Outline of Key Research Questions, Key Outcome Variables, and Potential Effect Sizes:

Smoke-Free Multiunit Housing Policy Quasi-Experimental Study

Key Research Questions	Key Outcome Variables	Policy Type	Study Design and Population	Effect Size	Source
5 What is the impact of smoke-free MUH policy on MUH residents ?	a. Frequency of having respiratory and sensory symptoms among both adults and children	Smoking ban in workplaces	Pre-post longitudinal follow up design, hospitality workers in New York	Respiratory symptoms: no change in overall prevalence. Sensory symptoms: declined from 88% to 38% (P<0.01)	Farrelly, MC et al. Changes in hospitality workers' exposure to secondhand smoke following the implementation of New York's smoke-free law. Tobacco Control 2005; 14:236
		Smoking ban in indoor workplaces	Natural experiment, cohort, pre-post test with control group, non-smoking bar staff in Scotland	**Intervention area:** percent of people reporting any respiratory symptoms dropped from 65% at baseline to 49% at follow-up (P=0.001); percent of people reporting any sensory symptoms dropped from 67% to 45% (P<0.001) **Control area:** no significant change for either type of symptoms	Allwright, S et al. Legislation for smoke-free workplaces and health of bar workers in Ireland: before and after study. BMJ 2005; 331: 1117
	b. Self-reported SHS exposure	Smoking ban in indoor public and	Natural experiment, cohort, pre-post test with control group,	**Intervention area:** SHS exposure at work decreased from 40 hours	Allwright, S et al. Legislation for smoke-free workplaces and health of bar workers in Ireland: before and

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	at policy-targeted areas	workplaces	non-smoking bar staff	to 0 from baseline to follow-up (P<0.001) **Control area:** decreased from 42 to 40 hours (P=0.02)	after study. BMJ 2005; 331: 1117
		Smoking bans in indoor public places	Pre-post longitudinal follow up design, hospitality workers in New York	SHS exposure at work declined from 12.1 hours to 0.2 hours (P<0.001)	Farrelly, MC et al. Changes in hospitality workers' exposure to secondhand smoke following the implementation of New York's smoke-free law. Tobacco Control 2005; 14:236
	c. Salivary cotinine concentration	National smoking ban in indoor public	Repeated cross-sectional study, primary school children (mean age: 11.4 years) in Scotland	The geometric mean salivary cotinine concentration in non-smoking children fell from 0.36 (95% confidence interval 0.32 to 0.40) ng/ml to 0.22 (0.19 to 0.25) ng/ml after legislation	Akhtar, PC et al. Changes in child exposure to environmental tobacco smoke (CHETS) study after implementation of smoke-free legislation in Scotland: national cross sectional survey. BMJ 2007; 335:545
		Smoking ban in indoor workplaces	Natural experiment, cohort, pre-post test with control group, non-smoking bar staff	**With policy:** dropped 80%, from median 29.0 nmol/l (95% confidence interval 18.2 to 43.2 nmol/l)) to 5.1 nmol/l	Allwright, S et al. Legislation for smoke-free workplaces and health of bar workers in Ireland: before and after study. BMJ 2005; 331: 1117

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				(2.8 to 13.1 nmol/l) **Without policy:** dropped 20% (from median 25.3 nmol/l (10.4 to 59.2 nmol/l) to 20.4 nmol/l (13.2 to 33.8 nmol/l))	
		Smoking ban in indoor workplaces	Pre-post longitudinal follow up design, hospitality workers in New York	Decreased from 3.6 ng/ml (95% CI 2.6 to 4.7 ng/ml) to 0.8 ng/ml (95% CI 0.4 to 1.2 ng/ml) ($p < 0.01$)	Farrelly, MC et al. Changes in hospitality workers' exposure to secondhand smoke following the implementation of New York's smoke-free law. Tobacco Control 2005; 14:236
		National smoking ban in indoor public places	Repeated cross-sectional study, nonsmoking adults in Scotland	The geometric mean salivary cotinine concentrations fell by 49% (40% to 56%), from 0.35 ng/ml to 0.18 ng/ml ($P<0.001$)	Haw, SJ and Gruer , L. Changes in exposure of adult non-smokers to secondhand smoke after implementation of smoke-free legislation in Scotland: national cross sectional survey. BMJ 2007; 335: 549
	d. Fine secondhand smoke particle ($PM_{2.5}$) concentration	Smoking ban in indoor public places	Pre- and post-policy adoption comparison in 40 selected indoor public places including restaurants, game rooms, pubs in Rome, Italy	In the post-law period, PM2.5 decreased significantly from a mean concentration of 119.3 microg/m3 to 38.2 microg/m3 after 3 months ($p<0.005$), and	Valente P, et al. Exposure to fine and ultrafine particles from secondhand smoke in public places before and after the smoking ban, Italy 2005. Tobacco Control 2007; 16:312

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				then to 43.3 microg/m3 a year later (p<0.01).	
	e. Cigarette consumption among adult respondents	National smoking ban in indoor public places	Pre- and 4 months post-policy implementation comparison, repeated cross-sectional telephone study, a national sample of food service workers	The number of cigarettes smoked by continuing smokers decreased 1.55 (P<0.001)	Braveman, MT, Aaro, LE, Hetland, J. Changes in smoking among restaurant and bar employees following Norway's comprehensive smoking ban. Health Promotion International 2008; 23:5
		Smoking ban in indoor public places	Repeated cross-sectional study. Surveys were conducted at 6 months before, 6 months after, and 18 months after policy implementation among a random sample of telecom workers	A reduction in workday cigarette consumption of 3 to 4 cigarettes a day was observed at 6 and 18 months after policy adoption. Smoking prevalence dropped about 5 per cent 18 months after policy implementation	Borland, R, Owen N, Hocking, B. Changes in smoking behaviour after a total workplace smoking ban. Australian Journal of Public Health 1991;15:130
		Quitting intention / attempt among adult residents	Not applicable	Not applicable	Not applicable

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6.What is the social impact of regulatory smoke-free MUH policy on MUH residents and operators?	a. Knowledge, attitudes, and beliefs regarding secondhand smoke exposure among adult residents	Smoke-free campus policy	Repeated cross-sectional surveys with a nested 4-wave longitudinal cohort design. Baseline of 3,266 Indiana University and Purdue University undergraduates and follow-up of 3,207	**Intervention area:** Change in attitude from 2007-2009 toward regulation of smoking in public places pre- and post- adoption=6.7% change (83.2% to 89.9%, p<0.01) **Control area:** Change in attitude from 2007-2009 toward regulation of smoking in public places=-4.2% change (91.3% to 87.1%) **Intervention & Control:** Difference in change between intervention & control=10.9 (P<0.01)	Seo DC, Macy JT, Torabi MR, Middlestadt SE. The effect of a smoke-free campus policy on college students' smoking behaviors and attitudes. Prev Med. 2011 Aug 9.
	b. Operators' self-reported barriers and facilitators of MUH policy adoption,	Not applicable	Not applicable	Not applicable	Not applicable

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	implementation and enforcement				
	c. Operators' knowledge, attitudes, and beliefs about smoke-free MUH policies	MUH policy	Cross-sectional telephone and in-person survey with 241 Western New York State MUH residents	Odds ratio of interest among MUH operators (government-subsidized units vs. none) in restricting smoking in units=3.12, 95% CI = 1.14-8.52	King BA, Travers MJ, Cummings KM, Mahoney MC, Hyland AJ. Prevalence and predictors of smoke-free policy implementation and support among owners and managers of multiunit housing. Nicotine Tob Res. 2010 Feb;12(2):159-63.
7. What is the cost-effectiveness of regulatory MUH smoke-free policies?	a. Smoking-related operation cost saving	Smoke-free bars and restaurants	Pooled time series cross-sectional design with data from 10 Minnesota cities from 2003 to 2007	Increase of total revenue in city-quarters due to comprehensive local ban compared to those with no or partial ban=0.026% (p=0.05)	Collins NM, Shi Q, Forster JL, Erickson DJ, Toomey TL. Effects of clean indoor air laws on bar and restaurant revenue in Minnesota cities. Am J Prev Med. 2010 Dec;39(6 Suppl 1):S10-5.
		MUH policy	Zero-inflated negative binomial model of property smoking-related costs of 343 California MUH complexes	Cost savings due to a comprehensive smoke-free policy=$1,339 per property per year	Ong MK, Diamant AL, Zhou Q, Park HY, Kaplan RM. Estimates of Smoking-Related Property Costs in California Multiunit Housing. Am J Public Health. 2011 Aug 18.

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	b.Smoking-related unit turn-over cost saving	Not available	Not available	Not available	Not available