated	
		% Caries Free	Mean DMFT	% Caries Free	Mean DMFT
Maori	1.2	57%	1.15	100%*	0
Pacific	1.4	51%	1.12	0%	0.78
Other	1	64%	0.78	75%	0.78

*\*2 Maori 12 year children in a non-fluoridated are caries-free = 100%*

*NB Data may be incomplete, with children enrolled between 50-75% of expected*

As most dental disease is preventable there is considerable potential to reduce oral health inequalities amongst New Zealand children. At an individual level good oral health is maintained through drinking fluoridated water, low sugar intake in food and drink, the use of fluoride toothpaste and good oral hygiene. Early access to dental health services is also important as statistics identify reduced ethnic and socio-economic disparities in 5 year olds and 12 year olds able to access the school dental service. Lead Maternity Carers and Tamariki Ora/Well Child providers have an important role in encouraging early enrolment in the School Dental Service.

<sup>32</sup> DMFT score = decayed, missing and filled teeth

However, it is suggested that treatment services alone can not reduce inequalities and that a population health approach which targets the determinants of health is required.<sup>33</sup>

C&CDHB is undertaking a review of the school dental service in 2004.

### Injuries in children

Unintentional injury is the leading cause of death for children aged 1-14 years in New Zealand accounting for between 35-43% of all deaths in this age group. Between 1996 and 2000 16 children in C&CDHB in the 0-14 year age group died as a result of unintentional injury. The breakdown by cause is outlined in Table 4.13. In the 0-4 year age group suffocation and death from fire or flames feature were significant causes. In this four year period there was only one death from unintentional injury in the 5-9 age group.

Table 4.12: Mortality from unintentional injury in children 0-19 years, 1996-2000

Age	Number	Cause
0-4 years	1	Fall
	1	Occupant in a motor vehicle
	1	Drowning
	5	Suffocation
	2	Fire/flame
5-9 years	1	Drowning
10-14 years	1	Occupant in a motor vehicle
	1	Pedal cyclist
	1	Natural/environmental
	1	Other transport
	1	Pedestrian, other

Morbidity from injury is significant and is the leading cause of hospitalisation for 10-14 year olds and the second leading cause in 5-9 year olds.<sup>34</sup> The majority of admissions are due fractures and lacerations resulting from a fall.<sup>35</sup> In 2002 and 2003 540 children aged 0-14 years were admitted for unintentional injury. In this group, 63.3% were European, 19.8% were Maori, 11.6% were Pacific and 5.2% were Asian (Data from C&CDHB).

In 2003, the discharge rates in C&DHB for injury in children under 5 years of age were lower than national rates. However, within this age group Pacific children had the highest rate of hospitalisation followed by children of Other ethnicity (Figure 4.7). In children aged 5-14 years the rates between ethnic groups are relatively similar, although Maori and Pacific children have a slightly higher rate (Figure 4.8).

<sup>33</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004

<sup>34</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

<sup>35</sup> [www.otago.ac.nz/ipru](http://www.otago.ac.nz/ipru). Cited in Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

Figure 4.7: Discharge rate per 1000 for injuries in children under 5, 2003

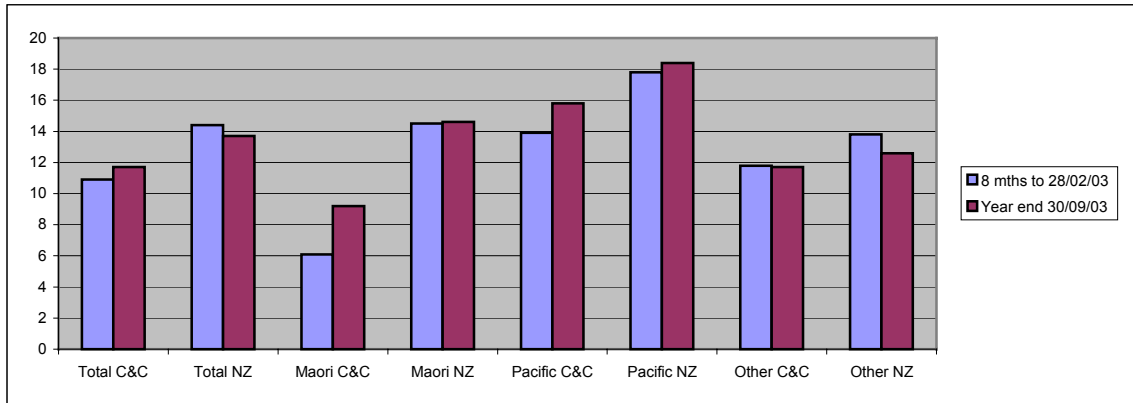
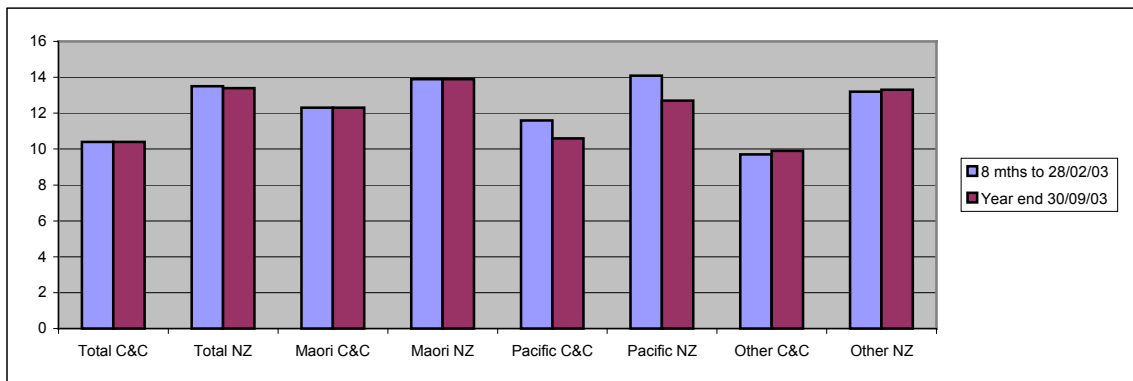


Figure 4.8: Discharge rate per 1000 for injuries in children 5 – 14 years, 2003



Unintentional injury is believed to be an unnecessary and preventable cost to the health sector and also an unnecessary cost to individuals and families.<sup>36</sup>

<sup>36</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

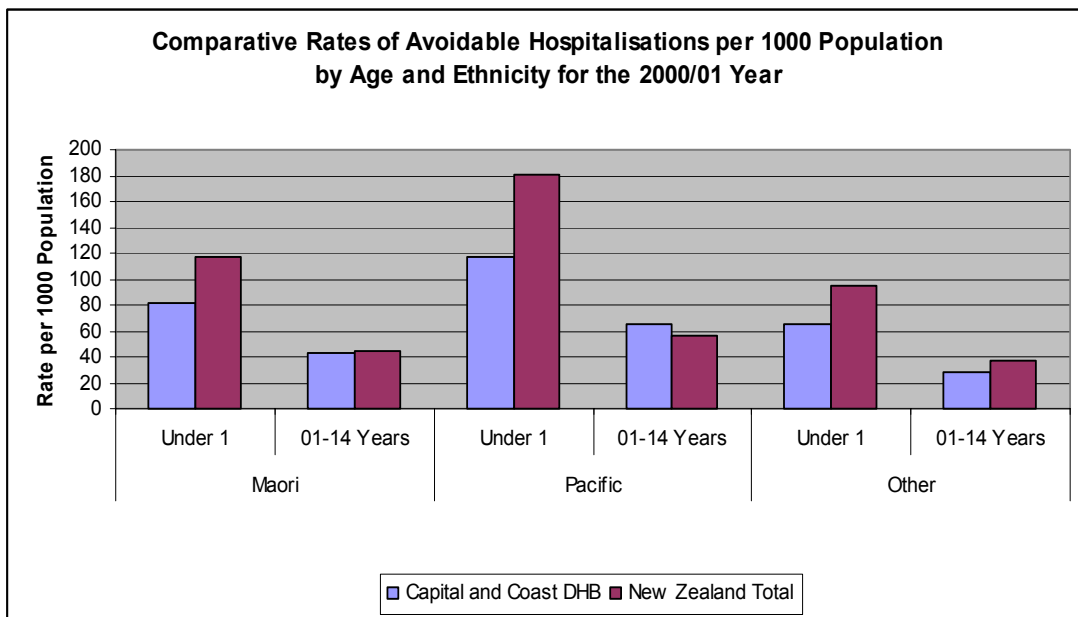
## Avoidable hospitalisation

Avoidable hospitalisations (AH) are admissions to hospital when the primary cause of admission is a preventable injury (IP) or an avoidable condition. Avoidable conditions (AH) can be categorised as  $AH = PH + ASH + IP$ .

- *Preventable hospitalisation (PH)* - result from diseases that are largely preventable by population-based health promotion strategies e.g. smoking cessation.
- *Ambulatory Sensitive Hospitalisations (ASH)* - are sensitive to prophylactic or therapeutic interventions delivered in a primary health care setting e.g. early diagnosis, immunisation and screening.

In 2000/1 Pacific children <1 year of age had the highest rate of avoidable hospital admission, followed by Maori babies < 1 year. (Figure 4.9). Pacific children aged 1-14 also had a higher admission rate than other groups.

Figure 4.9: Rates of avoidable hospitalisation by age and ethnicity for Wellington and the central region, 2000/01



There is some variation between authors in the calculation of the conditions that make up the greatest percentages of avoidable hospitalisations for the C&CDHB region. However, there is agreement that four of the top five conditions resulting in avoidable admissions of children under one year are gastroenteritis, respiratory infections, failure to thrive, and kidney and urinary tract infections (Table 4.13).

Table 4.13: Avoidable hospitalisation of infants from 1996/97 to 2001/02  
Comparison of C&CDHB and the central region

C&CDHB				Central Region			
Age Group	Condition	Total Discharges	% of Total Discharges	Age Group	Condition	Total Discharges	% of Total Discharges
00	Gastroenteritis	551	3.40%	00	Respiratory infections	2,438	5.35%
	Respiratory infections	541	3.34%		Gastroenteritis	2,166	4.75%
	Failure to thrive	173	1.07%		Other infections	587	1.29%
	Kidney/urinary infection	168	1.04%		Epilepsy	531	1.17%
	Epilepsy	161	0.99%		Kidney/urinary infection	507	1.11%
	Cellulitis	135	0.83%		Failure to thrive	431	0.95%
	Other infections	115	0.71%		ENT infections	428	0.94%
	Asthma	99	0.61%		Asthma	381	0.84%
	ENT infections	88	0.54%		Cellulitis	353	0.77%
	Obstructed hernia	70	0.43%		Immunisation-preventable	194	0.43%
	Avoidable hospitalisation Total	2,235	13.78%		Avoidable hospitalisation Total	8,459	18.56%
00	All discharges	16,220		00	All discharges	45,570	

Among the older age group there is consistency in ranking avoidable hospitalisation diagnoses between C&CDHB and the central region, with the exception of dental conditions which ranks more highly in C&CDHB. Asthma and respiratory infections are within the first five most common causes of avoidable hospitalisation, although the ranking is different (Table 4.14).

Table 4.14: Avoidable hospitalisation of children aged 1-14, 1996/97 to 2001/02  
Comparison of C&CDHB and the central region

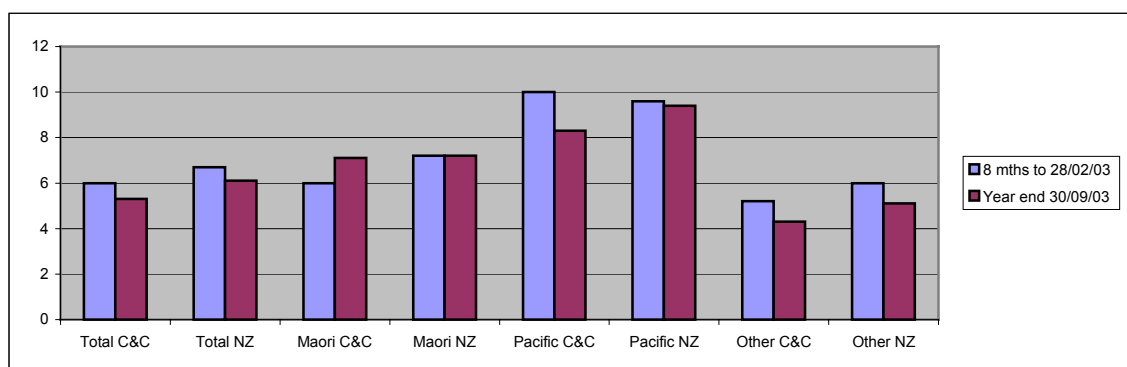
C&CDHB				Central Region			
Age Group	Condition	Total Discharges	% of Total Discharges	Age Group	Condition	Total Discharges	% of Total Discharges
01-14	ENT infections	2,571	9.24%	01-14	ENT infections	7,630	8.23%
	Dental conditions	2,414	8.68%		Resp. infections	5,592	6.03%
	Resp. infections	1,465	5.27%		Asthma	5,559	6.00%
	Asthma	1,394	5.01%		Dental conditions	4,681	5.05%
	Epilepsy	1,005	3.61%		Gastroenteritis	3,355	3.62%
	Gastroenteritis	944	3.39%		Epilepsy	3,119	3.36%
	Cellulitis	599	2.15%		Recreation injury	2,500	2.70%
	Recreation injury	580	2.09%		Cellulitis	2,248	2.42%
	Road traffic injury	407	1.46%		Road traffic injury	2,171	2.34%
	Kidney/urinary infection	323	1.16%		Poisoning	1,220	1.32%
	Avoidable Hospitalisation total	13,013	46.79%		Avoidable hospitalisation total	43,055	46.43%
01-14	All discharges	27,810		01-14	All discharges	92,726	

### Preventable hospitalisation

Preventable hospitalisations result from diseases that are largely preventable by population-based health promotion strategies, for example smoking cessation.

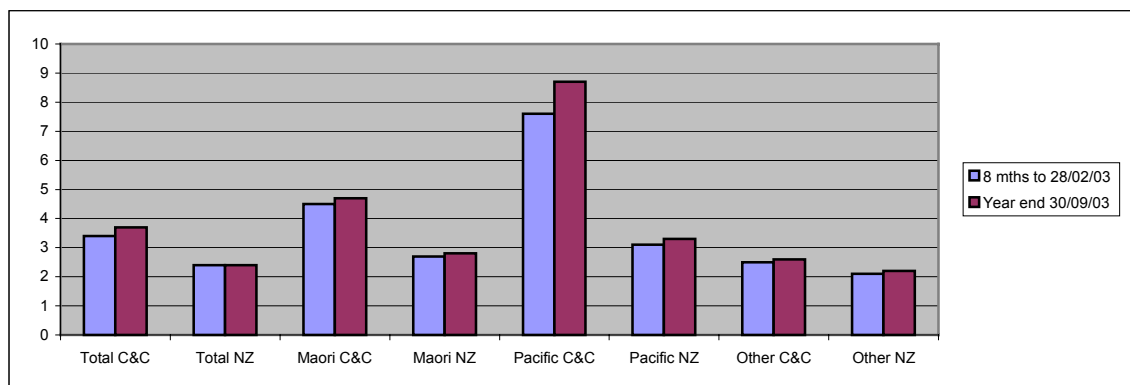
Discharge rates for preventable hospitalisations for children under five are lower than national rates. Pacific children have the highest rate of preventable hospitalisation (Figure 4.10).

Figure 4.10: Preventable hospitalisations per 1000 – children under 5, 2003



Discharge rates for preventable hospitalisation for children aged 5 to 14 years are higher than national rates. The rate for Pacific children is particularly high (Figure 4.11).

Figure 4.11: Preventable hospitalisation per 1000 – children 5 – 14 years, 2003



### Ambulatory sensitive hospitalisations

Ambulatory sensitive hospitalisations are admissions that are potentially preventable by appropriate primary care. This includes early diagnosis, immunisation, screening and outpatient services. In children reason for hospitalisation relates to the following:-

- Gastroenteritis and dehydration
- Infections and cellulitis
- Immunisation-preventable admissions
- Respiratory infections
- Asthma
- Dental conditions
- Epilepsy
- Ruptured appendix
- Diabetes
- Kidney/urinary infection
- Failure to thrive
- Nutrition (iron deficiency)

Overall rates of ambulatory sensitive hospitalisations for children under five and children aged 5 to 14 years in C&CDHB are lower than national rates and have decreased. However, the rate for Pacific children aged 5-14 years in C&CDHB is considerably higher than the rate for other ethnic groups and the national average (Figure 4.12 & Figure 4.13).

Figure 4.12: Ambulatory-sensitive hospitalisations per 1000 – children under 5, 2003

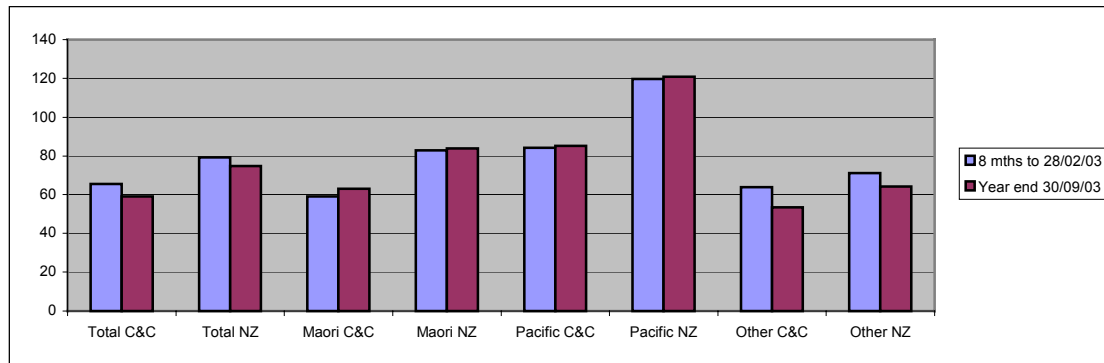
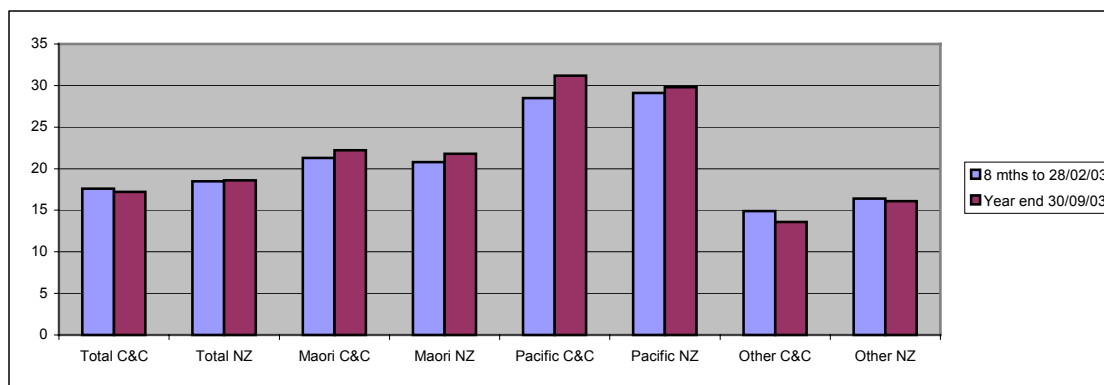


Figure 4.13: Ambulatory sensitive hospitalisations per 1000 – children 5 – 14 years, 2003



It is estimated that up to 30% of hospital admissions could be avoided through early access to primary care and outpatient services. When sick children present late to primary care providers hospitalisation may be required. Reasons for late presentation include the following<sup>37</sup>:-

- Cost and other barriers to accessing primary health care services
- Caregivers' knowledge about the signs of illness and how to treat the early signs of illness to prevent complications
- Caregivers' knowledge about where to seek help and the responsiveness of services
- Cultural and language barriers to accessing services
- Lack of effective delivery and uptake of health education, health promotion and early intervention messages
- Household deprivation and lack of resources necessary for good health
- Poor housing and nutrition (particularly iron deficiency) which decreases resistance to infection
- Unequal access to resources linked to deprivation and health determinants

<sup>37</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

Attention to these factors is crucial in reducing the rate of ambulatory sensitive admissions. It is also recommended that coordinated activity between community, primary, secondary and public health service providers is required. Other issues relate to improving the determinants of health (for example housing and public transport) and increasing the cultural responsiveness of the people who deliver health services.<sup>38</sup>

## **Asthma**

Asthma is a common cause of admission of children to hospital. Approximately one third of all asthma admissions occur in children aged less than 5 years. One quarter of all admissions in the 5-14 year age group are for asthma. Exposure to second hand smoke is implicated in the development of conditions associated with wheeze, including asthma.

The prevalence of childhood asthma is similar across ethnicities, although Maori and Pacific children and children from lower socio-economic families are over-represented in hospital admissions. The asthma prevalence rate is thought to be increasing approximately 5% per year.<sup>39</sup>

It is difficult to obtain information about the number of people with a diagnosis of asthma<sup>40</sup>, and the majority of epidemiological work does not review the prevalence among children. It is possible to identify expenditure on asthma medications for children aged 0-5 and 6-18, but data collection issues currently prevent further understanding of the number of children receiving asthma medication and the ethnicity of these children.

This data does not provide information on the prevalence of the condition in the population as a whole. The number of admissions for asthma provide an indication of the number of children with poorly controlled asthma. Many children with asthma receive care from multiple providers, have no regular primary health provider, or use the Emergency Department as their primary care provider.

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<sup>38</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

<sup>39</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

<sup>40</sup> A New Zealand survey of 25,666 adults (Lewis et al, 1997 cited in Scott et al 1998) found that the prevalence of asthma to be 15% rather than the lower values reported earlier. However the number of people taking asthma medications was reported as 8.5%, which is consistent with earlier reported values. In this survey 15.2% of 25,664 adults indicated they had asthma (where asthma was defined as waking due to shortness of breath, an asthma attack in the preceding 12 months, or currently using asthma medication). The rates were higher for women (17.0%), Maori (22.1%) and Pacific Islanders (20.6%).

## Discharge rates

In 2003, the discharge rates for asthma in children under five in C&CDHB were lower than national rates. However, Maori and Pacific children under 5 years of age were more likely to be admitted compared to children of Other ethnicity (Figure 4.14). In the same period, the *repeat* admission rate for children under 5 years was higher in C&CDHB compared to New Zealand as a whole (Figure 4.15). Repeat admissions were highest in Maori children.

Figure 4.14: Discharge rate per 1000 for asthma in children under 5, 2003

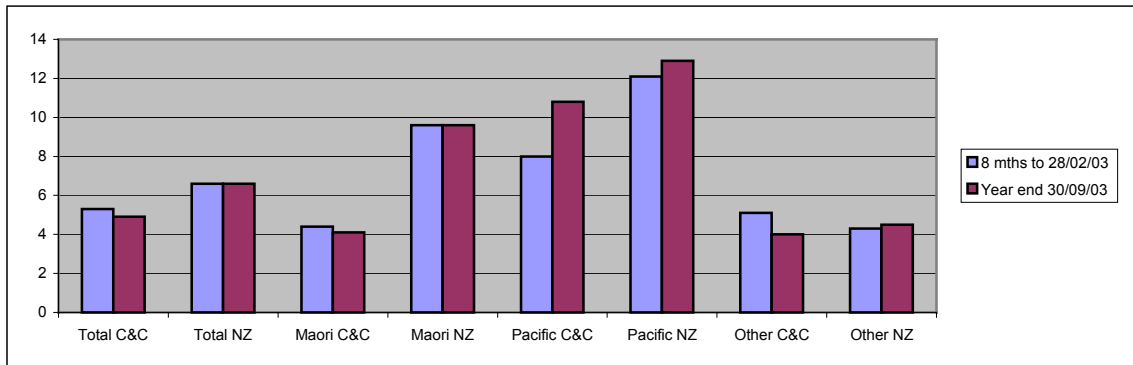
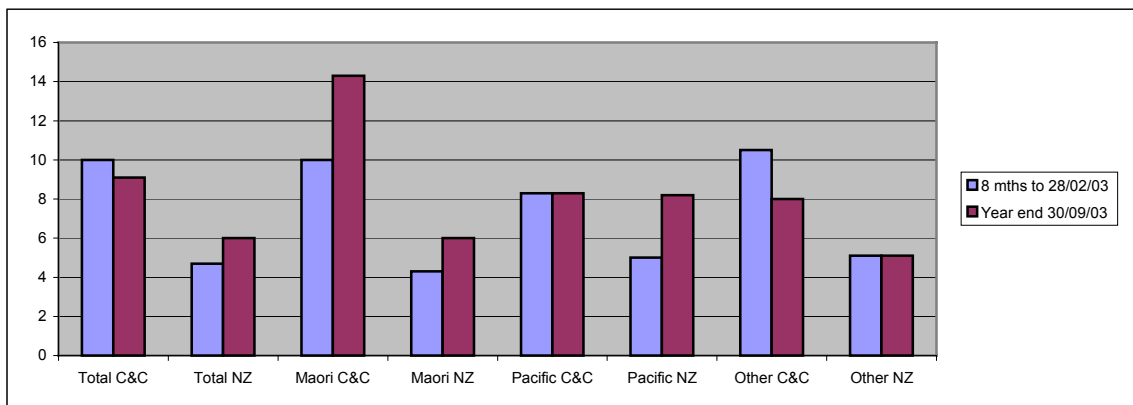
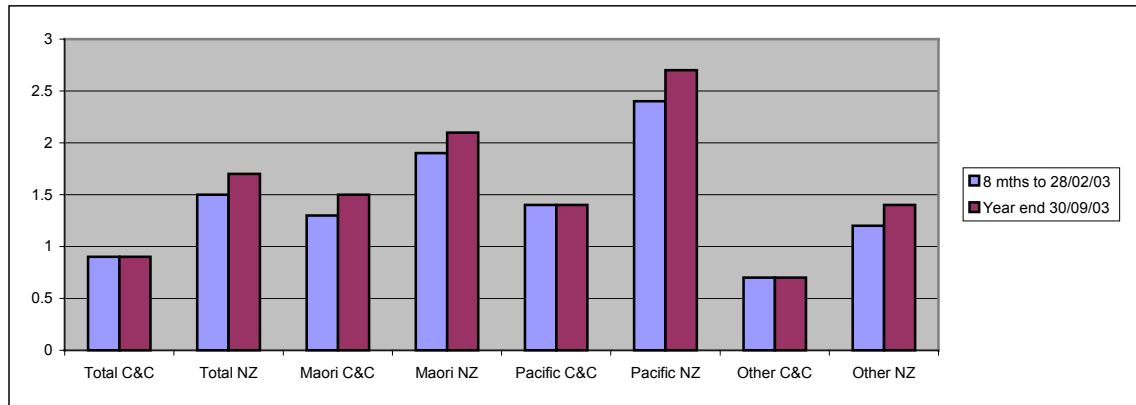


Figure 4.15: Repeat admission rate per 1000 for asthma in children under 5, 2003



In 2003, the discharge rates for asthma in children aged 5 to 14 in C&CDHB were also better than the national rates for all groups (Figure 4.16). However, in this period the rates for Maori and Pacific were higher than for children of Other ethnicity.

Figure 4.16: Discharge rate per 1000 for asthma in children 5 – 14, 2003



#### Asthma discharges by TLA

When analysed by TLA the hospital admission rate for asthma was high between 2000/01 and 2002/3 for children <15 years of age in Porirua. In this age group the admission rate for Porirua was 40-50 per 10,000 (Figure 4.17) compared to 27-34 per 10,000 in Wellington (Figure 4.19). The rate of admission for teenagers 15-24 years is increasing in Kapiti, but the rate may show large fluctuations because of the small number of asthma admissions from this area (Figure 4.18).

Figure 4.17: Porirua TLA hospital admissions for asthma, 2000/1 – 2002/3

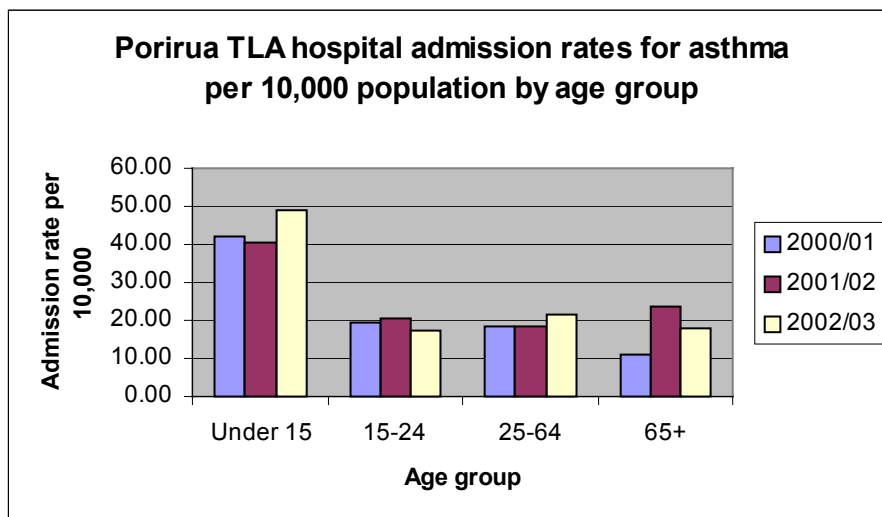


Figure 4.18: Kapiti TLA hospital admissions for asthma, 2000/1 – 2002/3

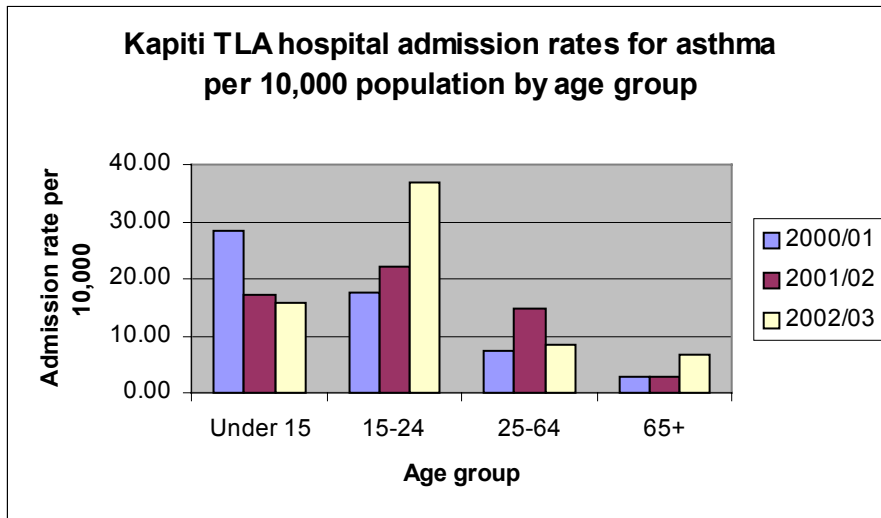
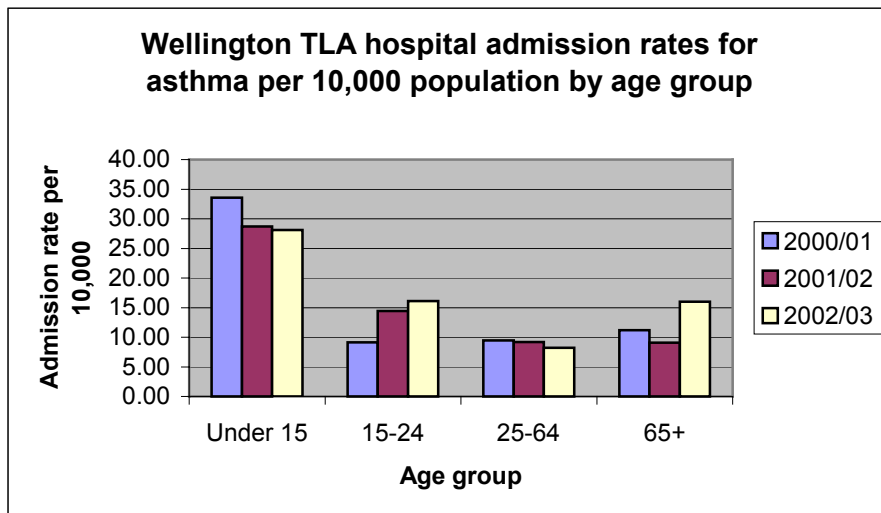


Figure 4.19: Wellington TLA hospital admissions for asthma, 2000/1 – 2002/3



Of all TLA's, Porirua had the highest discharge rate for asthma in 2001/02 for children aged 0-14, but this rate was below the central region average, and only slightly above the national average (Table 4.15). In this period, Pacific children made up only 2.1% of the Kapiti child population, yet represented 28.57% of asthma admissions (odds ratio of 13.6). Similarly, Pacific children living in Wellington comprise 6.9% of the Wellington City population aged 0-14 yet made up 19.4% of the asthma admissions in 2001/02 (odds ratio of 2.8). This suggests that Pacific children are much more likely to be admitted than children from other groups.

Maori children in both Kapiti and Wellington are over-represented in 2001/02 asthma admissions. Maori make up 17.7% of the Kapiti child population yet generate 28.6% of Kapiti child asthma admissions (odds ratio of 1.6). Similarly, Maori children in Wellington comprise 11.3% of the population but generate 17.5% of Wellington's child asthma admissions (odds ratio of 1.5).

Table 4.15: Discharges of children aged 0-14 yrs with asthma by TLA, 2001/02

	Total Asthma Discharges 2001/02	Percent Maori	Percent Pacific	Percent Other	Discharge Rate per 1000 Children 0-14	Ave LOS per Discharge	Ave CWDs per discharge
Kapiti Coast	14	28.57%	28.57%	42.86%	1.96	1.07	0.45
Porirua City	60	25.00%	30.00%	45.00%	4.51	1.65	0.50
Wellington City	103	17.48%	19.42%	63.11%	3.39	1.37	0.45
C&CDHB	177	20.90%	23.73%	55.37%	3.48	1.44	0.47
Central region	836	35.29%	11.96%	52.75%	4.74	1.33	0.43
New Zealand	3561	35.02%	13.98%	51.00%	4.20	1.33	0.44

Data extracted using Diagnostic Codes commencing J45 and J46

Admission to hospital is potentially preventable in many children by improved primary health care and better asthma control. However, it is noted that cost barriers to accessing primary health care and medication inhibit early treatment in children in low income families. A more educated and responsive primary health care workforce may promote early intervention and prevent admission to hospital. As one way to achieve this, asthma educators, primary health care nurses and nurses working in a hospital setting are encouraged to upskill in asthma. The Asthma and Respiratory Foundation offer a useful two day Asthma Fundamentals Training Programme.

It is recommended that patients with poor asthma control are identified and prioritised in primary care for increased asthma management programmes and are followed up if they fail to attend regular appointments. At the primary care level all children should have a written asthma management plan, asthma education and regular clinical review.<sup>41</sup> Encouraging caregivers to maintain a smokefree environment for children and referral to smoking cessation programmes will also assist.

The Paediatric Society of New Zealand is developing child asthma management guidelines. This work is expected to be completed by September 2004.

## Diabetes

In the 2001/02 year there were 10 discharges in C&CDHB of children aged 0-14 with diabetes. As the numbers of admissions are low, any calculation of admissions rates is not reliable. However, data suggests that the rates of admission for children in C&CDHB district are considerably lower than for the central region or New Zealand as a whole.

<sup>41</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

Table 4.16: Discharges of children aged 0-14 yrs with diabetes by TLA, 2001/02

	Diabetes Discharges 2001/02	Discharge Rate per 1000 Children 0-14	Ave LOS per Discharge	Ave CWDs per discharge
Kapiti Coast	1	0.14	2.00	0.70
	2	0.15	1.50	0.70
Wellington City	7	0.23	3.14	0.62
C&CDHB	10	0.20	2.70	0.64
Central region	88	0.50	3.05	0.68
New Zealand Total	441	0.52	2.79	0.70

*Data extracted using Diagnostic Codes commencing E10, E11, E12, E13, and E14*

Data obtained to March 2004 identifies that the Diabetes Service is currently providing services to 39 children aged 0-14 and 93 people under 18 years of age. Of the 39 children aged 0-14, 74.3% (n=29) are European, 12.8% (n=5) are Maori, 7.7% (n=3) are Pacific and 5.1% (n=2) are Asian. In 2003, services were provided to 9 new cases (Type 1 = 7 new cases; Type 2 = 2 new cases). Most new cases stay in hospital 2-4 days to be stabilised. Consistent with data in Table 4.16 the Diabetes Nurse Educator supports the view that new cases in 2002–2003 are lower in the Wellington region than other parts of New Zealand.

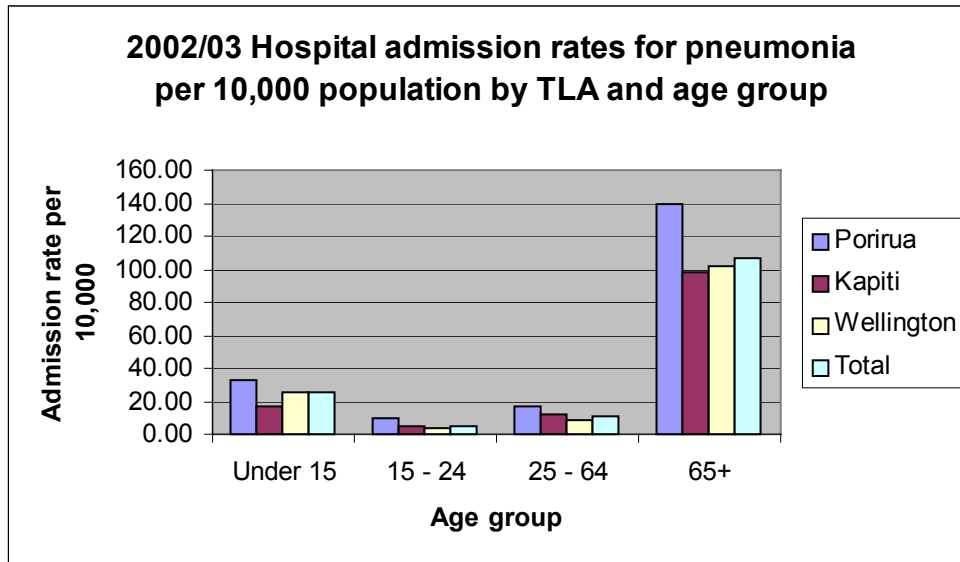
All children with diabetes are reviewed on a 3 monthly basis either at Wellington, Kapiti or Kenepuru.

## Pneumonia

### *Pneumonia in children under 15*

In 2002/3 Porirua had a comparatively high rate of admissions for pneumonia in all age groups (Figure 4.20).

Figure 4.20: Hospital admission rates for pneumonia in C&CDHB by TLA, 2002/3



Data analysed over a three year period from 2000/1 to 2002/3 in each TLA identifies that children under 15 years of age living in Porirua and Wellington have a high rate of admission to hospital with pneumonia (Figures 4.21, 4.22 and 4.23).

Figure 4.21: Hospital admission rates for pneumonia by age group – Porirua TLA, 2000/1 – 2002/3

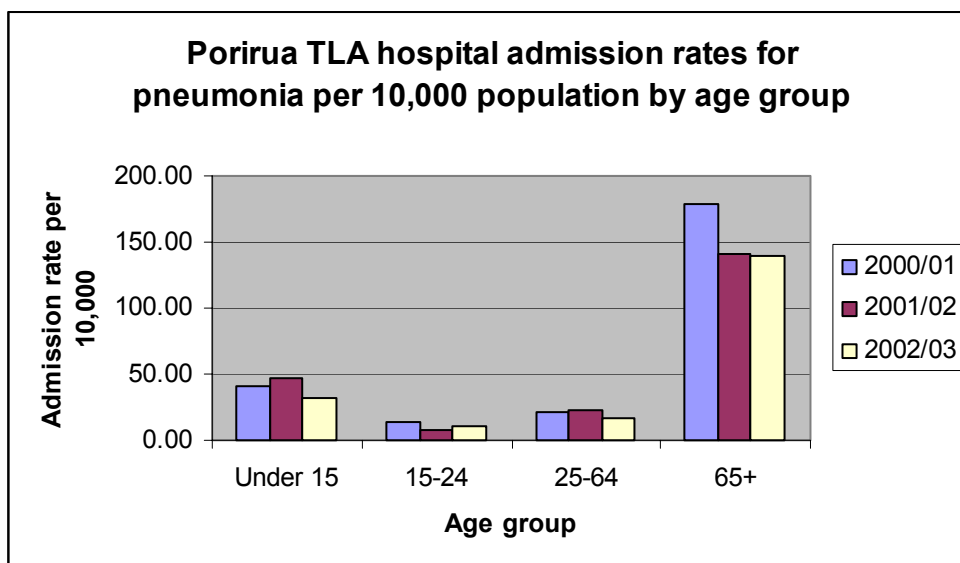


Figure 4.22: Hospital admission rates for pneumonia by age group for Kapiti TLA, 2000/1 – 2002/3

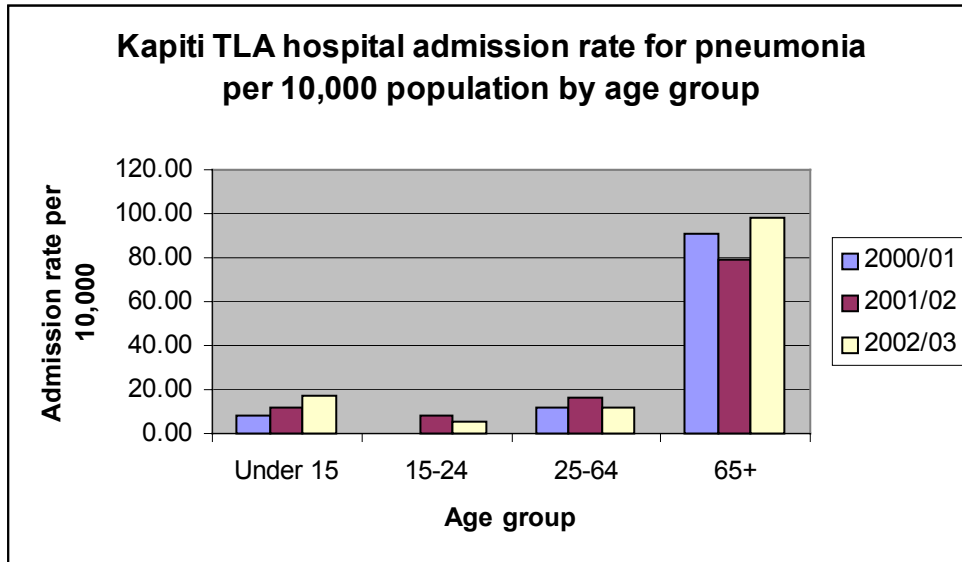
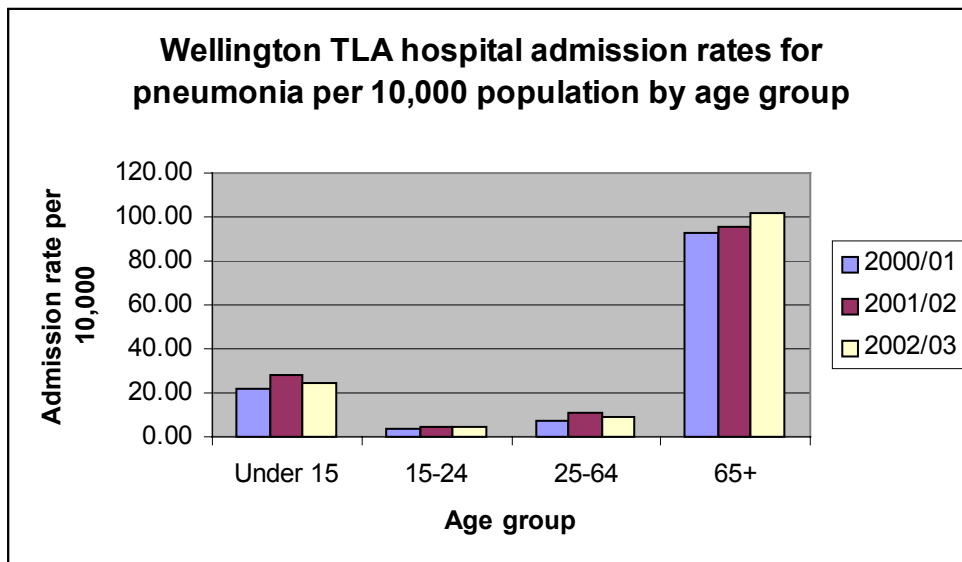


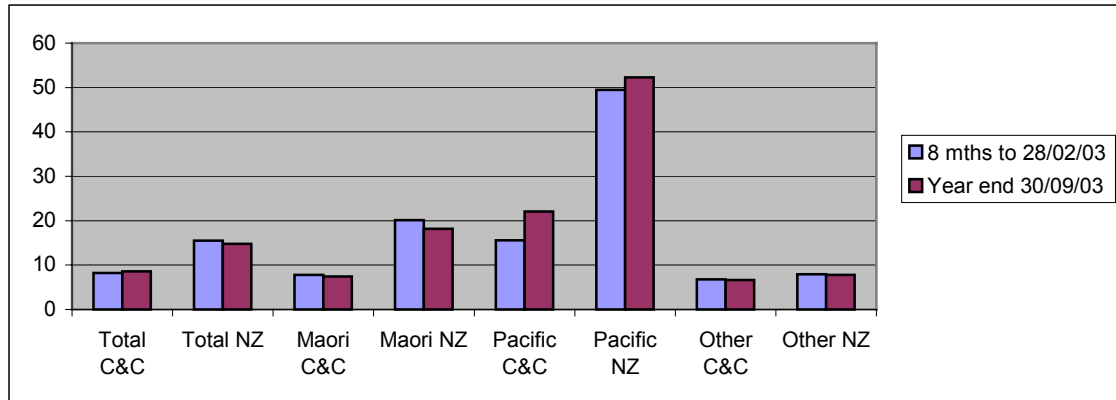
Figure 4.23: Hospital admission rates for pneumonia by age group for Wellington TLA, 2000/1 – 2002/3



### *Pneumonia in children under 2 years of age*

In 2003, Pacific children <2 years of age were more likely to be admitted with pneumonia compared to other groups in C&CDHB. The rates for all groups are lower than national rates (Figure 4.24).

Figure 4.24: Discharge rate per 1000 for pneumonia under 2 years, C&CDHB and NZ, 2003



### **Cellulitis**

New Zealand appears to have a high incidence of skin infection compared to other countries, and the incidence is increasing.<sup>42</sup> Skin infections (cellulitis, abscesses) are one of the major causes of avoidable hospital admission, particularly in Maori and Pacific children. Pacific children have 3 to 4.5 times the rate of hospitalisation compared to European children.<sup>43</sup> A Wellington study of hospital admissions identified an increase of 58% in admissions for abscesses from 1998-2001.<sup>44</sup>

The graphs below identify that between 2000/1 and 2002/3 Porirua had a comparatively high rate of admissions for cellulitis in those under 15 years of age.

<sup>42</sup> UNICEF. 2003. Making New Zealand fit for children –promoting a national plan of action for New Zealand children. Wellington: UNICEF.

<sup>43</sup> Asher I, Parks D et al. 2002. Backgrounder 20: Poverty, primary care and child and youth health. Auckland: Child Poverty Action Group. Cited in UNICEF. 2003. Making New Zealand fit for children –promoting a national plan of action for New Zealand children. Wellington: UNICEF.

<sup>44</sup> Ali I, Bowlett B. 2003. Subcutaneous abscesses in children. Wellington: Wellington School of Medicine. Cited in UNICEF. 2003. Making New Zealand fit for children –promoting a national plan of action for New Zealand children. Wellington: UNICEF.

Figure 4.25: Hospitalisation rates for cellulitis in C&CDHB by TLA and age group, 2002/3

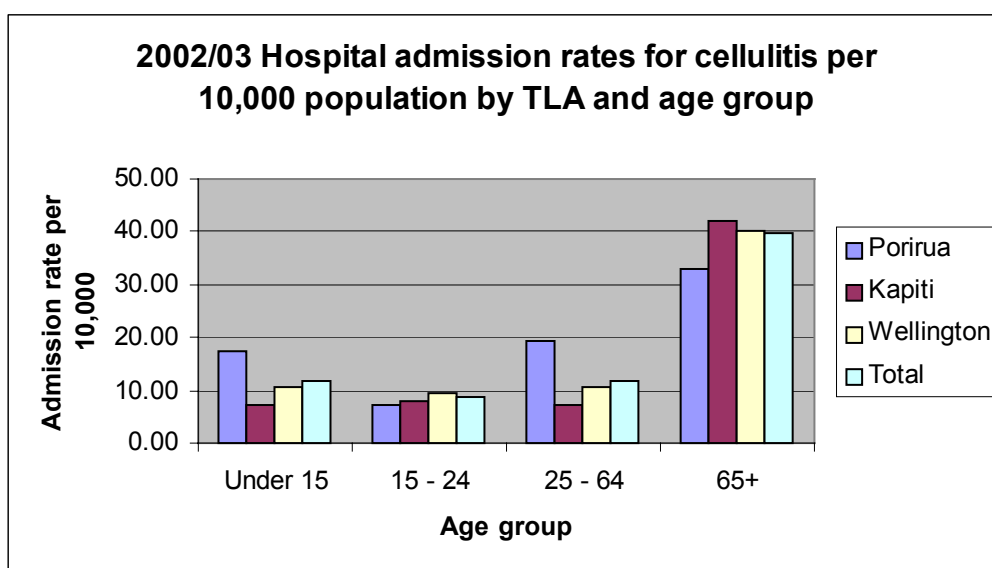


Figure 4.26: Porirua TLA hospital admission rates for cellulitis by age, 2000/01 –2002/03

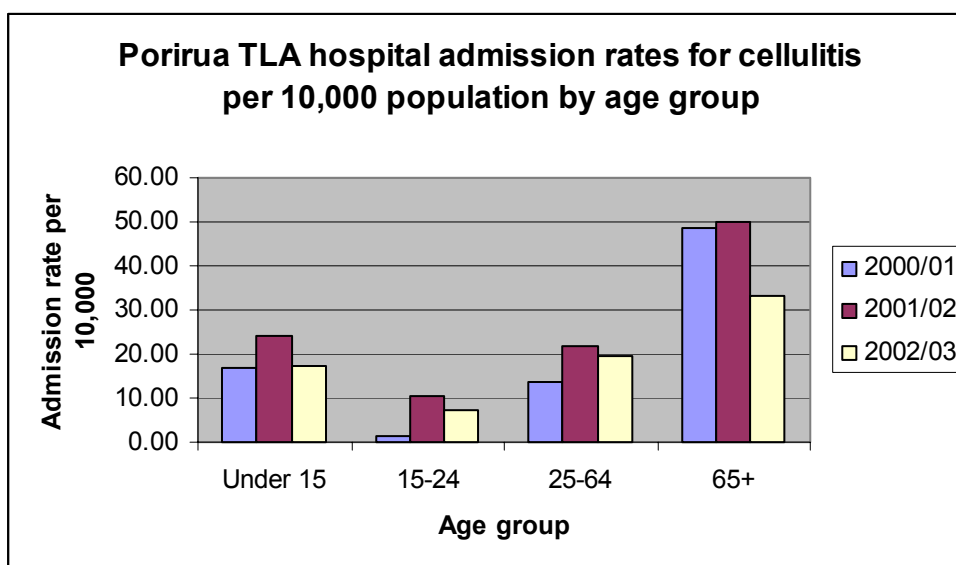


Figure 4.27: Kapiti TLA hospital admission rates for cellulitis by age, 2000/01 –2002/03

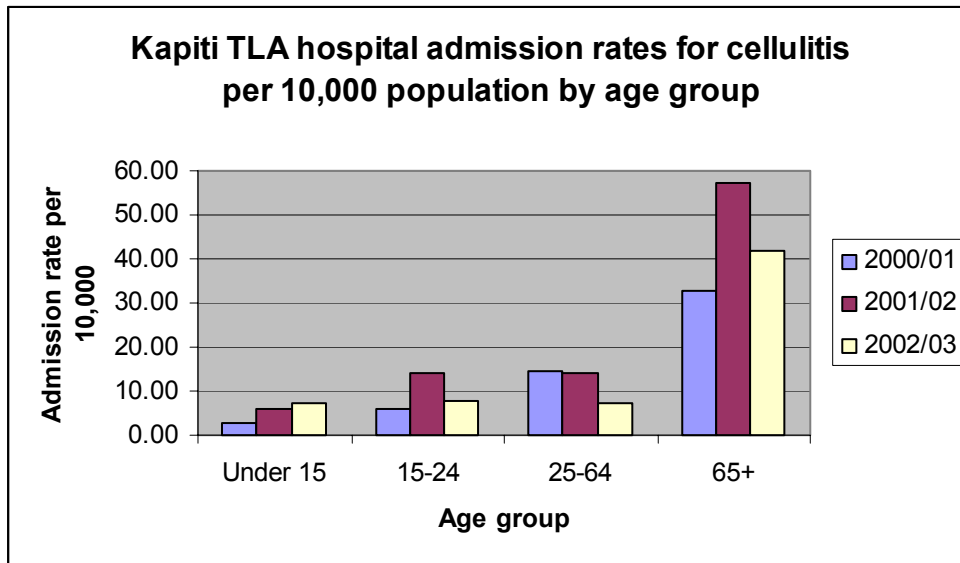
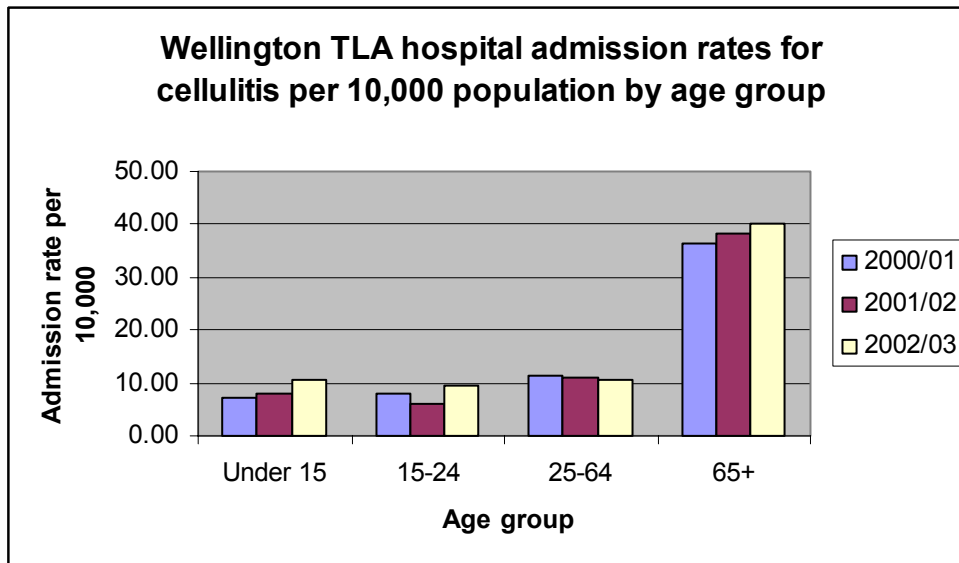


Figure 4.28: Wellington TLA hospital admission rates for cellulitis by age, 2000/01 – 2002/03



A Public Health Medicine Registrar for C&C DHB is in the process of reviewing data related to hospitalisation for cellulitis. Initial investigation has identified a number of factors that could influence the number of hospital admissions of serious skin infections. These include sports injuries and injuries with sharp objects, insect bites, chronic skin conditions (such as eczema), handwashing facilities in schools, first aid (including wound cleaning, antiseptics and bandages), access to primary care, treatment protocols for recurrent infections, and socio-economic factors (such as housing). A programme of interventions is planned to influence the number of admissions in children.

## Sudden Infant Death Syndrome

SIDS is defined as the sudden death of any infant under one year of age which remains unexplained after a thorough case investigation. New Zealand has had a very high death rate from SIDS compared to other developed countries. The incidence of SIDS is greatest for infants less than six months of age and in the winter months. Maori have a significantly higher rate compared to Pacific and babies of Other ethnicity.<sup>45</sup> In 1999, there was an almost six-fold greater rate of SIDS in Maori infants compared to people of Other ethnicity. There are strong socio-economic differences in SIDS mortality. Infants living in households in which parents have no educational qualifications experienced eight times the risk of SIDS compared to infants from a household with a tertiary qualification.<sup>46</sup>

Following the 1987-1990 New Zealand Cot Death Study an intensive media campaign was implemented on some of the “modifiable” risk factors for SIDS – prone sleeping position, smoking and lack of breastfeeding. This campaign resulted in a dramatic reduction in New Zealand’s SIDS rate. A Maori-specific prevention programme was initiated at this time and reduced the rate of SIDS in Maori, but a disparity between Maori and non-Maori remains.

Nationally, during 1996-2000 there were 247 Maori babies who died from SIDS, a rate 3.12 per 1,000 live births (95% CI 2.76-3.54). In the same period, 119 non-Maori babies died from SIDS, a rate 0.58 per 1,000 live births (95% CI 0.49-0.70). Table 4.17 compares data between C&CDHB, Hutt Valley DHB and New Zealand as a whole. The rate of SIDS in C&CDHB and Hutt Valley DHB is consistent with national rates and NZDep96 and ethnicity distributions in the area (personal communication, Bridget Robson, Te Ropu Rangahau Hauora a Eru Pomare, Wellington School of Medicine & Health Sciences). A disparity in the rate of SIDS between Maori and non-Maori is evident.

Table 4.17: Rate of SIDS – NZ, C&CDHB & Hutt Valley, 1996-2000

	Deaths	Rate per 1000 live births	95% Confidence Interval	Maori non-Maori Ratio
National	247 Maori	3.12	2.76-3.54	5.35 (95%CI 4.30-6.66)
	119 non-Maori	0.58	0.49-0.70	
C&CDHB	7 Maori	2.0	0.95-4.2	3.67 (95% CI 1.33-10.13)
	8 non-Maori	0.54	0.27-1.09	
Hutt Valley	8 Maori	2.67	1.33-5.33	5.02 (95% CI 1.51-16.67)
	4 non-Maori	0.53	0.20-1.42	

Data provided by B. Robson, Te Ropu Rangahau Hauora a Eru Pomare

<sup>45</sup> Everard C & Coupe N. 1999. Infant mortality register: review of SIDS deaths 1987-1999. Auckland. Cited in UNICEF. 2003. *Making New Zealand fit for children*. Wellington: UNICEF.

<sup>46</sup> Blakely T, Atkinson J et al. 2003. Child mortality, socio-economic position and one parent families: independent associations and variation by age and cause of death. *IJE* 32: 410-18. Cited in UNICEF. 2003. *Making New Zealand fit for children*. Wellington: UNICEF.

## **Incidence of disability in children**

The 2001 Household Disability Survey<sup>47</sup> conducted by Statistics New Zealand measured the prevalence of disability using a representative sample of 0 to 14 year olds. A similar survey in 1996 –1997 produced similar results. This survey identified that just over 11% of New Zealand children aged 0 to 14 years had some kind of disability, including disabilities caused by chronic ill health. Within this group, 7% of preschool and 13% of school aged children had a disability. This compares with 19% of the population as a whole and 21% of people aged 15 years and over having a disability. Using this data, the expected number of preschoolers with a disability in C&CDHB is approximately 1,200, and the expected number of 5 to 14 year olds with a disability is approximately 3,700.

Approximately 4% of all children, or 33% of children with a disability have a sensory disability related to sight, speech or hearing. Similarly, approximately 4% of all children (33% of those with a disability) have a disability arising from a chronic condition.

Both surveys found that most childhood disabilities were present at birth (39%) or were due to chronic disease (37%). Less than 4% were attributed to accidents, while a cause could not be identified for 22% of disabilities.

## **Local data on children with disabilities**

Local data has been obtained for children accessing support services from Capital Support (below). The five support need levels (SNL) are as follows:-

- Level 1 People categorised with SNL are not able to access services from Capital Support
- Level 2 A low level of need
- Level 3 A medium level of need
- Level 4 A high level of need
- Level 5 A very high level of need

For each of the three years the number of children with disabilities supported by Capital Support is relatively stable, ranging from 341-364 children per year. The largest category of children supported is children with an intellectual disability (65-66%), followed by children with a physical disability (25%). The majority of children supported (88%) have a SNL of 4 or 5.

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<sup>47</sup> Statistics New Zealand. 2002. *Disability counts 2001*. Wellington: Statistics New Zealand.

Table 4.18: Children 0-14 years with disabilities accessing support services at Capital Support by disability and Support Need Level (SNL) – Year ended 25 April 2004

Primary Disability	Number	%	SNL1	SNL2	SNL3	SNL4	SNL5
Intellectual	229	65.6		3	21	194	11
Physical disability	89	25.5		1	6	69	13
Personal health	7	2.0		1		3	3
Psychiatric	2	0.6			1	1	
Sensory	22	6.3			6	15	1
TOTAL	349	100	0	5	34	282	28
%			0%	1.4%	9.7%	80.8%	8.0%

Source: Capital Support

Table 4.19: Children 0-14 years with disabilities accessing support services at Capital Support by disability and Support Need Level (SNL) – Year ended 25 April 2003

Primary Disability	Number	%	SNL1	SNL2	SNL3	SNL4	SNL5
Intellectual	228	66.9		2	22	189	15
Physical disability	86	25.2		1	8	59	18
Personal health	10	2.9		1		4	5
Psychiatric	5	1.5			2	3	
Sensory	12	3.5			3	7	2
TOTAL	341	100	0	4	35	262	40
%			0%	1.2%	10.3%	77.0%	11.7%

Source: Capital Support

Table 4.20: Children 0-14 years with disabilities accessing support services at Capital Support by disability and Support Need Level (SNL) – Year ended 25 April 2002

Primary Disability	Number	%	SNL1	SNL2	SNL3	SNL4	SNL5
Intellectual	245	67.3		1	26	201	17
Physical disability	92	25.3		1	9	60	22
Personal health	12	3.3		1	1	3	7
Psychiatric	1	0.3				1	
Sensory	14	3.8			2	10	2
TOTAL	364	100	0	3	37	275	48
%			0%	0.8%	10.4%	75.5%	13.2%

Source: Capital Support

The ethnicity of children 0-14 years with disabilities receiving services from Capital Support as at 25 April 2004 is as follows:-

<b>Ethnicity</b>	<b>Number</b>	<b>%</b>
European	253	72.7%
Maori	27	7.7%
Pacific	15	4.3%
Asian	22	6.3%
Other	3	0.9%
Not stated	38	8.0%
	348	100%

### **C&CDHB services for children with disabilities**

C&CDHB provides services to people in the district with disabilities and also provides a tertiary service for children referred by paediatricians in other areas. Services are provided to children with disabilities, children with developmental delay, and also children at risk of problems, for example premature babies discharged from the Neonatal Intensive Care Unit.

#### *Child Development Team, Puketiro*

Children with a disability are assessed and managed by the Child Development Team. The main base is at Puketiro, and some of the team work full time at Ewart on the Wellington Hospital campus. Various team members from all disciplines also regularly visit the Kapiti Coast. Children are seen at Puketiro, Ewart and Kapiti Health Centre, as well as at home, in educational institutions and other community settings.

The service has a multi-disciplinary team comprising occupational therapists, developmental paediatricians, physiotherapists, clinical psychologists, speech language therapists, visiting neurodevelopmental therapists and a social worker. The team works closely with other C&CDHB paediatricians and staff and the Special Education Service.

The service provides the following:-

<i>Service</i>	<i>Multi-disciplinary Team</i>
Developmental clinics	
Spasticity Clinic	Developmental Paediatrician, Orthopaedic Surgeon, Physiotherapist
Spina Bifida Clinic	Developmental Paediatrician, Physiotherapist, Community Nurse, Orthopaedic Surgeon, Urologist, Paediatric Surgeon, Neurosurgeon
Head Injury Clinic	Developmental Paediatrician, Clinical Psychologist
Therapy assessments, treatments, and equipment (provided at CDT bases, home, or early childhood centres)	
Feeding Team	Developmental Paediatrician, Clinical Psychologist, Speech Language Therapist, Dietician
Specialist ASD Team (children <6 yrs)	Developmental Paediatrician, Clinical Psychologist, Speech Language Therapist
Specialist ASD Team (children >6 yrs)	Developmental Paediatrician, Clinical Psychologist

## **Obesity**

Obesity is now considered to be a global epidemic and the prevalence of overweight and obesity in children increasing. Reasons include an increase in sedentary lifestyles and changes in dietary patterns and eating habits. Obesity in childhood can cause dyslipidemia, hyperinsulinemia and hypertension, and obesity-related cases of type 2 diabetes have been reported. Obesity can also predispose to joint problems and has an impact on psychological wellbeing of children.<sup>48</sup>

In New Zealand obesity is a significant problem for Maori and Pacific children with 62% of Pacific and 41% of Maori children identified as overweight/obese. This compares to 24% of New Zealand European and Other children in the same category. A lower level of education is associated with a lower level of physical activity.<sup>49</sup>

A range of family and school-based health initiatives that advocate good nutrition, physical activity and a reduction in sedentary behaviour can reduce or prevent obesity. Population-wide health approaches promoting good nutrition and an increase in physical activity will also assist.

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<sup>48</sup> The University of York. 2002. Effective health care – The prevention and treatment of childhood obesity. *The University of York NHS Centre for Reviews and Dissemination*, 7 (6) ISSN:0965-0288.

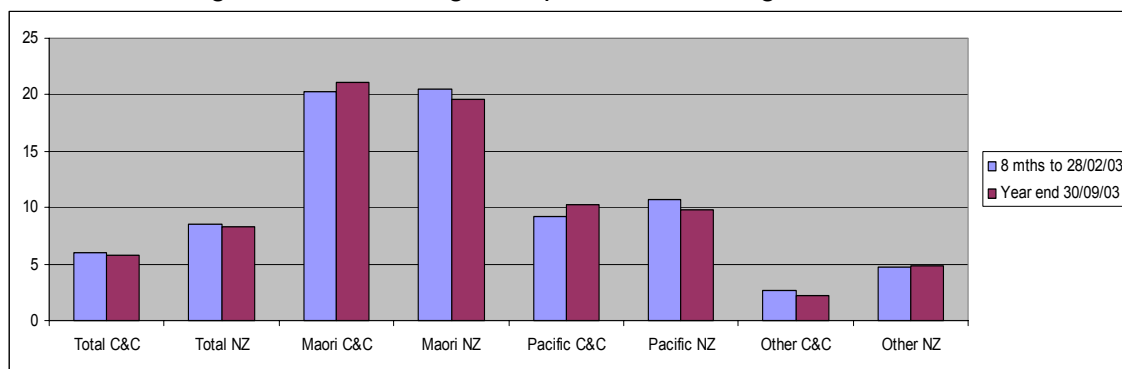
<sup>49</sup> Ministry of Health. 2003. *DHB Toolkit: Physical activity*. Wellington: Ministry of Health.

## Teenage births

Although teen birth rates have been declining, New Zealand still has the third highest teen birth rate in the OECD. Total teen pregnancy rates have remained consistently high, with lower birth rates being offset by an increase in abortion rates.<sup>50</sup>

The discharge rate of women who have given birth by age provides useful information on teen pregnancy. Provisional information from NMDS identifies that an overall discharge rate of 5.9 per 1,000 women aged 17 years or younger from a C&CDHB facility in 2002/3.<sup>51</sup> However, while European/Other women have a discharge rate of 2.4, the Maori rate is 22.0 and the Pacific rate is 8.2 per 1,000 births in C&CDHB. The graph below illustrates the high rate for Maori.

Figure 4.29: Discharge rate per 1000 - Teenage births, 2003



In 2002, 161 women under 20 years of age gave birth in C&CDHB (PIMS data). This includes 18 women who came from other DHBs to deliver. A small proportion of this group (n=7) were very young mothers under 16 years of age. Of those domiciled in C&CDHB who were under 20 years 41.2% were European/Other, 39.7% were Maori, 16.9% were Pacific and 2.2% were Asian.

When PIMS data are further analysed by suburb 53.6% of teen births under 20 years of age were to women living in Porirua and the surrounding suburbs of Ascot Park, Cannons Creek, Elsdon and Titahi Bay. Suburbs with the greatest numbers of teenage mothers were Porirua and Cannons Creek (n=42), Titahi Bay (n=22), Paraparaumu (n=9) and Ascot Park (n=7). Within Paraparaumu the majority of teen mothers were European, while in Porirua and the surrounding suburbs (mentioned above) 53.4% were Maori and 21.9% were Pacific. In 2002 a much smaller number of teen mothers lived in Wellington South suburbs with the exception of Strathmore (n=4) and Miramar (n=4).

There are a number of ways in which teen pregnancy may be prevented. These include the following<sup>52</sup>:-

<sup>50</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

<sup>51</sup> Ministry of Health. 2004. *Negotiation brief – 2004/5 indicators of DHB performance*. Wellington: Ministry of Health.

<sup>52</sup> Child Health Toolkit. [www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary](http://www2moh.govt.nz/QuickPlace/childhealthtoolkit/PageLibrary). Accessed 18 March 2004.

- A youth development approach – working with young people to develop their skills and build on their strengths.
- The active involvement of young people in health service planning makes it more likely that services will meet the needs of young people.
- Facilitating access for young people to primary health care. One solution is to extend health service coverage in schools. Focusing on low decile schools in the first instance is likely to make the biggest impact on reducing inequalities in health.
- Incorporating sexual health advice into other youth-focused activities, for example cultural events and sports programmes.
- Ensuring that staff working with youth are empathetic; ensuring that primary health care services are “teen friendly”
- Offering advice and support to teenagers who do not get pregnant.
- Ensuring that sexual health advice is directed at young men as well as young women.

For teenage parents, appropriate support for them as parents will influence child health outcomes. Porirua is a priority area for appropriate interventions to ensure pregnancy is a positive choice and that young parents are supported.

Improvement in the social and environmental determinants of health, for example income, education and employment has the potential to reduce the rate of teenage pregnancy.

### **Tobacco control**

Smoking is a risk factor in a range of conditions including low birth weight, pre-term delivery, respiratory infections, asthma, glue ear and SIDS. It is socio-economically and culturally patterned and is more prevalent in lower socio-economic groups and in Maori and Pacific Island communities.

There are significant benefits to children if they are not exposed to second hand smoke. These include reduction in illness in both children and adults, a reduction in mortality from SIDS and associated conditions relating to pre-term babies and babies who are low birth weight, and cost savings for families. Continued effort is therefore required to alert families to the dangers of smoking around children and smoking in pregnancy and encouraging smokers to quit.

### **Mental health issues in children**

A range of psychosocial factors impact on the health of children. These include family violence, parental stress, and living in a substandard housing area where there is reduced opportunity for parents to develop support networks. Children in a strong, loving family free from abuse and neglect have better mental health and are more resilient than children who grow up in an unstable, disadvantaged environment. The negative impact of a disadvantaged environment and subsequent stressors have the potential to be substantially improved by improvements in the determinants of health, for example education, housing and employment.

Benchmarking undertaken by the Mental Health Commission in 1998 has identified that approximately 0.5% of young people aged 0-9 years would be expected to present with severe mental health problems and require access to specialist mental health services. Another 0.5% have less severe disorders but need review by mental health services. For 10-14 year olds approximately 2.2% require specialist mental health services and 1.7% need consultation/liaison with the service<sup>53</sup>. However, most mild to moderate mental health disorders experienced by children and young people can be managed by primary services and supportive social services without requiring intervention by specialist mental health services.

The range of mental health disorders in children can be categorised as follows:-

- Disorders similar to adult conditions, but which present differently in children and young people. Conditions include depression, anxiety disorders, schizophrenia, and bipolar disorder.
- Conditions that evolve into adult personality disorder and disturbances that make other psychiatric disorders more likely in adulthood. For example, conduct disorder presenting in a child may evolve into antisocial personality disorder as an adult.

Additionally, many alcohol and drug abuse and dependence problems have their genesis in adolescence.

As well as genetic influences, the following environmental risk factors increase both the probability of developing mental health disorders and the probability that, once developed, these disorders will become chronic.<sup>54</sup> These include: -

- Other health or developmental problems facing the child
- Health problems of the parent or family, family relationship problems, abuse or neglect by families
- An adverse social, cultural and economic environment
- Other environmental factors, for example, bullying at school
- Specific life events, for example, death or other traumatic events

Protective factors include a supportive relationship with at least one significant adult, personality, coping mechanisms relating to the child, and organisational social support systems.

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<sup>53</sup> Ministry of Health. 1998. *New futures – a strategic framework for specialist mental health services for children and young people in New Zealand*. Wellington: Ministry of Health.

<sup>54</sup> Ministry of Health. 1998. *New futures – a strategic framework for specialist mental health services for children and young people in New Zealand*. Wellington: Ministry of Health.

## C&CDHB mental health services for young people

In New Zealand there are few specialist psychiatric wards for children and young people. As a result, most children needing inpatient services are managed in paediatric wards, and adolescents are managed either in paediatric or adult wards. Neither is an ideal therapeutic environment for children. A preferable environment is a dedicated day programme for children and adolescents.

A range of primary health services and agencies work with children and young people with mild to moderate mental health problems. These include general practice, Child Youth and Family Service (CYFS), Special Education Services (SES), Maori and Pacific Health Services, and school guidance counsellors. Strengthening Families is also another service available in which multiple agencies can collaboratively work with the family to plan services for a child with a mental illness.

In C&CDHB, specialist outpatient health services for children and adolescents with a mental health problem are available through the Child and Adolescent Mental Health Service (CAMHS) and the Early Intervention Service (EIS). C&CDHB provides a dedicated outpatient day programme for rangatahi/youth, as well as a 10-bed regional in-patient unit. In addition, there are 3 Early Intervention beds for the Capital and Coast district.

The table below identifies numbers of children 0-14 supported by the various C&CDHB mental health services as at 5 May 2004:-

Table 4.21: Children 0-14 years supported by C&CDHB inpatient and outpatient mental health services by service as at 5 May 2004

Service	Number of children 0-14 years supported
Early Intervention Service	Nil
Rangatahi Day Programme	Nil
Inpatient Services	Nil
Youth Specialty Service	2
Child and Adolescent Family Service, Wellington	179
Child and Adolescent Family Service, Porirua	178
Maori Mental Health Service	46
TOTAL	405

Table 4.22: Children 0-14 years supported by C&CDHB inpatient and outpatient mental health services by ethnicity, gender and age as at 5 May 2004

	Number of children	%
Maori	67	16.5%
Pacific	5	1.2%
NZ European/Pakeha	302	74.5%
Other	31	7.6%
TOTAL	405	100%
Male	272	67.2%
Female	131	32.3%
TOTAL	405	100%
0-4 years	18	4.4%
5-9 years	142	35.0%
10-14 years	245	60.5%
TOTAL	405	100%

Data identify that male children are over-represented, and Pacific children are under-represented as clients in C&CDHB mental health services for the period surveyed.

Based on average monthly utilisation, approximately 0.3% of C&CDHB's children aged from 0 to 9 years have utilised the above services in any one month from March 2003 to February 2004. Approximately 0.9% of C&CDHB's youth aged from 10 to 14 years have utilised these services in any one during the same period.<sup>55</sup> The table below details the average percent of monthly service utilisation by ethnicity for this period.

Table 4.23: Average monthly percent of total utilisation of HHS inpatient and outpatient services in C&CDHB by ethnicity, March 03 – Feb 04

	Pacific	Maori	Other	Not Specified
0-9	3.79%	21.00%	74.09%	1.12%
10-14	3.65%	29.45%	65.67%	1.23%

Source: Mental Health Information National Collection (MHINC), Ministry of Health

<sup>55</sup> Mental Health Information National Collection (MHINC), Ministry of Health.

## **Non-government organisations providing mental health and alcohol and drug services**

Non-government organisations (NGOs) provide a range of mental health and alcohol and drug services for children in the district. C&CDHB NGOs provide the following specialist mental health services for youth: -

- Refugee mental health services children and adolescents
- Kaupapa Maori alcohol and drug services for tamariki and rangatahi
- Pacific alcohol and drug services for children and adolescents.

## **Dual diagnosis mental health and intellectual disability**

Deinstitutionalisation of people with an intellectual disability has highlighted the lack of mental health services for this client group. Children and young people with intellectual disability are particularly at risk of mental health problems not being diagnosed or treated.<sup>56</sup>

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<sup>56</sup> Ministry of Health. 1998. *New futures – a strategic framework for specialist mental health services for children and young people in New Zealand*. Wellington: Ministry of Health.

## Summary

The key points arising from a discussion on health status are as follows:-

- In 2002/3 C&CDHB was below the national average for low birth weight babies. In the two years prior a higher number of low birth weight babies were born in the region per 1000 hospital births. In general Maori babies are more likely to be low birth weight and Pacific babies are less likely to be low birth weight than other babies. Local hospital data identifies that a higher percentage of Asian babies (26.3%) born at term are <3000g.
- Perinatal mortality may be higher in babies from Porirua. This requires further investigation.
- Maori women experience the highest rate of pre-term birth (14.3%) and Pacific women the lowest (9%). Pacific women are more likely to experience post-term birth compared to women of other ethnicities.
- The overall rate of communicable disease is lower than the national average. However there is an indication that rheumatic fever and meningococcal disease are higher in Porirua compared to the national average. Pertussis is considerably higher in Kapiti compared to the national average.
- A higher proportion of 3 year olds and 5 year olds are screened in C&CDHB for hearing disorders compared to the national average. The percentage of children failing school entry hearing screening is below the national average, particularly in Maori.
- Between 1990 and 1999 the dental health of 5 year and 12 year old children in C&CDHB improved with respect to the average MF score (missing or filled teeth) and the percentage of children caries-free. More recent data suggests that Pacific and Asian children have poorer dental health than European children. Children in Porirua have poorer dental health compared to children in other TLA's.
- The discharge rates for injuries in children <5 years and 5-14 years are less than the national average. However, in C&CDHB Pacific children aged <5 years have an increased rate of admission compared to other groups. In children aged 5-14 years Maori and Pacific children have a slightly higher rate of admission. There is considerable potential to reduce admissions to hospital for unintentional injury.
- The main diagnoses for avoidable hospitalisations under one year of age in C&CDHB relate to gastroenteritis, respiratory infection, failure to thrive and kidney and urinary tract infections. In children aged 1-14 years the three highest diagnoses are ENT and respiratory infections and dental conditions.
- Preventable hospitalisation relates to disease that could be prevented by health promotion strategies. Pacific children have a higher rate of preventable hospitalisation, particularly children aged 5-14 years.
- Ambulatory sensitive hospitalisations are potentially prevented by appropriate primary care and outpatient services. The rates in C&CDHB are lower than the national rates, but Pacific children are consistently higher than the rates for the total C&CDHB population.

- The discharge rates for asthma in children under five are higher for Pacific children in the C&CDHB district compared to children in the district as a whole, and are higher than the national rates. The discharge rates for Pacific children aged 5 to 14 in C&CDHB are higher than for children of other ethnicities, but still lower than national rates. Repeat admissions were highest in Maori children.
- The rates of admission for diabetes in children in C&CDHB are considerably lower than for the central region or New Zealand as a whole.
- Pacific children are more likely to be admitted with pneumonia compared to other groups.
- Porirua has a comparatively high rate of admissions for cellulitis in those under 15 years of age.
- Consistent with national data Maori babies in C&CDHB are more likely to die from SIDS than babies of other ethnicities.
- The rate of disability in children is not known in C&CDHB.
- Data suggests over-representation of male children and under-representation of Pacific children as clients supported by C&CDHB mental health services.
- Over half (53.6%) of teen births under 20 years of age are to women living in Porirua and surrounding suburbs.
- Childhood obesity is a growing problem in New Zealand particularly for Maori and Pacific children.
- A range of psychosocial factors impact on the health of children. These will be substantially improved by early intervention and referral to appropriate agencies and also improvements to the determinants of health.

In summary, data consistently points to health disparities in Maori and Pacific populations and suggests reduced access to, and utilisation of primary health care services. In particular, Pacific children are more likely to be admitted for asthma and pneumonia and ambulatory sensitive hospitalisations (considered to be potentially preventable by appropriate primary care). Pacific children under 5 years of age also have poorer dental health. Children living in Porirua are also more likely to be admitted with cellulitis, and there is an indication that rheumatic fever and meningococcal disease is more prevalent in this area.

## 5. Breastfeeding

### Introduction

Exclusive breast feeding for at least six months is recommended by the World Health Organisation and is supported by the Ministry of Health. The benefits of breast feeding are well-documented for both mother and baby. Babies who are breastfed have less infection and reduced hospitalisation in infancy and childhood, and reduced risk of cardiovascular disease and diabetes in adulthood. Women who breastfeed are less likely to develop breast cancer.<sup>57</sup>

While it would be hoped that exclusive breastfeeding rates are close to 100%, a range of factors intervene to prevent this. These include premature birth, inverted nipples, certain medical conditions in the baby (for example cleft palate) and use of certain pharmaceuticals by mothers. The social acceptability of artificial feeding and personal choice are also factors. Research has identified that women may have made their feeding choice early in pregnancy, even prior to conception<sup>58</sup>, and the attitude of the partner to breastfeeding also has a significant effect on breastfeeding.

In the immediate postnatal period poor initiation of breastfeeding following the birth reduces feeding success. Use of pacifiers contributes to reduced breastfeeding<sup>59</sup>, as does the use of supplements.

Research identifies that breastfeeding is socio-economically patterned with women with lower levels of educational achievement less likely to breast feed.<sup>60</sup> Women who do not attend antenatal classes are also less likely to breastfeed.<sup>61</sup> The need or desire to return to work following the birth is a factor. Another (in those who smoke) is that smoking is associated with increased adrenalin levels that may inhibit the milk ejection reflex and reduce breastfeeding success.<sup>62</sup>

A range of provider issues can also influence breastfeeding including conflicting messages from staff in hospital and poor postnatal support, particularly if a first time mother. While many LMCs and postnatal midwives provide good support to women and encourage breastfeeding, they can not be universally available to provide additional support to women experiencing problems in the postnatal period. Additional support options are being explored within C&CDHB.

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<sup>57</sup> Child Health Tool Kit. From [www2.moh.govt.nz/QuickPlace/childhealthtoolkit](http://www2.moh.govt.nz/QuickPlace/childhealthtoolkit). Obtained 18 March 2004.

<sup>58</sup> Lennon, M. 1997. Breastfeeding scooping project. Unpublished report prepared for North Health. Cited in Ministry of Health. 2002. *Breastfeeding: A guide to action*. Wellington: Ministry of Health.

<sup>59</sup> Ford, R, Mitchell E, Scragg E, Stewart A, Taylor B & Allen E. 1994. Factors adversely associated with breastfeeding in New Zealand. *Journal Paediatric Child Health* 30: 483-89. Cited in Ministry of Health. 2002. *Breastfeeding: A guide to action*. Wellington: Ministry of Health.

<sup>60</sup> Ministry of Health. 2002. *Breastfeeding: A guide to action*. Wellington: Ministry of Health.

<sup>61</sup> Clements M, Mitchell E, et al. 1997. Influences on breastfeeding in southeast England. *ACTA Paediatric* 86: 51-6. Cited in Ministry of Health. 2002. *Breastfeeding: A guide to action*. Wellington: Ministry of Health.

<sup>62</sup> Andersen AN, Lund-Andersen C, Larsen JF et al. 1982. Suppressed prolactin but normal neurophyalin levels in cigarette smoking breastfeeding women. *Clin Endocrinol* 17: 363-8. Cited in Ford, R, Mitchell E, Scragg E, Stewart A, Taylor B & Allen E. 1994. Factors adversely associated with breastfeeding in New Zealand. *Journal Paediatric Child Health* 30: 483-89.

## Data integrity

Those reading this report are reminded of deficiencies of data using the NMDS which is only 70% complete (see Chapter 1 – Introduction). There may also be limitations in New Zealand data due to inconsistent application of the definitions of exclusive, full and partial breastfeeding.<sup>63</sup>

## Definitions

The definitions of breastfeeding currently utilised by the Ministry of Health are as follows:-

*Exclusive breastfeeding.* The infant has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breast milk from the breast, or expressed and prescribed<sup>64</sup> medicines have been given from birth.

*Full breastfeeding.* The infant has taken breast milk only, and no other liquids or solids except a minimal amount of water or prescribed medicine in the past 48 hours.

*Partial breastfeeding.* The infant has taken some breast milk and some infant formula or other solid food in the past 48 hours.

*Artificial feeding.* The infant has had no breast milk but has had alternative liquid such as infant formula with or without solid food in the past 48 hours.

## Baby Friendly Hospital Initiative (BFHI)

The BFHI is a joint UNICEF and WHO project aimed at increasing breastfeeding rates and encouraging a global breastfeeding standard for maternity services.<sup>65</sup> The focus is on hospitals since WHO notes that where babies receive supplemental feeding in a hospital, women are extremely unlikely to follow the recommended practice to exclusively breastfeed for the first 6 months. However, as many women only spend a short time in hospital responsibility for the success of this initiative also rests with community providers.

New Zealand has started to implement the BFHI by establishing a Breastfeeding Authority funded by the Public Health group of the Ministry of Health. The national service specification expects all maternity facilities to be working towards implementing the BFHI. In January 2004 Paraparaumu Maternity Unit achieved BFHI accreditation and Kenepuru Maternity Unit and Wellington Hospital are in the process of seeking accreditation.

As part of the BFHI the Ministry of Health has set the rate of exclusive breastfeeding on discharge from hospital at 75%.

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<sup>63</sup> Ministry of Health. 2002. *Breastfeeding: A guide to action*. Wellington: Ministry of Health, p 7.

<sup>64</sup> Prescribed as per the Medicines Act 1981.

<sup>65</sup> Health Funding Authority. 2000. *Maternity services: A reference document*. Hamilton: Health Funding Authority, p 15.

## Lactation Consultant, C&CDHB

Under the Maternity Facility Service Specification C&CDHB's maternity facilities are required to implement the Baby Friendly Hospital Initiative (BFHI). As part of the Secondary Services Specification lactation advice for women experiencing breastfeeding complications is provided. In order to manage these two requirements, the Women's Health Service employs a Lactation Consultant.

## Breastfeeding on discharge from hospital

As identified in Table 5.1 and Figure 5.1, in 2002, 75.2% of European/Other babies were exclusively breastfed when discharged from hospital. This meets the Ministry of Health target of 75% of babies exclusively breastfeeding at this time. A significantly reduced number of Asian babies (55.6%) are in this category and are more likely to be partially breastfed (39%). Pacific and Maori babies are most likely to be fed using milk substitutes (9%) when discharged from hospital.

Table 5.1: Infant feeding (%) on discharge from a C&CDHB maternity facility<sup>66</sup>, 2002

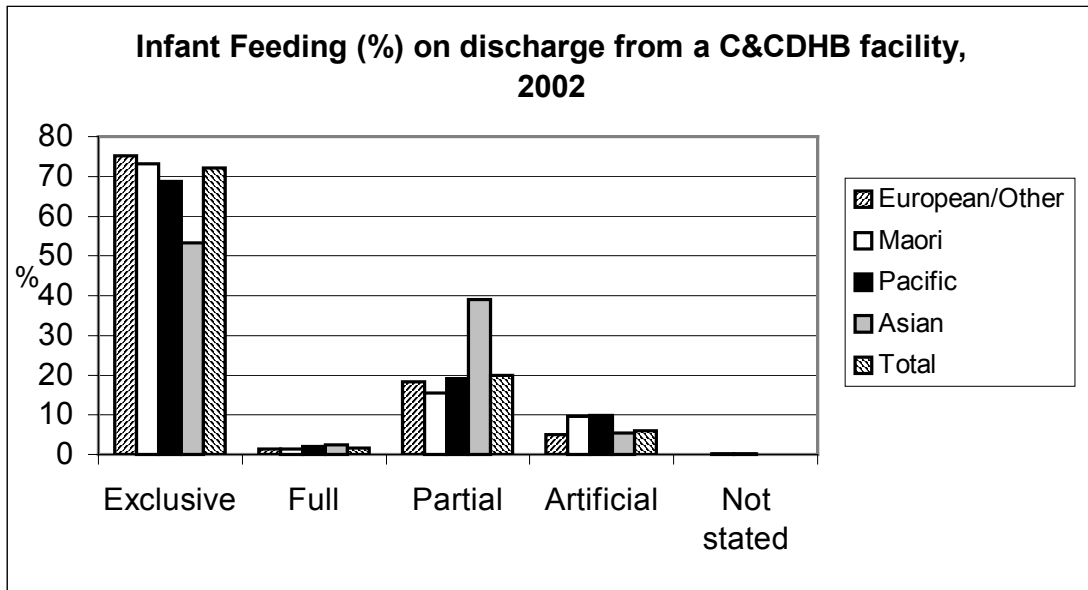
	European/Other	Maori	Pacific	Asian	Total
Exclusive	75.2	73.2	68.8	53.2	72.2
Full	1.4	1.4	2.0	2.4	1.6
Partial	18.3	15.5	19.1	39.0	20.0
Artificial	5.0	9.6	9.8	5.4	6.1
Not stated	0.1	0.2	0.3	0.0	0.1

Source PIMS

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<sup>66</sup> Excludes Paraparaumu Maternity Unit

Figure 5.1: Infant feeding (%) on discharge from a C&CDHB maternity facility<sup>67</sup>, 2002



Source PIMS

### Breastfeeding data from LMCs

Accurate reporting on breastfeeding by LMCs only commenced in July 2003 when LMCs and tamariki ora/Well Child providers were asked to report at set times (two weeks and six weeks) using standard definitions. Thus, specific information on breastfeeding status from LMCs is currently not available.

### Breastfeeding on transfer to a tamariki ora/well child provider

Transfer of the baby from the LMC to a tamariki ora/Well Child provider is made when the baby is around 6 weeks old. Plunket are required to make one core contact before 6 weeks. In 2000 and 2001 a quarter of babies were transferred between 2-4 weeks and 5% were transferred earlier than 2 weeks.<sup>68</sup>

Plunket has provided data on breastfeeding status at 6 weeks. As identified in Table 5.2 and Figure 5.2, in 2002/3 C&CDHB was slightly above the national average in full and exclusive breastfeeding at 6 weeks. When data are compared to earlier statistics at discharge from hospital (at which time 73.8% of babies were exclusively or fully breast fed), at 6 weeks a similar number (74%) have continued to be exclusively or fully breastfed. The main change at this time is that an increased number of women have changed from partial breastfeeding to artificial feeding.

<sup>67</sup> Excludes Paraparaumu Maternity Unit

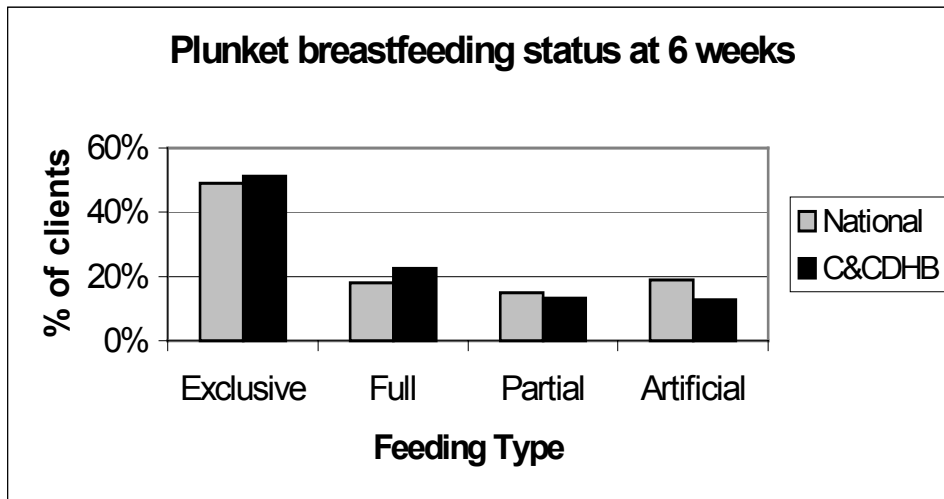
<sup>68</sup> Ministry of Health. 2003. *Report on maternity 2000 & 2001*. Wellington: Ministry of Health.

Table 5.2: Plunket breastfeeding status at 6 weeks  
July 2002 – June 2003

	Exclusive	Full	Partial	Artificial
National	49%	18%	15%	19%
C&CDHB	51%	23%	13%	13%

Source Plunket

Figure 5.2: Plunket breastfeeding status at 6 weeks, July 2002 – June 2003



Source Plunket

### Breastfeeding data at 6 weeks (Porirua, Rongotai and Wellington South)

Porirua, Rongotai and Wellington South are areas of lower deprivation and breastfeeding rates obtained from Plunket have been analysed in more detail at 6 weeks in Tables 5.3-5.5.

- Porirua Branch includes Waitangirua and Elsdon
- Rongotai Branch includes Hataitai, Kilbirnie, Miramar, Newtown, Seatoun and Strathmore
- Wellington South Branch includes Island Bay, Berhampore, Southgate and Owhiro Bay

Table 5.3: Plunket breastfeeding status (%) at 6 weeks (Porirua)  
1 July 2002 – 30 June 2003

	Maori	Pacific	Asian	Other
Exclusive	21	32	0	32
Full	27	18	25	30
Exclusive/Full combined	48	50	25	62
Partial	15	26	62	10
Artificial	37	24	13	28

Source – Plunket

Table 5.4: Plunket breastfeeding status (%) at 6 weeks (Rongotai)  
1 July 2002 – 30 June 2003

	Maori	Pacific	Asian	Other
Exclusive	37	19	26	37
Full	32	27	31	39
Exclusive/Full combined	69	46	57	76
Partial	17	25	26	13

Source - Plunket

Table 5.5: Plunket breastfeeding status (%) at 6 weeks (Wellington South)  
1 July 2002 – 30 June 2003

	Maori	Pacific	Asian	Other
Exclusive	59	59	47	69
Full	0	25	17	7
Exclusive/Full combined	59	84	64	76
Partial	24	8	13	13
Artificial	18	8	23	11

Source - Plunket

In Porirua, Maori (48%), Pacific (50%) and Asian (25%) babies have a low rate of exclusive/full breastfeeding at 6 weeks and there is parallel high rate of artificial feeding in Maori and Pacific babies. Asian babies have a high rate of partial breastfeeding (62%) at this time.

In the Hataitai, Kilbirnie, Miramar, Newtown, Seatoun and Strathmore area Pacific babies have a low rate of exclusive/full breastfeeding (46%) at 6 weeks and a high rate of artificial feeding (29%).

In Wellington South (Island Bay, Berhampore, Southgate and Owhiro Bay), Maori (59%) and Asian (64%) babies have a relatively low rate of exclusive/full breastfeeding at 6 weeks.

## Breastfeeding at 3 – 6 months

Using Plunket data 74% of babies in C&CDHB are being exclusively or fully breastfed at 6 weeks. At 3 months this rate has reduced to 62% (Table 5.6), and at 6 months 39% of babies are in this category (Table 5.7). There is a parallel rise in the rate of artificial feeding between 3 and 6 months.

The Ministry of Health recommends that exclusive breastfeeding continue until 6 months. The high rate of partial breastfeeding in C&CDHB at this time (37%) may be explained by the fact that some babies show signs of being ready for solids between 4 and 6 months (personal communication, Lynette Collis, Plunket Clinical Leader, Wellington).

Table 5.6: C&CDHB rates of breastfeeding at 3 months, 2002/3

	Exclusive	Full	Partial	Artificial
National	36%	19%	15%	30%
C&CDHB	37%	25%	15%	23%

Source Plunket

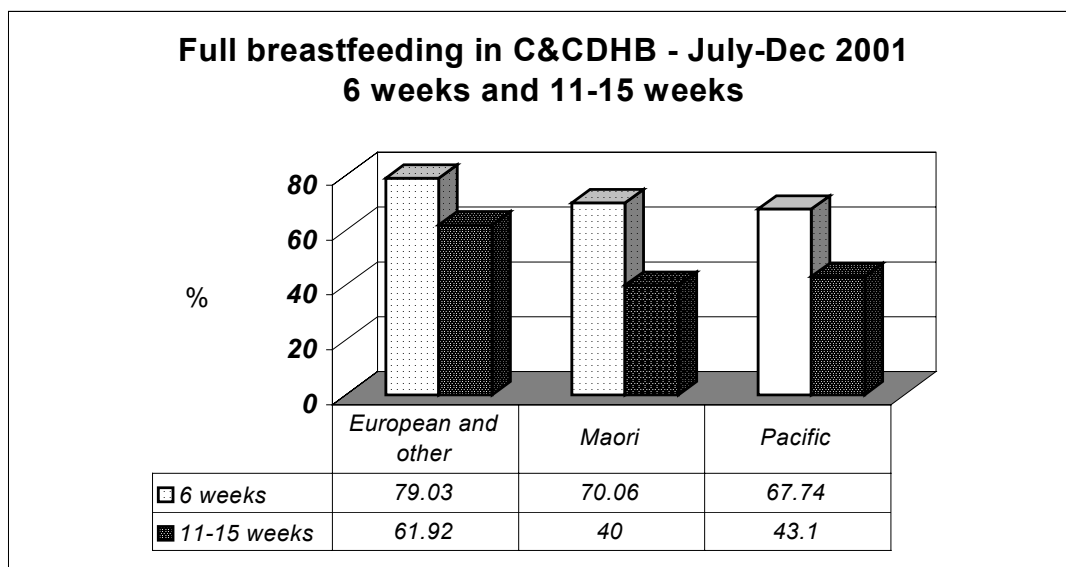
Table 5.7: C&CDHB rates of breastfeeding at 6 months, 2002/3

	Exclusive	Full	Partial	Artificial
National	10%	14%	35%	41%
C&CDHB	11%	18%	37%	34%

Source Plunket

The graph below provides ethnicity data on breastfeeding data at 6 weeks and 11-15 weeks. As can be seen, in 2001 the rates of breastfeeding were significantly lower in Maori and Pacific babies compared to European/Other babies in both periods. (Note that the term “full” breastfeeding is used. Several years ago the Ministry of Health used this definition to mean exclusive and full breastfeeding combined).

Figure 5.3: Full<sup>69</sup> breast feeding in C&CDHB by ethnicity, July – December 2001

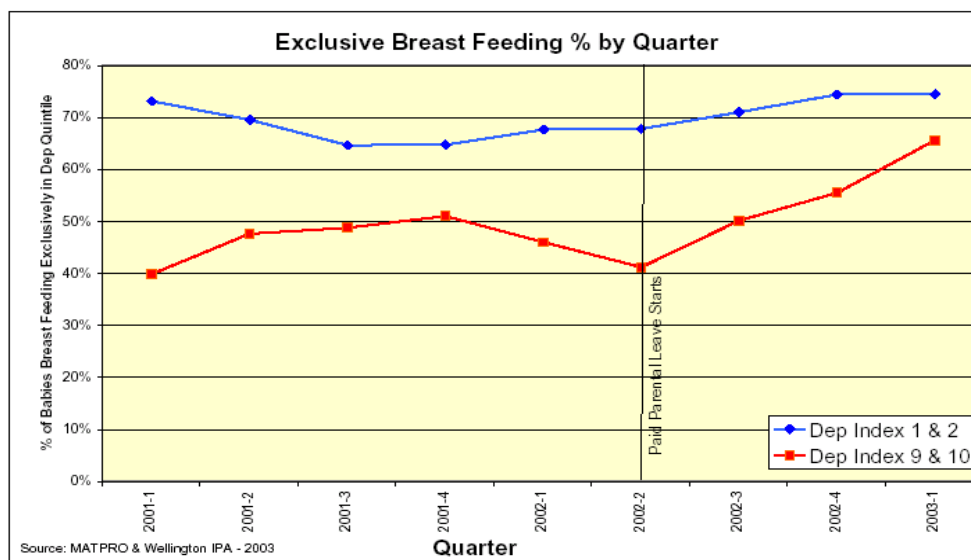


Source: Ministry of Health. 2002

### The impact of paid parental leave

The graph below shows an increase in exclusive breastfeeding in late 2002. This may be attributable to the impact of paid parental leave introduced at this time. The impact is particularly noticeable in babies living in highly deprived areas (Deciles 9 and 10). This data is provided by MATPRO and reflects approximately 80% of C&CDHB births.

Figure 5.4: Percent of women exclusively breastfeeding by deprivation



Source MATPRO

<sup>69</sup> An earlier definition of “full” breastfeeding used by the Ministry of Health pertained to exclusive and full breastfeeding combined.

## **Community breastfeeding services**

### *LMC's*

LMCs provide breastfeeding support to women in their care. This responsibility is transferred to the tamariki ora/Well Child provider when the baby's care is transferred. A number of LMCs have advanced skills in lactation and breastfeeding.

In feedback from communities and community providers there appears to be a recurring theme of limited availability of LMCs in the postnatal period for breastfeeding support. Under the Section 88 Notice if a baby has unusually high needs, the LMC may request that the tamariki ora/Well Child provider become involved as early as two weeks from birth to provide concurrent and coordinated care with the LMC.<sup>70</sup> Some women are being referred the Plunket Family Centres as early as two weeks, and occasionally even earlier for breastfeeding support. Plunket are not funded if referral is earlier than two weeks (see Plunket Family Centres below).

### *Plunket*

Plunket has three Family Centres in the C&CDHB area situated at Cannons Creek, Johnsonville and Rongotai. Plunket Nurses and other staff are available at the centres 2-3 days a week to advise mothers on a range of postnatal issues including breastfeeding. A Plunket Nurse at the Rongotai Family Centre has a lactation consultant qualification and several staff are upskilling with advanced papers in lactation and breastfeeding.

### *Whanau Ora Maternity Support Services*

Three Maori providers in C&CDHB are contracted to provide maternity support services – Ora Toa Health Unit, Maraeroa Marae Clinic and Nga Tapuhi Whakawhanau – Maori and Pacific Island Midwifery Service. This service can include breastfeeding support.

## **Alternative models of care**

One holistic and integrated Maori model of care applied to maternity services is Tipu Ora based in Rotorua. In this service health care programmes are delivered to mothers or caregivers and their children from conception until the child is five years old. Iwi-approved kaitiaki provide the link between the whanau and the broad range of child health services provided by the agency and mainstream providers.<sup>71</sup> Kaitiaki chosen need to have successfully breastfed in the past. An integrated service for Maori that reflects a whanau ora approach is being considered by C&CDHB.

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<sup>70</sup> Ministry of Health. 2002. Maternity services – Notice pursuant to section 88 of the New Zealand Public Health and Disability Act, 2000. Wellington: Ministry of Health.

<sup>71</sup> National Health Committee. 1999. Review of the wisdom and fairness of the Health Funding Authority strategy for immunisation of 'hard to reach' children. Wellington: Ministry of Health.

In South Auckland one model that has achieved excellent breastfeeding results is the *B4 Baby Programme*. In this programme Maori and Pacific community workers are employed to provide breastfeeding and postnatal support to women discharged, particularly primipara. In women supported by this programme full and exclusive breastfeeding rates were close to 100%. Adaptation of this programme is being considered by C&CDHB.

### **Health promotion**

An important philosophical view is that preparation for pregnancy and breastfeeding starts well before birth, or even conception – the so-called “Life-course approach”. Consistent with this view, healthy breastfeeding practices need to be promoted positively in the community, at home and at school.

### **Summary**

Statistics show that the rates of breastfeeding on discharge from hospital are reasonably high, but could be improved. Overall rates of breastfeeding in C&CDHB are consistent with (and even slightly better than) the national DHB average. However, disparities are evident in Maori women, Pacific women and Asian women after discharge. There is a need to improve breastfeeding rates and reduce inequalities for these populations using a culturally-responsive workforce.

Given the short time many women spend in hospital the issue of community breastfeeding support is extremely important, particularly in primipara. There appears to be a need for additional community breastfeeding support and options are currently being considered. Appropriate breastfeeding support has the potential to reduce admissions to hospital for breast infections/abscesses and improve health outcomes for babies.

The promotion of healthy breastfeeding practices at home, at school and in the community could also help to improve rates of breastfeeding.

## 6. Health Services For Children

Outlined below are the range of health services in the district for children.

### C&CDHB services\*

In-patient	Secondary services	Paediatric medical, surgical, orthopaedic and ENT services
	Tertiary services	Paediatric oncology Paediatric neurosurgery Complex paediatric surgery Neonatal Intensive Care Neonatal Surgery
Ambulatory Services	Secondary and tertiary paediatric outpatient services Paediatric community nursing service Neonatal nursing home care service Paediatric Diabetes Nurse Educator Paediatric dietician Social work services, maternal and child health	

\*C&CDHB services for children with a mental health problem and children with disabilities have been separately identified.

### Mental health services

<i>Service</i>	<i>Service Type</i>
Te Whare Marie	Maori mental health services
Health Pacifica	Pacific mental health services
Wellington Refugees as Survivors Trust	Specialise in mental health services for refugees who have undergone trauma or torture
C&CDHB Child and Adolescent Mental Health Services (CAMHS)	Community mental health services for children and adolescents
C&CDHB Early Intervention Services	Specialise in the management of people with a first episode of mental illness
C&CDHB Rangatahi Unit, Porirua	In-patient mental health services for youth Day programme for youth

### Alcohol and drug services

<i>Service</i>	<i>Service Type</i>
Te Runanga o Toa Rangatira	Kaupapa Maori youth alcohol and drug service
Taeaomanino Trust	Pacific youth alcohol and drug service
C&CDHB Alcohol and Drug Service	Generic alcohol and drug services

## Community disability services

<i>Service</i>	<i>Service Type</i>
Child Development Team, Puketiro, C&CDHB	Multi-disciplinary community assessment and treatment service for children with disabilities
Capital Support Services <ul style="list-style-type: none"> <li>▪ Regional Intellectual Disability Coordination Agency</li> </ul>	Carer support and service coordination for children with high and complex needs
CCS	CCS has a range of services for children including a Child and Family Team providing information, support and advocacy to people with physical, intellectual or multiple disabilities.
Disability Resource Centre	Information and advocacy service for people with disabilities

## Primary health care services

<i>Maori Provider</i>	<i>Service Type</i>
Ati Awa Ki Whakarongotai Inc (Hora te Pai)	Whanau ora Tamariki ora General practice Diabetes education and management
Nga Tapuhi Whakawhanau	Midwifery services Mothers and Pepi Maternity Support Services
Maraeroa Marae Health Clinic	Tamariki ora Asthma education services Whanau ora Maternity support services Outreach immunisation
Te Runanga o Toa Rangatira Inc (Ora Toa Health Unit)	General practice x 3 Whanau ora Tamariki ora Asthma Maternity support services Outreach immunisation
Te Ngawari Hauora	Whanau ora Diabetes education and management

<i>Pacific Provider</i>	<i>Service Type</i>
Pacific Health Service, Porirua	Primary health care nursing Well child facilitation Outreach immunisation
Pacific Health Service, Newtown	General practice Primary health care nursing Well child facilitation

<i>General Practice</i>	<i>Service Type</i>
The Greater Wellington Health Trust	General practice Midwifery services School-based nursing in Porirua secondary schools
Porirua Union Health Service	General practice Midwifery services Maternity support services Community health workers
Newtown Union Health Service	General practice Midwifery services Maternity support services Community health workers Social worker, maternal and child health
Te Aro Clinic	Low cost general practice
Karori Medical Centre	General practice
Care Net practices	General practice

### **Public health services (see Chapter 7)**

#### *Hutt Valley DHB (Regional Public Health)*

Public health nursing

School dental service

Hearing and vision testing

Immunisation

Health promotion

- social environments
- health promoting schools
- nutrition and physical activity
- tobacco control
- prevention of alcohol and other drug related harm
- mental health promotion
- injury prevention
- dental health promotion

## Non-government agencies

<i>Provider</i>	<i>Service Type</i>
Plunket	Well Child Primary Care
Family Start, Porirua	Needs assessment, support, parenting skills and linking families with services. The service is aimed at families whose social and family circumstances put children "at risk" in terms of health, education and welfare outcomes.
Strengthening Families	Inter-agency case management of families "at risk"
Parents as First Teachers	A programme working with families aimed to improve children's learning, language and social development.

A range of other non-government agencies also provide social services to families and children. These include –

Kahungunu Social Services  
Iwi social services  
Mokai Kainga  
Wellington City Mission

Wellington People's Resource Centre  
Parent's Centre  
Refugee and Migrant Centre

## **7. Public Health and Health Promotion Activities**

### **National providers**

Child health promotion activities are undertaken by a range of nationally-funded providers including the Heart Foundation, ACC, Te Hotu Manawa Maori, Pacific Heartbeat, LTSA, and the Health Sponsorship Council. Quit Group are currently funded to provide a Quit for our Kids Smoking Cessation based at Wellington Hospital.

### **Regional Public Health Services**

Regional Public Health based at Hutt Valley District Health Board provide a range of services for children in C&CDHB. These include:-

- Public health nursing
- School dental services
- Vision and hearing testing
- Health protection and communicable disease control
- Immunisation advice and management of immunisations at birth and at school

### **Public Health Activities 1 January – 30 June 2003**

Outlined below are the range of public health activities undertaken by Regional Public Health in the 6 months from 1 January – 30 June 2003:-

#### **Immunisation Promotion**

- Provision of vaccinator training courses
- Establish and maintain immunisation registers for pre-schools and schools by providing advice and assistance
- Promote notification of vaccine associated reactions to CARM and the MOH
- Monitor immunisation coverage in the Wellington region
- Provide technical expertise to health professionals on immunisation
- Distribute and promote the National Standards for Vaccine Storage and Distribution
- Provide advice and assistance with cold chain failures

#### **Communicable Disease**

- Surveillance and monitoring of communicable diseases
- Investigate outbreaks and take appropriate action to protect the public health
- Assist schools with the development of school communicable disease policies where required
- Ensure access of high risk groups to appropriate screening programmes
- Maintain regular contact with nurses and other providers carrying out penicillin prophylaxis for Rheumatic Fever

## **Health and Safety in Early Childhood Centres**

- Assist in the development of policies and standards by ECC organisations
- Provide health and safety workshops
- Promote the use of RPH guidelines for illness policies
- Monitor and promote the use of Immunisation Registers

## **Health Promotion Activities 2003/2004**

Regional Public Health also undertakes a range of health promotion activities in the following areas:-

- social environments
- health promoting schools
- nutrition and physical activity
- tobacco control
- prevention of alcohol and other drug related harm
- mental health promotion
- injury prevention
- dental health promotion

The range of health promotion activities undertaken in 2003/4 with a focus on children are outlined below:-

### **Tobacco Control**

*Goal: To promote a social and physical environment which improves and protects people's health by reducing the harm from tobacco use and exposure to environmental tobacco smoke.*

- Promoting smokefree homes and cars
- Raise public awareness of the dangers of second-hand smoke
- Work with the School health Team and Health Promoting Schools to ensure a consistent approach that enables schools to provide a smokefree environment and promote the positive benefits of being smokefree
- In preparation for the Smokefree Environments Act to assist schools to adopt a totally smokefree policy
- Surveillance and control of selling tobacco to minors
- Smokefree sponsorship to teams
- Provide information and resources to schools on request
- Trial a smoking cessation project for Year 7-8 students in Porirua East
- Develop and implement a 12 month pilot project to measure the usefulness of 'Gus the Smokefree Dragon' as a means of promoting the smokefree message

## Health Promoting Schools

Goal: To improve health and wellbeing for all in a school community setting

- Submissions to local government and/or government
- Develop and maintain relationships with TLA's state sector groups and advocate they address the issues that affect the social determinants of health
- Support advocacy and other initiatives that will reduce school isolation and increase community involvement
- Maintain and further develop the Health Promoting Schools Panui/Newsletter
- Drug and alcohol activities in schools utilising Health Promoting Schools strategies
- Mentally Healthy Schools activities utilising Health Promoting Schools strategies
- Work with the RPH nutrition team to support facilitation of nutrition units in schools with a focus on creating supportive environments
- Support the Walking School Bus developments across the greater Wellington region
- Support the involvement of Pacific communities
- Support community health events aimed at Maori communities
- Provide support and advice to schools developing healthy food policies
- Provide regular updates and workshops on Health Promoting Schools
- Advocate and consult with Maori on Maori inclusiveness and involvement in school community setting activity
- Advocate and consult with Pacifica on Pacifica inclusiveness and involvement in school community setting activity
- Support the development of culturally-appropriate training and resources that support participation by key stakeholder that support Health Promoting Schools principles
- Support Te Ra o te Kapahaka for kura Maori and Rumaki reo
- Actively support a school setting health promotion interface with PHOs and collaborate on initiatives where appropriate
- Support the following programmes:-
  - National Heart Foundation 5+ a day week
  - Kid Safe Week
  - Push Play Day
  - Sun Smart Awareness Week
  - Mental Health Awareness Week
  - World Smokefree Day

## **Social Environments**

*Goal: To develop social and physical environments which improve and protect the health of communities and groups, where the social environment may include politics, economic, social and cultural factors and structures.*

- Inform/influence central and local government planning with up-to-date public health and social environments information to promote the health and wellbeing of communities.
- Submissions and issue papers on pertinent social environment issues (gambling, housing, poverty)
- Ensuring cross-service RPH support is available and accessible to existing and developing PHOs.
- Advocate and support health housing policies and relevant research
- Advocate for improved access to income for prioritised groups

## **Nutrition and Physical Activity**

*Goal: To improve health and wellbeing and to reduce the burden of disease through better nutrition and regular physical activity.*

- Advocate for DHB and TLA collaboration to support and encourage healthy eating venues and safer walking and cycling routes.
- Submissions on national, regional and local nutrition and physical activity issues
- Promote nutrition and physical activity policies and activities in Early Childhood Centres, particularly Kohanga Reo and Pacific Language nests
- Lead a regional interagency group on the Walking School Bus Project
- Provide support and advice to schools developing healthy food policies
- Collaborate with the Health Promoting Schools team to address nutrition and physical activity in schools
- Activities that will assist to improve the rate of breastfeeding in Maori
- Support the National Heart Foundation School Food Programme and Early Childhood Centre Healthy Heart Awards
- Support Push Play Day
- Work with Vegfed and 5+ a day to encourage an increase in the uptake of fruit and vegetables
- Active member of the Porirua Diabetes Cluster
- Actively support a nutrition and physical activity health promotion interface with PHOs and collaborate on initiatives where appropriate.

### **Prevention of Alcohol and Other Drug Related Harm**

*Goal: To improve the health of the population by minimising the harm from alcohol and other drug related harm.*

- Involvement in the Youth Access to Alcohol Project
- Develop campaigns to raise the awareness of the issue of unsupervised parental supply of alcohol to young people
- Support community events to raise awareness and level of knowledge of alcohol and other drug related harm
- Encourage the development of Manaaki Tangata (host responsibility) policies in sports clubs

### **Mental Health Promotion/Suicide Prevention/Reducing Stigma and Discrimination**

*Goal: To promote a social environment which promotes mental health and wellbeing in the Wellington region.*

- Submissions on national, regional and local mental health and wider social determinants of mental health issues
- Mental Health in Schools project
- Strengthen community action and knowledge of suicide prevention and “post-vention”
- Involvement in Mental Health Awareness Week
- Support appropriate community events that raise awareness and level of knowledge of mental health and wellbeing issues and suicide prevention
- Work with Maori and Pacific peoples health/welfare providers and PHOs, sports groups and coaches and educators to identify training needs in mental health and wellbeing

### **Dental Health Promotion**

- Health training to Kohanga Reo, Play Groups, Pacific Language Nests and Kura
- Meet with Pacific Parents as First Teachers and organise staff training in oral health

## **Injury Prevention-**

*Goal: To promote a social and physical environment which improves and protects the public health of people living in the greater Wellington region by reducing the incidence and severity of unintentional injuries.*

- Provide submissions on national, regional and local injury prevention issues
- Utilise injury prevention data and surveillance to effectively guide service planning and delivery
- Increase community awareness and knowledge about injury prevention priority issues
- Support Te Roopu Kimi Huarahi Tika Project in Kapiti
- Involvement in KidSafe Week
- Involvement in the Walking School Bus Project
- Involvement in Safe Routes to School Project
- School Injury Register Project
- Hot Water Burns Project
- Poison Prevention Project
- Actively support an injury prevention/health promotion interface with PHOs and collaborate on initiatives where appropriate
- Develop culturally-appropriate injury prevention resources for providers and community workers

## 8. Primary Health Care Services

### Immunisation

Immunisation is a proven, reliable and cost-effective intervention which can improve child health and reduce mortality. The current New Zealand National Childhood Immunisation Schedule provides free immunisation for nine preventable diseases – diphtheria, tetanus, whooping cough (pertussis), polio, haemophilus influenzae type B, hepatitis B, measles, mumps, and rubella. Three additional vaccinations are offered to high risk infants and children. These are –

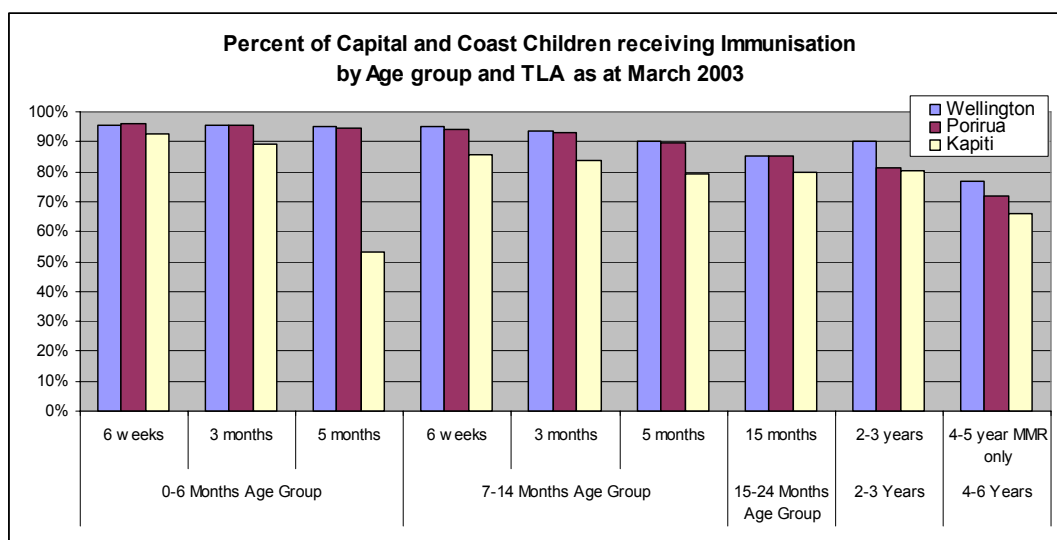
- a neonatal BCG offered to newborn babies at risk of exposure to tuberculosis
- hepatitis B immune globulin and vaccine to babies of hepatitis B surface antigen positive mothers
- influenza vaccine is also recommended for high risk children.

In addition to the national immunisation schedule a meningococcal type B immunisation programme is currently being developed which aims to offer vaccination to all people under 20 years of age.

New Zealand currently does not have accurate national immunisation coverage data and a National Immunisation Register (NIR) is in the process of being developed.

Immunisation rates in C&CDHB are relatively high in younger children, but reduce as children age (Figure 6.1). In C&CDHB between 90% to 95% of children receive each of the routine immunisations up to five months, but this percentage falls to approximately 75% for the 4 year measles, mumps and rubella vaccination. In all age groups, Kapiti has a lower percentage of children immunised compared to Wellington or Porirua.

Figure 6.1: Percent of C&CDHB children receiving immunisation by age group and TLA, 2003



An Outreach Immunisation Service has recently been established in Porirua as a joint venture between the two Maori providers (Oratoa Health Unit, Maraeroa Marae Clinic) and the Pacific Health Service, Porirua. The aim of this service is to facilitate follow-up and immunisation of children who are overdue for vaccination. The service works with immunisation coordinators and all primary care services in Porirua.

### General practitioners

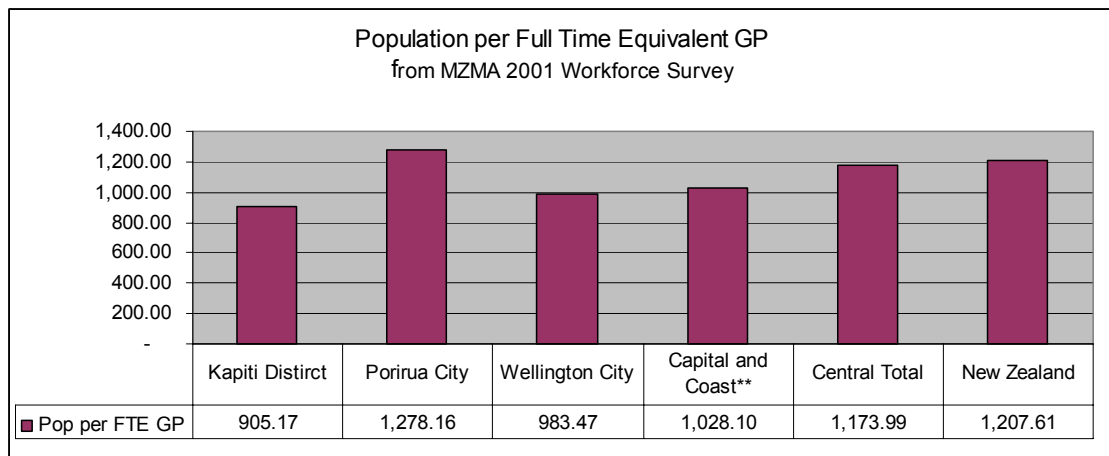
As shown in the table below, C&CDHB has a relatively high number of general practitioners for its population compared to the central region or New Zealand as a whole. The TLA which is best served by GPs is Kapiti, with an average of 905 people per FTE (full-time equivalent) GP. The population per FTE GP is slightly higher in Porirua compared to the central region or New Zealand as a whole (Table 6.2, Figure 6.2). C&CDHB is in the process of updating this information.

Table 6.1: GPs per capita by Territorial Local Authority Area (TLA), 2001

Region	Number of GPs	FTE GPs	Population	Population per FTE GP
Kapiti Coast	42	47	42,543	905
Porirua City	37	37	47,292	1,278
Wellington City	169	170	167,190	983
C&CDHB	248	250	257,025	1,028
Central RegionTotal	622	665	780702	1,174

Source Medical Council of New Zealand: Medical Workforce Survey 2001

Figure 6.2: Population per full-time equivalent GP by TLA, 2001



Source Medical Council of New Zealand: Medical Workforce Survey 2001

### General Medical Services

The data in the tables below is derived from Fee for Service claims made by general practitioners through HealthPac. Information on GP consultations with children in capitated practices is missing from this information. With PHO coverage, more complete utilisation data will become available in 2004.

The table below shows the trend in per capita consultations for the Fee for Service practices in C&CDHB and the central region over the period 2000 to 2002. A decline in the consultations per capita is apparent for both “Ys” and “Js” in both C&CDHB and the central region as a whole. The rates in C&CDHB are consistently higher than the rates for the central region, but the gap between these values has narrowed steadily over the three year period.

Table 6.2: Total and average per capita payments for General Medical Services by DHB and age group, 2000 and 2001

Number of GMS Consultations	C&CDHB			Central Region		
	2000	2001	Proj 2002	2000	2001	Proj 2002
Group Y Consults	139,743	132,660	113,284	419,539	402,957	351,896
Group J Consults	73,956	71,665	61,510	247,537	247,304	215,902
Y Cons per capita based on 00-05 pop	6.76	6.42	5.48	6.12	5.88	5.14
J Cons per capita based on 06-14 pop	2.45	2.38	2.04	2.29	2.29	2.00
J Cons per capita based on 06-18 pop	1.70	1.65	1.42	1.64	1.63	1.43

From the data available and based on identification of the GP practice, approximately 78% of children’s Fee for Service GMS consultations funded by C&CDHB could be allocated to a TLA within the C&CDHB district. The TLA could not be identified for 14.7 % of consultations, and 6.6% of the consultations appear to be inaccurately ascribed to GPs who are not working in the Capital and Coast area (Table 6.4).

Table 6.3: Consultations paid by C&CDHB to Fee for Service practices by TLA, 2001

	0 to 5 Years		6 to 14 Years	
	No of Consults	% of consults	No of Consults	% of consults
Total Consultations paid by C&CDHB to Fee for Service practices	132,430		71,059	
Consultations where C&CDHB TLA identified	104,143	78.6%	55,516	78.1%
Consultations where TLA not identified	19,493	14.7%	10,666	15.0%
Consultations – GP from out of the region	8,794	6.6%	4,877	6.9%

From the data available, even accounting for the absence of capitation data and any bias in the “TLA not identified” consultations, Kapiti children in both age groups appear to have higher consultation rates than children in either Porirua or Wellington City (Table 6.5). Because of the lack of capitation data, and a lack of understanding of the access of children to services in capitated practices, it is not possible to derive any conclusions about variations in access between Porirua and Wellington children in each age group.

Table 6.4: GMS consultations per capita by TLA and age group, 2001

	0-5 Years			6-14 Years		
	Consults by TLA	Population	Average Cons per Pop	Consults by TLA	Population	Average Cons per Pop
Kapiti	15,031	2609	5.8	9,716	4550	2.1
Porirua*	24,575	5404	4.5	11,604	7889	1.5
Wellington**	64,537	12625	5.1	34,196	17744	1.9
Total CCDHB Identified	104,143	20637	5.0	55,516	30183	1.8
TLA Not identified	19,493		0.9			0.4

\*Porirua values are an underestimate as approximately 17% of the population were enrolled with capitated practices in this time period.

\*\*Wellington values are an underestimate as approximately 10% of the population were enrolled with capitated practices in this time period.

## **Summary**

Key aspects of primary health care services for children are as follows:-

- A range of primary health care and DHB providers provide child health care services. This includes general practice, Plunket, Maori and Pacific providers and DHB services.
- Due to incomplete data it is difficult to compare consultations per capita between various regions. More accurate analysis of consultation rates for children will become available with utilisation reporting from PHOs and other practices in 2004.



## 9. Pharmaceutical, Radiology and Laboratory Expenditure

### Pharmaceutical categories

Children under 6 years of age are identified as category “Y” for prescribing, while the “J” category includes all children aged six to fifteen, and adolescents aged 16 to 18 who are still dependent on parents.

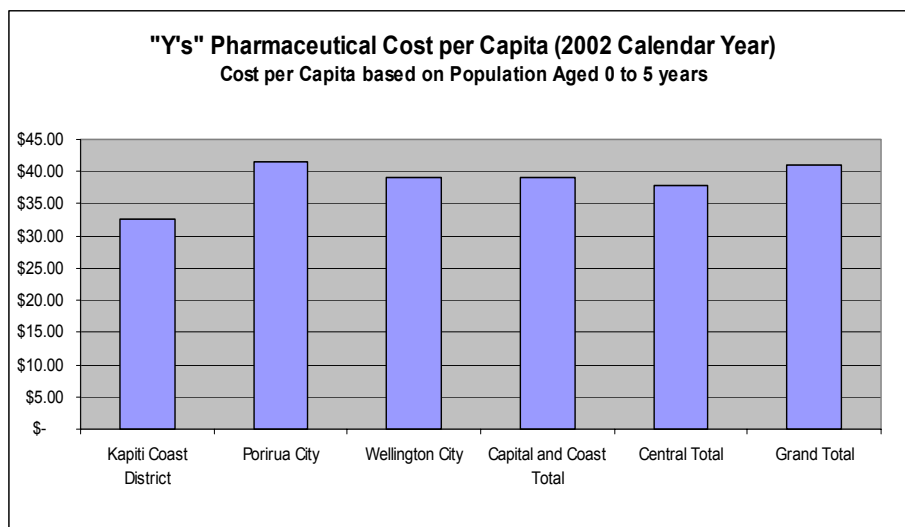
### Cost of pharmaceuticals for “Y” category children

As indicated in Table 9.1 and Figure 9.1, the calculated cost per capita of pharmaceuticals for children under 6 years (category “Y”) in C&CDHB is slightly higher than the central region average but lower than the national average. The denominator used in the calculations in this table is the population aged under five years, plus an estimate of the number of five year olds (20% of the population aged 05-09). The per capita expenditure of pharmaceuticals in Wellington and Porirua is relatively similar, but per capita expenditure is significantly reduced in children living in Kapiti.

Table 9.1: Total pharmaceutical expenditure and expenditure per capita for children under 6 years, 2002

Group Y Prescribing	Kapiti	Porirua	Wellington	C&CDHB	Central Region	National
Group Y Prescribing 2002	84,738	224,982	495,392	805,112	2,591,771	13,477,717
% of Total Drug Cost	1.40%	3.93%	2.08%	2.27%	2.28%	2.41%
0-5 Years as % of Total Pop	7.48%	11.44%	7.72%	8.40%	8.80%	8.78%
Cost per Capita based on pop 0-05 Years	\$32.63	\$41.51	\$39.16	\$38.96	\$37.83	\$41.08

Figure 9.1: Pharmaceutical expenditure per capita for children aged 0 to 5 yrs, 2002

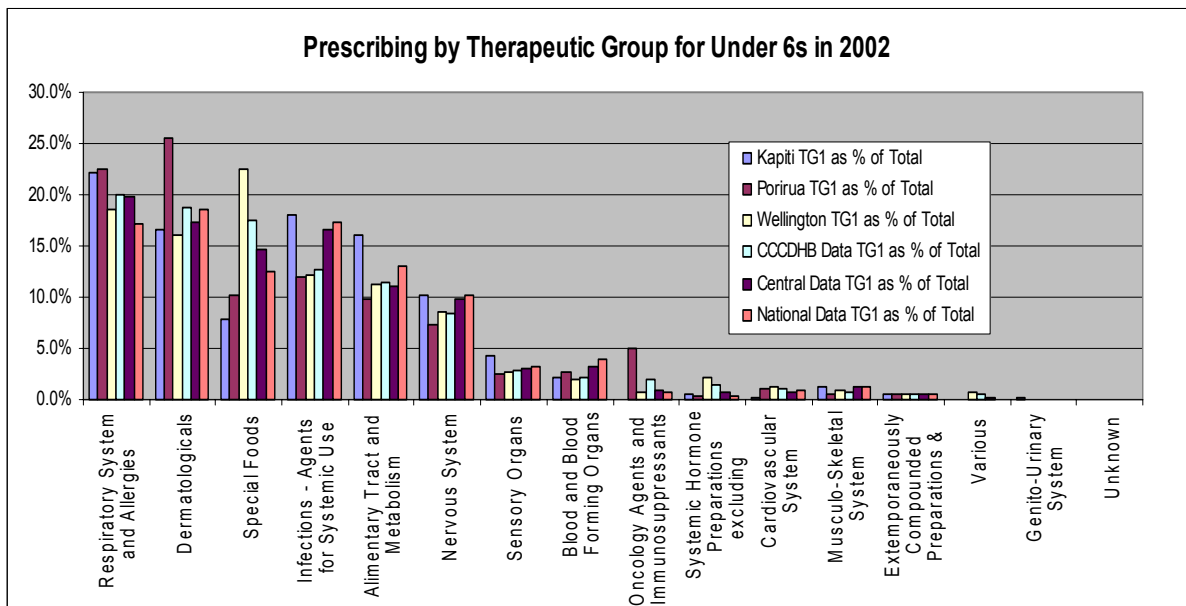


In 2002 the top three therapeutic pharmaceutical groups for Kapiti children under 6 years by percent of prescribing cost were drugs for treating the problems associated with the

respiratory system and allergies (22.1%), followed by systemic anti-infectives (18.1%) and dermatologicals (16.5%) – Figure 9.2

For children in Porirua of the same age the highest expenditure by therapeutic group was dermatological drugs and preparations (25.5%), followed by drugs for the respiratory system and allergy drugs (22.5%) and systemic anti-infectives (11.9%). There is a different pattern in Wellington children under 6 years with the highest pharmaceutical expenditure being on Special Foods (22.6%), followed by drugs for the respiratory system and allergy drugs (18.5%) and dermatologicals (16.0%).

Figure 9.2: Percent of prescribing by therapeutic group and TLA - Children 0-5 yrs, 2002



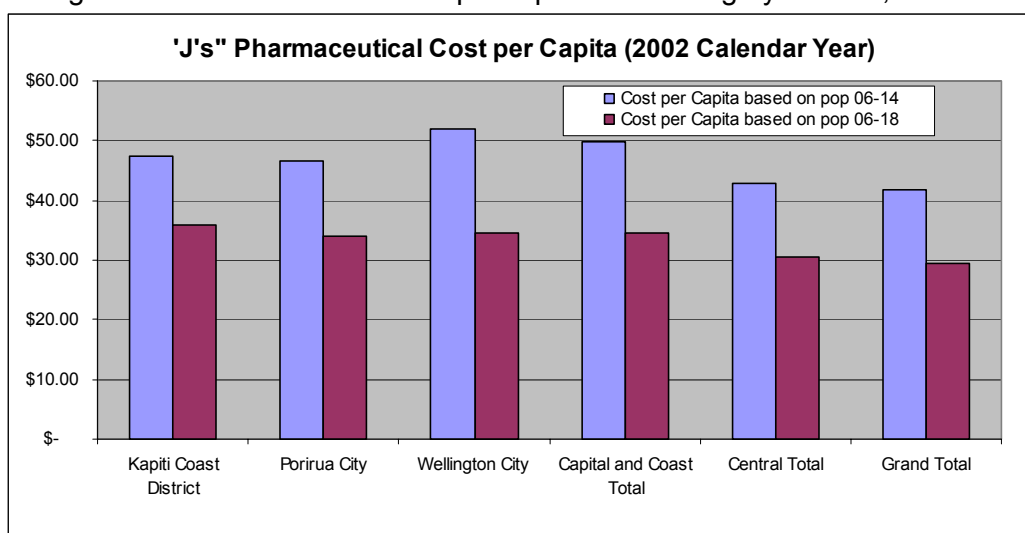
### Cost of pharmaceuticals for “J” category children

In 2002 the pharmaceutical cost per capita for “J” category children in C&CDHB was higher than both the central region and the national average. However, when data is analysed by TLA, expenditure is slightly less for children in Porirua (Table 9.2 and Figure 9.3). The cost per capita is again based on a pro-rata calculation of the population aged six to fourteen years, and the population aged 6 to 18 years.

Table 9.2: Total pharmaceutical expenditure and expenditure per capita for “J” category children, 2002

Group J Prescribing	Kapiti	Porirua	Wellington	C&CDHB Data	Central Data	National Data
Group J Prescribing 2002	216,557	366,628	918,662	1,501,847	4,620,623	21,660,335
% of Total Drug Cost	3.58%	6.41%	3.87%	4.23%	4.06%	3.88%
06-14 Years as % of Total Pop	13.14%	16.62%	10.81%	12.26%	13.87%	13.91%
06-18 Years as % of Total Pop	17.44%	22.68%	16.26%	17.67%	19.45%	19.59%
Cost per Capita based on pop 06-14	\$47.48	\$46.57	\$51.84	\$49.81	\$42.81	\$41.67
Cost per Capita based on pop 06-18	\$35.79	\$34.12	\$34.47	\$34.57	\$30.52	\$29.59

Figure 9.3: Pharmaceutical cost per capita for “J” category children, 2002

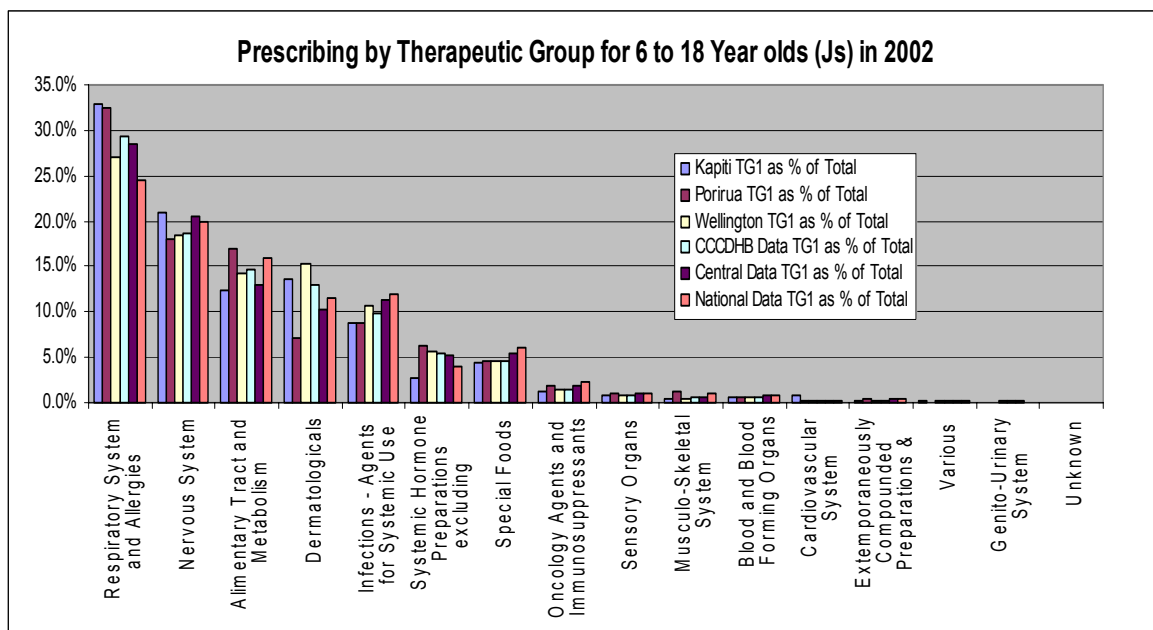


As identified in the graph below, in 2002 the top three therapeutic groups by percent of prescribing cost for Kapiti “J” group children were drugs for treating the respiratory system and allergies (33.0%), followed by drugs for the nervous system (20.9%) and dermatologicals (13.6%).

In the same period the highest expenditure by therapeutic group for group “J” children living in Porirua was also on drugs for treating the respiratory system and allergies (32.4%) followed by expenditure on drugs for the nervous system drugs (18.0%) and drugs for the alimentary tract and metabolism drugs (17.1%).

The pattern for Wellington “J” Group children is similar to Kapiti, with the highest expenditure being on drugs for treating the respiratory system and allergies (27.1%), followed by drugs for the nervous system (18.5%) and dermatologicals (15.3%).

Figure 9.4: Percent of prescribing by therapeutic group and TLA – Category “J” children, 2002



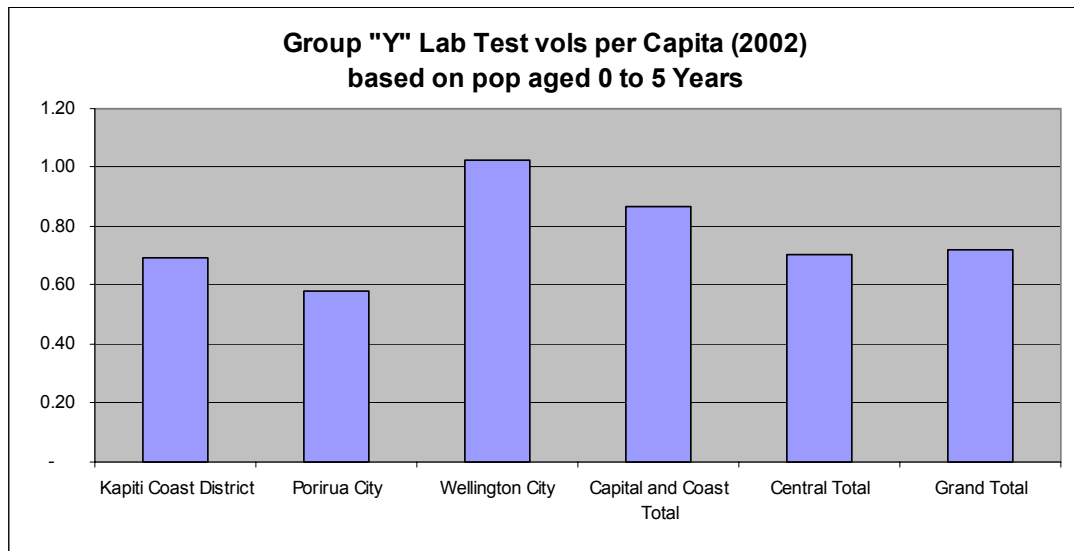
### Use of Laboratory Services

As shown in the table and graph below, Wellington City children under 6 on average have more laboratory tests than both the central region and the country as a whole. Kapiti children under 6 have an average number of laboratory tests and this is consistent with both the central and national averages. By contrast, Porirua children under 6 had a relatively low number of laboratory tests per capita in 2002 (Table 9.3, Figure 9.5).

Table 9.3: Group “Y” Laboratory Tests in 2002

	Kapiti Coast	Porirua City	Wellington City	C&CDHB Total	Central Total	Grand Total
Group Y Laboratory Test Vols 2002	1,805	3,142	12,970	17,917	48,385	237,078
Lab Tests per Capita based on pop aged 00-05	0.70	0.58	1.03	0.87	0.71	0.72

Figure 9.5: Group “Y” laboratory tests per capita, 2002

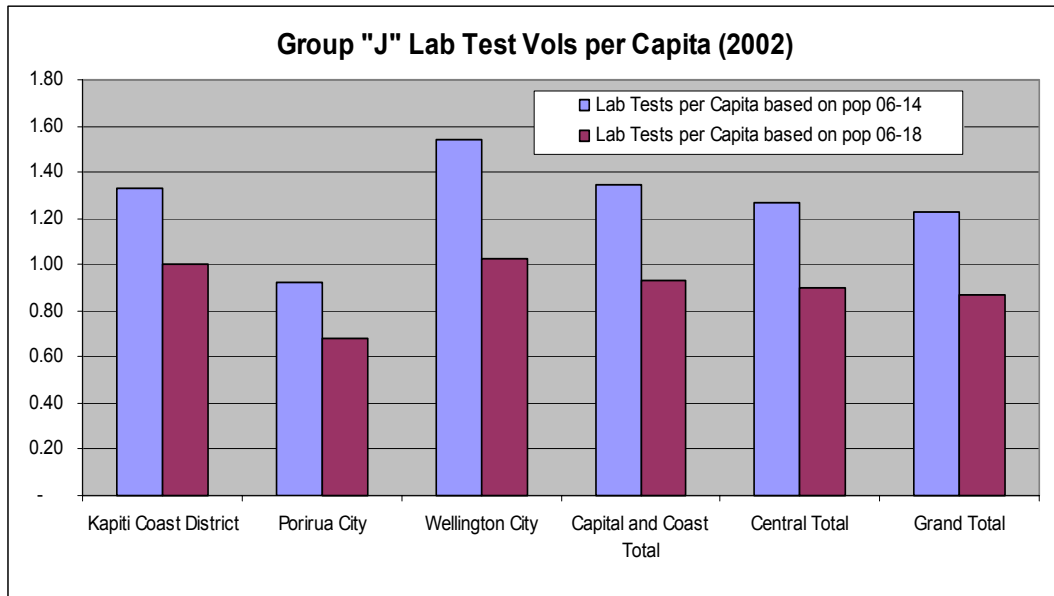


A similar pattern is apparent among older children, with “J” category children in Wellington having a per capita rate of laboratory investigation greater than both the central and national averages, and Porirua children having a much lower rate. Depending on the denominator used, Kapiti children have rates of laboratory testing which consistent with, or slightly below the rates for Wellington City children, but above the regional and national averages (Table 9.4, Figure 9.6).

Table 9.4: Group “J” Laboratory Tests, 2002

	Kapiti Coast	Porirua City	Wellington City	C&CDHB Total	Central Total	Grand Total
Group J Laboratory Test Vols 2002	6,052	7,292	27,280	40,624	136,565	637,791
Lab Tests per Capita based on pop 06-14	1.33	0.93	1.54	1.35	1.27	1.23
Lab Tests per Capita based on pop 06-18	1.00	0.68	1.02	0.93	0.90	0.87

Figure 9.6: Group "J" laboratory tests per capita, 2002



## Radiology

The utilisation of radiology services by Kapiti children is considerably higher than the utilisation of services by Wellington children. Porirua children have an even lower utilisation rate (Table 9.5). This difference in utilisation rates is particularly noticeable in the under 1 and 1 to 4 age groups.

Table 9.5: Utilisation of radiology services, 2002

	Age Group	Female	Male	Total	Population	Procedures per 1000 Children
Kapiti	00	16	16	32	405	79.01
	01-04	49	34	83	1698	48.88
	05-14	103	63	166	5055	32.84
Kapiti Total		168	113	281	7158	39.26
Porirua	00	9	11	20	924	21.65
	01-04	38	28	66	3603	18.32
	05-14	97	69	166	8766	18.94
Porirua Total		144	108	252	13293	18.96
Wellington	00	30	33	63	2376	26.52
	01-04	120	76	196	8277	23.68
	05-14	207	190	397	19716	20.14
Wellington Total		357	299	656	30369	21.60

## Summary

Key aspects relating to referred services are as follows:-

- The per capita expenditure on pharmaceuticals for children under 6 in Wellington and Porirua is relatively similar, but expenditure is significantly reduced for children living in Kapiti. For children 6-18 years, expenditure on pharmaceuticals for children living in Porirua is slightly less than children in Wellington or Kapiti.
- Drugs for treating the respiratory system and dermatologicals and systemic anti-infective drugs were the most common therapeutic agents prescribed to children in Kapiti, Porirua and Wellington.
- The total pharmaceutical expenditure is higher in C&CDHB than the central region or New Zealand as a whole.
- In 2002, Category Y children in Porirua had a low number of laboratory tests per capita compared to both the central and national averages. A similar pattern is apparent in J category children.
- Kapiti children have a very high rate of utilisation of radiology services, while children in children have a low utilisation rate.



## 10. Summary and Conclusion

When viewed overall, many health outcome statistics for children living in C&CDHB are consistent with the national average. However, clear disparities are apparent in a range of conditions. Key health issues in the region relate to the following:-

- Maori women are more likely to experience pre-term birth and have low birth weight babies. Asian women also have an increased likelihood of having a baby that is low birth weight or less than 3000g.
- Data suggests that rheumatic fever and meningococcal disease may be higher in Porirua than the national average. In 2001 and 2002 pertussis was considerably above the national rate in Kapiti.
- Pacific children are more likely to fail new entrant hearing screening, followed by Maori 5 year olds.
- While oral health has improved in the last decade, data suggest that Maori and Pacific children and adolescents in C&CDHB have a higher prevalence and severity of dental caries.
- Unintentional injury is the leading cause of death for children aged 1-14 years and a common reason for hospitalisation. There is considerable potential to reduce risk factors that lead to admission to hospital.
- Maori and Pacific children are over-represented in hospital admissions for asthma. Repeat admissions in 5 year old children were highest in Maori. Children under 15 years living in Porirua had a high rate of hospital admission with asthma in 2000/1-2002/3. Statistics suggest reduced access or attendance at primary health care services.
- Pacific children have the highest rate of avoidable hospitalisation. The rate of preventable hospitalisation in Pacific children under 5 and under 12 years of age is particularly high. Pacific children aged 5-14 also have a high rate of ambulatory sensitive hospitalisation. It is estimated that up to 30% of hospital admissions could be avoided by early access to primary care and outpatient services.
- Male children are over-represented and Pacific children are under-represented as clients in C&CDHB mental health services in the period surveyed.
- Children living in Porirua and Wellington TLA have a higher rate of admission to hospital compared to children living in Kapiti.
- Admission of children to hospital for cellulitis and abscesses appears to be growing problem in Wellington and also nationally. Once again, this suggests reduced access to, and utilisation of primary health care services.
- Childhood obesity is a growing health problem in New Zealand, particularly for Maori and Pacific children.
- The rate of exclusive breastfeeding is lower in Maori, Pacific and Asian women compared to women of Other ethnicity.
- Rates of immunisation in C&CDHB reduce as children age.
- The total expenditure for pharmaceuticals is higher than the central region or New Zealand as a whole.
- Data suggest that children in Porirua are not accessing laboratory tests or radiology services at the same rate as children living Kapiti and Wellington City.

Despite local statistics being favourable in some areas compared to the central region or national average, health outputs and outcomes are not necessarily acceptable. Data point to clear disparities in the health of Maori and Pacific children and reduced access of these groups to primary health care services. Socio-economic disadvantage is strongly related to poor health outcomes. For example, unsafe and crowded houses lead to an increase in non-accidental injury and communicable disease, and lack of money is a factor in failure to attend health services or obtain pharmaceuticals that would improve treatment outcomes.

A range of other factors impact on the health of children. These include parental stress, living in a substandard housing area where there is reduced opportunity for parents to develop formal and informal support networks, and transport. Poor educational attainment and unemployment complete the “vicious cycle of disadvantage” and contribute to poor health in children.

In many cases, hospitalisation is not an inevitable outcome. Admission is often able to be prevented by earlier intervention and improved access to primary health care services. Examples include admission for pneumonia, asthma and cellulitis. Some admissions are preventable by population-based health promotion strategies, for example smoking cessation, immunisation and injury prevention.

In summary, there is considerable potential to improve the health of children in C&CDHB, particularly Maori and Pacific children. Further debate is required on the way in which this will be achieved, but it is likely to involve –

- Actions which improve the determinants of health, for example employment, income, education and housing
- Enabling improved access to primary health care for disadvantaged populations
- Health education and health promotion in a range of areas for example, nutrition, physical activity, oral health, management of infected wounds
- Promoting smokefree environments for children
- Improved coverage of population-based interventions, for example immunisation and hearing screening

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## 12. Appendices



## Appendix 1 - Health Outcome Indicators Relevant to Child Health

- Overall reduction in smoking rates
- Overall reduction in obesity rates
- Increased levels of physical activity in all age groups
- Improved child oral health, measured as DMF teeth at age 12
- Overall reduction in road traffic injury and mortality rates
- Significant decrease in under 18 pregnancy rates
- Decrease in rate of low birth weight babies
- Increase in breastfeeding rate
- Increase in life expectancy (LE) and disability-adjusted life expectancy (DALE)
- Improvement in self-rated health status (tools for children becoming available)
- Near 100% child immunisation coverage rate
- Decrease in hearing failure at school entry rate
- Decrease in avoidable hospitalisation and avoidable mortality rates
- Decrease in disability prevalence (adjusted for severity)
- Reduced inequalities in health status between Maori and non-Maori
- Increase number and scope of well-resourced Maori health providers
- Reduced smoking, alcohol and other drug use in families
- Child injury rates are significantly reduced
- Reduction in violence and violent crimes in communities and families
- Sufficient numbers of skilled Maori workforce in both mainstream and 'by Maori for Maori' services
- Adequate and sustainable number of health professionals in the district (eg. GPs per capita of the total population)
- Strong working relationship is in place with training institutions and professional organisations, locally, regionally and nationally.
- Recruitment, retention and development of health and disability professionals is a planned and well-managed process. Crises situations caused by staffing shortages are few and far between.
- Regular monitoring of health outcome measures is in place to ensure improvement is made
- Decreased infant mortality rate
- Hospital efficiency indicators, such as length of inpatient stay and percentage of daycase surgery, are on a par with the best 25% of New Zealand hospitals
- Strong clinical leadership exists in all health care services, with quality and safety systems consistent with New Zealand best practice

- Decreased rate of unplanned hospital readmissions
- Decreased rate of treatment-related injuries and incidents
- Decreased hospital infection rate

## Appendix 2 - Neonatal Service Utilisation by Gestational Age

Table 11.1: Number of births and service utilisation of premature births by gestation, July 2001 to Dec 2002

DHB of Domicile	Gestation	Admissions	Tot CWDs	Average CWD
Capital and Coast	22	2	1	0.36
	23	7	98	14.05
	24	3	60	20.11
	25	5	91	18.27
	26	3	84	27.88
	27	3	30	10.03
	28	13	133	10.22
	29	10	83	8.27
	30	12	49	4.10
	31	9	67	7.46
	32	34	183	5.37
	33	28	109	3.89
	34	56	176	3.15
	35	93	167	1.80
	36	127	103	0.81
Capital and Coast Total Under 37 Weeks Gestation		405	1,434	3.54
New Zealand Total Under 37 Weeks Gestation		5687	21,072	3.71

Table 11.2: Number of births and service utilisation of premature births by TLA and gestation, July 2001 to December 2002

	Admissions	Tot CWDs	Average CWD
Kapiti Coast District	35	230	6.58
Porirua City	92	394	4.28
Wellington City	278	810	2.91
Capital and Coast Total Under 37 Weeks Gestation	405	1,434	3.54

Table 11.3: Number of births and service utilisation of non-premature births by gestation, July 2001 to December 2002

DHB of Domicile	Gestation	Admissions	Tot CWDs	Average CWD
Capital and Coast	37	52	71	0.74
	38	72	131	0.55
	39	96	187	0.51
	40	105	242	0.43
	41	78	169	0.46
	42	12	48	0.26
	44	0	1	0.25
Capital and Coast Total 37+ Weeks Gestation		416	849	0.49
Grand Total 37+ Weeks Gestation		6,263	12,580	0.50

Table 11.4: Number of births and service utilisation by gestation, July 2001 to December 2002

DHB of Domicile	Gestation	Admissions	Tot CWDs	Average CWD
C&CDHB	No Gest Given	528	624	0.85
National	No Gest Given	8,900	12,433	0.72
National Total		15,163	25,013	0.61

Table 11.5: Number of births and service utilisation by gestation, July 2001 to December 2u02

DHB of Domicile	Gestation	Births	Tot CWDs	Average CWD
C&&CDHB Total	Under 37 Weeks	405	1,434	3.54
New Zealand Total	Under 37 Weeks	5687	21,072	3.71

Table 11.6: Number of births and service utilisation by gestation,  
July 2001 to December 2002

DHB of Domicile	Gestation	Births*	Tot CWDs	Average CWD
C&CDHB Total	37+ Weeks	1,259	603	0.48
New Zealand Total	37+ Weeks	19,236	9,517	0.49
C&CDHB	No Gest Given	923	691	0.75
National	No Gest Given	18,870	14,102	0.75

\*These numbers are significantly lower than reported births, as not all well newborns are entered onto the NMDS database

Table 11.7: Number and service utilisation of non premature births by gestation,  
July 2001 to Dec 2002

DHB of Domicile	Gestation	Admissions	Tot CWDs	Average CWD
CCDHB	No Gest Given	923	691	0.75
National	No Gest Given	18,870	14,102	0.75