

## Smokefree cars to protect children and denormalise smoking: a mini-review of New Zealand literature

The Associate Minister of Health (Hon Tariana Turia) has signalled interest in the New Zealand Government developing legislation to protect child health by limiting smoking in cars with children.<sup>1</sup> Such a move would be part of an international trend that has seen such laws covering most Australian states, Canadian Provinces and some US States (including California).<sup>2 3</sup> It would also be consistent with other actions to limit hazards and improve safety within cars: compulsory seat belts, compulsory car seats for infants, and bans on mobile phone use while driving (as recently enacted by the last National Party-led Government in New Zealand).

Smokefree cars would help reduce the burden of child illness, given the evidence for the role of secondhand smoke (SHS) in “sudden infant death syndrome (SIDS), asthma, altered respiratory function, infection, cardiovascular effects, behaviour problems, sleep difficulties, increased cancer risk, and a higher likelihood of smoking initiation”.<sup>4</sup> Reducing these impacts could in turn reduce both private and tax-payer funded health system costs (given international evidence on SHS impacts on health costs<sup>5-7</sup>). It is expected that the move would help reduce smoking uptake in children by providing positive smokefree modelling (given New Zealand evidence<sup>8</sup> and international evidence<sup>4</sup>).

To provide background and context to further policy-maker discussions on this topic, we tabulate the New Zealand literature relevant to smokefree car policies that we could identify on Medline and on health organisation websites in New Zealand (Table 1).

**Table 1. Research relating to smoking in cars in the New Zealand setting (peer-reviewed journal publications and research on health organisation websites)**

Topic area	Main findings of studies identified
<b>Exposure data</b>	
Observational studies of smoking in cars	The first observational study in New Zealand (NZ) collected data in 2005 and reported a 4.1% point prevalence of smoking in cars (95%CI: 3.8% to 4.4%). <sup>9</sup> It found a higher prevalence of smoking in cars from a more deprived suburb compared to a less deprived one.
	The second observational study collected data in 2011 and involved the observation of 149,886 vehicles at two sites with different levels of socio-economic deprivation. <sup>3</sup> The mean point prevalence of smoking in vehicles at the two sites combined was 3.2% (95%CI: 3.1% to 3.3%). Of those vehicles with smoking, 4.1% had children present. There were marked gradients in all the smoking patterns seen by deprivation area of observation. For example, for smoking with children in the car it was 10.9 times (95%CI: 6.8 to 21.3) higher in the more deprived suburb relative to the least deprived suburb.
	A University of Otago “smartphone app” for counting smoking in cars has recent data from a number of NZ settings (data collated online at:

Topic area	Main findings of studies identified
	<a href="http://tobaccofree.nzdis.org/">http://tobaccofree.nzdis.org/</a> ). As of early May 2012, over 4100 vehicles were counted, with 2.5% having in-car smoking occurring. Such smoking is in the presence of others 32% of the time, and children 6% of the time.
Air quality hazard inside the car	A small experimental study found extremely high levels of fine particulates were associated with in-car smoking in a NZ setting. <sup>10</sup> This hazard has now been well documented in the scientific literature (e.g., a study in Canada <sup>11</sup> ).
Self-reported behaviours (2004)	A national telephone survey in 2004 reported that 71% of smokers smoked in their cars. <sup>12</sup> In response to the question "It's OK to smoke around non-smokers inside cars if windows are open", 64% of respondents "strongly disagreed" and another 12% slightly disagreed (all 2731 respondents, including non-smokers).
Exposure data in 2009 (national)	In the 2009 NZ Tobacco Use Survey, 6.1% (95%CI: 5.3–7.0) of non-smoking adults self-reported being exposed to SHS in the car they usually travel in during the past week. <sup>13</sup> Rates were highest in Māori (14.7%, equivalent to 25,900 people exposed weekly), then Pacific (12.4%, equivalent to 13,300 people), then European/Other (5.5%, equivalent to 89,200 people) and then Asian (4.9%, equivalent to 14,800 people). After adjusting for age, the prevalence of this form of SHS exposure in the most deprived areas was nearly four times higher than in the least deprived areas (13.9% vs 3.5%). Similar ethnic and deprivation gradients for SHS exposure in cars were apparent in an earlier Tobacco Use Survey (2006) and in the NZ Health Survey (2006/07). <sup>14</sup>
Youth exposure (HSC 2008)	The Health Sponsorship Council's (HSC) 2008 Year 10 In-depth Survey found that around a quarter of students (26.8%) reported that someone had smoked in their presence while travelling in cars or vans in the seven days prior to the survey. <sup>15</sup> "A higher proportion of Māori and Pacific students reported that someone smoked around them in cars or vans in the seven days prior to the survey (45.9% and 35.1%, respectively), compared with New Zealand European/Pakeha students (20.1%)." "Students from low decile schools had the highest prevalence of reporting that someone had smoked around them in cars or vans, compared with students from mid and high decile schools (39.5%, 29.2% and 14.3%, respectively)."
Impact of exposure on subsequent smoking uptake	Analyses of survey data from the "Keeping Kids Smokefree" study, <sup>8</sup> found that "after controlling for all variables reported exposure to smoking in cars and homes were significantly associated with increased risk of initiated smoking (RR 1.87, 95% CI 1.43-2.44, and RR 1.5, 95% CI 1.13-1.97, respectively). Exposure to smoking in cars was substantially and significantly associated with risk of current smoking (RR 3.21, 95% CI 1.45-7.08)." The authors noted that "smoking in cars is under parental control and therefore modifiable".
<b>Attitudinal data – public and smokers</b>	
Public attitudes (1997)	A study in 1997 involved surveying the public in Wellington. It reported that around a half (53.5%) thought that "smoking should be banned in cars when there are passengers". <sup>16</sup> But 94% agreed that cars with children in them should be smokefree (86% of smokers).
Review of attitudes to smoking in cars (published 2005)	A review article focused on NZ and published in 2005, <sup>17</sup> included data from a tobacco-industry commissioned survey that reported: "For private cars, 58% of non-smokers and 18% of smokers wanted no smoking at all". An analysis of three national surveys commissioned by the HSC was also included in this review. The "not at all" response to the question "People should be able to smoke in private cars" was reported as: 29% (in 1999); 23% (2001); 41% (2003), (trend: p<0.00001).
Smoker attitudes (ITC Project,	The nation-wide "ITC Project" study reported that the overall support by NZ smokers for smokefree cars containing preschool children was very high at

Topic area	Main findings of studies identified
2007/2008)	96%. <sup>18</sup> This high support was across all socio-demographic groups (with no statistically significant differences between European smokers and smokers who were: Māori, Pacific or Asian). <sup>19</sup> The data also indicate that NZ smokers have nuanced views around new smokefree areas which sometimes contrasts with the overwhelming support for smokefree cars e.g., most are supportive of smokefree outdoor eating areas, council-owned playgrounds, but voice only minority support for smokefree lifeguard-patrolled beaches and for some of the outdoor seating areas of restaurants/cafés and pubs. <sup>20</sup> In general however, Māori, Pacific and Asian smokers (relative to European smokers) are more in favour of new types of smokefree areas. <sup>21</sup>
Public attitudes (HSC 2008)	A national HSC survey of the public in 2008 asked for responses to the statement “smoking should not be allowed in cars with children under the age of 14 in them”. <sup>22</sup> Overall 91% of respondents agreed and 49% “strongly agreed”. Similarly, 82% of current smokers agreed and 33% “strongly agreed”.
<b>Attitudinal data – policy-makers</b>	
Studies of policy-maker attitudes (2008/2009)	<p>A case study of NZ policy-makers in 2008/09 (62 politicians and senior officials) covered their opinions on new smokefree legislation for public and private places.<sup>23</sup> Most interviewees did not favour regulation of smoking in private places, including in cars.</p> <p>Another publication from the same dataset<sup>24</sup> reported some potentially conflicting beliefs and attitudes. For example, there were “very strong themes of policy-maker concern for the vulnerability of children and the need for their protection from secondhand smoke; however, there were mixed reactions to the idea of a smokefree law for cars with children in them. These themes and mixed reactions spanned both the ‘left’ and ‘right’ political parties.” A lack of policy-maker awareness in some areas was also identified (e.g., of relatively high “public support for banning smoking in cars with children and of the progress elsewhere on such laws...”). Additional aspects of these themes were explored in another publication.<sup>25</sup> It concluded that: “The results indicate the need for good communication of the acceptability and benefits of legislative smokefree changes to both the political and public arena.”</p> <p>Another case study interviewed politicians, officials and non-governmental organisation staff in 2008.<sup>26</sup> It also found a lack of support by interviewees for giving smokefree car legislation a high priority. The authors argued that there was a need for “more information on the extent of current child exposure to tobacco smoke in New Zealand cars” and for “wider dissemination to policy-makers of New Zealand public and smoker support for banning smoking in cars, and of the progress overseas on smokefree car laws...”.</p>
Māori policy-maker attitudes	A qualitative study of Māori policy-makers (MPs and officials in 2008/09) indicated that “there was a strong theme that the rights of children clearly outweigh the individual rights of adults to smoke in privately owned spaces, for instance homes and cars, and that adults have a duty of care to protect children from harm.” <sup>27</sup> However, despite this there were mixed views on legislating to ban smoking in cars with children.
Pacific policy-maker attitudes	A qualitative study of Pacific policy-makers in 2008 identified a general reluctance to consider smokefree regulation extensions e.g., to smokefree cars. <sup>28</sup> The authors noted that this finding was “at odds with surveyed attitudes of Pacific peoples in New Zealand”.
Previous political considerations	The landmark Māori Affairs Select Committee Inquiry into the tobacco industry included a recommendation in their Report to investigate extending the Smoke-free Environments Act to legislate against smoking in additional settings including vehicles (especially those carrying children). <sup>29</sup>

As detailed in the above table, a large amount of research has been done in the New Zealand setting around smokefree cars. The overall thrust of this work is that smoking in cars is an important public health issue and one that is likely to contribute to health inequalities in New Zealand (both ethnic inequalities and by area deprivation).

Smokefree car laws have been successfully introduced in other countries. Furthermore, the evidence indicates that there is high public support and indeed high smoker support for requiring smokefree cars carrying children especially in groups most impacted on by smoking e.g., Māori and Pacific populations. However, although the statements of policy-makers appear to give the protection of children's health from proven hazards a high priority, they have (at least until recently), been less in favour of smokefree car laws than the public.

The most critical research need now is intervention and evaluation research, where before and after data collection occurs around a national smokefree cars law. Such research could assess the impact of the new law on:

- (i) the occurrence of smoking in cars (especially with children present);
- (ii) denormalisation relating to acceptability of smoking indoors and exposure of children to SHS; and
- (iii) trends in youth smoking uptake. Monitoring trends in denormalisation are particularly relevant to informing on-going strategies around the tobacco endgame in this country and achieving the national goal of "Smokefree New Zealand 2025".

Further information is also needed from overseas jurisdictions where there are smokefree car laws. Nevertheless, the 2007 smokefree vehicle law in South Australia (which only applies to vehicles carrying children), was reported to result in an increase in smokefree vehicles with children from 69% in 2005 to 82% in 2008.<sup>30</sup>

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