The Guide to Community Preventive Services
THE COMMUNITY GUIDE
What Works to Promote Health

Decreasing Tobacco Use Among Workers: Smoke-Free Policies to Reduce Tobacco Use (2005 Archived Review)

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Review Summary

Intervention Definition

Smoke-free policies include private-sector rules and public-sector regulations that prohibit smoking in indoor workplaces and designated public areas. Private-sector smoke-free policies may establish a complete ban on tobacco use on worksite property or restrict smoking to designated outdoor locations. Community smoke-free ordinances establish smoke-free standards for all or for designated indoor workplaces and public areas.

Summary of Task Force Finding

The Community Preventive Services Task Force recommends smoke-free policies based on sufficient evidence of effectiveness in reducing tobacco use among workers.

Smoke-free policies were found to be effective when:

- Implemented by communities in the form of ordinances and regulations that prohibit smoking in indoor and enclosed work settings and public areas
- Adopted by companies and organizations with multiple worksites
- Implemented by individual worksites

The findings of this review complement the previous Task Force recommendations for smoking bans and restrictions based on strong evidence of effectiveness of these policies in reducing exposures to secondhand tobacco smoke.

About the Interventions

A worksite may adopt a smoke-free policy alone or in combination with additional interventions to support tobacco-using employees who might seek assistance in quitting. These additional interventions include the following:

- Tobacco cessation groups
- Client educational materials or activities
- Telephone-based cessation support
- Counseling and assistance from healthcare providers
- Access to effective pharmacologic therapies

Results from the Systematic Review

Thirty-five studies qualified for the review.

- Prevalence of tobacco use: median decrease of 3.4 percentage points (interquartile interval: –6.3 to –1.4 percentage points; 22 study arms)
- Tobacco use cessation: median increase in tobacco quit rates of 6.4 percentage points (interquartile interval: 2.0 to 9.7 percentage points; 18 study arms)
- Attempts to quit: median increase of 4.1 percentage points (interquartile interval: –0.7 to +6.8 percentage points; 6 studies)
- Number of cigarettes smoked per day: median reduction of 2.2 cigarettes smoked per day (interquartile interval: –1.7 to –3.3 cigarettes/day; 18 studies)
- Studies included in this review:
- Evaluated responses from workers in a wide range of both public- and private-sector indoor worksites

- Evaluated specific workplaces such as healthcare settings, telecommunications companies, and government worksites
- Were conducted in the United States, Canada, Germany, Australia, and Finland

Economic Evidence

A review of economic effectiveness of this intervention was conducted. Studies included in this review demonstrated a range of outcomes.

- An assessment of a smoke-free workplace policy found a cost of $526 per quality of life adjusted year (QALY) compared to a cost of $4613 per QALY for a free nicotine replacement therapy program (one study).
- There is a collective net benefit from smoke-free policies ranging from $48 billion to $89 billion per year in the United States (one study from 1994).
- A smoke-free workplace policy could prevent about 1500 heart attacks and 350 strokes in one year with approximately $55 million in direct medical cost savings (one study).
- An employer could potentially save $10,246 per year for every smoker who quits due to a smoke-free workplace policy (one study).

These results were based on a systematic review of all available studies, conducted on behalf of the Task Force by a team of specialists in systematic review methods, and in research, practice and policy related to worksite health promotion and prevention of tobacco use.

Publications

Hopkins DP, Razi S, Leeks KD, et al. vices. Smoke-free policies to reduce Tobacco use: a systematic review [www.thecommunityguide.org/tobacco/Worksite2010Smokefree_Hopkins.pdf]. *Am J Prev Med* 2010;38(2S):275-289.

Task Force on Community Preventive Services. Recommendations for worksite-based interventions to improve workers' health [www.thecommunityguide.org/worksite/Worksite2010Recommendations_TaskForce.pdf]. *Am J Prev Med* 2010;38(2S):232-236.

Task Force Finding

Intervention Definition

Comprising private-sector rules and public-sector regulations, smoke-free policies prohibit smoking in indoor workspaces and designated public areas. Private-sector smoke-free policies may establish a complete ban on tobacco use on worksite property or restrict smoking to designated outdoor locations; public smoke-free ordinances establish smoke-free standards for all or for designated indoor workplaces and public areas.

To support tobacco-using employees who might seek assistance in quitting, a worksite may adopt a smoke-free policy alone or in combination with additional interventions. These additional interventions may include the following components:

- Tobacco cessation groups
- Client educational materials or activities
- Telephone-based cessation support
- Counseling and assistance from healthcare providers
- Access to effective pharmacologic therapies

Task Force Finding (June 2005)

In a 2001 review, based on strong evidence of effectiveness, the Task Force recommended smoking bans and restrictions for reducing exposure to environmental tobacco smoke. The current review measures the effectiveness of smoke-free policies for reducing tobacco use. Unlike in the 2001 review, smoking restrictions (i.e., policies that permit smoking in a designated indoor area) were excluded. In efforts that prohibit smoking altogether, the potential effects on tobacco consumption and cessation are conceptually stronger.

The Task Force recommends smoke-free policies based on sufficient evidence that they reduce tobacco use when implemented in worksites and communities.

Supporting Materials

Evidence Gaps

What are Evidence Gaps?

Each Community Preventive Services Task Force (Task Force) review identifies critical evidence gaps—areas where information is lacking. Evidence gaps can exist whether or not a recommendation is made. In cases when the Task Force finds insufficient evidence to determine whether an intervention strategy works, evidence gaps encourage researchers and program evaluators to conduct more effectiveness studies. When the Task Force recommends an intervention, evidence gaps highlight missing information that would help users determine if the intervention could meet their particular needs. For example, evidence may be needed to determine where the intervention will work, with which populations, how much it will cost to implement, whether it will provide adequate return on investment, or how users should structure or deliver the intervention to ensure effectiveness. Finally, evidence may be missing for outcomes different from those on which the Task Force recommendation is based.

Identified Evidence Gaps

The effectiveness of smoke-free policies in protecting nonsmokers from exposure to secondhand smoke is already established. This report also finds evidence of effectiveness of these policies in reducing tobacco use among workers. Some important areas for future research remain.

Future research might be able to quantify both the independent and synergistic effects of smoke-free policies. The impact of smoke-free policies might differ when voluntarily adopted in isolation (in a single workplace) or when adopted in response to community-wide smoke-free ordinances (affecting all workplaces in the community). Smoke-free policies in the workplace might be more effective when implemented in combination with other worksite-based cessation support interventions or when implemented community-wide with other population-based tobacco prevention efforts.

Future research should also determine the impact of smoke-free policies on different populations of workers who smoke. Research to date has primarily focused on identifying disparities in the adoption of smoke-free policies by location, setting, and occupation. It is unclear if disparities exist in the impact of smoke-free policies on reductions in tobacco use. Future research should investigate ways to reduce disparities in both implementation and response, so that workers receive both the protections and the benefits of these policies.

Some economic questions about smoke-free policies remain, as well. Our systematic review of economic data found evidence that smoke-free workplace interventions could result in significant cost savings based on averted healthcare costs, reductions in productivity losses, and outcomes not related to health, such as fire damages. The only cost-effectiveness study that reports cost per QALY also demonstrates very good value of the intervention in terms of conventional benchmarks. The problem with these studies is that primary information on program costs relies on model- or literature-based estimates of benefits to compute an economic summary measure. A follow-up of intervention

participants over a longer time period could directly measure health benefits and averted cost of illness from the intervention itself.

The cost-effectiveness ratio of a smoke-free intervention in a particular workplace depends on a variety of factors including prevailing smoking status of employees, current smoking regulations in place, size of the workplace, and other relationships between employees, work, and tobacco use. Further research is needed to incorporate and conclusively document all of the economic returns from investment in smoke-free worksite policies.

Included Studies

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Evans WN, Farrelly MC, Montgomery E. Do workplace smoking bans reduce smoking? *Am Econ Rev* 1999;89(4):728-47.

Farkas AJ, Gilpin EA, Distefan JM, Pierce JP. The effects of household and workplace smoking restrictions on quitting behaviours. *Tob Control* 1999;8(3):261-5.

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Heloma A, Jaakkola MS. Four-year follow-up of smoke exposure, attitudes and smoking behaviour following enactment of Finland's national smoke-free work-place law. *Addiction* 2003;98(8):1111-7.

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Moskowitz JM, Lin Z, Hudes ES. The impact of workplace smoking ordinances in California on smoking cessation. *Am J Public Health* 2000;90(5):757-61.

Mullooly J.P., Schuman K.L., Stevens V.J., Glasgow R.E., Vogt T.M. Smoking behavior and attitudes of employees of a large HMO before and after a work site ban on cigarette smoking. *Public Health Rep* 1990;105(6):623-8.

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Stave GM, Jackson GW. Effect of a total work-site smoking ban on employee smoking and attitudes. *J Occup Med* 1991;33(8):884-90.

Stillman FA, Becker DM, Swank RT, et al. Ending smoking at the Johns Hopkins Medical Institutions. An evaluation of smoking prevalence and indoor air pollution. *JAMA* 1990;264(12):1565-9.

Tsushima WT, Shimizu AA. Effects of a no-smoking policy upon medical center employees. *Int J Addict* 1991;26(1):23-8.

Woodruff TJ, Rosbrook B, Pierce J, Glantz SA. Lower levels of cigarette consumption found in smoke-free workplaces in California. *Arch Intern Med* 1993;153(12):1485-93.

Search Strategy

The articles to be reviewed were obtained from systematic searches of multiple databases, reviews of bibliographic reference lists, and consultations with experts in the field. The original search for evidence included the period 1980–2000. Our updated search examined the period 1999 through June 2005. The following databases were searched: Medline, PsycINFO, EMBASE, and the database of the Office on Smoking and Health. Keywords used in this search were: work, workplace, occupational health, smoke, tobacco, policies, bans, restrictions, laws, legislation, smoke-free, control.

Database: Ovid MEDLINE(R)

1. (smok$ or tobacco).mp. [mp=title, original title, abstract, name of substance word, subject heading word] (45753)
2. exp work/ (1552)
3. workplace/ (3157)
4. occupational health/ (5575)
5. 2 or 3 or 4 (9306)
6. 1 and 5 (463)
7. (policy or policies or ban$ or restrict$ or law$ or legislation$ or smoke-free or control$).mp. [mp=title, original title, abstract, name of substance word, subject heading word] (621992)
8. 6 and 7 (249)
9. limit 8 to english language (208)
10. from 9 keep 1-208 (208)

Database: EMBASE

1. (smok$ or tobacco).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name] (56505)
2. exp workplace/ (5664)
3. exp occupational health/ (37226)

4. 2 or 3 (39826)
5. 1 and 4 (3317)
6. (smoke-free or ban or bans or policy or policies or restriction$ or law$ or legislation).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name] (98352)
7. 5 and 6 (288)
8. limit 7 to english language (260)
9. limit 8 to yr=1999 - 2005 (196)
10. from 9 keep 1-196 (196)

DP Search Criteria

Descriptors: work* and (smoke* or tobacco) and
Textwords: smoke-free or ban* or policy or policies or law* or legislation or restriction* or control* and
Publication Year: 1999 To 2005 and
Language: "ENGLISH"
Total: 117

Database: PsycINFO

1. (workplace$ or worksite$).mp. or work$.de. [mp=title, abstract, subject headings, table of contents, key concepts] (19732)
2. (smok$ or tobacco).mp. [mp=title, abstract, subject headings, table of contents, key concepts] (15074)
3. (smoke-free or ban$ or policy or policies or law or legislation or restriction$ or control$).mp. [mp=title, abstract, subject headings, table of contents, key concepts] (219778)
4. 1 and 2 (413)
5. 3 and 4 (188)
6. limit 5 to english language (184)
7. limit 6 to yr=1999 - 2005 (59)
8. from 7 keep 1-59 (59)

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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