Literature on the Effectiveness of State Tobacco Control Programs

How do we know that comprehensive state tobacco control programs are effective in reducing tobacco use? As state programs lose funding, there is an urgent need to collect and update the evidence for their effectiveness.

The purpose of this literature summary is to present findings on the effectiveness of state programs. Several recent reviews have been published, including those by Siegel (2002) and the Institute of Medicine (2000). This document outlines the results of these studies according to **major outcome measures** (see Table of Contents). After the outcome measure tables, the recent reviews of state programs, the major studies from the reviews, and selected major state evaluation reports are briefly summarized. In addition, several peer-reviewed studies published since 2002 are included. CDC/OSH has summarized each of these studies, maintains a repository of the hard copies, and will continue to collect and update this collection of evidence on a regular basis. This is not a listing of all available evidence on state programs; rather it is a focused selection of the most relevant, recent evidence and attempts to include states other than those cited most often.

Table of Contents

Navigational Guide—View Select Data by Outcome Measure

Each study is listed by major outcome categories in reverse chronological order of publication (the most recent evidence is listed first). Studies may be listed more than once in these tables as they often present more than one type of outcome evidence. Statistical testing (*p* values, etc.) is referenced when available. The "State" column indicates which state the data come from; studies which examined the United States as a whole are indicated by "U.S." For more detailed information about a particular study, refer to the summary (Table 2 if peer reviewed) or the individual articles. Studies with an asterisk (*) are state evaluation reports (Table 3).

I. Mortality

Heart disease

Citation	State	Time frame	Finding
Fichtenberg & Glantz, 2000	CA	1980–1988	Regression coefficient for CA vs. U.S.: 0.67 ($p < 0.001$)
		1988–1991	Further age-adjusted annual rate of heart disease decline in CA: –2.93/100,000 ($p < 0.001$)
		1992–1998	Further age-adjusted annual rate of heart disease decline in CA: –1.22/100,000 from previous period ($p = 0.03$); (reduced effect of previous period by 1.71 deaths per year per 100,000 population per year); 33,000 fewer deaths to heart disease were prevented overall (an additional 8,300 after 1992 might have been prevented had campaign not been scaled back)

Lung cancer

Citation	State	Time frame	Finding
Jemal et al., 2003	U.S.	1990–1994	Index of strength of state TC correlation with lung cancer death rates for ages 30–39 years: –0.54 ($p = 0.0013$).
		1995–1999	Index of strength of state TC correlation with lung cancer death rates for ages 30–39 years: –0.80 ($p < 0.0001$). Index correlation with percent change ages 30–39 years lung cancer death rates 1990–1999: –0.56 ($p < 0.0008$).
CDC, 2000	CA	1988–1997	14% total decline in CA (average annual decline 1.9%, $p < 0.01$), 1.5 times that of non-CA SEER[1]; 2.7% total decline in non-CA SEER (average annual decline –0.4%, not significantly different from zero). Men: 2.9% average annual decline ($p < 0.01$) in CA vs. 1.8% average annual decline ($p < 0.01$) in non-CA SEER. Women: declined 4.8% (average annual decline 0.6%, $p < 0.01$) in CA vs. increased 13.2% (average annual increase 1.5%, $p < 0.01$) in non-CA SEER.

[1] SEER = Surveillance Epidemiology and End Result, of the National Cancer Institute. The SEER Program currently collects and publishes cancer incidence and survival data from 14 population-based cancer registries and three supplemental registries covering approximately 26 percent of the U.S. population. For more information see http://seer.cancer.gov/.

II. Smoking Prevalence

Adult prevalence			
Citation	**State**	**Time frame**	**Finding**
Jemal et al., 2003	U.S.	1990–1999	Index of strength of state TC correlation with current adult smoking: –0.81 ($p < 0.0001$)
Stillman et al., 2003	U.S.	1992–1999	ASSIST status vs. non-ASSIST states, adjusted difference: –0.63% (95% CI = –1.38%, 0.12%; $p = 0.49$); for women –0.96% (–1.90%, –0.02%; $p = 0.023$); for men 0.09% (–0.80%, 0.97%; $p = 0.42$). A measure of change in TC policy outcomes (initial outcomes index) was associated with declines in adult prevalence when the District of Columbia was removed from analyses (regression coefficient –0.15 [–0.28, –0.02; $p = 0.015$]).
Meshack et al., 2003*	TX	2000–2002	Declines in pilot areas: absolute percentage declines 5.1% vs. 2.5%, relative reductions 21% vs. 11%. Estimated 90,000 fewer smokers because of pilot programs.
OR DHS, 2003*	OR	1996–2003	Overall: 23.4% to 20.4%, 13% relative decline, compared with 8% decline in U.S. Pregnant women: 28% relative decline, saving estimated $1.3 million in low-birth-weight care.
WA State DH, 2003*	WA	1999–2002	8% fewer smokers (83,000 fewer adult smokers)
Biener et al., 2002	MA	1993–1999	MA slope: –0.44 per year (95% CI = –0.66, –0.21; $p = 0.001$) vs. U.S. slope: 0.03% per year (–0.05, 0.09; $p = 0.46$)
Fichtenberg & Glantz, 2002	U.S.	Varies (review)	Smokefree work sites: –3.8%; –3.1 cigarettes/day in continuing smokers
Rohrbach et al., 2002	CA	1996–1998	Changes in absolute percentage in adult prevalence associated with lowest, moderate, and highest exposure categories: +2.53%, +0.23%, –0.95%, respectively ($p = 0.03$).
Weintraub & Hamilton, 2002	MA	1990–1999	MA: 23.5% (95% CI = 21, 26.1) to 19.4% (18, 20.8); relative decline of 17% after demographic adjustments (AOR[2] = 0.83, 95% CI = 0.70, 0.99). U.S.: 24.2% (23.7, 24.7) to 23.3% (22.9, 23.7); no significant change (AOR = 1.01, 0.97, 1.05); difference between MA and other states was significant in 1999 ($p < 0.001$), not in 1990 ($p = 0.62$).
			MA men: 25.9% (22, 29.8) to 19.5% (17.3, 21.6); relative decline of 27% after demographic adjustments; U.S. men: 26.0% (25.2, 26.7) to 25.6% (24.9, 26.2); no significant change; (multivariate OR[3] = 1.03; .97, 1.08); difference between men in MA and other states was significant in 1999 ($p < 0.001$), not in 1990 ($p = 0.97$)
			MA women: 21.5% (18.2, 24.8) to 19.3% (17.5, 21.1); relative decline of 5% not statistically significant ($p = 0.62$); U.S. women: 22.5% (21.9, 23.2) to 21.2% (20.7, 21.7); no significant change (multivariate OR = 0.99; .95, 1.04); difference between women in MA and other states was significant in 1999 ($p = 0.04$), not in 1990 ($p = 0.54$)
CDC, 2001	AZ	1996–1999	23.1% (95% CI = 21.9, 24.3) to 18.3% (17.1, 19.5) in AZ ($p \leq 0.05$)

[2] AOR = adjusted odds ratio; adjusted for said variables in model.

[3] OR = odds ratio

Gilpin et al., 2001*	CA	1990–1999	Of remaining smokers, >60% smoke <15 cigarettes/day and >20% are non-daily smokers
Norman et al., 2000	CA	1998	Average daily consumption in smokers (outcome), home smoking ban β (beta coefficient) = –0.301 ($p < 0.01$)
Porter, 2000*	AZ	1996–1999	23.8% to 18.8%, relative decline of 21%
Abt Associates, 2000*	MA	1994–2000	22.6% to 17.9%, after accounting for demographic changes in MA. 25.1% to 19.6% ($p = 0.02$) in MA men vs. 1.6% annual decrease vs. 0.8% annual decrease in U.S. men ($p = 0.02$ for difference). Pregnant women: 25% to 11% in MA.
Farrelly et al., 1999	U.S.	Sep 1992–May 1993	Smokefree work sites: –5.7%; –2.7 cigarettes/day in continuing smokers; subgroups varied in these effects
Harris, 1999	MA	1990–1996	Pregnant women: 47.8% relative decline in MA vs. 26.1% in U.S.; 1996 MA rate 13.2%. All adults: 140,000 fewer smokers since program implementation.
Pierce et al., 1998a*	CA	1989	17.3 cigarettes/day in CA vs. 19.5 in U.S.
		1992–1993	15.3 cigarettes/day in CA vs. 18.1 in U.S.
		1995–1996	13.7 cigarettes/day in CA (10.4% decrease from previous period) vs. 7.3 in U.S. (4.4% decrease from previous period)
Pierce et al., 1998b	CA	Pre–1989	23.3% (0.74% decrease) in CA vs. 26.2% (0.77% decrease) in rest of U.S.
		1989–1993	18% (1.06% decrease) in CA ($p < 0.001$ for change) vs. 23.2% (0.57% decrease) in rest of U.S. ($p < 0.05$ for CA vs. U.S.)
		1994–1996	18% (0.01% increase) in CA vs. 22.4% (0.28% decrease) in rest of U.S. ($p < 0.001$ for change in both from previous period)
Siegel et al., 1998	CA	1978–1985	Estimated annual change: –0.60 (95% CI = –0.79, –0.40) in CA vs. –0.50 (–0.67, –0.33) in U.S.
		1985–1990	Estimated annual change: –1.22 (95% CI = –1.51, –0.93) in CA vs. –0.93 (–1.13, –0.73) in U.S. ($p < 0.05$ for both rates increasing from previous period)
		1990–1994	Estimated annual change: –0.39 (95% CI = –0.79, –0.40) in CA vs. –0.05 (–0.34, +0.24) in U.S. ($p < 0.05$ for both rates slowing)
CDC, 1996	MA	1990–1992	23.5% in MA (95% CI = 22.1, 24.9), 20.1% (19.2, 21.0) in CA, vs. 24.1% (23.8, 24.4) in rest of U.S.
		1993–1995	21.3% in MA (95% CI = 20.1, 22.5), 17.4% (16.5, 18.3) in CA, vs. 23.4% (23.1, 23.6) in rest of U.S.

Young adult prevalence

Citation	State	Time frame	Finding
Rigotti et al., 2002	MA	1999	Public college students who currently live away from parents and attended high school in state vs. out of state: all tobacco use, AOR = 0.66, 95% CI = 0.45-0.96 ($p = 0.03$); current smoking, AOR = 0.58, 95% CI = 0.40, 0.87 ($p < 0.01$).
Porter, 2000*	AZ	1996–1999	27.5% to 21%, 24% relative decline (ages 18–24 years)

Youth prevalence/initiation

Citation	State	Time frame	Finding
AZ DHS, 2003*	AZ	1997–2000	High school: 31.3% to 24.6%, 21% relative decline in AZ

			Middle school: 18.7% to 11.4%, 29% relative decline in AZ vs. 15.1% in U.S. in 2000
Chen et al., 2003	CA	1990–1999	Never smokers: males, 60% to 69% (0.87% annually); females, 66% to 70% (0.29% annually)
Gallup, 2003*	ME	1997–2001	Current (last 30 days), high school: 39.2% to 24.8%, 38% relative decline in ME
McMillen & Baldwin, 2003*	MS	1999–2002	Current (last 30 days): public middle school 23% to 11.9% (p<0.05), 42% relative decline in MS; public high school 32.5% to 23.1% (p < 0.05), 24% relative decline in MS
OR DHS, 2003*	OR	1996–2003	Relative declines: 47% for grade 8, 26% for grade 11 in OR
WA State DH, 2003*	WA	1999–2002	Relative declines (last 30 days): grade 6, 53%; grade 8, 39%; grade 10, 40%; grade 12, 35% Estimated 55,000 fewer youths smoking; high school rates are twice national rate of decline
Willet et al., 2003*	NE	1997–1999	Current (last 30 days): 39.2% to 37.3%
		2000–2003	Current (last 30 days): 30.5% to 24.1% (p < 0.05)
Rohrbach et al., 2002	CA	1996–1998	Current (last 30 days): 27.4% to 21.8% (p < 0.05) for grade 10, not associated with exposure to program components
Soldz et al., 2002	MA	1996–1999	Current (last 30 days): grade 8, 26% to 15.6% (p < 0.01) in MA vs. 21% to 17.5% in U.S.; grade10, 33.6% to 24.6% (p < 0.05) in MA vs. 30.4% to 25.7% in U.S.; grade 12, 40.7% to 34.9% in MA vs. 34.0% to 34.6% in U.S. Lifetime: grade 8, 41% to 30.3% (p < 0.01) in MA vs. 49.2% to 44.1% in U.S.; grade 10, 56.9% to 44.4% (p < 0.01) in MA vs. 61.2% to 57.6% in U.S.; grade 12, 61% to 60.5% in MA vs. 63.5% to 64.6% in U.S.
Gilpin et al., 2001*	CA	1990–1999	Youth 30-day prevalence: increased from 1993–1996 but 1999 rate of 7.7% was significantly lower than 1990
Sly et al., 2001	FL	1998–1999	Ever use, youths <16 years: 33.4% (95% CI ± 2.17) to 26.7% (± 2.02), 20.1% relative decline, in FL vs. 30.5% to 29.7% (± 2.42), 2.6% relative decline (p < 0.05 for difference from FL), in U.S. Current use, youths <16 years: 9.9% (± 1.38) to 7.2% (± 1.12), 27.3% relative decline, in FL vs. 7.0% (± 1.44) to 8.6% (± 1.21), 22.9% relative increase (p < 0.05 for difference from FL), in U.S.
Abt Associates, 2000*	MA	1995–2000	36% to 30% in MA vs. remaining stable in U.S.
Bauer el al, 2000	FL	1998–2000	Current (last 30 days): middle school 18.5% to 11.1% (40% relative decline; p < 0.001); high school 27.4% to 22.6% (18% decline; p = 0.01). Frequent (+20 of 30 days) use: middle school 5.4% to 2.9% (p < 0.001); high school 13.5% to 10.4% (p < 0.001).
Siegel & Biener, 2000	MA	1993/1994–1997/1998	Exposure to television anti-smoking ads: for ages 12–13 years (at baseline) halved progression to established smoking (AOR = 0.49; 95% CI = 0.26, 0.93); for ages 14–15 years had no effect (AOR = 0.94; 0.48, 1.83)
Pierce et al., 1998a*	CA	1990–1993	Current (last 30 days): 9.2% in CA
		1993–1996	Current (last 30 days): 12.6% in CA, 26% increase from previous period

III. Consumption

Total consumption			
Citation	**State**	**Time frame**	**Finding**
Farrelly et al., 2003	U.S.	1981–2000	Sales dropped more than twice as much in states that spend more on comprehensive tobacco control programs than in U.S. as a whole. Between 1990–2000, sales decreased an average of 43% in AZ, CA, MA, and OR, compared with 20% decrease in all states combined.
Hu et al., 1995a	CA	1989–1991	8–9% reduction in the short run, 10–13% reduction in the long run
Glantz, 1993	CA	1981–1988	Baseline consumption
		1989–1991	Decline of 2% annually (–45.9 million packs/year) more than tripled to –164 packs/year ($p < 0.001$)
		1992	Deceleration of decline (–1.4 packs/year; $p = 0.032$), effect to date, June 1992, –802 million packs since Prop. 99
Per capita consumption (PCC)			
Citation	**State**	**Time frame**	**Finding**
Stillman et al., 2003	U.S.	1989–1999	Before intervention: ASSIST states 10.64 packs/person/month vs. non-ASSIST states 10.54 ($p = 0.88$) During intervention, ASSIST states non-significant decrease ($p = 0.22$) Regardless of ASSIST status, states with higher cigarette price and greater increase in price over time showed a PCC decrease of 0.57 packs/person/month (95% CI[4] = 0.43, 0.72).
Gallup, 2003*	ME	1997–2001	PCC decreased from 132.8 to 107 packs/year in ME
OR DHS, 2003*	OR	1996–2003	Relative decrease of 30%, steeper than other states with no comprehensive TC[5] program
Biener et al., 2002	MA	1988–1992	15% decrease in MA vs. 14% in U.S.; 3–4% annual decrease for both groups
		1993–1999	12% drop in 1993, then >4% annual decrease for MA vs. 4% drop in U.S. when cigarette prices declined, then <1% annual decrease
Gilpin et al., 2001*	CA	1990–1999	Relative decline of 57% in CA vs. 27% in U.S.
Fichtenberg & Glantz, 2000	CA	1980–1988	Regression coefficient for CA vs. U.S.: 1.09 ($p < 0.001$)
		1988–1991	Decrease of –2.72 packs/yr/yr in CA relative to decrease in U.S. ($p < 0.001$)
		1992–1998	Previous decrease reduced by 2.05 packs/yr/yr in CA relative to decrease in U.S. ($p < 0.04$, compared with previous period)
Abt Associates, 2000*	MA	1994–2000	Relative decline of 36% in MA vs. 16% in U.S.
CA DHS, 2000*	CA	1989–1999	Decrease >50% in CA to 61.3 packs/adult in 1998–1999 vs. 106.8 packs/adult in U.S. in 1999
CDC, 1999	OR	1993–1996	PCC +2.2% in OR vs. –0.6% in U.S.
		1996–1998	PCC –11.3% (92 to 82 packs) in OR vs. –1% (93 to 92 packs) in U.S.; 25 million few packs sold in 1998 than

[4] 95% CI = 95% confidence interval
[5] TC = tobacco control

			1996 despite 2.7% increase in state population
Pierce et al., 1998a*	CA	Pre-1989	9.7 monthly PCC, 0.40% decrease in CA vs. 12.4 monthly PCC, 0.36% decrease in U.S.
		1989–1993	6.7 monthly PCC, 0.65% decrease in CA vs.10.4 monthly PCC, 0.45% decrease in U.S.
		1993–1996	6.0 monthly PCC, 0.22% decrease in CA vs. 10.3 monthly PCC, 0.02% decrease in U.S.
Pierce et al., 1998b	CA	Pre–1989	–9.7 packs/person/month in CA vs. –12.5 for rest of U.S. ($p < 0.01$ for CA vs. U.S.)
		1989–1993	–6.5 packs/person/month in 1993 in CA vs. –10.4 for rest of U.S. ($p < 0.001$ for CA vs. U.S. and for difference in CA from previous period)
		1994–1996	–6 packs/person/month vs. 10.5 in U.S. (each slope significantly different from previous period)
Manley et al., 1997	U.S.	1989–1991	12 packs/person/month in both groups in 1989, 11 in 1991
		1993–1996	1993, ASSIST states maintained low PCC rate while non-ASSIST began to increase; in 1994, increase was statistically significant ($p < 0.05$); at beginning of 1996, PCC in ASSIST states was 7% less than others; 76% of ASSIST states vs. 55% of comparison states had PCC decrease despite real cigarette price decrease
CDC, 1996	MA	1990–1992	–6.4% in MA, –11% in CA vs. –5.8% in rest of U.S. (relative declines)
		1992–1996	–19.7% in MA, –15.8% in CA vs. –6.1% in rest of U.S. (relative declines)
Elder et al., 1996	CA	1980–1988	Average quarterly PCC decrease, 3.6% in CA vs. 2.4% in rest of U.S.
		1989–1994	Average quarterly PCC decrease, 7.9% in CA vs. 3.2% in rest of U.S.
Hu et al., 1995b	CA	1990–1992	Decrease of 35 packs/person, 79% and 21% attributable to price increase and media campaign, respectively
Hu et al., 1994	CA	1984–1991	Immediate effect in 1989, 2 packs/person (–25.7%); long–term effect in 1991, 0.75 packs/person (–9.5%)
Glantz, 1993	CA	1980	Baseline PCC (packs/person/year) 122.8 ($p = 0.001$) in CA vs. 143.5 ($p = 0.001$) in U.S.
		1981–1988	PCC decrease of –4 ($p = 0.001$) in CA vs. –3.8 ($p = 0.001$) in U.S.
		1989–1991	PCC decrease doubles to –8 ($p = 0.001$) in CA vs. decrease of –4.7 ($p = 0.39$) in U.S.
		1992	PCC decrease slows to –1.42 packs/year in CA, not significantly different from U.S. decrease (media campaign suspended)

IV. Cessation

Quit ratio			
Citation	**State**	**Time frame**	**Finding**
Jemal et al., 2003	U.S.	1990–1999	Index of the strength of state TC correlation with state quit ratio: –0.82 ($p < 0.0001$)
Siegel et al., 1998	CA	1978–1985	Estimated annual change: 0.73 (95% CI = 0.22, 1.24) in CA vs. 0.73 (0.40, 1.05) in rest of U.S.
		1985–1990	Estimated annual change: 1.36 (95% CI = 0.74, 1.97) in CA vs. 1.04 (0.62, 1.46) in rest of U.S.
		1990–1994	Estimated annual change: 0.18 (95% CI = –0.80, 1.15) in CA vs. 0.15 (–0.47, 0.77) in rest of U.S.
Other cessation measures			
Citation	**State**	**Time frame**	**Finding**
Meshack et al., 2003*	TX	2000–2002	Regions with most intensive pilot activities: more awareness (23.1% vs. 13.8%), use of telephone counseling services (2.7% vs. 1.2%), and cessation (11% vs. 9%); receipt of telephone counseling services led to 1-year cessation rates significantly higher (20.7% vs. 13.2%, or 10.3% vs. 6.6% if assume those lost to follow-up failed)
WA State DH, 2003*	WA	1999–2002	Smokers making serious quit attempts: 15% to 26%
Gilpin et al., 2001*	CA	1990–1999	Smokers making quit attempts: 49% to 60
Abt Associates, 2000*	MA	1993–1999	Quit success rate: 17% to 25%
Norman et al., 2000	CA	1998	Smokers with home smoking ban were twice as likely to report wanting to quit smoking (OR = 2.16, 95% CI = 1.26, 3.7; $p < 0.01$) than smokers with no rules in the home, after controlling for multiple predictors;
Popham et al., 1998	CA	1990–1991	Influence of media campaign on decision to quit: via qualitative self-report, influenced at least 173,000 former smokers and was major influence for 33,000 of those

V. Smoke-free Policies

Citation	State	Time frame	Finding
McMillen et al., 2003*	MS	2000–2002	Smoking ban at all work areas: 53.2% to 64.7% ($p < 0.05$) in MS vs. 65.7% to 65% in U.S.
OR DHS, 2003*	OR	1996–2003	>95% of work sites covered by smoke-free law; 71% to 81% homes with smoke-free policies
Bartosch & Pope, 2002	MA	March 1999	Local tobacco policy index: maximum 100 points, 50 points each to smoke-free environments, youth access. Variance in policy enactment: 47% explained; significant factors were state funding and larger town size.
Rohrbach et al., 2002	CA	1996–1998	Changes in absolute percentage in home smoking bans associated with lowest, moderate, and highest exposure categories: +2.01%, +0.89%, and +4.15%, respectively ($p = 0.04$). Changes in absolute percentage in perceived violations of work no-smoking policies associated with lowest, moderate, and highest exposure categories: +2.01%, +0.89%, and +4.15%, respectively ($p = 0.03$).
Siegel, 2002	U.S.	Varies (review)	State TC programs focused on controlling secondhand smoke usually enact policies at state and local levels (precluding existence of state preemption laws); e.g., in CA and MA over three-quarters of indoor workers report working in smoke-free workplaces.
Gilpin et al., 2001*	CA	1990–1999	Indoor workers with smoke-free policies: 35% to 93% Indoor smoke-free policies: 73%, 30% relative increase from 1993; 88.6% of children and 47% of smokers in smoke-free homes
Norman et al., 2000	CA	Mar-July 1998	Smokers with home smoking ban: more than twice as likely to have heard of community programs (AOR = 2.27; 95% CI = 1.23, 4.21), almost three times as likely to have seen and discussed television ad about smoking around children (AOR = 2.87; 95% CI = 1.11, 7.41); in multivariate models, home smoking ban associated with average daily consumption ($p < 0.01$) and desire to quit (OR = 2.16; 95% CI = 1.26, 3.7).
Porter, 2000*	AZ	1996–1999	Indoor home smoking bans: increased from 32.2% to 41.1% for smokers, 30% to 43.9% for nonsmokers; total home smoking bans (including outdoors) decreased from 15.7% to 6.9% for smokers and 50.6% to 39.4% for nonsmokers.

Table 1—Recent Reviews on the Effectiveness of State Tobacco Control Programs

The conclusions of recent major reviews of comprehensive state programs are summarized in Table 1. The major studies identified in these reviews were identified and subsequently used for Table 2.

Authors	States	Program components	Main findings
Siegel, 2002	CA, MA, AZ, OR, FL	Comprehensive state programs	Media campaigns are the most critical component of successful state programs, and suspending campaigns and limiting their aggressiveness has resulted in reversals of consumption trends. Intervention at the local level is critical to success, especially in passing clean indoor air (CIA) policies. CIA policies are crucial to state programs because they protect the public from secondhand smoke, increase cessation, and reduce consumption. Campaigns that expose tobacco industry marketing techniques are demonstrably more effective in reducing initiation.
	CA	Dedicated excise tax, media campaign, smoke-free policies	Prop 99 (passed in 1988) resulted in a significant decline in consumption and prevalence among adults relative to the rest of the country; the media campaign in particular was effective at reducing consumption, beyond the effect of the tax increase. As funding for the program and the media campaign was cut, however, declines in consumption also slowed. Prop 99 also led to the proliferation of local CIA policies, with over 3/4 of indoor workers reporting smoke-free work sites. Reduced heart disease mortality (33,000 lives saved) within 1–3 years of the program's inception was shown.
	MA	Dedicated excise tax, media campaign, smoke-free policies	Question 1 (passed in 1992) was associated with a significant reduction in consumption and adult prevalence. Evidence suggests that youth exposure to media campaigns may be linked with lower rates of progression to established smoking. Local CIA policies, including smoke-free restaurants, have proliferated and over 3/4 of private sector indoor workers report smoke-free work sites.
	AZ	Dedicated excise tax, limited media campaign for youths and pregnant women	Prop 200 (passed in 1994) and resultant price increases resulted in reduced PCC, but no rigorous studies on adult or youth prevalence have been completed. Comparison of adult and youth trends with national data suggests prevalence may have decreased because of AZ's program. Prop 200 appears to have accelerated development of local CIA policies.

Authors	States	Program components	Main findings
	OR	Dedicated excise tax resulting in comprehensive program	Measure 44 (passed in 1996) has been linked with a significant decrease in consumption, above that expected from price elasticity[6] estimates, suggesting that components of the programs other than the tax increase are responsible. No published analyses have examined prevalence, but Behavioral Risk Factor Surveillance System (BRFSS) evidence suggests that prevalence might have declined as a result of the program. Preliminary evidence suggests that declines in youth prevalence may be due to varied implementation of programming, but further analysis is needed to verify that reductions are attributable to the program. In 1997 the first local smoke-free restaurant ordinances were established.
	FL	Youth-focused "truth" campaign	Medicaid Fraud suit (settled in 1997) resulted in funding of the "truth" media campaign focused on youths. Within 2 years of program implementation, youth smoking prevalence dropped significantly in middle and high school youths whereas rates increased in other states. Studies have also linked reported exposure to the truth campaign with decreased initiation for up to 2 years and showed a dose-response relationship between awareness and risk of initiation. State preemption laws have precluded local CIA policies.
Institute of Medicine, 2000	CA, MA, OR, WA, FL, AZ	Counter-advertising/education, smoke-free environments, taxation, cessation, youth access	Multifaceted programs reduce tobacco use, and a dose-response effect exists between intensity of programming and declines in consumption. Effects of counter-advertising depend on intensity and dose. Smoke-free work sites reduce illness and death from secondhand smoke, increase cessation, and reduce consumption among continuing smokers. Raising excise taxes decreases smoking prevalence and increases state revenue. Cessation programs are cost-effective. To be effective, youth access restrictions require maximum retailer compliance.
Wakefield & Chaloupka, 2000	CA, MA, AZ, OR, FL	Comprehensive state programs	Critical to program success are the extent of funding and the degree to which that is undermined by tobacco industry and other funding competitors. Prices influence adolescent and adult tobacco use; the addition of TC programs reduces consumption more than would be expected by price increases alone. Programs are associated with a decrease in adult prevalence (CA, MA, OR; AZ and FL data not yet available); because programs focus more on youths, the effects on adult prevalence are not yet known. Early evidence shows that programs can reduce youth smoking. Although youth prevalence rose across the rest of the U.S. in 1993–1996 (29% increase in grade 8 and 23% in grade 10), the comparable rates in CA were less (16% and 6%, respectively). MA reported a similar experience; FL reported greater relative declines than national trends in 30-day prevalence for middle and high school students in Feb 1998–1999.

[6] Price elasticity is the percentage change in demand resulting from a 1% change in consumer price. For example, a price elasticity of cigarette demand of –0.4 means that a 1% increase in price causes a 0.4% reduction in demand.

Table 2—Major Peer-reviewed Evaluation Studies

The citation, states included in the review, outcome measures discussed, and major findings of evaluation studies identified through a review paper or literature search are in Table 2. For more complete information and additional statistical details, see the navigational guide (pages 1-7) or the specific articles (Reference List, pages 23-26). Studies are organized by state, beginning with all states, and then by state in order of program implementation (CA, MA, AZ, OR, and FL) and within each state, in reverse chronological order of publication.

Authors	State	Outcome measures	Major findings
Farrelly et al., 2003	U.S.	Total consumption	Data on state aggregate cigarette sales, state and federal excise taxes, and state-level expenditures on TC programs were used; potential confounders were addressed by trend analyses taking into account changes in excise taxes, cross-border cigarette sales, and other state-specific factors such as unemployment and disposable income. Well-funded long-term state programs reduce tobacco use, and cumulative expenditures continue to affect cigarette consumption. Consistently well-funded programs show more dramatic declines over time that what would be expected from analysis of current or past program funding. One key simulation finding was that if states had funded at the CDC-recommended level of $6 per capita, consumption nationally would have declined by as much as an additional 9% by 2000, thereby doubling the existing rate of decline in sales.
Jemal et al., 2003	U.S. (33 states)	Mortality (lung cancer)	Rates of lung and bronchus cancers in young adults (ages 30–39) from 1990–1994 (r = –0.54; p = 0.0013) and 1995–1999 (r = –0.80; p = 0.0001) were highly inversely correlated with an index of TC in state. The index contains data on cigarette price and workplace and home smoking policies in 1992–1993. States were ranked; negative values are below median, positive are above median. Excluding outliers (KY, CA, WA) had little effect on results. Notably, the correlation of index with lung cancer rates became substantially stronger in 1995–1999 than in 1990–1994. The index was also moderately correlated (r = –0.56; p = 0.0008) with percentage change in the death rate during the 1990s (as more states implemented programs). The index was highly inversely correlated with smoking prevalence for ages 30–39 years (r = –0.81; $p < 0.0001$) and highly positively correlated with percentage of former smokers aged 30–39 who had quit (r = 0.82; $p < 0.0001$).
Stillman et al., 2003	U.S.	PCC, prevalence, TC policies	The strength of tobacco control (SOTC) index was created to reflect the extent to which states devoted resources to TC programming and was measured for all intervention (ASSIST) and control states (minus CA). The intermediate outcome variable—the initial outcomes index (IOI)—was a measure of policy change: the proportion of workers covered by smoke-free policies, cigarette real price, and rating of local CIA policies. After controlling for demographics and other state factors, the SOTC was related to PCC but was not significantly related to adult prevalence after adjustment for person-level factors. Notably, the capacity component of the strength of tobacco control index was significantly and inversely related to PCC regardless of ASSIST status. Although in 1993–1994, ASSIST states showed greater increases in IOI, after adjustment for the entire 8 years, both ASSIST and non-ASSIST states showed an increase in policy changes (as measured by IOI). States with a greater increase in IOI (from the 25th to the 75th percentile) over the 8 years showed a decrease in PCC of 0.57 packs/person/month.

Authors	State	Outcome measures	Major findings
Fichtenberg & Glantz, 2002	U.S.	Consumption, prevalence	Smoke-free work sites are associated with reduced prevalence of smoking by 3.8% and reduced consumption among continuing smokers of 3.1 fewer cigarettes per day. Enacting policies in all U.S. workplaces that do not yet have them would result in a 4.5% decrease PCC, the equivalent of raising excise taxes from $0.76 to $1.11.
Farrelly et al., 1999	U.S.	Prevalence, average daily consumption (ADC)	In a nationally representative cross-sectional sample of indoor workers with extensive demographic control variables, comprehensive workplace smoking bans (common and work areas) were associated with a 5.7% reduction in smoking prevalence and reduced daily consumption among remaining smokers by 2.7 cigarettes when compared with no smoking restrictions. Having work-area bans but allowing smoking in common areas reduced these effects by half. A partial smoking restriction in these areas was not associated with reductions in prevalence but with a 0.5 reduction in daily consumption. Comparisons of complete smoking bans with no smoking bans showed larger declines in ADC (–3.4 cigarettes) for older workers (ages 40–65; highest ADC) than for younger workers (–1.72 cigarettes for ages 18–24; lowest ADC), with ages 25–39 in between. Declines in prevalence were not as systematic among age groups: 7.8%, 4.5%, and 6.2% for ages 18–24, 25–39, and 40–65 years, respectively. Workers with less education than a high school diploma had the largest decline in ADC (–3.9 cigarettes); the decline in ADC for college graduates was –1.7 cigarettes. In industry groups, groups with highest prevalence (wholesale and retail trade) were most affected by the smoking ban: 30.5% decreased to 22.6%, or a 25.9% decline. Applying workplace bans to all work sites would give an additional 2.6 percentage points (10% decline) and a 7% decline in ADC among continuing smokers.
Manley et al., 1997	U.S.	PCC, tax policies, real prices of cigarettes	Early ASSIST evaluation showed PCC in ASSIST versus control states (minus CA) began to diverge significantly in 1994 and by 1996 achieved a 7% reduction. Both groups had a drop in real price in 1992–1993, but by 1994, prices in intervention states returned to 1992 levels whereas they were lower than 1992 levels in the control states (12.6-cent difference). Although no control state experienced a price increase in 1992–1994, 55% still showed a decrease in PCC. Of 14 intervention states with a price decrease, 11 (76%) showed a decrease in PCC. The 3 intervention states that had price increases decreased PCC as predicted, and the 3 remaining control states had no significant decline in PCC. Process evaluation showed that only 40% of ASSIST states were able to increase taxes in 1993–1994 whereas 1/3 of control states raised taxes during that time. The slope of the regression for effect of real price on PCC for intervention states shows a diminished effect of price, suggesting that elasticity of demand may be different when the program is in place.
Chen et al., 2003	CA	Youth prevalence	Modeling that estimates the effects of age, time period, and cohort on youth smoking trend in CA from 1990 to 1999 was used to estimate change in never smoking among CA youths ages 12–17 years. For cohorts born in 1978 and after (i.e., were 12 years or younger when the CA program began), there was an increase in the proportion of never smokers. During the decade, the proportion of never smokers increased for both boys (60% in 1990 to 69% in 1999) and girls (66% in 1990 to 70% in 1991). As all cohorts aged, the estimated effect of the program declined as smoking initiation increased with age. The authors conclude that the CA program may have prevented the onset of smoking in youth for those born after 1978.

Authors	State	Outcome measures	Major findings
Rohrbach et al., 2002	CA	Adult and youth prevalence, smoke-free environments	Assessed recall of exposure to multiple program components including media, community programs, and school programs. The unit of analysis was the county, and two cross-sectional observations were made in 1996 and 1998. Multicomponent exposure was significantly associated with reductions in adult prevalence, increases in home smoking bans, and reductions in perceived violations of workplace no-smoking rules over time ($p < 0.05$ for all). Although youth (grade 10) showed significant reductions over time from 27.4% to 21.8% in last 30-day smoking prevalence and in reported secondhand smoke exposure from 65.9% to 58.2% ($p < 0.05$ for both), these reductions were not associated with exposure to program components.
CDC, 2000	CA	Mortality (lung cancer)	SEER data from 5 states and 3 metropolitan sites (representing 9.5% of U.S. population, excluding CA) were compared with CA cancer registry and CA SEER data for lung and bronchus cancers. During 1988–1997 age-adjusted lung cancer rates in CA declined significantly compared with stable incidence rates for SEER data sites. During 1991–1997, CA lung cancer rates declined from 68 per 100,000 to 60.1, for an estimated annual percentage change (EAPC) of –1.9% per year ($p < 0.01$) from 1988 to 1997. In contrast, the non-CA SEER rate decline was not significantly different from zero (–0.4%). Overall, CA incidence rate decreased 14% from 1988 to 1997 whereas non-CA SEER rates declined 2.7%. For men the decline in CA (EAPC = –2.9%; $p < 0.01$) was 1.5 times greater than for the decline in SEER regions (EAPC = –1.8%; $p < 0.01$) in 1988–1997. For women rates declined 4.8% (EAPC = –0.6; $p < 0.01$) in CA but increased 13.2% in non–CA SEER regions (EAPC = 1.5; $p < 0.01$) in 1988–1997.
Fichtenberg & Glantz, 2000	CA	Mortality (heart disease)	Before 1989, age-adjusted heart disease mortality rate in CA was about 2/3 that of the U.S. The introduction of the CA TC Program was associated with a significantly greater annual rate of decline (by 2.93 deaths/year/100,000). After efforts that reduced the funding of the program in 1992, the rate of decline slowed (by 1.71 deaths/year/100,000) but was still significantly greater than that of the U.S. The program was thus associated with 33,000 fewer deaths in 1989–1997 (of total of 611,500 total deaths during this period); the campaign cutback in 1992 was associated with 8300 excess deaths in 1993–1997. Changes in mortality mirrored changes in PCC: before 1989, PCC declining slightly faster than in the U.S.; after 1989 PCC accelerated to –2.72 packs/year. After 1992 the decline was significantly reduced by +2.05 packs per year ($p < 0.04$), as compared with the period from 1989–1991.
Norman et al., 2000	CA	Smokefree environments–home, average daily consumption	This cross-sectional survey assessed smokers' exposure to CA state TC messages as well as behaviors. Smokers with a home indoor smoking ban were twice as likely (AOR = 2.27, 95% CI = 1.23, 4.21) to have heard of community programs to encourage home and car restrictions and were almost three times as likely to have seen and talked about a secondhand smoke TV ad (AOR = 2.87, 95% CI = 1.11, 7.41), after adjustment for demographic factors. Just seeing the "Baby Blocks" ad alone was not associated with smoking restrictions or ban; 6% of smokers saw and talked about the ad; of those, 53.8% had total home smoking ban compared with 40.1% of smokers who did not recall seeing the ad. In multivariate models controlling for demographics and attitude toward secondhand smoke, having a full smoking ban was significantly associated with average cigarettes smoked per day ($p < 0.01$) and desire to quit smoking (OR = 2.16, 95% CI = 1.26, 3.7).

Authors	State	Outcome measures	Major findings
Pierce et al., 1998b	CA	PCC, adult prevalence	Early program implementation (1989–1993) was associated with a 52% more rapid decline in PCC than previously in CA (from 9.7 packs/person/month in 1989 to 6.5 in 1993) and significantly greater than the decline in the rest of the U.S. (12.5 to 10.4; $p < 0.001$). In 1994–1996, CA's rapid decline in PCC slowed to 28% of the 1989–1993 decline (and 40% of the preprogram number) while the decline in the U.S. halted. By 1996 an average of 6 packs/person/month was sold in CA vs. 10.5 in the U.S. Before the CA program was implemented, adult prevalence was declining at about the same rate (0.74%/year) as the U.S. (0.77%). After program implementation, the rate of decline in CA prevalence accelerated to 1.06%/year while slowing in the rest of the U.S. to only 0.56%; thus, the rate of decline in CA was nearly 90% greater than in the U.S. in 1989–1993 ($p < 0.05$). The prevalence rate decline was significantly greater in 1990–1993 than in 1993–1996 for both CA and the U.S. The authors concluded that the decline in PCC cannot be explained by tax increase alone and that other program elements had an effect.
Popham et al., 1998	CA	Cessation	The effects of media campaign on cessation were qualitatively measured by asking smokers what helped them quit. Quitters were asked to recall three experiences that helped them to quit; 6.7% of them indicated advertisements (radio, TV, billboard) in uncued questions. When asked directly about the media campaign, 34.4% of respondents indicated that the ads had played a role in their decision to quit. Estimates are that for 33,000 former smokers in CA who quit in 1990–1991, the media campaign played a large part in their decision to quit whereas for an additional 140,000, it played at least some part.
Siegel et al., 1998	CA	Adult prevalence, quit ratio	In 1985–1990 a significant decline in adult prevalence occurred in CA (–1.22% annually, 95% CI = –1.51, –0.93) and the rest of the U.S. (–0.93% annually, 95% CI = –1.13, –0.73) as compared with rates in 1978–1985. In 1990–1994 the rates in CA slowed to –0.39% annually (95% CI –0.76, –0.03) but leveled off in the rest of the U.S. (–0.05% annually, 95% CI = –0.52, +0.12). The quit ratio (ratio of former smokers to former plus current smokers) was similar in CA and the U.S. in all time periods (1978–1985, 1985–1990, and 1990–1994).
Elder et al., 1996	CA	PCC	Average quarterly decline in cigarette sales adjusted per capita was 3.6% in CA and 2.4% in the rest of the U.S. in 1980–1988 and 7.9% in CA and 3.2% in the rest of the U.S. in 1989–1994. This was despite declining major brand sales in favor of generics and demographic shifts that would predict greater smoking in CA.
Hu et al., 1995a	CA	Total consumption, cigarette prices	Econometric models based on addictive substances showed that Prop 99 reduced consumption 8–9% in the short run and 10–13% in the long run. Authors pointed out that a 25-cent tax increase resulted in retail prices 21.2% higher than before the tax increase because of increased tobacco industry prices during 1988–1990.
Hu et al., 1995b	CA	PCC	Both the tax increase and the media campaign affected the decline in consumption in CA. The price elasticity due to the tax increase was –0.30 and for the media campaign was –0.05 for 1989–1992. For the 30 months from the 3rd quarter 1990 through 4th quarter 1992, sales dropped by 35 packs/adult (15+ yrs), with 79% and 21% of the reduction attributable to the price increase and the media campaign, respectively. Each reduced consumption in different ways; the tax provided economic disincentive and the media education was directed at the basis for demand for consumption.

Authors	State	Outcome measures	Major findings
Hu et al., 1994	CA	PCC	One month after implementation of Prop 99, PCC decreased by 25.7%, or 2 packs/adult, part of this being an overstocking phenomenon, where sales in the month preceding the tax increase were 10% higher than expected. This effect rapidly diminished, and after 3 years remained at a 9.5% reduction rate. Also found was a significant impact of the 4¢ federal tax increase in 1991 (–0.28 packs/adult), which was accounted for in the above analyses.
Glantz, 1993	CA	Total consumption, PCC	The rate of decline in total consumption (2%/year 1981–1988) more than tripled in 1989–1991 after Prop 99. In 1992 the decline decelerated after the media campaign was suspended and fell more slowly than before the campaign. PCC was decreasing at –4 packs/year before the campaign and doubled to –8 packs/year. In 1992 the decline slowed to –1.42 packs/year; this decline in PCC was not statistically different from the decline in the national rate as of 1993.
Bartosch & Pope, 2002	MA	Local TC policy	When multiple indicators of communities were considered (social and political demographics), state-level funding to local programs was strongly and significantly associated with the enactment of local TC policies. City size was also associated such that very small towns were less likely to have the capacity to help enact policies. No other city characteristics were significantly associated with enactment of local policies.
Rigotti et al., 2002	MA	Young adult prevalence (last 30 day use)	In a public college sample in MA, students aged 11–17 years in 1993 who attended high school in MA during the state program had a 39% lower current tobacco use rate than did students who attended high school outside the state after adjustment for demographic factors (age, sex, race, parental educational attainment, college residence). However, there was no difference in current cigarette use between the two groups after adjustment for residence. Because nearly all students who lived at home in college resided in the state during high school, separate analyses were conducted for those not living with parents. For these students, both current tobacco and cigarette use were significantly lower in students who attended high school in state vs. out of state, even after adjustment for controls (all tobacco use: AOR = 0.66, 95% CI = 0.45, 0.96; cigarette use: AOR = 0.58, 95% CI = 0.40, 0.87, $p < 0.01$).
Soldz et al., 2002	MA	Youth prevalence (lifetime and current use)	Cigarette, smokeless tobacco, and cigar use by middle and high school students was examined. Significant declines in 1996–1999 were noted for current use of all three types and lifetime use of cigarettes and cigars (but not smokeless tobacco). Among middle school students, significant declines for lifetime and current use of cigarettes and cigars were noted as well as lifetime smokeless tobacco use. High school students reported significant declines in current use of all three forms, but for lifetime use only the decline in smokeless tobacco was significant. Differences by gender and race/ethnicity were also noted, as well as grade 6 trends. (Grade 6 is not usually included in middle schools in MA.) For lifetime and current use of cigarettes, declines in MA were significantly greater than declines nationally or regionally for grades 6, 8, 10, and 12. However, for smokeless tobacco, rates were not different from those seen nationally or regionally (cigar use data not available nationally).

Authors	State	Outcome measures	Major findings
Weintraub & Hamilton, 2002	MA	Adult prevalence	In 1990 the difference between prevalence in MA and the U.S. (41 states that do BRFSS) was not significant, but by 1999 adult prevalence in MA (19.4%) was significantly different from the other U.S. states (23.5%; $p < 0.001$). After adjustment for changes in demographic characteristics, prevalence declined 17% in 1990–1999 (OR = 0.83, 95% CI = 0.70, 0.99) while there was no change in the U.S. (OR = 1.01, 95% CI = 0.97, 1.05). For MA men in 1990–1999, a 27% decline in prevalence was significant (after adjustment for demographics) while for women a 5% decline was not significant. There were no significant differences in the U.S. in same time period in men or women.
Biener et al., 2000	MA	PCC, adult prevalence	PCC declines were similar in MA (15%) and the U.S. (minus MA and CA; 14%) from 1988 to 1992, an annual rate of decline of around 3–4%. In 1993 (program implementation), PCC continued to decline in the rest of the country (minus CA) at 4% but dropped 12% in MA in response to the tax increase. Because of national tobacco industry price declines in 1993, the national PCC decline slowed to 1% annually until 1997 (last year national data were available) whereas the MA decline remained at 4% annually until 1999. Similarly, adult prevalence rate slope for 1992–1999 for comparison states (40 states that participate in BRFSS) was 0.03%/year (95% CI = –0.06% to 0.12%) per year, not statistically different from zero. The rate in MA was –0.43% (–0.66% to –0.21%) per year, a significant decline compared with the rest of the U.S. ($p < 0.001$).
Siegel & Biener, 2000	MA	Youth initiation	Using a cohort design with a 4-year longitudinal follow-up, this study found that youths aged 12–13 years reporting exposure to television antismoking ads from a state program were half as likely to have progressed to established smokers. No effect was found for youths aged 14–15 years. No effect was found for either age group for exposure to radio or outdoor (e.g., billboard) ads. This study controlled for many potential confounders including demographics, friends' and parental smoking, TV viewing, baseline susceptibility, and smoking status. Of 8 potential mediators investigated, perceived prevalence of youth smoking was significantly related for ages 12–13 years such that those reporting exposure to television antismoking ads were more likely have an accurate rather than inflated perception of youth prevalence.
CDC, 1996	MA	PCC	After a tax increase in MA, PCC decreased by 19.7% in MA and 6.1% in U.S. (minus CA) in 1992–1996. After tobacco industry–wide price decreases in 1993 that brought real prices back to pretax increase levels, PCC continued to decrease in MA while remaining constant in the U.S. (minus CA). This reduction cannot be accounted for by cross-border purchasing. Thus, the media campaign is likely to be responsible for the decreased PCC because price estimates alone would suggest increasing consumption. This suggests that a media campaign can be more effective in reducing PCC than a tax increase alone.

Authors	State	Outcome measures	Major findings
CDC, 2001	AZ	Adult prevalence, health care provider behavior	After implementation of the 1994 tax increase, a comprehensive program was established in 1995. Smoking prevalence dropped significantly from 23.1% in 1996 to 18.3% in 1999. Rates declined among men (25.3% to 19.7%), women (21.3% to 16.9%), whites (23.4% to 19.1%). and Hispanics (21.9% to 13.7%). The greatest decline among income groups was for those making less than $10,000/year (31.2% to 22.8%). Increases occurred in the proportion of smokers reporting health professional asking about tobacco (30.9% to 43.7%) and asking about plus advising them to quit (25.7% to 36.7%). Increases also occurred in the proportion of smokers reporting dentists asking about and advising against tobacco use (9.9% to 24.9%). Cross-sectional studies cannot link outcomes to a program nor differentiate between the tax and price increases and program components.
CDC, 1999	OR	PCC	Cigarette sales data in OR and U.S. (minus AZ, CA, and MA) were compared 1 year before and 2 years after implementation of an OR state program. In 1993–1996, PCC increased 2.2% in OR and decreased 0.6% in the U.S. In 1996–1998, PCC in OR decreased 11.6% (from 92 to 82 packs) despite a 2.6% increase in the state population. In the U.S. in 1996–1997, PCC decreased 1% (from 93 to 92 packs). Using a price elasticity of –0.4%, a price increase of 15.8% (as was the OR tax increase of $.30 to $.68) can be expected to reduce PCC by 6.3%. Because the decline in the state of OR was 11.6%, it is likely the implementation of the comprehensive state program resulted in reduced PCC above the tax effect.
Sly et al., 2001	FL	Youth prevalence, ad awareness, knowledge and attitudes	A media campaign with the theme of tobacco industry manipulation, with a baseline of an aggressive governor-sponsored public service announcement smoking-deglamorization campaign, was compared with control states that had no TC program. Confirmed awareness (being able to describe theme) of ads reached 93% by 1 year, with 89% of those reporting TV exposure; nationally, only 30% reported exposure to any TV ads. Regarding receptivity of ads, FL youths rated the industry manipulation ads higher than the public service announcements (liking ads –83% vs. 37%, talking with friends about ads –10% vs. 34%, ads made them think about not smoking –61% vs. 28%). Compared with other states, FL youths showed a higher awareness of anti-tobacco ads at baseline (54% to 41%) and higher confirmed awareness (30.2% vs. 6.1%). Two receptivity measures were twice as high in FL, and the "talked with friends" measure was 6 times greater in FL. For all youths combined and youths <16 years, significant declines occurred in cigarette use and susceptible nonsmokers whereas comparable national rates either decreased less or increased. In youths 16+, FL declines were not significantly different from national rates except for the decrease in susceptible nonsmokers.

Authors	State	Outcome measures	Major findings
Bauer et al., 2000	FL	Youth prevalence, intentions and behaviors	Changes in cigarette use prevalence in the 1998, 1999, and 2000 surveys were examined among middle school students (MSS) and high school students (HSS). Current use significantly declined 40% in MSS (18.5% to 11.1%; $p < 0.001$) and 18% in HSS (27.4% to 22.6%; $p = 0.01$). Frequent use decreased significantly from 5.4% to 2.9% ($p < 0.001$) among MSS and 13.5% to 10.4% ($p < 0.001$) in HSS. Never users increased from significantly from 56.4% to 69.3% ($p < 0.001$) in MSS and from 31.9% to 43.1% ($p = 0.001$) among HSS. Experimenters decreased from 21.4% to 16.2% ($p < 0.001$) in MSS and 32.8% to 28.2% ($p < 0.001$) in HSS. Current use decreases were significant in all subgroups except non-Hispanic black HSS, who had the lowest current smoking prevalence of any group. Among never users, those reporting commitment to not smoke increased significantly from 67.4% to 76.9% ($p < 0.001$) among MSS and 73.7% to 79.3% ($p < 0.001$) in HSS; increases were seen for all subgroups except for non-Hispanic white HSS. Among experimenters, those reporting intention to not smoke again increased significantly from 30.4% to 42% ($p < 0.001$) in MSS and 44.4% to 51% ($p < 0.001$) in HSS from 1998 to 2000.

Table 3—State Reports Not Published in Peer-reviewed Journals

These reports are organized in alphabetical order of the state abbreviation, and include Arizona (AZ), California (CA), Massachusetts (MA), Maine (ME), Mississippi (MS), Nebraska (NE), Oregon (OR), Texas (TX), and Washington (WA). Multiple state reports are presented in reverse chronological order.

Authors	Report years	State	Outcome measures	Major findings
AZ Dept. of Health Services, 2003	1997–2000	AZ	Youth prevalence	High school youth smoking rates in AZ declined 21% from 31.3% in 1997 to 24.6% in 2000. Nationally, the high school smoking rate in 2000 was 34.5%, but these rates are not comparable because an insufficient number of AZ high schools was surveyed. Among middle school students, smoking rates declined 39%, from 18.7% in 1997 to 11.4% in 2000 compared with 15.1% nationally in 2000.
Porter, 2000	1996–1999	AZ	Adult prevalence, smoke-free environments, knowledge, health providers' behavior	Adult smoking rates declined 21% from 23.8% in 1996 to 18.8% in 1999. The 18–24 age group showed a 24% decrease from 27.5% to 21%. Hispanic smoking prevalence decreased from 23.5% in 1996 to 14.6% in 1999, the greatest reduction of any ethnicity group. For the 18–24 age group, age at first use increased from a median of 15 years in 1996 to 16 years in 1999. Reports of smoking bans at home decreased significantly both for smokers (from 15.7% in 1996 and 6.9% in 1999) and nonsmokers (from 50.6% to 39.4%). However, the proportions of those reporting outdoor-only smoking increased significantly from 32.2% to 41% among smokers and 30% to 43.9% among nonsmokers. Those reporting no home restrictions also decreased among both groups. Knowledge of health risks from secondhand smoke and smokeless tobacco use improved slightly but less than 25% of respondents believed that tobacco is as addictive as "hard" drugs. Reported exposure to different anti-tobacco media messages changed from 1996 to 1999: significant increases included radio from 38% to 43% and billboards from 40% to 55%; significant decreases included pamphlets from 41% to 36%, newspapers from 47% to 41%, and magazines from 47% to 44%. TV exposure remained stable at 79% and 78% and was the most common source of information for males and females and for all age and ethnicity groups.
Gilpin et al., 2001	1990–1999	CA	PCC, adult and youth prevalence, smoke-free environments, cessation	PCC reduced by 57%, compared with 27% in the rest of the U.S. (partially because of an 18.6% decline in daily smoking among continuing smokers). Over 60% of smokers smoke <15 cigarettes/day and over 20% of current smokers are nondaily smokers. Adult prevalence decreased to 17.5% but has remained stable since 1994. Proportions of smokers attempting to quit increased from 49% to 60%. Despite an increase in youth 30-day prevalence in 1993–1996, the 1999 rate of 7.7% was significantly lower than the 1990 rates. Youth committed to never smoking rose from 17.7% in 1996 to 65.7% in 1999. Perceived ease of buying a pack of cigarettes decreased significantly from 52% to 27%. Percentage of indoor workers reporting smoke-free policies increased from 35% to 93%. However, since 1996, nonsmokers reporting recent exposure to secondhand smoke in their work area increased from 12% to 16%. CA residents living in smoke-free homes was 73%, up 30% from 1993, including 88.6% of children and 47% of smokers.

Authors	Report years	State	Outcome measures	Major findings
CA Dept Health Services (DHS), 2000	1989–1999	CA	Costs, cost savings, PCC, youth prevalence	There were 1 million fewer smokers than would have been expected before Prop. 99 (using BRFSS trend data from 1984–1998). PCC has fallen by more than 50% since Prop 99 was passed, reaching a low of 61.3 packs/adult in 1998–1999 vs. the U.S. packs PCC of 106.8 in 1999. Taking into account direct medical costs alone, the CA TC Program saved an estimated $3.01 billion, or $3.62 for every dollar spent on the program. An additional $5.4 billion was saved in indirect costs. Youth prevalence declined 43% from 12.1% in 1995 to 6.9% in 1999. Much of this decrease was likely due to the 40% increase in cigarette price that occurred in CA in 1999, as prevalence decreased 35.5% in 1998–1999 alone. CA data compared with national data (minus CA) show that in 1996–1999, 30-day prevalence rate decreased 45% in CA and 15% in the rest of the U.S. in grade 8. Similarly, prevalence in grade 12 declined 13% in CA vs. 5% in the rest of the U.S. in 1997–1999.
Pierce et al., 1998a	1989–1996	CA	PCC, adult and youth prevalence, smoke-free environments	In 1989–1993 adult prevalence and PCC declined over 50% faster than previously in CA and over 40% faster than rest of the U.S. In 1993–1996, rates slowed to slower than the previous period, with declines in prevalence similar to that in the U.S. whereas PCC in the U.S. remained constant. Additionally, even though prevalence decline leveled off in CA in 1993–1996 because of a greater decline in average daily consumption among continuing CA smokers relative to the U.S., PCC continued to decline in CA. From 1989 to 1996, an estimated 2 billion fewer packs were sold in CA, a cost to the tobacco industry of $3 billion in lost sales. Despite high awareness of media campaigns, youth smoking remained stable in 1989–1993 but increased 26% in 1993–1996. Indoor workers having smoke-free workplaces increased nearly 160%, from 35% in 1990 to >90% in 1996. In 1990–1996, indoor workers exposed to secondhand smoke at work decreased from 29% to 11.7%. For children, exposure to secondhand smoke at home decreased 55% from 29% in 1992 to 13% in 1996.
Abt Associates, Inc., 2000	1994–2000	MA	PCC, adult, youth and pregnant women prevalence, smoke-free environments, attitudes, cessation	PCC decreased by 36% compared with 16% in other states (minus CA). Adult prevalence decreased from 22.6% to 17.9%, which was a greater increase than in other states (minus CA), even after accounting for demographic changes. Most of this decrease was attributed to males, who decreased 1.6% annually from 25.1% in 1990 to 19.6% in 1999 (p = 0.02) compared with a 0.8% annual increase nationally among men (p = 0.02 for comparison). Smoking by pregnant women fell from 25% to 11%, the largest decrease in the U.S. Youth prevalence decreased from 36% to 30% in 1995–1999 while remaining stable nationwide. Smokeless tobacco use by high school males decreased 50% from 17% in 1993 to 8% in 1999. Exposure to secondhand smoke fell at work from 44% to 29%, at home from 28% to 18%, and at restaurants from 64% to 39%. Retailer compliance with youth access restrictions increased sharply from 53% to 90%. Public support for smoking bans increased as well as knowledge of the harms of secondhand smoke; both nonsmokers (96%) and smokers (91.2%) believe that secondhand smoke can harm children. State and local laws, new taxes, and advertising restrictions have followed program implementation. The quit success rate increased from 17% in 1993 to 25% in 1997–1999, showing that smokers who attempt to quit were more likely to succeed with the comprehensive program in place.

Authors	Report years	State	Outcome measures	Major findings
Harris, 1999	1990–1996	MA	Pregnant women prevalence, cost savings	In 1990 the rate of reported smoking during pregnancy according to birth certificate data in MA was about 7 percentage points higher than the national rate (of those states that collect smoking data on the birth certificates). The MA state program significantly decreased the rate of reported smoking during pregnancy in MA by 47.8% compared with 26.1% in the U.S. The decrease in MA occurred over 1990–1996 but the largest 1-year drop was from 23.3% in 1992 to 16.5% in 1993, coinciding with implementation of Question 1. By 1995 the MA rate was lower than the U.S. rate, and by 1996 it further declined to 13.2%. Because of a 3% decline in prevalence in current smoking, an estimated 140,000 fewer adults smoked in 1998. With established attributable risk calculations, an estimated $85 million is saved annually in public and private expenditures by attributing 2% of the decline in prevalence to the campaign. In the author's view, these estimates are conservative and effect of campaign is likely to be greater.
Gallup Organization, Inc., 2003	1994–2001	ME	PCC, adult and youth prevalence	Since the start of the Partnership for Tobacco Free Maine (PTM) and an increase in tobacco tax from $0.34 to $0.74 in 1997, the PCC decline has more than tripled its previous rate of decline; however, it remains above other states with aggressive state TC campaigns. PCC declined 19% from 132.8 packs/year in 1997 to 107 packs/year in 2000. Adult prevalence remained consistently higher than the national average for most of the 1990s. The biggest drop in adult prevalence occurred in 1996–1997 and the decrease continued until 1998. For high school students, last 30-day prevalence increased from 1993 to 1997 but decreased from 39.2% to 38% in 1997 to 24.8% in 2001. Media coverage of PTM has significantly increased since it began. The establishment of public smoke-free places has increased. Tobacco sales to minors decreased from 44% in 1994–1995 to 7% in 2000–2001 according to Synar data.
McMillen & Baldwin, 2003	1998–2002	MS	Youth prevalence, knowledge and attitudes	From 1999 to 2002, current (past 30 days) smoking in public middle school students (MSS) declined from 23% to 11.9% while declining among public high school students (HSS) from 32.5% to 23.1%. In both groups, the declines from 2000 to 2002 were statistically significant. Overall, since program implementation, current smoking declined 42% in MSS and 24% in HSS. Although male HSS showed a significant decline of 33.9% in 1998 to 25.1% in 2002, the female HSS decline of 27.1% to 21.1% from 1998 to 2002 was not statistically significant. Similarly, frequent smoking (>20 of last 30 days) declined significantly for male HSS from 17.3% to 10.4% while the female HSS decline of 11.6% to 7.8% was not significant. Ever-smoking rates for male (78.7% to 64%) and female (72.6% to 59.3%) HSS declined significantly from 1998 to 2002. For MSS, current-smoking rates declined significantly for both males (23% to 12.1%) and females (18.2% to 11.5%) from 1998 to 2002. Frequent smoking in MSS declined significantly for males (6.8% to 3.2%) but not for females (3.6% to 2.2%). Ever smoking declined significantly for male and female MSS. Ever-smoking rates for grades 8–12 declined significantly from 1998 to 2002.

Authors	Report years	State	Outcome measures	Major findings
McMillen et al., 2003	2000–2002	MS	Adult knowledge, attitudes	Many attitudes regarding tobacco use and smoke-free environments showed significant improvement among adults. Universal beliefs (>85%) were that children should not smoke, adults should not smoke around children, and parents' secondhand smoke harms children. Significant improvement from 67.6% in 2000 to 80.8% in 2002 in the belief that schools should prohibit clothing or goods with tobacco logos. Support for tobacco regulation as a drug increased significantly from 67.9% in 2000 to 73.2% in 2002 compared with 63.7% and 66% for the U.S. Those reporting smoking ban at all work areas rose significantly from 53.2% in 2000 to 64.7% in 2002 compared with 65.7% and 65% for the U.S. Adults reporting strictly enforced tobacco policy at workplace increased from 72.3% in 2000 to 85.4% in 2002 compared with U.S. rates of 78% and 80.7%. Less than 20% reported employers offering cessation program in last 12 months in all years. Although 85% of MS adults believe that smoking cigarettes is very dangerous, 76.9%, 75.3%, and 72.5% believe that cigars, snuff, and chewing tobacco, respectively, are very dangerous; none of these rates changed significantly from 2000 to 2002. In the U.S. these same beliefs increased in same time period to rates comparable with that of MS. MS respondents were less likely than U.S. respondents to report smoke-free restaurants, bars/taverns, convenience stores, indoor shopping malls, or outdoor parks but were similarly likely to report believing that these should be smoke-free venues.
Willet et al., 2003	2000–2003	NE	Smoking bans, youth prevalence, cessation	Youth 30-day smoking prevalence declined significantly from 30.5% to 24.1% in 2001–03, down from 39.2% in 1997 and 37.3% in 1999. A 30% increase occurred in youths reporting never having smoked a cigarette, from 30.5% in 1997 to 39.8% in 2003. Compliance of youth access laws increased from 67.8% to 81.2% in 2003. From Aug 2002 to Oct 1, 2003, the quitline received more than 6,600 calls seeking cessation counseling/information; the proportion of callers who heard about the quitline from their physicians increased (~4% overall). Additionally, the quitline reached its goal of reaching a lower-income socioeconomic group, because 54% of callers reported household income of less than $15,000. Awareness of dangers of secondhand smoke increased as did reports of home or workplace smoke-free policies. More than 70% (71.1%) of Nebraskans support local ordinances banning smoking in restaurants although no city or county in NE has a comprehensive ban for public places.
OR Dept of Human Services, 2003	1996–2003	OR	PCC, adult, youth, and pregnant women prevalence, smoke-free environments	PCC decreased by 30%, steeper than that of other states (minus AZ, CA, MA, OR). Adult smoking prevalence decreased 13% from 23.4% to 20.4% compared with an 8% decrease in the U.S. Smoking by pregnant women fell 28% and saved an estimated $1.3 million in caring for low-birth-weight infants. Smokeless tobacco use declined 48% among men, from 9.4% to 4.9%. Youth smoking prevalence declined 47% for grade 8 and 26% for grade 11, the latter of which is lower than the U.S. rate. Smokeless tobacco use among teens also declined; use dropped 45%, from 22.7% to 12.5%. More than 95% of work sites are now covered by smoke-free law. Homes with smoke-free policies increased from 71% to 81% and to 95% of homes where women had recently given birth in 2000.

Authors	Report years	State	Outcome measures	Major findings
Meshack et al., 2003	2000–2002	TX	Adult awareness and use of cessation services, adult prevalence	The effects of the Texas Tobacco Prevention Pilot Initiative (TTPPI), which randomly assigned interventions to regions to assess effectiveness, are summarized. Regions 5 and 6 received intensive pilot activities and adults reported more awareness (23.1% vs. 13.8%) and use (2.7% vs. 1.2%) of telephone counseling services and higher rates of cessation (11% vs. 9.5%). Cessation differences were due mainly to differences among women. No significant differences in prevalence occurred among the regions in 1999, but at the end of the initiative, declines in pilot areas were twice as large as declines in nonpilot areas (5.1% vs. 2.5% absolute percent reduction, 21% vs. 11% relative reduction). Estimates are that there were about 90,000 fewer smokers than if TTPPI had not been implemented. An experimental evaluation of the telephone counseling service provided by American Cancer Society (ACS) compared 1,014 callers (of total 12,500 to date) with randomly received booklets and the new telephone counseling service or mailed self-help booklets. Receipt of telephone counseling led to significantly higher 1-year cessation rates (20.7% vs. 13.2%), not taking into account loss to follow-up. Conservatively assuming that those lost to follow-up were still smoking halves success rates, but rates are still significantly different. Effects among young adults (18–25 years) were also assessed; 1-year follow-up cessation rates were 36% for counseling and booklets vs. 11% for booklets only.
WA State Dept of Health, 2003	1999–2002	WA	Adult and youth prevalence	From 1999 to 2002 there was an 8% decrease in adult smokers. More smokers attempted to quit (26% in 2002) than before the launch of the program (15% in early 2000). Overall, last 30-day youth smoking decreased 40% in 1999–2002, and a 30% decrease in high school youths who have ever tried smoking. The reduction in prevalence among high school youths in 1999–2002 was twice the U.S. rate of decline.

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