

# HOSPITAL ADMISSIONS AND MORTALITY WITH A SOCIAL GRADIENT IN CHILDREN

In New Zealand, many child health outcomes exhibit a social gradient, with hospital admissions and mortality from socioeconomically sensitive conditions being several times higher for Māori and Pacific children, and those living in the most deprived areas [1]. Such disparities have persisted, despite one of the longest periods of economic growth in recent decades, as well as historically low unemployment rates.

As earlier sections of this report have demonstrated, New Zealand's macroeconomic environment has changed markedly over the past two years, with rises in unemployment and increases in the number of children reliant on benefit recipients. The impact these changes will have on socially sensitive health outcomes remains unclear however, as international evidence suggests that the effects may vary, not only with the magnitude and duration of any economic downturn, but also as a result of the Government's social policy responses, and the extent to which New Zealand can maintain an effective social safety net (e.g. in housing, health, education, income support) for those most affected. Further, the adaptations families make to their economic circumstances (e.g. cutting back on heating and doctor's visits vs. reductions in cigarettes and takeaways), are also important, with the net impact of such positive / negative adaptations on health outcomes for children being difficult to predict (for a more detailed review of these issues see last year's report).

As predicting the impact of the current economic downturn on child wellbeing is difficult, it would instead seem prudent to monitor a basket of key child health outcomes over time, in order to ensure that any impacts on child health and wellbeing can be identified early, and so that proactive and co-ordinated responses can be put in place, should the need arise. The following section thus uses data from the National Minimum Dataset and the National Mortality collection to review hospital admissions for, and mortality from, the basket of socially sensitive conditions which were presented for the first time in last year's Monitor.

## Data Source and Methods

### Definition

1. Hospital Admissions for Medical Conditions with a Social Gradient in Children Aged 0-14 Years
2. Injury Admissions with a Social Gradient in Children Aged 0-14 Years
3. Mortality with a Social Gradient in Children Aged 0-14 Years

### Data Source

For details of the methodology used to derive these indicators see **Appendix 9**

### Numerator:

*Hospital Admissions for Medical Conditions with a Social Gradient:* Acute and Arranged Hospital Admissions (Waiting List, ACC Cases and neonates <29 days excluded) in children aged 0-14 years with the following ICD-10-AM primary diagnoses: A00-A09 or R11 (Gastroenteritis); A15-A19 (Tuberculosis); A33, A34, A35, A36, A37, A80, B05, B06, B16, B26, B18.0, B18.1, P35.0 or M01.4 (Vaccine Preventable Diseases); A39 (Meningococcal Disease); B34 (Viral Infection of Unspecified Site); E40-E64 or D50-D53 (Nutritional Deficiencies / Anaemias); J00-J03 or J06 (Acute Upper Respiratory Infections); J04 (Croup / Laryngitis / Tracheitis / Epiglottitis); J12, J10.0 or J11.0 (Viral Pneumonia); J13-J16 or J18 (Bacterial / Non-Viral Pneumonia); J21 (Acute Bronchiolitis); J45 or J46 (Asthma); J47 (Bronchiectasis); G00 or G01 (Bacterial Meningitis); A87, G02 or G03 (Viral / Other / NOS Meningitis); G40 or G41 (Epilepsy/ Status Epilepticus); H65, H66 or H67 (Otitis Media); I00-I09 (Rheumatic Fever/Heart Disease); K40 (Inguinal Hernia); L00-L08, H00.0, H01.0, J34.0 or L98.0 (Skin Infections); L20-L30 (Dermatitis and Eczema); M86 (Osteomyelitis); N10, N12, N13.6, N30.0, N30.9 or N39.0 (Urinary Tract Infection); R56.0 (Febrile Convulsions).

*Injury Admissions with a Social Gradient:* Hospital admissions (emergency department cases, neonates <29 days excluded) in children 0-14 years, with a primary diagnosis of injury (ICD-10-AM S00-T79) and an ICD-10-AM primary external cause code in the following range: V01-V09 (Transport: Pedestrian); V10-V19 (Transport: Cyclist); V40-V79 (Transport: Vehicle Occupant); W00-W19 (Falls); W20-W49 (Mechanical Forces: Inanimate); W50-W64 (Mechanical Forces: Animate); W85-X19 (Electricity / Fire / Burns); X40-X49 (Accidental Poisoning); In order to ensure comparability over time, all injury cases with an Emergency Department Specialty Code (M05-M08) on discharge were excluded.

*Mortality with a Social Gradient:* All deaths in children 0-14 years, (neonates <29 days excluded) with a main underlying cause of death in the ICD-10-AM medical and injury categories outlined above. In addition post-



neonatal Sudden Unexpected Deaths in Infancy (SUDI) were included, if the child was aged between 29 days and 1 year and their main underlying cause of death was SUDI (ICD-10-AM R95, W75, R99).

Denominator: NZ Statistics NZ Estimated Resident Population

**Indicator Category** Proxy B-C

**Notes on Interpretation** (For Further Detail See **Appendix 9**)

Note 1: Hospital admissions in neonates (<29 days) were excluded from both indicators, as these admissions are more likely to reflect issues arising prior to / at the time of birth, (e.g. preterm infants may register multiple admissions as they transition from intensive care (NICU), through special care nurseries (SCBU) to the postnatal ward), and respiratory infections / other medical conditions arising in these contexts are likely to differ in their aetiology from those arising in the community.

Note 2: For medical conditions, only acute and arranged admissions have been included, as Waiting List admissions tend to reflect service capacity, rather than actual health need (e.g. inclusion of these admissions would result in a large number of children with otitis media with effusion (OME) and chronic tonsillitis being included (for grommets and tonsillectomies), whose demographic profile is very different from children attending hospital acutely for similar diseases). For injury admissions however, filtering by admission type could not occur, as a number of DHBs admitted injury cases under (now discontinued) ACC admission codes, making it difficult to distinguish between acute and waiting list admissions in this context. As with other injury data in these reports however, all injury cases with an Emergency Department Specialty Code (M05-M08) on discharge were excluded (see **Appendix 4** for rationale).

Note 3: Hospital admissions were considered to have a social gradient if rates for those in the most deprived (NZDep Decile 9-10) areas were  $\geq 1.8$  times higher than for those in the least deprived (NZDep Decile 1-2) areas, or where ethnic differences (Māori, Pacific or Asian vs. European children) met these criteria. In addition, a small number of conditions were included where rates were  $\geq 1.5$  times higher, they demonstrated a consistent social gradient, and the association was biologically plausible.

Note 4: When considering the magnitude of social gradients between medical and injury admissions, it must be remembered that these differences are not strictly comparable, as for technical reasons emergency department cases have been removed from injury admissions (and social differences in attendance at the Emergency Department vs. primary care for minor medical conditions may have accounted for some (but not all) of the social gradients in medical admission seen). No such differential filtering occurred for mortality data however, and thus the magnitude of the social differences seen is more readily comparable.

Note 5: 95% confidence intervals have been provided for the rate ratios in this section and where appropriate, the terms significant or not significant have been used to communicate the significance of the observed associations. Tests of statistical significance have not been applied to other data in this section, and thus (unless the terms *significant* or *non-significant* are specifically used) the associations described do not imply statistical significance or non-significance (see **Appendix 1** for further discussion of this issue).

Note 6: SUDI rates are traditionally calculated per 1,000 live births. For this analysis rates for those aged 0-14 years have been calculated, so that the relative contribution SUDI makes to mortality in this age group (as compared to other causes of death) is more readily appreciated. As a result, the SUDI rates in this section are not readily comparable to traditional SUDI mortality rates for those <1 year.

## New Zealand Distribution and Trends

### Distribution by Cause

*Hospital Admissions:* In New Zealand during 2005-2009, bronchiolitis, asthma and gastroenteritis made the largest individual contributions to hospitalisations for medical conditions with a social gradient, although infectious and respiratory diseases collectively were responsible for the majority of admissions. Similarly falls, followed by inanimate mechanical forces were the leading causes of injury admissions with a social gradient, although transport accidents as a group also made a significant contribution (**Table 1**).

*Mortality:* In New Zealand during 2003-2007, SUDI made the single largest contribution to mortality with a social gradient in children aged 0-14 years. This occurred despite the fact that, by definition, all of these deaths occurred during the first year of life. Vehicle occupant related deaths made the second largest contribution, followed by pedestrian injuries and drowning, while bacterial / non viral pneumonia was the leading cause of mortality from medical conditions (**Table 2**).



Table 1. Hospital Admissions for Conditions with a Social Gradient in Children Aged 0-14 Years (excluding Neonates) by Cause, New Zealand 2005-2009

Diagnosis	New Zealand			
	Number: Total 2005-2009	Number: Annual Average	Rate per 1,000	% of Total
<b>Medical Conditions</b>				
Acute Bronchiolitis	24,808	4,961.6	5.57	14.63
Asthma	23,802	4,760.4	5.35	14.03
Gastroenteritis	21,610	4,322.0	4.85	12.74
Acute Upper Respiratory Infections Excl Croup	18,566	3,713.2	4.17	10.95
Viral Infection of Unspecified Site	17,084	3,416.8	3.84	10.07
Bacterial/Non-Viral Pneumonia	15,207	3,041.4	3.42	8.97
Skin Infections	14,401	2,880.2	3.23	8.49
Urinary Tract Infection	6,246	1,249.2	1.40	3.68
Croup/Laryngitis/Tracheitis/Epiglottitis	5,269	1,053.8	1.18	3.11
Epilepsy/ Status	3,932	786.4	0.88	2.32
Otitis Media	3,700	740.0	0.83	2.18
Febrile Convulsions	3,686	737.2	0.83	2.17
Dermatitis and Eczema	2,854	570.8	0.64	1.68
Viral Pneumonia	1,796	359.2	0.40	1.06
Inguinal Hernia	1,548	309.6	0.35	0.91
Osteomyelitis	1,168	233.6	0.26	0.69
Rheumatic Fever/Heart Disease	881	176.2	0.20	0.52
Bronchiectasis	763	152.6	0.17	0.45
Viral / Other / NOS Meningitis	698	139.6	0.16	0.41
Meningococcal Disease	533	106.6	0.12	0.31
Vaccine Preventable Diseases	440	88.0	0.10	0.26
Nutritional Deficiencies/Anaemias	291	58.2	0.07	0.17
Bacterial Meningitis	245	49.0	0.06	0.14
Tuberculosis	72	14.4	0.02	0.04
<b>New Zealand Total</b>	<b>169,600</b>	<b>33,920.0</b>	<b>38.09</b>	<b>100.00</b>
<b>Injury Admissions</b>				
Falls	23,454	4,690.8	5.27	48.05
Mechanical Forces: Inanimate	14,171	2,834.2	3.18	29.03
Transport: Cyclist	3,080	616.0	0.69	6.31
Accidental Poisoning	2,497	499.4	0.56	5.12
Electricity / Fire / Burns	2,026	405.2	0.46	4.15
Transport: Vehicle Occupant	1,294	258.8	0.29	2.65
Mechanical Forces: Animate	1,092	218.4	0.25	2.24
Transport: Pedestrian	1,023	204.6	0.23	2.10
Drowning / Submersion	179	35.8	0.04	0.37
<b>New Zealand Total</b>	<b>48,816</b>	<b>9,763.2</b>	<b>10.96</b>	<b>100.00</b>

Source: Numerator: National Minimum Dataset (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Medical Conditions: Acute and Arranged Admissions only; Injury Admissions: Emergency Department Cases removed.



Table 2. Mortality from Conditions with a Social Gradient in Children Aged 0-14 Years (excluding Neonates) by Cause, New Zealand 2003-2007

Diagnosis	New Zealand			
	Number: Total 2003-2007	Number: Annual Average	Rate per 100,000	% of Total
<b>Medical Conditions</b>				
Bacterial/Non-Viral Pneumonia	43	8.6	0.97	29.5
Epilepsy/ Status	18	3.6	0.41	12.3
Meningococcal Disease	17	3.4	0.38	11.6
Viral Pneumonia	14	2.8	0.32	9.6
Bacterial Meningitis	12	2.4	0.27	8.2
Asthma	10	2.0	0.23	6.8
Gastroenteritis	7	1.4	0.16	4.8
Acute Bronchiolitis	6	1.2	0.14	4.1
Other Medical Conditions	19	3.8	0.43	13.0
<b>Total Medical Conditions</b>	<b>146</b>	<b>29.2</b>	<b>3.30</b>	<b>100.0</b>
<b>Injuries</b>				
Transport: Vehicle Occupant	82	16.4	1.85	32.5
Transport: Pedestrian	55	11.0	1.24	21.8
Drowning / Submersion	49	9.8	1.11	19.4
Electricity / Fire / Burns	22	4.4	0.50	8.7
Transport: Cyclist	12	2.4	0.27	4.8
Falls	12	2.4	0.27	4.8
Mechanical Forces: Inanimate	11	2.2	0.25	4.4
Accidental Poisoning	6	1.2	0.14	2.4
Mechanical Forces: Animate	<5	s	s	s
<b>Total Injuries</b>	<b>252</b>	<b>50.4</b>	<b>5.69</b>	<b>100.0</b>
<b>Post Neonatal SUDI</b>				
Post Neonatal SUDI	267	53.4	6.03	100.0
<b>Total</b>	<b>665</b>	<b>133.0</b>	<b>15.01</b>	<b>100.0</b>

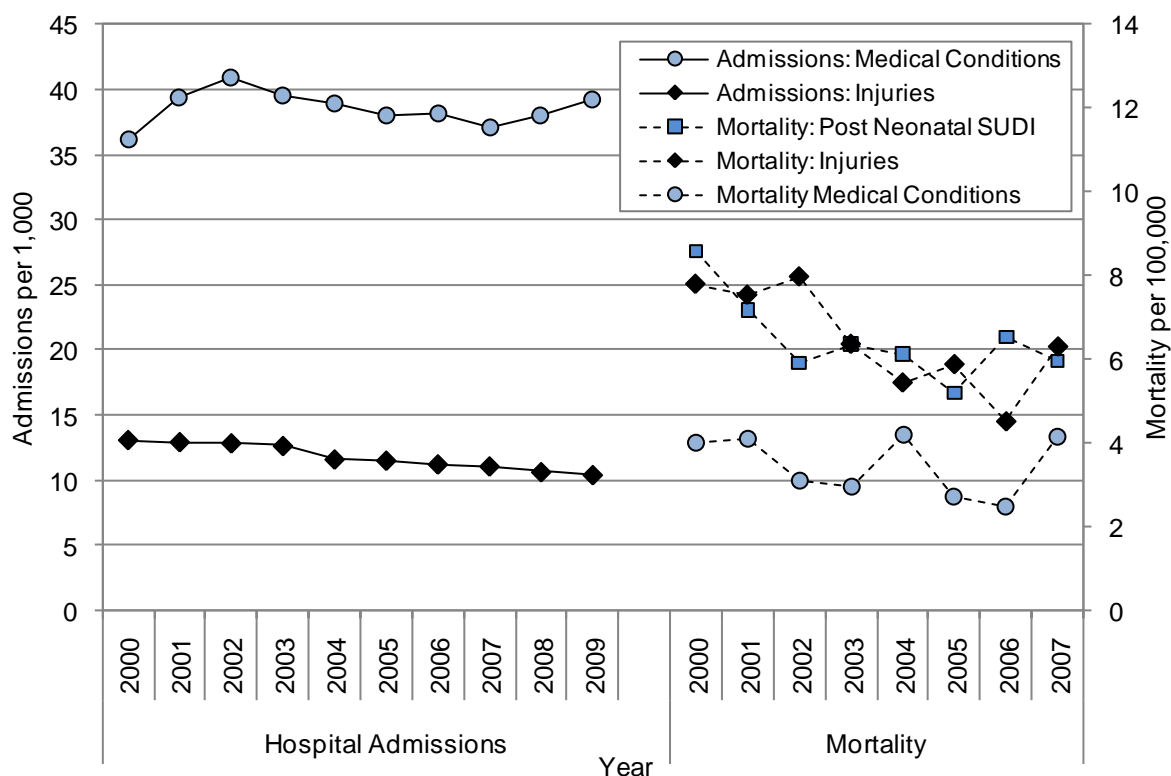
Source: Numerator: National Mortality Collection (Neonates removed); Denominator: Statistics NZ Estimated Resident Population. Note SUDI deaths are for infants aged 29-364 days only.

### New Zealand Trends

*Hospital Admissions:* In New Zealand, medical admissions with a social gradient increased during the early 2000s, reached peak in 2002 and then declined, with an upswing in rates again being evident during 2007-2009. In contrast, injury admissions with a social gradient declined throughout 2000-2009 (**Figure 1**).

*Mortality:* In New Zealand, injury mortality with a social gradient declined during 2000-2006, with a small upswing in rates being evident in 2007. Mortality from medical conditions with a social gradient exhibited a fluctuating downward trend during 2000-2006, with an upswing in rates also being evident in 2007 (in both cases, it remains unclear whether this upswing reflects normal year to year variation, or the beginning of an upward trend, with 1-2 years more data being required to determine this). In contrast, post-neonatal SUDI declined during 2000-2002, and thereafter remained relatively static (**Figure 1**).

Figure 1. Hospital Admissions (2000-2009) and Mortality (2000-2007) from Conditions with a Social Gradient in New Zealand Children Aged 0-14 Years (excluding Neonates)



Source: Numerator Admissions: National Minimum Dataset (Neonates Removed); Numerator Mortality: National Mortality Collection (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Medical Conditions Admissions: Acute and Arranged Admissions Only; Injury Admissions: Emergency Department Cases Removed.

### Trends by Ethnicity

**Hospital Admissions:** In New Zealand during 2000-2009, hospitalisations for medical conditions with a social gradient were consistently higher for Pacific > Māori > European and Asian children. For Pacific children, admissions increased during the early 2000s, reached a peak in 2003 and then declined, with an upswing in rates again being evident during 2007-2009. For Māori children, rates were static during the early-mid 2000s, but began to increase after 2007, while for Asian children rates during 2002-2009 remained relatively static. In contrast, for European children rates declined gradually during 2002-2009. Injury admissions with a social gradient were also higher for Pacific and Māori > European > Asian children, and while in absolute terms the magnitude of these differences appeared to be less marked than for medical conditions, for technical reasons, comparisons between these categories is not strictly possible (see Note 4 in Methods section) (**Figure 2**).

**Mortality:** In New Zealand during 2000-2007, SUDI mortality was consistently higher for Māori > Pacific > European and Asian infants, while mortality from medical conditions with a social gradient was generally higher for Māori and Pacific > European and Asian children. While mortality from injuries with a social gradient was also consistently higher for Māori than for European and Asian children, rates for Pacific children were more variable (**Figure 3**).

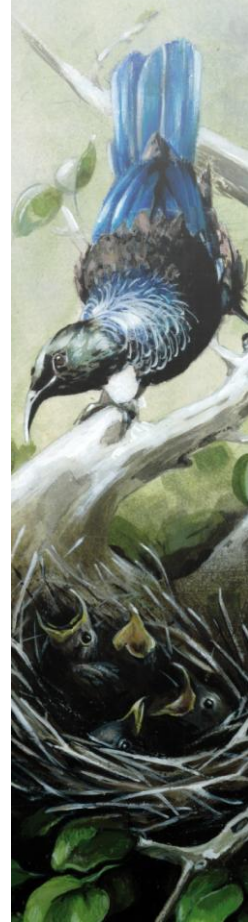
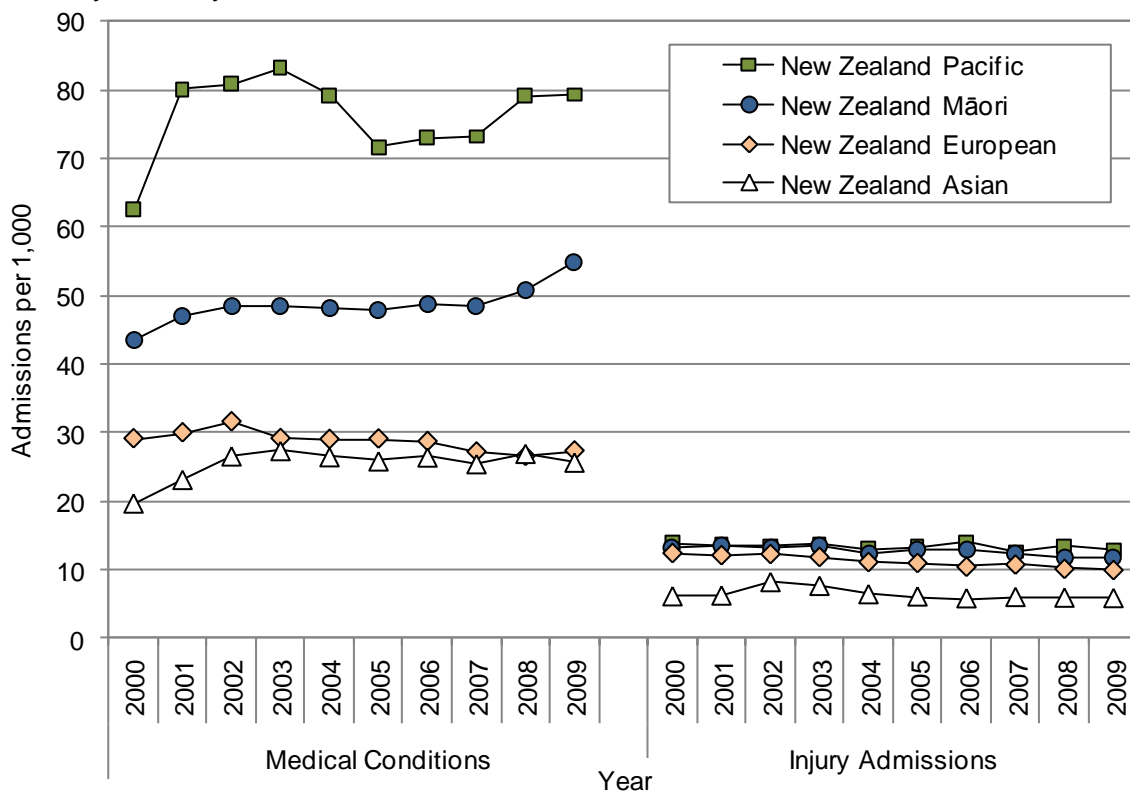
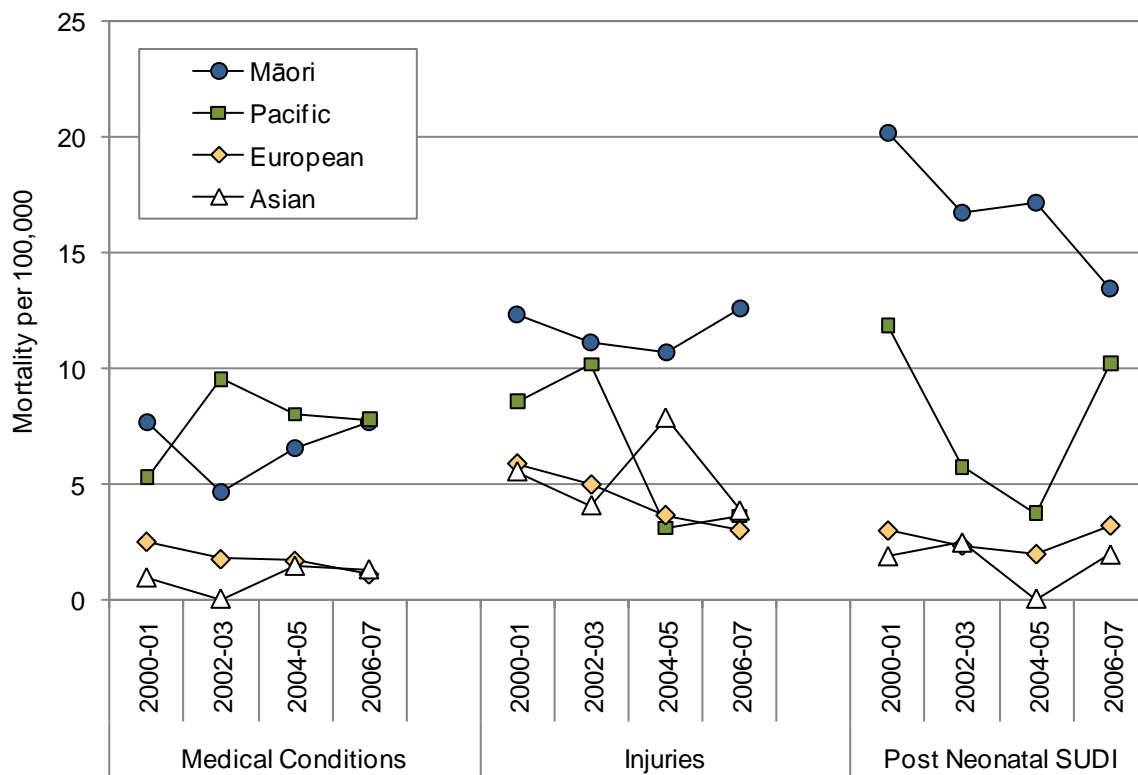


Figure 2. Hospital Admissions for Conditions with a Social Gradient in Children Aged 0-14 Years by Ethnicity, New Zealand 2000-2009



Source: Numerator: National Minimum Dataset (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Medical Conditions: Acute and Arranged Admissions only; Injury Admissions: Emergency Department Cases removed. Ethnicity is Level 1 Prioritised.

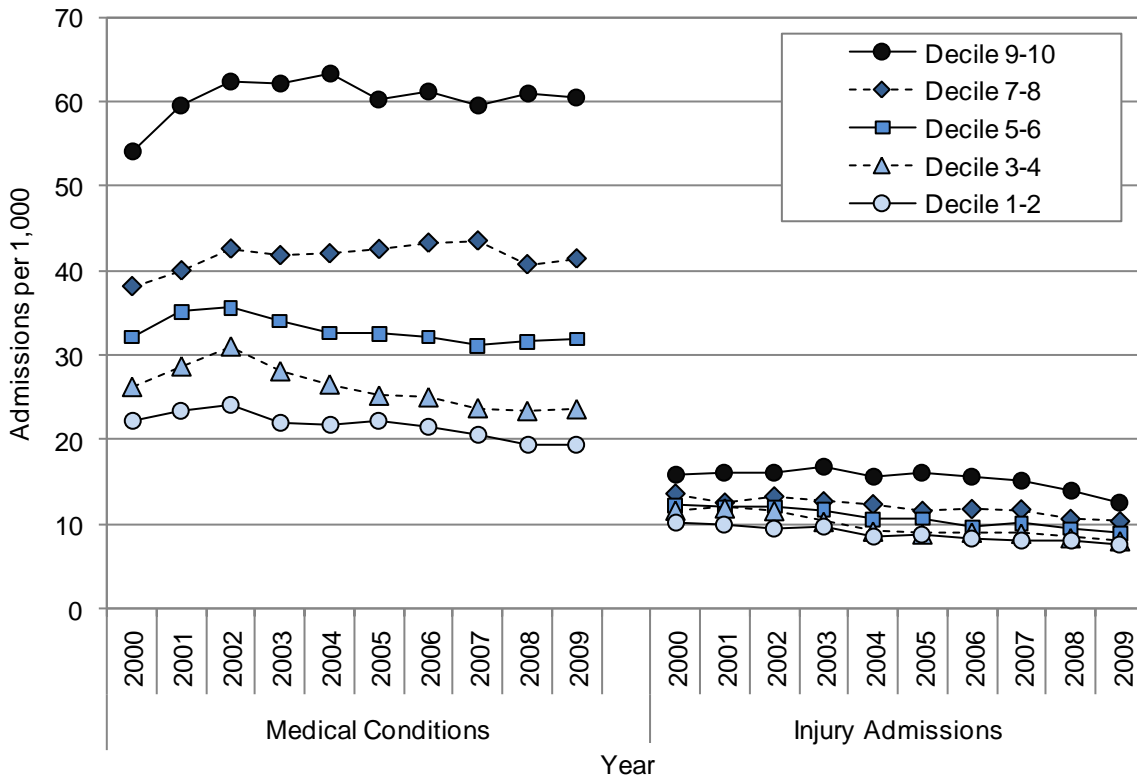
Figure 3. Mortality from Conditions with a Social Gradient in Children Aged 0-14 Years (excluding Neonates) by Ethnicity, New Zealand 2000-2007



Source: Numerator: National Mortality Collection (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Ethnicity is Level 1 Prioritised. Note: SUDI deaths are for infants aged 29-364 days only.

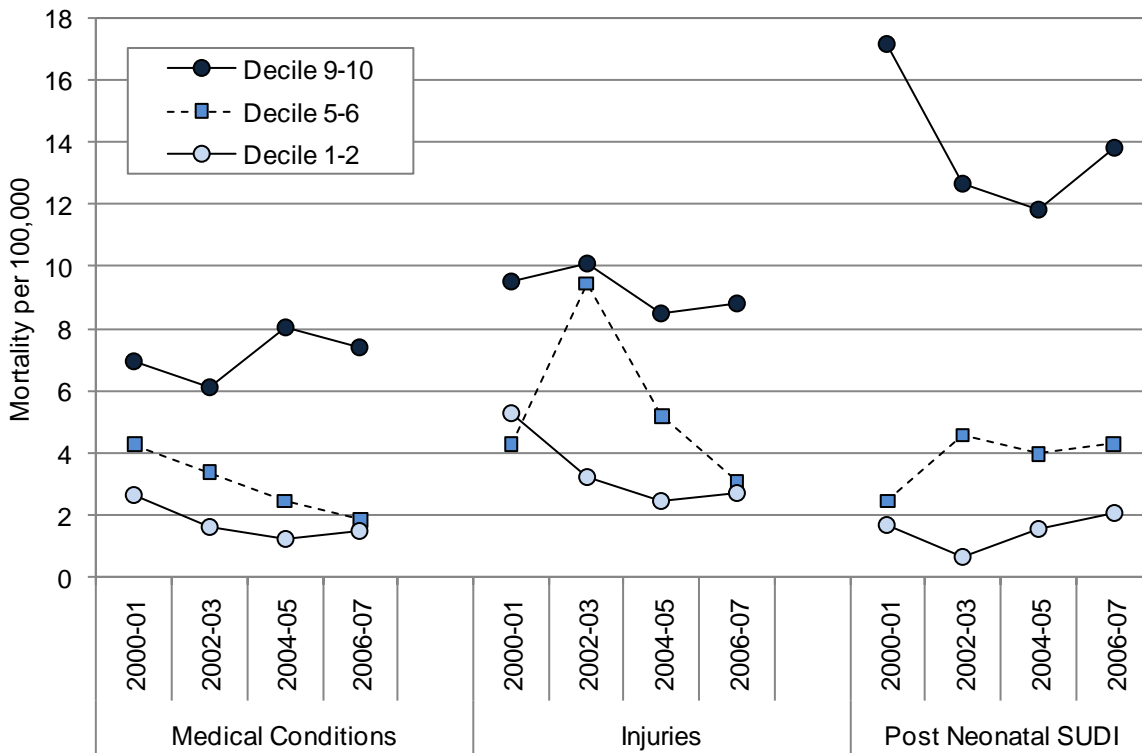


Figure 4. Hospital Admissions for Conditions with a Social Gradient in Children Aged 0-14 Years by NZ Deprivation Index Decile, New Zealand 2000-2009



Source: Numerator: National Minimum Dataset (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Medical Conditions: Acute and Arranged Admissions only; Injury Admissions: Emergency Department Cases removed.

Figure 5. Mortality from Conditions with a Social Gradient in Children Aged 0-14 Years (excluding Neonates) by NZ Deprivation Index Decile, New Zealand 2000-2007



Source: Numerator: National Mortality Collection (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Note: SUDI deaths are for infants aged 29-364 days only.



### Trends by NZ Deprivation Index Decile

*Hospital Admissions:* In New Zealand during 2000-2009, medical admissions with a social gradient were consistently higher for those living in Decile 9-10 > Decile 7-8 > Decile 5-6 > Decile 3-4 > Decile 1-2 areas. Injury admissions with a social gradient also demonstrated a consistent socioeconomic gradient over time, and while in absolute terms these differences were less marked than for medical conditions, for technical reasons comparisons between these admission categories is not strictly possible (see Note 4 in Methods section) (**Figure 4**).

*Mortality:* In New Zealand during 2000-2007, medical conditions and injuries with a social gradient, and post neonatal SUDI were all consistently higher for those in the most deprived (Decile 9-10) areas, than for those in the least deprived (Decile 1-2) areas, with the greatest absolute differences being seen for post neonatal SUDI (**Figure 5**).

Table 3. Risk Factors for Hospital Admissions with a Social Gradient in Children Aged 0-14 Years, New Zealand 2005-2009

Medical Conditions							
Variable	Rate	RR	95% CI	Variable	Rate	RR	95% CI
NZ Deprivation Index Decile				NZ Deprivation Index Quintile			
Decile 1	20.9	1.00		Decile 1-2	20.6	1.00	
Decile 2	20.2	0.97	0.94 - 1.00	Decile 3-4	24.2	1.18	1.15 - 1.20
Decile 3	23.3	1.11	1.08 - 1.15	Decile 5-6	31.9	1.55	1.52 - 1.58
Decile 4	25.0	1.19	1.16 - 1.23	Decile 7-8	42.3	2.05	2.02 - 2.09
Decile 5	29.9	1.43	1.39 - 1.47	Decile 9-10	60.4	2.94	2.89 - 2.98
Decile 6	33.5	1.60	1.56 - 1.64	Ethnicity			
Decile 7	38.3	1.83	1.78 - 1.88	Asian	26.1	0.94	0.92 - 0.96
Decile 8	45.7	2.18	2.13 - 2.24	European	27.8	1.00	
Decile 9	56.3	2.69	2.63 - 2.75	Māori	50.2	1.81	1.79 - 1.83
Decile 10	63.9	3.05	2.99 - 3.12	Pacific	75.3	2.71	2.68 - 2.75
Gender							
Female	34.4	1.00		Male	41.6	1.21	1.20 - 1.22
Injuries							
Variable	Rate	RR	95% CI	Variable	Rate	RR	95% CI
NZ Deprivation Index Decile				NZ Deprivation Index Quintile			
Decile 1	8.4	1.00		Decile 1-2	8.1	1.00	
Decile 2	7.9	0.93	0.89 - 0.98	Decile 3-4	8.7	1.07	1.03 - 1.10
Decile 3	8.5	1.01	0.96 - 1.06	Decile 5-6	9.8	1.20	1.16 - 1.24
Decile 4	8.9	1.06	1.01 - 1.10	Decile 7-8	11.2	1.37	1.33 - 1.42
Decile 5	9.6	1.15	1.10 - 1.20	Decile 9-10	14.7	1.80	1.75 - 1.85
Decile 6	9.9	1.17	1.12 - 1.22	Ethnicity			
Decile 7	10.6	1.26	1.21 - 1.32	Asian	5.9	0.56	0.54 - 0.59
Decile 8	11.7	1.39	1.33 - 1.45	European	10.5	1.00	
Decile 9	14.8	1.75	1.69 - 1.83	Māori	12.4	1.18	1.15 - 1.20
Decile 10	14.6	1.73	1.67 - 1.80	Pacific	13.3	1.26	1.23 - 1.30
Gender							
Female	8.8	1.00		Male	13.0	1.48	1.45 - 1.50

Source: Numerator: National Minimum Dataset (Neonates Removed); Denominator: Statistics NZ Estimated Resident Population. Medical Conditions: Acute and Arranged Admissions only; Injury Admissions: Emergency Department Cases removed. Rates are per 1,000, Rate Ratios are unadjusted; Ethnicity is Level 1 Prioritised.

## Distribution by Ethnicity, Gender and NZDep Deprivation

**Hospital Admissions:** In New Zealand during 2005-2009, hospital admissions for medical conditions with a social gradient were *significantly* higher for Pacific > Māori > European > Asian children, males and those in average-more deprived (NZDep decile 3-10) areas. Similarly, injury admissions with a social gradient were *significantly* higher for Pacific > Māori > European > Asian children, males and those in average-more deprived (NZDep decile 4-10) areas. While the magnitude of the social differences appeared smaller for injury admissions, it must be remembered that that for technical reasons (See Note 4 in Methods Section) these categories are not strictly comparable (**Table 3**).

**Mortality:** In New Zealand during 2003-2007, mortality from medical conditions with a social gradient was *significantly* higher for Pacific and Māori > European and Asian children, and those in more deprived (Decile 7-10) areas. Similarly mortality from injuries with a social gradient was *significantly* higher for Māori > Asian, Pacific and European children, males and those in more deprived (Decile 7-10) areas (**Table 4**). Differences in SUDI mortality are considered in the Infant Mortality section.

Table 4. Risk Factors for Mortality with a Social Gradient in Children Aged 0-14 Years, New Zealand 2003-2007

Medical Conditions							
Variable	Rate	RR	95% CI	Variable	Rate	RR	95% CI
NZ Deprivation Index Decile				Prioritised Ethnicity			
Decile 1-2	1.34	1.00		Asian	1.11	0.83	0.29 - 2.33
Decile 3-4	0.97	0.73	0.29 - 1.81	European	1.34	1.00	
Decile 5-6	2.44	1.82	0.87 - 3.80	Māori	6.59	4.92	3.27 - 7.41
Decile 7-8	2.85	2.13	1.05 - 4.31	Pacific	8.80	6.57	4.11 - 10.50
Decile 9-10	7.58	5.66	3.01 - 10.62	Gender			
				Female	2.92	1.00	
				Male	3.66	1.25	0.90 - 1.74
Injuries							
Variable	Rate	RR	95% CI	Variable	Rate	RR	95% CI
NZ Deprivation Index Decile				Prioritised Ethnicity			
Decile 1-2	2.80	1.00		Asian	4.98	1.44	0.86 - 2.38
Decile 3-4	4.63	1.65	0.98 - 2.77	European	3.47	1.00	
Decile 5-6	4.27	1.52	0.90 - 2.58	Māori	11.79	3.40	2.59 - 4.46
Decile 7-8	5.59	2.00	1.22 - 3.27	Pacific	4.16	1.20	0.71 - 2.02
Decile 9-10	9.29	3.31	2.10 - 5.22	Gender			
				Female	4.68	1.00	
				Male	6.65	1.42	1.11 - 1.83
SUDI: See Infant Mortality Section							

Source: Numerator: National Mortality Collection; Denominator: Statistics NZ Estimated Resident Population; Rates are per 100,000; Rate Ratios are unadjusted; Ethnicity is Level 1 Prioritised.



## Summary

Medical admissions with a social gradient in children increased during the early 2000s, reached peak in 2002 and then declined, with an upswing in rates again being evident during 2007-2009. In contrast, injury admissions with a social gradient declined throughout 2000-2009. Medical admissions for Pacific children increased during the early 2000s, reached a peak in 2003 and then declined, with an upswing in rates again being evident during 2007-2009. For Māori children, rates were static during the early-mid 2000s, but increased after 2007, while for Asian children rates during 2002-2009 were static. Rates for European children declined gradually during 2002-2009.

During 2005-2009, infectious and respiratory diseases were responsible for the majority of hospitalisations for medical conditions with a social gradient, while falls, followed by inanimate mechanical forces were the leading causes of injury admissions. In contrast, during 2003-2007 SUDI made the single largest contribution to mortality with a social gradient. Vehicle occupant deaths were the second leading cause, followed by pedestrian injuries and drowning, while bacterial / non viral pneumonia was the leading cause of death from medical conditions.

## References

1. Craig, E., et al., Monitoring the Health of New Zealand Children and Young People: Indicator Handbook. 2007, Paediatric Society of New Zealand & New Zealand Child and Youth Epidemiology Service: Auckland.

