



STATE POLICY GUIDE:

Using Research in Public Health Policymaking

A Publication of The Council of State Governments



Acknowledgements

We greatly appreciate the advice and contributions provided by the following reviewers to the authors of this policy guide.

State Legislator and Staff Reviewers

North Dakota Rep. Jeff Delzer; Jenee Gonzalez of the Texas Senate legislative committee staff, Oregon Rep. Mitch Greenlick, Missouri Sen. Harry Kennedy, Massachusetts Sen. Richard Moore and Texas Sen. Leticia Van de Putte

Other Reviewers

Dr. Ellen Andrews, health policy consultant, CSG East Region; Dr. Sharon Arnold, vice president, AcademyHealth; Dr. Georges Benjamin, executive director, American Public Health Association; Dr. Mark Helfand, director, Evidence-Based Practice Center, Oregon Health & Science University; Carmen Hooker Odom, president, Milbank Memorial Fund; Paula Roy, executive director, Delaware Health Commission; John Selig, director, Arkansas Health and Human Services

We greatly appreciate the input from many scientists at the Centers for Disease Control and Prevention and especially note the valuable insights provided by Dr. Peter Briss, CDC science officer and former director of The Community Guide, Dr. Shawna Mercer, CDC director of The Community Guide, and Dr. Anthony Moulton, co-director of the CDC Public Health Law Program.

About This Guide

This guide describes the benefits of using research results to make state policy decisions on public health and other health and human services concerns. In addition to considering budgetary constraints, how well a policy fits in your state, public opinion and other political factors, state legislators can effectively apply the cumulative lessons from public health research by working closely with researchers and other experts.

Specifically, this guide will help legislators and their staffs understand:

- How to use research results to produce effective public health policies and programs and to spend public resources as wisely as possible;
- Ways to work with researchers and other experts to understand and apply research evidence on successful programs;
- Key concepts and terms used by public health researchers;
- How research evidence varies in strength, and what must be considered to determine the likelihood a program or policy will work for your state;
- Tips for using research when drafting legislation;
- How to work with coalitions of experts and advocates to advance public health issues;
- Resources for finding more information about public health policy recommendations based on research results; and
- How one state used research results to make a measurable positive difference in people's lives.

We hope this guide will become a handy reference tool as you address public health and other policy issues in your state.

TABLE OF CONTENTS

SUMMARY—10 KEY POINTS	iii
WHY USE RESEARCH RESULTS IN POLICYMAKING?	1
Why Should Legislators Use Research Evidence in Public Health Policymaking?	1
Why Aren't Effective Programs Always Implemented?	2
UNDERSTANDING PUBLIC HEALTH RESEARCH: KEY FACTS AND TERMS	3
What Issues Are Addressed in Public Health Research?	3
Questions to Ask Researchers and Experts About What Works	4
How Do Researchers Measure Success of Policies and Programs?	5
USING RESEARCH RESULTS IN POLICYMAKING	7
Selecting Policy Options and Developing Policy Strategy	8
Drafting Public Health Legislation	9
Reviewing Proposed Public Health Legislation	10
Legislative Oversight	11
Developing Champions for Public Health Programs.....	11
CONCLUSION	13
APPENDICES	15
A. Measuring Effectiveness of Public Health Policies and Programs	16
Example: Using Cost-effectiveness to Set Policy on Flu Vaccines for Children	18
B. Translating Research into Public Health Policy: Types of Recommendations and Examples ...	19
How Do Researchers Identify Highest Potential Policies and Programs?	19
Examples: Research-based Recommendations on Public Health Policies	21
Cost-Saving Public Health Policies	21
Cost-Effective Public Health Policies	22
Good Ideas for Public Health	23
No Consensus on Effectiveness Public Health Policies	24
Discouraged Public Health Policies	25
C. Resources on Public Health Research Results, Policies and Legislation	26
Policy Recommendations Based on Research	26
State Legislation and Programs Based on Public Health Research	27
D. State Success: California Uses Research to Create Tobacco Use Policies	29
What are the Research-based Recommendations to Control Tobacco Use?	29
How is Research Used to Predict the Impact of Increasing Tobacco Taxes?	30
How Did California Legislators Use Research to Develop Policies?	30
California's Tobacco Use Policies: Future Challenges	31
E. References	32



Summary — 10 Key Points

1. Research results can be used to make informed policy decisions to improve the effectiveness of state public health programs and improve the health of the population.
2. Knowing what the research shows about program effectiveness can help you make better decisions on how to spend state funds.
3. Research on what works is constantly being expanded and the number of recommended public health policies and programs is increasing. Based on the strength of research results on effectiveness, researchers translate the evidence into public health policy recommendations.
4. Careful comparison of your state's population with populations included in research studies can help determine programs or policies that likely will work in your state.
5. Researchers assess the success of policies and programs by measuring their cost and effectiveness and gauging the strength of the research results. The strongest evidence is obtained from summaries of multiple research studies called systematic reviews. Researchers can recommend public health policies as cost-saving, cost-effective, or good ideas based on the strength of the evidence. However, they may also determine that no consensus on a program's effectiveness exists or may discourage using a program.
6. Research results can be used as you develop policy strategy, draft legislation, evaluate proposed legislation or monitor program progress. By working with an advisory group that includes researchers and public health experts you will be able to consider the research available throughout the process.
7. In deciding to propose or support a legislative proposal, you can weigh the strength of the research results supporting the proposal as well as the political and spending priorities in your state.
8. Developing champions and working with informed coalitions can increase your knowledge on what works in public health and help advance the health of the people in your state.
9. Information on recommended state policies and legislation based on public health research results are available from national sources.
10. By funding evaluation research as part of public health programs, legislators can play a key role in establishing the evidence to improve effectiveness of programs and to reap maximum benefits from state public health efforts.

WHY USE RESEARCH RESULTS IN POLICYMAKING?



HAVE YOU BEEN THERE?

You and your fellow state legislators are debating the merits of a bill that would require schools to offer at least 60 minutes of physical activity each week in kindergarten through 12th grade. The discussion reminds you of the morning headlines stating nearly one-third of children in the U.S. are overweight and the public's concern that the issue has reached a critical level.

You've heard many proposed solutions from advocacy groups, including mandating school physical activity and limiting unhealthy foods sold in school vending machines. Yet the costs and direct benefits of these proposals are unclear. How can research help you decide which proposals to support? How can you find the right information and decide between conflicting reports?

Why Should Legislators Use Research Evidence in Public Health Policymaking?

As health care costs continue to rise, state policymakers are examining successful disease prevention approaches and are applying research results when allocating limited state resources. They are working alongside researchers to consider health research results in making public health policy decisions. As new research results become available, projects are underway internationally, nationally and in states to more quickly implement programs that are proven effective.^{1,2,3,4}

Public health policies are those that protect health and prevent illness in entire communities or populations. Medical care or clinical policies also focus on disease treatment and prevention, but for individual patients.⁶ Public health programs, for example, seek to assure clean water and improve sanitation, as well as to encourage people to be physically active, get vaccinated, stop smoking and avoid injuries from motor vehicle crashes.⁷

Key points in this chapter:

1. Research results can be used to help make informed policy decisions to improve the effectiveness of state public health programs and to improve health of the population.
2. Knowing what the research shows about program effectiveness can help you make better decisions on how to spend state funds.



State Examples: Public Health Policies Supported By Research

- Encourage people to use their insurance coverage for primary health care preventive services
- Promote health and safety in the workplace
- Educate the public on disease prevention through mass media campaigns⁵

Immunizations policy is a good example of one that has both medical care and public health policy aspects. The medical care policy is to give vaccinations to children and adults as recommended, while public health programs encourage people to get vaccinated or remind health care providers to give vaccinations.

Research results can be used to inform many stages of state legislative policy:

- *Legislating*
 - Identify key problems for your state and the program and policy options to address these problems. Use the evidence to identify the actions most likely to succeed in your state.
 - Identify the locations within your state that best fit the program by considering the characteristics of communities where research indicates the programs and policies are successful.
 - Specify expected costs of a program or policy, as well as the goals, expected benefits and potential savings.
- *Appropriating*
 - Assure best use of limited resources by funding the most effective policies and programs.
 - Provide necessary funding to achieve expected health outcomes.
 - Target communities best suited for the program for funding opportunities.
- *Oversight*
 - Compare actual outcomes with expected outcomes, and determine if programs are being implemented effectively and efficiently.
 - Describe the community characteristics where the program achieved desired results.
 - Clarify why desired health gains were, or were not, achieved.

Why Aren't Effective Programs Always Implemented?

Even very strong evidence that prevention programs work does not guarantee they will be widely implemented. Consider, for example, the case of anti-smoking policies. Comprehensive tobacco control policies including the full complement of policies recommended by research—mass media anti-smoking campaigns, smoke-free indoor air policies, increased tobacco prices, restricted youth sales and telephone counseling lines—can prevent significant numbers of young people from starting to smoke. Two policies—indoor smoking bans and mass media education campaigns—are particularly effective in discouraging smoking and other tobacco use, although the more costly mass media campaigns have not been widely used.

Why haven't more states adopted all effective components of a comprehensive anti-smoking policy? The answer is that policy implementation requires a variety of conditions, not just research that proves a program works. Other factors such as budgetary constraints, how well the policy fits in the state, public opinion, lobbying efforts and other political factors determine whether a policy will be supported or opposed.

Strong research showing effectiveness can greatly enhance the case supporting a policy or program. Legislators who are able to understand and communicate research results to their colleagues and constituents can more effectively champion public health policies that can save lives, prevent diseases and reduce costs.

UNDERSTANDING PUBLIC HEALTH RESEARCH: KEY FACTS & TERMS



HAVE YOU BEEN THERE?

Although tooth decay is preventable, it occurs in two-thirds of adolescents and 90 percent of adults. Locally, too many students in your district are absent from school due to dental problems and don't have access to dental services, so you are looking for programs that work. National experts endorse research indicating that community water fluoridation effectively reduces tooth decay and saves more than the program costs. Still, one-third of Americans do not have fluoridated water supplies.

You are wondering how to find out what exactly this cost-savings label means. How do researchers make this claim? How long would it take for savings to accrue in your state if community water supplies were fluoridated?

Research can help you identify policies and programs that work to improve public health. How many lives can be changed, or how much disease can be avoided? Will it work in your community? What will the costs be? Will there be any cost-savings? Answers to these questions are available from the growing body of public health research results. The evidence can be used to determine the potential benefits that could result from wider implementation of many public health practices. This chapter will help you understand how to evaluate studies covered in the news media and those recommended by experts.

What Issues Are Addressed in Public Health Research?

Public health policies promote or protect health and prevent illness in entire communities,⁸ and differ from **medical care policies** that focus on preventing or treating diseases in individual patients. Public health research focuses on community-based policies aimed at changing behaviors in the community as a

Key points in this chapter:

1. Research on what works is constantly expanding, and the number of recommended public health policies and programs is increasing.
2. When the research evidence about what works is sufficiently strong, researchers translate the evidence into public health policy recommendations.
3. Strong research results can be used to assess how likely a program or policy will work in your state.
4. Researchers assess the success of policies and programs by measuring their cost and effectiveness and gauging the strength of the research results.

whole. Since communities are much more complex than individuals, it is more difficult to determine whether what works in one community will always transfer to other communities. For example, a health education message that works well in a risk-averse community may have the opposite effect in a community that tolerates a high level of risk.⁹ Participants in public health policies include communities, schools, health care providers, employers, the media, academia and health officials in the state, local and federal government.¹⁰ All participants can provide insight to whether a program that has been effective in one community will work in another one. Because of these unique circumstances, public health policies and programs require continued evaluation of effectiveness.

Questions to Ask Researchers and Experts About What Works

When developing public health policy, you can request information from researchers, state and local public health officials, and other community-based experts and stakeholders to find answers to questions like these about proposed public health policies or programs.^{11, 12, 13}

1. How large and important is a given public health problem in your state, and how much of the problem will be solved by the proposed program or policy?
2. What savings in illness or treatment costs can be expected from the proposed policy? How confident are the researchers that the expected benefits will occur?
3. Does the research indicate any possible adverse effects or costs from the proposed policy that you would need to address?
4. Was the research conducted in communities similar to those in which the program would be implemented? How good is the research evidence that the program will work for your local circumstances in terms of literacy, income, health services, cultural values and access to communications media? Does the research describe how these factors affected the outcomes?
5. What are the feasibility and the costs of implementing the program/policy in your state? What state and local resources already exist, and which resources would need to be developed or expanded?
6. If the research does not determine that a program or policy is effective, is the program:
 - a. *Undetermined*—where its success has yet to be determined? *or*
 - b. *Ineffective*—where evidence exists that it does not work?
7. If research results are not available on the program or policy, or if the results are not conclusive, what do national and state experts familiar with the potential benefits and harms recommend? What evaluation would be needed in your state to establish the program's value? What are the opinions of the potential beneficiaries in your state of the program's value and likelihood of success?
8. What are the opinions of the potential beneficiaries in your state of the program's value and likelihood of success?

How Do Researchers Measure Success of Policies and Programs?

Researchers can advise you on several aspects of successful public health policies or programs. How many lives can be changed or how much disease can be avoided? Will it work in your community? What are the costs and will there be any cost-savings? Is the value of the program measured in illnesses avoided worth the investment required? The key terms below and in Appendix A describe how researchers evaluate evidence on successful policies and programs.

Evidence in this type of analysis means the interpretation of research data obtained through a systematic study using scientific methods.¹³

Evidence-based practice in public health uses the best available evidence to make informed practice decisions.¹⁴ By considering a combination of multidisciplinary research and evaluation results, community beliefs and opinions, accumulated public health practice experience and other local considerations, public health practitioners identify the programs that are most likely to be effective in a given jurisdiction.^{15, 16}

Strength and completeness of results in a study determine how confident researchers are that a program works and whether results can be duplicated in other locations or populations. Researchers determine the strength of the results by considering factors such as the:

- appropriateness of the population studied,
- accuracy of the measures used, and
- processes used to collect and analyze data and draw conclusions.^{17, 18}

Although research projects may use different study designs and data analysis methods, the strength of the results is determined based on standard research analyses. The degree of confidence in the results reflects the quality of the study design and analysis according to standard scientific methods.

Types of program benefits evaluated in studies by researchers include, but are not limited to:

1. **Process evaluation:** Is the program implemented efficiently and is it reaching the correct target population?
2. **Outcome evaluation:** Does the program/policy work? If so, how well does it work, in what settings and for what populations does it work?
3. **Cost-effectiveness evaluation:** What does the program cost relative to its benefit? Is the program/policy worth spending the public funds required given how well it works? Is it a good investment?

A more detailed description of how researchers measure effectiveness appears in Appendix A.

Systematic reviews of research results on a policy or program provide the strongest basis for making policy decisions. The reviews enable researchers to analyze results from multiple research studies in one evidence summary, to minimize the weaknesses associated with a single study and to avoid relying too heavily on results from just a few studies. The reviews also identify gaps where further research is needed. Systematic reviews have become available on many public health programs from several sources (see Appendix C) and new reviews are continually released.



Using Cost-Effectiveness to Evaluate Policy Alternatives

1. If you know the specific outcome you want to achieve, you can compare costs of alternative programs that can accomplish the outcome.
2. If you know the program you want to fund and the outcome you want to achieve, you can compare the effectiveness at different funding levels.
3. If you know available funding, you can compare programs with similar goals to determine which alternative will achieve the best outcome for the available funds.¹⁹

Research results are translated into guidelines and policy recommendations by considering the strength of research results and the available evidence of effectiveness. Based on these findings, researchers can advise on the likelihood of success, ranging from a strongly endorsed to not recommended, or indicate there is insufficient research to make a recommendation. The following table describes the range of possible policy recommendations.

Types of Public Health Policy Recommendations Based on Research Evidence				
Cost-Saving	Cost-Effective	Good Ideas	No Consensus	Discouraged
Strongly Recommended	Recommended	Suggested <i>Evaluate to determine effectiveness</i>	Unknown <i>Evaluate to determine effectiveness</i>	Not Recommended <i>But if used, Evaluate to determine effectiveness</i>
BEST PRACTICE Strong evidence of effectiveness, pays for itself	BEST PRACTICE Strong evidence of effectiveness	Emerging evidence of effectiveness, possible best practice	Inconclusive evidence of effectiveness, promising practice	Strong or emerging evidence of ineffectiveness

These ratings can be considered as you decide the best programs for state investment, given your state’s priorities and options. See Appendix B for more details.

In making public health policy decisions, applicable research results may not always be available to guide you. If a systematic review of research studies (the strongest basis for policy recommendations) is not available, or if the available studies on a program are inconclusive, you can consider the opinions of researchers, national experts and local stakeholders.

Policymakers can become more involved in research and work alongside researchers to support studies on the most relevant policy decisions through these actions:

- *Joint setting of priorities:* Researchers and policymakers jointly determine a multiyear plan to define research needed to prove effectiveness of programs being considered.
- *Funding of research:* Policymakers provide funding to demonstrate the effectiveness of program(s) being considered for their state.
- *Deciding studies to be funded:* Policymakers participate with researchers in deciding which studies to fund, such as a pilot program with evaluation in a specified population or location.
- *Advising researchers during study and how to communicate results:* Policymakers advise the research team and review the draft summaries of the research results.

In addition, some legislatures have increased their own ability to review and consider research results by adding people with scientific training and expertise to their legislative research staff. Through these collaborations, researchers and policymakers are able to more quickly develop and apply relevant research findings to policy decisions.²⁰

USING RESEARCH RESULTS IN POLICYMAKING



HAVE YOU BEEN THERE?

After your local newspaper reports soaring childhood obesity rates, a poll shows voters want to see state government take action. Citing credible research, public health officials and advocates confirm what the newspaper reported: Childhood obesity is a real and costly public health problem. Concerned legislators have reached out to public health officials, experts and researchers to identify promising, evidence-based approaches to address the problem.

The political pressure for action continues to build. Now, it's time for legislators to push the process to the next stage: translating ideas into legislative policy. How can you use the research results on successful physical activity programs to define and implement your policymaking strategy?

You can use research results when making public health policy decisions at all stages of the legislative process, including drafting legislation, setting appropriations and overseeing programs. As you pursue solutions to public health challenges, you can work with state health officials and researchers to consider research results as you:²¹

- Evaluate the public health challenges in your state and identify those most important for action;
- Choose the policy option(s) to pursue by considering the research evidence, as well as expert advice from state and local community organizations, stakeholder groups and potential consumers and clients of the policy or program;
- Develop the policy strategy for state action—through new legislation, funding bills and/or legislative oversight;
- Draft and sponsor legislation to create and/or fund the strategy; and
- Monitor and evaluate the strategy's effectiveness after implementation.

The following sections describe how to use research results within the policymaking process.

Key points in this chapter:

1. Research results can be used as you develop policy strategy, draft legislation, evaluate proposed legislation or monitor program progress. By working with an advisory group that includes researchers and public health experts, you will be able to consider the research available throughout the process.
2. In deciding to propose or support legislation, you can consider the strength of the research results supporting the proposal as you also weigh political and spending priorities.
3. You can increase your knowledge of what works in public health and help advance public health by helping to develop champions and working with informed coalitions in your state.



The Prevention Paradox

Consider two hypothetical same-cost policy options to encourage people to stop smoking:

- *Option A:* an intensive clinical smoking cessation program for 100 smokers with a 100 percent quit rate. Expected outcome: 100 people stop smoking.
- *Option B:* a mass media anti-smoking education campaign targeting 10,000 people with a 2 percent quit rate. Expected outcome: 200 people stop smoking.

Conclusion: The less effective option (2 percent success) is twice as cost-effective as the most effective option (100 percent success).

Selecting Policy Options and Developing Policy Strategy

Once you have chosen a public health problem to address, you can consider research results as you evaluate the policy options and design a legislative strategy. As you proceed, keep in mind a few special considerations for public health policies. First, if the program seeks to change the behavior of individuals, such as increasing physical activity or quitting smoking, program success will:

- require a sustained commitment from individuals over a long period of time, and
- be more likely if multiple approaches are implemented simultaneously.

Second, the policy that works the best may not always yield the greatest health benefits in a population. Known as the *prevention paradox*, the greatest population-wide health benefits can be achieved with the same investment by changing the behavior of a small percentage of a large population, rather than changing the behavior of most people in a smaller group. This effect has been studied related to college student binge drinking. In a study of national data, researchers showed that the bulk of drinking-related adverse events were caused by the majority of students who were low to moderate drinkers, rather than the few who were heavy drinkers. From a public health perspective, the greatest reductions in drinking-related harms would occur by encouraging the entire student population to reduce drinking a little. Separate intensive clinical treatment would be needed to reduce alcohol consumption among the heavy drinkers.²²

Using legislative staff with scientific training and expertise and/or collaborating with public health researchers and state public health officials will enable you to apply research results through these steps in developing the policy strategy:

- 1. Understand the public health issue and potential policy solutions.** Since support for any policy is heavily dependent on the priorities, culture, values and political climate of the local community, using the research evidence provides an objective perspective of a program's value and likelihood of success. By working with state health officials, researchers and national experts, you can determine the extent of the public health problem in your state and the possible policy and program solutions supported by research.

Researchers can advise whether the policy or program success is based on strong research results through a systematic review or through a collection of studies. Researchers can also determine if the research is not conclusive. Together, legislators and researchers can identify areas for further research to address your state's issues and find ways for researchers to complete the studies needed by your state's decision-makers.

- 2. Choose the policy action.** By involving researchers and other stakeholders at this stage, you can integrate research results with the opinions of other experts, constituents and community organizations.

Researchers can assist you in evaluating how well a successful public health policy or program would transfer to your state by answering these questions about the research:²³

- How was the program offered and communicated to the target population?
- What were the gender, income, education and family status of the target population used in the research?
- What conditions—such as literacy and cultural values—existed where the research was conducted?
- How was the program sustained, and has it been replicated in other locations?

If the available research doesn't answer these questions, opinions of national and local experts and other stakeholders can help you determine the best course of action. These advisers can specify additional research that may be needed to evaluate the program's success in your state. Your inquiries can strengthen communication about the program between researchers, state and local health department policymakers, affected communities and providers of the program. When concerns exist about potential success, some states have first implemented a pilot study with a strong evaluation component to determine the program's value before it is adopted statewide.

3. Develop the policy strategy. When defining the strategy for implementing a policy or program in your state, you can obtain advice from researchers and experts on research results as you:²⁴

- Identify the legal and program authorities needed for the program and whether additional program funding would be required.
- Decide what aspects of the program to emphasize and how best to inform other legislators and advocacy leaders about the benefits of the proposed policy. Depending on the program and the strength of its research evidence, your policy strategy may include actions to:
 - appoint a *legislative study commission* to consider and build support;
 - use state experts to develop maps, fact sheets and talking points on the impact of the public health problem;
 - invite national experts to provide testimony or supporting data;
 - develop a grassroots network of stakeholders throughout the state; and
 - educate the media on the impact of the public health problem and the proposed policy solution.

Drafting Public Health Legislation

Legislation to authorize or fund a public health program or policy can be enhanced by research results in the following ways:

1. **Research can provide clear answers to policy design questions.**²⁵ Before formal bill drafting begins, use research results to clarify answers to key policy design questions:
 - *What are the goals of the policy?* Is the goal to alleviate or eliminate a problem?
 - *What is the supporting evidence for the policy?* What actions will lead to what results, and how strong is the evidence?
 - *How is the policy to be achieved?* Is the policy based on incentives to change behaviors or increased public awareness?
 - *Who is this policy intended to help?* Whose behavior is the policy designed to change? Who will benefit from the policy?
 - *How will the program be implemented?* Which department will be responsible and will it be phased in or fully implemented at one time? What are the financial and societal costs or potential unintended consequences of the policy?
2. **An advisory committee of experts can help you understand how to use the research results.** As the policy legislation is developed, an advisory committee of experts can help translate the research results into appropriate policy action for your state. Researchers and other experts can be consulted at every stage of

State Example: Using Research Results to Build Support for Proposed Policy

Georgia generated support for testing all women 30 years old and younger for chlamydia infection through a *legislative study committee* the year before the 1998 Chlamydia Screening Act (House Bill 1565) was enacted. To create support in the legislature for required insurance coverage of annual chlamydia testing in young women, legislators were informed about the:

- number of young women in each legislative district who experienced infertility,
- expected Medicaid savings from women whose chlamydia infections would be treated, and whose costly ectopic pregnancies would be avoided.

See: **Chlamydia Screening and Treatment Brief** available at <http://www.healthystates.csg.org/publications>



Where to Find Public Health Experts to Serve on an Advisory Committee

- Universities
- State government policy centers
- State departments of health, education and other agencies
- Public and nonprofit policy centers
- State and national associations

Researchers and Experts Can Help You Assess Policies

Is it:

- Cost-saving?
- Cost-effective?
- Good Ideas?
- No Consensus?
- Discouraged?

policy drafting—from outlining key objectives to drafting instructions, consulting with drafting attorneys, and finally reviewing bill drafts.

3. **Research results can help you emulate proven approaches.** Researchers can help you adapt effective programs and policies from other states. In some cases, they will be able to identify model legislation and policies from expert national organizations that may be adapted to your state. See Appendix C for more details.
4. **Research results can help specify the target population in your state.** Research results can help you define the population most likely to benefit from the policy, including any eligibility standards to use. If an existing program in your state is being expanded, research can help determine if the eligibility standards should be modified.
5. **Select policy alternatives using the research results on potential benefits.** Researchers can estimate the potential impact of each policy option based on research evidence, such as potential outcomes and costs. Researchers and health department experts can help determine the likelihood that different policy options will improve health status and the expected cost of the programs. Legislative fiscal experts can also provide you with estimated costs for each policy option.²⁶
6. **Include an impartial evaluation of the proposed program in the legislation to build the evidence base for better state decision-making.** To evaluate the program's value when implemented in your state, to avoid perception of bias and to keep the program's focus on results, you can require a comprehensive evaluation of the program's performance. Researchers can help specify the requirements for the evaluation, such as collecting baseline data before the program is implemented.²⁶

Reviewing Proposed Public Health Legislation

Similar principles in using research results apply when you review public health legislation proposed by others, and decide whether to support, oppose or remain neutral. As you weigh political considerations and spending priorities, you can also review the strength of the research supporting a proposal. Research results can be used as you consider the following questions in making this decision.

1. **Does the policy design make sense?** When evaluating a policy proposal, research results can inform the same key policy design questions discussed earlier for drafting legislation. These include the goals of the policy, the strength of the evidence, method to achieve the policy, beneficiaries of the new policy and steps to implement the policy.
2. **Is the proposed program successful in other locations and does it target the correct population?** Research results can help whether the proposal is based on model legislation or on another state's program or policy.
 - For proposals based on a successful program, researchers and experts can advise you based on evaluation results from other locations. Consider whether the proposed program targets the right population, based on the research results.
 - For programs lacking adequate research results, the proposal should include evaluation research to establish the value and effectiveness of the program.

3. **Is the program's evidence strong enough to justify the resources required?** Researchers and state health department experts can help determine if a program is cost-effective and if the research evidence is strong enough, given other political considerations, to justify the investment required for the proposed policy. Specifically, they can help determine if the research on the program's effectiveness:
- Measured what was intended and produced the same outcomes when repeated;
 - Showed that the program caused the desired outcomes; and
 - Was sufficiently strong to expect success in other places and populations under similar conditions.

Legislative Oversight

When assessing how well policies or programs in your state are working, public health officials, researchers and other experts can help you consider research results to compare success in your state and other states through these activities:

1. **Oversight hearings and committee activities** to:
 - Monitor a public health program's progress toward its objectives compared to expected results based on the research;
 - Obtain national expert testimony for updates on national evidence and opinions on local progress to date; and
 - Educate the media and the public on the impact of the public health program.
2. **Legislative study commission or task force** to build awareness of the research evidence and support for the public health program or policy before legislation is initiated or expanded. This may be particularly useful when multiple legislative committees, which all may not be aware of the research results, share the authority for the proposed policy.
3. **Fiscal analysis by legislative staff** to assess budget and tax implications of the proposed policy.
4. **Periodic state evaluations** of program or policy success after implementation and compared to research results from other locations.

Developing Champions for Public Health Programs

In building support for public health initiatives, either among fellow legislators or in the local community, you can use research results to strengthen the foundation on which your case is built. Here are some ways you can use research results in these efforts.

1. **Energize and inform the public by using research results to build credibility.** As an elected public official, you have the ability to call on local government, business and community leaders to work together to bring attention to an issue and to search for solutions. On other occasions you may request committee hearings or a legislative study committee on a public health policy or program; or you can hold community town hall meetings on the issue. In all these forums, research can strengthen the foundation on which you build your case—to describe the level of disease or injury in your state, the public health programs that can successfully control these conditions, and the community organizations that may need to be involved to assure success. Using

State Examples: Using Research Results in Legislative Oversight

Pennsylvania requires a report to the general assembly every three years on influenza outbreaks and related hospitalizations to determine the efficacy of efforts to immunize more health care workers for the flu.

See: **Vaccinating Health Care Workers Brief**, available at: <http://www.healthystates.csg.org/Publications>

New York's anti-smoking law included a mandatory evaluation of the tobacco control program to be presented to the legislature.

See: **Comprehensive Smoking Programs Brief**, available at: <http://www.healthystates.csg.org/Publications>

**State Examples:
Coalitions Using Evidence-based
Public Health Policies
and Programs**

South Carolina and Kansas passed legislation mandating that evidence-based school wellness policies become part of daily practice in schools. Coalitions of school board members, parents, education experts, state and local governments, and individual communities supported the legislation.

See: **School Wellness Policies Brief**, available at <http://www.healthystates.csg.org/Publications>

Coalitions in Washington state were widely used to implement the 2003 State Nutrition and Physical Activity Plan, aimed at getting evidence-based policies adopted throughout the state. Senate Bill 5186 authorized the state plan and directed cities and counties to adopt environmental and policy changes to encourage healthful eating and physical activity. In addition to public health agencies, the partnerships included local representatives of groups such as transportation, public parks, planning and the business community.

See: **Preventing Diseases through Physical Activity Brief**, available at: <http://www.healthystates.csg.org/Publications>; and **Washington State Plan**, at http://www.doh.wa.gov/cfh/NutritionPA/our_states_approach/npa_state_plan/default.htm

the research results to strengthen your case when speaking publicly, you can advance community awareness of, and build support for, public health efforts.

- 2. Build effective coalitions by using the research and expert opinions from coalition participants.** Participation by all relevant community organizations enables coalitions to have the best information available when they consider a public health problem, discuss research results, adopt a program that works, establish a timetable to implement the program and determine the next steps. Depending on the proposed program, coalitions may benefit from the advice these potential participants can provide:

<i>Potential Coalition Member</i>	<i>Expertise to Provide</i>
State and local health department program experts	Information on the number of people affected by the problem; research on what public health programs work to address the problem,
Community-based providers of educational and testing services, other targeted services	Expertise on local conditions and successful strategies to implement programs
Private health care providers, therapists and counselors who identify and report cases of disease	Expertise on how to educate providers and the challenges of implementing programs with the target population
Technical experts on local conditions, such as air pollution or other environmental contamination	Knowledge of environmental effects on the target population or program implementation
Instructors and administrators of school- and youth-based programs	Advice on local concerns related to youth behaviors
Faith-based and other community leaders that effectively reach minority communities in public health outreach efforts	Ways to engage their members who may be disproportionately affected or missed by the proposed program's outreach efforts.

CONCLUSION



The growth in research evidence on the benefits of public health policies and programs allows researchers and policymakers to collaborate and inform state policy decisions, to improve the effectiveness of state public health programs and improve the health of the population.

More research results are documented, results of multiple studies are summarized in systematic reviews and the findings are widely communicated on a regular basis. This explosion of updated information allows policymakers to take advantage of the science and more quickly apply what is known about program success to state policy decisions.

At the same time, there are great opportunities for researchers to conduct relevant studies to answer the questions facing policymakers as they apply the national evidence to state challenges, specifically:

- Careful comparison of your state's population with those populations included in the research studies can help determine programs or policies that likely will work in your state.
- The success of proposed policies and programs can be quantified in terms of their cost and effectiveness and the strength of the research results, in those areas where research has been completed.
- Research results can be used as you develop policy strategy, draft legislation, evaluate proposed legislation or monitor program progress. By working with an advisory group that includes researchers and public health experts, you will be able to consider the research available throughout the process.
- By funding evaluation research as part of public health programs, legislators can play a key role in establishing the evidence to improve effectiveness of programs and to reap maximum benefits from state public health efforts.

Research evidence is just one consideration in the business of policymaking, albeit an important one. As you consider public health policies for your state, consultations with researchers, state public health department experts and other national resources will help you integrate the science with political and financial priorities to improve the public health.

APPENDICES



- A. Measuring Effectiveness of Public Health Policies and Programs**
- B. Translating Research into Public Health Policy**
- C. Resources on Public Health Research Results, Policies and Legislation**
- D. State Success: California Uses Research to Create Tobacco Use Policies**
- E. References**

APPENDIX A

Measuring Effectiveness of Public Health Policies and Programs

This appendix provides more detail on what researchers consider when evaluating the success of public health policies or programs.

Strength and completeness of results determine how confident researchers are that the program works through such questions as:

- Was the appropriate population studied?
- Were the measures used accurate?
- How was the data collected and analyzed?^{27, 28}

Methods of evaluating program benefits

- **Process evaluation:** Is the program implemented efficiently and is it reaching the correct target population?
- **Outcome evaluation:** Does the program/policy work? If yes, how well does it work, in what settings and for what populations does it work?
- **Cost-effectiveness evaluation:** What does the program cost relative to its benefit? Is the program/policy worth spending the public funds required given how well it works?

Outcome evaluation determines a program's effectiveness in reaching its intended results. Measures of effectiveness are used to quantify how well the program or policy achieved results, and the extent to which the program caused those results.²⁹ Program costs are not considered in outcome evaluation.

- **Measures of effectiveness** are used to quantify program outcomes or results, and examples include *number of illnesses prevented*, *cost of illnesses avoided* or *years of life saved*.³⁰ Researchers also use *quality-adjusted life years (QALY)* saved to account for the amount of illness during years of life saved. For example, one year of healthy life is equal to 1 QALY. The value of a year in ill health is assigned a lesser number, such as one year with chronic pain is valued at 40 percent of one year of healthy life, which results in a quality-adjusted value of 0.4 QALY.

Cost-effectiveness evaluation examines the costs and outcomes of programs that work so their values can be compared using a ratio of cost to a measure of effectiveness.

- The **cost-effectiveness ratio:** The program's implementation costs and potential savings from illnesses avoided are divided by the number of illnesses avoided to determine a cost-effectiveness ratio. The potential savings considered include the value of any medical treatment or other costs (time, travel, productivity loss, etc.) that would be avoided by the program.
- A **cost-saving program (best case)** pays for itself, because the program costs are less than the costs avoided by preventing disease when the program is fully implemented. In other words, these are costs that would have been incurred without the program and are the costs saved.

When the estimated cost-savings is divided by the effectiveness measure, the ratio describes the program's value, e.g. *dollars saved per year of life saved*. Although this is the most desirable ratio for a public program because it saves money, careful consideration must be given to who will accrue the cost-savings.

Some cost-saving public health programs require investment by the state but other entities, such as private health insurers, would accrue much of the savings, which may be hard to justify from a state budget perspective.

- A **cost-effective program** improves health but the program costs are more than the costs

saved by preventing disease. The benefits of the program, however, are judged to be worth the investment required, making it cost-effective.

The costs required for the program are divided by the effectiveness measure to calculate the cost-effectiveness ratio, to describe the program's investment value, e.g. dollars invested per year of life saved.

When several programs are competing for the same budget dollars, researchers compare cost-effectiveness ratios to identify the program that provides greatest value for the funds invested.

- A program that is *not cost-effective* is one that works, but the costs of the program are too high to make the program feasible for widespread implementation.
- A program that is *ineffective* does not work regardless of cost and should be discontinued.

Systematic reviews of research studies on a policy or program provide the strongest basis for making policy decisions. The reviews enable researchers to analyze results from multiple research studies into one evidence summary, to minimize the weaknesses associated with a single study and avoid relying too heavily on results from a few studies. The reviews also identify gaps where further research is needed. Systematic reviews are available on many public health programs from several sources (*see Appendix C*) and new reviews are continually being released.

Example: Using Cost-Effectiveness to Set Policy on Flu Vaccines for Children

Research on the costs and benefits of annual flu vaccinations for children was used to create national policies that saved hundreds of thousands of dollars. Cost-effectiveness analysis was used to compare the value of giving flu vaccinations to children of different ages and to those with high-risk health conditions, such as asthma, and for children without such conditions.



Researchers found annual flu vaccinations were most beneficial for high-risk children in all age groups (who had been previously recommended for flu vaccination), and for children with no high risks from 6 to 23 months old. The following analysis and table illustrate how these research results were considered to create national policy recommendations in 2006.

- First, the costs and effectiveness (in quality adjusted life years or QALYs) of giving annual flu vaccinations were evaluated for children with and without high health risks in five age groups (6–23 months, 2 years, 3–4 years, 5–11 years and 12–17 years). This cost-effectiveness analysis resulted in a range of cost-savings and cost-effective results.³¹

Annual Flu Vaccinations Considered For:	Cost-Effectiveness Results	Recommendations for Annual Flu Vaccinations
Children Without High Risks		
6–23 months	Costs \$12,000/QALY saved	Vaccinate
2 years	Costs \$18,000/QALY saved	Do not vaccinate
3–4 years	Costs \$28,000/QALY saved	Do not vaccinate
5–11 years	Costs \$79,000/QALY saved	Do not vaccinate
12–17 years	Costs \$119,000/QALY saved	Do not vaccinate
Children With High Risks		
6–23 months	Savings/QALY saved	Vaccinate
2 years	Savings/QALY saved	Vaccinate
3–4 years	Costs \$1,000/QALY saved	Vaccinate
5–11 years	Costs \$7,000/QALY saved	Vaccinate
12–17 years	Costs \$10,000/QALY saved	Vaccinate

- Consideration of these and other factors led the study authors to conclude the most cost-effective immunization policy for children to receive annual flu vaccinations was to:
 - Immunize all high-risk children in all age groups (which had been recommended previously); and
 - Immunize all children between 6 and 23 months old.

APPENDIX B

Translating Research into Public Health Policy: Types of Recommendations and Examples

Public health researchers can advise policymakers on the relative benefits of public health policy alternatives based on research results. Evidence on what works in public health continues to grow as more research studies and systematic reviews are completed. Systematic reviews provide the strongest basis for making policy decisions because they are based on an independent and thorough review of results from multiple research studies. By summarizing research findings, the reviews minimize the weaknesses associated with a single study and avoid heavy reliance on results from a few studies. Systematic reviews are available on many public health programs from several sources (see Appendix C) and new reviews are continually released.

The most notable source of public health policy recommendations based on systematic reviews is the *Guide to Community Preventive Services*. An independent task force of public and private experts evaluates research on community, population and health care system strategies, including broad policies such as smoking bans, targeted laws such as child safety seat laws, educational requirements such as vaccination requirements for schools, and community-wide policies such as water fluoridation. The federal Centers for Disease Control and Prevention supports the task force, and its recommendations are considered the gold standard for preventive services for communities (see: <http://www.thecommunityguide.org>).

A related resource is the *Guide to Clinical Preventive Services*, which assesses research results on the effectiveness of clinical preventive services, including screening, counseling and preventive medications. The guide also uses an independent task force of private sector experts in prevention and primary care to formulate the recommendations. The task force is supported by the federal Agency for Healthcare Research and Quality, and its recommendations are considered the gold standard for preventive services provided as part of clinical medical care (see: <http://www.ahrq.gov/clinic/cps3dix.htm>).

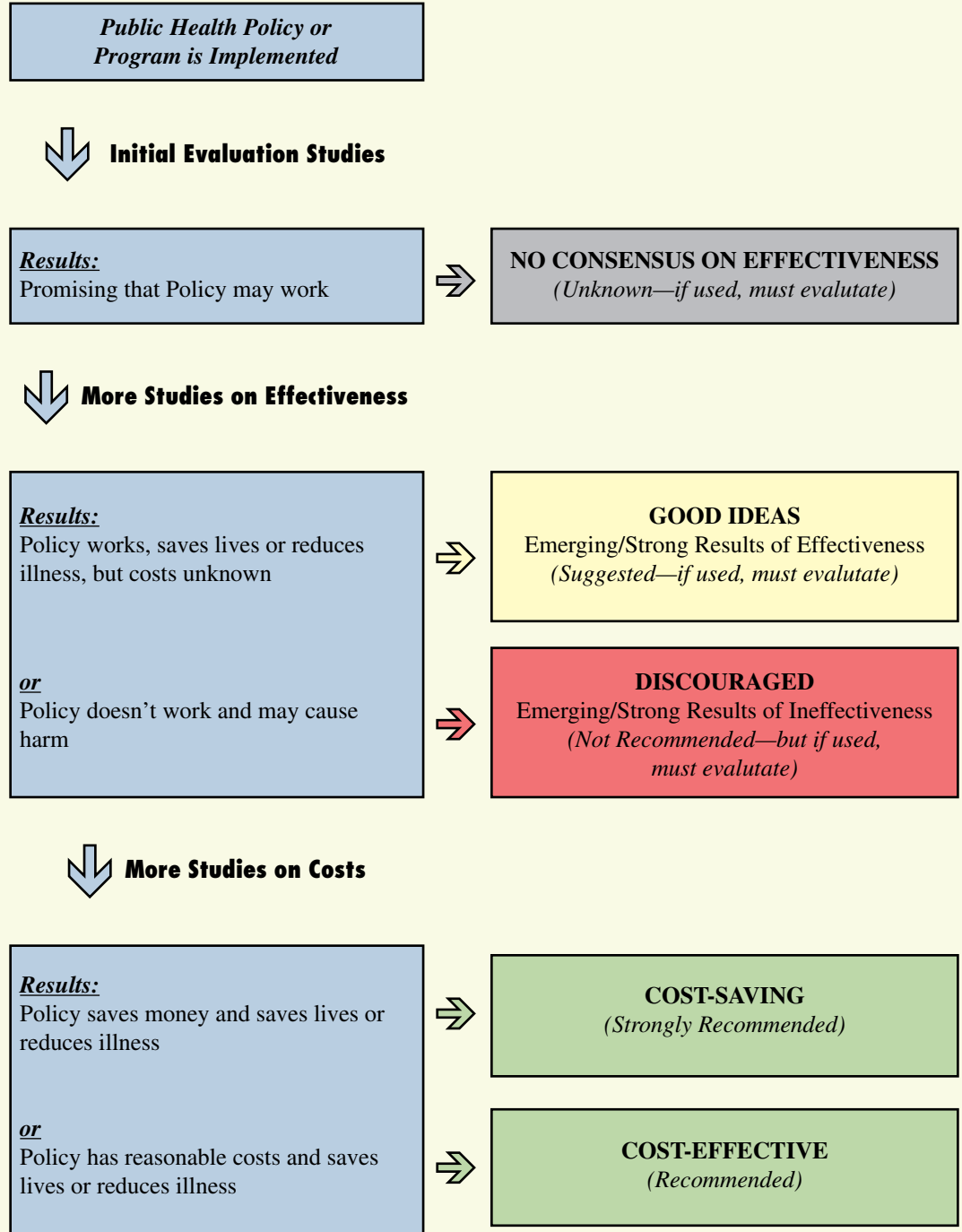
How Do Researchers Identify Highest Potential Policies and Programs?

Research results are translated into policy recommendations by considering the strength of the results showing success in the available studies. Researchers make recommendations on a program's likelihood of success, ranging from a strong endorsement to advising against a policy, based on the research evidence to date. The table below describes the range of policy recommendations depending on the strength of the research results and evidence of effectiveness available:

Types of Public Health Policy Recommendations Based on Research Evidence				
Cost-Saving	Cost-Effective	Good Ideas	No Consensus	Discouraged
Strongly Recommended	Recommended	Suggested <i>Evaluate to determine effectiveness</i>	Unknown <i>Evaluate to determine effectiveness</i>	Not Recommended <i>But if used, Evaluate to determine effectiveness</i>
BEST PRACTICE Strong evidence of effectiveness, pays for itself	BEST PRACTICE Strong evidence of effectiveness	Emerging evidence of effectiveness, possible best practice	Inconclusive evidence of effectiveness, promising practice	Strong or emerging evidence of ineffectiveness

Leading up to recommending a program as *cost saving*, researchers complete a progression of studies on effectiveness and cost as is illustrated below.

Developing Public Health Policy Recommendations Based on Research Evidence



Examples: Research-based Recommendations on Public Health Policies

The following sections describe and provide examples for each type of public health policy recommendations.

Cost-Saving Public Health Policies (*Strongly Recommended*)

Strong evidence exists that these public health policies and programs are best practices because they are effective at improving health and are cost saving. The societal and health care costs these policies avoid by preventing illnesses or injuries are greater than the costs of implementing the program.

Examples: Cost-Saving Public Health Policies (<i>Strongly Recommended</i>)		
<i>Program</i>	<i>Program Goal</i>	<i>Research Results</i>
Childhood Immunizations	<p>Increase the number of children who have received all recommended immunizations, decreasing vaccine-preventable illness and deaths.</p> <ul style="list-style-type: none"> ▪ Childhood vaccines prevent more than 14 million cases of disease and 33,500 deaths over the lifetime of children born this year. ▪ Medical care cost-savings from diseases prevented is nearly \$10 billion annually, including the program costs.³² 	<p>Approaches that are effective in increasing the proportion of children who receive all recommended vaccines and are therefore cost-saving, include:</p> <ul style="list-style-type: none"> ▪ client reminder or recall systems, ▪ requirements for child care or school attendance, ▪ reducing out-of-pocket costs, ▪ programs in women, infants and children (WIC) settings, ▪ home visits, ▪ provider reminder/recall systems, and ▪ assessment and feedback for providers³³
<p>Comprehensive State Tobacco Prevention Programs <i>(funded at \$15 to \$20 per capita annually, depending on state conditions)³⁴</i></p>	<p>Reduce disease, disability and death related to tobacco use by:</p> <ul style="list-style-type: none"> ▪ preventing youth from starting to smoke, ▪ getting adults and youth to quit smoking, ▪ eliminating exposure to secondhand smoke, and ▪ eliminating tobacco-related disparities. 	<p>If all states fully funded their tobacco control programs starting in fiscal year 2009 at the CDC-recommended levels, in five years:</p> <ul style="list-style-type: none"> ▪ the U.S. would have an estimated 5 million fewer smokers, and ▪ hundreds of thousands of premature deaths related to tobacco use would be prevented.³⁵
Fluoridated Community Water Systems	<p>Decrease the frequency and severity of tooth decay, decrease need for tooth extractions and fillings, and reduce pain and suffering associated with tooth decay.³⁶</p>	<p>Every \$1 spent on water fluoridation saves up to \$80 in dental treatment costs.³⁷</p>

Cost-Effective Public Health Policies (*Recommended*)

These public health programs are also *best practices*, but they are cost-effective rather than *cost saving*. They are good investments because the evidence of effectiveness is strong, and the outcomes in reduced illness or injury justify spending the resources required.

Examples: Cost-Effective Public Health Policies (<i>Recommended</i>)		
<i>Program</i>	<i>Program Goal</i>	<i>Research Results</i>
<p>Encourage people to be more physically active to improve health through:</p> <ul style="list-style-type: none"> ▪ Multi-component community-wide campaigns including media messages, counseling, education classes, community events and creating opportunities for physical activity, such as walking trails ▪ Strengthen school-based physical education—changing curricula to make classes longer and include more activity ▪ Reduce barriers to physical activity (such as cost, time, inconvenient location) in workplaces or the community ▪ Post signs with health benefits to encourage stair use 	<p>Increase proportion of people participating in physical activities to ultimately avoid health care costs through:</p> <ul style="list-style-type: none"> ▪ enhanced health and prolonged life, and ▪ reduced risk for heart disease, high blood pressure, diabetes, obesity, selected cancers and musculoskeletal conditions.³⁸ 	<p>Programs are effective in increasing physical activity in targeted populations.</p> <p>Community-wide campaigns:</p> <ul style="list-style-type: none"> ▪ a 5 percent increase in the proportion of people who were physically active, and a ▪ 16 percent increase in energy expenditure, ▪ effective in both rural and urban communities, and effective among different ethnic and socioeconomic groups.³⁸ <p>Enhanced physical education in school-age children:</p> <ul style="list-style-type: none"> ▪ an 8 percent increase in aerobic fitness, ▪ effective in all racial, ethnic, socioeconomic and gender groups, ▪ effective in elementary and high school students, and urban and rural settings, ▪ no harm to academic performance.³⁹ <p>Reducing barriers to physical activity:</p> <ul style="list-style-type: none"> ▪ a 25 percent increase in those who exercise at least three times a week, ▪ weight loss or decreased body fat among participants.⁴⁰ <p>Signs in public locations increased stair use by 54%.⁴¹</p>
<p>Primary school education on reducing sun exposure to prevent skin cancer</p>	<p>Educate students to reduce sun exposure by covering up (wearing shirt, long pants, hat) to avoid developing skin cancer.</p>	<p>Children increased sun-protective covering up behavior by 25%.⁴²</p>

Examples: Cost-Effective Public Health Policies *continued*

<p>Home visitation to prevent child abuse or neglect, and avoid injuries</p>	<p>Trained community workers conduct home visits with parents and young children (starting before child is 2 years old) to:</p> <ul style="list-style-type: none"> ▪ Educate parents on child care, parenting, and prevention of child abuse and neglect, ▪ Help parents develop problem-solving skills, identify educational or work opportunities, and connect to community services.⁴² 	<p>Child maltreatment episodes in high-risk families that received home visits were reduced 40 percent,⁴³ and costs for child maltreatment services were avoided.⁴⁴</p>
---	--	---

Good Ideas for Public Health (*Suggested, Needs Further Evaluation*)

These policies and programs have emerging or strong evidence as best practices and effective solutions for public health. However, more research is needed to establish them as cost-effective. Current research indicates these programs and policies may reduce illness or injury. If these programs are used, they should be evaluated to prove their effectiveness.

Examples: Good Ideas for Public Health (*Suggested, Needs Further Evaluation*)

<i>Program</i>	<i>Program Goal</i>	<i>Research Results</i>
<p>Increase access to healthier food options in communities</p>	<p>Encourage local community gardens, farmers markets and wider varieties of foods at convenience stores, leading to increased consumption of healthy foods and improved health.</p>	<p>Although a few studies showed increased consumption of fruits and vegetables, more research is needed to determine the impact of these initiatives on a large scale.⁴⁵</p>
<p>Promote healthy foods in schools through multiple components including education on nutrition, limited availability of unhealthy foods, family education or community involvement</p>	<p>Eliminate high calorie, high fat, low nutritional value foods in schools and education, leading to increased fruit and vegetable intake and decreased fat intake among school-age children, and to improved health.</p>	<p>Reported changes in food intake were promising, but results were insufficient to make specific recommendations. More studies are needed.⁴⁶</p>
<p>Health providers or educators encourage clients to undergo screening to prevent colorectal cancer</p>	<p>Health providers or educators communicate individually with clients by telephone or in person, increasing the percentage of adults over age 50 who receive screening for colorectal cancer, to ultimately prevent colorectal cancer and deaths from the disease.</p>	<p>Although a few studies showed this program had positive results, those results are insufficient to make recommendations. More studies are needed to determine if one-on-one education of clients increases colorectal cancer screening rates.⁴⁷</p>

No Consensus on Effectiveness Public Health Policies
(Unknown, Needs Further Evaluation)

These public health programs have not been studied sufficiently to prove effectiveness. Although promising research results may lead experts to support their use, the programs are not yet widely recommended due to lack of convincing research results. If these programs are used, they should be evaluated for effectiveness.

Examples: No Consensus on Effectiveness Public Health Policies <i>(Unknown Effectiveness, Needs Further Evaluation)</i>		
<i>Program</i>	<i>Program Goal</i>	<i>Research Results</i>
<p>Improving diabetes self-management abilities among people with diabetes by:</p> <ul style="list-style-type: none"> ▪ educating school personnel about the needs of people with diabetes, or ▪ offering self-management education to people with diabetes in the workplace 	<p>Conduct diabetes self-management education programs for people with diabetes, leading to improvements in their glycemic (blood sugar) control, prevent complications and death, and control costs of care. This education can be offered in many settings, and is effective when offered in community gathering places for adults with type 2 diabetes, and at home for adolescents with type 1 diabetes.⁴⁸</p>	<p>Research results are insufficient and more studies are needed to determine the effectiveness of:</p> <ul style="list-style-type: none"> ▪ educating school personnel about diabetes, or ▪ offering self-management education in workplaces.⁴⁹ <p>Research is also needed on using diabetes self-management education programs in more settings, and integrating it with medical care.⁴⁸</p>
<p>Cultural competency training for health care providers</p>	<p>Training health care providers to increase their ability to understand and treat a culturally diverse clientele, leading to reduced health disparities through:</p> <ul style="list-style-type: none"> ▪ improved accuracy of diagnoses and choice of effective treatment by providers, and ▪ improved patient outcomes for racial and ethnic minorities, who are less likely to have health insurance, may receive a lower quality of health care, and have higher rates of disease, disability and death.⁵⁰ 	<p>Reported changes in food intake were promising, but results were insufficient to make specific recommendations. More studies are needed.⁵⁰</p>
<p>Transportation and travel policy changes to encourage increased physical activity</p>	<p>Change local travel or transportation policies to encourage walking, biking, outdoor activities, increased use of public transportation and decreased use of cars, leading to:</p> <ul style="list-style-type: none"> ▪ increases in people participating in physical activity and improved fitness, and ▪ resulting in enhanced health and reduced risk for disease. 	<p>Not enough studies have been completed to determine if transportation and travel policy changes can increase levels of physical activity or improve fitness.⁵¹</p>

Discouraged Public Health Policies

(Not Recommended, Needs Further Evaluation)

Strong or emerging research results on these programs demonstrate that they are ineffective and do not work, and in some cases they may cause harm. If these policies are implemented, evaluation of the program's effectiveness is strongly recommended.

Examples: Discouraged Public Health Policies <i>(Not Recommended, Needs Further Evaluation)</i>		
<i>Program</i>	<i>Program Goal</i>	<i>Research Results</i>
Transferring youth offenders to the adult justice system to reduce youth violence	To deter further violence, young offenders are transferred from the juvenile to adult justice system leading to reduced violence and injury among transferred youth.	<p>Studies showed that youth offenders transferred to the adult criminal system were 34% more likely to be re-arrested for violent crime, indicating this program has harmful effects.</p> <p>There were insufficient studies to determine if youth in general are deterred from violent behavior by this policy.⁵²</p>
Drug Abuse Resistance Education (DARE) in schools	<p>School-based education by trained police officers to prevent substance abuse and improve student self-reported</p> <ul style="list-style-type: none"> ▪ knowledge of drug abuse, ▪ attitudes against using drugs, and ▪ social skills. <p>▪ These skills would lead to preventing or reducing actual drug use among youth.</p>	<p>Studies indicated that the DARE program had a very limited effect on reducing drug use behavior among youth.⁵³</p> <p><i>[Note: The DARE program curriculum was revised after this research was completed, and a five-year study of the revised curriculum's impact is underway.]</i></p>

APPENDIX C

Resources on Public Health Research Results, Policies and Legislation

Policy Recommendations Based on Research Results

Guide to Community Preventive Services (The Community Guide) includes the public health policy and practice recommendations developed by the Task Force on Community Preventive Services, a nonfederal, independent group of public and private experts in public health policy, practice and research. The task force bases its recommendations on the findings of systematic review of the effectiveness of community, population and health care system strategies to improve health. The task force is supported by the federal Centers for Disease Control and Prevention, and its recommendations are considered the gold standard for population-based preventive services (see: <http://www.thecommunityguide.org>).

Guide to Clinical Preventive Services (The Clinical Guide) includes the recommendations of the U.S. Preventive Services Task Force, the leading independent panel of private sector experts in prevention and primary care. The task force conducts impartial assessments of research evidence on the effectiveness of clinical preventive services, including screening, counseling and preventive medications. Its recommendations are considered the “gold standard” for clinical preventive services (see: <http://www.ahrq.gov/clinic/cps3dix.htm>). The task force is supported by the federal Agency for Healthcare Research and Quality, which also supports effectiveness research on health care. The recommendations are also included in the National Guideline Clearinghouse (see: <http://www.guideline.gov>).

Chronic disease prevention recommendations from the *Community Guide* and the *Clinical Guide* are summarized for state legislators in the Healthy States’ *Using Sound Science to Prevent Chronic Disease* (see: <http://www.healthystates.csg.org/Publications/Publications+List>).

Partnership for Prevention is a membership organization of businesses, nonprofit organizations and government agencies that promotes policies and practices to prevent disease and improve health (see: <http://www.prevent.org>).

- *Priorities for America’s Health: Capitalizing on Life-Saving, Cost-Effective Preventive Services* includes a ranking of the health impact and cost-effectiveness of 25 preventive medical care services for individuals, based on guidelines issued by the U.S. Preventive Services Task Force and the Advisory Committee on Immunization Practices (see: <http://www.prevent.org/content/view/42/70>).
- *Health Policy Priorities for States* summarizes the evidence supporting eight public health policies (see: http://www.prevent.org/images/stories/health_policy.pdf).
- *Guide to Smart Prevention Investments* provides tips for making smart investments in health (see: http://www.prevent.org/images/stories/Files/publications/Invest_Final.pdf).

HIV/AIDS Prevention Research Synthesis at the Centers for Disease Control and Prevention identifies effective programs that seek to change the behaviors of people at high risk of acquiring or transmitting HIV (see: <http://www.cdc.gov/hiv/topics/research/prs/index.htm>).

Cochrane Collaboration produces a regularly updated collection of systematic reviews of research results on clinical medicine services, and more recently includes public health programs (see: <http://www.cochrane.org>). The Campbell Collaboration (<http://campbellcollaboration.org>) includes similar systematic reviews of research on education policies and practices (see: <http://www.whatworks.ed.gov>).

Health Partners Research Foundation, a Minneapolis-based group of investigators, provides policy recommendations based on their research (see: <http://www.hprf.org/HealthyOutcomes/healthyoutcomes.htm>).

Effective Health Care Program, sponsored by the federal Agency for Healthcare Research and Quality, provides summary guides and reviews of research conducted at evidence-based practice centers nationally. Summaries on the benefits and harms of medical treatment policies are prepared for clinicians, consumers and policymakers, and primarily focus on important topics for health insurance coverage including Medicaid and Medicare (see: <http://www.effectivehealthcare.ahrq.gov>)

Canadian Health Services Research Foundation supports health policy research and promotes the use of this research for Canadian policymakers and managers. It also works to enable researchers, managers and policymakers to jointly review research evidence when addressing health policy challenges (see: http://www.chsrf.ca/other_documents/publications_e.php).

State Legislation and Programs Based on Public Health Research

State Policy Associations

The Council of State Governments' Healthy States publications for state legislators include descriptions of state policy initiatives and legislation based on research evidence (see: <http://www.healthystates.csg.org/Publications/Publications+List>) in the areas of:

- **Immunizations:** *Increasing Vaccination Rates in Adults, Adolescent Immunizations, Exemptions from School Immunization Requirements, Vaccinating Health Care Workers to Control Flu Outbreaks*
- **Adolescent and School Health:** *Addressing Adolescent Health Disparities Through Schools, Exemptions from School Immunization Requirements, School Wellness Policies*
- **Reducing Health Risks:** *Keeping the Aging Population Healthy, Comprehensive Smoking Prevention Programs, Preventing Diseases Through Physical Activity, Workplace Health, Improving Health through Better Nutrition, Promoting Improved Oral Health*
- **Preventing and Managing Diseases:** *Preventing and Treating Stroke, Preventing Cardiovascular Disease, Chlamydia Screening and Treatment, Local Solutions to Racial & Ethnic Health Disparities, Controlling High Blood Pressure, Preventing Colorectal Cancer, Cervical Cancer Prevention, Keeping People with Diabetes Healthy, Achieving Health Equity in States and Communities, Chlamydia Screening and Treatment, Making HIV Testing Routine, Expedited Partner Therapy*

Association of State and Territorial Health Officials offers national policy recommendations and links to state health departments' regulations (see: http://www.astho.org/index.php?template=regional_links.php).

National Association of State Boards of Education offers school health policies and related state legislation (see: http://www.nasbe.org/HealthySchools/States/State_Policy.asp).

National Governors Association Center for Best Practices provides policy analyses on a variety of public health topics (see: <http://www.nga.org/portal/site/nga/menuitem.50aeae5ff70b817ae8ebb856a11010a0>).

Federal Agencies, Advocates, Researchers, Foundations

Public Health Law Program at the Centers for Disease Control and Prevention provides examples of legislation to support public health initiatives (see: <http://www2.cdc.gov/phlp>).

Campaign for Tobacco Free Kids offers current information on state tobacco laws (see: <http://tobaccofreekids.org>).

Center for the Law and the Public's Health, sponsored by Georgetown and Johns Hopkins universities, offers model state public health laws and analysis (see: <http://www.publichealthlaw.net/Resources/Modellaws.htm>).

Public Health Law and Policy is a California-based legal policy analysis center that analyzes legislation related to a range of public health prevention issues (see: <http://www.phlaw.org/programs.html>). The affiliated Technical Assistance Legal Center is a clearinghouse on tobacco policy issues in California (see: <http://talc.phi.org>).

The Robert Wood Johnson Foundation policy analyses include legislation related to the public health research projects they support (see: <http://www.rwjf.org>).

Tobacco Control Legal Consortium, sponsored at the Minnesota-based Tobacco Law Center, supports the creation of new legal resources for tobacco control programs, and provides legal technical assistance on tobacco control policies (see: <http://tclconline.org/Tclc.asp>).

W. K. Kellogg Foundation offers policy analyses including legislation on funded research in the policy areas of food supply and school health programs (see: <http://www.wkkf.org/Default.aspx?tabid=90&CID=280&ItemID=5000186&NID=5010186&LanguageID=0>).

APPENDIX D

State Success: California Uses Research to Create Tobacco Use Policies

Even though research results were not yet conclusive, California took the lead and implemented its first major step in tobacco control in 1988 by increasing cigarette taxes by 25 cents a pack. Accomplished through a ballot initiative entitled Proposition 99, the proposition summarized for voters:

facts about the deaths and disease caused by tobacco use, the personal suffering and medical care costs of these diseases, and the damage and loss of life due to fires caused by smokers, and the expected benefits of reserving 20 percent of the tax revenues for a state tobacco prevention and control program.

California's program is now the oldest and one of the most successful tobacco control programs in the United States. By using early research results to design its programs to control tobacco use, California produced significant benefits for the state's residents, and subsequently was responsible for developing much of the research evidence on effective programs to control tobacco use.

In the early 1990s, California state legislators and researchers used research results to create and implement successful anti-smoking policies. Together, they continually evaluated outcomes of these policies and adjusted programs where necessary to improve the control of tobacco use. At the time California began these efforts, the effectiveness of many anti-smoking policies was unknown. By evaluating the outcomes of their policies, California shaped the evidence that is used to inform policymakers in other states, and helped define what we know today as cost-saving and cost-effective public health tobacco control policies.

What are the Research-based Recommendations to Control Tobacco Use?

Getting people to stop using tobacco is the most cost-effective method of preventing deaths from chronic disease among adults.⁵⁵ California is one of many states that sought to reduce smoking through successful tobacco control programs. There is evidence that states' programs are working. Levels of the metabolized form of nicotine have decreased 75 percent among all adults since the late 1980s, suggesting that the general population is exposed to less environmental tobacco smoke than they were just two decades ago.⁵⁶

Research results on effective programs to prevent and reduce tobacco use have been applied to develop these recommended successful anti-smoking policies and programs:⁵⁷

1. **Increase the price of tobacco products**, which prevents more people from starting to smoke and gets more people to quit.
2. **Conduct public education media campaigns, along with smoking cessation services, quit lines and school programs** to get people to reduce smoking, quit smoking or prevent people from starting to smoke.
3. **Ban smoking in workplaces and other public places** to successfully reduce exposure to secondhand smoke.
4. **Establish patient telephone support (quit lines)** to get people to stop smoking; the effectiveness of this policy increases when combined with other strategies such as a public education media campaign.
5. **Conduct reminder programs for medical providers to counsel patients** to quit smoking.
6. **Reduce copayments and costs for effective treatments** for patients who want to quit smoking.

How is Research Used to Predict the Impact of Increasing Tobacco Taxes?

Research results show increasing the price of tobacco products leads to:

- fewer people starting to use tobacco, less tobacco consumption, more people to attempt quitting and few former smokers to relapse,^{58, 59}
- more people quitting smoking, especially young people, low-income adults and African-American and Hispanic smokers,^{60, 61}
- increased demand for nicotine replacement therapies and cessation services,^{59, 62} and
- significant reductions in probability of teens becoming addicted daily smokers.⁶³

Due to these impacts and the resulting reduced exposure to secondhand smoke, tobacco taxes are proven effective methods to improve public health and lower smoking-related health care costs.⁶⁴

Using formulas developed by researchers, it is possible to estimate the impact in your state of increased taxes on tobacco, including:

- Estimated reductions in cigarette sales and state tax revenues.
- Estimated cost-savings due to:
 - Decreased smoking among youth and adults;
 - Decreased premature deaths attributable to smoking; and
 - Reduced spending on health care for smoking-related diseases.
- Estimated effects of opposing forces such as funds spent by tobacco companies on advertising and promotion of tobacco use.⁵⁹

How Did California Legislators Use Research to Develop Tobacco Control Policies?

Many of California's decisions paved the way for today's recommended policies. Following the 1988 ballot initiative for the tobacco tax increase, California lawmakers passed several pieces of legislation between 1989 and 1995 to authorize and fund the state tobacco control program. In the beginning, lawmakers used several sources of research results and designed the program to include multiple approaches and to target multiple populations, including:^{65, 66, 67, 68, 69}

- Health education and behavior change programs at the state and community level and in school settings, and programs where local communities had a role in changing individual behaviors regarding tobacco use,
- A comprehensive integrated approach addressing the individual, social and environmental factors that contribute to tobacco use,
- Community education programs developed through health departments, schools, volunteer organizations, hospitals and nonprofit health service agencies,
- Statewide media campaigns including television, radio, print media and outdoor advertising,
- Programs focused on preventing youth from starting to smoke as the primary goal, because research results showed most California smokers were addicted to cigarettes before they reached the legal smoking age,
- Health care provider and individual education and worksite health promotion, and
- Use of evaluation results to plan and improve programs.

The authorizing legislation for the Tobacco Control Program included several requirements that reflected the current research on what was effective in reducing tobacco use based on the National Cancer Institute standards for smoking prevention programs. The legislation was rapidly implemented by the California Department of Public Health and the program started with:^{67, 70, 71, 72, 73, 74}

- Specific objectives to reduce smoking in communities through increased prices for tobacco products, reduced youth access to tobacco products and reduced promotion of tobacco products, and to eliminate exposure to secondhand smoke.

- Funding to target people at high risk for tobacco-related illness through coordinated media campaigns, stop smoking education programs for the public and services for individuals, and local county plans for public and private initiatives.
- Efforts to create a social climate where cigarette smoking was viewed as unacceptable behavior, which enabled communities to help reduce environmental tobacco smoke, although it was acknowledged that achieving this change would require sustained support.
- Local community plans to implement multiple approaches through health care providers, work-sites, schools, community networks and to develop the community environment to enhance the effectiveness of all components.
- Research authorized to establish the baseline on smoking in California for future comparisons, and evaluate the effectiveness of individual programs, to be used when reauthorizing and modifying tobacco control efforts in the future.

During the 1990s, evaluation of program outcomes became a strong component of California's Tobacco Control Program. State spending for tobacco control included 5 percent for evaluation of state program effectiveness, and comprehensive evaluations of the state program are conducted. In addition, the state required local grant recipients to allocate 10 percent of their budget to evaluation and provided support for study designs, objectives, research results, referral to qualified evaluators and an annual conference to showcase results. The state's annual health surveys of the general population include questions on smoking habits and attitudes toward smoking, and other evaluations included a survey on illegal sales of cigarettes to minors. By monitoring results from these activities, the program is always focused on finding what works to reduce smoking.⁷⁵

California's Tobacco Use Policies: Future Challenges

California's tobacco control program has documented its success through effectiveness research since its inception. From the tobacco tax increase in 1988 to 2003, California cigarette consumption decreased 59 percent while it declined by 35 percent in the rest of the country.⁷⁶ Through 1997, reduced tobacco consumption in California was associated with 33,300 fewer deaths from heart disease.⁷⁷ Rates of lung cancer among men declined more rapidly than anywhere else in the country, and rates of lung cancer among women declined while increasing elsewhere.⁷⁸

These successes occurred despite periodic cuts in the tobacco control program funding, and the tobacco manufacturers' responses such as a cigarette price cut in 1993 and increased levels of tobacco marketing and promotion efforts.⁷⁹ In 1996, the tobacco industry's annual spending for tobacco advertising and promotions in California was more than 10 times the funding level of the tobacco control program.⁸⁰

In 1998, California voters approved a 50-cent tobacco tax increase to support a child development program. Its implementation in 1999 was combined with cigarette price increases mandated by the multi-state Master Settlement Agreement with the tobacco companies. As a result, the price of cigarettes increased \$1.20 per pack in California, and cigarette consumption dropped by 20 percent.⁸¹ In November 2006, California voters considered the highest cigarette tax in the country. A ballot initiative would have increased the state tax by \$2.60 per pack and set aside the revenues for tobacco prevention and cessation and other health programs. The proposed tax, however, failed to win voter approval and California's cigarette tax stands today at 87 cents per pack.⁸²

California continues to consider initiatives to reduce tobacco consumption, including an increase in the legal age for purchasing cigarettes and stricter controls on the sale of tobacco by retail businesses. California's current focus includes culturally specific media campaigns and educational materials for many of its diverse populations, and education and enforcement of state laws to control the use and availability of cigarettes in public facilities and workplaces, as well as correctional facilities.

APPENDIX E

References

- ¹ World Health Organization. "Research Policy and Cooperation: Evidence-Informed Policy Network." Accessed from <http://www.who.int/rpc/evipnet/en> August 28, 2008.
- ² Clancy CM and Cronin K. "Evidence-Based Decision Making: Global Evidence, Local Decisions." *Health Affairs* 2005; 24(1): 151–162. Accessed from <http://content.healthaffairs.org/cgi/content/full/24/1/151?ijkey=U/Q5JYPDHE8ns&keytype=ref&siteid=healthaff#R14> August 28, 2008.
- ³ Fox D. "Evidence of Evidence-Based Health Policy: The Politics of Systematic Reviews in Coverage Decisions." *Health Affairs* 2005; 24(1): 114–122. Accessed from <http://content.healthaffairs.org/cgi/content/full/24/1/114?ijkey=bVTNTBardA45c&keytype=ref&siteid=healthaff> August 28, 2008.
- ⁴ Lomas J. "Using 'Linkage and Exchange' to Move Research into Policy at a Canadian Foundation." *Health Affairs* 2000;19(3):236–239. Accessed from <http://content.healthaffairs.org/cgi/reprint/19/3/236?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&andorexactfulltext=and&searchid=1&FIRSTINDEX=0&volume=19&firstpage=236&resourcetype=HWCIT> August 28, 2008.
- ⁵ Fielding JE, Marks JS, Myers BW, Nolan PA, Rawson RD, Toomey KE. "How do we translate science into public health policy and law?" *The Journal of Law, Medicine, & Ethics* 2002;30(3): 22–32.
- ⁶ Rychetnik L, Frommer M, Hawe P, and Shiell A. "Criteria for Evaluating Evidence on Public Health Interventions." *J. Epidemiology and Community Health* 2002; 56:119–127. Accessed from <http://jech.bmjournals.com/cgi/reprint/56/2/119> August 28, 2008.
- ⁷ Task Force on Community Preventive Services. "Guide to Community Preventive Services: A Tool for Getting the Most from Investments in Prevention." Overview Slide Set. Accessed from <http://www.thecommunityguide.org/about> August 28, 2008.
- ⁸ Rychetnik L, Frommer M, Hawe P, and Shiell A. "Criteria for Evaluating Evidence on Public Health Interventions." *J. Epidemiology and Community Health* 2002;56:119–127. Accessed from <http://jech.bmjournals.com/cgi/reprint/56/2/119> August 28, 2008.
- ⁹ Kemm J. "The Limits of 'Evidence-Based' Public Health." *Journal of Evaluation in Clinical Practice* 2006; 12(3): 319–324.
- ¹⁰ Institute of Medicine. *The Future of the Public's Health in the 21st Century*. 2002. Washington, DC. Accessed from <http://www.iom.edu/Object.File/Master/4/165/0.pdf> August 28, 2008.
- ¹¹ Fielding JE and Briss PA. "Promoting Evidence-Based Public Health Policy: Can We Have Better Evidence and More Action?" *Health Affairs* 2006;25(4): 969–978.
- ¹² Atkins D, Siegel J, Slutsky J. "Making Policy When the Evidence is in Dispute." *Health Affairs* 2005;24(1):102–113. Accessed from <http://content.healthaffairs.org/cgi/content/abstract/24/1/102?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&andorexactfulltext=and&searchid=1&FIRSTINDEX=0&volume=24&firstpage=102&resourcetype=HWCIT> August 28, 2008.
- ¹³ Rychetnik L, Frommer M, Hawe P, and Shiell A. "Criteria for Evaluating Evidence on Public Health Interventions." *J. Epidemiology and Community Health* 2002; 56:119–127. Accessed from <http://jech.bmjournals.com/cgi/reprint/56/2/119> August 28, 2008.
- ¹⁴ Lamar Soutter Library, UMass Medical School. "About Evidence-Based Practice for Public Health." Accessed from <http://library.umassmed.edu/ebpph/about.cfm> on August 28, 2008.
- ¹⁵ Anderson LM, Brownson RC, Fullilove MT, Teutsch SM, Novick LF, Fielding J, Land GH. "Evidence-Based Public Health Policy and Practice: Promises and Limits. *American Journal of Preventive Medicine*. 2005; 28(5S): 226–230. Accessed from <http://www.thecommunityguide.org/library/gen-AJPM-c-evidence-based-policy-promise&limits.pdf> August 28, 2008.
- ¹⁶ National Association of County and City Health Officials. "Statement of Policy Support for Evidence-Based Public Health, Revised September 2007." Accessed from <http://www.naccho.org/advocacy/positions/upload/0012-EvidenceBasedPHresolution.pdf> August 28, 2008
- ¹⁷ Wholey JS, Hatry HP, Newcomer KE, eds. *Handbook of Practical Program Evaluation*. San Francisco: Jossey-Bass, 2nd edition, 2004, page 549.
- ¹⁸ Fielding JE, Briss PA. "Promoting Evidence-Based Public Health Policy: Can We Have Better Evidence and More Action?" *Health Affairs* 2006;25(4): 969–978.
- ¹⁹ HIV/AIDS Bureau, Health Resources and Services Administration. *Cost-and-Performance-Based Contracting: A Guide for Ryan White CARE Act Grantees*. HIV/AIDS Evaluation Monograph Series Report #3. Wash-

ington: Department of Health and Human Services, 1998. Accessed from <ftp.hrsa.gov/pubs/rwcacost.pdf> August 28, 2008.

²⁰ Lomas J. "Using 'Linkage and Exchange' to Move Research into Policy at a Canadian Foundation." *Health Affairs* 2000;19(3):236–239. Accessed from <http://content.healthaffairs.org/cgi/reprint/19/3/236?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&andorexactfulltext=and&searchid=1&FIRSTINDEX=0&volume=19&firstpage=236&resourcetype=HWCIT> August 28, 2008.

²¹ Meyer JA, Alteras TT, Adams KB. *Toward More Effective Use of Research in State Policymaking*. Fund Report. New York: The Commonwealth Fund, December 2006. Accessed from http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=437168#areaCitation August 28, 2008.

²² Weitzman ER, Nelson TF. "College Student Binge Drinking and the Prevention Paradox." *Journal of Drug Education* 2004; 34(3):247–66. Accessed from http://www.hsph.harvard.edu/cas/Documents/paradox/Prev_Paradox.pdf August 28, 2008.

²³ Rychetnik L, Frommer M, Hawe P, Shiell A. "Criteria for Evaluating Evidence on Public Health Interventions." *J. Epidemiology and Community Health* 2002; 56:119–127. Accessed from <http://jech.bmjournals.com/cgi/reprint/56/2/119> August 28, 2008

²⁴ Fielding JE, Marks JS, Myers BW, Nolan PA, Rawson RD, Toomey KE. "How do we translate science into public health policy and law?" *The Journal of Law, Medicine, & Ethics* 2002;30(3): 22–32.

²⁵ Birkland, TA. *An Introduction to the Policy Process: Theories, Concepts, and Models of Public Policy Making*. Armonk, NY: M.E. Sharpe. 2nd edition (2005), page 160.

²⁶ Meyer JA, Alteras TT, Adams KB. *Toward More Effective Use of Research in State Policymaking*. Fund Report. New York: The Commonwealth Fund, December 2006. Accessed from http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=437168#areaCitation August 28, 2008.

²⁷ Wholey JS, Hatry HP, Newcomer KE, eds. *Handbook of Practical Program Evaluation*. San Francisco: Jossey-Bass, 2nd edition, 2004, page 549.

²⁸ Fielding JE, Briss PA. "Promoting Evidence-Based Public Health Policy: Can We Have Better Evidence and More Action?" *Health Affairs* 2006;25(4): 969–978.

²⁹ Wholey JS, Hatry HP, Newcomer KE, eds. *Handbook of Practical Program Evaluation*. San Francisco: Jossey-Bass, 2nd edition, 2004, page 101.

³⁰ Partnership for Prevention. *What Policymakers Need to Know About Cost-effectiveness*. Washington, DC: Partnership for Prevention, 2001. Accessed from http://www.prevent.org/images/stories/Files/publications/Cost_Effectivness.pdf August 28, 2008.

³¹ Prosser LA, Bridges CB, Uyeki TM, Hinrichsen VL, Meltzer MI, Molinari N-AM, et al. "Health benefits, risks, and cost-effectiveness of influenza vaccination of children." *Emerging Infectious Diseases* [serial on the Internet]. 2006;12(10):1548–1558. Accessed from <http://www.cdc.gov/ncidod/eid/vol12no10/05-1015.htm> August 28, 2008

³² Zhou F, Santoli J, Messonnier M, Yusuf H, Shefer A, Chu S, Rodewald L, Harpaz R. "Economic Evaluation of the 7-Vaccine Routine Childhood Immunization Schedule in the United States, 2001." *Archives Pediatric Adolescent Medicine*. 2005;159:1136–1144. Accessed from <http://archpedi.ama-assn.org/cgi/reprint/159/12/1136> August 28, 2008

³³ Centers for Disease Control and Prevention. "Vaccine Preventable Diseases: Improving Coverage in Children, Adolescents, and Adults." Guide to Community Preventive Services Web site. January 17, 2003. Accessed from <http://www.thecommunityguide.org/vaccine/vpd.pdf> August 28, 2008

³⁴ Institute of Medicine. *Ending the Tobacco Problem: A Blueprint for the Nation*. Report Brief. Washington, DC: National Academies Press, 2007. Accessed from <http://www.iom.edu/Object.File/Master/43/183/Tobacco%20report%20brief%20general.pdf> August 28, 2008.

³⁵ Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs—2007*. Fact Sheet. Available at: http://www.cdc.gov/tobacco/tobacco_control_programs/stateandcommunity/best_practices/00_pdfs/2007/BestPracticesFactSheet.pdf Accessed August 28, 2008.

³⁶ Centers for Disease Control and Prevention. *Surgeon General's Statement on Community Water Fluoridation, 1995*. Available at: http://www.cdc.gov/fluoridation/fact_sheets/sg95.htm Accessed August 28, 2008.

³⁷ Centers for Disease Control and Prevention. "Public Health Focus: Fluoridation of Community Water Systems." *MMWR* 1992;41(21):372–375,381. Accessed from <http://www.cdc.gov/mmwr/preview/mmwrhtml/00016840.htm> August 28, 2008.

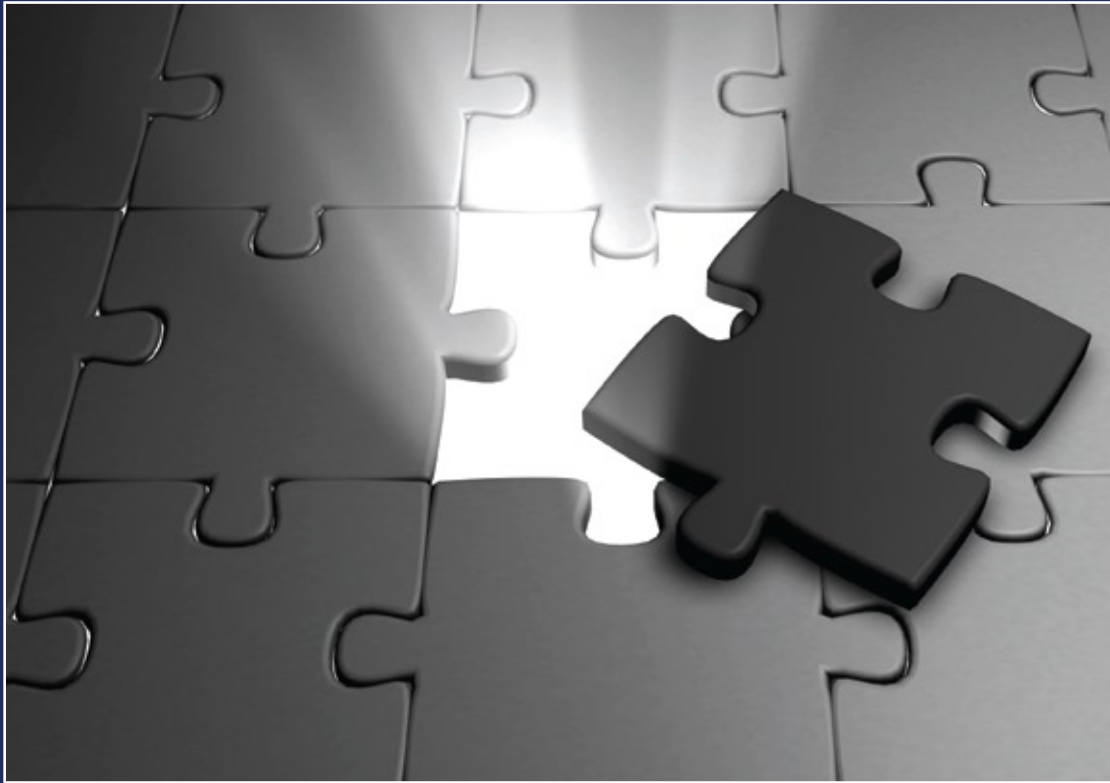
³⁸ Centers for Disease Control and Prevention. "Community-wide Campaigns are Recommended to Promote Physical Activity." Guide to Community Preventive Services Web site. November 15, 2005. Accessed from <http://www.thecommunityguide.org/pa/pa-int-comm-campaigns.pdf> August 28, 2008.

- ³⁹ Centers for Disease Control and Prevention. “Enhanced Physical Education Classes in Schools are Recommended to Increase Physical Activity Among Young People.” Guide to Community Preventive Services Web site. November 15, 2005. Accessed from <http://www.thecommunityguide.org/pa/pa-int-school-pe.pdf> August 28, 2008.
- ⁴⁰ Centers for Disease Control and Prevention. “Creating or Improving Access to Places for Physical Activity is Recommended to Increase Physical Activity.” Guide to Community Preventive Services Web site. November 15, 2005. Accessed from <http://www.thecommunityguide.org/pa/pa-int-create-access.pdf> August 28, 2008.
- ⁴¹ Centers for Disease Control and Prevention. “Point-of-Decision Prompts that Encourage People to Use the Stairs are Recommended to Promote Physical Activity.” Guide to Community Preventive Services Web site. November 15, 2005. Accessed from <http://www.thecommunityguide.org/pa/pa-int-decision-prompts.pdf> August 28, 2008.
- ⁴² Centers for Disease Control and Prevention. “Prevention of Skin Cancer by Reducing Exposure to UV Light through Educational and Policy Approaches in Primary Schools.” Guide to Community Preventive Services Web site. September 11, 2003. Accessed from <http://www.thecommunityguide.org/cancer/skin/cas-skin-int-reduce-exp-prim-school.pdf> August 28, 2008.
- ⁴³ Centers for Disease Control and Prevention. “New Findings Demonstrate Early Childhood Home Visitation Prevents Child Maltreatment.” Guide to Community Preventive Services Web site. September 9, 2003. Accessed from <http://www.thecommunityguide.org/violence/viol-int-homevisit.pdf> August 28, 2008.
- ⁴⁴ Hahn RA, Bilukha OO, Crosby A, Fullilove MT, Liberman A, Moscicki EK, Snyder S, et al. “First Reports Evaluating the Effectiveness of Strategies for Preventing Violence: Early Childhood Home Visitation.” Findings from the Task Force on Community Preventive Services. *MMWR* 2003;52(RR-14):1–9. Accessed from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5214a1.htm> August 28, 2008.
- ⁴⁵ Partnership for Prevention. Health Policy Priorities, Developed at the Request of Gov. Mike Huckabee, National Governors Association. Washington, DC: Partnership for Prevention, 2005. Accessed from http://www.prevent.org/images/stories/health_policy.pdf August 28, 2008.
- ⁴⁶ Centers for Disease Control and Prevention. “More Evidence is Needed to Determine the Effectiveness of School-based Programs to Improve Nutritional Status of Children and Adolescents.” Guide to Community Preventive Services Web site. July 11, 2005. Accessed from <http://www.thecommunityguide.org/nutrition/nutr-int-schools.pdf> August 28, 2008.
- ⁴⁷ Centers for Disease Control and Prevention. “More Evidence is Needed to Determine the Effectiveness of One-on-One Education in Increasing Colorectal Cancer Screening.” Guide to Community Preventive Services Web site. December 1, 2006. Accessed from http://www.thecommunityguide.org/cancer/screening/24_One_on_one_colorectal_post.pdf August 28, 2008.
- ⁴⁸ Centers for Disease Control and Prevention. “Effectiveness of Diabetes Self-Management Education Interventions.” Guide to Community Preventive Services Web site. December 27, 2002. Accessed from <http://www.thecommunityguide.org/diabetes/dm-int-self-mgt-ed.pdf> August 28, 2008.
- ⁴⁹ Norris SL, Nichols PJ, Caspersen CJ, Glasgow RE, Engelgau MM, Jack L, Snyder SR, et al and the Task Force on Community Preventive Services. “Increasing Diabetes Self-Management Education in Community Settings, A Systematic Review.” *Am J Preventive Medicine* 2002;22(4S):39–66. Accessed from <http://www.thecommunityguide.org/diabetes/dm-AJPM-evrev-incr-DSME-comm.pdf> August 28, 2008.
- ⁵⁰ Anderson LM, Scrimshaw SC, Fullilove MT, Fielding JE, Normand J and the Task Force on Community Preventive Services. “Culturally Competent Healthcare Systems, A Systematic Review.” *Am J Preventive Medicine* 2003;24(3S):68–79. Accessed from <http://www.thecommunityguide.org/social/soc-AJPM-evrev-healthcare-systems.pdf> August 28, 2008.
- ⁵¹ Centers for Disease Control and Prevention. “More Evidence is Needed to Determine the Effectiveness of Transportation and Travel Policies and Practices in Increasing Physical Activity.” Guide to Community Preventive Services Web site. July 19, 2006. Accessed from <http://www.thecommunityguide.org/pa/pa-int-policy-transport-travel.pdf> August 28, 2008.
- ⁵² Centers for Disease Control and Prevention. “Task Force Recommends Against Policies and Laws Facilitating Transfer of Youth to the Adult Justice System to Reduce Violence among Transferred Youth. Guide to Community Preventive Services Web site. April 13, 2007. Accessed from http://www.thecommunityguide.org/violence/Violence-YouthTransfer_rev.pdf August 28, 2008.
- ⁵³ Ennett ST, Tobler NS, Ringwalt, CL, Flewelling RL. “How Effective is Drug Abuse Resistance Education? A Meta-Analysis of Project DARE Outcome Evaluations.” *Am J Public Health* 1994;84(9):1394–1401. Accessed from <http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1615171&blobtype=pdf> August 28, 2008.
- ⁵⁴ California Department of Health Services, Tobacco Control Section. “Legislative Mandate for Tobacco Control—Proposition 99.” Accessed from <http://www.cdph.ca.gov/programs/Tobacco/Pages/CTCPLegislativeMandateforTobaccoControl-Prop99.aspx> August 28, 2008.

- ⁵⁵ Eddy DM. "David Eddy ranks the tests." *Harvard Health Letter* 1992;17(9):10–11. Accessed from http://find-articles.com/p/articles/mi_m1585/is_n9_v17/ai_12449817/print?tag=artBody;coll August 28, 2008.
- ⁵⁶ Centers for Disease Control and Prevention. Third National Report on Human Exposure to Environmental Chemicals. Atlanta (GA): CDC, 2005. Accessed from <http://www.cdc.gov/exposurereport/report.htm> August 28, 2008.
- ⁵⁷ Centers for Disease Control and Prevention. "Tobacco Use Prevention and Control." January 17, 2003. Guide to Community Preventive Services Web site. Accessed from <http://www.thecommunityguide.org/tobacco/tobac.pdf> August 28, 2008.
- ⁵⁸ Centers for Disease Control and Prevention. "Increasing the Unit Price for Tobacco Products is Effective in Reducing Initiation of Tobacco Products and in Increasing Cessation." Guide to Community Preventive Services Web site. January 3, 2003. Accessed from: <http://www.thecommunityguide.org/tobacco/tobac-int-unit-price.pdf> August 28, 2008.
- ⁵⁹ Chaloupka FJ. "The Economics of Tobacco Taxation." PowerPoint Presentation at National Tobacco Control Program and Evaluation Meeting, Atlanta, GA. October 18, 2006.
- ⁶⁰ Accessed from http://www.impacteen.org/generalarea_PDFs/CDC_NTCPEM_chaloupka101806.pdf August 28, 2008.
- ⁶¹ Centers for Disease Control and Prevention. "Responses to Increases in Cigarette Prices By Race/Ethnicity, Income, and Age Groups – United States 1976–1993," *MMWR* 1998;47(29):605–609. Accessed from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/00054047.htm> August 28, 2008.
- ⁶² Ross H, Chaloupka FJ. The Effect of Public Policies and Prices on Youth Smoking. Research Paper Series, No.8. Chicago:University of Illinois at Chicago, 2001. Accessed from http://www.uic.edu/orgs/impacteen/generalarea_PDFs/policypaper_feb2001.pdf August 28, 2008.
- ⁶³ Tauras JA, Chaloupka FJ. "The Demand for Nicotine Replacement Therapies." *Nicotine and Tobacco Research* 2003;5(2):237–243.
- ⁶⁴ Ross H, Chaloupka FJ, Wakefield M. "Youth Smoking Uptake Progress: Price and Public Policy Effects, Tobacco Control Reports on Industry Activity from Outside UCSF." eScholarship Repository Web site, 2003 (Paper YO3). Accessed from <http://repositories.cdlib.org/context/tc/article/1065/type/pdf/viewcontent/> August 28, 2008.
- ⁶⁵ Ross H and Chaloupka FJ. "Economics of Tobacco Control," June 26, 2002. International Tobacco Evidence Network. Accessed from http://www.tobaccoevidence.net/pdf/WEurope_activites/CanaryIsland_Hana&Frank.pdf November 29, 2007.
- ⁶⁶ California Department of Health Services, Tobacco Control Section. "Legislative Mandate for Tobacco Control—Proposition 99." Accessed from <http://www.cdph.ca.gov/programs/Tobacco/Pages/CTCPLegislativeMandateforTobaccoControl-Prop99.aspx> August 28, 2008.
- ⁶⁶ Rohrbach LA, Howard-Pitney B, Unger JB, Dent CW, Howard KA, Cruz TB, et al. "Independent Evaluation of the California Tobacco Control Program: Relationships Between Program Exposure and Outcomes, 1996–1998." *Am J Public Health* 2002;92(6):975–983. August 28, 2008.
- ⁶⁷ Bal DG, Lloyd JC and Manley MW. "The Role of the Primary Care Physician in Tobacco Use Prevention and Cessation." *CA—A Cancer Journal for Clinicians* 1995;45(6):369–74. Accessed from <http://caonline.amcancer-soc.org/cgi/reprint/45/6/369.pdf> August 28, 2008.
- ⁶⁸ National Heart, Lung & Blood Institute. "Stanford Five-City Multifactor Risk Reduction Study, 1978–1998." National Institutes of Health Clinical Trials Web site. Accessed from <http://clinicaltrials.gov/ct/show/NCT00005143> August 28, 2008.
- ⁶⁹ Shopland DR, Burns DM, Thompson B, Lynn WR. "Smoking Control and the COMMIT Experience—Summary and Overview." National Cancer Institute. Monograph 6: Community-Based Interventions for Smokers: The COMMIT Field Experience. Bethesda: NCI, August 1995, 1–14. Accessed from <http://cancercontrol.cancer.gov/tcrb/monographs/6/index.html> August 28, 2008.
- ⁷⁰ Novotny TE, Siegal MB. "California's Tobacco Control Saga." *Health Affairs* 1996; 15(1):58–72. Accessed from <http://content.healthaffairs.org/cgi/reprint/15/1/58.pdf> September 12, 2008.
- ⁷¹ Bal DG, Kizer KW, Felten PG, Mozar HN, Niemeyer D. "Reducing Tobacco Consumption in California." *JAMA* 1990;264(12):1570–4.
- ⁷² Moon RW, Havlicek D, Garcia JM, Vollinger RE, Motsinger BM. "The Conceptual Framework." National Cancer Institute. Monograph 16: ASSIST Shaping the Future of Tobacco Prevention and Policy. Bethesda: NCI, May 2005, 21–37. Accessed from <http://cancercontrol.cancer.gov/tcrb/monographs/16/index.html> September 12, 2008.

- ⁷¹ Bal DG, Kizer KW, Felten PG, Mozar HN, Niemeyer D. "Reducing Tobacco Consumption in California." *JAMA* 1990;264(12):1570–4.
- ⁷² Moon RW, Havlicek D, Garcia JM, Vollinger RE, Motsinger BM. "The Conceptual Framework." National Cancer Institute. Monograph 16: ASSIST Shaping the Future of Tobacco Prevention and Policy. Bethesda: NCI, May 2005, 21–37. Accessed from <http://cancercontrol.cancer.gov/tcrb/monographs/16/index.html> September 12, 2008.
- ⁷³ California Department of Health Services, Tobacco Control Section. "A Model for Change: the California Experience in Tobacco Control," 1998. Accessed from <http://www.cdph.ca.gov/programs/Tobacco/Documents/CTCPmodelforchange1998.pdf> September 12, 2008.
- ⁷⁴ Bal DG. "Designing an Effective Statewide Tobacco Control Program – California." *Cancer* 1998; 83(12S): 2717–21. Accessed from <http://www3.interscience.wiley.com/cgi-bin/fulltext/75501091/PDFSTART> September 12, 2008.
- ⁷⁵ Russell CM. "Evaluation: Methods and Strategy for Evaluation-California." *Cancer* 1998;83(12S):2755–9. Accessed from: <http://www3.interscience.wiley.com/cgi-bin/fulltext/75501099/PDFSTART> August 28, 2008.
- ⁷⁶ California Department of Health Services, Tobacco Control Section, "Cigarette Consumption," 2005. Accessed from <http://www.cdph.ca.gov/programs/Tobacco/Documents/CTCPConsumption05.pdf> August 28, 2008.
- ⁷⁷ Fichtenberg CM, Glantz SA. "Association of the California Tobacco Control Program with Declines in Cigarette Consumption and Mortality from Heart Disease." *New England Journal Medicine* 2000;343(24):1772–7. Accessed from <http://content.nejm.org/cgi/reprint/343/24/1772.pdf> August 28, 2008.
- ⁷⁸ Centers for Disease Control and Prevention. "Declines in lung cancer rates: California, 1988–1997." *MMWR* 2000;49(47):1066–1069. Accessed from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4947a4.htm> August 28, 2008.
- ⁷⁹ Riordan M. "Comprehensive Tobacco Prevention and Cessation Programs Effectively Reduce Tobacco Use," March 3, 2008. Campaign for Tobacco Free Kids Web site. Accessed from <http://www.tobaccofreekids.org/research/factsheets/pdf/0045.pdf> August 28, 2008.
- ⁸⁰ Pierce JP, Gilpin EA, Emery SL, Farkas AJ, Zhu SH, et al. "Tobacco Control in California: Who's Winning the War? An Evaluation of the Tobacco Control Program, 1989–1996." La Jolla, California: University of California, San Diego, 1998. Accessed from: <http://ssdc.ucsd.edu/ssdc/pdf/FullReport.pdf> August 28, 2008.
- ⁸¹ Gilpin EA, Emery SL, Farkas AJ, Distefan JM, White MM, Pierce JP. "The California Tobacco Control Program: A Decade of Progress, Results from the California Tobacco Survey, 1990–1998." La Jolla, California: University of California, San Diego; 2001. Accessed from: <http://repositories.cdlib.org/context/tc/article/1141/type/pdf/viewcontent> August 28, 2008.
- ⁸² Campaign for Tobacco Free Kids. "A Broken Promise to Our Children: The 1998 State Tobacco Settlement Eight Years Later." December 6, 2006. Accessed from <http://www.tobaccofreekids.org/reports/settlements/2007/fullreport.pdf> August 28, 2008.





The Council of State Governments' (CSG) Healthy States Initiative is designed to help state leaders make informed decisions on public health issues. The enterprise brings together state legislators, officials from the Centers for Disease Control and Prevention, state health department officials, and public health experts to share information, analyze trends, identify innovative responses, and provide expert advice on public health issues.

Funding for this publication is provided by the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, under Cooperative Agreement U38/CCU424348. Points of view in this document are those of the author and do not necessarily represent the official position or policies of the U.S. government.