Reducing exposure to second hand smoke:

Changes associated with the implementation of the amended New Zealand Smoke-free Environments Act 1990: 2003 - 2006

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Summary

Second-hand smoke (SHS) is estimated to cause between 174 and 490 deaths a year in New Zealand. Workplaces have been identified as key settings in which people can be exposed to SHS. In 2003, the Smoke-free Environments Act 1990 was amended to extend smoking bans to all indoor workplaces.

A study was undertaken to assess any direct or indirect impacts of the amended legislation after it came into force in December 2004. Data for the study were drawn from four surveys carried out in early 2003, 2004, 2005 and 2006. Each survey consisted of a general population sample and a Maori population sample. Specific study aims included assessing whether:

- SHS exposure in indoor workplaces decreased.
- Public support for workplace smoking bans increased.
- Patronage of hospitality settings changed.
- Socially cued smoking in hospitality settings decreased.
- SHS exposure inside homes decreased.

Findings suggest that exposure to SHS in indoor workplaces reduced markedly following the implementation of smoking bans. Public support for smoking bans increased over the four surveys. By 2006, public support was at a high level for smoking bans in bars and restaurants, and for rights to live and work in environments free of tobacco smoke. Most people also agreed that children and non-smokers should not be exposed to SHS.

There were few reported changes in the patronage of hospitality venues (nightclubs, bars, restaurants, cafés and casinos) between 2003 and 2006, refuting claims by the hospitality industry that patronage would drop as a result of smoking bans. Socially cued smoking at these venues decreased markedly between 2003 and 2005, and the decreases were maintained in 2006.

Self-reported exposure to SHS in homes decreased over the survey period. It is possible that other interventions implemented during the survey period influenced these changes. In particular, a campaign to encourage *Smokefree Homes* was launched in 2004.

This study supports the effectiveness of workplace smoking bans and shows the New Zealand experience to be consistent with that in other countries with similar bans. The study shows a number of positive direct and indirect impacts, and that claimed negative impacts are largely absent.

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Contents

Introduction

Evidence of a link between exposure to second-hand smoke (SHS)[1] and serious health effects among non-smokers was first recognised in the mid-1980s when a number of scientific committees and national organisations concluded that exposure to SHS is a cause of lung cancer (Australian National Health and Medical Research Council, 1987; UK Department of Health and Social Security, 1988; US Department of Health and Human Services, 1986; US National Research Council, 1986). Since then, numerous studies have shown that exposure to SHS increases the risk of developing a range of other smoking-related illnesses, including heart disease, stroke and respiratory disease, as well as many childhood illnesses (Action on Smoking and Health, 2002; EPA, 1992; Scientific Committee on Tobacco and Health, 1998).

Findings from a population-level, cohort study conducted in New Zealand further strengthened the evidence against SHS, concluding that adults who had never smoked and who had lived with smokers had about 15 percent higher mortality than adults who had never smoked and lived in non-smoking households (Hill, et. al., 2004). It has been estimated that between 174 and 490 people die each year in New Zealand from the effects of SHS exposure (Woodward & Laugesen, 2001).

In New Zealand, workplaces have been a significant source of SHS exposure. A study conducted in 2003 found that among people who were currently employed 21% reported being exposed to SHS in indoor work settings over the past seven days (Macrae, et. al., 2003).

Risely (2005) observed that, before the implementation of legislation restricting smoking behaviour in workplaces in states throughout Australia, there was a number of examples of employers who had voluntarily imposed controls on smoking behaviour in their workplaces, with the aim of reducing SHS exposure. However, the author comments that self-regulation measures were inconsistent across different workplaces. As a result, people in some settings, in particular hospitality venues, received little protection from SHS. Risely suggested that to overcome inconsistencies in workplace smoking bans the government should play an active role by implementing and developing legislative measures.

Legislative measures to ban smoking in indoor workplaces decrease exposure to SHS markedly in workplaces and hospitality venues (Fong, et. al., 2006). Such approaches are supported by Article Eight of the Framework Convention on Tobacco Control (World Health Organisation, 2003), which requires member countries to protect people from exposure to SHS in indoor workplaces, on public transport, and in indoor public places.

[1] Second-hand smoke (SHS), also known as environmental tobacco smoke (ETS), is the combination of side stream smoke, or smoke that is emitted between the puffs of burning tobacco (cigarettes, pipes, or cigars), and mainstream smoke, smoke that is exhaled by the smoker (National Cancer Institute, 1999).

Legislation for smoking bans in New Zealand workplaces has existed since 1990, with the passing of the Smoke-free Environments (SFE) Act 1990. This Act banned smoking in a number of indoor work settings, as well as banning tobacco advertising and sales to minors.

Smoking bans introduced by the 1990 SFE Act mainly covered office workplaces. However, workers in settings such as indoor industrial sites and hospitality venues did not receive the same level of protection from SHS. A study conducted in New Zealand hospitality settings found that workers exposed to SHS at work were more likely to report respiratory and irritation symptoms than people working in office environments (Bates, et. al., 2002). Findings such as this and developments in tobacco control interventions both in New Zealand and internationally meant that by the end of the 1990s the SFE Act 1990 was seen to be outdated (Laugesen & Swinburn, 2000). Following a Private Members Bill, a report from the Health Select Committee (2003) and debate in parliament, the SFE Act 1990 was amended significantly in December 2003 (minor amendments were made in 1993 and 1997). Among the various amendments was an extension to indoor smoking bans to include all workplaces. This amendment came into force in December 2004.

Similar smoking bans have been implemented in countries such as Norway, Ireland and some states in the United States of America. In 1998 the Californian state government banned smoking in all indoor workplaces (California Department of Health Services, 1998). Following implementation of the ban, the proportion of Californians reporting working in indoor settings where total smoking bans were in place increased from 35 percent in 1990 to 93 percent in 1999. Implementation of smoking bans in Californian workplaces was accompanied by high levels of public support. In 2000, over 73 percent of California's bar patrons said that they approved of the smoke-free bar law (California Department of Health Services, 2002a). More recently, a longitudinal study conducted in Ireland found that, following the implementation of workplace smoking bans, public support for such bans increased (Fong, et. al., 2006).

Apart from directly reducing exposure to SHS, workplace-smoking bans may have a number of positive and negative indirect impacts. Public and stakeholder reaction to these impacts may serve to aid or impede the implementation of smoking bans. These indirect impacts are discussed in the following paragraphs.

Potential positive impacts of the New Zealand SFE Act amendments include increases in quitting behaviour and in the prevalence of smoking bans in homes.

The implementation of workplace smoking bans in Ireland was associated with an increased likelihood of smokers reporting that they would make a quit attempt (Fong, et. al., 2006). A cross-sectional study conducted in Australia found that smokers were more likely to smoke "more than normal" in hospitality venues with no smoking bans (Trotter, et. al., 2002). The authors suggested that smoking bans could reduce socially cued smoking, and so reduce smoking prevalence among patrons of hospitality venues.

Implementing workplace smoking bans has been associated with increases in self-imposed smoking bans in home environments. A Californian survey found that in 1993 20 percent of smokers reported living in homes where smoking was banned indoors. In 1998, a year following the implementation of workplace smoking bans in California, a further survey found that the proportion of smokers reporting smoking bans in their homes had increased to 47 percent (California Department of Health Services, 2002b). Among parents with children under the age of 18, smoking bans in homes were higher, with 78 percent of parents not allowing smoking in the home in 2001, compared with 63 percent in 1994. One possible reason for an apparent association between strong tobacco control policies and smoking bans in homes is that such policies potentially change social norms about the acceptability of smoking indoors (Levy, et. al., 2004).

Despite evidence in favour of implementing comprehensive workplace smoking bans, developing legislation can be hindered by concerns among key stakeholders about perceived negative impacts of these bans. Before the SFE Act was amended in 2003, the Hospitality Association of New Zealand (HANZ) opposed the amendments based on economic and rights arguments.

Economic arguments were based on a perception that patronage would drop as a result of smoking bans and this, in turn, would reduce revenue (HANZ, 2002). However, international research suggests that smoking bans in hospitality settings have little or no impact on patronage and revenue (Cremieux & Ouelette, 2001; Dearlove, et. al., 2002).

HANZ (2003) also claimed that more comprehensive workplace smoking bans would be a violation of individual rights, as they took away bar owners' rights to control their premises as they saw fit. Katz (2005) challenges this notion and identifies three sub-types of individual rights that are presented in a hierarchical order: life, liberty, and property (Katz, 2005). Using SHS as an example, Katz suggests that under this hierarchy the 'life' rights of people to live and work in an environment free of tobacco smoke override the 'property' rights of managers to control what happens in their premises.

The present study aims to monitor key variables of interest in relation to changes that have occurred before and after the implementation of smoking bans in all indoor workplaces in New Zealand. The variables of interest can be separated into general public support for banning smoking in indoor workplaces, intended outcomes of the legislation, indirect positive outcomes and indirect negative outcomes.

Specific research aims were to assess whether or not implementing the amended SFE Act was associated with:

- Decreases in exposure to SHS in indoor workplaces.
- Increases in public support for workplace smoking bans, in particular whether:
  - approval of smoking bans in bars and restaurants increased
  - support for rights to live and work in environments free of SHS increased
  - the acceptability of smoking around others decreased.
- Any changes in the patronage of hospitality settings.
- Decreases in socially cued smoking in hospitality settings.
- Decreases in exposure to SHS inside homes.

Maori were identified as a specific population of interest, as this group experiences high smoking rates and exposure to SHS in New Zealand (Ministry of Health, 2003).

Method

Study samples

Data for this study were drawn from four cross-sectional surveys conducted in 2003, 2004, 2005 and 2006. Each survey contained two samples, a general population sample and a Maori population sample. The general population sample size stayed constant at approximately n=1500 across the surveys. In 2004, the Maori sample size was increased from 500 to 900 to improve the statistical power of this sample.

To be eligible to participate in the surveys, participants had to:

- be at least 15 years of age
- have sufficient comprehension of the English language
- meet quota requirements (refer to procedure below)
- self-identify as Maori for the Maori sample.

Quotas were set for gender to reflect male and female distributions among the populations of interest for each sample. In 2005 and 2006, additional quotas were set for age, to reflect age distributions within the 2001 Census.

Unweighted sample characteristics are shown in Tables 1 and 2. Within the general population sample, Maori were under-represented. For both samples in the 2003 and 2004 surveys, younger age groups were under-represented.

Table 1. General population sample demographics – unweighted

Demographic characteristics		2003 (%) (n=1502)	2004 (%) (n=1500)	2005 (%) (n=1496)	2006 (%) (n = 1521)
Maori		6.7	7.5	8.2	8.5
New Zealand European		80.4	73.7	84.1	83.4
Pacific peoples		3.3	3.5	2.1	2.1
Asian/Indian		6.8	6.1	4.1	4.9
Other		2.4	8.9	1.5	1.1
Refused		0.5	0.2	0.0	0.0
Male		50.0	50.0	49.9	48.5
Female		50.0	50.0	50.1	51.5
Current smokers	All	17.9	18.4	18.7	16.4
	Males	19.6	20.4	20.7	17.2
	Females	16.2	16.4	16.7	15.7
Age (years)	15-18	5.3	4.3	8.2	4.8
	19-25	10.5	9.4	8.3	8.5
	26-35	20.6	18.5	15.6	14.3
	36-45	21.1	21.9	22.9	23.1
	46-55	17.2	19.2	15.8	18.8
	56-65	12.6	12.3	11.7	13.9
	66+	11.9	14.3	14.2	16.6
	Refused	0.8	0.1	3.3	0.0
Personal income	<$10,000	3.1	10.4	12.3	-
	$10,000-$20,000	6.5	14.3	14.0	-
	$20,001-$30,000	10.1	14.0	14.8	-
	$30,001-$50,000	18.5	22.9	23.7	-
	$50,001-$70,000	8.5	11.5	14.8	-
	$70,000-$100,000	4.0	6.5	5.0	-
	$100,000 plus	3.3	4.4	4.3	-
	Refused	6.0	7.7	5.6	-
	Don't know	2.7	8.3	5.5	-
	Missing data	37.4	0.0	0.0	-
In paid employment		62.6	62.2	67.5	68.4

- indicates that figures are not available for that year

Table 2. Maori population sample demographics - unweighted

Demographic characteristics		2003 (%) (n= 500)	2004 (%) (n=931)	2005 (%) (n=897)	2006 (%) (n=892)
Male		-	50.1	50.1	50.1
Female		-	49.9	49.9	49.9
Current smokers	All	25.0	27.0	28.0	25.8
	Males	-	21.9	29.6	21.0
	Females	-	32.0	26.3	30.6
Age (years)	15-18	7.6	6.7	9.7	9.6
	19-25	15.4	12.0	16.9	13.3
	26-35	17.0	18.9	18.4	17.3
	36-45	23.8	23.8	21.2	24.7
	46-55	19.2	22.9	19.2	18.7
	56-65	13.4	10.7	7.4	8.6
	66+	3.0	4.1	5.1	7.7
	Refused	0.6	0.9	2.1	0.0
Personal income	<$10,000	3.0	11.5	13.2	-
	$10,000-$20,000	4.0	13.0	13.0	-
	$20,001-$30,000	10.4	14.2	19.7	-
	$30,001-$50,000	18.8	24.7	28.0	-
	$50,001-$70,000	5.6	15.0	11.0	-
	$70,000-$100,000	2.4	4.5	4.7	-
	$100,000 plus	2.8	2.6	2.3	-
	Refused	12.4	7.7	2.7	-
	Don't know	4.4	6.8	5.4	-
	Missing data	36.2	0.0	0.0	-
In paid employment		63.8	68.0	74.8	72.5

- indicates that figures are not available for that year

Research tools

Interviews were carried out using Computer Assisted Telephone Interviewing (CATI). Questionnaire items were developed to measure key variables associated with the stated research aims. The same questions were asked in all four surveys. Some new items were developed for the 2004 study and repeated in subsequent surveys. Data were collated onto Survey Craft software and transferred onto SPSS (PC Version 14) software for analysis.

Procedure

Fieldwork for the surveys took place between February and March in the respective years. Interviews were conducted by telephone.

For the 2003 and 2004 surveys, interviewers asked to speak to the person who was present in the household at the time of the call with the next birthday. In 2005 and 2006, interviewers asked to speak to the person in the household with the next birthday. If this person was not present at the time of the call, the interviewer arranged a time to call back.

General population sample recruitment

For the 2003 and 2004 surveys, the general population samples were obtained using random digit dialling, whereby the CATI system randomly generated and called numbers within the defined range of telephone numbers available in New Zealand. The sampling process aimed to use only private household numbers. Therefore, disconnected, business and fax numbers were removed from these samples. The 2005 and 2006 general population samples were obtained using a predetermined list of private household numbers provided by Telecom New Zealand. Similar to the 2003 and 2004 samples, disconnected, business and fax numbers were removed from the final sample.

Maori population sample recruitment

The Maori samples were derived from electoral rolls. Current electoral roll data were obtained for the respective surveys. People who identified as Maori on the general or Maori electoral rolls were selected at random and their names and addresses tele-matched to landline numbers listed in Telecom's white-pages. This process gave a list of household telephone numbers where there was a higher than average probability of contacting a Maori person. This has been found to be a cost-effective method for recruiting representative samples of Maori for other similar health surveys (Dacey and Moewaka-Barnes, 2000). Numbers were then selected from the list at random, and contacted by interviewers.

Data analysis

For each survey, data from the Maori and general population samples were combined to create a single dataset. Total number of respondents in each year's dataset are shown in Table 3. Data were weighted by age and ethnicity according to 2001 Census data. Data were also weighted by smoking status according to 1996 Census data.

Table 3. Total number of respondents in each year's combined dataset

2003 (n)	2004 (n)	2005 (n)	2006 (n)
2002	2431	2393	2413

Response rates

Response rates were calculated following guidelines for telephone surveys (American Association for Public Opinion Research, 2004).

Consent rate was defined as the proportion of those individuals who were contacted and met the initial eligibility criteria and were asked to participate in the survey who actually consented to participate. Consent rates were calculated using the following formula:

$$\text{Consent rate} = \frac{I+P}{I+P+eR}$$

Response rate was defined as the proportion of eligible individuals who completed the survey. Response rates were calculated using the following formula:

$$\text{Response rate} = \frac{I+P}{I+P+eR+eNC}$$

Where:

e = the proportion of people who consented to participate who met screener, language and quota criteria
I = completed interviews
P = partially completed interviews to an acceptable level
eR = the estimated number of people who refused to participate who were eligible to participate
eNC = the estimated number of people who were unable to be contacted who were eligible to participate.

For both formulae, complete interviews and partially complete interviews (I+P) were assumed to equal the number of people who consented and were eligible to participate in the survey.

Table 4 gives eligibility and response rates for each sample for the four surveys. Response rates for the Maori population sample were markedly higher than for the general population sample. Variations in eligibility and response rates across the survey years may be due to changes in sampling procedures and differences in the ways variables used to calculate these rates were defined by the survey companies conducting the fieldwork.

Table 4. Consent, eligibility and response rates for the 2003, 2004, 2005 and 2006 surveys

	2003 (%)		2004 (%)		2005 (%)		2006 (%)	
	General	Maori	General	Maori	General	Maori	General	Maori
Consent rate	44	79	41	69	32	47	38	39
Eligibility rate	59	31	60	33	62	64	55	35
Response rate	38	62	35	63	29	39	34	35

 # indicates that response rates for2006 are being verified and will be included in the final report.

Results

This section is organised according to the study's stated aims. *Smokers* are defined as people who reported smoking "at least once a month". *Non-smokers* are defined as people who reported smoking "less often than monthly" and includes those participants who had quit smoking or who had never smoked. *Maori* are defined as people who self identified as being Maori in the general population and Maori samples. *Non-Maori* are defined as people who did not identify as Maori. *All respondents* is used when reporting results for all respondents from each survey.

Confidence intervals, shown in the tables in parentheses, are reported at the 95% level of confidence. Unless otherwise stated, results reported in the text are significant at the 95% level of confidence. Percentages reported in the text have been rounded to the nearest whole number. Respondents who gave "don't know" or "refused" in response to questions are generally not reported in the tables. However, when "don't know" and "refused" constitute more than five percent of total weighted responses, this is explained in a footnote to the table.

Exposure to SHS in indoor workplaces

Table 5 shows self-reported exposure to SHS over the past seven days by people who worked in indoor settings for all four years. Exposure to SHS was defined as people who reported that other people had smoked around them in indoor spaces at work. For all groups, exposure to SHS reduced significantly between 2003 and 2006. Smokers appear to have experienced a greater decrease in exposure to SHS in the workplace than non-smokers. Maori respondents appear to have experienced a greater decrease in SHS exposure than non-Maori. The most marked reductions occurred between 2004 and 2005, when exposure to SHS halved for all groups.

Of "all working respondents", eight percent reported exposure to SHS in indoor workplaces in 2006. Smokers were more likely to report exposure to SHS than non-smokers in all four surveys. However, in 2006 differences in reported exposure by smokers and non-smokers were not statistically significant.

Table 5. Exposure to SHS indoors at work in the previous seven days

Sample	2003 (%)	2004 (%)	2005 (%)	2006 (%)
Non-smokers	16.3 (14.0-18.6)	14.8 (12.8-16.8)	7.0 (5.6-8.4)	7.8 (6.3-9.3)
Smokers	35.3 (29.4-41.2)	31.9 (27.0-36.9)	14.3 (10.8-17.8)	10.4 (7.1-13.7)
Maori	29.7 (25.1-34.3)	25.8 (22.5-29.1)	13.1 (10.6-15.6)	9.9 (7.7-12.1)
Non-Maori	20.1 (17.5-22.8)	18.3 (15.7-20.9)	8.6 (6.7-10.5)	8.2 (6.4-10.0)
All working respondents	21.3 (19.0-23.6)	19.3 (17.3-21.3)	9.1 (7.7-10.5)	8.4 (7.1-9.8)

Public support for workplace smoking bans

Public support for workplace smoking bans was assessed by measuring:

- levels of approval for smoking bans in hospitality settings
- general public perceptions of individuals' rights to work and live in environments free of SHS
- perceptions of the acceptability of smoking around other people.

Levels of approval of smoking in hospitality settings

Respondents were asked whether they approved or disapproved of total smoking bans inside **pubs, bars and nightclubs** in the 2004, 2005 and 2006 surveys (Table 6). Among all groups, approval for smoking bans in pubs, bars and nightclubs increased significantly between each successive survey year. Results appear somewhat polarised, with most people indicating either approval or disapproval, and relatively few indicating they "neither approved nor disapproved".

Among all respondents, in 2004 around twice as many people approved of smoking bans in pubs, bars and nightclubs as disapproved of them. This difference was more pronounced in 2005, with more than three times as many respondents approving of bans as disapproving of them. In 2006, support continued to consolidate, with most respondents (82%) saying they approved of the bans.

Table 6. Levels of approval for smoking bans in pubs, bars and nightclubs 2004 to 2006

	2004 (%)			2005 (%)			2006 (%)		
	Approve	Neither	Disapprove	**Approve**	Neither	Disapprove	**Approve**	Neither	Disapprove
Maori	51.3 (48.3-54.3)	8.7 (6.7-10.4	38.6 (35.7-41.6)	70.1 (67.3-72.9)	2.5* (1.5-3.5)	26.7 (24.0-29.4)	81.7 (79.3-84.1	3.4 (2.3-4.5)	14.2 (12.1-16.3)
Non- Maori	62.5 (60.0-65.1)	5.9 (4.7-7.1)	29.8 (27.4-32.2)	74.2 (72.0-76.5)	2.1 (1.3-2.9)	23.1 (20.9-25.3)	81.6 (79.6-83.6)	2.6 (1.8-3.4)	14.8 (12.9-16.7)
Smoker	29.1 (25.2-33.0)	5.9 (3.9-7.9)	64.2 (60.1-68.3)	50.9 (46.6-55.2)	3.1* (1.0-3.5)	45.8 (41.6-50.0)	63.8 (59.5-68.1)	3.3* (1.7-4.9)	32.5 (28.3-36.7)
Non- smoker	71.8 (69.8-73.8)	6.3 (5.2-7.4)	19.9 (18.1-21.7)	81.5 (79.7-83.3)	1.9 (1.3-2.5)	15.8 (14.1-17.5)	87.7 (86.2-89.2)	2.5 (1.8-3.2)	8.8 (7.5-10.1)
All respondents	61.2 (59.3-63.1)	6.2 (5.2-7.2)	30.9 (29.1-32.7)	73.8 (72.0-75.6)	2.2 (1.6-2.8)	23.5 (21.8-25.2)	81.7 (80.2-83.2)	2.7 (2.1-3.4)	14.7 (13.3-16.1)

* Indicates that the proportion is based on fewer than 30 respondents

Smokers were less supportive of smoking bans than non-smokers in all three surveys, although support among smokers increased significantly year-on-year. In 2004, 29% of smokers said they approved of bans and this had increased to 64% by 2006. There were no differences in 2006 in levels of approval for smoking bans between Maori and non-Maori.

Respondents were asked whether they approved or disapproved of total smoking bans in **restaurants** in the 2004, 2005 and 2006 surveys (Table 7). Similar to the results for bars, approval for smoking bans in restaurants increased significantly among all groups between each successive survey. Results also appeared somewhat polarised, with most people indicating either approval or disapproval, and relatively few indicating they "neither approved nor disapproved".

Among all respondents in 2004, three times as many people approved of smoking bans in restaurants as disapproved of them. This difference was more pronounced in 2005, when more than four times as many people approved of smoking bans as disapproved of them. In 2006, support continued to consolidate, with most respondents (88%) indicating approval.

While smokers showed less support for smoking bans over the survey years than non-smokers, increases in support among smokers have been significant over the four surveys. By 2006, over three-quarters of smokers (77%) supported smoking bans in restaurants. Support among non-smokers was even higher, with nine out of ten (92%) supporting smoking bans in these venues in the 2006 survey.

Table 7. Levels of approval for smoking bans in restaurants 2004 to 2006

	2004 (%)			2005 (%)			2006 (%)		
	Approve	Neither	Disapprove	**Approve**	Neither	Disapprove	**Approve**	Neither	Disapprove
Maori	62.6 (59.7-65.5)	8.1 (6.5-9.8)	28.4 (25.7-31.1)	74.9 (72.2-77.6)	3.9 (2.7-5.1)	21.0 (18.5-23.5)	86.2 (84.0-88.3)	3.9 (2.7-5.1)	9.3 (7.5-11.1)
Non- Maori	71.6 (69.2-74.0)	5.1 (3.9-6.3)	22.4 (20.2-25.0)	81.5 (79.4-83.6)	1.4* (0.8-2.0)	16.8 (14.8-18.8)	88.5 (86.8-90.2)	2.7 (1.9-3.6)	8.3 (6.9-9.8)
Smoker	46.5 (42.2-50.8)	7.7 (5.4-10.0)	44.1 (39.9-48.3)	63.4 (59.3-67.5)	3.3* (1.8-4.8)	33.3 (29.3-37.3)	77.3 (73.6-81.1)	4.6* (2.7-6.5)	17.7 (14.3-21.1)
Non- smoker	78.4 (76.6-80.3)	4.7 (3.8-5.7)	16.2 (14.5-17.9)	86.6 (85.1-88.2)	1.1* (0.6-1.6)	11.9 (10.4-13.4)	91.9 (90.7-93.1)	2.3 (1.6-3.0)	5.3 (4.3-6.3)
All respondents	70.5 (68.7-72.3)	5.5 (4.6-6.4)	23.0 (21.3-24.7)	80.7 (79.1-82.3)	1.7 (1.2-2.2)	17.4 (15.9-18.9)	88.2 (86.9-89.5)	2.9 (2.2-3.6)	8.5 (7.4-9.6)

* Indicates that the proportion is based on fewer than 30 respondents

General public perceptions of individuals' rights to work and live in environments free of SHS exposure

Respondents were asked to indicate how much they agreed or disagreed with statements relating to people's rights not to be exposed to SHS in various settings (Table 8). For all statements, levels of agreement increased significantly between 2003 and 2005. The most marked increases in agreement occurred between 2004 and 2005.

By 2006, at least nine out of ten respondents agreed with each of the listed statements. The statement "people who work in restaurants and cafés have the right to work in an environment free of tobacco smoke" received the highest level of agreement (95%), while "people who work in pubs, bars and nightclubs have the right to work in an environment free of tobacco smoke" had the lowest (90%). However, levels of agreement with the latter statement increased the most between 2003 and 2006, when compared with responses to the other statements.

Table 8. Perceptions of rights to live and work in environments free of tobacco smoke: 2003 to 2006

Statement		2003 (%)	2004 (%)	2005 (%)	2006 (%)
People have the right to work in an environment free of tobacco smoke	Agree	90.2 (88.9-91.5)	88.2 (86.9-89.5)	95.2 (94.3-96.1)	94.3 (93.4-95.2)
	Neither	3.9 (3.1-4.8)	3.6 (2.9-4.3)	0.7* (0.4-1.0)	1.0* (0.6-1.4)
	Disagree	5.4 (4.4-6.4)	7.8 (6.7-8.9)	3.7 (2.9-4.5)	4.0 (3.2-4.8)
People who work in pubs, bars, and nightclubs have the right to work in an environment free of tobacco smoke	Agree	77.5 (75.7-79.3)	79.7 (78.1-81.3)	90.1 (88.9-91.3)	90.1 (88.9-91.3)
	Neither	9.7 (8.4-11.0)	4.8 (3.9-5.7)	0.9* (0.5-1.3)	1.4* (0.9-1.9)
	Disagree	11.4 (10.0-12.8)	14.6 (13.2-16.0)	8.7 (7.6-9.8)	7.7 (6.0-8.0)
People who work in restaurants and cafés have the right to work in an environment free of tobacco smoke	Agree	83.3 (81.7-84.9)	84.7 (83.3-86.2)	93.8 (92.8-94.8)	95.0 (94.1-95.9)
	Neither	7.7 (6.5-8.9)	3.9 (3.1-4.7)	0.3* (0.1-0.5)	0.8* (0.7-0.9)
	Disagree	8.1 (6.9-9.3)	10.7 (9.5-12.0)	5.6 (4.7-6.5)	3.6 (2.9-4.3)
People who work in non-office, indoor or enclosed settings (e.g., warehouses or vehicles) have the right to work in an environment free of tobacco smoke	Agree	88.7 (87.3-90.1)	88.0 (86.7-89.3)	94.9 (94.0-95.8)	93.9 (93.0-94.9)
	Neither	4.6 (3.7-5.5)	3.4 (2.7-4.1)	0.4* (0.2-0.7)	1.1* (0.7-1.5)
	Disagree	5.8 (4.8-6.8)	8.0 (6.9-9.1)	4.4 (3.6-5.2)	4.4 (3.6-5.2)
People have the right to live in an environment free of tobacco smoke	Agree	86.3 (84.8-87.8)	85.3 (83.9-86.7)	91.0 (89.9-92.2)	90.4 (89.2-91.6)
	Neither	6.6 (5.5-7.7)	5.1 (4.2-6.0)	2.0 (1.4-2.6)	1.8 (1.3-2.3)
	Disagree	6.1 (5.1-7.2)	8.3 (7.2-9.4)	6.4 (5.4-7.4)	6.7 (5.7-7.7)

* Indicates that the proportion is based on fewer than 30 respondents

Acceptability of smoking around other people

Respondents were asked whether they agreed or disagreed with a number of statements relating to SHS exposure (Table 9). Almost everyone disagreed that "it's okay to smoke around children" in all four surveys. Disagreement increased significantly between 2004 and 2005 and this level of response was maintained in 2006.

While most survey participants disagreed that "it's okay to smoke around non-smokers", levels of disagreement varied significantly across the four surveys. In 2004, the level of disagreement decreased (from 79% in 2003 to 74% in 2004), then in 2005 it increased beyond the 2003 figure (to 82%). In 2006, the figure decreased again (to 72%). The highest proportion of respondents **agreeing** with this statement was recorded in 2006 (23%).

Levels of disagreement with the statement "the dangers of second-hand smoke have been exaggerated" increased significantly between 2004 and 2005. Similar levels of disagreement were recorded in 2005 and 2006, with almost seven out of ten people disagreeing with this statement in both surveys.

Table 9. Level of agreement or disagreement with statements relating to risks of SHS exposure: 2003 to 2006

Statement		2003 (%)	2004 (%)	2005 (%)	2006 (%)
It's okay to smoke around children	Agree	3.0 (2.3-3.8)	4.9 (4.0-5.8)	3.8 (3.0-4.6)	3.4 (2.7-4.1)
	Neither	2.0 (1.4-2.6)	1.5 (1.0-2.0)	0.5 (0.2-0.8)	0.7 (0.6-0.8)
	Disagree	94.7 (93.7-95.7)	93.1 (92.1-94.1)	95.5 (94.7-96.3)	95.8 (95.0-96.6)
It's okay to smoke around non-smokers	Agree	11.1 (9.7-12.5)	14.8 (13.4-16.2)	14.6 (13.2-16.0)	22.7 (21.0-24.4)
	Neither	8.9 (7.7-10.2)	9.1 (8.0-10.2)	2.7 (2.1-3.4)	4.2 (3.4-5.0)
	Disagree	78.7 (76.9-80.5)	74.3 (72.6-76.0)	82.1 (80.6-83.6)	72.2 (70.4-74.0)
The dangers of second-hand smoke have been exaggerated[+]	Agree	Not asked in 2003	27.3 (25.5-29.1)	22.5 (20.8-24.2)	23.1 (21.4-24.8)
	Neither		3.8 (3.0-4.6)	2.2 (1.6-2.8)	2.4 (1.8-3.0)
	Disagree		60.5 (58.6-62.4)	68.9 (67.1-70.8)	68.2 (66.3-70.1)

[+] Note more than five percent of respondents said they "did not know" in response to this statement.

Patronage of hospitality settings

The following tables show the proportion of people who reported attending nightclubs, hotels[2], bars, and pubs, restaurants and cafés, and casinos "at least monthly" in the four surveys.

Among both smokers and non-smokers no significant differences in reported patronage of **nightclubs** were recorded from 2003 to 2006 (Table 10). Similarly, among all respondents few significant differences in patronage were reported from 2003 to 2006. It appears that patronage in 2004 was lower for all respondents than in the previous or subsequent years. Smokers were more likely to say they attended nightclubs than non-smokers in all the surveys.

Table 10. Patronage of nightclubs: 2003 to 2006

	2003 (%)	2004 (%)	2005 (%)	2006 (%)
Smokers	27.4 (23.0-31.8)	22.6 (19.0-26.2)	24.3 (20.7-28.0)	23.4 (19.6-27.2)
Non-smokers	12.8 (11.1-14.5)	10.3 (8.9-11.7)	12.9 (11.4-14.4)	13.4 (11.9-14.9)
All respondents	16.5 (14.9-18.2)	13.3 (12.0-14.7)	15.8 (14.3-17.3)	15.9 (14.4-17.4)

Among those smokers and non-smokers who said they attended **hotels, bars or pubs**, there were no significant differences in reported patronage from 2003 to 2006 (Table 11). Reported patronage by all respondents was similar in all four years, although there was a small and statistically significant increase between 2004 and 2005.

Table 11. Patronage of hotels, bars and pubs: 2003 to 2006

	2003 (%)	2004 (%)	2005 (%)	2006 (%)
Smokers	49.2 (44.3-54.1)	46.7 (42.4-51.0)	52.3 (48.1-56.6)	48.1 (43.6-52.6)
Non-smokers	33.4 (31.1-35.8)	32.4 (30.3-34.5)	36.2 (34.0-38.4)	34.5 (32.4-36.6)
All respondents	37.3 (35.2-39.5)	36.0 (34.1-37.9)	40.3 (38.3-42.3)	38.0 (36.1-40.0)

[2] The use of the term "hotel" does not include as a place to stay.

Similar to the results shown in the previous table, there were few significant differences in reported patronage of **restaurants and cafés** between the surveys for each of the groups shown in Table 12. However, given that a number of the confidence intervals had small overlaps, a test of significance for the difference between two proportions was performed for each group, comparing patronage levels in 2003 with those in 2006. No significant difference was observed for smokers (p=0.091), however reported increases in patronage were significant for non-smokers (p=0.036) and all respondents (p=0.006).

Table 12. Patronage of restaurants and cafés: 2003 to 2006

	2003 (%)	2004 (%)	2005 (%)	2006 (%)
Smokers	62.8 (58.0-67.6)	62.5 (58.4-66.6)	68.2 (64.2-72.2)	68.3 (64.1-72.5)
Non-smokers	68.6 (66.3-70.9)	68.0 (65.9-70.1)	73.0 (71.0-75.0)	71.9 (69.9-73.9)
All respondents	67.1 (65.0-69.2)	66.5 (64.6-68.4)	71.8 (70.0-73.6)	71.0 (69.2-72.8)

Reported patronage of **casinos** decreased between 2003 and 2006 (Table 13). Findings for casinos should be treated with caution because of the relatively small numbers of smokers and non-smokers reporting monthly attendance at these venues in all the surveys.

Table 13. Patronage of casinos: 2003 to 2006

	2003 (%)	2004 (%)	2005 (%)	2006 (%)
Smokers	8.4 (5.7-11.1)	5.5 (3.6-7.5)	5.8* (3.8-7.8)	3.5* (1.9-5.1)
Non-smokers	3.3 (2.4-4.2)	3.2 (2.4-4.0)	1.3 (0.8-1.8)	1.8 (1.2-2.4)
All respondents	4.6 (3.7-5.5)	3.7 (3.0-4.5)	2.5 (1.9-3.1)	2.4 (1.8-3.0)

* Indicates that the proportion is based on fewer than 30 respondents

Of all the settings described in Tables 10 to 13, the highest levels of patronage were reported for restaurants/cafés, followed by hotels/bars/pubs, in all the surveys.

Frequency of smoking behaviour at hospitality settings

People who smoked (reported smoking at least monthly) and who said they attended nightclubs, hotels/bars/pubs, restaurants/cafés, and/or casinos (at least monthly) were asked how frequently they smoked cigarettes at these venues compared with their usual cigarette consumption. Respondents could indicate whether they smoked:

- more than normal
- about the same as normal
- less than normal
- not at all
- don't know

Out of all the response options, people who said they attended **nightclubs** were most likely to say that they smoked "more than normal" at these venues (Table 14). The proportions of those reporting smoking "more than normal" at nightclubs decreased significantly between 2004 and 2005. Smoking "more than normal" appeared to increase in 2006, but the reported level was significantly lower than in 2004. The proportion of people reporting smoking "less than normal" increased significantly after 2004.

Table 14. Frequency of smoking at nightclubs relative to respondent's usual smoking level

	2003 (%) (n=114)	2004 (%) (n=112)	2005 (%) (n=147)	2006 (%) (n=105)
More than normal	80.1 (72.8-87.4)	71.0 (62.6-79.4)	38.2 (30.4-46.1)	50.4 (40.8-60.0)
About the same as normal	6.7* (2.1-11.3)	14.5* (8.0-21.0)	16.4* (10.4-22.4)	15.9* (8.9-22.9)
Less than normal	7.2* (2.5-11.9)	9.9* (4.4-15.4)	30.8 (23.3-38.3)	23.8* (15.7-31.9)
Not at all	4.2* (0.5-7.9)	4.6* (0.0-8.5)	12.5* (7.2-17.8)	9.8* (4.1-15.5)
Don't know	1.1* (0.0-2.7)	0.0	0.2* (0.0-0.9)	0.0

* Indicates that the proportion is based on fewer than 30 respondents

In the 2003 and 2004 surveys, people who said they went to **hotels, bars or pubs** were more likely to choose the "more than normal" option, rather than any of the other response options (Table 15).

Similar to the responses for nightclubs, reports of smoking "more than normal" at bars decreased significantly between 2004 and 2005. This decrease was still evident in 2006. The proportion of patrons reporting "smoking more than normal" in 2005 and 2006 (31% in both years) was around half of that reported in 2003 and in 2004 (66% and 57%, respectively). Those reporting smoking "less than normal" and "not at all" increased significantly between 2004 and 2005. Figures for smoking "less than normal" and "not at all"" were similar for each of these categories in 2005 and 2006.

Table 15. Frequency of smoking at hotels, bars or pubs relative to respondent's usual smoking level

	2003 (%) (n=196)	2004 (%) (n=239)	2005 (%) (n=276)	2006 (%) (n=209)
More than normal	65.8 (59.2-72.4)	57.4 (51.1-63.7)	30.5 (25.1-35.9)	30.8 (24.5-37.1)
About the same as normal	17.2 (11.9-22.5)	29.1 (23.3-34.9)	17.3 (12.8-21.8)	23.9 (18.1-29.7)
Less than normal	7.4* (3.7-11.1)	7.9* (4.5-11.3)	33.0 (27.4-38.6)	26.4 (20.4-32.4)
Not at all	4.7* (1.7-7.7)	4.6* (2.0-7.3)	17.0 (12.6-21.4)	18.9 (13.6-24.2)
Don't know	0.9* (0.0-2.2)	1.0* (0.0-2.3)	0.1* (0.0-0.4)	0.0

* Indicates that the proportion is based on fewer than 30 respondents

Unlike patrons of nightclubs and bars, **restaurant and café** patrons were less likely to report smoking "more than normal" and more likely to say they smoked "less than normal" or "not at all" at these venues in each of the surveys (Table 16).

Table 16. Frequency of smoking at restaurants and cafés relative to respondent's usual smoking level

	2003 (%) (n=245)	2004 (%) (n=306)	2005 (%) (n=365)	2006 (%) (n=316)
More than normal	12.3 (8.2-16.4)	7.1* (4.4-10.7)	3.3* (1.5-5.1)	3.0* (1.1-4.9)
About the same as normal	18.8 (13.9-23.7)	19.3 (15.1-23.5)	12.4 (9.0-15.8)	14.2 (10.4-18.1)
Less than normal	35.8 (29.8-41.8)	41.2 (36.0-46.4)	32.0 (27.2-36.8)	37.9 (32.6-43.3)
Not at all	29.8 (24.1-35.5)	31.5 (26.6-36.4)	51.2 (46.1-56.3)	44.9 (39.4-50.4)
Don't know	0.7* (0.0-1.7)	0.8* (0.0-1.7)	0.0	0.0

* Indicates that the proportion is based on fewer than 30 respondents

Few significant differences occur between the relative levels of smoking reported by patrons of restaurants and cafés. This may be due to the relatively low proportions of people reporting smoking at these venues in all four surveys.

Patrons of **casinos** were more likely to report smoking "more than normal" at these venues in both the 2003 and 2004 surveys (Table 17). This pattern reversed in both the 2005 and 2006 surveys, with fewer or no respondents reporting smoking "more than normal".

Similar to the results in the previous tables, the proportion of casino patrons reporting smoking "more than normal" declined significantly after 2004. Findings for casinos should be treated with extreme caution because of the small numbers of current smokers reporting monthly patronage of casinos in all the surveys.

Table 17. Frequency of smoking at casinos relative to respondent's usual smoking level

	2003 (%) (n=33)	2004 (%) (n=32)	2005 (%) (n=29)	2006 (%) (n=14)
More than normal	53.8* (36.8-70.8)	57.7* (42.9-72.5)	21.0* (6.2-35.8)	0.0
About the same as normal	19.1* (5.7-32.5)	26.8* (13.5-40.1)	23.4* (8.0-38.8)	0.0
Less than normal	17.7* (4.7-30.7)	15.4* (4.5-26.2)	9.6* (0.0-20.3)	45.6* (19.5-79.9)
Not at all	5.7* (0.0-13.6)	0.0	45.0* (26.9-63.1)	54.4* (28.3-80.5)
Don't know	3.7* (0.0-10.1)	0.0	0.0	0.0

* Indicates that the proportion is based on fewer than 30 respondents

Of all the settings described here, people were more likely to report smoking "more than normal" at nightclubs, followed by hotels, bars or pubs. However, given that smokers are more likely to go to bars than the other venues, it is likely that a greater number of people smoke "more than normal" at bars, compared with the other venues.

Exposure to SHS in homes

Respondents were asked whether or not they had been exposed to SHS at home in the past seven days in all four surveys. Table 18 shows exposure to SHS in the home for all respondents. Over three-quarters of respondents in all four surveys said that they were **not** exposed to SHS at home.

The results show that reported exposure to SHS in homes decreased over the four surveys. The proportion of people reporting any exposure to SHS over the previous seven days in 2003 (22%) was significantly greater than the proportion reporting any exposure in 2006 (12%). In all four surveys, people who were exposed to SHS in the home were more likely to say they were exposed "everyday". The most marked reported decreases in exposure to SHS in the home occurred between 2004 and 2005.

Table 18. Exposure to SHS in the home during the previous seven days

Days exposed	2003 (%) (n=2002)	2004 (%) (n=2431)	2005 (%) (n=2393)	2006 (%) (n=2413)
None	78.2 (76.4-80.0)	81.5 (80.0-83.0)	86.0 (84.6-87.4)	88.5 (87.2-89.8)
1-2	6.1 (5.1-7.2)	5.8 (4.9-6.7)	3.8 (3.0-4.6)	3.0 (2.3-3.7)
3-4	2.0 (1.4-2.6)	2.3 (1.7-2.9)	1.3 (0.8-1.8)	1.4 (0.9-1.9)
5-6	1.2* (0.7-1.7)	1.5* (1.0-2.0)	0.7* (0.4-1.0)	0.8* (0.7-0.9)
7	12.3 (10.9-13.7)	8.6 (7.5-9.7)	8.0 (6.9-9.1)	6.3 (5.3-7.3)
Exposed at all	21.6 (19.8-23.4)	18.2 (16.7-19.7)	13.8 (12.4-15.2)	11.5 (10.2-12.8)

* Indicates that the proportion is based on fewer than 30 respondents

Discussion

This study aimed to assess direct and indirect impacts of smoking bans in indoor workplaces that came into force in December 2004. Research aims were developed, based on expected impacts of the bans, and were expressed as whether:

- second-hand smoke exposure in indoor workplaces decreased
- public support for workplace smoking bans increased
- patronage of hospitality settings changed
- frequency of smoking behaviour in hospitality settings decreased
- exposure to SHS inside homes decreased.

The following discussion is structured around these aims.

As was expected, a marked decline in exposure to SHS in indoor workplaces was reported by people who were working following smoking bans coming into force at the end of 2004. The decline in 2005 was sustained in 2006. In 2006, almost all (91.6%) respondents reported not being exposed to SHS at work. Some of those reporting continued exposure may have worked in settings exempt from the legislation or were exposed to SHS that drifted inside from outdoors.

In 2003, 2004 and 2005 Maori were more likely to say that they were exposed to SHS than non-Maori. However, in 2006 the difference was not statistically significant. This is an important finding as it suggests that observed disparities in exposure to SHS between Maori and non-Maori have closed following implementation of the amended Smoke-free environments Act. Similar findings were observed for smokers and non-smokers where smoker exposure to SHS was not observed to be significantly greater than non-smokers in 2006.

Public support for smoking bans in hospitality settings increased between 2004 and 2006. In 2006, most respondents approved of smoking bans in pubs, bars, nightclubs and restaurants. Smokers showed less support for the bans over the four surveys, particularly bans in pubs, bars and nightclubs. However, by 2006 the proportion of smokers who approved of smoking bans in these venues was 64%, more than double the figure recorded for smokers in 2004 (29%).

Support for people's rights to work in an environment free of tobacco smoke increased over the four surveys. In 2006, support for workers' rights was high, regardless of the work setting. This support can be seen as an endorsement of people's rights to "life" over venue owners' or managers' "property" rights to determine behaviour in their venues.

In 2006, most people responded negatively when asked about smoking behaviours that exposed people to SHS, with a substantial majority in all four surveys saying that children and non-smokers should **not** be exposed to SHS. Views about information on the risks of SHS exposure were more divided, although the proportion of people disagreeing that "the dangers of second-hand smoke have been exaggerated" increased each year from 2004 to 2006; in 2006 almost seven out of ten people disagreed with this statement, compared with 6 out of 10 in 2004. This change may be a result of the information campaigns supporting the implementation of the amended SFE Act and other campaigns about SHS, which have disseminated information about the harmful effects of SHS.

Little, if any, changes were reported about levels of patronage of hotels, bars, pubs, restaurants or cafés in all four surveys. While differences were reported for patronage of casinos, particularly by smokers, only small numbers of people reported attending these venues and so preclude any firm conclusions being drawn.

People who smoked and indicated that they smoked "more than normal" while attending hospitality venues are defined as "social smokers". Socially cued smoking across a range of hospitality settings decreased markedly following workplace smoking bans coming into force in 2004, and this change was sustained from 2005 to 2006. Of particular interest, socially cued smoking at bars halved after 2004. This suggests that health impacts related to "excess" social smoking will reduce. Social smoking is a likely risk factor for smoking uptake among people who are not yet addicted smokers, and so the bans may reduce smoking uptake. In addition, reductions in socially cued smoking may encourage addicted smokers to stop smoking, as smoking behaviour becomes de-normalised at hospitality venues.

Reported exposure to SHS in homes halved between 2003 and 2006. In 2006, just over one in ten people reported being exposed to SHS at home during the past seven days. The most marked decrease in reported exposure occurred immediately following workplace smoking bans coming into force. Such trends have been reported in research in the United States of America, where implementation of workplace smoking bans has been associated with increases in smoking bans in homes (California Department of Health Services, 2002b). While similar trends are being recorded in New Zealand, it is not possible to infer any causal relationships in this report, as the results are from cross-sectional surveys. It should also be noted that a range of other tobacco control interventions may have influenced reported reductions in SHS exposure in homes. In particular, a campaign encouraging parents and caregivers to ban smoking in homes was implemented in April 2004.

Study limitations

Response rates for all four surveys were modest. It is not possible to compare these rates with those from other health and social surveys in New Zealand, as there is no standard method for calculating response rates for telephone surveys. Low response rates are a concern for any survey, as they are a potential source of selection bias. This is a particular concern for telephone surveys where response rates internationally have been decreasing over recent years (UCLA Centre for Health Policy Research, 2003) .

A number of factors can affect response rates and these can be inside and outside the control of those administering a survey. Attempts to maximise response rates in these surveys were made through strict recruitment protocols. Potential selection bias was allowed for by stratifying the sample according to key population demographics, and applying post-stratification weights to the data.

Potential improvement to future surveys include shortening the questionnaire to reduce the time per interview and so encourage positive responses, improving recruitment methods, and using alternative survey methods such as in-home surveys, which tend to achieve higher response rates than telephone surveys. Standard methods for calculating telephone-survey response rates in New Zealand, allowing rates to be compared and contextualised, would be a further improvement.

Conclusions

Although data for this report are from cross sectional surveys, marked and sustained declines in reported exposure to SHS and smoking behaviours, and increases in public support for smoking bans in the year after the legislative change and the subsequent year, suggest that these changes may be attributed to the workplace smoking bans coming into force in 2004.

Monitoring may be required to ensure that the bans are implemented fully in all relevant settings to reduce the number of people still reporting exposure to SHS in indoor workplaces. As reported in this and previous studies, public support for the smoking bans introduced by the legislation increased. This can be seen both as an endorsement of the legislation and a mandate to ensure its continuing implementation. The surveys show that rights to work in settings free of tobacco smoke are seen as paramount, and overrule rights of owners/managers to determine behaviour in their venues.

Contrary to claims by the hospitality industry before the legislation came into force, the surveys show that reported patronage to hospitality venues was largely unchanged. Associated decreases in exposure to SHS in homes and socially cued smoking at hospitality settings further support the introduction of workplace smoking bans.

This study supports the effectiveness of workplace smoking bans and shows the New Zealand experience to be consistent with that in other countries with similar bans. The study shows a number of positive direct and indirect impacts, and that claimed negative impacts are largely absent.

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