ISSUE REPORT

Prevention for a Healthier America:

INVESTMENTS IN DISEASE PREVENTION YIELD SIGNIFICANT SAVINGS, STRONGER COMMUNITIES

FEBRUARY 2009

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Acknowledgements:

This issue brief is supported by a grant from the ***Robert Wood Johnson Foundation*** *and* ***The California Endowment.*** *The opinions expressed are those of the authors and do not necessarily reflect the views of the Foundations.*

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TRUST FOR AMERICA'S HEALTH

IS A NON-PROFIT, NON-PARTISAN ORGANIZATION DEDICATED TO SAVING LIVES BY PROTECTING THE HEALTH OF EVERY COMMUNITY AND WORKING TO MAKE DISEASE PREVENTION A NATIONAL PRIORITY.

SECTION 1

Introduction and Key Findings

Even though America spends more than $2 trillion annually on health care -- more than any other nation in the world -- tens of millions of Americans suffer every day from preventable diseases like type 2 diabetes, heart disease, and some forms of cancer that rob them of their health and quality of life.[1]

Keeping people healthier is one of the most effective ways to reduce health care costs. This study, which was developed through a partnership of the Trust for America's Health (TFAH), The Urban Institute, The New York Academy of Medicine (NYAM), the Robert Wood Johnson Foundation (RWJF), The California Endowment (TCE), and Prevention Institute, examines how much the country could save in health care costs if we invested more in disease prevention, specifically by funding proven community-based programs that result in increased levels of physical activity, improved nutrition (both quality and quantity of food), and a reduction in smoking and other tobacco use rates.

The researchers found that if the country reduced type 2 diabetes and high blood pressure rates by 5 percent the country could save more than $5 billion in health care costs; also reducing heart disease, kidney disease, and stroke prevalence by 5 percent could raise the savings to more than $19 billion; and with additional 2.5 percent reductions in the prevalence of some forms of cancer, chronic obstructive pulmonary disease (COPD) and arthritis savings could increase to more than $21 billion. A review of a range of evidence-based studies shows that proven community-based disease prevention programs can lead to improvements in physical activity, nutrition, and preventing smoking and other tobacco use can lead to reductions of type 2 diabetes and high blood pressure by 5 percent in one to 2 years; heart disease, kidney disease, and stroke by 5 percent in 5 years; and some forms of cancer, COPD, and arthritis by 2.5 percent in 10 to 20 years. According to the literature, the per capita cost of many effective community-based programs is under $10 per person per year.

Therefore, TFAH concludes that an investment of $10 per person per year in proven community-based disease prevention programs could yield net savings of more than $2.8 billion annually in health care costs in one to 2 years, more than $16 billion annually within 5 years, and nearly $18 billion annually in 10 to 20 years (in 2004 dollars). With this level of investment, the country could recoup nearly $1 over and above the cost of the program for every $1 invested in the first one to 2 years of these programs, a return on investment (ROI) of 0.96. Within 5 years, the ROI could rise to 5.6 for every $1 invested and rise to 6.2 within 10 to 20 years. This return on investment represents medical cost savings only and does not include the significant gains that could be achieved in worker productivity, reduced absenteeism at work and school, and enhanced quality of life.

NATIONAL RETURN ON INVESTMENT OF $10 PER PERSON (Net Savings in 2004 dollars)

	1-2 Years	5 Years	10-20 Years
U.S. Total	$2,848,000,000	$16,543,000,000	$18,451,000,000
ROI	0.96:1	5.6:1	6.2:1

RETURN ON INVESTMENT

In general, ROI compares the dollars invested in something to the benefits produced by that investment:

$$ROI = \frac{(\text{benefits of investment - amount invested})}{\text{amount invested}}$$

In the case of an investment in a prevention program, ROI compares the savings produced by the intervention, net of the cost of the program, to how much the program cost:

$$ROI = \frac{\text{net savings}}{\text{cost of intervention}}$$

When ROI equals 0, the program pays for itself. When ROI is greater than 0, then the program is producing savings that exceed the cost of the program.

The researchers evaluated 84 studies that met their criteria to develop the assumptions for the drops in disease rates and the costs of the programs. To be included in the review, the studies had to focus on:

1) Prevention programs that do not require medical treatment;

2) Programs that target communities rather than individuals; and

3) Evidence-based programs that have been shown to reduce disease through improving physical activity and nutrition and preventing smoking and other tobacco use in communities.

Examples of the types of studies include programs that:

- Keep schools open after hours where children can play with adult supervision;
- Provide access to fresh produce through farmers markets;
- Make nutritious foods more affordable and accessible in low-income areas;
- Require clear calorie and nutrition labeling of foods;
- Provide young mothers with information about how to make good choices about nutrition;
- Offer information and support for people trying to quit smoking and other tobacco use; and
- Raise cigarette and other tobacco tax rates.

Note: Additional examples can be found in the Methodology Section and a full list of all the studies is available in Appendix A: Bibliography of the Literature Review.

To build the model, the researchers evaluated:

- Which diseases can be affected by improving physical activity and nutrition and preventing smoking and other tobacco use;
- How effective programs are at reducing rates of disease;
- The range of estimated costs for these types of programs;
- The current rates of these diseases and current annual costs for treating these diseases; and
- The amount that could be saved if disease rates were reduced based on the estimates.

The project researchers built this model to yield **conservative estimates** for savings -- using low-end assumptions for the impact of these programs on disease rates and high-end

assumptions for the costs of the programs. In addition, the health savings costs in this model are in 2004 dollars and do not include spending in nursing homes, which is significant for these conditions. They also assumed the programs would only result in a one-time reduction in the prevalence of each disease. For instance, they assumed type 2 diabetes rates would only drop once even though the programs would continue over time and it is likely the rates would continue to drop as the programs continued over the years. This assumption helps take into account the possibility that some people may backslide while others may continue to improve.

The model also does not take into account potential savings for increases in worker productivity, which could be significant. For example, smoking-caused productivity losses currently total more than $90 billion per year, not even including the losses from smokers taking more sick days than nonsmokers.[2] Nor does it take into account the effect of the prevention programs on other health conditions that might be reduced as a result of these interventions (e.g., increasing exercise improves heart health as well as risk of injury due to falling).

For more details on the methodology, see Section 4.

ROI FOR PAYERS: MEDICARE, MEDICAID, AND PRIVATE INSURERS

In addition to total dollars saved, the study looked at how this investment could benefit different health care payers.

Medicare could save more than $487 million annually in the first one to 2 years, more than $5.2 billion annually within 5 years, and nearly $5.9 billion annually in 10 to 20 years.

Annually, Medicaid could save $370 million annually in the first one to 2 years, some $1.9 billion annually within 5 years, and more than $2 billion annually in 10 to 20 years.

And, annually private insurers and individuals (through reductions of out-of-pocket costs) could see the biggest savings, with nearly $2 billion annually in the first one to 2 years, more than $9 billion annually within 5 years, and more than $10 billion annually in 10 to 20 years.

Net Savings By Medicare, Medicaid, And Private Insurers For An Investment Of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare, U.S. Total	$487,000,000	$5,213,000,000	$5,971,000,000
Medicaid, U.S. Total	$370,000,000	$1,951,000,000	$2,195,000,000
Other payers and out-of-pocket, U.S. Total	$1,991,000,000	$9,380,000,000	$10,285,000,000

* In 2004 dollars, net savings

A HEALTHIER AND LESS COSTLY LIFE: NOT JUST DEFERRING COSTS TO END OF LIFE

The return on investment for community-based disease prevention programs does not just defer high health care costs to the end of life. By increasing physical activity and good nutrition and decreasing smoking and other tobacco use, we are ensuring that more people will be healthier for longer periods of their life.

Being healthier throughout their lifetimes, these individuals might avoid developing complications or compounding conditions that may develop if they are less healthy (e.g., gain too much weight, are physically inactive, or practice poor nutrition).

A recent study by Lakdawalla, Goldman, and Shang in Health Affairs demonstrated that obese and non-obese people have similar life expectancies, but the health care costs of an obese person will be significantly higher than a non-obese person over the course of a lifetime. Therefore, higher costs are not offset by reduced longevity. Obese people also have "fewer disability-free life years and experience higher rates of diabetes, hypertension, and heart disease."[3]

As one example, a person who is obese has a higher risk for needing a knee replacement. If the obesity is prevented, the need -- and cost -- for a knee replacement may be delayed or avoided altogether.

Also, studies have found that smokers, on average, have significantly higher health care costs than non-smokers, but smokers dying sooner does not save money.[4, 5]

Scientists refer to this effect as "compression of morbidity," which means extending healthy life expectancy more than total life expectancy. Chronic disease and disability are compressed into a smaller portion of a person's life -- and his or her lifelong health care management costs are lower and quality of life is improved.[6, 7]

DIFFERENT TYPES OF PREVENTION EFFORTS YIELD DIFFERENT RETURNS

A number of studies have examined whether prevention efforts result in cost savings in addition to helping people be healthier. A February 2008 article, "Does Preventive Care Save Money? Health Economics and the Presidential Candidates," in *The New England Journal of Medicine (NEJM)* reviewed a wide range of studies looking at the potential cost-savings for prevention programs and noted that "studies have concluded that preventing illness can in some cases save money but in other cases can add to health care costs."[8]

There are 3 types of prevention: primary, secondary, and tertiary. Primary prevention involves taking action before a problem arises in order to avoid it entirely, rather than treating or alleviating its consequences. Primary prevention can include clinical interventions, such as specific immunizations, and broader public health interventions, such as clean water and sewage systems; fortification of food with specific nutrients, such as folic acid; and protection from carcinogens, such as second-hand tobacco smoke.

Secondary prevention is a set of measures used for early detection and prompt intervention to control a problem or disease and minimize the consequences, while tertiary prevention focuses on the reduction of further complications of an existing disease or problem, through treatment and rehabilitation.[9]

Many factors influence whether specific prevention efforts result in cost-savings. For instance, prevention efforts involving direct medical treatment or pharmaceuticals often have higher costs. These "tertiary" prevention measures are aimed at trying to reverse a condition or prevent it from getting worse. "Secondary" prevention efforts, which include early detection and prompt intervention to control a problem or disease and minimize the consequences of a disease, are more cost-effective if they are targeted to at-risk populations. In addition, the *NEJM* authors acknowledged that there are prevention programs that are not implemented on a wide enough scale to determine whether they could bring about "substantial aggregate improvements in health at an acceptable cost."[10]

The TFAH model is based on studies of strategic low-cost, community-based primary and secondary prevention efforts that have demonstrated results in lowering disease rates or improving health choices, but do not involve direct medical care.

SECTION 2

Current Health and Economic Costs

ASSOCIATED WITH PHYSICAL INACTIVITY, POOR NUTRITION, AND SMOKING AND OTHER TOBACCO USE

ACCORDING TO MCKINSEY & COMPANY AS OF 2008, "THE AVERAGE FORTUNE 500 COMPANY WILL SPEND AS MUCH ON HEALTH CARE AS THEY MAKE IN PROFIT. HOW CAN WE POSSIBLY COMPETE IN THE GLOBAL ECONOMY WITH THAT KIND OF BURDEN?"[11]

— ANDY STERN, PRESIDENT OF THE SERVICE EMPLOYEES INTERNATIONAL UNION (SEIU)

"IF WE CAN CREATE A HEALTH CARE PLAN THAT CONTAINS COSTS OR DRIVES THEM DOWN, THAT IMPROVES THE HEALTH OF THE EMPLOYEE AND EXTENDS THEIR LIFE, AND AVOIDS CATASTROPHIC ILLNESS AND DOESN'T COST THEM ANY MORE MONEY, WHY WOULD ANYONE QUARREL WITH THAT PLAN?"[12]

— STEVEN BURD, CHIEF EXECUTIVE OFFICER OF SAFEWAY

General Motors (GM) estimates it pays $1,500 per car produced in health care coverage costs to employees and retirees (more than it pays for steel), and these costs are passed onto the consumer. In addition, GM claims that rising health care costs were a critical factor in the decision to cut 25,000 jobs (a cut that can impact up to 175,000 jobs in other sectors of the economy).[13, 14]

America's future economic well-being is inextricably tied to our health. Helping Americans stay healthier is the best way to drive down health care costs and ensure our workforce is competitive in the global economy.

The skyrocketing costs of health care are hurting the U.S. economy. Health care costs are more than 3 times higher than in 1990 and more than 8 times higher than in 1980.[15]

Poor health is putting our economic security in jeopardy. High health care costs are undermining business profits, causing some companies to relocate jobs overseas where costs are lower and productivity is higher. And if we invest more in keeping Americans healthy, not only will we spare millions of people from needless suffering, we will also save the country billions of dollars.

Right now, however, America's health care system is set up to focus on treating people once they have a health problem. Some experts describe this as "sick care" instead of health care.

The country will never be able to contain health care costs until we start focusing on how to prevent people from getting sick in the first place, putting an emphasis on improving the choices we make that affect

our risk for preventable diseases. Experts widely agree that 3 of the most important factors that influence our health are:

1) Physical activity;

2) Nutrition (including eating foods of high nutritional value and in the right quantities); and

3) Whether or not we smoke.

As a nation, if we develop strategies and programs that help more Americans become physically active, practice good nutrition, and stop smoking and other tobacco use (while also helping our youth from ever starting smoking or other unhealthy practices), we could have a tremendous payoff both in improving health and reducing health care costs.

MAJOR FACTORS IN U.S. HEALTH: LACK OF PHYSICAL ACTIVITY, POOR NUTRITION, AND SMOKING AND TOBACCO USE

In the past 3 decades, the health of Americans has changed dramatically. Adult obesity rates have doubled since 1980, and childhood obesity rates have tripled.[16] Two-thirds of adults are either overweight or obese.[17] The childhood obesity epidemic is putting today's youth on course to possibly be the first generation to live shorter, less healthy lives than their parents.[18] In addition, after years of declines, smoking rates have leveled off, with 21 percent of adults and 20 percent of high school students continuing to smoke.[19, 20, 21] Obesity and smoking put people at significantly higher risk for developing serious and costly diseases.

Current Health Statistics

Right now, more than half of Americans live with one or more chronic disease, such as heart disease, stroke, diabetes, or cancer.[22]

- One in 4 Americans has heart disease, one in 3 has high blood pressure.[23]
- Twenty-four million Americans have type 2 diabetes, and another 54 million are pre-diabetic, at high risk for developing type 2 diabetes.[24, 25, 26] An estimated 2 million adolescents have pre-diabetes.[27]

The risks of developing heart disease, stroke, and kidney disease are exponentially higher if a person is both obese and a smoker. There are other conditions related to activity, nutrition, and smoking, but combined, these sets of diseases are the most common and costly.

Diseases Related to Physical Inactivity and Poor Nutrition

People who do not engage in adequate physical activity, have poor nutrition habits, and/or are obese are at increased risk for type 2 diabetes, high blood pressure (hypertension), heart disease, stroke, kidney disease, some forms of cancer, arthritis, and chronic obstructive pulmonary disease (COPD).[28]

- More than 75 percent of high blood pressure cases can be attributed to obesity.[29]
- Over time, type 2 diabetes and high blood pressure put people at increased risk for developing even more serious conditions, including heart disease, stroke, or kidney disease.
- Other obese or inactive individuals can also develop heart disease, stroke, or kidney disease without first being diabetic or hypertensive.
- Approximately 20 percent of cancer in women and 15 percent of cancer in men can be attributed to obesity.[30]
- Obesity is a known risk factor for the development and progression of knee osteoarthritis and possibly osteoarthritis of other joints. For example, obese adults are up to 4 times more likely to develop knee osteoarthritis than normal weight adults.[31] Among individuals who have received a doctor's diagnosis of arthritis 68.8 percent are overweight or obese.[32] For every pound of body weight lost, there is a 4-pound reduction in knee joint stress among overweight and obese people with osteoarthritis of the knee.[33]

Financial Costs of Obesity, Physical Inactivity, and Poor Nutrition

- More than one quarter of America's health care costs are related to obesity.[34, 35] Health care costs of obese workers are up to 21 percent higher than non-obese workers.[36] Obese and physically inactive workers also suffer from lower worker productivity, increased absenteeism, and higher workers' compensation claims.[37]
- The Minnesota Department of Health estimates physical inactivity costs the state approximately $100 per person (year 2000 costs), at a total of $495 million in direct costs ($383 million in hospital, outpatient, and professional expenses and $112 million for outpatient prescription drugs.)[38] BlueCross BlueShield of Minnesota found that 31 percent of its heart disease, stroke, colon cancer, and osteoporosis costs were due to physical inactivity -- about $84 million in 2000, which was $56 per member, regardless of their level of activity.[39] Canadian researchers estimate that Canada could save $150 million per year of the $2.1 billion it currently spends on health care costs related to physical inactivity (25 percent of costs of coronary artery disease, stroke, hypertension, colon cancer, breast cancer, type 2 diabetes, and osteoporosis) if activity levels were increased by 10 percent.[40]

Current Physical Activity and Nutrition Falls Short of National Goals

- The percent of adults who do not engage in any form of physical activity ranges from 15.7 percent in Minnesota to 31.8 percent in Mississippi, and many more do not engage in the recommended levels.[41]
- Many Americans are eating larger quantities of food than is healthy and they are often consuming foods with low nutritional value. On average, we consume approximately 300 more calories daily than Americans did in 1985.[42]
- The U.S. Department of Agriculture (USDA) reports that America's fruit and vegetable consumption is "woefully low" and is limited to only a small range of potential options.[43]
- Since the 1980s, sugar and fat consumption has dramatically increased while whole grains and milk consumption has dropped.[44, 45]

Diseases Related To Smoking

Smoking harms nearly every organ in the body.[46]

- Smoking causes the vast majority of all deaths from lung cancer.
- Smoking is a major cause of heart disease, cerebrovascular disease, chronic bronchitis and emphysema.[47]
- Smoking is a known cause of cancer of the lung, larynx, oral cavity, bladder, pancreas, uterus, cervix, kidney, stomach and esophagus.[48]

Financial Costs of Smoking

- Tobacco use costs the U.S. more than $180 billion annually in health care bills and lost productivity.[49] Lifetime health care costs for individuals who smoke are $17,500 higher than for those who do not smoke.[50]

Current Smoking Rates Fall Short of National Goals

- Despite progress over the past decade, every single day more than 1,000 new kids become regular, daily smokers while another 4,000 kids try their first cigarette.[51]

State-By-State ROI

SECTION 3

This section examines how much states could save if we invested $10 per person in strategic community-based disease prevention programs aimed at improving physical activity and nutrition and preventing smoking and other tobacco use.

The estimates in this section characterize likely relative magnitudes of the savings states could realize from well-designed community-level programs implemented statewide. These estimates should be considered preliminary for two reasons. First, they are based on the estimated national proportions of spending attributable to persons with intervention-amenable diseases applied to state data on spending by payer reported by CMS.[52] TFAH calculated them using preliminary estimates of savings by state and payer produced by Urban Institute researchers. The estimates do not take into account differences in state population characteristics, such as the distribution by age and ethnicity, disease prevalence, or environmental characteristics, such as urban/rural population distribution, which can have a significant effect on costs and savings. For example, state prevalences range from 4 percent to 9.8 percent for diabetes, 20 percent to 32.5 percent for hypertension, and 24 percent to 37.3 percent for high cholesterol.[53]

Second, community-based interventions target entire communities. Health insurance coverage in most communities is mixed with some people covered by private insurance and others by Medicaid or Medicare. Some community residents are uninsured. Disease patterns also vary by community and these patterns may be associated with insurance coverage, as in the case of age and Medicare coverage. Distribution of costs of program interventions to different payers across the community is, therefore, not straightforward. While the reductions in medical expenditures can be assigned to specific payers, costs of the intervention are not assignable.

The federal and state governments share the costs of Medicaid, however, each state pays a different percentage share. The following state charts reflect the proportions that the federal and state governments pay in each state based on their percentage share according to the data in the Kaiser Family Foundation's www.statehealthfacts.org "Federal and State Share of Medicaid Spending, FY 2006.

Alabama

Total Annual Intervention Costs (at $10 per person): $45,170,000

Alabama Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$87,800,000	$295,700,000	$324,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$42,600,000	$250,600,000	$279,500,000
ROI for State	0.94:1	5.55:1	6.19:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$11,500,000	$67,600,000	$75,400,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,870,000	$16,800,000	$18,800,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,260,000	$7,410,000	$8,270,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$27,000,000	$158,600,000	$176,900,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Alaska

Total Annual Intervention Costs (at $10 per person): $6,570,000

Alaska Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$16,000,000	$53,800,000	$59,100,000
State Net Savings (Net savings = Total savings minus intervention costs)	$9,430,000	$47,300,000	$52,500,000
ROI for State	1.44:1	7.20:1	8.01:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$2,540,000	$12,700,000	$14,200,000
Medicaid Net Savings (federal share) (proportion of net savings)	$459,000	$2,300,000	$2,560,000
Medicaid Net Savings (state share) (proportion of net savings)	$455,000	$2,280,000	$2,540,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$5,970,000	$29,900,000	$33,200,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Arizona

Total Annual Intervention Costs (at $10 per person): $57,460,000

Arizona Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$89,000,000	$299,700,000	$329,100,000
State Net Savings (Net savings = Total savings minus intervention costs)	$31,500,000	$242,200,000	$271,600,000
ROI for State	0.55:1	4.22:1	4.73:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$8,510,000	$65,400,000	$73,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,050,000	$15,700,000	$17,600,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,010,000	$7,750,000	$8,690,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$19,900,000	$153,300,000	$171,900,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Arkansas

Total Annual Intervention Costs (at $10 per person): $27,470,000

Arkansas Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$49,600,000	$167,100,000	$183,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$22,100,000	$139,600,000	$156,000,000
ROI for State	0.81:1	5.09:1	5.68:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$5,980,000	$37,700,000	$42,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,580,000	$10,000,000	$11,100,000
Medicaid Net Savings (state share) (proportion of net savings)	$563,000	$3,550,000	$3,960,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$14,000,000	$88,400,000	$98,700,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

California

Total Annual Intervention Costs (at $10 per person): $358,410,000

California Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$621,400,000	$2,092,700,000	$2,297,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$262,900,000	$1,734,300,000	$1,939,300,000
ROI for State	0.73:1	4.84:1	5.41:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$71,000,000	$468,200,000	$523,600,000
Medicaid Net Savings (federal share) (proportion of net savings)	$12,700,000	$84,100,000	$94,000,000
Medicaid Net Savings (state share) (proportion of net savings)	$12,700,000	$84,100,000	$94,000,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$166,400,000	$1,097,800,000	$1,227,600,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Colorado

Total Annual Intervention Costs (at $10 per person): $45,990,000

Colorado Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$82,600,000	$278,300,000	$305,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$36,600,000	$232,300,000	$259,600,000
ROI for State	0.80:1	5.05:1	5.65:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$9,890,000	$62,700,000	$70,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,770,000	$11,200,000	$12,500,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,770,000	$11,200,000	$12,500,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$23,200,000	$147,000,000	$164,300,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Connecticut

Total Annual Intervention Costs (at $10 per person): $34,940,000

Connecticut Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$79,100,000	$266,400,000	$292,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$44,100,000	$231,500,000	$257,600,000
ROI for State	1.26:1	6.63:1	7.37:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$11,900,000	$62,500,000	$69,500,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,140,000	$11,200,000	$12,400,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,140,000	$11,200,000	$12,400,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$27,900,000	$146,500,000	$163,000,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Delaware

Total Annual Intervention Costs (at $10 per person): $8,290,000

Delaware Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$19,500,000	$65,800,000	$72,300,000
State Net Savings (Net savings = Total savings minus intervention costs)	$11,200,000	$57,500,000	$64,000,000
ROI for State	1.36:1	6.95:1	7.72:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,040,000	$15,500,000	$17,200,000
Medicaid Net Savings (federal share) (proportion of net savings)	$547,000	$2,790,000	$3,110,000
Medicaid Net Savings (state share) (proportion of net savings)	$545,000	$2,780,000	$3,090,000
Private Payer and Out of Pocket Net Savings(proportion of net savings)	$7,130,000	$36,400,000	$40,500,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Washington D.C.

Total Annual Intervention Costs (at $10 per person): $5,800,000

D.C. Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$18,700,000	$63,000,000	$69,100,000
State Net Savings (Net savings = Total savings minus intervention costs)	$12,900,000	$57,200,000	$63,300,000
ROI for State	2.23:1	9.86:1	10.93:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,480,000	$15,400,000	$17,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$876,000	$3,880,000	$4,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$375,000	$1,660,000	$1,840,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$8,170,000	$36,200,000	$40,100,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Florida

Total Annual Intervention Costs (at $10 per person): $173,670,000

Florida Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$369,700,000	$1,245,300,000	$1,367,300,000
State Net Savings (Net savings = Total savings minus intervention costs)	$196,100,000	$1,071,600,000	$1,193,600,000
ROI for State	1.13:1	6.17:1	6.87:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$52,900,000	$289,300,000	$322,200,000
Medicaid Net Savings (federal share) (proportion of net savings)	$11,200,000	$61,200,000	$68,100,000
Medicaid Net Savings (state share) (proportion of net savings)	$7,810,000	$42,700,000	$47,500,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$124,100,000	$678,300,000	$755,500,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Georgia

Total Annual Intervention Costs (at $10 per person): $89,350,000

Georgia Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$153,100,000	$515,700,000	$566,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$63,700,000	$426,300,000	$476,900,000
ROI for State	0.71:1	4.77:1	5.34:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$17,200,000	$115,100,000	$128,700,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,740,000	$25,000,000	$28,000,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,430,000	$16,200,000	$18,200,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$40,300,000	$269,900,000	$301,800,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Hawaii

Total Annual Intervention Costs (at $10 per person): $12,590,000

Hawaii Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$24,500,000	$82,600,000	$90,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$11,900,000	$70,100,000	$78,200,000
ROI for State	0.95:1	5.57:1	6.21:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,230,000	$18,900,000	$21,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$682,000	$3,990,000	$4,460,000
Medicaid Net Savings (state share) (proportion of net savings)	$478,000	$2,800,000	$3,120,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$7,570,000	$44,300,000	$49,500,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Idaho

Total Annual Intervention Costs (at $10 per person): $13,950,000

Idaho Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$22,600,000	$76,200,000	$83,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$8,690,000	$62,300,000	$69,700,000
ROI for State	0.62:1	4.47:1	5.00:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$2,340,000	$16,800,000	$18,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$589,000	$4,220,000	$4,730,000
Medicaid Net Savings (state share) (proportion of net savings)	$253,000	$1,810,000	$2,030,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$5,500,000	$39,400,000	$44,100,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Illinois

Total Annual Intervention Costs (at $10 per person): $127,140,000

Illinois Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$247,900,000	$835,200,000	$917,000,000
State Net Savings (Net savings = Total savings minus intervention costs)	$120,800,000	$708,000,000	$789,800,000
ROI for State	0.95:1	5.57:1	6.21:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$32,600,000	$191,100,000	$213,200,000
Medicaid Net Savings (federal share) (proportion of net savings)	$5,860,000	$34,300,000	$38,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$5,860,000	$34,300,000	$38,300,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$76,500,000	$448,200,000	$499,900,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Indiana

Total Annual Intervention Costs (at $10 per person): $62,230,000

Indiana Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$120,400,000	$405,500,000	$445,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$58,100,000	$343,300,000	$383,000,000
ROI for State	0.94:1	5.52:1	6.16:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$15,700,000	$92,600,000	$103,400,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,550,000	$20,900,000	$23,400,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,080,000	$12,300,000	$13,700,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$36,800,000	$217,300,000	$242,400,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Iowa

Total Annual Intervention Costs (at $10 per person): $29,540,000

Iowa Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$57,900,000	$195,100,000	$214,300,000
State Net Savings (Net savings = Total savings minus intervention costs)	$28,400,000	$165,600,000	$184,700,000
ROI for State	0.96:1	5.61:1	6.26:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$7,670,000	$44,700,000	$49,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,750,000	$10,200,000	$11,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,000,000	$5,800,000	$6,520,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$17,900,000	$104,800,000	$116,900,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Kansas

Total Annual Intervention Costs (at $10 per person): $27,380,000

Kansas Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$54,300,000	$182,900,000	$200,800,000
State Net Savings (Net savings = Total savings minus intervention costs)	$26,900,000	$155,500,000	$173,400,000
ROI for State	0.98:1	5.68:1	6.34:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$7,270,000	$41,900,000	$46,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,570,000	$9,110,000	$10,100,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,030,000	$5,970,000	$6,660,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$17,000,000	$98,400,000	$109,700,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Kentucky

Total Annual Intervention Costs (at $10 per person): $41,400,000

Kentucky Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$86,200,000	$290,300,000	$318,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$44,800,000	$248,900,000	$277,300,000
ROI for State	1.08:1	6.01:1	6.70:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$12,000,000	$67,200,000	$74,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,010,000	$16,700,000	$18,600,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,330,000	$7,410,000	$8,250,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$28,300,000	$157,500,000	$175,500,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Louisiana

Total Annual Intervention Costs (at $10 per person): $44,960,000

Louisiana Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$83,000,000	$279,800,000	$307,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$38,100,000	$234,800,000	$262,200,000
ROI for State	0.85:1	5.22:1	5.83:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$10,200,000	$63,400,000	$70,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,580,000	$15,900,000	$17,700,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,110,000	$6,870,000	$7,680,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$24,100,000	$148,600,000	$166,000,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Maine

Total Annual Intervention Costs (at $10 per person): $13,140,000

Maine Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$33,200,000	$111,900,000	$122,800,000
State Net Savings (Net savings = Total savings minus intervention costs)	$20,100,000	$98,700,000	$109,700,000
ROI for State	1.53:1	7.52:1	8.35:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$5,420,000	$26,600,000	$29,600,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,220,000	$6,020,000	$6,690,000
Medicaid Net Savings (state share) (proportion of net savings)	$723,000	$3,550,000	$3,940,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$12,700,000	$62,500,000	$69,400,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Maryland

Total Annual Intervention Costs (at $10 per person): $55,530,000

Maryland Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$115,100,000	$387,800,000	$425,800,000
State Net Savings (Net savings = Total savings minus intervention costs)	$59,600,000	$332,200,000	$370,200,000
ROI for State	1.07:1	5.98:1	6.67:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$16,000,000	$89,700,000	$99,900,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,890,000	$16,100,000	$17,900,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,890,000	$16,100,000	$17,900,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$37,700,000	$210,300,000	$234,300,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Massachusetts

Total Annual Intervention Costs (at $10 per person): $64,360,000

Massachusetts Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$160,500,000	$540,800,000	$593,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$96,200,000	$476,400,000	$529,300,000
ROI for State	1.50:1	7.40:1	8.23:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$25,900,000	$128,600,000	$142,900,000
Medicaid Net Savings (federal share) (proportion of net savings)	$4,660,000	$23,100,000	$25,600,000
Medicaid Net Savings (state share) (proportion of net savings)	$4,660,000	$23,100,000	$25,600,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$60,900,000	$301,500,000	$335,100,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Michigan

Total Annual Intervention Costs (at $10 per person): $100,930,000

Michigan Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$191,900,000	$646,300,000	$709,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$90,900,000	$545,400,000	$60,800,000
ROI for State	0.90:1	5.40:1	6.03:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$24,500,000	$147,200,000	$164,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$4,990,000	$29,900,000	$33,400,000
Medicaid Net Savings (state share) (proportion of net savings)	$3,830,000	$22,900,000	$25,600,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$57,500,000	$345,200,000	$385,300,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Minnesota

Total Annual Intervention Costs (at $10 per person): $50,940,000

Minnesota Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$109,200,000	$367,800,000	$403,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$58,200,000	$316,900,000	$352,900,000
ROI for State	1.14:1	6.22:1	6.93:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$15,700,000	$85,500,000	$95,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,820,000	$15,300,000	$17,100,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,820,000	$15,300,000	$17,100,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$36,900,000	$200,600,000	$223,400,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Mississippi

Total Annual Intervention Costs (at $10 per person): $28,930,000

Mississippi Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$53,200,000	$179,400,000	$196,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$24,300,000	$150,400,000	$168,000,000
ROI for State	0.84:1	5.20:1	5.81:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$6,570,000	$40,600,000	$45,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,790,000	$11,000,000	$12,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$566,000	$3,500,000	$3,910,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$15,400,000	$95,200,000	$106,300,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Missouri

Total Annual Intervention Costs (at $10 per person): $57,530,000

Missouri Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$116,400,000	$392,100,000	$430,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$58,900,000	$334,600,000	$373,000,000
ROI for State	1.02:1	5.82:1	6.49:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$15,900,000	$90,300,000	$100,700,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,530,000	$20,000,000	$22,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,170,000	$12,300,000	$13,700,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$37,200,000	$211,800,000	$236,100,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Montana

Total Annual Intervention Costs (at $10 per person): $9,260,000

Montana Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$17,900,00	$60,300,000	$66,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$8,650,000	$51,000,000	$56,900,000
ROI for State	0.94:1	5.52:1	6.16:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$2,330,000	$13,700,000	$15,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$592,000	$3,490,000	$3,890,000
Medicaid Net Savings (state share) (proportion of net savings)	$247,000	$1,460,000	$1,630,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$5,480,000	$32,300,000	$36,000,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Nebraska

Total Annual Intervention Costs (at $10 per person): $17,470,000

Nebraska Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$35,500,000	$119,700,000	$131,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$18,100,000	$102,300,000	$114,000,000
ROI for State	1.04:1	5.86:1	6.53:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$4,880,000	$27,600,000	$30,700,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,040,000	$5,920,000	$6,600,000
Medicaid Net Savings (state share) (proportion of net savings)	$707,000	$3,990,000	$4,450,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$11,400,000	$64,700,000	$72,100,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Nevada

Total Annual Intervention Costs (at $10 per person): $23,320,000

Nevada Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$41,200,000	$139,000,000	$152,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$17,900,000	$115,700,000	$129,300,000
ROI for State	0.77:1	4.96:1	5.55:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$4,850,000	$31,200,000	$34,900,000
Medicaid Net Savings (federal share) (proportion of net savings)	$954,000	$6,150,000	$6,870,000
Medicaid Net Savings (state share) (proportion of net savings)	$787,000	$5,070,000	$5,670,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$11,300,000	$73,200,000	$81,800,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

New Hampshire

Total Annual Intervention Costs (at $10 per person): $12,980,000

New Hampshire Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$26,500,000	$89,500,000	$98,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$13,600,000	$76,500,000	$85,300,000
ROI for State	1.05:1	5.90:1	6.57:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,670,000	$20,600,000	$23,000,000
Medicaid Net Savings (federal share) (proportion of net savings)	$659,000	$3,710,000	$4,130,000
Medicaid Net Savings (state share) (proportion of net savings)	$659,000	$3,710,000	$4,130,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$8,600,000	$48,400,000	$53,900,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

New Jersey

Total Annual Intervention Costs (at $10 per person): $86,760,000

New Jersey Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$187,100,000	$630,400,000	$692,100,000
State Net Savings (Net savings = Total savings minus intervention costs)	$100,400,000	$543,600,000	$605,400,000
ROI for State	1.16:1	6.27:1	6.98:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$27,100,000	$146,700,000	$163,400,000
Medicaid Net Savings (federal share) (proportion of net savings)	$4,870,000	$26,300,000	$29,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$4,870,000	$26,300,000	$29,300,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$63,500,000	$344,100,000	$383,200,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

New Mexico

Total Annual Intervention Costs (at $10 per person): $19,010,000

New Mexico Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$32,000,000	$107,900,000	$118,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$13,000,000	$88,900,000	$99,500,000
ROI for State	0.69:1	4.68:1	5.24:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,520,000	$24,000,000	$26,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$901,000	$6,140,000	$6,870,000
Medicaid Net Savings (state share) (proportion of net savings)	$366,000	$2,490,000	$2,790,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$8,260,000	$56,300,000	$63,000,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

New York

Total Annual Intervention Costs (at $10 per person): $192,920,000

New York Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$460,400,000	$1,550,600,000	$1,702,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$267,500,000	$1,357,700,000	$1,509,600,000
ROI for State	1.37:1	7.04:1	7.83:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$72,200,000	$366,500,000	$407,600,000
Medicaid Net Savings (federal share) (proportion of net savings)	$12,900,000	$65,800,000	$73,200,000
Medicaid Net Savings (state share) (proportion of net savings)	$12,900,000	$65,800,000	$73,200,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$169,300,000	$859,400,000	$955,600,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

North Carolina

Total Annual Intervention Costs (at $10 per person): $85,310,000

North Carolina Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$166,000,000	$559,000,000	$613,800,000
State Net Savings (Net savings = Total savings minus intervention costs)	$80,600,000	$473,700,000	$528,500,000
ROI for State	0.95:1	5.55:1	6.20:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$21,700,000	$127,900,000	$142,600,000
Medicaid Net Savings (federal share) (proportion of net savings)	$4,970,000	$29,100,000	$32,500,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,850,000	$16,700,000	$18,700,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$51,000,000	$299,800,000	$334,500,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

North Dakota

Total Annual Intervention Costs (at $10 per person): $6,360,000

North Dakota Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$13,500,000	$45,700,000	$50,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$7,230,000	$39,400,000	$43,900,000
ROI for State	1.14:1	6.20:1	6.90:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$1,950,000	$10,600,000	$11,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$462,000	$2,520,000	$2,800,000
Medicaid Net Savings (state share) (proportion of net savings)	$240,000	$1,300,000	$1,450,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$4,570,000	$24,900,000	$27,700,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Ohio

Total Annual Intervention Costs (at $10 per person): $114,610,000

Ohio Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$237,700,000	$800,500,000	$878,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$123,000,000	$685,900,000	$764,300,000
ROI for State	1.07:1	5.99:1	6.67:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$33,200,000	$185,200,000	$206,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$7,150,000	$39,800,000	$44,400,000
Medicaid Net Savings (state share) (proportion of net savings)	$4,780,000	$26,600,000	$29,700,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$77,900,000	$434,200,000	$483,800,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Oklahoma

Total Annual Intervention Costs (at $10 per person): $35,230,000

Oklahoma Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$65,000,000	$219,000,000	$240,400,000
State Net Savings (Net savings = Total savings minus intervention costs)	$29,800,000	$183,800,000	$205,200,000
ROI for State	0.85:1	5.22:1	5.83:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$8,040,000	$49,600,000	$55,400,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,960,000	$12,100,000	$13,500,000
Medicaid Net Savings (state share) (proportion of net savings)	$928,000	$5,720,000	$6,390,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$18,800,000	$116,300,000	$129,900,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Oregon

Total Annual Intervention Costs (at $10 per person): $35,890,000

Oregon Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$68,100,000	$229,400,000	$251,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$32,200,000	$193,500,000	$216,000,000
ROI for State	0.90:1	5.39:1	6.02:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$8,700,000	$52,200,000	$58,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,920,000	$11,500,000	$12,900,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,200,000	$7,200,000	$8,040,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$20,400,000	$122,500,000	$136,700,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Pennsylvania

Total Annual Intervention Costs (at $10 per person): $123,770,000

Pennsylvania Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$271,700,000	$915,000,000	$1,004,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$147,900,000	$791,300,000	$880,900,000
ROI for State	1.20:1	6.39:1	7.12:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$39,900,000	$213,600,000	$237,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$7,900,000	$42,200,000	$47,000,000
Medicaid Net Savings (state share) (proportion of net savings)	$6,450,000	$34,500,000	$38,400,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$93,600,000	$500,900,000	$557,600,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Rhode Island

Total Annual Intervention Costs (at $10 per person): $10,790,000

Rhode Island Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$25,000,000	$84,200,000	$92,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$14,200,000	$73,400,000	$81,700,000
ROI for State	1.32:1	6.81:1	7.57:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$3,840,000	$19,800,000	$22,000,000
Medicaid Net Savings (federal share) (proportion of net savings)	$752,000	$3,880,000	$4,320,000
Medicaid Net Savings (state share) (proportion of net savings)	$629,000	$3,240,000	$3,610,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$9,000,000	$46,500,000	$51,700,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

South Carolina

Total Annual Intervention Costs (at $10 per person): $41,950,000

South Carolina Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$81,700,000	$275,200,000	$302,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$39,700,000	$233,300,000	$260,200,000
ROI for State	0.95:1	5.56:1	6.21:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$10,700,000	$62,900,000	$70,200,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,670,000	$15,600,000	$17,400,000
Medicaid Net Savings (state share) (proportion of net savings)	$1,180,000	$6,940,000	$7,750,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$25,100,000	$147,600,000	$164,700,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

South Dakota

Total Annual Intervention Costs (at $10 per person): $7,700,000

South Dakota Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$14,700,000	$49,700,000	$54,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$7,080,000	$42,000,000	$46,900,000
ROI for State	0.92:1	5.47:1	6.10:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$1,910,000	$11,300,000	$12,600,000
Medicaid Net Savings (federal share) (proportion of net savings	$447,000	$2,650,000	$2,960,000
Medicaid Net Savings (state share) (proportion of net savings)	$239,000	$1,420,000	$1,590,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$4,480,000	$26,600,000	$29,700,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Tennessee

Total Annual Intervention Costs (at $10 per person): $58,860,000

Tennessee Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$121,900,000	$410,600,000	$450,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$63,000,000	$351,800,000	$392,000,000
ROI for State	1.07:1	5.98:1	6.67:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$17,000,000	$94,900,000	$105,800,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,910,000	$21,800,000	$24,300,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,200,000	$12,200,000	$13,600,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$39,900,000	$222,700,000	$248,100,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Texas

Total Annual Intervention Costs (at $10 per person): $225,180,000

Texas Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$378,800,000	$1,275,700,000	$1,400,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$153,600,000	$1,050,500,000	$1,175,500,000
ROI for State	0.68:1	4.67:1	5.22:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$41,400,000	$283,600,000	$317,300,000
Medicaid Net Savings (federal share) (proportion of net savings)	$9,040,000	$61,800,000	$69,200,000
Medicaid Net Savings (state share) (proportion of net savings)	$5,850,000	$40,000,000	$44,800,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$97,200,000	$665,000,000	$744,100,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Utah

Total Annual Intervention Costs (at $10 per person): $24,220,000

Utah Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$33,700,000	$113,600,000	$124,700,000
State Net Savings (Net savings = Total savings minus intervention costs)	$9,520,000	$89,400,000	$100,500,000
ROI for State	0.39:1	3.69:1	4.15:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$2,570,000	$24,100,000	$27,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$654,000	$6,140,000	$6,900,000
Medicaid Net Savings (state share) (proportion of net savings)	$269,000	$2,530,000	$2,840,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$6,030,000	$56,600,000	$63,600,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Vermont

Total Annual Intervention Costs (at $10 per person): $6,210,000

Vermont Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$14,600,000	$49,300,000	$54,200,000
State Net Savings (Net savings = Total savings minus intervention costs)	$8,450,000	$43,100,000	$48,000,000
ROI for State	1.36:1	6.95:1	7.73:1

* *In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$2,280,000	$11,600,000	$12,900,000
Medicaid Net Savings (federal share) (proportion of net savings)	$479,000	$2,450,000	$2,720,000
Medicaid Net Savings (state share) (proportion of net savings)	$340,000	$1,730,000	$1,930,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$5,350,00	$27,300,000	$30,300,000

* *In 2004 dollars*
* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Virginia

Total Annual Intervention Costs (at $10 per person): $74,720,000

Virginia Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$136,500,000	$459,900,000	$504,900,000
State Net Savings (Net savings = Total savings minus intervention costs)	$61,800,000	$385,100,000	$430,200,000
ROI for State	0.83:1	5.16:1	5.76:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$16,600,000	$104,000,000	$116,100,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,990,000	$18,600,000	$20,800,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,990,000	$18,600,000	$20,800,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$39,100,000	$243,800,000	$272,300,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Washington

Total Annual Intervention Costs (at $10 per person): $62,060,000

Washington Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$120,400,000	$405,800,000	$445,500,000
State Net Savings (Net savings = Total savings minus intervention costs)	$58,400,000	$343,700,000	$383,500,000
ROI for State	0.94:1	5.54:1	6.18:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$15,700,000	$92,800,000	$103,500,000
Medicaid Net Savings (federal share) (proportion of net savings)	$2,830,000	$16,600,000	$18,500,000
Medicaid Net Savings (state share) (proportion of net savings	$2,830,000	$16,600,000	$18,500,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$36,900,000	$217,500,000	$242,700,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

West Virginia

Total Annual Intervention Costs (at $10 per person): $18,110,000

West Virginia Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$42,300,000	$142,600,000	$156,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$24,200,000	$124,500,000	$138,500,000
ROI for State	1.34:1	6.88:1	7.65:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$6,540,000	$33,600,000	$37,400,000
Medicaid Net Savings (federal share) (proportion of net savings)	$1,710,000	$8,820,000	$9,810,000
Medicaid Net Savings (state share) (proportion of net savings)	$635,000	$3,260,000	$3,620,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$15,300,000	$78,800,000	$87,600,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Wisconsin

Total Annual Intervention Costs (at $10 per person): $54,990,000

Wisconsin Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$116,600,000	$392,900,000	$431,400,000
State Net Savings (Net savings = Total savings minus intervention costs)	$61,600,000	$337,900,000	$376,400,000
ROI for State	1.12:1	6.15:1	6.85:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$16,600,000	$91,200,000	$101,600,000
Medicaid Net Savings (federal share) (proportion of net savings)	$3,450,000	$18,900,000	$21,000,000
Medicaid Net Savings (state share) (proportion of net savings)	$2,530,000	$13,900,000	$15,400,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$39,000,000	$213,900,000	$238,300,000

* *In 2004 dollars*

* *Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Wyoming

Total Annual Intervention Costs (at $10 per person): $5,060,000

Wyoming Return on Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Total State Savings	$10,100,000	$34,200,000	$37,600,000
State Net Savings (Net savings = Total savings minus intervention costs)	$5,110,000	$29,200,000	$32,500,000
ROI for State	1.01:1	5.77:1	6.44:1

** In 2004 dollars*

Indicative Estimates of State-level Savings by Payer: Proportion of Net Savings for an Investment of $10 Per Person

	1-2 Years	5 Years	10-20 Years
Medicare Net Savings (proportion of net savings)	$1,380,000	$7,880,000	$8,700,000
Medicaid Net Savings (federal share) (proportion of net savings)	$268,000	$1,530,000	$1,710,000
Medicaid Net Savings (state share) (proportion of net savings)	$227,000	$1,290,000	$1,440,000
Private Payer and Out of Pocket Net Savings (proportion of net savings)	$3,230,000	$18,400,000	$20,600,000

** In 2004 dollars*

** Source: TFAH calculations from preliminary Urban Institute estimates, based on national parameters applied to state spending data.*

Methodology

SECTION 4

The study consists of a:

A) Literature Review of Community-Based Prevention Studies; and

B) Return on Investment Model

A. LITERATURE REVIEW

In order to identify effective community-based disease prevention programs and the results and costs of these programs, TFAH consulted with NYAM to conduct a comprehensive literature review. Overall, the literature review identified 84 studies that met their criteria as effective "public health interventions." (See Background box on page 40 for more detail.) These interventions included both community-based programs and policy changes. The studies focused on how programs or policy changes resulted in improved health or positive behavior changes within either an entire community or a particular at-risk targeted community. They did not include medical interventions, such as pharmaceutical, doctor-based, or clinical-based studies.

Overall, however, the researchers found the literature evaluating community-based disease prevention programs to be limited, and outcomes were not reported in a standardized way. In the review, no studies directly included information about all of the areas modeled for this project, which include: the expenses of diseases, a community-based disease prevention program, data on the impact of interventions on diseases over time, and the per capita cost of implementing the program. Experts at the Urban Institute developed a composite based on the available data reported in the literature to derive assumptions for costs and health impacts.

Accordingly, TFAH calls for increased evidence-based research into community-based disease prevention programs that explicitly include information about the impact of interventions on diseases over time and the costs for the programs. This type of research would help policymakers better determine how to effectively invest in public health programs and assist those in the field in determining the potential cost of identified programs.

BACKGROUND ON LITERATURE REVIEW

The full bibliography of the literature review is available in Appendix A. The studies included in the literature review had to meet the following criteria:

1. Report on a community-based public health program that showed results on improving health or behavior change related to the 8 diseases most impacted by physical activity, nutrition, and tobacco use (type 2 diabetes, high blood pressure, heart disease, kidney disease, stroke, some forms of cancer, COPD, and arthritis);
2. Meet a threshold for scientific study design and likelihood the study could be replicated; and
3. Did not involve direct health care services, be provider driven, or be conducted in a health care setting.

The researchers narrowed down more than 300 peer-reviewed journal articles and study descriptions to the 84 that were included in the review.

- To find the studies, the researchers searched the MEDLINE database via PubMed of studies from 1975 to 2008, cross checked findings in The Guide to Community Preventive Services and other meta-analyses, and interviewed public health experts.[54]
- When specific needed data were not included in studies, the researchers contacted study authors directly when possible to ask them about disease rate changes, behavior changes, or cost data.
- Study designs had to be: A) randomized controlled studies; B) quasi-experimental studies without obvious selection bias; or C) (if no other studies were available) pre-post studies with no comparison group, or comparison groups with likely selection bias.[55] Studies that did not meet these criteria were eliminated.

A majority of the 84 studies looked at programs that addressed a number of related health factors, such as weight, nutrition, and physical activity. Researchers often call these studies "multifactorial." Eleven of the studies examined mass media or social marketing campaigns. Six of the studies focused on intensive counseling to support lifestyle changes. One study focused on the impact of a cigarette tax in reducing smoking. Two studies examined employer-based health promotion efforts.

While this report focuses on health care costs of adults, it also includes studies about interventions targeted at children because these studies have shown that these interventions have an impact on improving the health of the parents and families of those children and also improves the health of the children as they enter adulthood.

There are many other disease prevention efforts that may be effective or show promise that may not be part of model because they did not meet all of the criteria for inclusion.

Examples of Studies from the Literature Review

SHAPE UP SOMERVILLE: EAT SMART. PLAY HARD.[56]

In 2002, the U.S. Centers for Disease Control and Prevention (CDC) funded an environmental change intervention to prevent obesity in high-risk, early elementary-aged children in Somerville, Massachusetts. The Shape Up Somerville team put together a program for the first to third graders that focused on increasing physical activity options and improving dietary choices. Prior to the intervention, Tufts researchers found that 46 percent of Somerville's first to third graders were obese or overweight based on the BMI for age percentile. After one year of Shape Up Somerville, on average the program reduced one pound of weight gain over 8 months for an 8-year-old child. Based on conversations with the Somerville project leaders, project researchers estimate that citywide the per capita cost was between $3 and $4.[57]

The intervention included:

- Improved School Food -- Fruit/vegetable of the month, taste tests for students, educational posters, food staff training, new vegetarian recipes, daily fresh fruit.
- Healthy Eating and Active Time Club (HEAT) In-School Curriculum -- New curriculum that focused on increasing healthy food consumption, decreasing unhealthy food consumption, increasing physical activity and decreasing sedentary time. The Club implemented Cool Moves -- creative ways to include physical activity into classroom hours.
- HEAT Club After-School Program -- Curriculum with lesson plans using crafts, cooking demonstrations, and physically active games for education. The program also had a field trip to an organic farm where students were able to participate in the harvesting process.
- Parent and Community Outreach -- Including a monthly newsletter to parents as well as to the community containing updates on the project, health tips and healthy food coupons.
- "Shape Up Approved" Restaurants -- In 2005, 21 restaurants were considered "Shape Up Approved."
  - In order to be "Shape Up Approved" the restaurant must meet the following criteria:
    - Offer low fat dairy products
    - Offer some dishes in a smaller portion size
    - Offer fruits and vegetables as side dishes
    - Have visible signs that highlight the healthier options
- School Nurse Education -- School nurses were formally trained to annually measure height and weight, as well as how to counsel families of overweight or obese children.
- Safe Routes to School -- Formed a community walking committee and received funding from the Robert Wood Johnson Foundation through the Active Living by Design Initiative. They then hired a Pedestrian/Bike Coordinator for the City and created Safe Routes to School maps and distributed them to all the parents of first to third graders. The Mayor authorized all crosswalks to be repainted and to have bike racks installed at all elementary schools.
- Policy Initiatives -- The Somerville School Department put together a comprehensive Wellness Policy in 2006.

THE IMPACT OF PROPOSITION 99: CALIFORNIA'S ANTI-SMOKING LEGISLATION[58]

In 1988, the state of California voted to enact Proposition 99, the California Tobacco Tax and Health Promotion Act. Proposition 99 increased the tax on cigarettes and other tobacco products from $0.10 to $0.35. The revenue from the tax was allocated to a variety of health promotion projects including:

- 20 percent allocated to a health education account to create school-based programs discouraging children from smoking;
- 45 percent to hospitals and physicians to provide for patients who cannot afford to pay;
- 5 percent to research;
- 5 percent to parks and recreation; and
- 25 percent to an unallocated account to go to any of the other programs or for fire prevention measures.

Three years after implementation of Proposition 99 researchers found a 9 percent reduction rate in cigarette sales in California and a decrease in the prevalence of cigarette smoking among adults from 26.7 percent in 1988 to 22.2 percent in 1992. This means that the act reduced cigarette consumption by close to 705 million packs between January 1989 and December 1991. A 2001 analysis found that there are "approximately one million fewer smokers in California than would have been expected [and] per capita cigarette consumption has fallen by more than 50 [percent]."[59]

The results of Proposition 99 suggest that placing a tax on certain products and using the revenue from the tax for educational and health programs can have a substantial effect on public health.

HEALTHY EATING, ACTIVE COMMUNITES (HEAC)[60]

Healthy Eating, Active Communities (HEAC), a program funded by The California Endowment, brings together community residents and public institutions, and works with local government and with private businesses, in an effort to prevent childhood obesity by improving the environment children inhabit. The program, at a cost of $7 annually per capita in the target communities with minimal additional expenses for technical assistance, has already accomplished significant changes in the food and physical activity environments and policies in these communities, including new parks, input into city general plans, healthier food marketing in local stores, healthier foods in hospital, public health department, and public park vending machines, and increased physical activity opportunities in schools and after school programs.

Within 6 California communities HEAC focuses on forming a partnership between a community-based organization, school districts and a public health department to implement strategies to improve nutrition and physical activity environments. In each community the partnership works in 5 sectors including:

- In Schools-by improving the quality of foods sold and available on campus, and advocating for increased compulsory PE for grades K-12, as well as more opportunities for non-competitive physical activity.
- After School -- such as improving cooperation with parks and recreation departments.
- In Neighborhoods -- improving access to affordable fresh produce, providing safer walkways and parks, and limiting the promotion of unhealthy foods.
- In the Healthcare Sector -- HEAC, with the help of Kaiser Permanente, training health care providers to incorporate more prevention and health promotion into clinical practice, and engaging physician champions to advocate for improving access to healthy foods and physical activity.
- In Marketing and Advertising -- such as eliminating the marketing of unhealthy products to children in and around schools, and via television, internet and other media.

HEAC aims to effect policy change that will improve environments for healthy eating and active living. Also, in January 2007, HEAC participated in the first California Convergence meeting, which aims to promote statewide improvements in food and physical activity environments, and is a core partner within the emerging ongoing work of Convergence.

GO BOULDER[61]

Greater Options in Transportation, better known as GO Boulder, is a program in Boulder, Colorado, aimed at providing residents with more transportation options than cars. Through the multi-sectoral program that works with residents, intergovernmental agencies and businesses in the community Boulder has been able to develop a sustainable transportation system. GO Boulder uses incentives, such as Walk and Bike Week and commuter awards, to encourage people to walk, bike, or take the bus.

From 1990 to 1994, Boulder showed a 3.5 percent increase in the number of pedestrian trips and a 2.2 percent rise in bike trips. Also, unlike the nearby city of Denver where population as well as single occupancy vehicle use increased, the population in Boulder continued to grow without a rise in single occupancy vehicle use.

YMCA'S PIONEERING HEALTHIER COMMUNITIES[62]

The YMCA has a Pioneering Healthier Communities Program in more than 64 communities across the country that focus on: 1) raising the visibility of lifestyle health issues in the national policy debate, and 2) encouraging and supporting local communities to develop more effective strategies to promote healthy lifestyles.

Sample Results from YMCA Pioneering Healthier Communities Sites Programs Impacting Children's Health and Well-Being[63]

Attleboro, Massachusetts -- Physical Activity Club (A 10-week physical activity and healthy eating program for children and their caregivers)

100 kids in a pilot with statewide expansion with state funding

- 17 percent increase in daily physical activity
- Decrease in BMI from 30.3 to 28.5
- Increase in fruit consumption by 6 percent; reduction in fast food and vending machine use.

Dallas -- CATCH (Coordinated Approach to Child Health -- an evidenced-based healthy eating and physical activity curriculum)

3,100 kids in 100 after school child care sites

- Increased fruit consumption
- Decreased dessert/candy consumption
- Increase in physical activity from 4 to 7 times a week
- Decreased TV time

Des Moines -- Trim Kids (A proven, multidisciplinary 12-week plan that gives parents and children a healthy approach to lifetime weight management)

750 individuals (kids, siblings and parents / for overweight/obese kids). Expanded across Iowa, trained 12 other sites

- Average weight loss is 5 lbs for elementary, 10 lbs for secondary

Pittsburgh -- ASAP (Afterschool with Activate Pittsburgh -- evidence-based curriculum and program to develop lifelong healthy habits)

6,500 low-income diverse kids

- 76 percent of kids increased muscular strength
- 56 percent increased muscular endurance
- 69 percent increased flexibility

Grand Rapids, Michigan -- Healthy U (A proven health and wellness program for children)

3,400 low-income, diverse kids in dozens of sites

- Dramatic decrease in blood pressure and increase in strength and flexibility
- More than 90 percent improved school attendance, completed homework, chose not to smoke, drink or use drugs

Case Study: Activate West Michigan and Healthy U[64]

In 2003, the YMCA of Greater Grand Rapids, Michigan created the Activate West Michigan coalition in partnership with local government, community organizations, schools, and healthcare, corporate, and non-profit leaders. They initiated a "Healthy U" health and wellness program, which included physical fitness and nutrition education for elementary and middle-school students after school hours both at schools and community centers. In addition, students exercised at the YMCA gym at least once a week. After a year, the children made improvements on strength and flexibility tests.

In addition, the community helped support the program. For example, school children started gardens at various sites in the community. Two inner city farmers' market programs provided access to healthy foods, samples of vegetables, and education about cooking vegetables. According to a survey, 90 percent of people who attended the markets wanted additional markets and had learned from this experience.

Case Study: Attleboro, Massachusetts and Rapid City, South Dakota[65]

Attleboro, Massachusetts and Rapid City, South Dakota looked at ways to promote increased physical activity through Pioneering Healthier Communities projects. The YMCA's partnered with local leaders, schools, hospitals, public health officials, health care providers, business leaders, and the media.

In Attleboro, the coalition focused on a walking school bus program, a pedometer steps challenge among fourth and fifth graders, a healthy kids day, and building a bike trail and non-motorized connections to commuter rail stations. It also sponsored healthy eating through improving the nutrition of foods in schools and recruiting a local supermarket to provide a "Healthy Snack of the Week" to school and hospital cafeterias. Zoning laws were also changed to allow for more sidewalks and streetscapes.

In Rapid City, civic leaders required that new building include sidewalks and smarter development practices, such as building bike lanes, wider sidewalks, and adding trees, benches, and walk signals in downtown areas.

TOGETHER, LET'S PREVENT CHILDHOOD OBESITY-COMMUNITY BASED PREVENTION IN FRANCE (EPODE)[66]

In 2005, the French government launched the EPODE campaign with the goal of lowering childhood obesity rates in 5-12 year olds through a 5-year plan of intervention in 10 towns situated across the country.

The plan takes a multi-sectoral approach by involving parents and families, general practitioners, school nurses, teachers, towns, businesses, and the medical community. The 3 fundamental steps are:

- Informing All Sectors of the Community about the Problem -- All those involved are informed through public meetings, brochures, posters, and media coverage.
- Training Participants -- General practitioners and school nurses are trained on how to diagnose and treat obese children.
- Taking Action in Schools and Towns -- Schools integrate nutritional education and physical education into the school day. Also, school menu planning is targeted and children are taught how cook with fresh fruits and vegetables and be given access to food tasting workshops.

In order to track progress, the BMI of each child is calculated, recorded, and sent to his or her parents. Parents of those who are overweight or obese will be encouraged to consult their family physician.

Anecdotal evidence suggests that obesity has (at least) remained constant in the intervention towns while it doubled in control areas. Mothers of children participating in the intervention have reported weight loss as well. The complete results will be available in 2009 upon completion of the 5-year plan.

NORWAY COMMUNITY INTERVENTION[67]

In Oslo, Norway a group of researchers sought to test the effects of a community-based intervention to increase physical activity among low-income individuals, according to a 2006 study. A comprehensive intervention program was implemented, at a reported cost of 0.59 Euros per capita (approximately $0.93 US dollars), in an effort to change the behaviors of individuals. The intervention efforts included:

- **Information Distribution** -- Leaflets were designed and distributed that included health reminders such as the benefit of using stairs instead of elevators, and stands with health information were set up as well as mass media activities.
- **Individual Counseling** -- Health counseling was provided during the biannual fitness test.
- **Walking Groups** -- Various walking groups were organized, as well as indoor activity sessions at no cost during the intervention.
- **Environmental Change** -- In order to increase accessibility to areas for physical activity, walking trails were labeled within the district, lighting on streets improved and trails were maintained during the winter to keep them safe.

The follow up after 3 years showed that compared to the control community, the intervention group reported an 8-9 percent increase in physical activity, 14 percent fewer individuals gained weight, 3 percent more quit smoking, and there were significant decreases in blood pressure.

B. RETURN ON INVESTMENT MODEL

The Urban Institute researchers developed a model to estimate how investing in community-based disease prevention could lead to lower health care costs. This model is based on the literature review led by NYAM and data on disease rates and associated medical expenditures. The model addressed 3 questions:

1. How much do people with selected preventable diseases spend on medical care?
2. If the rates of these conditions were reduced, how much of these expenditures could be saved?
3. How would these savings be distributed across payers?

Based on the review of the literature, the researchers considered 1) the costs of the most expensive diseases related to physical inactivity, poor nutrition, and smoking; 2) program cost assumptions; 3) disease rate reduction assumptions; 4) cost savings estimates; and, 5) limitations and notes about the model.

The model is used to compare costs of a given intervention with its expected effects on medical care expenditures to assess the potential return on investment in community-based disease prevention programs. As an example of potential return, the model looks at an investment of $10 per person per year for successful community-based disease prevention programs related to improving physical inactivity and nutrition, and preventing smoking and other tobacco use. Based on findings reported in the literature, the researchers assumed that such strategic interventions could reduce uncomplicated diabetes and high blood pressure rates by 5 percent in one to 2 years; heart, stroke, and kidney disease by 5 percent within 5 years, and cancer, arthritis, and COPD by 2.5 percent within 10 to 20 years.

1. Current Costs of Most Expensive Diseases: The researchers at NYAM and the Urban Institute determined the most expensive set of diseases that have shown potential to be reduced through physical activity, nutrition, and smoking interventions. These include: heart disease, selected types of cancers, selected lung diseases, diabetes, hypertension, heart disease, stroke, arthritis, and kidney disease. None of these diseases can be prevented entirely; some individuals develop these conditions due to genetics or other factors unrelated to activity, nutrition, or smoking.

The report relies on a 2004 *Health Affairs* study by Thorpe, et. al. to determine the most expensive diseases, and then a review by NYAM of the literature to determine which of the most expensive diseases respond to physical activity, nutrition, and smoking interventions.[68]

The Urban Institute used data from the Medical Expenditure Panel Survey (MEPS) from 2003 to 2005 (adults only, excluding people in nursing homes or other institutions) to estimate the health care costs of the diseases nationally.

Based on the literature review and consultation with a medical advisor, the diseases were grouped into categories, using 3 broad groups of conditions: 1) uncomplicated diabetes and/or high blood pressure 2) diabetes and/or high blood pressure with complications (heart disease, stroke, and/or kidney disease); and 3) selected cancers (those amenable to community-based prevention), arthritis, and chronic obstructive pulmonary disease (COPD).

DISEASE GROUPINGS USED IN THE MODEL

- Uncomplicated Diabetes and/or High Blood Pressure
  - Diabetes alone
  - High blood pressure alone
  - Diabetes and high blood pressure
- Complicated Diabetes and/or High Blood Pressure
  - Diabetes with heart disease, kidney disease, and/or stroke
  - High blood pressure with heart disease, kidney disease and/or stroke
- Non-diabetic, Non-hypertensive Heart Disease, Kidney Disease, and/or Stroke
- Cancer
- Arthritis
- COPD

FINANCIAL BURDEN OF SPECIFIC DISEASES

The Urban Institute researchers conducted regression analyses to estimate the percent of health care costs attributable to each disease group. Diabetes, high blood pressure, heart disease, stroke, kidney disease, cancer, arthritis, and COPD account for almost 38 percent of America's health care costs. Significant numbers of cases of these diseases could be prevented or delayed with increases in physical activity, good nutrition, and smoking cessation.

Percent of U.S. Health Care Costs By Top Diseases That Can Be Impacted By Physical Activity, Nutrition, and Smoking
(Based on current disease rates, including all insurance payers, does not include people in institutionalized care)

Health Conditions	Percent of Health Care Costs in the U.S.
Diabetes, high blood pressure, or a combination of the 2 diseases	9.4 percent
Diabetes or high blood pressure who also have heart disease or stroke and/or kidney disease	16.0 percent
Heart disease or stroke and/or kidney disease who do not have diabetes or high blood pressure	6.2 percent
Cancer	3.1 percent
Arthritis	1.1 percent
COPD	2.0 percent

Source: Urban Institute calculations using data from the 2003-2005 Medical Expenditure Panel Survey (MEPS)

2. Building Estimates for Costs of Programs: Of the studies that outlined potential costs or where project staff contacted researchers to determine costs, most had costs estimated to be in the range of $3-$8 per person.

- A few programs were found where costs exceeded $10. Those identified were primarily interventions that focused on intensive coaching and one-on-one or small group counseling where administrative costs were higher and evaluations and measurements were intensive.

In order to determine an estimate, in addition to reviewing the available literature, TFAH and Prevention Institute consulted a set of experts who agreed that $10 is a high, and therefore, a conservative assumption for the costs of community-based programs.

Sample Interventions				
Study	**Target Condition(s)**	**Intervention Information**	**Intervention Effect**	**Population and Age**
Carleton (1995)	Cardiovascular Disease (CVD), Coronary Heart Disease (CHD), Stroke	Mass media campaign, community programs aimed at 71,000 people. Intervention population randomly generated, compared to a reference community. Cost: $15 per person per year.	At 5 years: Risk for both CVD and CHD down 16 percent	2,925 men and women 18-64 [control (1,665); intervention (1,260)]
Farquhar (1990)	CVD, CHD, Stroke	Mass media campaign, community programs aimed at 122,800 people. Intervention population randomly generated, compared to a reference community. The organizational and educational program was delivered at a per capita cost of about $4 per year.	At 5 years: CHD risk down 16 percent; CVD mortality risk down 15 percent; Prevalence of smoking down 13 percent; Blood pressure down 4 percent; Pulse down 3 percent; Cholesterol down 2 percent.	971 men and women 25-74 [control (480); intervention (491)]
Fichtenberg (2000)	CVD, CHD, Stroke	Cigarette tax: $0.25 increase on the price of cigarettes with $0.05 of the net tax for an antitobacco educational campaign.	At 3 Years: CHD mortality down 2.93 deaths/yr/100,000 population per year; Amount smoked down 2.72 packs/person/yr.	California population
Gutzwiller (1985)	CVD	Mass media campaign, community programs aimed at 56,000 people. Intervention population randomly generated, compared to a reference community. Cost: $10 per year per adult over the age of 16.	At 4 years: amount of tobacco grams/day decreased 8 percent; 11 percent fewer people smoked.	2,206 men and women 16-69 [control (1,358); intervention (848)]
	CVD, CHD, Stroke	Mass media campaign, community programs aimed at 56,000 people. Intervention population randomly generated, compared to a reference community. Cost: $10 per year per adult over the age of 16.	At 4 years: Hypertension down 7 percent.	481 men and women 16-69 with hypertension (>160/95 mm Hg) [control (117); intervention (364)]
Haines, et. al. (2007)	CVD, CHD, Stroke	12-week employee walking program on a college campus. No cost information available, but such programs are extremely low cost and often have positive ROIs.	At 3 months: 1 percent decrease in BMI; 3.4 percent decrease in hypertension; 3 percent decrease in cholesterol; 5.5 percent decrease in glucose	60 women in their forties

Sample Interventions				
Study	**Target Condition(s)**	**Intervention Information**	**Intervention Effect**	**Population and Age**
Herman (2008)	CVD, Nutrition	Improving access to fruits and vegetables among women who enrolled for postpartum services at 3 Women, Infants, and Children program (WIC) sites in Los Angeles. Participants were assigned either to an intervention (farmers' market or supermarket, both with redeemable food vouchers) or control condition (a minimal nonfood incentive). Interventions were carried out for 6 months, and participants' diets were followed for an additional 6 months. No cost information, but minimal administrative costs to assign and track participation.	At 6 months: +1.4 servings per 4,186 kJ (1,000 kcal) of fruits and vegetables	451 low income minority women 18 years and older [control (143); intervention (308)]
Osler and Jespersen (1993)	CVD	Mass media campaign, community programs aimed at 8,000 people. Intervention population randomly generated and compared to a reference community. Cost: $6 per capita.	At year one: 39 percent eating less fat; 10 percent decrease in smoking; 28 percent increase in physical activity.	1,196 men and women 20-65 [control (629); intervention (567)]
Prior (2005)	CVD	Worksite health promotion, 15 minute cardiovascular risk factor screening, individualized counseling to high-risk employees. Cost: $20 per employee (note this is a high risk population).	At 3.7 years: 12.6 percent decrease in amount smoked; 3.3 percent decrease in diastolic BP; 7.8 percent decrease in cholesterol.	808 high-risk smokers 16-76 years old
Rossouw (1993)	CVD	Mass media campaign, community programs aimed at 122,800 people. Intervention population randomly generated, compared to a reference community (separate high risk group also). Cost: $5-$22 per capita.	At 4 years: Men decreased tobacco intake per day by 0.7 percent, women by 0.3 percent; Men decreased smoking prevalence by 1.1 percent, women by 2.5 percent; Men decreased diastolic BP by 2.5 percent, women by 3 percent; Men decreased systolic BP by 2.5 percent, women by 3.0 percent. High risk at 4 years: Men decreased tobacco intake per day by one percent, women by 0.8 percent; Men decreased smoking prevalence by 2 percent, women by 8.2 percent; Men decreased diastolic BP by 3 percent, women by 2.8 percent; Men decreased systolic BP by 1.3 percent, women by 1.7 percent.	4,087 men and women 15-64 [control (1305); intervention (2,782; high risk; 1,198 (43 percent)]

Sample Interventions				
Study	**Target Condition(s)**	**Intervention Information**	**Intervention Effect**	**Population and Age**
Economos, et. al. (2007)	Nutrition, Physical activity	"Shape Up Somerville" -- comprehensive effort to prevent obesity in high-risk children in first to third grade in Somerville, MA. Improved nutrition in schools, health curriculum, after-school curriculum, parent and community outreach, worked with community restaurants, school nurse education, safe routes to school program. Cost: Between $3-$4 per person.	After one year, on average the program reduced one pound of weight gain over 8 months for an 8 year old child.	First to third grade children in Somerville
EPODE (2004)	Nutrition	Multisectorial 5-year plan involving parents and families, medical providers, school nurses, teachers, towns, businesses, and media campaigns. Estimated cost: Approximately 2 Euros ($3.17 USD) per person.	Obesity has at least remained consistent in targeted towns while it doubled in control areas. Mothers have reported weight loss as well.	5-12 year olds in 10 towns in France
Jenum, et. al. (2006)	Physical activity	Provided information through leaflets and mass media, individual counseling, walking groups, and increased accessible areas for safe recreation. Estimated cost of 0.59 Euros ($0.93 US dollars) per person	After 3 years, compared to the control group, the intervention group had an 8-9 percent increase in physical activity, 14 percent fewer individuals gained weight, 3 percent more quit smoking, and significant decreases in blood pressure rates were reported.	Low-income adults in Oslo, Norway
Hu et al (1994)	Smoking cessation	California Proposition 99 -- increased taxes on cigarettes and other tobacco products from 10 cents to 35 cents.	After 3 years, cigarette sales dropped 9 percent and smoking among adults decreased from 26.7 percent in 1988 to 22.2 percent in 1992.	Population of California

SOME PREVENTION EFFORTS HAVE NO DIRECT COST WHILE HAVING BIG HEALTH BENEFITS

Not all community-based disease prevention programs have direct costs. In fact, some strategies, like tobacco taxes, can generate revenue.

- Studies have shown that increases in tobacco taxes result in significant drops in smoking rates, which lead to improved health and lower health care costs. Specifically, research indicates that every 10 percent increase in the real price of cigarettes reduces overall cigarette consumption by approximately 3 to 5 percent, reduces the number of young-adult smokers by 3.5 percent, and reduces the number of kids and pregnant women who smoke by 6 or 7 percent.[69] For example, Texas recently increased its cigarette tax by $1.00 per pack, and consumption over the following year dropped by more than 20 percent.[70]
- Smoke-free laws also have a positive impact on the health of communities with no real cost.[71] The cigarette companies acknowledged the power of smoking restrictions to reduce smoking rates years ago (in internal company documents revealed in anti-smoking lawsuits), stating, for example, that "if our consumers have fewer opportunities to enjoy our products, they will use them less frequently."[72]
- Local zoning laws can improve the walkability of a community, supporting increased physical activity. For example, in Davis, California, a carefully designed bike network, which includes a dedicated traffic lane for bikers, has led to 25 percent of all trips in the city being by bike (compared to one percent nationally), and a decision by the city to stop busing children to school, having them bike instead.[73]
- Experts believe menu labeling at fast food restaurants (showing caloric and nutrition information) contributes to reducing obesity. One study has suggested that menu labeling in Los Angeles could significantly slow the rate of weight increases in the population, thus saving health care costs associated with obesity.[74]

3. Building Disease Rate Reduction Assumptions: Based on findings from the literature review and consultations with a physician, the Urban Institute researchers made assumptions about the length of time it could take for community-based disease prevention programs focusing on increasing physical activity, improving nutrition, and reducing smoking to have an impact on health.

Building on estimates from a range of studies, the researchers modeled an investment of only $10 per person into effective programs to increase physical activity and good nutrition and prevent smoking, and a reduction in rates of uncomplicated diabetes and high blood pressure of 5 percent in one to 2 years; complicated diabetes and high blood pressure as well as non-diabetic, non-hypertensive heart disease, stroke and/or kidney disease of 5 percent within 5 years; and cancer, arthritis, and COPD of 2.5 percent within 10 to 20 years.

In order to determine the effect on diseases, the researchers translated the results of programs as presented in articles into the effect these changes could have on diseases or limiting disease progression. The literature outlines the connections between changes in behavior and the impact on health. For instance, increased physical activity, reduced Body Mass Index (BMI), or lowering systolic blood pressure have been shown to delay or prevent types of disease development. In addition, studies describe how different diseases progress. Results can be seen in reducing type 2 diabetes, for example, in just one to 2 years. This reduction would inevitably have an effect on the complications of diabetes, most notably heart disease, kidney disease, and stroke, although reductions or delays in these conditions would take longer to be realized than reductions in uncomplicated diabetes or high blood pressure (an estimated 5 years as opposed to one to 2 years). Cancers, arthritis, and COPD

would take the longest to be affected, taking 10 to 20 years before disease prevention programs could help bring about reductions in disease rates. The model assumes a one-time reduction in diabetes and/or high blood pressure, even though the sustained investment in prevention programs included in the model could likely result in greater declines. The researchers acknowledge that all of these diseases may develop unrelated to physical inactivity, poor nutrition, or smoking. The model focuses on the estimated share of these disease rates that could be affected by these factors.

Examples of Studies Showing Intervention Impact on Disease or Behavior Rates

Study	Target Behavior	Target Condition	Finding
Brownson (2000)	Physical Activity	Cardiovascular Disease	Of people who had access to walking trails, 38.3 percent used them. Of these users, 55.2 percent increased their amount of walking.
CDC (2005)	Physical Activity, Weight Loss	Diabetes	By losing 5 to 7 percent of body weight and getting just 2 1/2 hours of physical activity a week, people with pre-diabetes can cut their risk for developing type 2 diabetes by about 60 percent.
Dauchet (2005)	Nutrition	Cerebrovascular Disease	Risk of stroke was decreased by 11 percent for each additional portion per day of fruit and 3 percent for each additional portion per day of vegetables.
Felson (1997)	Weight Loss	Arthritis	40 percent increase in risk per 10-lb weight gain and 60 percent increase in risk per 5-unit BMI increase.
HHS (2003)	Nutrition	Cardiovascular Disease, Cholesterol	A 10 percent decrease in cholesterol levels may result in an estimated 30 percent reduction in the incidence of coronary heart disease.
Joshipura, et. al. (2001)	Nutrition	Cardiovascular Disease	Each additional serving of fruits or vegetables per day was associated with a 4 percent lower risk for coronary heart disease.
McGinnis & Foege (1993)	Nutrition	Cardiovascular Disease	22 to 30 percent of CHD deaths are due to dietary factors, especially increased consumption of cholesterol and saturated fat and a decreased consumption of fiber.
	Nutrition	Cancer	The proportion of all cancer deaths attributable to diet is 35 percent.
	Nutrition	Diabetes	45 percent of diagnosed cases are due to poor diet, inactivity, and obesity.
Nanchahal (2005)	Weight Loss	CVD	Every kilogram of weight gain after high school increased risk of congenital heart disease by 3.1 percent in men.
Hamman (2006)	Weight Loss	Diabetes	16 percent reduction in diabetes risk per kilogram of weight lost.

SMALL CHANGES CAN HAVE A BIG IMPACT ON HEALTH

The research shows that even small changes in behavior can have a major impact on health. For example:

- For individuals, a 5 to 10 percent reduction in total weight can lead to positive health benefits, such as reducing risk for type 2 diabetes.[75]
- An increase in physical activity, even without any accompanying weight loss, can mean significant health improvements for many individuals. A physically active lifestyle plays an important role in preventing many chronic diseases, including coronary heart disease, hypertension, and type 2 diabetes.[76, 77, 78, 79]

4. Cost Savings Estimates: Using the share of costs estimated in the regression analyses and the size of the effects of prevention programs reported in the literature, the Urban Institute researchers estimated the medical care expenditure savings that would result from implementation of such an intervention. They then applied this formula to the example of a program that reduces the prevalence of uncomplicated diabetes and high blood pressure by 5 percent in the short run.

Medical Savings Calculations

The savings (S) from reduction of condition j:

$S_j = (e_j) * (\text{share of costs}_j) * \text{expenditures}$

Where:

S_j is savings from the intervention

e_j is the effect of the intervention on disease cluster j

Share of costs refers to estimated costs attributable to disease cluster j

Expenditures is total medical expenses

Short Run Savings Example
(Preliminary Estimates)

The savings from 5% reduction in uncomplicated diabetes and hypertension in the U.S.:

$S_{diab\_HBP} = (e_{diab\_HBP}) * (\text{share of costs}_{diab\_HBP}) * \text{expenditures}_{US}$

$= (0.05) * (0.094) * \$1{,}235 \text{ billion}$
$= \$5.8 \text{ billion annually}$

Because the model is based on adults only and excludes nursing home expenditures, the expenditure number used in this example excludes spending on nursing homes and is adjusted to account for spending on children.

5. Limitations and Notes on the Model

The researchers note that the estimates are likely to be conservative. As noted above, the model assumes costs in the higher range and benefits in the low range. Furthermore, the model does not take into account any costs of institutional care. Chronic disease often leads to disability or frailty that may necessitate nursing home care, so exclusion of these costs may underestimate the return on investment in reduction of disease.

While the model is still being elaborated to address many of these issues, some known limitations of the model as reported here include:

- The model assumes a sustained reduction in the prevalence of diabetes and hypertension over time. The literature on the duration of the effects of intervention is small, with effects usually reported over no more than 3 to 5 years.
- The model assumes a steady state population. This model is based on current disease prevalence and does not take into account trends in prevalence. For example, diabetes is increasing while heart disease is declining, but the model estimates savings based on the current prevalence.
- While the model does take into account competing morbidity risks, it does not take into account changes in mortality. However, in the short (one to 2 years) and medium run (5 years), changes in mortality are likely to be small.
- The model calculates all savings in 2004 dollars. Thus, it does not take into account any rise in medical care expenditures or changes in medical technology.
- The model incorporates only the marginal cost of the interventions and does not reflect the cost of the basic infrastructure required to implement such programs.
- The intervention effects do not account for variations in community demographics such as distribution of race/ethnicity, age, gender, geography, or income. The intervention effect is treated as constant across groups.

EXAMPLES OF CURRENT EFFECTIVE PREVENTION PROGRAMS SUPPORTED BY THE U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

- The REACH for Wellness program in Fulton County, Georgia, designed REACH OUT, a campaign to promote cardiovascular disease education. In two years, the program led to an increase in the percentage of regular adult participants in moderate-to-vigorous physical activity from 25 percent to 29 percent. During this period, the percentage of adults who reported checking total blood cholesterol levels increased from 69 percent to 80 percent, and the percentage of adults who smoked decreased from 26 percent to 21 percent.[80]
- In Broome County, New York, more than three of every five adults are either overweight or obese, according to the Behavioral Risk Factor Surveillance System (BRFSS). With a CDC grant from the Steps to a Healthier US (now Healthier Communities) program, the Broome County Steps Program implemented:
  - A walking program for families in rural areas, BC Walks, where within one year, the percentage of people who walked for 30 minutes or more five days a week increased from 51 percent to 61 percent;
  - Supporting a consolidated bid for 15 school districts to purchase healthy foods at lower costs; which resulted in a 14 percent increase in fruit and vegetable consumption; and
  - Expanded a diabetes prevention program, Mission Meltaway, in conjunction with the local YMCA and Office of Aging, to reach 3000 people. Participants in the program lost more than five pounds on average, and, as one example, in one program, 91 of the 100 participants lost weight, 65 increased their physical activity levels, and all 100 improved their knowledge of proper nutrition and exercise after only four weeks in the program.[81]
- Nearly 30 percent of children ages two to five who participate in Minnesota's Women, Infant, and Children (WIC) supplemental nutrition program are overweight or are at-risk for becoming overweight. The Rochester, Minnesota Steps Program implemented a Fit WIC program to help parents and their children become more physically active through a series of play, recreation, physical activity, and structured skill building activities. They also worked with the Rochester YMCA to give WIC parents free access to the YMCA programs. Participants' activity levels increased an average of 50 minutes of physical activity per day per preschool child, and parents reported a 10 percent increase in moderate activity level in addition to increasing the time spent playing with their children.[82]

Conclusions

SECTION 5

The nation's economic future demands we find ways to reduce health care costs. Preventing people from getting sick is one of the most important ways we can drive costs down.

This study shows that the country could save substantial amounts on health care costs if we invest strategically in community-based disease prevention programs. We could see significant returns for as little as a $10 investment per person into evidence-based programs that improve physical activity and nutrition and lower smoking rates in communities. Not only could we save money, many more Americans would have the opportunity to live healthier lives.

Physical activity, nutrition, and smoking are 3 of the most important areas to target for prevention, and as this study shows, community-based programs can generate a significant return both in terms of health and financial savings. There is a wide range of other disease prevention efforts that target these and other health problems and have a beneficial impact on the health of Americans.

Until the country starts making a sustained investment into disease prevention programs, we will not realize the potential savings. We need to make the investment to see the returns.

TFAH and RWJF launched the Healthier America Project in 2007 to find ways to improve the health of the nation. The project has set a number of goals, including:

- America should strive to be the healthiest country in the world;
- Every American should have the opportunity to be as healthy as he or she can be;
- Every community should be safe from threats to its health; and
- All individuals and families should have a high level of health, health care, and public health services, regardless of who they are or where they live.

For America to become a healthier nation, prevention must become a driving force in our health care strategy and become central to discussions about how to reform health care in the U.S. For too long, disease prevention has been considered too difficult to implement programs on a wide-scale basis.

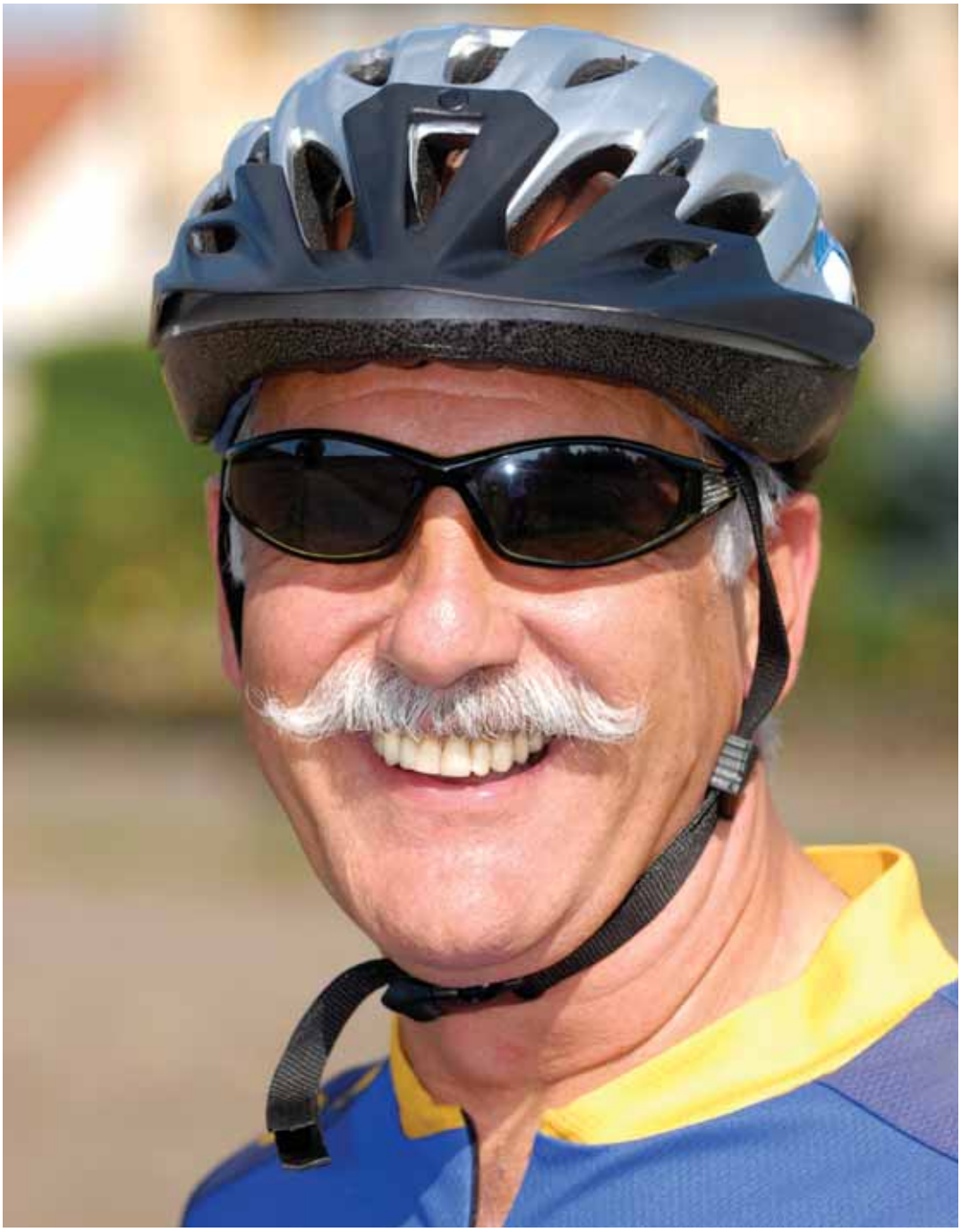
One challenge has been to get policymakers to invest, given the already high health care costs and difficulties in showing the impact of many community-based prevention programs. Understanding the return on investment is an important step to help determine what types of programs to invest in, how much should be invested, and how the programs could be funded.

This study identified a range of community-based programs that have been shown to have a positive impact on improving the health of communities by increasing physical activity, improving nutrition, or preventing or helping people quit smoking. These programs are designed to help improve the health and well-being of large segments of the population without direct medical treatment. Instead, community disease rates are decreasing and health is improving through increased access to safe places to be active, affordable nutritious foods, and support to help prevent or quit smoking.

Insurance providers, including Medicare, Medicaid, and private payers, would directly benefit from investments made in community-based prevention. In addition, communities would benefit from improved health and productivity of the workforce and citizens in those communities.

In addition, the country must make improving research into community-based disease prevention programs a priority. Since these programs hold so much potential for improving the health of Americans in addition to saving health care costs, it is important to gain an increased understanding about what programs are most effective and how to best target efforts in communities, including evaluating costs and outcomes. This research is important to help policymakers determine the most effective ways to invest for the highest returns in health and savings.

Investing in prevention is investing in the future health and wealth of the nation.



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Total Savings, Costs, and Net Savings

APPENDIX B

NATIONAL RETURN ON INVESTMENT OF $10 PER PERSON (Net Savings)			
	1-2 Years	5 Years	10-20 Years
Total Care Cost Savings	$5,784,081,647	$19,479,731,068	$21,387,802,964
Costs of Interventions	$2,936,380,000	$2,936,380,000	$2,936,380,000
U.S. Net Savings	$2,847,701,647	$16,543,351,068	$18,451,422,964
ROI	0.96:1	5.60:1	6.20:1

** In 2004 dollars, net savings*

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Diseases:

The researchers searched for the following chronic diseases, cancers, and infectious diseases:

Cardiovascular Diseases, Diabetes Mellitus, Cerebrovascular Disorders, Coronary Disease, Brain Ischemia, Heart Diseases, Chronic Obstructive Pulmonary Disease, Asthma, Osteoarthritis, Kidney Diseases, Breast Neoplasms, Colorectal Neoplasms, Uterine Pancreatic Neoplasms, Cervical Neoplasms, Lung Neoplasms, Communicable Diseases.

Interventions:

The researchers searched for the following terms for public health interventions, modifiable behavioral changes, or biological risk factors:

Public Health, Risk Factors, Risk, Life Style, Health Promotion, Exercise, Smoking, Smoking Cessation, Sexual Behavior, Food Services, Fruit, Mass Screening, Breast Feeding, Air Pollution, Community Health Services, School Health Services, Healthy People Programs, Cholesterol, Body Mass Index, Blood Pressure, Prevention.

Study Design:

The researchers searched for the following epidemiological study design keywords:

Program Evaluation, Intervention Studies, Prospective Studies, Case-Control Studies, Longitudinal Studies, Follow-Up Studies, Survival Rate, Hospitalization, Proportional Hazards Models, Incidence, Data Collection, Randomized Controlled Trials as Topic, Time Factors, Regression Analysis, Diet Surveys, Cohort Studies, Outcome Assessment (Health Care), Workplace, Cross-Sectional Studies, Disease Progression, Risk Assessment, Pilot Projects, Effectiveness.

Terms were searched as both keywords and as Medical Subject Headings (MESH).

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