



Secondhand smoke in New Zealand homes and cars: exposure, attitudes, and behaviours in 2004

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Abstract

Aims To assess exposure to secondhand smoke (SHS) in New Zealand homes and cars and to describe attitudes and behaviours that relate to establishing smokefree settings.

Methods In 2004, a nationwide telephone survey randomly selected and interviewed 2731 respondents. This sample was weighted to represent the national population and was comprised of a general adult population sample (n=1507), a sample selected from the Maori electoral roll (n=924), and a sample of current smokers and people who had recently quit smoking (n=300).

Results 19.6% of the general population and 42.7% of the Maori sample reported current smoking. Of all current smokers, 47.2% smoked indoors at home and 70.8% smoked in their cars. Maori participants were significantly more likely to be exposed to SHS in their homes than non-Maori participants. There was also some evidence for lower socioeconomic status being related to higher SHS exposure. Extrapolating from the adult exposure data in households with children, it was estimated that 18.9% of children were potentially exposed to SHS indoors at home. However, most respondents (73.6%) lived in homes with total smoking bans.

Conclusions SHS exposure remains a significant problem especially for Maori and low-income New Zealanders. There is a need for further public health campaigns to increase the prevalence of smokefree homes and cars.

Evidence of a link between secondhand smoke (SHS) exposure and serious health effects among non-smokers was officially recognised in the mid-1980s when several scientific committees and national organisations concluded that exposure to SHS is a cause of lung cancer.¹⁻⁵ Since then, numerous studies have shown that SHS exposure increases the risk of developing a range of other smoking-related illnesses, including heart disease, stroke, cancer, and respiratory illnesses, as well as many childhood illnesses.⁶⁻¹⁰

Although several New Zealand studies have contributed to the body of evidence on the effects of (and risk factors for) SHS exposure, there are limited data at the national level on SHS-related attitudes and behaviours. One Wellington study reported low levels of awareness of the implications of passive smoking for health and a high prevalence of smoking in the presence of children.¹¹ Furthermore, an investigation of hair nicotine levels in children showed there to be no significant difference in children's hair nicotine levels whether household members reported smoking inside or outside.¹²

One possible explanation for this may be that residents do not always enforce their rules or they may need to remove the smoking further from the house (e.g. expand the smokefree area to the whole property).

One New Zealand study, which explored socioeconomic status and exposure to SHS in a population of 7725 New Zealanders, concluded that exposure to SHS was higher among those with lower socioeconomic status.¹³ Findings from a major New Zealand cohort study concluded that adults who had never smoked and who had lived with smokers had about 15% higher premature mortality than adults who had never smoked and lived in smokefree households.¹⁴ This finding is supported by Woodward and colleagues who estimated that exposure to SHS causes around 350 deaths annually in New Zealand.^{15,16}

As well as directly harming the health of children, parental smoking behaviour has been found to be associated with smoking by New Zealand adolescents.¹⁷ One study reported a clear dose-response association between exposure to SHS in the home and adolescent smoking status.¹⁸

The New Zealand Government has taken several legislative steps to reduce SHS-related harms experienced by non-smoking citizens. These include the passage of the Smoke-free Environments Act 1990 and subsequent amendments to this Act in 1993, 1997, and 2003. The 2003 amendments meant that, from 10 December 2004, smoking has been completely banned in enclosed areas of all workplaces, including licensed premises.¹⁹ This leaves private settings such as homes and cars as the main indoor environments in which non-smokers are potentially exposed to SHS.

To address the issue of SHS exposure in private settings, the New Zealand Ministry of Health contracted the Health Sponsorship Council (HSC) to develop and deliver a social marketing campaign that aimed to reduce exposure to SHS in private settings, particularly in homes. As part of the campaign's evaluation, baseline data on SHS exposure, attitudes, and behaviours were collected prior to the April 2004 campaign launch. The aims of this study were to measure the level of exposure to SHS in New Zealand homes and cars, and to describe modifiable risk factors such as participants' smoking behaviours in domestic settings and their attitudes towards smoking restrictions, SHS, and smoking around others.

Methods

Study samples—Three samples were drawn for the 2004 telephone survey. These included a general population sample of 1507, a current smoker and recent quitter sample of 300, and a Maori sample of 924. Fieldwork was carried out by TNS New Zealand (a market research company) using Computer Assisted Telephone Interviewing (CATI) during March/April 2004.

The general population and current smoker/recent quitter samples were obtained using a random digit dialling process to access private households containing land-line numbers. This method ensured that all landline numbers, including unlisted phone-numbers and all service providers, could be accessed. Both samples included all ethnicities and were stratified to ensure that similar proportions of males and females were recruited.

To be eligible to participate in the survey, the respondent had to be at least 15 years of age, was to have the next birthday in the household, and had to have sufficient comprehension of the English language. In addition to these criteria, the current smoker/recent quitter sample required respondents to be currently smoking at least once a month or to have quit smoking in the past year.

The Maori sample was derived from electoral roll data. People who identified as Maori on the general or Maori electoral rolls were randomly selected and their names and addresses tele-matched to all landline numbers listed with the Telecom white pages. This process gave a list of numbers where there

was a higher than average probability of contacting a Maori person. Numbers were then randomly selected from the list and contacted by interviewers. The eligibility criteria for the Maori sample were the same as for the general population sample, with the additional criteria that the participant self-identified as Maori.

Response rates were calculated using the following formula:

Response rate = number interviewed (complete and partial) / [number interviewed (complete and partial) + number of refusals + non-contacts + other unsuccessful interviews (e.g. language difficulties)].²⁰

The response rate for the general population sample was 26%; for the Maori sample the response rate was 62%; and for the smoker/recent quitter sample the response rate was 61%; thus giving an overall response rate of 42%. Relatively short survey periods (approximately 1 month) may have negatively impacted on the response rates, as interviewers had limited time to make call-backs to non-contacts.

Assessing potential bias—Prospective participants who refused to participate in the survey were a potential source of bias (if key characteristics among this group differed from those of survey participants). To help assess potential selection bias, people who refused to participate in the whole survey were asked if they would participate in a short survey to gather data on their demographic background and reasons for not participating. The ethnicities of the non-respondents were found to be very similar to those of the general population sample (i.e. for non-respondents compared with the general population respectively: Maori 7.9% vs 7.5%, New Zealand European 73.6% vs 76.8%, and Other 16.4% vs 15.4%).

There were no statistically significant differences between survey non-respondents and survey respondents with respect to presence of children in the household and number of smokers in the household. The main reason non-respondents gave for choosing not to participate in the survey was that they did not have time (41.6%). Thirteen percent were not interested in taking part and 11.0% reported that they were “in the middle of doing something”.

Data weightings—Data were analysed in SPSS version 11 software. To calculate population probability weightings, distributions of age by ethnicity for the eligible population were obtained from the 2001 census. These distributions were divided into smokers and non-smokers using estimates from national smoking survey data purchased by the Ministry of Health.²¹

To calculate probability weightings for the combined sample (n=2731), the estimated population frequencies by age, smoking status, and ethnicity were divided by the number of responders in each group. Thus, the weights are proportional to the number of people in the general population that each survey respondent represents. Probability weights applied to the Maori sample included age and smoking status, while probability weights for the current smoker/recent quitter sample included age and ethnicity. The magnitude of association was measured by using rate ratios.

This paper presents weighted results for all participants, representing the three samples above (n=2731) unless stated otherwise. Results are also reported for the total Maori sample (which is made up of 1087 participants who self-identified as Maori from all three samples) and the total non-Maori sample (which contains 1640 non-Maori participants). The non-Maori sample was made up of all respondents who answered the ethnicity question and did not identify as Maori. Four participants did not report their ethnicity and therefore could not be categorised into the Maori or non-Maori samples.

Results

Smoking in homes and cars—Nearly one-fifth (19.6%) of the general population sample (n=1507) reported current smoking, that is they smoked at least once a month. Just under half of this group (46.0%) reported that they smoked indoors at home. Nearly one-half (42.7%) of the Maori sample (n=924) reported current smoking, and of this group 45.4% reported that they smoked indoors at home (these samples do not include the additional smoker/recent quitter group, n=300).

Respondents in older age groups were more likely to report that they smoked indoors at home than younger age groups (p value for trend <0.001). For example, around three-quarters (76.3%) of all current smokers aged 66 years and over smoked indoors

at home compared with around two-fifths (36.8%) of current smokers in the 15–18 year age group.

Respondents who were less educated were the most likely group of people to report smoking indoors at home (i.e. 18.1% of all respondents who smoked indoors at home had less than a School Certificate qualification, compared with 16.5% of respondents who had School Certificate or the equivalent and 14.5% of respondents who had the University Entrance qualification [p value for trend=0.04]).

Respondents who were on personal incomes of less than NZ\$30,000 per year were slightly more likely to report smoking indoors at home than respondents who were on an income greater than \$30,000 (rate ratio [RR]=1.19; 95% CI=1.01–1.41).

The main reason (40.0%) given by current smokers for not smoking inside their home was to protect other people from SHS exposure (Table 1). Of those respondents who reported current smoking and travelling in private cars (n=272), 70.8% reported that they smoked while in private cars. The most common reason given for current smokers not smoking in their cars was that they were protecting other people (in particular children) from SHS exposure (39.7%).

Table 1. Current smokers’ reasons for not smoking or not smoking more often in the home (n=180)

Response	Percentage responding	95% confidence interval (CI)
Protect others from secondhand smoke	40.0	32.9–47.1
Protect home (smell, burns, discolouring, etc)	22.5	16.5–28.5
Other*	17.4	14.8–20.1
Don’t know	8.7	4.6–12.8
Not a regular smoker	6.0	2.6–9.4
Not allowed to	4.8	1.7–7.9
Not my home	0.6	0.0–1.7
Total	100.0	

*E.g. “Like to sit in the fresh air to smoke”, “trying to cut back”, and “only smoke socially”.

Smoking around children—Those respondents who reported current smoking and had children living in their homes (n=401) were less likely to report smoking indoors at home than current smokers who did not have children at home (n=387) (RR=0.62, 95% CI=0.53–0.71). Among respondents who reported current smoking and had children living with them, almost half (45.7%), reported that they did not smoke at all when they were around children (both indoors and outdoors), while two-fifths (39.9%) reported smoking less when they were around children. There were no statistically significant differences between Maori and non-Maori respondents with respect to reported smoking behaviour around children.

Of the respondents who reported that they did not smoke at all when they were around children, nearly half (46.5%) said that this was because they did not want to expose children to SHS. Setting a good example for children was also reported as an important reason for not smoking in the presence of children (25.6%).

Reported SHS exposure in the home—Maori respondents were significantly more likely than non-Maori respondents to report SHS exposure in their home during the

previous 7 days (RR=1.09, 95% CI=1.02-1.17). Respondents who were exposed to SHS at home were more likely to be exposed 7 days a week rather than a few days per week (Table 2). Sixteen percent of Maori respondents and 7.9% of non-Maori respondents reported being exposed to SHS every day for the 7 days prior to the survey.

Table 2. Reported exposure to SHS during the previous 7 days in private homes by ethnicity

Days exposed per week	Proportion exposed % (95% CIs)					
	Maori (n=1087)		Non-Maori (n=1640)		All respondents (n=2731)	
0	70.4	(67.7–73.1)	82.3	(80.5–84.2)	78.2	(76.7–79.8)
1–2	8.2	(6.6–9.8)	5.5	(4.4–6.6)	6.5	(5.6–7.4)
3–4	3.3	(2.2–4.4)	2.5	(1.7–3.3)	2.7	(2.1–3.3)
5–6	1.6	(0.9–2.4)	1.3	(0.8–1.9)	1.4	(1.0–1.8)
7	16.2	(14.0–18.4)	7.9	(6.6–9.2)	10.7	(9.5–11.9)

Potential exposure of children to SHS—Table 3 shows the reported levels of adult exposure to SHS by number of children in the household. If it is assumed that children were exposed to SHS at similar frequencies to the adult survey respondent, the results suggest that most (80.7%) children in the general population live in households where there is no potential to be exposed to SHS (Table 3). However, one-fifth of children were potentially exposed (18.9%) and among these the most common frequency of exposure was likely to be every day over the 7 days prior to the survey (9.5%).

Restrictions on smoking in the home—Three-quarters (73.6%) of all respondents reported living in homes with total smoking bans. There were no significant differences between the proportion of Maori and non-Maori respondents who reported that they lived in homes with total smoking bans. Almost 1 in 10 respondents (9.9%) reported that smoking was allowed anywhere in their home and a further 16.2% of respondents reported that smoking was only allowed in set areas in their home.

Smoking was allowed anywhere outside the home in three-quarters (75.9%) of all respondents' properties, while 15.3% lived in homes where smoking was allowed only in set areas outside and 8.3% had total smoking bans in outside areas. Figures were similar for both Maori and non-Maori respondents.

Over half (53.9%) of respondents who lived in households in which smoking was allowed had (at some point in the previous year) asked people to go outside if they wanted to smoke, and around one-third (34.4%) had removed items such as ashtrays, which reminded people of smoking. Nearly a quarter (22.8%) of participants who reported smoking had tried to quit smoking during the previous year.

Table 3. Adult respondents' reported exposure to SHS in the previous 7 days (n=2731 respondents) by number of children in the household

No. of children living in household	Adult respondents' reported exposure to SHS in the home % (95% CI)									
	Not exposed		1–2 days exposure		3–4 days exposure		5–6 days exposure		7 days exposure	
None (n=1412)	81.0	(79.0–83.1)	5.9	(4.7–7.1)	2.7	(1.9–3.6)	1.5	(0.9–2.1)	8.4	(7.0–9.9)
One (n=448)	78.4	(74.6–82.2)	4.7	(2.7–6.7)	2.9	(1.4–4.5)	1.8	(0.6–3.0)	11.9	(8.9–14.9)
Two (n=468)	82.1	(78.6–85.6)	7.1	(4.8–9.4)	1.8	(0.6–3.0)	0.4	(0.0–1.0)	7.8	(5.4–10.2)
Three (n=273)	82.8	(78.3–87.3)	5.5	(2.8–8.2)	0.8	(0.0–1.9)	1.3	(0.0–2.6)	9.0	(5.6–12.4)
Four (n=89)	80.6	(72.4–88.8)	4.7	(0.3–9.1)	7.6	(2.1–13.1)	0.0	(0.0–0.0)	7.0	(1.7–12.3)
≥ Five (n=41)	87.5	(77.4–97.6)	9.1	(0.3–17.9)	0.8	(0.0–3.5)	8.7	(0.1–17.3)	17.5	(5.9–29.1)
Any children (n=1319)	80.7	(78.6–82.8)	5.8	(4.5–7.1)	2.4	(1.6–3.2)	1.2	(0.6–1.8)	9.5	(7.9–11.1)

Attitudes towards smoking restrictions and smoking around others—Most respondents (65.0%) favoured some form of restriction on smoking inside the home (i.e. either only in set areas (34.0%) or not anywhere in the home (31.0%)) (Table 4).

Table 4. Attitudes towards smoking restrictions inside the home

Respondent groups	Type of restriction favoured % (95% CI)			
	No restrictions	Smoking only in set areas	No smoking anywhere	Don't know
Maori* (n=1087)	26.4 (23.8–29.0)	45.3 (42.3–48.3)	24.4 (21.9–27.0)	3.9 (2.8–5.1)
Non-Maori* (n=1640)	29.8 (27.6–32.0)	32.5 (30.2–34.8)	31.9 (29.6–34.2)	5.7 (4.6–6.8)
Smoker (n=788)	39.6 (36.2–43.0)	44.5 (41.0–48.0)	12.5 (10.2–14.8)	3.4 (2.1–4.7)
Non-smoker (n=1943)	25.9 (24.0–27.9)	30.5 (28.5–32.6)	37.4 (35.3–39.6)	6.2 (5.1–7.3)
All respondents (n=2731)	29.4 (27.7–31.1)	34.0 (32.2–35.8)	31.0 (29.3–32.7)	5.5 (4.6–6.4)

*Includes smokers and non-smokers.

Respondents who reported that no one smoked inside their home (in the week prior to the survey) were more than three times more likely to agree that smoking should not be allowed anywhere inside the home, as opposed to being in set areas only or anywhere inside the home (RR=3.56, 95% CI=3.16–3.94).

Two-fifths (40.2%) of all respondents thought smoking should not be allowed in private cars. Respondents who did not smoke were the most likely group to hold this view (46.0%), while respondents who smoked at least once a month were the least likely group (23.2%).

Of all respondents who were thinking about making their home smokefree, or definitely planning to make their home smokefree in the next 30 days (n=197), 84.5% felt confident that they would be able to make their home smokefree.

The majority of respondents (92.8%) disagreed or strongly disagreed with the statement that smoking around children is acceptable (Table 5). Similarly, around three-quarters of respondents (73.0%) disagreed or strongly disagreed that smoking around people who do not smoke is acceptable. Non-smokers were significantly more likely than smokers to disagree or strongly disagree that smoking around non-smokers is acceptable (RR=1.26, 95% CI=1.08-1.47).

Around three-quarters of respondents disagreed or strongly disagreed that it is “okay” to smoke around non-smokers inside homes (72.8%) or cars (75.8%) when there are windows open. Most respondents (59.0%) disagreed with the statement that the dangers of SHS have been exaggerated. However, nearly one in three respondents agreed (28.4%) with this statement. Finally, the majority of respondents (85.3%) agreed that people have the right to live in an environment free of tobacco smoke.

Table 5. Respondent agreement/disagreement with statements about SHS and smoking around others (n=2731)

Statement provided by interviewer	Level of agreement % (95% CI)				
	Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree
“It’s OK to smoke around children”	2.6 (2.0–3.2)	2.3 (1.7–2.9)	1.7 (1.2–2.2)	5.1 (4.3–5.9)	87.7 (86.5–88.9)
“It’s OK to smoke around non-smokers”	4.8 (4.0–5.6)	10.7 (9.5–11.9)	9.7 (8.6–10.8)	15.7 (14.3–17.1)	57.3 (55.4–59.2)
“It’s OK to smoke around non-smokers inside homes if windows are open”	6.1 (5.2–7.0)	11.6 (10.4–12.8)	8.0 (7.0–9.0)	12.9 (11.6–14.2)	59.9 (58.1–61.7)
“It’s OK to smoke around non-smokers inside cars if windows are open”	4.7 (3.9–5.5)	10.5 (9.4–11.7)	7.5 (6.5–8.5)	12.0 (10.8–13.2)	63.8 (62.0–65.6)
“Dangers of SHS have been exaggerated”	16.0 (14.6–17.4)	12.4 (11.2–13.6)	4.3 (3.5–5.1)	11.8 (10.6–13.0)	47.2 (45.3–49.1)
“People have the right to live in an environment free of tobacco smoke”	69.9 (68.2–71.6)	15.4 (14.1–16.8)	5.4 (4.6–6.3)	2.9 (2.3–3.5)	5.4 (4.6–6.3)

Discussion

Main findings—In this survey, 19.6% of the general population sample and 42.7% of the Maori sample reported smoking at least once a month. Smoking estimates in our survey are slightly lower than those reported in other national smoking prevalence surveys in New Zealand. For example, in 2003, the Ministry of Health reported that 25.8% of the general population and 46.4% of Maori reported any smoking.²² Differences in reported smoking prevalence may be due to differences in survey sampling methods, since the Ministry collects data in face-to-face interviews, as opposed to a telephone survey.

Nearly one in two respondents who smoked (47.2%) reported smoking inside their home. Those respondents who reported smoking indoors at home tended to be in the older age groups, be less educated, have lower incomes, and were less likely to have children living in their household. This pattern is consistent with a study by Whitlock and colleagues that found that respondents with lower incomes were more likely to be exposed to SHS than those respondents on higher incomes.¹³

Around one-fifth of respondents (21.3%) reported being exposed to SHS at least 1 day per week, with Maori respondents significantly more likely to be exposed to SHS in their homes than non-Maori respondents. This SHS exposure is likely to be contributing to the substantial health inequalities between Maori and non-Maori in this country. Nevertheless, the differences are not as great as expected by the ethnic differences in smoking prevalence, which could be due to the relative success of smokefree home implementation by Maori whanau (families) even when smokers are present.

Nineteen percent of children were potentially exposed to SHS at least 1 day per week; the most common frequency of exposure was likely to be every day (9.5%) over the 7 days prior to the survey. Children's potential exposure levels reported in this paper are lower than exposure levels indicated in a recent New Zealand Action on Smoking and Health (ASH) survey, in which 27.1% of Year 10 students (14–15 year-olds) reported that their parents smoked inside their home during 2004.²³

The estimates are also lower than those reported for other developed countries; e.g. in 1997 about 43% of Australian children,²⁴ 33% of Canadian children,²⁵ and 41% of British children²⁶ lived with one or more parents that smoked, and so may be exposed to SHS in the home.

Almost half (45.7%) of respondents who smoked reported that they did not smoke around children, and two-fifths smoked less when they were around children. These findings were similar to a Wellington study (conducted in 1999) which reported that 51% of the respondents did not smoke around children and a further 17% smoked less when they were around children.¹¹

Three-quarters of respondents reported living in homes with total indoor smoking bans. However, smoking was allowed anywhere outside the home in three-quarters of all respondents' properties. We have no information on behaviours around how rigorously such indoor smoking bans are enforced.

Most respondents (65.0%) favoured some form of restriction on smoking inside the home. Respondents who reported that no one smoked inside their home were over three times more likely to agree that smoking should not be allowed anywhere inside the home. Non-smokers were much more likely than smokers to disagree or strongly disagree that smoking around non-smokers is not acceptable.

In this survey, 40.2% of respondents thought that there should be total bans on smoking in private cars. This compares with another study conducted in Wellington that reported that 54% of respondents thought that smoking should be banned in cars when there were passengers present (note that a slightly different question was asked in this study).¹¹

Limitations of this study—Although the sub-optimal response rate is fairly typical of a CATI-type survey, it may have contributed to selection bias (as detailed in the

methodology section). Another potential source of selection bias was that some of the survey-eligible population were not able to be contacted, for reasons such as having an unlisted number (Maori sample only), or not having a land-line. Individuals who lived in large households also had less chance of being contacted (i.e. one land-line shared between more people), and so this may have lowered representation by respondents in lower SES groups, who tend to live in more crowded households²⁷ and tend to be more likely to smoke.¹³

The lower proportion of smokers (relative to a national Ministry of Health survey using face-to-face interviews) may reflect such selection bias. Nevertheless, data from the non-respondent survey suggests that non-respondents were still reasonably similar to respondents, e.g. in terms of distribution by ethnicity, number of children in the household, and the proportion living with a smoker. Furthermore, a recent study concluded that there is no evidence that declining response rates in national tobacco surveys have resulted in less accurate or biased estimates of smoking behaviour.²⁸ This study found that under and over-representation of population subgroups has not changed as response rates have declined.

The survey was not accompanied by any validation of self-reported smoking status and smoking-related behaviours (e.g. by testing cotinine levels or nicotine in children's hair). Therefore it is possible that some smokers were misclassified as non-smokers and that behaviours to reduce SHS exposure of others were over-reported. Such 'social desirability bias' is plausible given that smoking is becoming increasingly denormalised in New Zealand society, especially in indoor settings and around children. Nevertheless, several studies have explored the reliability of self-reported cigarette consumption, with several concluding that cross-sectional surveys of self-reported smoking status are a reliable surveillance tool for monitoring changes in population smoking behaviour.²⁹⁻³¹

Research and policy implications—To improve the validity of future studies, more effort to achieve higher response rates may be desirable (e.g. by offering modest rewards to survey respondents or using face-to-face survey designs, albeit at greater cost). Validation studies to actually measure tobacco smoke residues in homes and cars, as well as salivary cotinine in respondents, could also be considered.

In terms of tobacco control policy, it is clear that SHS exposure in private settings remains a health hazard for a substantial proportion of Maori and low-income New Zealanders—which highlights the need for current and future public health campaigns to promote smokefree homes and cars.

Primary health workers, particularly those who carry out home visits, can also play an important role in promoting smokefree homes and cars. Improving the capacity of smoking cessation services and achieving higher quit rates is also likely to increase the prevalence of smokefree homes and cars.

The association between smoking restrictions in a range of environments and the smoking behaviour of teenagers suggests that restrictions in the home and public places can help prevent teenage smoking.³² New Zealand data also indicate that parental smoking behaviour and smoking restrictions in the home are associated with smoking uptake by adolescents.¹⁷ In the future, this information could be communicated to parents, using social marketing approaches to encourage the establishment and maintenance of smokefree homes.

One Australian study³³ tested community support for the banning of smoking in cars while children were travelling as passengers. It reported that 72% of respondents agreed that smoking should be banned in cars in which children were present. Although there are moves in some US states to institute smokefree cars (e.g. when children are present), the practicalities of enforcing such a ban might mean that social marketing campaigns to promote smokefree cars are more appropriate. Nevertheless, many jurisdictions have successfully enforced laws around other in-car behaviours (e.g. seat belt wearing, use of child car seats, and restrictions on mobile phone use when driving).

In summary, SHS exposure in homes and cars remains a significant public health problem in New Zealand, and further efforts by the health sector and other agencies to reduce exposure to SHS (particularly for Maori and low-income New Zealanders) are needed.

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