



Is it true that south Auckland's early childhood centres are disproportionately sited near busy traffic?

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Epidemiological evidence of roadside risks

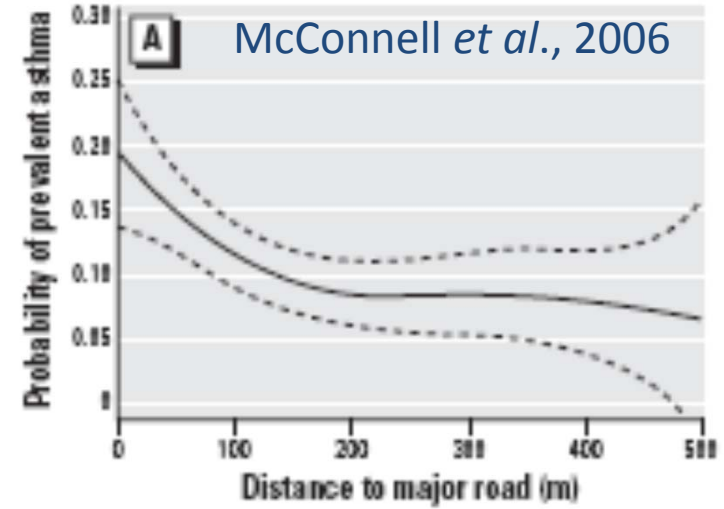
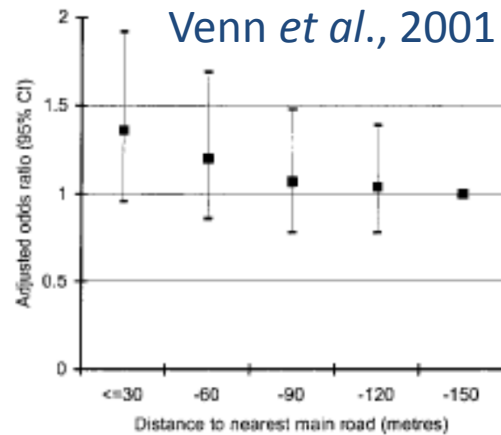
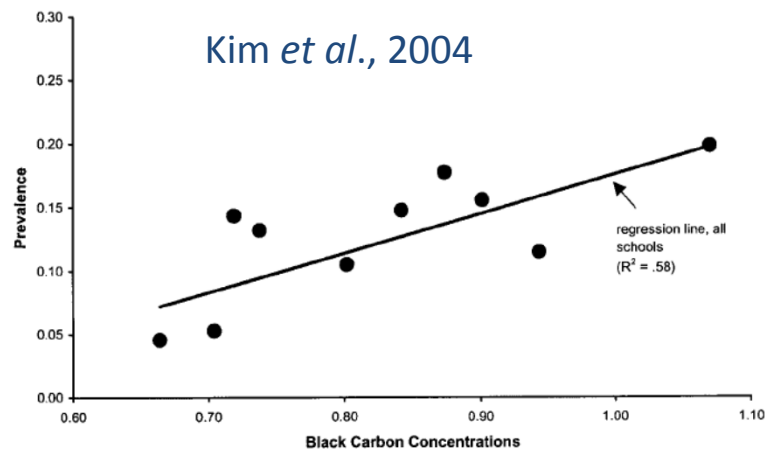


Figure 1. Exposure–response relation between distance of the home from nearest main road and parent-reported wheeze in primary schoolchildren.



Toxic road fumes causing children's health problems

5:00AM Sunday Sep 23, 2007
By David Fisher

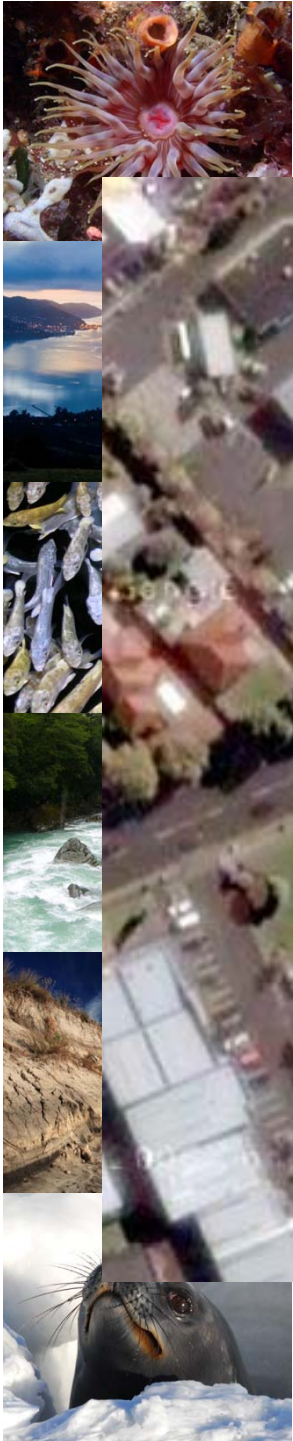
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A daycare centre launched by Prime Minister Helen Clark has been blocked from opening because air quality around it is too poor - putting hundreds of others which are sited in some of the country's worst pollution corridors under scrutiny.

Three government departments are due

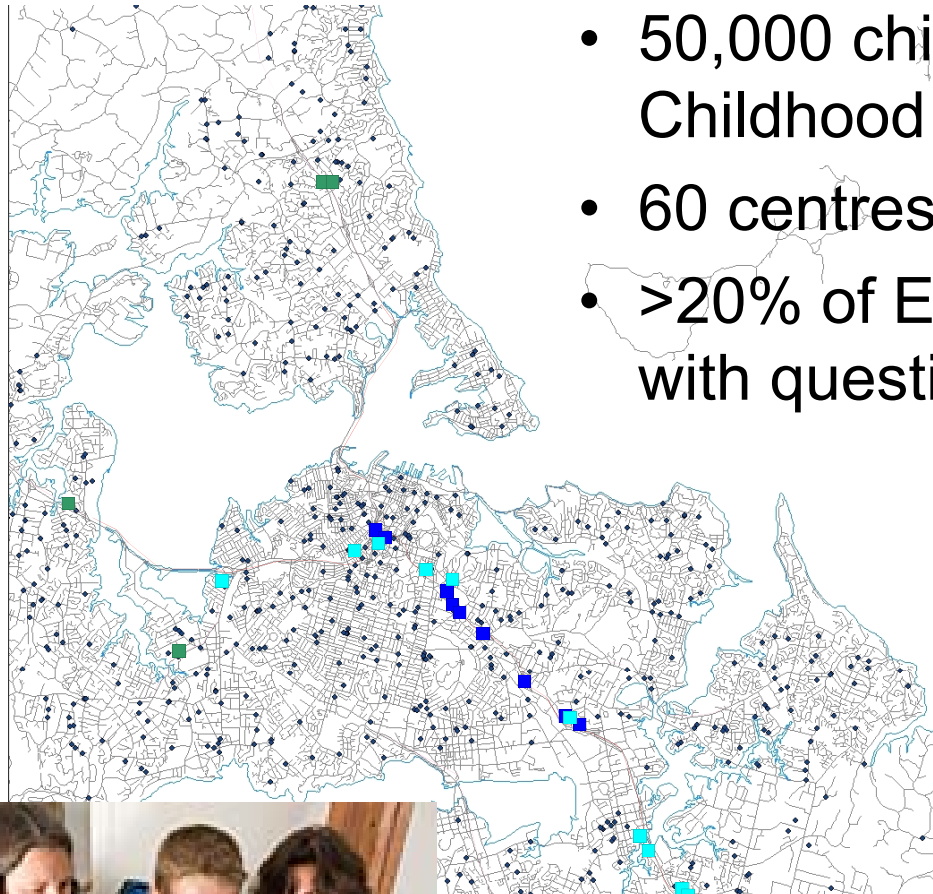


Edukids site, Puhinui Road

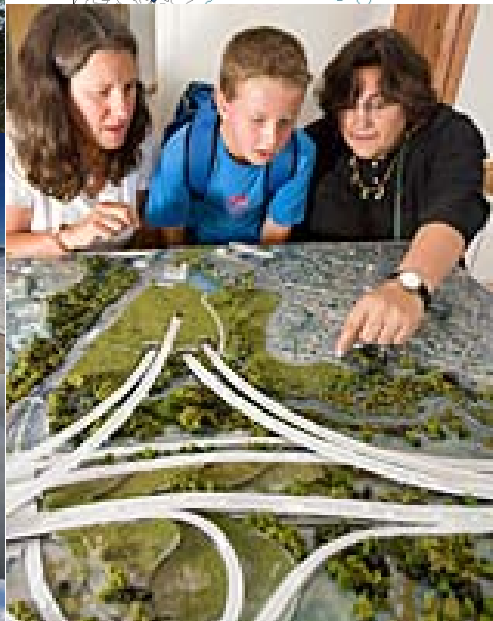


- Petrol station
- Drive-through restaurant
- Bus stop
- Car parking (red hatched area)
- 5 lanes of traffic
- Motorway
- Vehicle workshops (oils & solvents?)



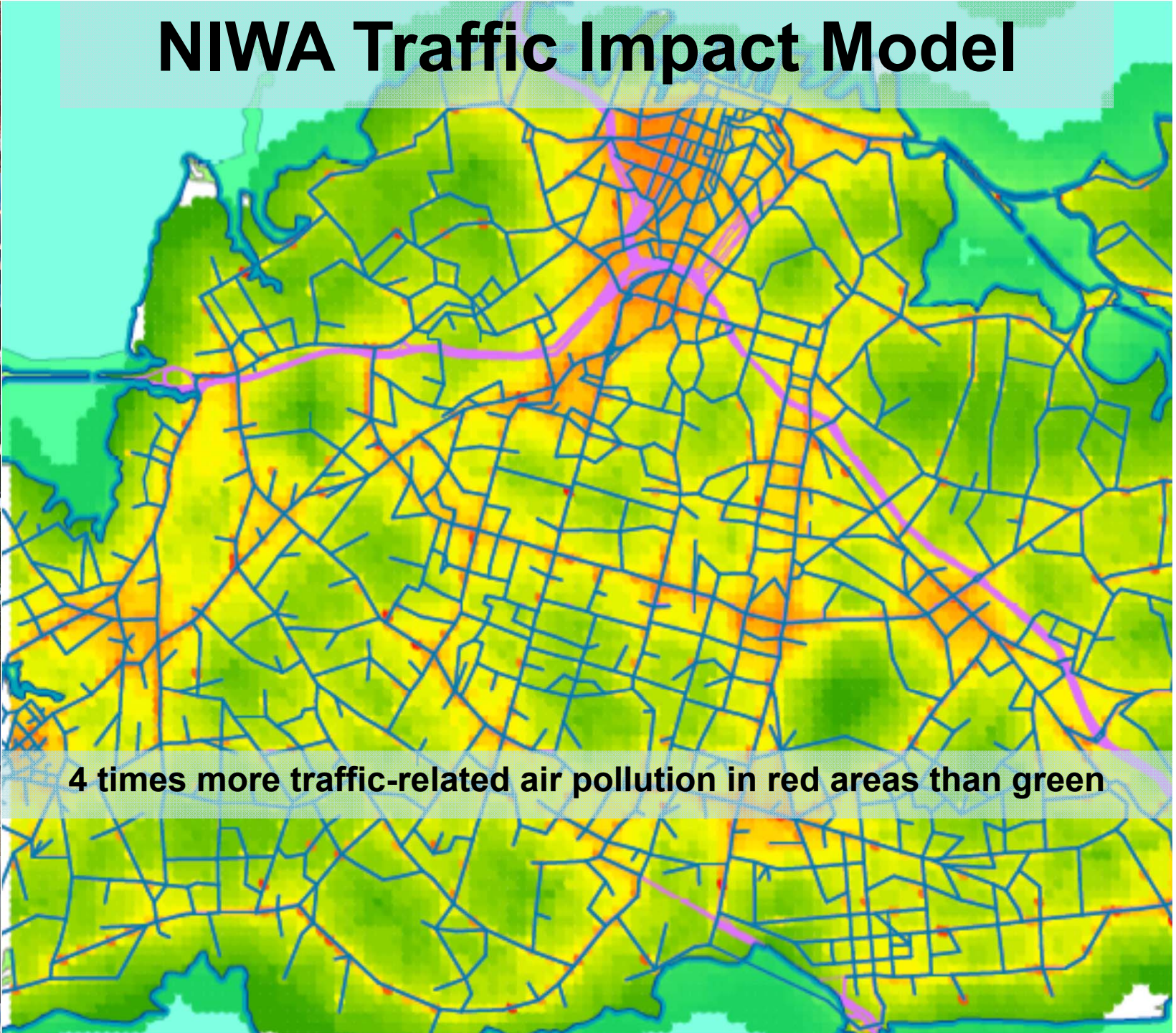


- 50,000 children in ~1070 Early Childhood Centres
- 60 centres in motorway corridor
- >20% of ECECs in locations with questionable air quality



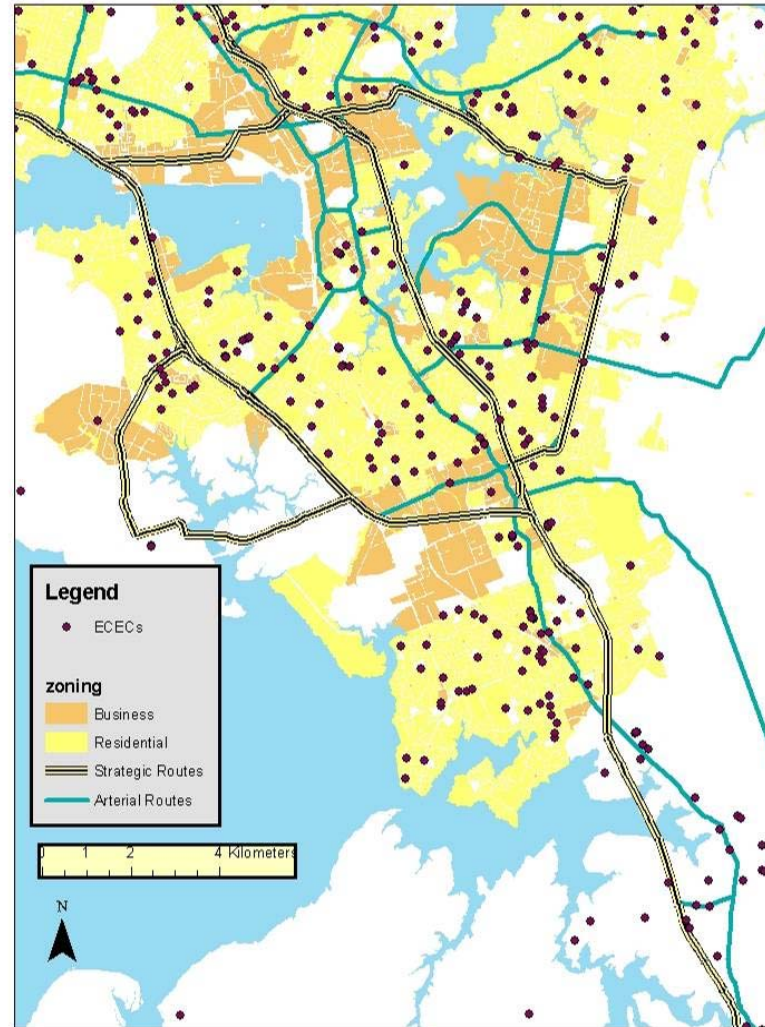


NIWA Traffic Impact Model



4 times more traffic-related air pollution in red areas than green

TIM applied to ECECs and residences



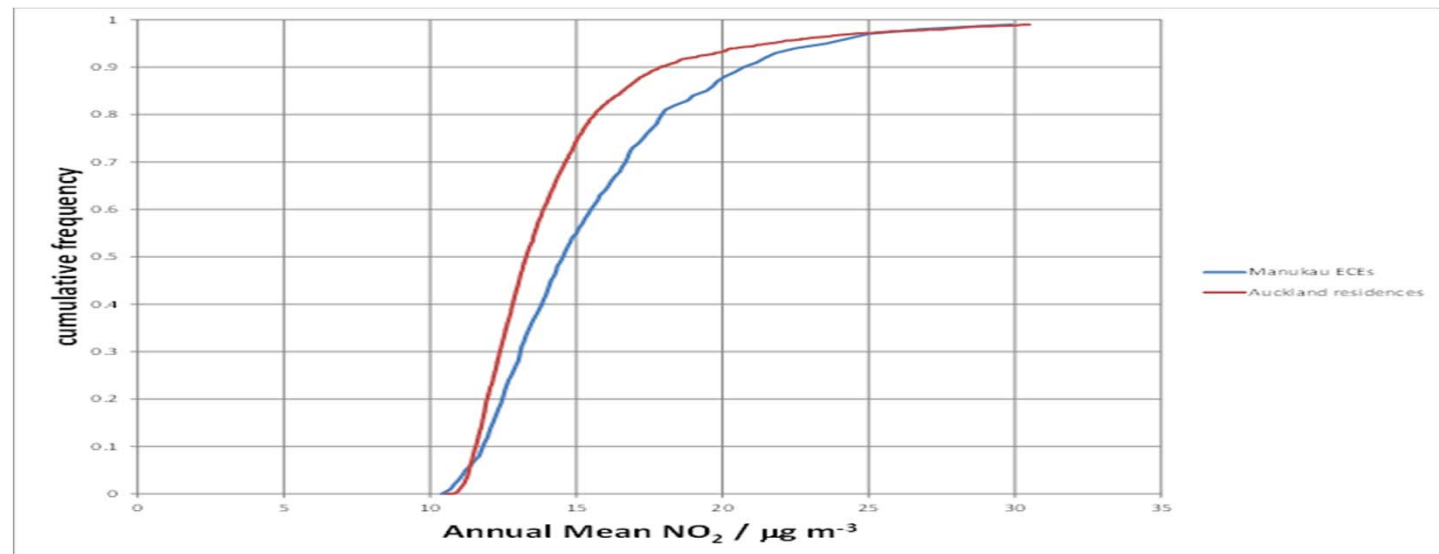
Siting of ECECs in south Auckland



Estimate of possible exposure	Distance to the nearest arterial road (GIS function calculation)					
	< 70m	70 to < 150m	150 to < 300m	300 - < 750	≥ 750 m	Total
Traffic volume (7-day average)						
Low < 3000 per day	1	7	8	27	48	91
Low Medium 3,000 - < 10,000 per day	5	2	14	13	52	86
Medium 10,000- <17,000 per day	2	2	7	13	17	41
High ≥ 17,000 per day	8	1	2	3	5	19
Total	16	12	31	56	122	237

Results

- Mean exposure to local traffic pollution
 - Residences: $4.2 \mu\text{g}/\text{m}^3$ higher than background
 - ECECs: $5.1 \mu\text{g}/\text{m}^3$ (20 %) higher than background
- Skewed distributions with
 - 17% of ECECs exposed to 2x median
 - 5 % of ECECs exposed to 3 x median





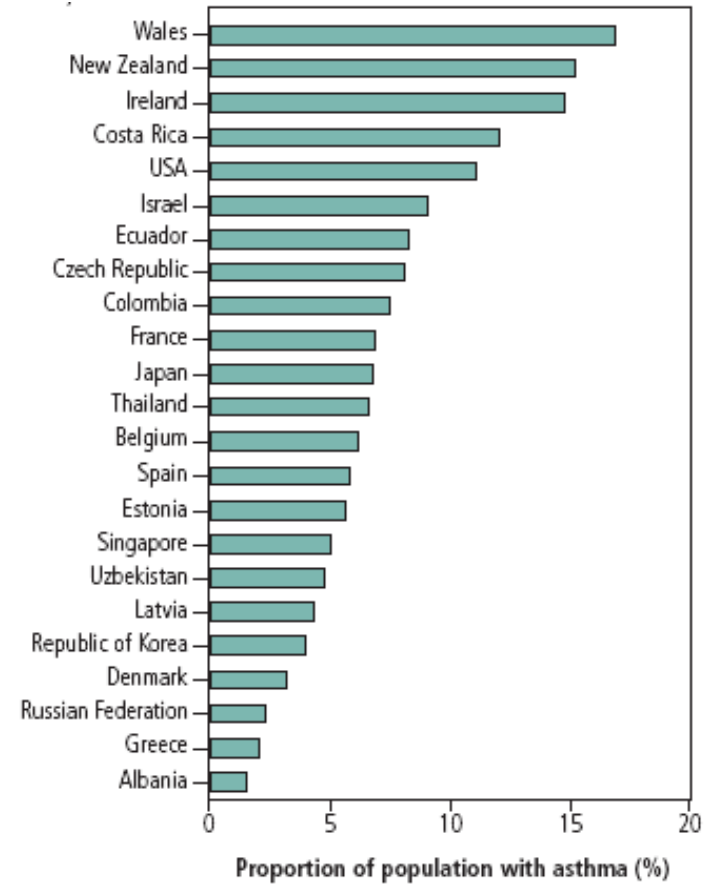
Thanks for your attention

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The young are especially vulnerable



NZers, cars and health



Adapted from Masoli et al. (6).