Community Preventive Services Task Force

Tobacco Use: Comprehensive Tobacco Control Programs

Task Force Finding and Rationale Statement

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Task Force Finding and Rationale Statement

Intervention Definition

Comprehensive tobacco control programs are coordinated efforts to implement population-level interventions to reduce appeal and acceptability of tobacco use, increase tobacco use cessation, reduce secondhand smoke exposure, and prevent initiation of tobacco use among young people. Programs combine and integrate evidence-based educational, clinical, regulatory, economic, and social strategies at local, state, or national levels.

Comprehensive tobacco control programs most often include administrative support, surveillance, evaluation, and program monitoring. In the United States, programs are typically organized and funded at the state level to provide a platform for effective implementation of the following core components:

- Assistance to community-based organizations and coalitions to pursue local programs and policies to reduce tobacco use and secondhand smoke exposure
- Partnerships at local and state levels to engage health systems and providers, businesses, and public and private agencies and organizations, in an effort to broaden the reach and impact of tobacco control interventions
- Mass-reach health communication interventions to inform individual and public attitudes about tobacco use and secondhand smoke
- Cessation services, such as quitlines, to help tobacco users in their efforts to quit
- Information and technical assistance to support the diffusion and adoption of evidence-based practices (e.g., smoke-free policies, affordable and accessible cessation services, increased tobacco product prices, and decreased tobacco product marketing and availability)

Some programs may have authority to implement policies directly, such as restrictions on tobacco product marketing and availability, and smoke-free policies.

Task Force Finding (August 2014)

The Community Preventive Services Task Force recommends comprehensive tobacco control programs based on strong evidence of effectiveness in reducing tobacco use and secondhand smoke exposure. Evidence indicates these programs reduce the prevalence of tobacco use among adults and young people, reduce tobacco product consumption, increase quitting, and contribute to reductions in tobacco-related diseases and deaths. Economic evidence indicates that comprehensive tobacco control programs are cost-effective, and savings from averted healthcare costs exceed intervention costs.

Rationale

Basis of Finding

The Task Force finding is based on strong evidence of effectiveness from 61 studies (search period through August 2014). Of the included studies, 43 examined the impact of local, state, or national programs on tobacco-related outcomes, and 18 evaluated the relationship between program funding or strength and program effectiveness. Fifty-six studies evaluated program impact on cigarette use only. Evidence indicates that comprehensive tobacco control programs are effective in reducing tobacco use among adults and young people, and increases in program funding are associated with increases in program effectiveness (see Table).

Effectiveness of Comprehensive Tobacco Control Programs

Outcomes	Main Findings
Tobacco use prevalence among adults (22 studies)	**Overall median reduction** of 3.9 pct pts (IQI: -5.6 to -2.6 pct pts) with a median program duration of 9 years (16 studies) **U.S. median reduction** of 2.8 pct pts (IQI: -3.5 to -2.4 pct pts) with a median program duration of 9 years (12 studies) U.S. states with a comprehensive tobacco control program compared to the rest of the country saw a median additional annual reduction of 0.45 pct pts (Range: -0.18 to -0.89 pct pts; 4 studies)
Tobacco product consumption (18 studies)	**Cigarette pack sales (number of packs sold per month; 11 studies):** **U.S. median reduction** of 12.7% (IQI: -20.8% to -5.5%) with a median program duration of 4 years (7 studies) States with a comprehensive tobacco control program had a greater annual decline (2 studies) or greater overall decline (2 studies) in cigarette sales than the rest of U.S. **Individual daily consumption (number of cigarettes consumed per day; 10 studies):** **Overall median reduction** of 17.1% (IQI: -43.4% to -13.5%) with a median program duration of 8 years (6 studies) **U.S. median reduction** of 23.7% (Range: -54% to -12.3%) with a median program duration of 8 years (5 studies) U.S. states with a comprehensive tobacco control program saw greater reductions in daily consumption in before-after comparisons (2 studies) and when compared to the rest of the country (2 studies)
Tobacco use cessation (8 studies)	U.S. states or localities with comprehensive tobacco control programs saw greater increases in cessation rates in before-after comparisons (1 study) and when compared to the rest of the country or localities without such programs (4 studies). Mixed results observed in 1 study. Two non-U.S. studies showed increases in cessation after program implementation.

Outcomes	Main Findings
Tobacco use among young people (14 studies)	**Overall median reduction** of 4.6 pct pts (IQI: -8.4 to -1.1 pct pts) with a median program duration of 8 years (10 studies) **U.S. median reduction** of 4.5 pct pts (IQI: -6.0 to -0.7 pct pts) with a median program duration of 6 years (9 studies) U.S. states or localities with comprehensive tobacco control programs had greater reductions in smoking prevalence among young people than states or localities without such programs (3 studies)
Exposure to secondhand smoke (4 studies)	**Secondhand smoke exposure:** State comprehensive tobacco control programs reduced adults' exposure to secondhand smoke at home or work (2 studies) **Prevalence of smoke-free homes:** State comprehensive tobacco control programs increased the number of households that adopted voluntary smoke-free rules (3 studies)
Tobacco-related diseases and deaths (8 studies)	**Morbidity** State comprehensive tobacco control programs reduced: • Lung cancer incidence (1 study) • Hospitalization due to tobacco-related diseases (1 study) **Mortality** State comprehensive tobacco control programs reduced: • Lung cancer deaths (3 studies) • Smoking-attributable cancer deaths (1 study) • Tobacco-related cardiovascular deaths (3 study)

Outcomes	Main Findings
Increased program funding (16 studies)	Impact on tobacco-related outcomes: • Reduced tobacco use prevalence among adults (3 of 5 studies) • Reduced cigarette sales (6 of 7 studies) • Reduced daily consumption (1 study) • Mixed results for cessation (1 study) • Reduced tobacco use prevalence among young people (2 of 3 studies) • Decreased tobacco use initiation (2 studies) • Increased cessation among young people (1 study)

Pct pts = absolute percentage point difference
% = relative percent difference
IQI = interquartile interval

Applicability and Generalizability Issues

Fifty-five studies evaluated comprehensive tobacco control programs in the U.S., with the remaining studies evaluating programs in Australia (2 studies), Canada (1 study), France (1 study), Ireland (1 study), and nations within the European Union (1 study). Included studies evaluated comprehensive tobacco control programs at national (5 studies), state (49 studies), city (3 studies), and local (4 studies) levels. Programs were found to be effective across these settings.

Comprehensive tobacco control programs were effective in reducing tobacco use among adults (27 studies) and young people (16 studies). Most studies used state or national population-level survey data that were representative of the general population. Based on a subset of 14 U.S. studies that reported population characteristics, participants were equally likely to be female (median: 51.5%) or male (median: 48.5%), with a racial/ethnic distribution representative of the U.S. population (white: median 66.4%; black: median 10.2%; Asian: median 5.2%; American Indian: median 1.3%; Hispanic: median 19.5%). Nearly two thirds of the participants had less than a college education (median: 63.0%). Several studies from both inside and outside the U.S. performed stratified analyses based on population characteristics and found that comprehensive tobacco control programs were equally effective for females and males (12 studies) with diverse racial and ethnic backgrounds (6 studies) from varied education or socioeconomic status (SES) groups (7 studies). Overall, evidence indicates comprehensive tobacco control programs are broadly applicable to U.S. settings and populations.

Data Quality Issues

The body of evidence includes study designs with concurrent comparison populations (37 studies), interrupted time series (10 studies), before-after assessments (5 studies), and cross-sectional comparisons (2 studies). Seven studies examine interval changes in program effectiveness several years after programs were fully implemented. Common

limitations across this body of evidence include incomplete descriptions of the intervention, study populations, and sampling methods.

Comprehensive tobacco control programs in the U.S. are usually implemented alongside policy interventions such as cigarette excise tax increases and smoke-free policies, making it difficult to isolate the program effectiveness from policy impact. Twenty included studies that controlled for these policies, however, showed independent effectiveness of comprehensive tobacco control programs.

Other Benefits and Harms

No additional benefits or harms of comprehensive tobacco control programs were identified in the review.

Economic Evidence

Evidence indicates that comprehensive tobacco control programs are cost-effective and savings from averted healthcare costs exceed intervention costs. The economic review included 12 studies; 10 from the U.S. and 2 from Australia. Of the U.S. studies, eight considered state comprehensive tobacco control programs and two examined data from the entire country.

All included studies provided data on benefits, 11 reported healthcare costs averted (including Medicaid costs averted), and one reported productivity gains. All figures are reported in 2012 U.S. dollars.

- Estimates of healthcare costs averted varied substantially, mainly due to variations in the examined programs and differences in modeling practices used by researchers.
    - Ten studies reported healthcare cost savings attributed to programs with values ranging from $34.9 million over 75 years in Australia to $141.1 billion over 20 years in California.
    - One study evaluated the California state comprehensive tobacco control program and estimated that healthcare costs would increase by $250 million over 90 years due to former smokers living longer (longevity costs).
- One study estimated that increasing tobacco control funding to CDC-recommended levels across the nation would result in productivity gains of $19.8 billion in a single year.

Cost-effectiveness was assessed by comparing study estimates to a conservative threshold of $50,000 per quality-adjusted life year saved (QALYS). Two studies provided outcomes expressed as cost/QALY and reported costs of $24/QALYS and $857/QALYS. Both fall well below the cost-effectiveness threshold, indicating comprehensive tobacco control programs are cost-effective. An additional study estimated cost per life-year saved (LYS) to be $5,629.

Nine studies provided benefit-to-cost ratios, or enough information for benefit-to-cost ratios to be constructed, and the median ratio was 12:1 (IQI: 3:1 to 56:1). The sizable variation across studies was attributed to differences in intervention and study characteristics such as implementation area, population, duration, and modeling assumptions. Despite the variation, all ratios are greater than 1, indicating that benefits of comprehensive tobacco control programs exceed intervention costs.

Considerations for Implementation

Current state and local programs provide a range of funding and program models to inform implementation decisions. California has maintained a well-funded state comprehensive tobacco control program since 1989 (supported by a dedicated portion of state cigarette excise tax revenue), and several states have implemented programs adapted from

this example. CDC's Best Practices for Comprehensive Tobacco Control Programs (2014) offers detailed, state-specific program composition and funding recommendations.

CDC's Office on Smoking and Health and the National Cancer Institute provide technical assistance and support, maintain resources for program operation and evaluation, and facilitate the exchange of information among state and local programs. A number of national organizations support comprehensive tobacco control efforts and provide additional resources on program implementation and evaluation, including the American Cancer Society, the American Heart Association, the American Lung Association, the Americans for Nonsmokers' Rights Foundation, the Association of State and Territorial Health Officials, the Campaign for Tobacco-Free Kids, the Institute of Medicine, the Legacy for Health, the National Association of County and City Health Officials, National Association of Local Boards of Health, the North American Quitline Consortium, the Robert Wood Johnson Foundation, the Tobacco Control Legal Consortium, and the Tobacco Technical Assistance Consortium, among others. (Links to these programs are provided below.)

In the U.S., state and local comprehensive tobacco control programs have been reinforced by national activities such as a national quitline portal (1-800-QUIT-NOW) and mass media campaigns conducted by the Legacy for Health, CDC, and the U.S. Food and Drug Administration (FDA). Federal agencies, such as the Environmental Protection Agency and the Department of Housing and Urban Development, also have assisted state and local programs by disseminating information about evidence-based approaches to reduce secondhand smoke exposure. National activities bolster state and local programs and provide opportunities for coordinated and complementary messaging and action. Recent policy changes resulting from healthcare reform and the Family Smoking Prevention and Tobacco Control Act of 2009 may enable or encourage additional state and local program activities in the future.

Evidence considered in this review indicates that comprehensive programs are effective independent of concurrent increases in tobacco product prices or adoption of state or local smoke-free polices. All of these interventions are effective, important, and complementary elements of an overall strategy to reduce tobacco use and secondhand smoke exposure.

The current review only considered evaluations of overall comprehensive tobacco control programs. Task Force findings and systematic reviews of individual components, such as quitlines or mass-reach health communication interventions, are also available on the Community Guide website [www.thecommunityguide.org]. Comprehensive programs provide a platform for effective implementation and coordination of these evidence-based components.

Evidence indicates that comprehensive programs are effective across diverse racial, ethnic, educational, and SES groups. Some populations, especially those with lower educational attainment or SES, have experienced persistently high rates of tobacco use and secondhand smoke exposure, and often have more limited access to quitting services (e.g., reduced access to regular preventive medical care and quitting advice, evidence-based cessation services and smoke-free environments, CDC 2011). Comprehensive tobacco control programs provide tools and resources to identify, evaluate, and address tobacco-related inequalities. Program options include integrating health equity considerations in state and local program activities, partnering with local organizations capable of reaching and assisting populations at greatest risk, disseminating culturally sensitive messages through mass-reach health communication interventions, and working to expand state Medicaid coverage of evidence-based cessation treatments (CDC, 2014).

Evidence from this review indicates that increased tobacco control program funding, especially sustained funding, is associated with increased program effectiveness, with the greatest impact seen among programs funded at CDC-recommended levels. In 2014, tobacco taxes and legal settlements in U.S. states are expected to reach $25 billion in

revenue with about 1.9% ($0.48 billion) spent on tobacco control programs (Campaign for Tobacco Free Kids, 2014). With U.S. adult smoking prevalence near 18%, well above the rates achieved in states with sustained programs such as California (12.6%), adoption of comprehensive tobacco control programs with dedicated and sustained funding by all states has the potential to reduce tobacco use substantially in the U.S.

Evidence Gaps

Comprehensive tobacco control programs have integral monitoring and evaluation capabilities, allowing most state programs to be evaluated internally or by independent researchers. These evaluation efforts have produced a wealth of evidence on overall program effectiveness and impact of individual program components.

These programs aim to reduce the use of all tobacco products, but nearly all studies reported only cigarette use. With products such as flavored cigarillos and e-cigarettes gaining popularity, it is important to determine program impact on use of combustible tobacco other than cigarettes and noncombustible nicotine-delivery products. Continued evaluation of program impact among subgroups with high tobacco use prevalence will be needed to improve understanding of the differential impact of tobacco control interventions.

The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.

References

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Federal Trade Commission. Federal Trade Commission Cigarette Report for 2011. Washington (DC): FTC; 2013. Available at: http://www.ftc.gov/sites/default/files/documents/reports/federal-trade-commission-cigarette-report-2011/130521cigarettereport.pdf.

Additional Resources

- American Cancer Society: http://www.cancer.org/
- American Heart Association: http://www.heart.org/HEARTORG/
- American Lung Association: http://www.lung.org/
- Americans for Nonsmokers' Rights Foundation: http://www.no-smoke.org/
- Association of State and Territorial Health Officials: http://www.astho.org/
- Campaign for Tobacco-Free Kids: http://www.tobaccofreekids.org/
- Institute of Medicine: http://www.iom.edu/
- Legacy for Health (formerly American Legacy Foundation): http://www.legacyforhealth.org/
- National Association of County and City Health Officials: http://www.naccho.org/

- National Association of Local Boards of Health: http://www.nalboh.org/
- North American Quitline Consortium: http://www.naquitline.org/
- Robert Wood Johnson Foundation: http://www.rwjf.org/
- Tobacco Control Legal Consortium: http://publichealthlawcenter.org/programs/tobacco-control-legal-consortium
- Tobacco Technical Assistance Consortium: http://ttac.org/

Disclaimer

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