

Appendix 1. Overview of relative advantages and disadvantages of different secondhand smoke exposure assessment methods

Current methods for assessing SHS exposure	Source	Validity assessment	Settings used	Advantages	Disadvantages	Examples of use in studies
Atmospheric measures						
Gas-phase						
Airborne nicotine concentrations		Valid. * One study showed cotinine levels decreased in 35 hotel workers by 69% after a smoke-free law, while air nicotine levels decreased by 83%.	Indoor, outdoor	Specific to SHS	Costly; delay in results (gas chromatography required); recent exposure only	Phillips <i>et al.</i> , 1996 LaKind <i>et al.</i> , 1999 Maskarinec <i>et al.</i> , 2000 Mulcahy <i>et al.</i> , 2005* Gee <i>et al.</i> , 2006 Ruprecht <i>et al.</i> , 2006 Tominz <i>et al.</i> , 2006 Barrientos-Gutierrez <i>et al.</i> , 2007a,b Goodman <i>et al.</i> , 2007 Bolte <i>et al.</i> , 2008
3-ethenylpyridine		Valid, but few studies report its use	Indoor, outdoor	Specific to SHS	Costly; delay in results	Kuusimäki <i>et al.</i> , 2007 Bolte <i>et al.</i> , 2008
Carbon monoxide in air		Valid, but not specific to SHS	Indoor	Cheap	Not specific; recent exposure only	Klepeis <i>et al.</i> , 1999 De Bruin <i>et al.</i> , 2004 Rees & Connolly, 2006 Goodman <i>et al.</i> , 2007 Waring & Siegel, 2007
Volatile organic compounds (benzene, toluene, xylene)		Valid, but not specific to SHS	Indoor, outdoor	Educational (known carcinogens)	Costly; delay in results (gas chromatography required); recent exposure only	Daisey <i>et al.</i> , 1998 McNabola <i>et al.</i> , 2006 Goodman <i>et al.</i> , 2007 Bolte <i>et al.</i> , 2008
Solid-phase						
Solanesol		Valid, but few studies report its use	Indoor	Specific to SHS	Costly	Jenkins <i>et al.</i> , 2001
Particulate matter		Valid. A Norwegian study showed a strong correlation between ambient particulate matter and air nicotine concentrations (r=0.83).	Indoor, outdoor	Cheap; real time results, educational (results can be shown to the public)	Not specific to tobacco smoke; recent exposure only	Henderson <i>et al.</i> , 1989 Phillips <i>et al.</i> , 1996 Hammond, 1999 Gorini <i>et al.</i> , 2004 Moshhammer <i>et al.</i> , 2004 Repace, 2004 Travers <i>et al.</i> , 2004 Mulcahy <i>et al.</i> , 2005 Nebot <i>et al.</i> , 2005 Gasparrini <i>et al.</i> , 2006 Gee <i>et al.</i> , 2006 Maziak <i>et al.</i> , 2008 Wipfli <i>et al.</i> , 2008

Polycyclic aromatic hydrocarbons	Valid. **A linear relationship between PAHs and PM _{2.5} was observed in one study.	Indoor, outdoor	Educational	Costly; not specific to tobacco smoke; recent exposure only	Georgiadis <i>et al.</i> , 2001a,b Repace, 2004** Bolte <i>et al.</i> , 2008
Biomarkers					
Cotinine, 4-Methylnitros-amino-1-(3-pyridyl)-1-butanol	Gold standard to which other assessments are measured		Specific to SHS	More expensive; recent exposure only	Jarvis <i>et al.</i> , 2000 Ellingsen <i>et al.</i> , 2006 Haw & Gruer, 2007 Goodman <i>et al.</i> , 2007 Arheart <i>et al.</i> , 2008 Maziak <i>et al.</i> , 2008
Hair nicotine	Similar validity to cotinine	Indoor	Up to last three month's exposure	Expensive; hair colour interference	Repace <i>et al.</i> , 2006a Barrientos-Gutierrez <i>et al.</i> , 2007a Wipfli <i>et al.</i> , 2008 Maziak <i>et al.</i> , 2008
Questionnaires					
Self-report surveys	Questionnaires (e.g. Global Adult Tobacco Survey)	Workplace, personal space, public place	Easy to assess; can use retrospectively	Misclassification	Matt <i>et al.</i> , 1999 Jarvis <i>et al.</i> , 2000 Chen <i>et al.</i> , 2002 Pirkle <i>et al.</i> , 2006 Haw & Gruer, 2007
Other indirect methods					
Observational compliance	Visual and/or olfactive assessment; cigarette butt count; ash tray presence; presence of smoke-free policy signs	Indoor, outdoor	Cheap; easy to implement in field	Misclassification; visual and olfactive measurements non-objective	Weber <i>et al.</i> , 2003 Skeer <i>et al.</i> , 2004

Appendix 2. Measuring smoking behaviour

While the main purpose of clean-air legislation or policies is to protect smokers from SHS, Chapter 7 examines the evidence for these policies effecting smoking behaviour. Chapter 8 extends this theme to smoking policies within the home. Thus, it is important to understand the most generally used measures of smoking behaviour. Much of the data involving smoking behaviour for evaluation of clean-air policies are derived from population surveys that monitor health behaviours in general or tobacco-use behaviours in particular. Discussed below are the main measures that can vary in detail and issues related to their appropriateness and validity.

Smoking prevalence (adults). Standard survey questions addressing smoking status usually determine whether the respondent was an “ever” smoker. In the USA, the question “Have you smoked at least 100 cigarettes in your lifetime” is used for this purpose. In other countries, a question such as “Have you ever smoked daily for a period of six months?” is used. An affirmative response establishes the respondent as an ever smoker. The identified ever smokers are then asked a question about their current smoking status, such as “Do you now smoke cigarettes every day, some days, or not at all?” The response choice “some days” may identify persons who do not really consider themselves to be smokers, but who nevertheless smoke occasionally, perhaps only in social situations. In some localities, the proportion of smokers who identify themselves as “some days” smokers is not trivial and is growing, particularly among youth. Persons who say that they now smoke “not at all” are considered former smokers. Smoking prevalence is then defined as the percentage of current (daily and some-day) smokers in the survey sample, appropriately weighted to be representative of the population. The status data, and other features of smoking behaviour, are determined from self-reports. Research on the reliability of self-report data has compared the results both to biochemical markers and report of a significant other (Hatziaandreu *et al.*, 1989; Gilpin *et al.*, 1994), and generally found good correspondence. However, as smokers become more subject to social norms against smoking, some may not answer accurately.

Quitting. Former smokers are usually asked when they quit smoking. If the former smoker quit a long time in the past, they may not remember the date, so for those unable to provide a date, a question with general time intervals can help establish whether cessation occurred recently or long ago. For instance, “What best describes how long ago you quit: within the past 3 months, 3 to 6 months ago, 6 to 12 months ago, 1-5 years ago, or more than five years ago.” Intervals should be chosen to correspond to the timing of the evaluation survey with respect to implementation of new legislation. The quit ratio is defined as the percentage of ever smokers who are now quit, or quit for a given length of time or longer. Cessation for three months is a good early indicator of eventually successful cessation (Gilpin *et al.*, 1997). Some surveys also ask current smokers if they had tried to quit (usually for a day or longer) at least once in the previous year, and some try to establish how long the smoker abstained for the most recent or longest quit attempt in the past year. However, quit attempts of short duration are less likely to be recalled than those of longer duration (Gilpin & Pierce, 1994). A number of surveys ask current smokers about their intentions regarding quitting (i.e. within the next month, within the next 6 months, sometime but not within the next six months, and no intent to quit).

Self-reported cigarette consumption. Daily smokers are generally asked to estimate the average number of cigarettes they smoke a day, and some-day smokers are asked how many days they usually smoke per month, and on the days they do smoke, about how many cigarettes they consume. From their answers, an average daily or monthly consumption can be computed. Research has shown that smokers tend to round (likely down) to the

nearest half-pack (U.S. Department of Health and Human Services, 1989). So if consumption is categorised for analysis, the categories should be chosen to include these boundaries. For example, in countries where cigarettes are sold in 20-cigarette packs, the categories <5, 5-14, 15-24, 25+ cigarettes per day might be used. It should also be noted that when smokers are asked to recall previous consumption levels, they tend to report higher levels than they do currently (Gilpin *et al.*, 2001). For this reason, it is problematical to ask smokers about their consumption prior to a new law and currently.

Population cigarette consumption. Such measures differ from self-reported cigarette consumption and are usually derived from data pertaining to cigarette sales volume. Some studies analyse total tobacco sales, or total sales of cigarettes, and others divide this figure by the number of adults (18+ years) in the population. Youth are generally not included since they only account for a small proportion of total sales (Cummings *et al.*, 1994).

Smoking initiation. The process of smoking initiation involves several transitions before a youth reaches the status of an adult smoker. This process can be interrupted at any point. The first transition occurs when the youth begins to consider the idea of smoking. This may occur before there is an articulated intent to smoke, and such “susceptibility to smoking” is generally established by lack of a strong denial of future smoking (Pierce *et al.*, 1996). For instance, an answer to the questions: “Do you think you will try a cigarette soon?” or “If your best friend offered you a cigarette, would you take it?” or “Do you think you will be smoking a year from now?” other than “definitely not” (i.e. “probably not,” “probably yes,” or “definitely yes”), suggests a susceptibility to smoking. These questions would be asked of youth who denied ever having tried a cigarette, or even having a puff on one. Versions of these questions could also be asked of those who have tried smoking, but not recently, as a measure of their likelihood of doing it again. Experimenters are generally defined as those who have tried a cigarette or smoked a whole cigarette. Becoming an established smoker can be defined using the adult criteria for being an ever smoker. Current smoking among youth is often defined as report of smoking on any day in the past month, but some studies use any day in the last week. Regular current smoking may be defined as smoking on every day in the last week or month.

Report of smoking restrictions. Population surveys also ask respondents about restrictions on smoking in their workplaces and/or at home. The proportion of smokers reporting restrictions is usually lower than that for nonsmokers (Gilpin *et al.*, 2000), either because smokers gravitate to work settings with fewer restrictions, live only with other smokers, or because they are in denial that restrictions actually are present either at work or home. Comparison of reports from smokers and nonsmokers within the same household are not in complete agreement (Mumford *et al.*, 2004), but if smokers act according to their perceptions, their report may be more valid.

Appendix 3. Econometric studies relating scope and strength of laws restricting smoking to smoking behaviour

Reference Location	Population and design	Year	Assessment of law scope and strength	Smoking measures	Covariates, analysis	Results	Comments
Wasserman <i>et al.</i> , 1991 USA	Adults >200 000 adult respondents to the National Health Interview Surveys Teenagers 1960 teen respondents to the National Health and Nutrition Examination Survey II (NHANESII)	NHIS 1970, 1974, 1979, 1980, 1983, 1985 NHANES-II 1976-1980	From reports published by the US Dept of Health and Human Services. Laws, regulation ordered categorical variable created as restrictions in: 1=private work places, 0.75=restaurants, 0.50=public places*, 0.25= < 4 public places, 0=none	Current smoking status Daily consumption among current smokers	Adult regression model included year, log cigarette price by year, income by year, family size, log family size, education, education by year, sex, age, birth cohort, sex by age, birth cohort by age, non-white race/ethnicity, and marital status. Teen regression model included year, log cigarette price by year, family size, log family size, family income, household head education, sex, age, non-white race/ethnicity, and a variable for restrictions on sales of cigarettes to minors.	Regulation index significantly related to reduced adult reported cigarette consumption (p<0.05) but not to smoking status. Regulation index significantly related to less teen current smoking (p<0.01), but not to daily cigarette consumption among teens.	* If state had no restrictions on private places and restaurants but on at least in 4 different types of public places, then a score of 0.50 was assigned; if in less than 4, then a score of 0.25 was used.
Chaloupka, 1992 USA	Adult male and female respondents to NHANES II that surveyed approximately 28 000 people of all ages.	1976-1980	Same categories as for Wasserman <i>et al.</i> , 1990 (extensive, moderate, basic, nominal), but binary variables used for each category instead of ordered categorical variable	Daily cigarette consumption	Separate regression model for males and females included current and past and next year's cigarette prices, past and next year consumption. Two analyses conducted for all respondents (nonsmokers coded zero CPD) and current smokers.	All respondents Males Extensive, NS Basic, p<0.01 Females Extensive, NS Basic, NS Current Smokers Males Extensive, NS Basic, p<0.01 Females Extensive, NS Basic< NS	The authors concluded that stronger than basic restrictions are unlikely to impede smoking further.
Chaloupka & Saffer, 1992	Summary data on 50 US states gathered from many sources	1970-1985	Same coding as Chaloupka <i>et al.</i> , 1992, but only two binary variables used: extensive and basic: state wide rather than local laws coded	Per capita cigarette sales	Analysis included cigarette prices, tobacco production, three variables related to export and import of cigarettes (smuggling), income, percent of the population who were Mormons or Southern Baptists, the percentage of the population who voted, the percent divorced, and the percent unemployed.	Both restriction indicators significantly related to per capita cigarette sales, p<0.01.	The authors concluded that laws restricting smoking are more likely to be passed in states with higher cigarette prices, and that passing more smoking restrictions may not decrease cigarette sales.

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Keeler <i>et al.</i> , 1993 California, USA	Summary data from various sources	1980-1990	Regulation index that accounted for the percent of the state's population affected by regulation and the intensity of regulation for the population covered.	Per capita monthly cigarette sales	The time series regression analyses included the average of Arizona and Oregon taxes divided by the California tax, federal tax, per capita income, cigarette prices, state tax, and a time trend.	Without the time trend in the model, the regulation index was significantly and inversely related to per capita consumption (p<0.001). Including the time trend in the model, eliminated the effect for the regulation index.	The authors indicate that the time trend (increases in tobacco control activity) and the changes in consumption moved together over time and it was not possible to separate their effects.
Chaloupka & Grossman, 1996	110 7-17 8 th , 10 th , and 12 th graders Monitoring the Future Surveys	1992, 1993, 1994	Five variables related to the fraction of the population covered by restrictions in private workplaces, restaurants, retail stores, schools, or other public places	Any smoking in the past 30 days Measure of daily cigarette consumption among current smokers	Analyses adjusted for a number of individual level factors, as well as cigarette prices, restrictions on youth purchase of cigarettes, whether a portion of the cigarette tax was devoted to tobacco control, and whether there were any laws protecting the rights of smokers.	Smoking in past 30 days: Workplace, p<0.05 All four others, NS Consumption: Restaurants, schools, other public places, p<0.01 Other two, NS	
Chaloupka & Wechsler, 1997	16 560 college students from the Harvard College Alcohol Study	1993	Three binary variables for restrictions in restaurants, schools, other places. Ordered categorical variable similar to Wasserman, 1990	Any smoking in past 30 days Ordered categorical variable for cigarette consumption among current smokers (none, 1-9 CPD, 10-19 CPD, 20+ CPD)	Analyses adjusted for cigarette prices, age, sex, race/ethnicity, marital status, religiosity, parental education, on-campus residence, fraternity/sorority membership, and employment, as well as college-level characteristics (co-ed, private, commuter, rural, with fraternity/sorority, and region).	Smoking in past 30 days: Restaurants, p<0.10 Schools, NS Other, NS Ordered categorical, NS Consumption: Restaurants, p<0.10 Schools, p<0.10 Other, NS Ordered categorical, NS	Authors suggested that restaurant smoking restrictions are a reflection of community level restrictions in general.
Lewit <i>et al.</i> , 1997 Communities in USA and Canada	15 432 9 th grade students from the Community Intervention Trial for Smoking Cessation communities (COMMIT)	1990 and 1992	Combination of three indices related to restrictions in private workplaces, restaurants, and other public places.	Any smoking in the past 30 days Among those who did not smoke in the past 30 days, intent to smoke in the future	Analyses controlled for a multitude of individual and community level characteristics, as well as other tobacco control policy variables including cigarette prices, school anti-tobacco classes,	Smoking in past 30 days: Combined index, NS School policy, p<0.01	

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Lewit <i>et al.</i> , 1997 Communities in USA and Canada			The separate indices took into account the frequency of venue type and extent of the restrictions. There was also a variable for school smoking policy.		minimum age of purchase requirements, vending machine restrictions, restrictions of distribution of free samples and exposures to anti- and pro-tobacco media.	Intent to smoke: NS for all the restriction variables	
Tauras & Chaloupka, 1999a	See Tauras, 2005	See Tauras, 2005	Binary indicators (as for Tauras, 2005) but combined into ordinal categorical variable very similar to Wasserman, 1990	Current smoking status. Monthly cigarette consumption estimated from a categorical survey item to assess frequency of smoking	See Tauras, 2005	Current smoking, p<0.01 Monthly smoking, P<0.01	Authors commented that previous studies of cigarette price elasticity might have overestimated influence of cigarette prices by not accounting for the presence and strength of clean indoor air laws.
Tauras & Chaloupka, 1999b	See Tauras, 2005	See Tauras, 2005	Index as in Tauras & Chaloupka, 1999a, and other analyses with three separate indicator variables for private workplaces, restaurants, and all other places, and another analysis with the ordinal variable minus the workplace indicator and with another variable indicating a worker in a workplace with restrictions.	Smoking cessation	Separate analyses for males and females controlled for cigarette prices, white race, yearly income, age, religiosity, suburban, rural, work hours, marital status, household composition, education, current college attendance status, year, and region.	Males: NS for all the various codings of smoking restrictions. Females: only the variable indicating a worker in a workplace with restrictions was significantly related to increased cessation, p<0.01.	The authors also discussed that many previous researchers may have computed price elasticities of demand for cigarettes that were inflated, because they did not control for clean-indoor air laws. There is a correlation between these factors, and variance attributable to the clean indoor air laws was confounded with that for cigarette prices.

Appendix 3. Econometric studies relating scope and strength of laws restricting smoking to smoking behaviour

Reference Location	Population and design	Year	Assessment of law scope and strength	Smoking measures	Covariates, analysis	Results	Comments
Tauras, 2005	Monitoring the future longitudinal data on young adults--high school seniors followed over up to 8 years. Approximately 2400 students selected for cohort each year	1976-1993	Data on presence and magnitude of state clean indoor air laws from Centers for Disease Control--six binary variables (private workplaces, restaurants, health care facilities, government worksites, grocery stores, and other public places)	Transitions from non-daily to daily smoking Transition from light (1-5 CPD) to moderate (6-10 CPD)	Analyses adjusted for age, sex, income, college status, religiosity, marital status, household composition, region, and cigarette prices.	Transition non-daily to daily; all indicators NS Transition from light to moderate: Private worksite, p<0.01. Restaurants, p<0.001 Other public places, p<0.01	
				Transition from an average of 10 CPD to heavy smoking (20+ CPD)		Transition from moderate to heavy daily smoking: all indicators NS	

*Public places included: public buses/trains, elevators, indoor recreational or cultural facilities, retail stores, schools, health care facilities, public meeting rooms, libraries, rest rooms, waiting rooms, jury rooms, halls and stairs, polling places, and prisons.

CPD=Cigarettes per day

NHIS = National Health Interview Surveys

NS = Not statistically significant

Appendix 4. Other correlative studies relating scope and strength of laws restricting smoking to smoking behaviour

Study Location	Population and design	Year data gathered	Assessment of law scope and strength	Smoking measures	Covariates and analysis	Results	Comments
Emont <i>et al.</i> , 1993 USA	State-specific data from the Current Population Survey, 50 states	1989	Same as for Chaloupka <i>et al.</i> , 1992	Adults smoking prevalence Quit ratios (% of ever smokers now quit) Per capita cigarette sales	Analyses of 50 US states and District of Columbia (51 data points) Jonckhere test for ordered data relating increasing regulation categories to outcome variables.	Prevalence: p<0.001 Quit ratio: p<0.005 Consumption: p<0.0005	No individual or state level covariates included. Cigarette prices also correlated with all three outcomes.
Stephens <i>et al.</i> , 1997 Canada	11 652 respondents to the General Social Survey	1991	Percentage of local population covered by a municipal bylaw restricting smoking	Current smoking status	Logistic regression analyses adjusted for age, sex, marital status, and education, as well as price, change in price, and some significant interactions.	Bylaw strength index was significantly related to being a nonsmoker (OR=1.21 ; 95% CI=1.08-1.36)	
Yurekii & Zhang, 2000 USA	State-specific data from multiple sources, 50 states	1970-1995	Index that considered the time people spend in various venues and restrictiveness for each year and for each state	Per capita cigarette consumption from sales data	Regression analyses of 50 US states and District of Columbia included many other state level factors: per capita disposable income, cigarette prices, cigarette tax, % with bachelor's degree, % of each race/ethnicity, % Mormon, % unemployed, tourism expenditures, and variables related to smuggling.	The index for restrictions on smoking was significantly related to lower per capita consumption in all analyses, p<0.05	The main purpose of this study was to evaluate the effect of cigarette smuggling on revenue. From their final model the authors estimated that without such laws, total demand for cigarettes would have been 4.5% greater in 1995.
Moskowitz <i>et al.</i> , 2000 California, USA	4680 employed current and recent former smokers from the 1990 California Tobacco Survey	1990	Local ordinance data from Americans for Nonsmokers' Rights and the California Smoke-Free Cities Project.	Having a worksite policy	The logistic regression analyses adjusted for age, sex, race/ethnicity, education, type of area, and workplace size.	Strong: (OR=1.61; 95% CI=1.29-2.15) Weak: (OR=0.99; 95% CI=0.70-1.40) Moderate: (OR=1.38; 95% CI=0.98-1.95)	

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Study Location	Population and design	Year data gathered	Assessment of law scope and strength	Smoking measures	Covariates and analysis	Results	Comments
Moskowitz <i>et al.</i> , 2000 California, USA			Only ordinances pertaining to workplaces were considered and were coded as none, weak, moderate, and strong	Smoking cessation in the past six months		Strong: (OR=1.52; 95% CI=1.14-1.71) Moderate: (OR=1.35; 95% CI=0.94-1.95) Weak: (OR=1.38; 95% CI=0.95-2.00) versus none	
Wakefield <i>et al.</i> , 2000a USA	Survey of 17 287 high school students from 202 schools	1996	A regulation index based on state laws effective in 1996 from records maintained by the Centers for Disease Control and Prevention were merged by school locale	Non-susceptible versus susceptible Susceptible versus early experimenter Early versus advanced experimenter Advanced experimenter versus established smoker (see text for definitions) Also, any smoking in past 30 days	Models included grade, sex, race/ethnicity, adult sibling smokers, living in a smoke-free home, smoke-free school policy, and strength of enforcement of such policies. Separate logistic regression analyses of each successive pair of levels on the continuum.	Non-susceptible to susceptible: (OR=0.96; 95% CI=0.86-1.06) Susceptible to early experimenter: (OR=0.93; 95% CI=0.84-1.02) Early to advanced experimenter: (OR=0.92; 95% CI=0.83-1.00) Advanced experimenter to established smoker: (OR=0.90; 95% CI=0.81-0.98) Any smoking in the past 30 days: (OR=0.91; 95% CI=0.83-0.99)	
Stephens <i>et al.</i> , 2001 Canada	14 355 respondents aged 25 years and older to the National Population Health Survey	1995, 1996	Federal government survey data used to create an index that summed a three level (0=no restrictions, 1=designated area, 2=smoke-free) variable for 12 locations.	Current smoking status	Men and women were analysed separately. The regression analyses (logistic for status and linear for consumption) included variables for a recent cigarette tax cut effective only in some localities, cigarette	Status : Women: Index- (OR=1.02; 95% CI=1.00-1.03) Enforcement and signage: NS	

Study Location	Population and design	Year data gathered	Assessment of law scope and strength	Smoking measures	Covariates and analysis	Results	Comments
Stephens <i>et al.</i> , 2001 Canada			Also, there were variables for strength of enforcement and no-smoking signage requirements		prices, and expenditures for tobacco control.	Men: Index: NS Enforcement: (OR=1.21; 95% CI=1.00-1.46) Signage: (OR=1.25; 95% CI=1.01-1.55)	
Viehbeck & McDonald, 2004 Canada	9249 current and former smokers responding to the Canadian Community Health Survey	2001	Similar communities matched according to strong or weak by law index score that accounted for comprehensiveness, enforcement level, and signage requirements	Daily cigarette consumption Being a former smoker	Mantel-Haenszel test compared pairs of communities. Logistic regression models included all the policy components of the scale used to match communities, but no other variables.	Consumption Women: Index: p<0.05 Enforcement and signage: NS Men: Index: NS Enforcement and signage: NS No pair of communities differed with respect to current-former smoking status. None of the policy components was significantly related to being a former smoker.	
McMullen <i>et al.</i> , 2005 USA	State specific data from multiple surveys; 50 states analysed	1996-1999	Index of extensiveness of clean indoor air laws for nine venues including enforcement, and penalties as determined from the National Cancer Institute's State Cancer Legislative Database	Adult current smoking prevalence Youth (12-17 years) smoking prevalence Percentage of indoor workers working in a smoke-free workplace from data published by the American Non-smoker's Rights Foundation	Multivariate analyses of 50 US states and the District of Columbia adjusted for state poverty rates and cigarette excise taxes.	Adult current smoking prevalence: p<0.07 Youth smoking prevalence: p<0.01 Percentage of indoor workers in smoke-free workplace: p<0.01	

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Study Location	Population and design	Year data gathered	Assessment of law scope and strength	Smoking measures	Covariates and analysis	Results	Comments
Siegel <i>et al.</i> , 2005 Massachusetts, USA	Longitudinal population telephone survey of 2623 youth 12-17 years	Baseline: 2001-2002 Follow-up: 2003-2004	Ordered categorical variable for restaurant smoking restrictions: strong=no smoking allowed, medium=restricted to separately ventilated areas, weak=no restrictions or no separately ventilated area	Transition to established smoking (>100 cigarettes in lifetime) by follow-up	The logistic regression analyses controlled for a number of individual level characteristics including age, sex, race/ethnicity, baseline smoking experience, close friends who smoke, exposure to anti-smoking messages at school, smokers in the household, education of adult informant, and household income. Town level factors included %with college education, %voting in favor of increased cigarette tax, %white, %youth, number of restaurants in town, and population size.	Transition to established smoker for those with strong compared to weak restaurant ordinances: (OR=0.39; 95% CI=0.24-0.66) Moderate ordinance compared to weak: (OR=1.06; 95% CI=0.70-1.62)	
Albers <i>et al.</i> , 2007	1712 adult smokers in the same households as in Siegel <i>et al.</i> , 2005	Baseline: 2001-2002 Follow-up: 2003-2004	Same coding as Siegel <i>et al.</i> , 2005	Making a quit attempt	In this study, hierarchical analyses adjusted for age, sex, race/ethnicity, education, household income, marital status, children <18 years in the household, and baseline level of addiction.	Quit attempt for those with quit attempt at baseline: (OR=3.12; 95% CI=1.51-6.44) those without a quit attempt at baseline: NS	
Siegel <i>et al.</i> , 2008 Massachusetts, USA	2217 of youth from Siegel <i>et al.</i> , 2005 study followed-up again	Further follow-up in 2005-2006	Same coding as Siegel <i>et al.</i> , 2005	Being quit at follow-up Transitions from never smoker to experimenter Transition from experimentation to established smoker	The analyses used the same set of variables as for Siegel <i>et al.</i> , 2005.	Being quit at follow-up: NS, regardless of baseline history Transition from never to experimenter for strong versus weak ordinance: (OR=1.18; 95% CI=0.94-1.49) Transition from experimenter to established: (OR=0.53; 95% CI=0.33-0.86)	Living in a town with a strong ordinance appears to impede the transition from experimentation to becoming an established smoker.

Appendix 5. Population studies examining the effect of workplace smoking policies on worker smoking behaviour

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Longitudinal							
Patten <i>et al.</i> , 1995 California, USA	1844 adult indoor workers	1990-1992 50% follow-up	Smoke-free work area in both years, in 1990 but not 1992, in 1992 but not 1990, and in neither year	Changes in smoking status Changes in cigarette consumption	Chi-square tests of changes in outcome variables among the four groups defined by the presence of a smoke-free work area. Also logistic regression of decrease in consumption by five CPD or by quitting adjusted for age, sex, race/ethnicity, and education.	The overall chi-square statistics of both outcomes were only marginally significant, $p < 0.10$. Group comparisons showed substantial differences, but failed to reach statistical significance. Logistic regression showed that those working in a smoke-free work area in 1990 but not 1992 were significantly less likely to decrease consumption, $p < 0.05$.	The group that had a smoke-free work area in 1990 but not in 1992 appeared to increase their daily cigarette consumption.
Glasgow <i>et al.</i> , 1997 USA and Canada	8271 employed smokers from the Community Smoking Cessation Intervention Trial (COMMIT)	1988-1993 65.9% follow-up	Smoke-free worksite versus designated areas versus no restrictions in 1998	Quit attempt Cessation at follow-up	Regressions adjusted for sex, race/ethnicity, age, education, income, cigarette consumption, desire to quit, past quit attempts, and cessation services at worksite.	Quit attempt: Designated area OR=1.16 Smoke-free OR=1.27, $p < 0.05$ Quit at follow-up: Designated area OR=1.0 Smoke-free OR=1.27, $p < 0.05$ Consumption: Designated area coef=1.17 Smoke-free coef=-2.78, $p < 0.05$	
Pierce <i>et al.</i> , 1998c California, USA	1736 non-Hispanic smokers from the California Tobacco Survey over the age of 25 years	Baseline in 1990, follow-up in 1992 Follow-up rate not given	Smoke-free work area versus all other indoor workers versus everyone else assessed at follow-up	Advancement along a quitting continuum	The logistic regression included sex, age, race/ethnicity, education. Having a smoke-free home (and a belief that SHS is harmful), having assistance with cessation, and a smoke-free work area were also	All the programme-related variables were significantly related to increased progress toward quitting. The odds ratio for working in a smoke-free work area was OR=1.6; 95% CI=1.0-2.6	It was unknown when workplace policy was implemented (prior to baseline or during the follow-up period).

Appendix 5. Population studies examining the effect of workplace smoking policies on worker smoking behaviour

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Longitudinal							
Pierce <i>et al.</i> , 1998c California, USA					included as tobacco control programme-related variables.	Compared to other indoor workers not covered by a smoke-free work area.	
Biener & Nymn, 1999 USA	369 workers who smoked at baseline	1993-1996 66% follow-up	Smoke-free workplace in both years, or in neither in 1996 only, year. Reported exposure to secondhand smoke	Smoking "not at all" at follow-up	The logistic regression analysis adjusted for age, sex, education, smoking level at baseline, and intent to quit within 30 days	Cessation: (OR=2.0; 95% CI=0.7-6.0) Reduced or minimal exposure to SHS by 1996 predicted cessation: (OR=6.99; 95% CI=1.79-27.3)	The authors suggest that lack of enforcement as evidenced by exposure to SHS may account for the lack of a significant cessation effect.
Longo <i>et al.</i> , 2001	1469 hospital workers and 920 workers in other venues who smoked pre-smoke-free policy implementation.	Pre-policy up to 1996 Follow-up rate not reported	Hospitals went smoke-free at various times to comply with mandated smoke-free policy by 1993	Quit ratios (smoking pre-policy, not smoking sometime after policy imposed)	Cox proportional hazards analysis adjusting for age, sex, education, employment group (blue collar, clerical, white collar), and accounted for different follow-up intervals.	Quitting was significantly higher (adjusted hazard ratio: 2.29 (95% CI=1.56-3.37)) among the hospital workers compared to the other workers.	A simple analysis of quit ratios suggested that they increased more over time for the hospital workers than for the other workers.
Bauer <i>et al.</i> , 2005 Communities in USA and Canada	1967 indoor workers who smoked, also from COMMIT	1993-2001 53% follow-up	Workplace policy in both years, categorised by change: maintained no restrictions, partial in either year but not complete, complete in 2001 regardless of status in 1993	Quit attempt. Being quit 6+ months at follow-up Daily cigarette consumption	The regression analyses adjusted for age, sex, race/ethnicity, education, prior desire to quit, number of previous quit attempts, amount smoked and occupation.	Quit attempt: NS Cessation for 6+ months: Partial: (OR=1.73; 95% CI=0.96-3.11) Complete: (OR=1.92; 95% CI=1.11-3.32)	There were very low reported levels of using smokeless tobacco in 2001, suggesting that workers did not switch to this form of tobacco from cigarettes because of workplace smoking restrictions.

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Longitudinal							
Shields, 2005 Canada	14 207 in longitudinal sample, number of smokers, and number of quitters at baseline not reported. Respondent to National Population Health Survey	1995/95 2002/03 81% follow-up	Smoke-free workplace versus all other workers	Continuous cessation (duration not specified) initiated during the follow-up period, duration of abstinence for those quit at baseline	Separate logistic regression analyses conducted for men and women. The analyses adjusted for addiction level, age, chronic health conditions, body mass index, heavy drinking, psychological distress, low emotional support, chronic stress, age, education, income, and the presence of children > 5 years in the home.	A smoke-free workplace was unrelated to cessation in men: (OR=1.0; 95% CI=0.7- 1.4) and women:(OR=1.1; 95% CI=0.8-1.4)	
Shields, 2007 Canada	1364 indoor workers who smoked daily at baseline from Canadian Tobacco Use Monitoring Survey	Multiple survey waves from 1994-2005 combined 77% follow-up	Newly imposed smoke-free workplace versus new partial restrictions versus continuously working under no restrictions	Continuous abstinence (duration not specified) initiated during the follow-up period Change in daily consumption	Logistic regressions adjusted for sex, age, education, income, baseline cigarette consumption, and occupation Analysed by simple baseline versus follow-up comparison	A newly imposed smoke-free workplace was significantly related to being abstinent at follow-up compared to those continuously working under no restrictions: (OR=2.3; 95% CI=1.4-3.9) Between baseline and follow-up continuing smokers significantly reduced their CPD by 2.1 with a new smoke-free workplace	
Cross-sectional							
Brenner & Mielck, 1992	439 adult workers 21-65 years from Ministry of Youth, Family and Health Survey	1987	Smoking permitted at worksite or not	Quit Quit attempt Consumption among current smokers	Regressions for each sex separately adjusted for age, marital status, and education.	Quit: Permitted versus not Women: (OR=0.22; 95% CI=0.09-0.50) Men: (OR=0.80; 95% CI=0.44-1.45) Quit attempt: Prohibited versus not Women: (OR=2.08; 95% CI=0.98-4.40) Men: (OR= 2.15; 95% CI=1.18-3.91) Consumption: NS either sex	

Appendix 5. Population studies examining the effect of workplace smoking policies on worker smoking behaviour

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Cross-sectional							
Wakefield <i>et al.</i> , 1992	1120 workers 15+ years	1989	Smoke-free (31.9%), partial (33.2%), no restrictions (34.8%)	Difference between daily consumption on leisure and work days	Analysis of covariance adjusted for sex, cigarettes smoked on leisure days, occupation	Difference significant, Partial: -4.9 CPD Smoke-free: -5.2 CPD, compared to no restrictions, $p < 0.001$	Results did not differ by occupational status.
Australia	N=231 smokers						
Kinne <i>et al.</i> , 1993	1288 employed but not self-employed workers from Washington State Cancer Risk Behaviour Survey	1989-1990	Smoke-free versus partial restrictions versus no restrictions	Prevalence	Males and females analysed separately. Multivariate analysis of consumption adjusted for time to first cigarette in morning, occupation, age, income, education, ethnicity, and urban residence.	Prevalence, simple comparison: Men, $p < 0.0001$ Women, $p = 0.0021$	
Washington, USA				Consumption among current smokers		Consumption: Men, $p < 0.0001$ Women, NS	
Woodruff <i>et al.</i> , 1993	11 704 indoor workers from California Tobacco Survey	1990	Smoke-free versus work area restriction versus lesser restriction versus no restriction	Prevalence	Regressions adjusted for age, education, Hispanic ethnicity, and sex. Supported univariate results reported in next column.	Prevalence: Smoke-free versus none, 13.7% versus 20.6%; $p < 0.001$	Authors estimated that consumption now 21% less than if there were no restrictions. Would be 41% less if all workplaces were smoke-free, resulting in a loss of \$406 million in annual sales to the tobacco industry.
California, USA				Consumption among current smokers		Consumption: Smoke-free versus none, 296 versus 341 packs/year, $p < 0.001$	
				Intent to quit		Intent to quit: Smoke-free versus none, 31.8% versus 29.7%, $p = 0.014$	
				Quit ratio		Quit ratio: NS	
Farkas <i>et al.</i> , 1999	48 584 current and recent former smokers (smoking one year previously) from the Current Population Survey	1992-1993	Less than smoke-free work area versus smoke-free work area but allowed in some common areas versus completely smoke-free workplace	Making a quit attempt of a day or longer in the past year	Logistic regression analysis adjusted for age, sex, race/ethnicity, education, income, occupation, region, age of youngest child in household, and smokers in household, and home smoking restrictions.	Quit attempt: Smoke-free versus none: (OR=1.14; 95% CI=1.05-1.24)	Lesser workplace restrictions not significantly related to any of the outcomes.
USA				Cessation of at least six months when interviewed		Cessation six+ months: Smoke-free versus none: (OR=1.21; 95% CI=1.00-1.45)	
				Smoking <15 CPD (light smoker)		Smoking < 15 CPD Smoke-free versus none: (OR=1.53; 95% CI=1.38-1.70)	

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Cross-sectional							
Farrelly <i>et al.</i> , 1999 USA	Nearly 100 000 non-self employed adult workers, including nearly 25 000 smokers from Current Population Survey	1992-1993	No restrictions versus partial work area/common area restrictions versus smoke-free work area and partial common area restrictions versus completely smoke-free workplace	Prevalence Cigarette consumption among current smokers	The regression analyses adjusted for age, sex, race/ethnicity, education, marital status, number of persons in household, urban/rural status, state, income, hours worked per week, and type of industry or employment.	Prevalence: A smoke-free work area was 2.6 (95% CI=1.7-3.5) percentage points lower than no restrictions. Smoke-free 5.7 (95% CI=4.9-6.5) percentage points lower. Consumption: Smoke-free work area 1.5 (95% CI=1.1-1.90) CPD lower than no restrictions. Smoke-free 2.7 (95% CI=2.3-3.1) CPD lower.	Further analyses by demographic, and more importantly by industry subgroups, showed consistently lower pre-valence and CPD among workers in smoke-free workplaces compared to those with no restrictions. In groups with higher consumption the differences tended to be greater, suggesting a greater smoke-free workplace effect in workplaces with greater smoking levels.
Evans <i>et al.</i> , 1999 USA	18 090 indoor workers from National Health Interview Surveys	1991 and 1993	Smoke-free work area versus restrictions in other indoor areas versus no restrictions	Prevalence of current smoking Cigarette consumption among current smokers	The regression analysis adjusted for age, age squared, family size, log income, region, education, race/ethnicity, city size, marital status, cigarette tax, occupation, and year.	The primary analysis found prevalence to be 5.7% points lower among workers in a smoke-free workplace versus no restrictions, $p<0.01$. Consumption was 2.5 CPD less, $p<0.01$.	The extensive set of variables on health status and the workplace environment allowed investigation of whether such factors might account for different worker or workplace traits that might relate to smoking and level of workplace smoking restrictions. None were found.
Gilpin, <i>et al.</i> , 2000 USA	237 733 persons aged 15 years and older who were self-respondents to the Current Population Survey	1992-93	Smoke-free workplace, smoke-free homes, and cigarette prices Also, an index combining these three factors	Adult and youth (15-24 years) smoking prevalence, and per capita cigarette consumption	The analyses were bivariate correlations among the 50 US states and the District of Columbia	Smoke-free workplaces were significantly correlated with all adult (25+ years) prevalence, $r=-0.65$, $p<0.0001$ and per capita cigarette consumption, $r=0.54$, $p<0.001$, but not youth (15-24 years) prevalence, $r=-0.26$, $p=NS$	Analyses did not adjust for individual or state level factors that might be related to outcome measures.

Appendix 5. Population studies examining the effect of workplace smoking policies on worker smoking behaviour

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Cross-sectional							
Gilpin &Pierce, 2002b California, USA	5677 current smokers from the California Tobacco Survey	1999	Smoke-free workplace versus all others	Daily cigarette consumption	A multivariate linear regression of daily cigarette consumption, adjusted for age, sex, race/ethnicity, education, belief in the harmfulness of SHS, having a smoke-free home, and a family preference that the smoker not smoke.	A smoke-free workplace was significantly associated with reduced consumption ($p=0.0004$). Adjusted CPD was 9.4 ± 0.9 versus 11.1 ± 1.0 for those in smoke-free workplaces compared to all others.	
Shavers <i>et al.</i> , 2006 USA	82 966 employed women self-respondents to the Current Population Survey	1998/99 and 2001/02	No work place policy versus no work area policy versus smoke-free work area	Smoking prevalence Heavy (>20 CPD) daily cigarette consumption among smokers	The analyses were stratified by poverty level and by race/ethnicity. Multivariate analyses adjusted for race/ethnicity (as appropriate), age, education, marital status, occupation, and home smoking restrictions.	Regardless of poverty status or race/ethnicity, a smoke-free work area was not significantly associated with lower smoking prevalence. A smoke-free work area was inversely and significantly related to heavy smoking compared to no restrictions for some subgroups. A smoke-free work area was not significantly related to making a quit attempt.	
Shopland <i>et al.</i> , 2006 USA	128 024 employed female daily smokers a year previously who did not live alone responding to Current Population Survey	1992/93 and 2001/02	Smoke-free workplace versus all others	Cessation of any length Cessation of at least 3 months when interviewed.	Logistic regression analyses adjusted for age, education, race/ethnicity, a child > 5 in household, household composition, home smoking restrictions, and occupation.	Cessation of any length not significant in either year, 1992-93 (OR=1.02; 95% CI=0.83-1.26), 2001-02 (OR=1.11; 95% CI=0.81-1.53) Cessation of at least 3 months in 1992-93 (OR=1.30; 95% CI=1.04-1.63), but not 2001-02 (OR=0.99; 95% CI=0.67-1.45)	The proportion of respondents reporting workplaces increased substantially between surveys.

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Cross-sectional							
Morozumi & Li, 2006 Japan	1687 workers from household survey	2001	Smoke-free workplace versus separate designated areas versus no restrictions	Prevalence Consumption Cessation	Probit model adjusted for a multitude of demographic and other factors	Prevalence: smoke-free versus no restrictions, $p<0.05$ Consumption: smoke-free versus no restrictions, $p<0.05$ Cessation: smoke-free versus no restrictions, $p<0.05$	
Lee & Kahende, 2007 USA	3990 quitters in the past two years from the National Health Interview Survey	2000	Smoke-free workplace versus all others	Quit 7-24 months before the survey without a relapse (successful quitter) versus relapsed quitters in the past year	A logistic regression adjusted for age, education, marital status, race/ethnicity, the number of lifetime quit attempts, and whether the smoker had ever switched to low tar cigarettes.	A smoke-free workplace was significantly associated with successful cessation: $OR=2.01$ (95% $CI=1.20-3.37$)	
Burns <i>et al.</i> , 2007 Colorado, USA	6100 ever smokers from the Colorado Tobacco Attitudes and Behaviour Survey	2001	Smoke-free work area versus other workers versus not applicable	Duration of smoking, with current smokers censored at time of survey	A Cox proportional hazard regression adjusted for age, sex, marital status, language spoken in home, age of smoking initiation, education, home smoking restrictions, poverty status, and insurance status.	Not having a smoke-free work area was significantly related to increased smoking duration. Hazard ratio: 1.48 (95% $CI=1.19-1.84$)	Results were similar for Latinos and non-Hispanic whites.
Messer <i>et al.</i> , 2008a USA	31 625 adult recent current smokers from the Current Population Survey	2001-2002	Seriously trying to quit Quit at least a day in the past year Quit for at least 6 months when interviewed	Smoke-free workplace versus all others (including those not employed)	A logistic regression analysis adjusted for sex, age, race /ethnicity, education, initiation < 15 years, delay of smoking for at least 30 minutes after awakening, home smoking restrictions, and use of a pharmaceutical aid.	A smoke-free workplace was not significantly related to any of the outcomes.	

Appendix 5. Population studies examining the effect of workplace smoking policies on worker smoking behaviour

Reference Location	Population, design	Year	Worksite policy	Smoking behaviour measures	Covariates and analysis	Results	Comments
Cross-sectional							
Pierce <i>et al.</i> , 2009 USA	542 470 current smokers aged 18-64 years in all the cross-sectional Current Population Surveys from 1992/93-2002/03	1992-2002	Very light (<5 CPD) smoking in those aged 18-29 years. The very light category includes occasional smokers (88% of group).	Smoke-free workplace versus all others (including those not employed)	Logistic analysis of very light smoking in 18-29 year old group, adjusted for survey year, sex, education, income versus below 2 times poverty threshold, smoke-free home, and tobacco control policies ranking by tertile for state of residence as an indicator of social norms against smoking.	A smoke-free workplace was significantly associated with greater very light smoking: (OR=1.28; 95% CI=1.18-1.38)	The authors selected the group aged 18-29 for the logistic regression analysis because of a marked increase in very light smoking in that group.

CPD = Cigarettes per day
SHS = Secondhand smoke

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Longitudinal studies							
Pierce <i>et al.</i> , 1998c California, USA	Adult (≥ 25 years) non-Hispanic smokers California Tobacco Survey N=1736	Baseline in 1990 and follow-up in 1992 Follow-up rate not reported	Work area restriction and smoke-free home assessed at follow-up. Those without a smoke-free home were further stratified according to whether they believed SHS to be harmful.	Advancement along a quitting continuum	Logistic regression, including terms for a smoke-free home (and a belief that SHS is harmful), and a smoke-free work area, and adjusted for having assistance with cessation (as tobacco control programme factors), sex, age, race/ethnicity, and education	Advancement on continuum Work area restriction: OR=1.6; 95% CI=1.0-2.6 Reference: all others Smoke-free home: OR=3.4; 95% CI=1.9-5.9 Reference: no rules/belief Belief SHS is harmful: OR=1.3; 95% CI=0.7-2.2 Reference: no rules/belief	It was unknown when workplace and home smoke-free policies were implemented (prior to baseline or during the follow-up period).
Pizacani <i>et al.</i> , 2004 Oregon, USA	Adult English speaking Oregonians Prospective cohort study (1133 subjects at baseline; 565 re-interviewed at follow-up)	Baseline survey in 1997 and follow-up in 1999 (median follow-up 21 months) Follow-up rate 51.5%	No restrictions versus partial restrictions versus smoke-free home	Any quit attempt and quit attempts according to duration of abstinence and stage of change Being in preparation stage versus all others	Logistic regression Cox proportional hazards regression analysis for duration of abstinence Adjustment for age, employment status, baseline cigarette consumption, and stage of change (preparation versus earlier stages)	Any quit attempt: OR=2.0; 95% CI=1.0-3.9 Pre- and contemplation: Quit at least 7 days: OR=0.9; 95% CI=0.4-2.3 Quit at least 90 days: OR=1.0; 95% CI=0.4-2.4 Being in preparation stage: Quit at least 7 days: OR=4.4; 95% CI= 1.1-18.7 Quit at least 90 days: OR=4.3; 95% CI=0.9-21.2	Although not formally analysed, smokers with smoke-free homes at baseline smoked fewer CPD, 35% smoked fewer than 15 CPD compared to only 11% with no such policy.

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Longitudinal studies							
Pizacani <i>et al.</i> , 2004 Oregon, USA				Duration of abstinence according to stage of change		Duration of abstinence Pre- and contemplation: HR=0.3 (95% CI=0.8-2.0) Preparation: HR=0.5 (95% CI=0.2-0.9)	
Shields, 2005 Canada	Adults ≥17 years National Population Health Survey 14 207 subjects in the longitudinal sample (number of smokers and number of quitters at baseline not reported)	1995/ 95 2002/ 03 Follow-up rate 81%	Smoke-free home versus all others Smoke-free workplace versus all others	Continuous cessation (duration not specified) initiated during the follow-up period Duration of abstinence for those quit at baseline	Logistic regression (separately for men and women) Adjustment for addiction level, age, chronic health conditions, body mass index, heavy drinking, psychological distress, low emotional support, chronic stress, age, education, income and the presence of children under 5 years in the home.	Quitting in a 2-year period Smoke-free workplace M: OR=0.9; 95% CI=0.7-1.4 W: OR=0.8; 95% CI=0.6-1.2 Smoke-free home M: OR=1.1; 95% CI=0.8-1.6 W: OR=1.3; 95% CI=1.0-1.6 Relapse in a 2-year period Smoke-free home M: OR=0.6; 95% CI=0.4-0.9 W: OR=1.0; 95% CI=0.6-1.6*	A smoke-free home was significant bivariate for women, but the addition of variables related to level of addiction diminished the effect. Lighter smoking and a new chronic condition were most related to quitting in both men and women. At baseline, the addiction level was lower among those living in smoke-free homes.
Borland <i>et al.</i> , 2006a Canada, USA, UK, Australia	Adult (≥18 years) smokers The International Tobacco Control Four Country Survey N=6754	Baseline survey in 2002 and follow-up at 6-10 months Follow-up rate 75%	No restrictions versus partial versus smoke-free (S-F) home at baseline New smoke-free home during follow-up period	Making a quit attempt and quit for at least a month at follow-up Consumption in cig/day	Logistic regression adjusted for household composition, age of youngest child, number of five closest friends who smoke, belief that SHS causes lung cancer, reported smoking prohibitions in bars, restaurants, and in the workplace,	Quit attempt versus no restrictions S-F: OR=1.3; 95% CI=1.1-1.6 Part: OR=1.1; 95% CI=1.0-1.3 Quit one month or more versus no restrictions S-F: OR=2.5; 95% CI=1.5-4.2 Part: OR=1.0; 95% CI=0.0-1.6	Among continuing smokers with a smoke-free home at baseline, cigarette consumption declined and the time to first cigarette increased. The main purpose of the paper was to investigate the effects of a smoke-free home. The covariates for workplace policy,

Reference/ location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Longitudinal studies							
Borland <i>et al.</i> , 2006a Canada, USA, UK, Australia					attitude toward smoke-free workplaces	When additional covariates were included to account for baseline addiction level and intentions to quit, the smoke- free home effect was no longer significant for making a quit attempt, but it was significant for being quit at least a month at follow-up: OR=2.07; 95% CI=1.20-3.56 Mean CPD according to home restriction status: S-F : 13.6 Part : 16.5 None: 21.1 p<0.01 for difference between means	or attitudes toward it, were not significantly related to making a quit attempt or being quit for at least a month at follow-up. Results for workplace restrictions for the other outcomes were not reported.
Shields, 2007 Canada	Population ≥ 15 years Canadian Tobacco Use Monitoring Survey 1364 employed smokers with no workplace restrictions and 8463 smokers not living in smoke- free homes at baseline	Multiple survey waves from 1994-2005 combined Follow-up rate 77%	Newly imposed (during follow-up period) smoke- free homes and workplaces	Continuous abstinence (duration not specified) initiated during the follow-up period. Daily consumption at follow-up among those smoking	Logistic regression adjusted for sex, age, education, income, baseline cigarette consumption, and occupation for the workplace analysis. Occupation was replaced by the presence of children in the home for the analysis of smoke- free homes.	Abstinence Smoke-free home: OR=2.3; 95% CI=1.4-3.9 Smoke-free workplace: OR=1.6; 95% CI=1.3-2.1 Mean daily consumption of cigarettes Home restrictions: Total: 9.2 CPD Partial: 15.0 CPD None: 16.1 CPD Workplace restrictions: Total: 12.0 CPD Partial: 14.0 CPD None: 17.4 CPD	Baseline smoke- free policies were significantly associated cross- sectionally with the smoker being in a more advanced stage of change (action/ maintenance) with respect to smoking cessation Smoke-free home: OR=4.5; 95% CI=3.9-5.1 Smoke-free workplace: OR=1.3; 95% CI=1.1-1.6

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Longitudinal studies							
Messer <i>et al.</i> , 2008b	3292 recent smokers from the Current Population Survey	Baseline in 2002 and follow-up in 2003 Follow-up rate not reported	Smoke-free home in 2002 New smoke-free home policy in 2003	Quit at follow-up	Regression analyses adjusted for age, sex, race/ethnicity, education, income below two times the poverty level, presence of another smoker in the household, and baseline consumption in 2002.	Smoke-free in 2002 Quit: OR=1.52; 95% CI=1.08-2.15 Quit 90+ days: OR=1.44; 95% CI=0.97-2.21 New Smoke-free in 2003 Quit: OR=3.89; 95% CI=2.55-5.97	
Hyland <i>et al.</i> , 2009 USA	COMMIT study Smokers at baseline N=4963	Baseline in 1998 and follow-up in 2001 and 2005 Follow-up of original cohort was 23% in 2005	Smoke-free home inside, determined in 2001 and 2005	Quit at follow-up (2005) Quit attempt in interim Consumption among continuing smokers Relapse among those who quit in 2001	Logistic regression analyses adjusted for age, sex, race/ethnicity, annual household income, education, and number of cigarettes smoked	Quit 90+ days at follow-up OR=4.81; 95% CI=3.06-7.59 Consumption decrease CPD: OR=2.18; 95% CI=1.24-3.10 Quit at follow-up (2005): OR=1.7; 95% CI=1.4-2.2 Quit attempt in interim: OR=1.5; 95% CI=1.3-1.9 Decrease of consumption among smokers: OR=1.2; 95% CI=0.9-1.4 Relapse among those who quit in 2001: OR= 0.6; 95% CI=0.4-0.8	Cohort not representative of general population, but skewed towards older and heavier smokers.

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Farkas <i>et al.</i> , 1999 USA	48 584 current and recent former smokers (smoking one year previously) from the Current Population Survey	1992/93	No restrictions, partial, smoke-free (S-F). Less than work area (WA), work area, completely smoke-free workplace	Making a quit attempt of a day or longer in the past year. Cessation of at least 6 months when interviewed,	Logistic regression analysis adjusted for age, sex, race/ethnicity, education, income, occupation, region, age of youngest child in household, and smokers in household.	Quit attempt Home: S-F: OR=3.86; 95% CI=3.57-4.18 Part: OR=1.83; 95% CI=1.72-1.93 Work: S-F: OR=1.14; 95% CI=1.05-1.24 WA: OR=1.04; 95% CI=0.94-1.14 Quit 6+ months Home: S-F: OR=1.65; 95% CI=1.43-1.91 Part: OR=1.20; 95% CI=1.05-1.38 Work: S-F: OR=1.21; 95% CI=1.0-1.45 WA: OR=0.93; 95% CI=0.73-1.18	A smoke-free home was more related to the outcomes than a smoke-free workplace, and partial restrictions were less related than a smoke-free policy.
Gilpin <i>et al.</i> , 1999 California, USA	Adult (≥ 18 y) smoker population California Tobacco Survey n=8904	1996	Composite variable for family preference that the smoker not smoke, and having no restrictions, partial restrictions and smoke-free (S-F) home	Quit attempts in the last year Smoking <15 CPD (light smoker)	Logistic regression adjusted for age, sex, race/ethnicity, education, household composition (other smoker, child <18 years), and a belief that SHS is harmful. Kaplan-Meier analysis of relapse.	Light smoker (<15 CPD) Home: S-F: OR=2.73; 95% CI=2.46-3.04 Part: OR=1.81; 95% CI=1.69-1.95 Work: S-F: OR=1.53; 95% CI=1.38-1.70 WA: OR=1.10; 95% CI=0.97-1.24 Quit attempt last year S-F: OR=3.9; 95% CI=3.0-5.2 Part: OR=2.7; 95% CI=2.0-3.6 Intend to quit in 6 months S-F: OR=5.8; 95% CI=3.8-8.2 Part: OR=3.7; 95% CI=2.7-5.1	Other results: A smoke-free home, but not partial restrictions, were associated with delay of the first cigarette after awakening, and with longer duration of abstinence.

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Gilpin <i>et al.</i> , 1999 California, USA				Smoking <15 CPD		Smoking < 15 CPD S-F: OR=2.2; 95% CI=2.2*-3.0 Part: OR=1.1; 95% CI=1.2-3.0	In smoke-free homes, smokers who quit had a two-fold probability of being abstinent six months later as compared to those in homes with partial or no restrictions
Norman <i>et al.</i> , 2000	1315 current smokers aged 25+ years from Evaluation Survey	1998	Smoke-free home versus all others	Daily cigarette consumption Days smoked in past month Desire to quit	Multiple linear or logistic regression analyses adjusted for age, sex, race/ethnicity, and presence of child in home.	Consumption: p<0.01 Days smoked in past month: NS Desire to quit: OR=2.9; 95% CI=1.8-4.9 NS	
Gilpin, <i>et al.</i> , 2000 USA	Ecological analysis based on data from population ≥15 years (for the 50 states and DC) Current Population Survey (3 surveys, Sept 1992, Jan 1993, and May 1993) N=237 733	1992-93	Smoke-free (S-F) home Smoke-free workplace, cigarette prices Composite index combining these three factors	Adult (≥25 years) and youth (15-24 years) smoking prevalence Per capita cigarette consumption	Simple correlations between tobacco control activity factors with smoking prevalence and cigarette consumption	Pearson's correlation coefficients <i>r</i> and (p-values) S-F Home: Adult prevalence -0.66 (p<0.0001) Youth prevalence -0.39 (p<0.01) Per capita cigarette consumption -0.58 (p<0.0001)	Analyses did not adjust for individual or state level factors that might be related to outcome measures. The correlation between smoke-free workplaces and smoke-free homes was 0.76 (p<0.0001).
						S-F workplace with: Adult prevalence -0.65 (p<0.0001) Youth prevalence -0.26 (NS) Per capita cigarette consumption -0.54 (p<0.001)	

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Gilpin & Pierce, 2002b California, USA	5677 current smokers from the California Tobacco Survey	1999	Smoke-free home versus all others, smoke-free workplace versus all others	Daily cigarette consumption	A multivariate linear regression of daily cigarette consumption, adjusted for age, sex, race/ethnicity, education, belief in the harmfulness of SHS, and a family preference that smoker not smoke.	A smoke-free home was significantly and inversely associated with daily cigarette consumption, as was smoke-free workplace, but not as strongly. Daily consumption was only about half (7.5 versus 13.9 CPD) for smokers with both a smoke-free home and workplace compared to those with neither.	
Siahpush <i>et al.</i> , 2003 Australia	Smokers aged ≥ 14 years who smoked or had quit in past 2 years Australian National Drug Strategy Household Survey N=2526	1998	Smoke-free versus all others	Quit for at least a month when surveyed	Logistic regression adjusted for sex, age, marital status, dependent child status, education, occupation, urban versus rural, children in the home, belief in the harmfulness of SHS, having friends who smoke, smoking restrictions at work or school, and alcohol consumption.	Quitting 1+ month: OR= 4.5; 95% CI=3.1-6.6	
Ji <i>et al.</i> , 2005	2830 adult California residents of Korean descent who had ever smoked and were part of a large statewide telephone survey	Not reported	Five level variable: no one allowed to smoke inside, special guests allowed to smoke inside, smoking allowed in certain areas, smoking allowed anywhere, and nonresponse	Former smokers -ever (at least 100 cigarettes in lifetime) quit for at least 90 days when interviewed	Logistic regression analysis of cessation included gender, education, family income, acculturation, number of smokers among family and friends, social network among family and friends, media influence, job satisfaction, health belief scale, health concerns, body	Compared to a smoke-free home, those with designated areas inside were less likely (OR=0.17; 95% CI=0.12-0.24) to be a former smoker. Those in homes where smoking was allowed anywhere were much less likely to have quit (OR=0.10; 95% CI=0.06-0).	

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
<i>Cross-sectional studies</i>							
Ji <i>et al.</i> , 2005					mass index, weight concern, exercise, family history of respiratory illness, and medical treatment for respiratory illness.	Those with exceptions for special guests did not differ in cessation than those living in smoke-free homes. Those not responding to the home rule question were about half as likely to have quit (OR=0.53; 95% CI= 0.36-0.78).	
Shavers <i>et al.</i> , 2006 USA	82 966 employed women self-respondents to the Current Population Survey	1998/99 and 2001/02	No work policy, no work area policy, no smoking in work area No restrictions, partial restrictions, and smoke-free home	Smoking prevalence Heavy (>20 CPD) daily cigarette consumption among current smokers	The analyses were stratified by poverty level and by race/ethnicity. Multivariate analyses of each group adjusted for race/ethnicity (as appropriate), age, education, marital status and occupation.	<i>Prevalence:</i> Regardless of poverty status or race/ethnicity, work policies were unrelated, but home policies were significantly related to prevalence, smoke-free more than partial. <i>Heavy smoking:</i> Smoke-free work areas were inversely and significantly related to heavy smoking, but home restrictions were more strongly related.	
				Making a quit attempt in past year among current smokers		<i>Quit attempt:</i> A smoke-free home, but not a smoke-free work area was significantly and directly related to making a quit attempt.	

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Gilpin <i>et al.</i> , 2006 California, USA	Adult moderate to heavy (15+ cig/day) daily smokers California Tobacco Surveys N=2640	Combined data from 1999 and 2002 surveys	Smoke-free home versus all others	Duration of abstinence for the most recent quit attempt in the last year	Cox proportional hazard analyses adjusted for age, sex, education, race/ethnicity, daily consumption, having another smoker in the household, use of pharmaceutical aids, and significant interactions between having a smoke-free home and no other smoker in the household, and a smoke-free home and using a pharmaceutical aid	Relapse Smoke-free home and no other smokers at home: HR=0.796; 95%CI=0.645-0.988 Smoke-free home and used pharmaceutical aid: HR=0.774; 95% CI=0.622-0.963	Pharmaceutical aids appear to prolong abstinence duration only when the home was smoke-free and regardless of whether or not there was another smoker in the household. Having a smoke-free home is likely an indication of the smoker's level of motivation to quit.
Shopland <i>et al.</i> , 2006 USA	Adult (≥18 years) females who were employed, daily smokers, and did not live alone Current Population Survey N=128 024	1992/93 and 2001/02	No restrictions, partial, and smoke-free home(S-F) Smoke-free workplace versus all others	Cessation of any length	Logistic regression analyses adjusted for age, education, race/ethnicity, a child < 5 years in household, household composition, and occupation.	Cessation of any length Home restrictions S-F: OR=7.77; 95% CI=5.91-10.21 in CPS 92-92 & OR=6.54; 95% CI=4.61-9.28 in CPS 01-02 Partial: OR=2.15; 95% CI=1.70-2.73 in CPS 92-93 & OR=2.34; 95% CI=1.54-3.55 in CPS 01-02 Work restrictions S-F: OR=1.02; 95% CI=0.83-1.26 in CPS 92-92 & OR=1.11; 95% CI=0.81-1.53 in CPS 01-02	The proportion of respondents reporting smoke-free homes and workplaces increased substantially between surveys.

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Shopland <i>et al.</i> , 2006 USA				Cessation of at least 3 months when interviewed		Cessation of ≥ 3 months Home restrictions S-F: OR=7.41; 95% CI=5.55-9.90 in CPS 92-92 & OR=7.08; 95% CI=4.45-11.26 in CPS 01-02 Partial: OR=2.18; 95% CI=1.63-2.92 in CPS 92-93 & OR=2.45; 95% CI=1.48-4.07 in CPS 01-02 Work restrictions S-F: OR=1.30; 95% CI=1.04-1.63 in CPS 92-92, but OR= 0.99; 95% CI=0.67-1.45 in CPS 01-02	
Lee & Kahende, 2007 USA	3990 quitters in the past 2 years from the National Health Interview Survey	2000	Indirect question "During the past week, how many days did anyone smoke cigarettes, cigars, or pipes anywhere inside your home?" Answer of zero contrasted with all others. Smoke-free workplace versus all others	Quit 7-24 months before the survey without a relapse (successful quitter) versus relapsed quitter in the past year	A logistic regression adjusted for age, education, marital status, race/ethnicity, the number of lifetime quit attempts, and whether the smoker had ever switched to low tar cigarettes.	Successfully quit: No one smokes in home: OR=10.47; 95% CI=8.15-13.46 Smoke-free workplace: OR=2.01; 95% CI=1.20-3.37	
Burns <i>et al.</i> , 2007 Colorado, USA	6100 ever smokers from the Colorado Tobacco Attitudes and Behaviour Survey	2001	No restrictions, partial restrictions, smoke-free home Smoke-free work area versus other workers versus not applicable	Duration of smoking, current smokers censored at time of survey	A Cox proportional hazard regression adjusted for age, sex, marital status, language spoken in home, age of smoking initiation, education, poverty status, and insurance status.	Duration of smoking Home: Smoke-free: HR=4.59; 95% CI=3.81-5.52 Partial: HR=2.39; 95% CI= 1.94-2.94	Results were similar for Latinos and non-Hispanic whites

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-sectional studies							
Burns <i>et al.</i> , 2007						Workplace: HR=1.48; 95% CI=1.19-1.84	
Colorado, USA							
Shelley <i>et al.</i> , 2008	Adult (≥ 18 y) Chinese population in New York City	2002-03	No restrictions, partial home restrictions, and a smoke-free policy	Consumption on weekdays	Mean values and multivariate (linear regression) of log CPD adjusted for marital status, education, age, annual income, another smoker in the household, and awareness of the harmfulness of SHS.	Weekdays days partial restrictions, 14.7 CPD Smoke-free, 17.2 CPD no restrictions, 19.9 CPD	Study did not consider workplace restrictions.
New York City, New York, USA	Cross-sectional survey N=600 male current smokers			Consumption on weekend days	Logistic regression, same covariates as for consumption	Multivariate: partial, NS smoke-free, p<0.05 Weekend days partial restrictions, 11.8 CPD smoke-free, 14.7 CPD no restrictions, 17.3 CPD	
Messer <i>et al.</i> , 2008a	31 625 adult recent current smokers from the Current Population Survey	2003	Seriously trying to quit Quit at least a day Quit for at least 6 months when surveyed	Making a recent quit attempt		Quit attempt OR=3.37; 95% CI=1.51-7.05 versus no restrictions	Younger smokers seemed more engaged in quitting, and appeared to be more successful. They tended to smoke fewer CPD and more had smoke-free homes. The authors suggest that these factors account for their increased success in quitting.
USA				Smoke-free (S-F) home versus all others Smoke-free workplace versus all others	A logistic regression analysis adjusted for sex, age, race/ethnicity, education, initiation < 15 years, delay of smoking for at least 30 minutes after awakening, and use of a pharmaceutical aid.	Seriously trying to quit: S-F home: OR=1.21; 95% CI=1.12-1.30 S-F work: NS Quit 1+ days S-F home: OR=4.03; 95% CI=3.50-4.63 S-F work: NS Quit for 6+ months S-F home: OR=4.13; 95% CI=3.25-5.26 S-F work: NS	

Appendix 6. Studies examining the relationship between voluntary smoking policies in the home and *adult* smoking behaviour

Reference/location	Population and design	Year of assessment	Household smoking restriction measure	Outcomes	Covariates and analysis	Results	Comments
Cross-Sectional Studies							
Tong <i>et al.</i> , 2008 California, USA	767 current and former smokers from California Health Interview Survey	2003	Former smoker - 100 cigarettes in lifetime (ever) but not currently smoking	Smoke-free (S-F) home versus all others	Logistic regression adjusted for age, sex, Asian group, marital status, education, income, years in the USA (<10 versus all others including those born in the USA). Interaction term included for years in the USA and smoke-free home.	Longer-term residents more likely to be former smoker if have a S-F home OR=14.19; 95% CI=4.46-45.12 Shorter-term residents OR=2.25; 95% CI=1.79-5.90 Longer-term residents more likely to be light smokers if have a S-F home OR=5.37; 95% CI=2.79-10.31 Not significant for shorter-term residents OR=1.19; 95% CI=0.33-4.23	
Pierce <i>et al.</i> , 2009 USA	542 470 current smokers aged 18-64 years in all the cross-sectional Current Population Surveys from 1992/93-2002/03	1992-2002	Very light (<5 CPD) smoking in those aged 18-29 years. The very light category includes occasional smokers (88% of group).	Smoke-free home versus all others Smoke-free workplace versus all others (including those not employed)	Logistic analysis of very light smoking in 18-29 year old group, adjusted for survey year, sex, education, income above versus below two times the poverty threshold, having a smoke-free workplace, and tobacco control policies ranking by tertile for state of residence as an indicator of social norms against smoking.	Very light smoking: Smoke-free versus others Home: OR=2.81; 95% CI=2.60-3.04 Work: OR=1.28; 95% CI=1.18-1.38 Also significant was tertile of state tobacco control activity: Highest: OR=1.68; 95% CI=1.53-1.85 Middle: OR=1.26; 95% CI= 1.15-1.38 versus lowest tertile	The authors selected the group aged 18-29 for the logistic regression analysis because of a marked increase in very light smoking in that group. Survey year was not significant, but when the variable for a smoke-free home was eliminated from the model, survey year became highly significant indicating the increase in light smoking was mediated by the increase in smoke-free homes.

Appendix 7. Studies examining the relationship between voluntary smoking policies in the home and youth smoking behaviour

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Biener <i>et al.</i> , 1997 Massachusetts, USA	Population survey of 1606 adolescents 12-17 years	1993	No restrictions, allowed in designated areas, smoke-free	Any smoking in past 30 days	Age, sex, household adult education status	Regardless of whether or not there was an adult smoker in the household, the analyses failed to detect a significant relationship between home smoking restrictions and adolescent smoking.	The main purpose of this study was to assess adolescent exposure to SHS. Separate logistic regression analyses were conducted for those in households with and without adult smokers.
Jackson & Henriksen 1997 Central and North Carolina, USA	School survey of 1352 3 rd and 5 th graders	Not reported	Smoking allowed indoors versus not allowed	Any experimentation Readiness to smoke	Multivariate analyses of experimentation stratified by parental smoking status: at least one current smoker. Parental smoking status (former, never, 1 current, both current) and several anti-smoking socialisation measures.	No parent smokes: Smoking not allowed: OR=1.50; 95% CI=1.20-1.83 Parent smokes: Smoking not allowed: OR=1.10; 95% CI=0.99-1.20 Readiness to smoke was only evaluated bivariate, and was associated with parental smoking but not home smoking restrictions.	Separate analyses conducted for children with and without parents who smoke.
Henriksen & Jackson, 1998 Northern California, USA	School survey of 937 3 rd -8 th graders receiving English language instruction	Not reported	Smoke-free home versus all others	Any experimentation Intent to smoke	Multivariate analysis included three types of anti-smoking socialisation: home rules, parental warnings against smoking, expectations regarding punishment for smoking, and controlled for parental smoking status.	Increased experimentation: Others versus smoke-free OR=1.39; 95% CI=1.03-1.88 Increased intent to smoke: Others versus smoke-free OR=1.77; 95% CI=1.19-2.64	No interaction term was examined for parental smoking status and a smoke-free home.
Wakefield <i>et al.</i> , 2000a USA	School survey of 17 287 high school students	1996	No restrictions, only guests can smoke, allowed only in certain areas, smoke-free (S-F)	Non-susceptible versus susceptible versus early experimenter versus advanced experimenter versus established smoker	Grade, sex, race/ethnicity, adult smokers in the home, sibling smokers, smoke-free school policy and strength of enforcement.	Reduced transition from: Non-susc versus susc: S-F: OR=0.64; 95%CI=0.52-0.76 Part: OR=0.83; 95% CI=0.74-0.92*	No interaction term was examined for parental smoking status and a smoke-free home.

Appendix 7. Studies examining the relationship between voluntary smoking policies in the home and *youth* smoking behaviour

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Wakefield <i>et al.</i> , 2000a USA					and an index on smoking restrictions in public places from an external source. Separate logistic regression analyses of each successive pair of levels on the continuum.	Susc. versus early exp: S-F: OR=0.69; 95% CI=0.59-0.79 Part: OR=0.83; 95% CI=0.74-0.92* Early versus advanced exp: S-F: OR=0.71; 95% CI=0.60-0.82 Part: OR=0.83; 95% CI=0.74-0.92* Advanced exp versus estab: S-F: OR=0.78; 95% CI=0.67-0.90 Part: OR=0.83; 95% CI=0.74-0.92* Smoking in past 30 days: S-F: OR=0.79; 95% CI=0.67-0.91 Part: OR=0.85; 95% CI=0.74-0.95	*author commented on effect being the same
Rissel <i>et al.</i> , 2000 Sydney, NSW, Australia	2573 students in grades 10 and 11 attending high schools with high Arabic and Vietnamese enrollment	1998	Family had clear rules about not smoking inside the home (yes versus no)	Self-defined current smoking	Logistic regression adjusted for year in school, parental smoking, family closeness, sex, ethnic background, parental behaviours (strict versus not strict, clear versus not clear consequences), pocket money (<\$20/week versus more), out 0-2 evenings versus 3+ per week with friends, positive school perceptions, positive teacher perceptions, positive peer perceptions	Students in families with clear rules about not smoking in the home were less likely to be current smokers (OR=0.67; 95% CI=0.49-0.90) than those without clear rules.	

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Proescholdbell <i>et al.</i> , 2000 Tucson, Arizona	School survey of 6686 middle and high school students	Not reported	Scale incorporating both resident and visitor rules regarding smoking in the home	Smoked one cigarette versus never smoked Smoked one cigarette versus current regular (at least one cigarette a month)	Grade, sex, ethnicity, home structure (e.g. single parent, biological parent), parent smoking, parent smoking attitude, various interactions. Separate logistic regressions for middle and high school students	Smoked a cigarette versus never: Middle school: OR=1.32; 95% CI=1.12-1.56 High school: OR=1.25; 95% CI=1.10-1.41 Smoked but not current versus current regular: Middle school: NS High school: NS	An interaction was present for the home smoking rule scale and parental smoking status for high school students only, indicating a larger effect in households without smoking parents.
Komro <i>et al.</i> , 2003 Minnesota	School and parent survey of 1343 parent-child pairs among 8 th , 9 th and 10 th graders	1998	Allowed, exceptions, smoke-free (S-F) home	Any smoking in the past 30 days	Grade, parental variables (education, marital status, attitudes, norms and perceptions about adult smoking), rules and consequences about adolescent smoking, adult and child smokers in home, and access to cigarettes in the home.	When analyzed bivariately, a smoke-free home policy (but not partial restrictions) was significantly associated with less smoking in the past 30 days. S-F: OR=1.83; 95% CI=1.40-2.40 Part: OR=1.09; 95% CI=0.69-1.70 But in the multivariate analysis it was not (odds ratios not presented).	No interaction term was examined for parental smoking status and a smoke-free home.
Kodl & Mermelstein, 2004 USA	245 6 th , 8 th , 9 th and 10 th grader survey respondents with a parent who responded to survey	Not reported	No one may smoke in the home versus all others	Smoking level: nonsusceptible never smoker, susceptible never smoker, former trier, current regular user	Multivariate analysis of covariance of child smoking status adjusting for parental smoking status, parental education status, and including multiple variables for parental efficacy and monitoring, beliefs, family relations.	Model for adolescent smoking level indicated that a smoke-free home was highly related to lower level of adolescent smoking (p<0.001). Contrasts analyzed indicated a significant difference in adjusted mean rule level between regular users and all others (p<0.05) and between nonsusceptible and susceptible never smokers (p<0.05).	

Appendix 7. Studies examining the relationship between voluntary smoking policies in the home and youth smoking behaviour

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Andersen <i>et al.</i> , 2004 Washington, USA	3555 12 th graders in the Hutchinson Smoking Prevention Project from whom a parent survey was available	Not reported	Not allowed versus allowed rarely, sometimes, or usually	Smoke monthly and smoke daily	Separate relative risk regression models for students with and without smokers in their families, adjusted for parents asking to sit in nonsmoking parts of restaurants and asking smokers not to smoke around them.	In the multivariate analysis, for families with smokers (RR=0.88; 95% CI=0.74-1.06) for daily smoking. Monthly smoking not significant. The results in nonsmoking families did not approach statistical significance.	
Clark <i>et al.</i> , 2006 USA	Population survey of 12-299 youth 15-24 years	1998-99	No restrictions, partial restrictions, completely smoke-free (S-F) home	Ever smoke (at least 100 cigarettes in lifetime) Current versus never Current versus former among ever smokers Consumption among current smokers	Age, sex, household income, race/ethnicity, smoking status of other household members. Overall and separate logistic regression analyses conducted for adolescents (15-18 years) and young adults (19-24 years).	Reduced ever versus never: S-F: OR=0.56; 95% CI=0.45-0.70 Part: OR=0.99; 95% CI=0.78-1.26 Reduced current versus never: S-F: OR=0.45; 95% CI=0.36-0.58 Part: OR=0.88; 95% CI=0.68-1.14 Less current among ever S-F: OR=0.33; 95% CI=0.21-0.53 Part: OR=0.46; 95% CI=0.29-0.73 Consumption > 10 CPD: S-F: OR=0.42; 95% CI=0.24-0.71 Part: OR=0.87; 95% CI=0.51-1.48	No interaction term was examined for parental smoking status and a smoke-free home. The results were generally similar for adolescents and young adults.
den Exter Blokland <i>et al.</i> , 2006 Utrecht, Netherlands	600 7 th graders with a parent respondent	Two successive survey waves during the 2000-01 school year	Six questions on the existence of home smoking rules for both adults and adolescents combined into a single scale. Details	Initiators - had not smoked at wave one, but had by wave two.	Logistic analysis of each status variable adjusted for baseline communication, warnings, parental knowledge of child and child's friends	The home rule scale was not significant for either initiation or maintenance of smoking.	

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
den Exter Blokland <i>et al.</i> , 2006 Utrecht, Netherlands			not provided.	Maintainers - smoked at both times.	smoking, parental psychological control, parental confidence in effecting child's smoking behaviour, availability of cigarettes in home, parental norms about adolescent smoking, parental reaction to child's smoking, and parental smoking status.		
Thomson <i>et al.</i> , 2006 Massachusetts	Population survey of 3831 adolescents 12-17 years	2000-01	Smokers smoke inside of home versus smoke-free	Perceived prevalence of adult and adolescent smoking Perceived adult negative attitudes about social acceptability of adult and adolescent smoking	Age, sex, ethnicity, household income, adult education, household composition (1 versus >1 adult), peer smoking, parental smoking, perceived parental disapproval of smoking, and percentage of town voting on measure to restrict smoking	Perceived prevalence no smoke-free home versus smoke-free home Adult: OR=2.0; 95% CI=1.5-2.6 Adol: OR=1.2; 95% CI=0.94-1.50 Perceived adult negative attitudes of smoking no smoke-free home versus smoke-free home: Adult: OR=2.0; 95% CI=1.6-2.5 Adol: OR=1.5; 95% CI=1.2-1.9	Interaction was present for home smoking rule scale and parental smoking status for high school students only, indicating larger effect in households without smoking parents. Both perceived prevalence and acceptability of smoking have been related to future adolescents in multiple previous studies.
Szabo <i>et al.</i> , 2006 Victoria, Australia	School survey of 4125 secondary students	2002	Permitted in some or all areas, prohibited inside, prohibited both inside and outside the home	Smoking uptake stage Non-susceptible never smoker versus susceptible never smoker	Age, sex, school type. Polytomous logistic regressions contrasted each higher stage to non-susceptible never smokers, experimenters versus susceptibles, and current smokers versus experimenters.	Increased transition compared to total smoking prohibitions inside and outside the home: Non-susceptible versus susceptible never: Not inside: OR=1.21; 95% CI=0.97-1.51 Partial: OR=1.38; 95% CI=1.06-1.79	Further models with interactions for smoking policy and parental smoking showed that policies were not associated with smoking uptake stage when parents smoked.

Appendix 7. Studies examining the relationship between voluntary smoking policies in the home and youth smoking behaviour

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Szabo <i>et al.</i> , 2006 Victoria, Australia				Susceptible never versus experimenter		Susceptible never versus experimenter: Not inside: OR=1.49; 95% CI=1.19-1.88 Partial: OR=1.92; 95% CI=1.44-2.56	
				Current smoker		Current versus not current: Not inside: OR=1.03; 95% CI=0.77-1.37 Partial: OR=1.30; 95% CI=0.92-1.86	
Fisher <i>et al.</i> , 2007 USA	10 593 adolescents in the "Growing up Today" study aged 12-18 years who were children of women in the Nurse's Health Study	1999	Not allowed versus allowed or no policy	Established smokers (>100 cigarettes in lifetime)	Logistic regression adjusted for age, gender, peer smoking, possession of tobacco promotional items, and having at least one parent who smokes cigarettes.	In a model including all covariates, except parental smoking, a smoke-free home was significantly associated with less established smoking (OR=0.67; 95% CI= 0.48-0.93), but in the full model, parental smoking was highly significant (OR=1.81; 95% CI=1.40-2.35) and a smoke-free home was not (OR=0.94; 95% CI= 0.65-1.35).	
Andreeva <i>et al.</i> , 2007 Ukraine	609 persons aged 15-29 years interviewed at home in a national survey	2005	No smokers in family or smoke-free home versus all others	Age of first cigarette	Separate survival analyses for males and females adjusted (if significant) for age, education, town size, living in a city versus village, number of people in household, income, exposure to tobacco smoke rarely versus	No smokers in the family or a smoke-free home was related to reduced risk of earlier smoking: Age of first cigarette : Males: HR=0.78; 95% CI=0.61-0.99 Females: HR=0.39; 95% CI=0.28-0.94	

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Andreeva <i>et al.</i> , 2007 Ukraine				Age of initiation of daily smoking	frequently, seeing outdoor tobacco advertising, tobacco-related knowledge low versus high, receiving information about tobacco from magazines, receiving tobacco information from friends	Age of daily smoking : Males: HR=0.64; 95% CI=0.49-0.84 Females: HR=0.60; 95% CI=0.39-0.93	
Rodriguez <i>et al.</i> , 2007 Pennsylvania, USA	163 10 th grade students with a household member who smokes	2006	Household members allowed versus not allowed to smoke in the home	Smoking level: 0=not in past month; 1=in last month; 2=at least once a week; 3=daily, but <11 CPD, and 4=daily, 11 or more CPD	Structural equation modeling with peer smoking, lifetime alcohol use and gender included with the home rule variable	No direct effect of smoke-free home on smoking level, but model showed an effect through peer smoking (p=0.0008). Having a smoke-free home was associated with having fewer peers who smoked, which in turn was associated with lower smoking level.	
Rainio & Rimpela, 2008 Finland	Population survey of 6503 12-, 14-, 16- and 18-year olds	2005	No restrictions (NR), partial, smoke-free, or respondent could not say (CNS)	Never smokers versus experimenters	Multivariate logistic regression analyses adjusted for age, sex, parental smoking, family structure, parental education, urban residence, and parental permissiveness toward child smoking.	Increased compared to those with a smoke-free home: Never versus experimenters NR: OR=2.02; 95% CI=1.2-3.4 Part: OR=1.33; 95% CI=1.1-1.6 CNS: OR=1.68; 95% CI=1.3-2.2	No interaction term was examined for parental smoking status and a smoke-free home.
				Daily/weekly current smokers versus all others		Daily/weekly versus all others: NR: OR=14.3; 95% CI=8.6-23.7 Part: OR=2.9; 95% CI=2.3-3.6 CNS: OR=4.4; 95% CI=3.3-5.9	

Appendix 7. Studies examining the relationship between voluntary smoking policies in the home and youth smoking behaviour

Study location	Population and design	Year of assessment	Household smoking restriction measure	Smoking measures	Covariates and analysis	Results	Comments
Albers <i>et al.</i> , 2008 Massachusetts, USA	3824 adolescents 12-17 years in baseline population survey	2001-02 to 2005-06	At baseline, visitors not allowed to smoke inside the home, and if an adult smoker lived in the household, there was a complete ban on smoking inside	At final follow-up, had transitioned to established smoking	Separate hierarchical regression analyses of each transition conducted for adolescents living and not living with smokers. Variables in the models included age, baseline smoking status, presence of a close friend who smokes, gender, race/ethnicity, household income, and town level factors (percentage voting yes on Question 1, percent white, percent youth).	Progression to established smoker was not significantly related to not having a smoke-free home, but tended to greater significance among adolescents who lived with a smoker (OR=1.38; 95% CI=0.92-2.07) compared to those not living with a smoker (OR=1.08; 95% CI= 0.61-1.93).	Not having a smoke-free home was significant for the transition from nonsmoking to experimentation only for those who lived with nonsmokers (OR=1.89; 95% CI= 1.30-2.74). For those living with smokers (OR=0.88; 95% CI=0.73-1.37)