

**REPORTED UPTAKE OF THE CENTERS FOR DISEASE CONTROL AND
PREVENTION'S CONTROLLING HIGH BLOOD PRESSURE AND CONTROLLING
HIGH CHOLESTEROL INDICATORS AMONG STATE HEART DISEASE AND
STROKE PREVENTION PROGRAMS**

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Objective:

This descriptive research describes the reported uptake of the Centers for Disease Control and Prevention's (CDC) Controlling High Blood Pressure and Controlling High Cholesterol Indicators among funded state programs for heart disease and stroke prevention. The Indicators serve as evidence-based performance measures which aim to streamline the implementation and evaluation of the National Heart Disease and Stroke Prevention Program.

Methods:

Participants included 42 state health departments funded by the CDC for heart disease and stroke prevention initiatives. Fourteen states were funded as Basic Implementation programs (to implement and evaluate interventions) and 28 states were funded as Capacity Building programs (to enhance capacity for implementing interventions). Documentation of Indicator uptake was extracted from the 2009-2010 and 2010-2011 Work Plans for all funded programs.

Results:

In general, all programs increased their reported uptake of Indicators over time. On average, from 2009 to 2011, Basic Implementation programs reported more Indicators per Work Plan compared with Capacity Building programs.

Conclusion:

While this study provides documentation of the uptake of Indicators in Work Plans, a subsequent analysis should research if the appropriate use of Indicators as a performance measure improves documentation of the *actual* reach and impact for heart disease and stroke interventions.

Implications for Public Health:

The public health significant of this work includes the following contributions to the public health field include: (a) providing guidance to state programs, (b) visualizing the trends and patterns in the reported use of Indicators for Controlling High Blood Pressure and Controlling High Cholesterol among state programs, (c) encouraging accountability, and (d) sharing the strengths and/or areas for improvement with state programs to foster better programming and enhance Communities of Practice.

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PREFACE

This descriptive research project was completed during an internship with the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia during the summer of 2010. The core purpose of the project was to describe the uptake of CDC performance measures (known as Indicators) into state health department Work Plans that were aimed at impacting heart disease and stroke. To protect confidentiality, any identifying information pertaining to state health departments has been removed from this document and replaced with an arbitrary alias.

I owe many thanks and acknowledgments to my mentors from both the University of Pittsburgh (including but not limited to Dr. Beth Nolan, Dr. Steven Albert, and Dr. Constance Bayles) and the CDC (including Lazette Lawton, Richard Sullivan, Eileen Chappelle, Hilary Wall, and the entire Program Development and Services Branch of the Division for Heart Disease and Stroke Prevention). Each of these individuals has truly expanded my academic and professional horizons. I have learned, and continue to learn, a great deal with each and every interaction that we share. Most importantly, I'd like to thank my parents, Kenneth and Loretta Weir, for providing me with a foundation for success and for encouraging me to pursue such ambitious plans with my life. My parents have always made sacrifices to support my education. Without their love and support, I would not be where I am today.

1.0 INTRODUCTION

1.1 THE BURDEN OF HEART DISEASE AND STROKE

Cardiovascular diseases (CVDs), particularly heart disease and stroke, are among the leading causes of death nationwide and worldwide for both men and women of all racial and ethnic groups ^{1,2}. In the United States, heart disease and stroke are the first and third leading causes of death, respectively ². More than 80 million Americans, or about one in three adults, have some form of CVD, including high blood pressure (hypertension), coronary heart disease, congestive heart failure, stroke, and others ¹. Nearly one million Americans suffer a heart attack each year and, of them, approximately 38% die ². Nearly 800,000 others suffer a stroke each year; one in every four of these individuals dies ¹. With such high numbers of individuals affected each year, the United States is burdened with the staggering costs of treating CVD.

In 2008, the health care costs for treating coronary heart disease *alone* were estimated to exceed \$156 billion ². Including health expenditures and lost productivity, CVD cost the United States an estimated \$475.3 billion in 2009 ¹. Currently, more than one million U.S. adults live with impairment or disability due to stroke ². In the United States workforce, heart disease and stroke are the leading causes of premature, permanent, and long-term disability ².

Racial health disparities are also pronounced. Age-adjusted death rates from heart disease were 32% higher for African Americans than for Caucasians in 2005 ². Today, heart

disease and stroke are killing more young people, aged 15 to 34, than ever before. Women are dying from heart disease at a much higher rate than they are from breast cancer; about 219 women per 100,000 die annually of heart disease, compared with 27 per 100,000 who die of breast cancer ². However, scientific evidence has shown that primary and secondary prevention can save the lives of many individuals. Evidence-based research suggests that, using population-based approaches to health education and promotion, public health officials can develop promising interventions to improve cardiovascular health nationwide ². In 2006, this evidence contributed to the creation of the Center for Disease Control and Prevention's (CDC's) Division for Heart Disease and Stroke Prevention (DHDSP).

1.2 THE DIVISION FOR HEART DISEASE AND STROKE PREVENTION

The mission of the DHDSP is “to serve as the nation's public health leader for achieving cardiovascular health for all and for eliminating disparities in the burden of heart disease and stroke.”³ The DHDSP funds the National Heart Disease and Stroke Prevention Program (NHDSPP) to support state health departments in managing heart disease and stroke prevention programs at the state and local levels. Currently, 42 states (this includes the District of Columbia, but not Puerto Rico and the Virgin Islands) are funded; 28 for Capacity Building and 14 for Basic Implementation (see [2.1 Participating States](#)).

Through the use of public health data and resources, the DHDSP reaches nationwide to build upon valued relationships and translate evidence-based strategies and proven science into action. The overarching goals of the DHDSP are to: (a) prevent risk factors for heart disease and stroke; (b) increase detection and treatment of risk factors; (c) increase early detection and

treatment of heart disease and stroke; (d) decrease recurrences of heart attacks and strokes; and (e) foster a skilled and engaged public health workforce³. To accomplish the above goals, the DHDSP funds 42 health departments to support initiatives for heart disease and stroke prevention³.

2.0 METHODOLOGY

2.1 PARTICIPATING STATES

States funded by the CDC for heart disease and stroke prevention promote policy and systems change, primarily in health care, workplace, and community settings. In particular, state programs focus on controlling high blood pressure and high cholesterol, increasing awareness of heart attack and stroke signs and symptoms, the importance of calling 9-1-1 in an emergency situation related to heart attack and stroke, enhancing emergency response and the quality of health care delivered, and narrowing health disparities among high-risk populations.

All funded programs receive funding for approximately five years, contingent upon the program's ability to document satisfactory performance. Performance measures, or Indicators, were identified by DHDSPP personnel; These Indicators, which are the object of analyses for this article, are used to keep every program's objectives in line with the DHDSPP and to document measures for the evaluation of the National Heart Disease and Stroke Prevention Program (NHDSPP).

As previously mentioned, there are two types of funded programs for the NHDSPP: Basic Implementation Programs and Capacity Building Programs. Basic Implementation Programs and Capacity Building Programs differ according to funding levels and performance expectations. However, both programs use the same performance measures, or Indicators, to

order to support the implementation and evaluation processes associated with the interventions. The Funding Opportunity Announcement which employs these programs (FOA DP07-704) determines which state programs possess the necessary capacities for the execution of such interventions and funds these states for Basic Implementation purposes. Other funded states, which require more capacities, are funded for Capacity Building purposes (discussed in [2.1.2 Capacity Building Programs](#))

Basic Implementation programs are charged with: (a) enhancing all capacity building activities, (b) implementing and evaluating policy, systems change, and educational interventions that address heart disease and stroke priority areas, and (c) providing training and technical assistance to public health and healthcare providers to support policy and systems change. In essence, a basic implementation program is designed to extend existing capacity building activities as well as deliver and evaluate interventions. In 2009, 14 states received funding as Basic Implementation Programs for five years, contingent upon satisfactory performance as deemed by the CDC.

2.1.2 Capacity Building Programs

Capacity Building programs use partnership development, burden identification and definition, and state plan development to create the basis for a wide-scale CVD prevention program. These programs receive less funding than Basic Implementation programs. However, like Basic Implementation programs, the two priority areas of evaluation interest from 2009 to 2011 are: (a) increasing control of high blood pressure, primarily in adults and older adults and (b) increasing control of high blood cholesterol, primarily in adults and older adults ⁴.

Capacity Building programs are responsible for: (a) facilitating collaboration with public- and private-sector partners, (b) documenting the burden of heart disease, stroke, and risk factors in their state, (c) developing plans for population-based approaches for preventing heart disease and stroke among general and priority populations, (d) developing a state plan, (e) developing a logic model and evaluation plan, and (f) assessing the assets and gaps in state policy and systems related to heart disease and stroke prevention in healthcare, worksite, and community settings. Essentially, a capacity building program is designed to develop the foundation for a comprehensive CVD prevention program. In 2009, 28 states received funding as Capacity Building Programs for five years, contingent upon satisfactory performance as deemed by the CDC.

No states were awarded funding for both Basic Implementation and Capacity Building. Thus, 42 out of 50 states were funded for either Basic Implementation or Capacity Building in 2009. Upon funding, programs received technical assistance from the DHDSP which provided guiding models and related Indicators (performance measures) to be used for program planning, implementation, and evaluation.

2.2 MEASURES

2.2.1 Indicators and Logic Models

The DHDSP created logic models for Controlling High Blood Pressure ⁵ (Appendix B) and Controlling High Cholesterol ⁶ (Appendix C) which were informed by the Social-Ecological Model, first described by McLeroy, Bibeau, Steckler, and Glanz in 1988 ⁷. The logic models

were designed to guide intervention objectives and align all 42 funded programs with the common goals of the DHDSP (outlined in [1.2 The Division for Heart Disease and Stroke Prevention](#)). The Social-Ecological Model depicts society as a web of interconnected factors that affect one another. It indicates that, in order to change individual behavior, an effective intervention must take into account the multiple levels of influence over health behavior – intrapersonal factors, interpersonal processes and primary groups, organizational or institutional factors, community factors, and public policy⁷. Based on previous successes in helping to reverse the tobacco use epidemic, there is evidence to support the use of the Social-Ecological Model to affect the environments and policies that drive factors influencing cardiovascular health⁷. Policy and environmental changes broaden the options for public health interventions. In contrast to interventions that only affect individuals who choose to participate, policy interventions can affect virtually entire populations⁷. Therefore, funded state HDSP programs are geared towards identifying culturally competent, population-based strategies to reduce the morbidity, mortality, and costs associated with heart disease and stroke. Accordingly, the focus of the DHDSP is to involve state programs in the societal and community levels of the Social-Ecological Model via policy and systems-level changes². For example, many state programs choose to impact worksite health by increasing the number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee 7 (JNC 7) treatment guidelines for controlling high blood pressure.

Every logic model box for both Controlling High Blood Pressure and Controlling High Cholesterol includes Indicators (performance measures) that are supported by scientific evidence to impact heart disease and stroke^{8,9}. A numeric system is used to simplify and organize the list of 120 different Indicators that the DHDSP provides to the programs (see Figure 2 for visual).

The first number in each Indicator denotes the logic model from which it originated (1 = Controlling High Blood Pressure, 2 = Controlling High Cholesterol). The second number indicates which box on the logic model that the Indicator relates to (this ranges from 1 to 11). Finally, the third number identifies a specific performance measure that corresponds to the identified logic model box. Essentially, the logic models depict the flow of the NHDSPP (with the underlying theory being the Social-Ecological Model) and the Indicators are performance measures that can be used to impact the various domains (logic model boxes) on each logic model. In encouraging the use of Indicators, the DHDSPP can better understand and evaluate the efforts put forth by each funded program.

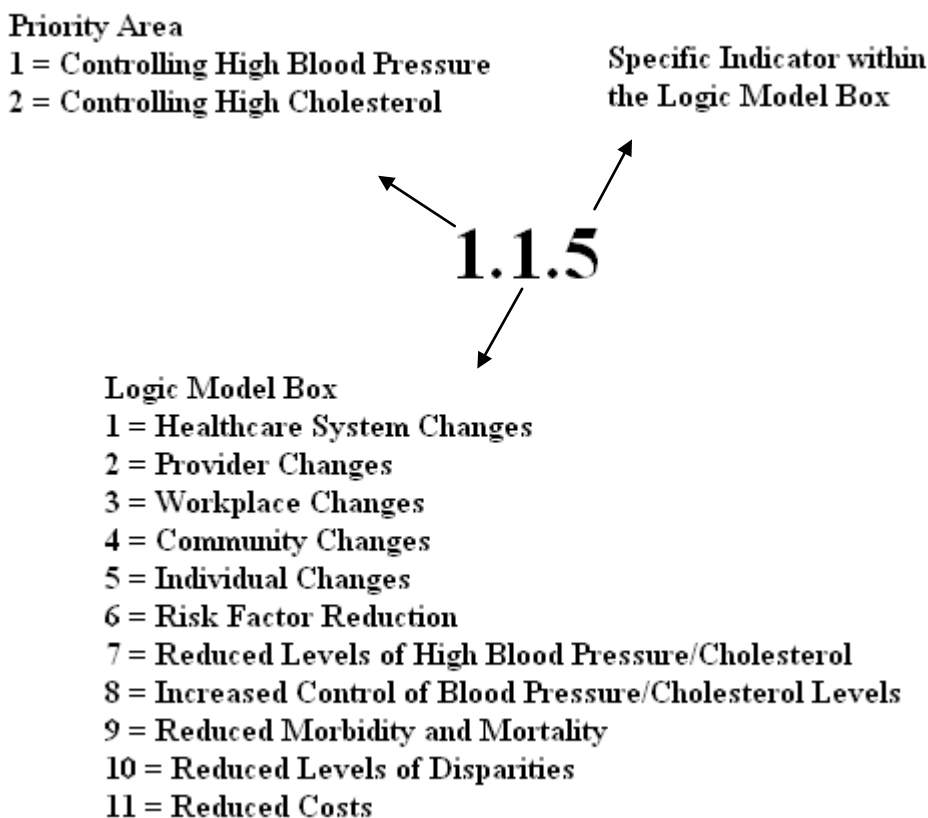


Figure 2 Indicator Number Designation

Each Indicator was selected after an extensive CDC review process. Every potential Indicator was rated by CDC personnel experts on a scale based off of existing science, expert opinion, and state practices. For example, rating measures included: overall quality (low to high), resources needed (low to high), scientific evidence (five-point Likert scale), face validity (five-point Likert scale), utility (five-point Likert scale), and accepted practice (five-point Likert scale)^{8,9}. Indicators were created in a way that any state program could utilize them, discussed below.

To facilitate uptake into state HDSP programs, Indicators and supporting materials were written to allow for flexibility so that programs can tailor performance measures to the specific strategies and needs of the program; in other words, the Indicators are general performance measures rather than rigid, concrete measures. In total, the DHDSP identified 63 Controlling High Blood Pressure Indicators (spanning 11 logic model boxes from short- to long-term outcomes) and 57 Controlling High Cholesterol Indicators (spanning 11 logic model boxes from short- to long-term outcomes) for a total of 120 different Indicators (see Appendix A for a full, descriptive list of the Indicators). To provide a clearer focus for state programs when choosing Indicators to impact with interventions, the DHDSP selected a smaller subset of Indicators, called Core Indicators, to target key areas for heart disease and stroke prevention.

2.2.1.1 Core Indicators

The DHDSP identified a set of Core Indicators from the list of Controlling High Blood Pressure and Controlling High Cholesterol Indicators. These Core Indicators were selected based on the quality of the evidenced-based research which supports their use for impacting heart disease and

stroke. In total, there are 11 Core Indicators for Controlling High Blood Pressure and 13 Core Indicators for Controlling High Cholesterol.

2.2.2 The Heart Disease and Stroke Prevention Management Information System

All of the data used in this analysis were extracted from the Heart Disease and Stroke Prevention Management Information System (HDSP MIS). The HDSP MIS is an electronic system that state health departments access to submit and update Work Plans so that the DHDSP can monitor the documentation of state activities related to heart disease and stroke prevention and provide technical assistance. Each funded state health department designates staff members who submit the information on a bi-annual basis; these individuals typically hold leadership/management positions in the health department.

Work Plans are the means by which the DHDSP maintains an ongoing record of state HDSP programs' interventions. The submission of Work Plans into HDSP MIS serves several functions for the DHDSP including to: (a) provide a comprehensive view of each state program as well as the national program (the NHDSPP), (b) standardize reporting across all states, (c) improve the documentation of program successes and challenges, (d) identify promising practices, and (e) facilitate program evaluation ². In the HDSP MIS, each state reports capacity building objectives, intervention objectives, a core components summary related to their HDSP program activities (including key partners, key contractors, the state plan, a burden report, data sources, a policy and environmental assessment, and capacity building training and technical assistance), and an overall Work Plan summary that captures the range of interventions that are

planned or ongoing which impact heart disease and stroke. In the bi-annual Work Plans, state HDSP programs are requested to parenthetically document Indicators that are impacted by their planned activities or interventions. Often, states document Indicators in the intervention objectives statement, which is a concise snapshot of the planned or ongoing intervention(s). For example, in one state's Work Plan summary, three Indicators were parenthetically documented as being impacted by the planned activity in the intervention objectives statement in the following manner: *“Conduct statewide blood pressure campaigns in English, Spanish, and Portuguese. (Anticipated CDC HBP indicators: 1.5.1, 1.5.3, 1.5.6).”*¹⁰ Using the HDSP MIS as the basis for reporting Indicator uptake, analyses were conducted to describe changes in the reported uptake of Controlling High Blood Pressure Indicators and Controlling High Cholesterol Indicators among Basic Implementation Programs and Capacity Building Programs from the 2009-2010 Work Plans to the 2010-2011 Work Plans.

2.3 ANALYSIS

Two Microsoft Excel databases^{11, 12} were constructed in order to document the frequency of reported Indicator usage for Controlling High Blood Pressure and Controlling High Cholesterol. One database was formed for a 2009-2010 Work Plan analysis¹¹ and another for a 2010-2011 Work Plan analysis¹². Since the NHDSPP distinguishes state HDSP programs as either Capacity Building or Basic Implementation, two separate spreadsheets were created within each database – one for each funding category. Every Indicator for Controlling High Blood Pressure and Controlling High Cholesterol was represented in the spreadsheet along with running totals within each state and across all states of the same funding-type.

As previously mentioned, state HDSP programs are asked to report appropriate Indicators of their choosing to their planned activities in their bi-annual Work Plans. The reporting of Indicator uptake is critical information because it allows the DHDSP to: (a) provide guidance and technical assistance to the states, (b) describe trends and patterns in reported state activities linked to Controlling High Blood Pressure and Controlling High Cholesterol Indicators, (c) encourage accountability (a core value of the DHDSP), and (d) recognize strengths and/or areas for program improvement.

Each Work Plan was manually analyzed to document the specific, parenthetical documentation of an Indicator. For example, one state's intervention objective in a 2010-2011 Work Plan summary stated, "*Implementation of Worksite Wellness Model (2.3.2, 2.3.3, 2.3.4, 1.3.3, 1.3.4, 1.3.6). By 06/2011, increase the percentage of employees participating in a worksite wellness initiative at a pilot worksite from 0% to 30% within the work site setting (Influencing the general population).*"¹⁰ In this example, the numbers listed in parentheses were indications of what Indicators the state was using. After the intervention objectives, state Work Plans would elaborate on the intervention by providing a brief summary related to that intervention's key partners, key contractors, state plan, burden report, data sources, policy and environmental assessments, and capacity building training and technical assistance (these were all supplemental details to the interventions that were not used in this analysis but could be used to justify the selection of the Indicators chosen). Accordingly, in the appropriate Excel database (in this case, 2010-2011), the Indicators were tallied under that state along with a description of each Indicator for quick reference. In the example above, the database read, "*2.3.2: Proportion of worksites that offer behavioral approaches for employees to control high cholesterol*".¹² This process was repeated for all 42 funded HDSP programs for both the 2009-2010 and 2010-2011 Work Plans.

If a state did not explicitly write out the Indicator impacted by an intervention, it was not included in the analysis. In other words, no assumptions were made about the impact that any intervention would have on an Indicator unless the Work Plan explicitly reported the Indicator with the intervention. Subsequently, the data was cleaned by double-checking for data entry errors and prepared for descriptive analysis.

2.3.1 Analyses Performed

The following descriptive analyses were performed on each report separately (2009-2010 Work Plans and 2010-2011 Work Plans) and then analyzed for longitudinal trends in reported Indicator uptake across state all 42 funded HDSP programs:

2.3.1.1 Average Number of Indicators Reported per Work Plan

For both the 2009-2010 and 2010-2011 Work Plans, the average number of Controlling High Blood Pressure and Controlling High Cholesterol Indicators per Work Plan were tallied for Basic Implementation and Capacity Building Programs. In addition, an “only non-zero analysis” was included to describe the average number of Indicators reported per Work Plan among only the programs that reported at least one Indicator in a Work Plan. This was done to analyze the uptake of Indicators over time among only those Programs that consistently reported Indicator uptake (see [3.1 Average Number of Indicators Reported per Work Plan](#)).

2.3.1.2 Most Frequently Reported Indicators

To better visualize trends in the types of Indicators that were reported most often over time, a count of reported Indicators was conducted among Basic Implementation and Capacity Building

Programs for the 2009-2010 and 2010-2011 Work Plans (see [3.2 Most Frequently Reported Indicators](#)).

2.3.1.3 Reported Indicator Uptake by Program Type

An analysis of reported Indicator uptake (the combination of all Indicators, both Controlling High Blood Pressure and Controlling High Cholesterol) for the 2009-2010 and 2010-2011 Work Plans was conducted for each funded program to document change in reported uptake over time. Each analysis compared each program's 2009-2010 Work Plan to the same program's 2010-2011 Work Plan to document change in reported uptake (see [3.3 Reported Indicator Uptake by Program Type](#)).

2.3.1.4 Reported Uptake of Controlling High Blood Pressure Indicators by Program Type

An analysis of reported Controlling High Blood Pressure Indicator uptake for the 2009-2010 and 2010-2011 Work Plans was conducted for each funded program to document change in reported uptake over time. Each analysis compared each program's 2009-2010 Work Plan to the same program's 2010-2011 Work Plan to document change in reported uptake of only Controlling High Blood Pressure Indicators (see [3.4 Reported Uptake of Controlling High Blood Pressure Indicators by Program Type](#)).

2.3.1.5 Reported Uptake of Controlling High Cholesterol Indicators by Program Type

An analysis of reported Controlling High Cholesterol Indicator uptake for the 2009-2010 and 2010-2011 Work Plans was conducted for each funded program to document change in reported uptake over time. Each analysis compared each program's 2009-2010 Work Plan to the same program's 2010-2011 Work Plan to document change in reported uptake of only Controlling

High Cholesterol Indicators (see [3.5 Reported Uptake of Controlling High Cholesterol Indicators by Program Type](#)).

2.3.1.6 Reported Uptake of Core Indicators by Priority Area

For both Basic Implementation and Capacity Building Programs, the total reported uptake of Core Indicators for the 2009-2010 and 2010-2011 Work Plans was calculated and graphed in order to visualize temporal changes in reported Core Indicator uptake. Two graphical representations were created: one for reported uptake of Controlling High Blood Pressure Core Indicators and one for reported uptake of Controlling High Cholesterol Core Indicators (see [3.6 Reported Uptake of Core Indicators by Priority Area](#)).

2.3.1.7 Variation of Reported Indicator Uptake

An analysis was conducted to determine the percentage of the 120 total Indicators provided by the DHDSP that were reported in Work Plans over time. This analysis documented the breadth of reported Indicator uptake to identify what percent of all possible Indicators were reported over time (see [3.7 Variation of Reported Indicator Uptake](#)).

3.0 RESULTS

In order to describe the reported uptake of Controlling High Blood Pressure and Controlling High Cholesterol Indicators among Basic Implementation and Capacity Building Programs, a descriptive data analysis was performed with the information collected from the HDSP MIS 2009-2010 and 2010-2011 Work Plans. It was hypothesized that reported uptake of Indicators would increase over time for both Basic Implementation and Capacity Building Programs. More frequent reporting of Core Indicator uptake over time was also anticipated.

The results are split into various categories based on the type of analysis performed (see [2.3.1 Analysis Performed](#)). Each analysis appropriately breaks down the information into some or all of the following categories depending on the type of analysis performed: All Funded Programs (n=42), Capacity Building Programs (n=28), or Basic Implementation Programs (n=14).

3.1 AVERAGE NUMBER OF INDICATORS REPORTED PER WORK PLAN

3.1.1 All Programs (n=42)

From the 2009-2010 Work Plans to the 2010-2011 Work Plans, the average number of Controlling High Blood Pressure Indicators reported increased by 1.1 Indicators per Work Plan.

Controlling High Cholesterol Indicators reported increased by 1.2 Indicators per Work Plan. Overall, the average number of Indicators reported per program increased by 2.3 Indicators per Work Plan from the 2009-2010 to the 2010-2011 Work Plans (see Table 1).

3.1.1.1 All Programs: 2009-2010 Work Plan Only Non-Zero Analysis

In only those 2009-2010 Work Plans that reported at least one Controlling High Blood Pressure Indicator (n=30), there was an average of 4.6 Indicators reported per Work Plan. In only those 2009-2010 Work Plans that reported at least one Controlling High Cholesterol Indicator (n=20), there was an average of 3.1 Indicators reported per Work Plan. In only those 2009-2010 Work Plans that reported at least one type (any type) of Indicator (n=30), there was an average of 6.7 Indicators reported per Work Plan (see Table 1).

3.1.1.2 All Programs: 2010-2011 Work Plan Only Non-Zero Analysis

In only those 2010-2011 Work Plans that reported at least one Controlling High Blood Pressure Indicator (n=37), there was an average of 5.0 Indicators reported per Work Plan. In only those 2010-2011 Work Plans that reported at least one Controlling High Cholesterol Indicator (n=31), there was an average of 3.7 Indicators reported per Work Plan. In only those 2010-2011 Work Plans that reported at least one type (any type) of Indicator (n=37), there was an average of 8.0 Indicators reported per Work Plan (see Table 1).

3.1.2 Basic Implementation Programs (n=14)

From the 2009-2010 Work Plans to the 2010-2011 Work Plans, the average number of Controlling High Blood Pressure Indicators reported increased by 2.6 Indicators per Work Plan.

The average number of Controlling High Cholesterol Indicators reported increased by 2.5 Indicators per Work Plan. Overall, the average number of Indicators reported per Basic Implementation Program increased by 5.1 Indicators per Work Plan from the 2009-2010 to the 2010-2011 Work Plans (see Table 1).

3.1.2.1 Basic Implementation Programs: 2009-2010 Work Plan Only Non-Zero Analysis

In only those 2009-2010 Basic Implementation Program Work Plans that reported at least one Indicator for Controlling High Blood Pressure (n=10), there was an average of 4.9 Indicators reported per Work Plan. Among 2009-2010 Basic Implementation Program Work Plans that reported at least one Indicator for Controlling High Cholesterol (n=7) there was an average of 2.9 Indicators reported per Work Plan. In only those 2009-2010 Basic Implementation Program Work Plans that listed at least one type (any type) of Indicator (n=10), there was an average of 6.9 Indicators reported per Work Plan (see Table 1).

3.1.2.2 Basic Implementation Programs: 2010-2011 Work Plan Only Non-Zero Analysis

In only those 2010-2011 Capacity Building Program Work Plans that reported at least one Indicator for Controlling High Blood Pressure (n=13), there was an average of 6.5 Indicators reported per Work Plan. Among 2010-2011 Basic Implementation Program Work Plans that reported at least one Indicator for Controlling High Cholesterol (n=12), there was an average of 4.6 Indicators reported per Work Plan. In only those 2010-2011 Basic Implementation Program Work Plans that listed at least one type (any type) of Indicator (n=13), there was an average of 10.8 Indicators reported per Work Plan (see Table 1).

3.1.3 Capacity Building Programs (n=28)

From the 2009-2010 Work Plans to the 2010-2011 Work Plans, the average number of Controlling High Blood Pressure Indicators reported increased by .3 Indicators per Work Plan. The average number of Controlling High Cholesterol Indicators reported increased by .6 Indicators per Work Plan. Overall, the average number of Indicators reported per Capacity Building Program increased by .9 Indicators per Work Plan from the 2009-2010 to the 2010-2011 Work Plans (see Table 1).

3.1.3.1 Capacity Building Programs: 2009-2010 Work Plan Only Non-Zero Analysis

In only those 2009-2010 Capacity Building Program Work Plans that reported at least one Indicator for Controlling High Blood Pressure (n=20), there was an average of 4.5 Indicators reported per Work Plan. Among 2009-2010 Capacity Building Program Work Plans that reported at least one Indicator for Controlling High Cholesterol (n=13), there was an average of 3.2 Indicators reported per Work Plan. In only those 2009-2010 Capacity Building Program Work Plans that listed at least one type (any type) of Indicator (n=20), there was an average of 6.6 Indicators reported per Work Plan (see Table 1).

3.1.3.2 Capacity Building Programs: 2010-2011 Work Plan Only Non-Zero Analysis

In only those 2010-2011 Capacity Building Program Work Plans that reported at least one Indicator for Controlling High Blood Pressure (n=24), there was an average of 4.1 Indicators reported per Work Plan. Among 2010-2011 Capacity Building Program Work Plans that reported at least one Indicator for Controlling High Cholesterol (n=19), there was an average of 3.1 Indicators reported per Work Plan. In only those 2010-2011 Capacity Building Program

Work Plans that listed at least one type (any type) of Indicator (n=24), there was an average of 6.5 Indicators reported per Work Plan (see Table 1).

Table 1 Average Number of Indicators Reported Per Work Plan

All Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	4.8	7.1	+2.3
Average Number of Controlling High Blood Pressure Indicators per Program	3.3	4.4	+1.1
Average Number of Controlling High Cholesterol Indicators per Program	1.5	2.7	+1.2
Only Non-Zero Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	6.7	8.0	+1.3
Average Number of Controlling High Blood Pressure Indicators per Program	4.6	5.0	+0.4
Average Number of Controlling High Cholesterol Indicators per Program	3.1	3.7	+0.6
All Basic Implementation Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	4.9	10.0	+5.1
Average Number of Controlling High Blood Pressure Indicators per Program	3.5	6.1	+2.6
Average Number of Controlling High Cholesterol Indicators per Program	1.4	3.9	+2.5
Only Non-Zero Basic Implementation Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	6.9	10.8	+3.9
Average Number of Controlling High Blood Pressure Indicators per Program	4.9	6.5	+1.6
Average Number of Controlling High Cholesterol Indicators per Program	2.9	4.6	+1.7
All Capacity Building Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	4.7	5.6	+0.9
Average Number of Controlling High Blood Pressure Indicators per Program	3.2	3.5	+0.3
Average Number of Controlling High	1.5	2.1	+0.6

Table 1 Continued

Cholesterol Indicators per Program			
Only Non-Zero Capacity Building Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Average Number of Indicators per Program	6.6	6.5	-0.1
Average Number of Controlling High Blood Pressure Indicators per Program	4.5	4.1	-0.4
Average Number of Controlling High Cholesterol Indicators per Program	3.2	3.1	-0.1

3.2 MOST FREQUENTLY REPORTED INDICATORS

3.2.1 All Programs (n=42)

Indicators that addressed healthcare systems and workplace changes were denoted most frequently among all programs in both the 2009-2010 Work Plans and 2010-2011 Work Plans. The most frequently reported Indicators included: 1.1.5, 1.1.3, 1.3.6, 2.1.5, 2.3.4, and 2.3.2. For a more detailed description of all frequently reported Indicators among all programs, see Table 2.

Table 2 Most Frequently Reported Indicators, All Programs

All Programs 2009-2010 Work Plans Controlling High Blood Pressure Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.8.1*	11	Proportion of individuals who have achieved blood pressure control
1.1.5	10	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines
1.1.3*	8	Proportion of healthcare systems with electronic medical records

Table 2 Continued

		for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.3.6*	8	Proportion of workplaces with environmental changes to control high blood pressure
All Programs 2009-2010 Work Plans Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.1.5	8	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.3.4*	7	Proportion of worksites with environmental supports to control high cholesterol
2.3.2	5	Proportion of worksites that offer behavioral approaches for employees to control high cholesterol
All Programs 2010-2011 Work Plans Controlling High Blood Pressure Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.1.5	15	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines
1.3.6*	13	Proportion of workplaces with environmental changes to control high blood pressure
1.1.3*	11	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.5.1*	11	Proportion of individuals who are aware of the risks associated with uncontrolled high blood pressure (both causes and consequences)
All Programs 2010-2011 Work Plans Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.1.5	13	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.3.4*	10	Proportion of worksites with environmental supports to control high cholesterol
2.3.2	9	Proportion of worksites that offer behavioral approaches for employees to control high cholesterol

Table 2 Continued

2.1.2*	8	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
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*Core Indicators

3.2.2 Basic Implementation Programs (n=14)

Indicators that addressed healthcare systems changes for Controlling High Blood Pressure and workplace changes for Controlling High Cholesterol were denoted more frequently among Basic Implementation Programs in both the 2009-2010 and 2010-2011 Work Plans. They included Indicators 1.1.5 and 2.3.4. For a more detailed description of all frequently reported Indicators among Basic Implementation Programs, see Table 3.

Table 3 Most Frequently Reported Indicators, Basic Implementation Programs

Basic Implementation Programs 2009-2010 Work Plans Controlling High Blood Pressure Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.8.1*	5	Proportion of individuals who have achieved blood pressure control
1.1.5	4	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines
Basic Implementation Programs 2009-2010 Work Plans Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.3.4*	3	Proportion of worksites with environmental supports to control high cholesterol
Basic Implementation Programs 2010-2011 Work Plans		

Table 3 Continued

Controlling High Blood Pressure Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.1.5	8	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines
1.3.6*	8	Proportion of workplaces with environmental changes to control high blood pressure
1.1.8	5	Proportion of healthcare systems with policies to increase patient adherence with hypertension treatment (incl. pharmacologic and lifestyle modification components)
1.2.1	5	Proportion of providers who measure blood pressure according to JNC guidelines
Basic Implementation Programs 2010-2011 Work Plans		
Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.3.4*	7	Proportion of worksites with environmental supports to control high cholesterol
2.1.5	6	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.3.2	4	Proportion of worksites that offer behavioral approaches for employees to control high cholesterol

*Core Indicators

3.2.3 Capacity Building Programs (n=28)

The most frequently reported Indicators among Capacity Building Programs in both the 2009-2010 and 2010-2011 Work Plans included: 1.1.5, 1.8.1, 1.3.3, 2.1.5, and 2.1.2. These Indicators impact healthcare systems changes for both Controlling High Blood Pressure and Controlling High Cholesterol, but also workplace changes and increased control of blood pressure levels for Controlling High Blood Pressure. For a more detailed description of all frequently reported Indicators among Capacity Building Programs, see Table 4.

Table 4 Most Frequently Reported Indicators, Capacity Building Programs

Capacity Building Programs 2009-2010 Work Plans Controlling High Blood Pressure Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.1.5	6	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines
1.8.1*	6	Proportion of individuals who have achieved blood pressure control
1.3.3	5	Proportion of workplaces with behavioral approaches for controlling high blood pressure and cardiovascular risk factors to employees
1.3.6*	5	Proportion of workplaces with environmental changes to control high blood pressure
Capacity Building Programs 2009-2010 Work Plans Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.1.5	6	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.1.2*	4	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
2.3.4*	4	Proportion of worksites with environmental supports to control high cholesterol
Indicator	Number of Programs Reporting Uptake	Indicator Description
1.5.1*	8	Proportion of individuals who are aware of the risks associated with uncontrolled high blood pressure (both causes and consequences)
1.1.3*	7	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.1.5	7	Number of evidence-based quality improvement initiatives to increase practitioner compliance with Joint National Committee (JNC) 7 treatment guidelines

Table 4 Continued

1.3.3	6	Proportion of workplaces with behavioral approaches for controlling high blood pressure and cardiovascular risk factors to employees
1.8.1*	6	Proportion of individuals who have achieved blood pressure control
Capacity Building Programs 2010-2011 Work Plans Controlling High Cholesterol Indicators		
Indicator	Number of Programs Reporting Uptake	Indicator Description
2.1.5	7	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.1.2	5	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
2.3.2	5	Proportion of worksites that offer behavioral approaches for employees to control high cholesterol
2.5.5	5	Proportion of adults who are aware of their personal risk associated with high cholesterol

*Core Indicators

3.3 REPORTED INDICATOR UPTAKE BY PROGRAM TYPE

As mentioned in the preface, State names were removed from this document to protect the confidentiality of programs. To substitute for state names, each state received an alias. Basic Implementation Programs were given the abbreviation “BI” along with a random number (1-14) to make each state’s identity private. Capacity Building Programs were given the abbreviation “CB” along with a random number (1-28) to make each state’s identity private.

3.3.1 Basic Implementation Programs (n=14)

An analysis of Indicator use by each Basic Implementation Program revealed that most programs reported more Indicators in the 2010-2011 Work Plans than in the 2009-2010 Work Plans. The largest increases in reported uptake included: BI4 (2009-2010: zero Indicators, 2010-2011: 20 Indicators), BI13 (2009-2010: zero Indicators, 2010-2011: 17 Indicators) and BI3 (2009-2010: zero Indicators, 2010-2011: 15 Indicators). These programs represented three different geographical regions (northeast, northwest, and south). Figure 3 provides a graphical representation of all 14 Basic Implementation Programs' use of Indicators over time.

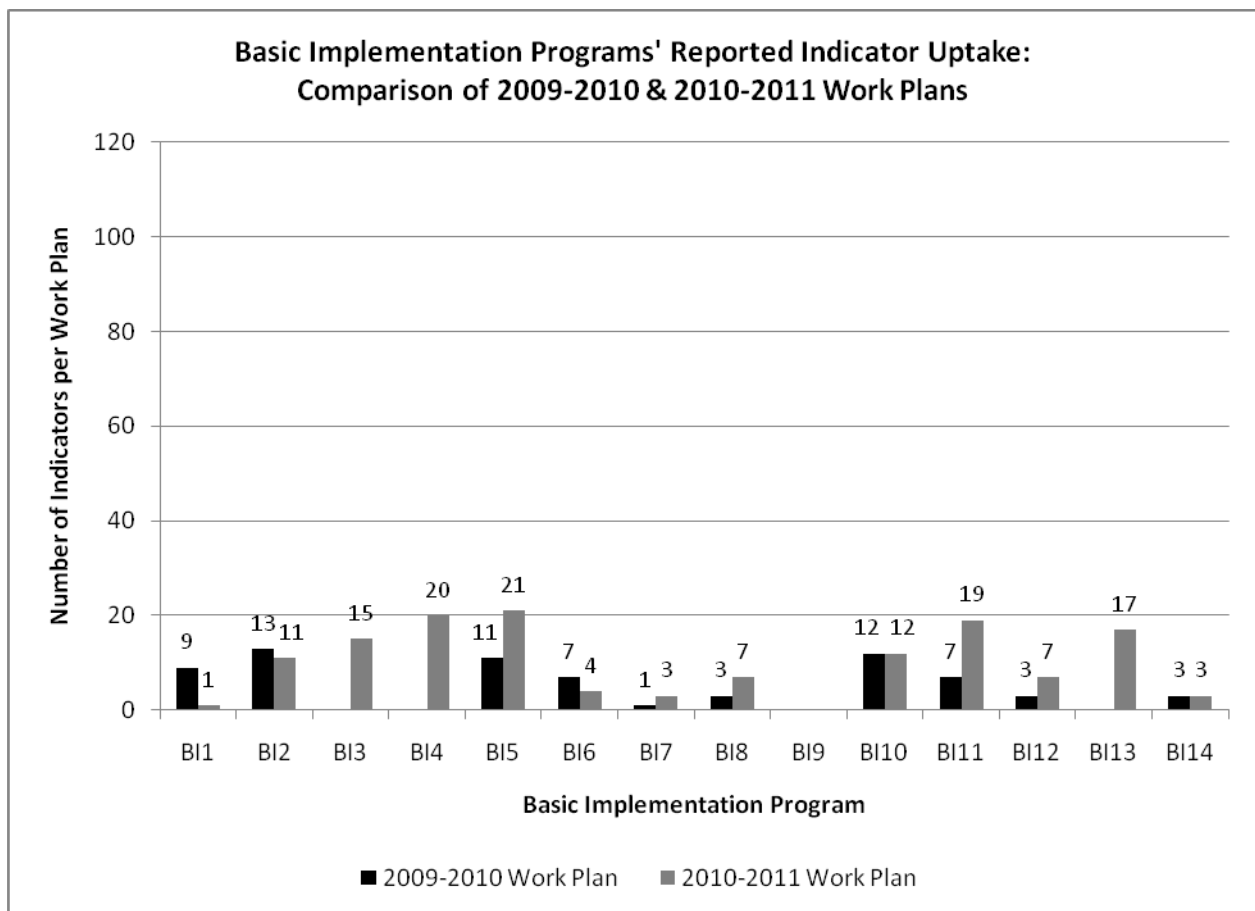


Figure 3 Basic Implementation Programs' Reported Indicator Uptake: Comparison of 2009-2010 & 2010-2011 Work Plans

3.3.2 Capacity Building Programs (n=28)

An analysis of Indicator use by each Capacity Building Program revealed that many programs reported more Indicators in the 2010-2011 Work Plans than in the 2009-2010 Work Plans. The greatest increases in reported uptake included: CB10 (2009-2010: zero Indicators, 2010-2011: eight Indicators) and CB26 (2009-2010: zero Indicators, 2010-2011: eight Indicators). These programs represented two different geographical regions (mid-west and south). Figure 4 provides a graphical representation of all 28 Capacity Building Programs' use of Indicators over time.

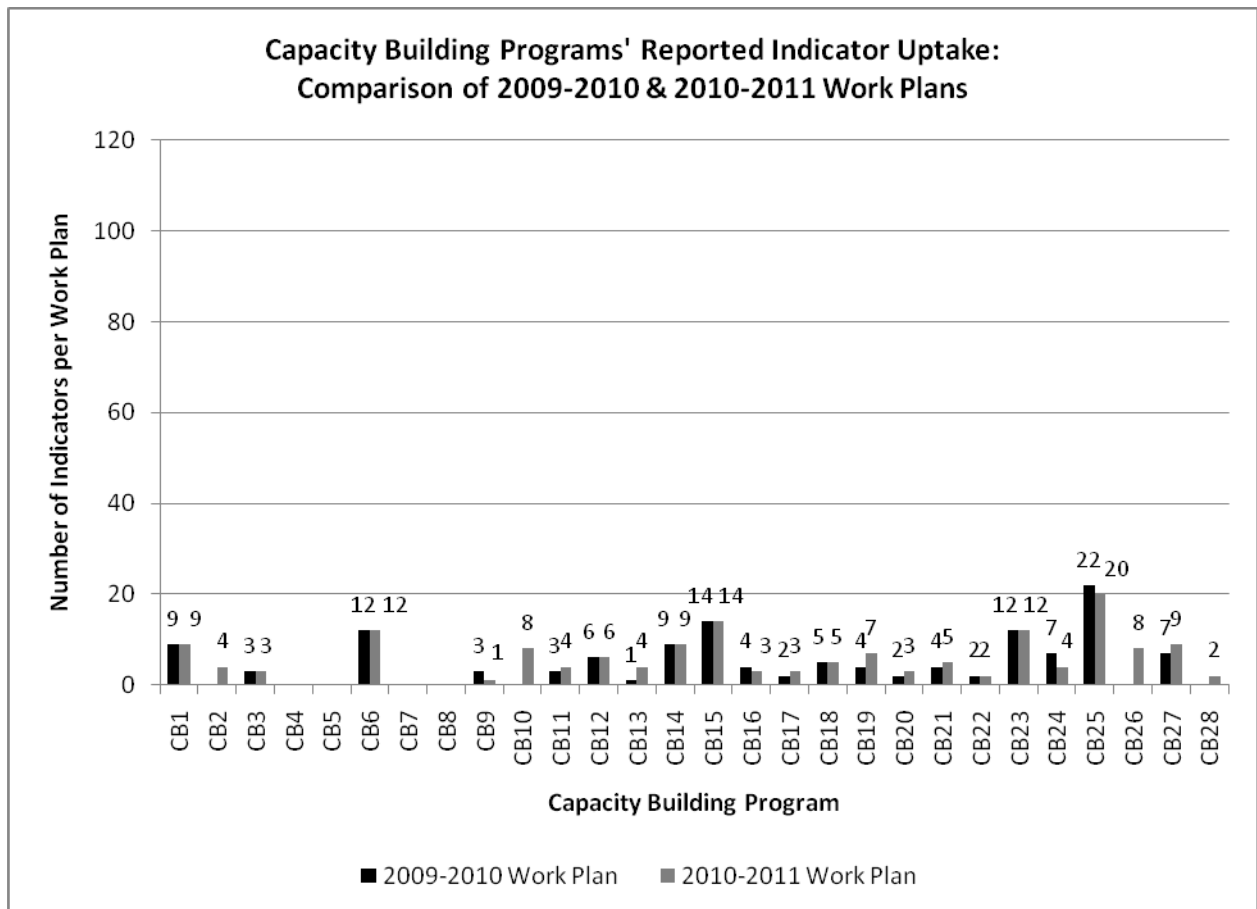


Figure 4 Capacity Building Programs' Reported Indicator Uptake: Comparison of 2009-2010 & 2010-2011 Work Plans

3.4 REPORTED UPTAKE OF CONTROLLING HIGH BLOOD PRESSURE INDICATORS BY PROGRAM TYPE

3.4.1 Basic Implementation Programs (n=14)

The data from Figure 3 (*Basic Implementation Programs' Reported Indicator Uptake*) was split into two analyses, one for each priority area (Controlling High Blood Pressure and Controlling High Cholesterol). Figure 5 shows the use of Controlling High Blood Pressure Indicators over time for all Basic Implementation Programs. The highest increases in reported uptake again included: BI4 (2009-2010: zero Controlling High Blood Pressure Indicators, 2010-2011: ten Controlling High Blood Pressure Indicators), BI13 (2009-2010: zero Controlling High Blood Pressure Indicators, 2010-2011: 14 Controlling High Blood Pressure Indicators) and BI3 (2009-2010: zero Controlling High Blood Pressure Indicators, 2010-2011: eight Controlling High Blood Pressure Indicators). Each of these programs represented a different geographical region (northeast, northwest, and south). See Figure 5 below for a complete summary.

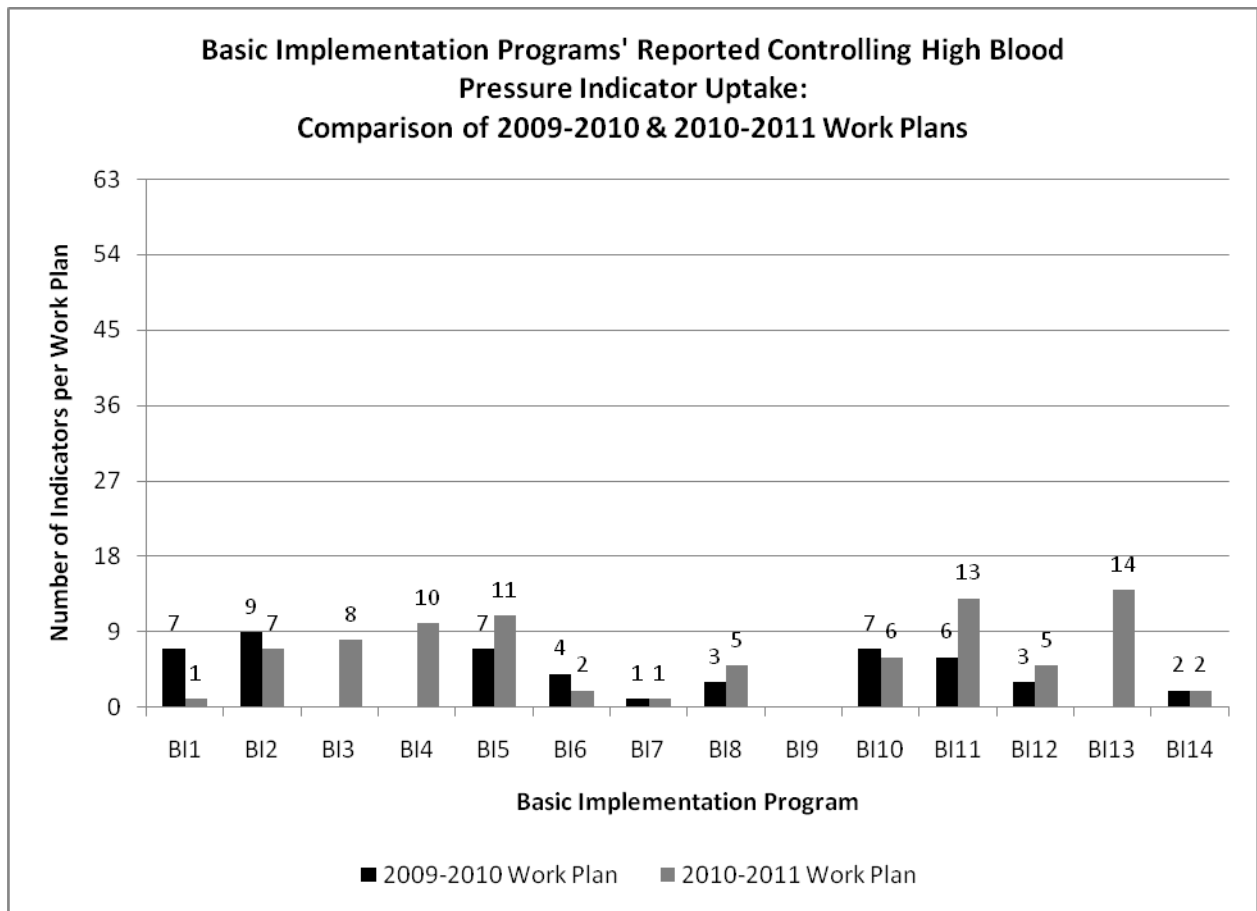


Figure 5 Basic Implementation Programs' Reported Controlling High Blood Pressure Indicator Uptake: Comparison of 2009-2010 & 2010-2011 Work Plans

3.4.2 Capacity Building Programs (n=28)

The data from Figure 4 (*Capacity Building Programs' Reported Indicator Uptake*) was split into two analyses, one for each priority area (Controlling High Blood Pressure and Controlling High Cholesterol). Figure 6 shows the use of Controlling High Blood Pressure Indicators over time for all Capacity Building Programs. The highest increases in reported uptake included: CB10 (2009-2010: zero Controlling High Blood Pressure Indicators, 2010-2011: five Controlling High Blood Pressure Indicators) and CB24 (2009-2010: zero Controlling High Blood Pressure Indicators, 2010-2011: four Controlling High Blood Pressure Indicators). These programs

represented two different geographical regions (mid-west and south). See Figure 6 below for a complete summary.

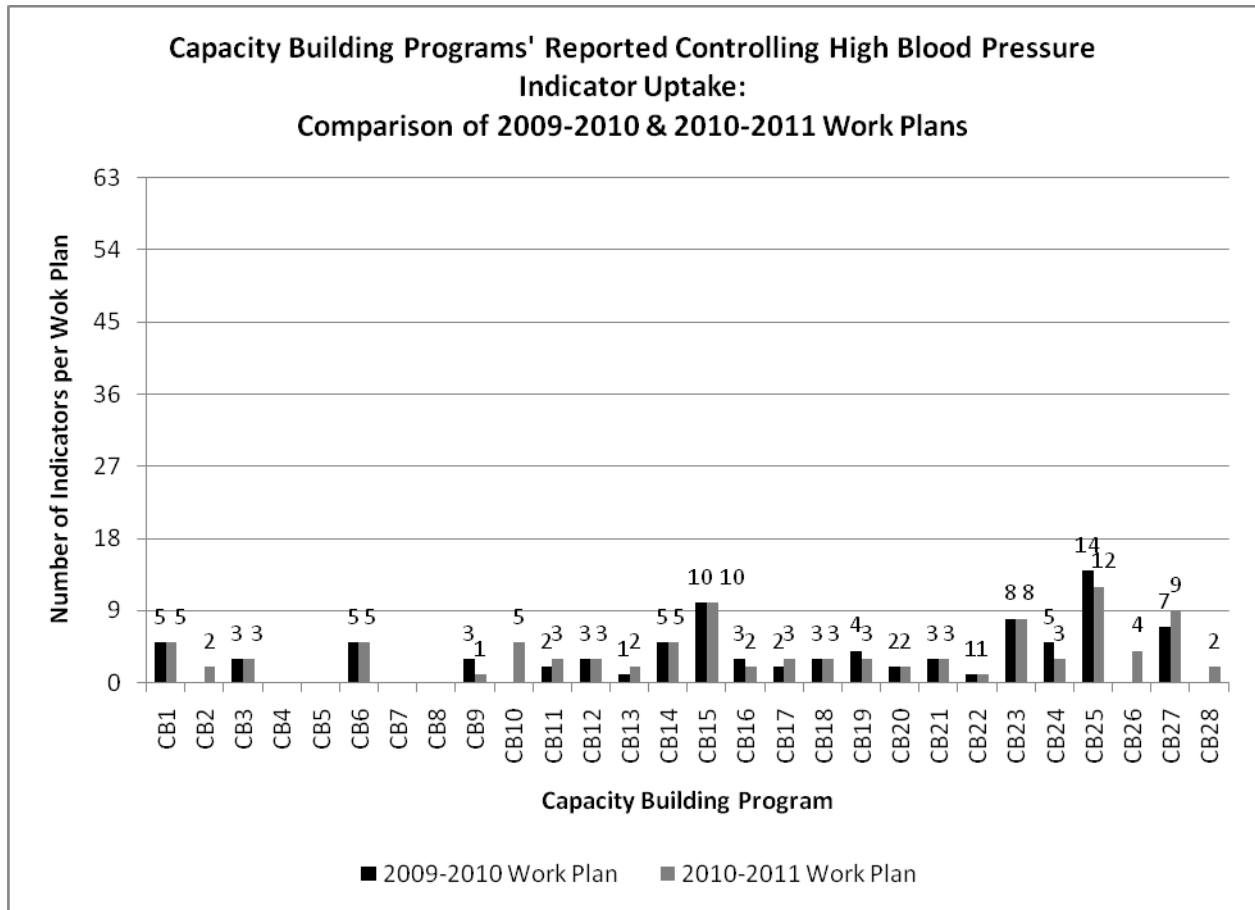


Figure 6 Capacity Building Programs' Reported Controlling High Blood Pressure Indicator Uptake: Comparison of 2009-2010 & 2010-2011 Work Plans

3.5 REPORTED UPTAKE OF CONTROLLING HIGH CHOLESTEROL INDICATORS BY PROGRAM TYPE

3.5.1 Basic Implementation Programs (n=14)

Figure 7 shows the reported use of Controlling High Cholesterol Indicators over time for all Basic Implementation Programs. The highest increases in reported uptake included: BI4 (2009-2010: zero Controlling High Cholesterol Indicators, 2010-2011: ten Controlling High Cholesterol Indicators), BI5 (2009-2010: four Controlling High Cholesterol Indicators, 2010-2011: ten Controlling High Cholesterol Indicators) and BI11 (2009-2010: one Controlling High Cholesterol Indicator, 2010-2011: six Controlling High Cholesterol Indicators). These programs represented two different geographical regions (northeast and west). See Figure 7 below for a complete summary.

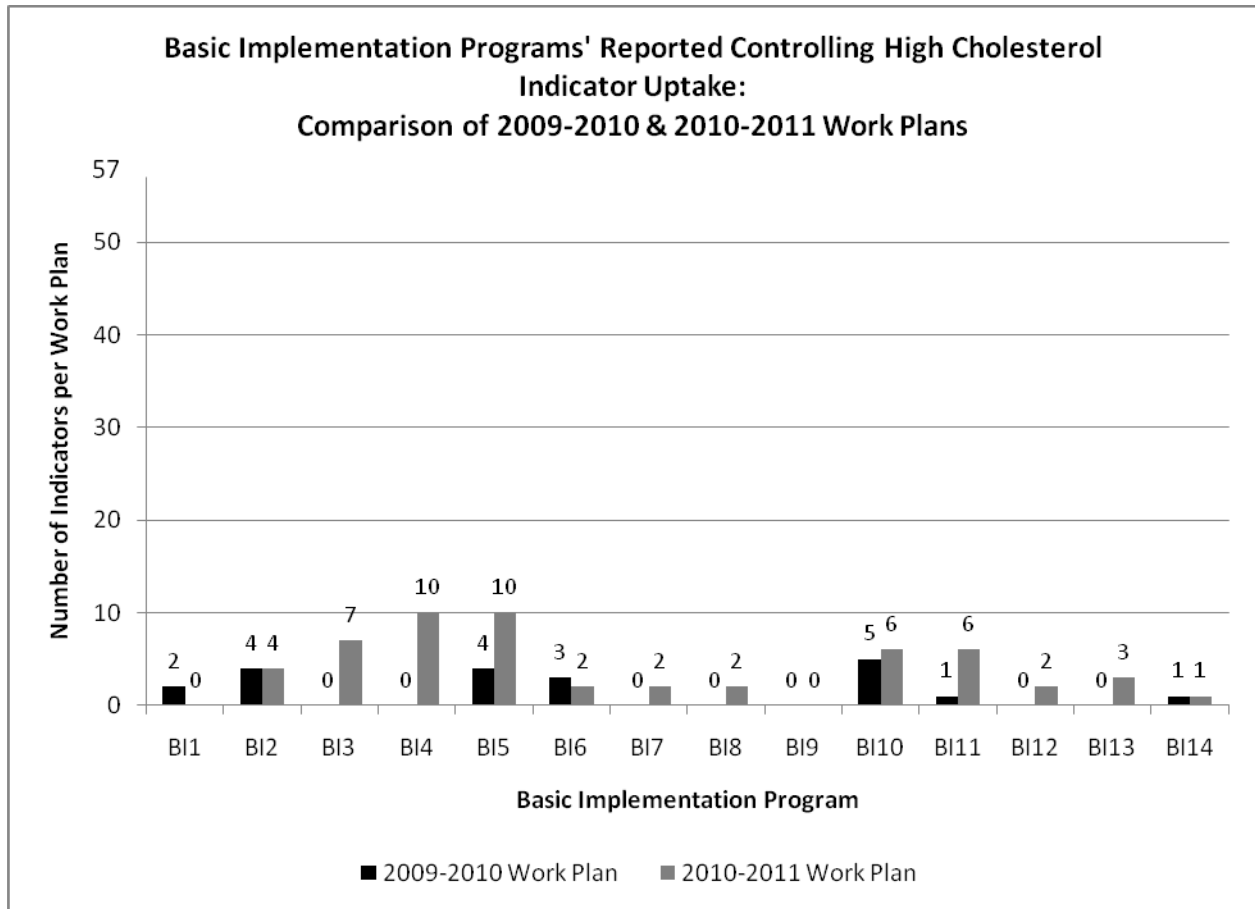
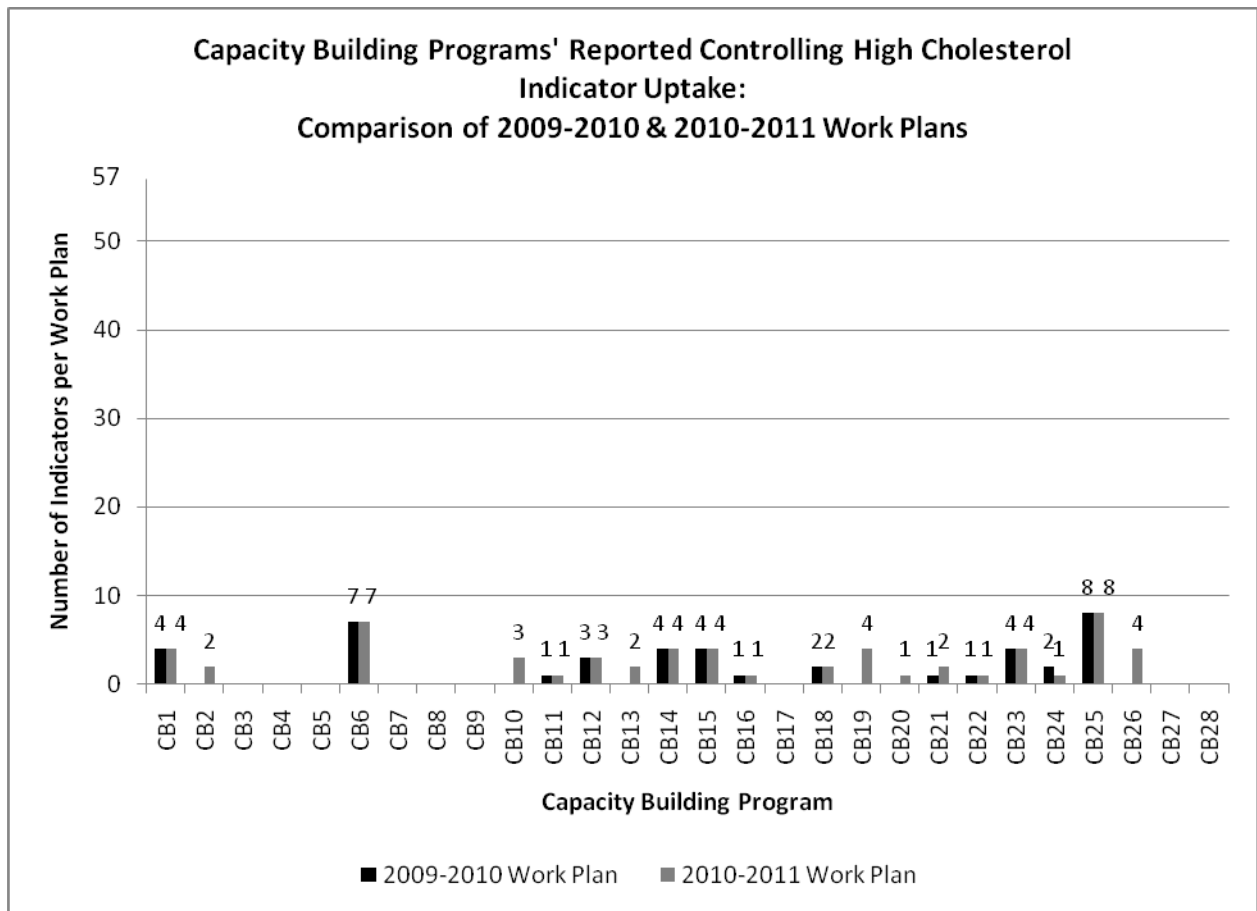


Figure 7 Basic Implementation Programs' Reported Controlling High Cholesterol Indicator Uptake: Comparison of 2009-2010 & 2010-2011 Work Plans

3.5.2 Capacity Building Programs (n=28)

Figure 8 shows the reported use of Controlling High Cholesterol Indicators over time for all Capacity Building Programs. The greatest increases in reported uptake included: CB19 (2009-2010: zero Controlling High Cholesterol Indicators, 2010-2011: four Controlling High Cholesterol Indicators) and CB26 (2009-2010: zero Controlling High Cholesterol Indicators, 2010-2011: four Controlling High Cholesterol Indicators). These programs represented two different geographical regions (mid-west and south). See Figure 8 below for a complete summary.



**Figure 8 Capacity Building Programs' Reported Controlling High Cholesterol Indicator Uptake:
Comparison of 2009-2010 & 2010-2011 Work Plans**

3.6 REPORTED UPTAKE OF CORE INDICATORS BY PRIORITY AREA

3.6.1 All Programs (n=42)

A subsequent analysis documented change in the uptake of Core Indicators (discussed in [2.2.1.1 Core Indicators](#)) from the 2009-2010 to the 2010-2011 Work Plans. For Controlling High Blood Pressure, more state HDSP programs reported uptake the following Core Indicators over time: 1.1.3 (+3), 1.2.6 (+3), 1.3.6 (+5), 1.4.2 (+3), 1.5.1 (+4), and 1.9.5 (+2). These Indicators spanned

a total of six different logic model boxes, covering both short- and long-term outcomes. For Controlling High Cholesterol, the following Core Indicators were reported by more state HDSP programs over time: 2.1.2 (+4), 2.2.6 (+1), 2.4.1 (+1), 2.6.7 (+2), 2.7.1 (+1), 2.8.1 (+1), 2.8.2 (+1), and 2.8.5 (+8). These Indicators spanned a total of six different logic model boxes, covering both short- and medium-term outcomes. Table 5 provides a complete list of reported Core Indicator uptake among all programs for both priority areas.

Table 5 Reported Uptake of Core Indicators, All Programs

Controlling High Blood Pressure Core Indicators			
Core Indicator	Number of Programs Reporting Uptake: 2009-2010	Number of Programs Reporting Uptake: 2010-2011	Core Indicator Description
1.1.3	8	11	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.2.6	3	6	Proportion of patients who receive provider-initiated prescription and follow-up of therapeutic lifestyle modifications
1.3.6	8	13	Proportion of workplaces with environmental changes to control high blood pressure
1.4.2	1	4	Number of community interventions to control high blood pressure
1.5.1	7	11	Proportion of individuals who are aware of the risks associated with uncontrolled HBP (both causes and consequences)
1.6.9	3	3	Proportion of individuals with high blood pressure in compliance with hypertensive medication regimen
1.7.1	3	2	Average blood pressure levels among individuals with high blood pressure
1.8.1	11	10	Proportion of individuals who have achieved blood pressure control
1.8.2	1	0	Disparity in blood pressure control between general and priority populations
1.9.5	4	6	Mortality rate due to cardiovascular disease associated with high blood pressure
1.10.2	3	3	Disparity in cardiovascular mortality between general

Table 5 Continued

			and priority populations
Controlling High Cholesterol Core Indicators			
Core Indicator	Number of Programs Reporting Uptake: 2009-2010	Number of Programs Reporting Uptake: 2010-2011	Core Indicator Description
2.1.2	4	8	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
2.2.6	0	1	Proportion of patients with high cholesterol who receive provider-initiated recommendation and follow-up of therapeutic lifestyle modifications
2.3.4	7	10	Proportion of worksites with environmental supports to control high cholesterol
2.4.1	1	2	Number of legislative policies to support therapeutic lifestyle behaviors for controlling high cholesterol
2.5.2	2	2	Proportion of adults who have had their cholesterol checked within the previous five years
2.6.7	1	3	Proportion of adults with high cholesterol who adhere to cholesterol-lowering medication regimens
2.7.1	0	1	Average LDL cholesterol level among adults with high cholesterol
2.7.2	0	0	Average HDL cholesterol level among adults with high cholesterol
2.7.4	0	0	Average total cholesterol level among adults with high cholesterol
2.8.1	3	4	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.2	0	1	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.4	3	2	Proportion of adults diagnosed with high cholesterol who have total cholesterol at or below goal as defined by current evidence-based guidelines
2.8.5	0	8	Disparity in high LDL cholesterol control between general and priority populations

The number of programs that reported uptake of Controlling High Blood Pressure Core Indicators is shown below in graphical representation (see Figure 9).

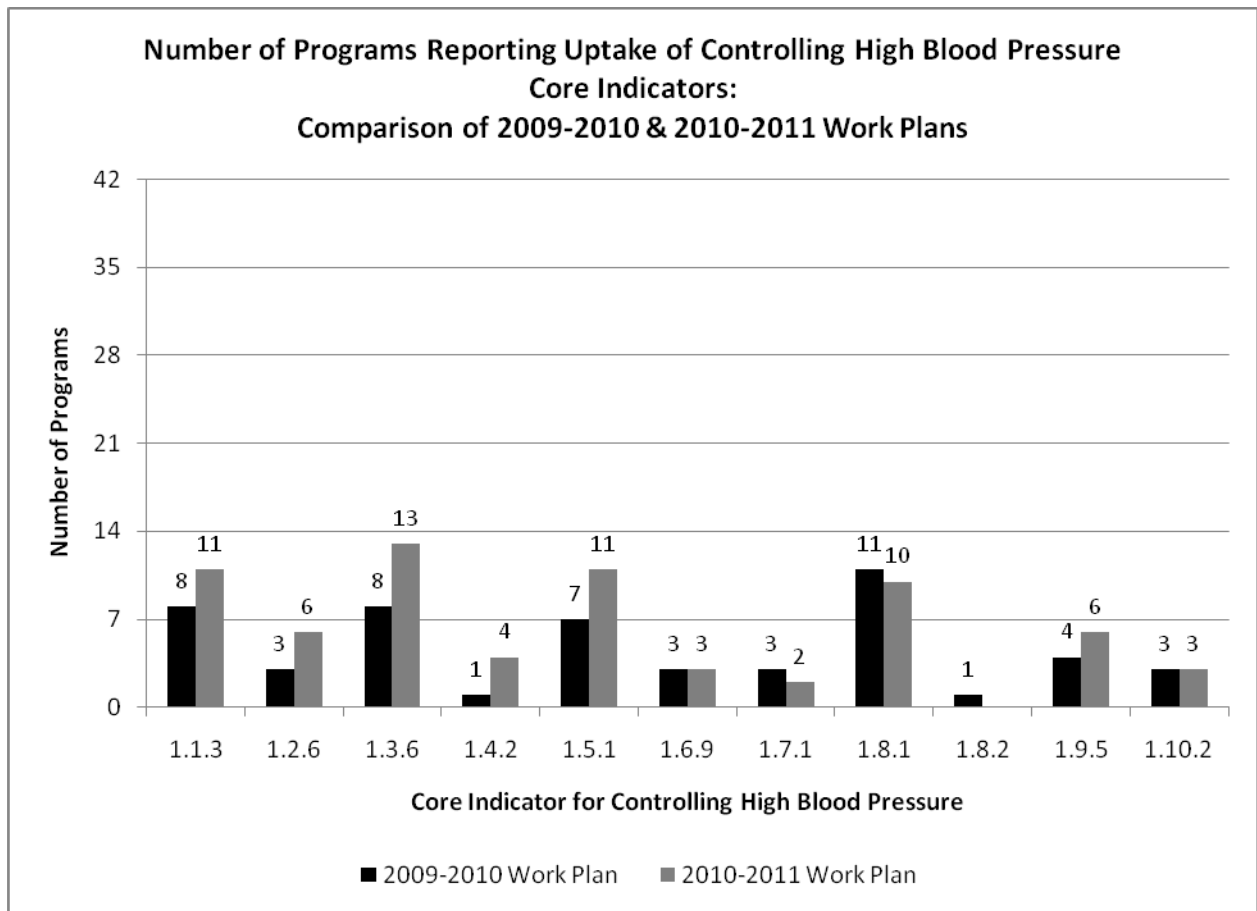


Figure 9 Number of Programs Reporting Uptake of Controlling High Blood Pressure Core Indicators: Comparison of 2009-2010 and 2010-2011 Work Plans

The number of programs that reported uptake of Controlling High Cholesterol Indicators is shown below (see Figure 10).

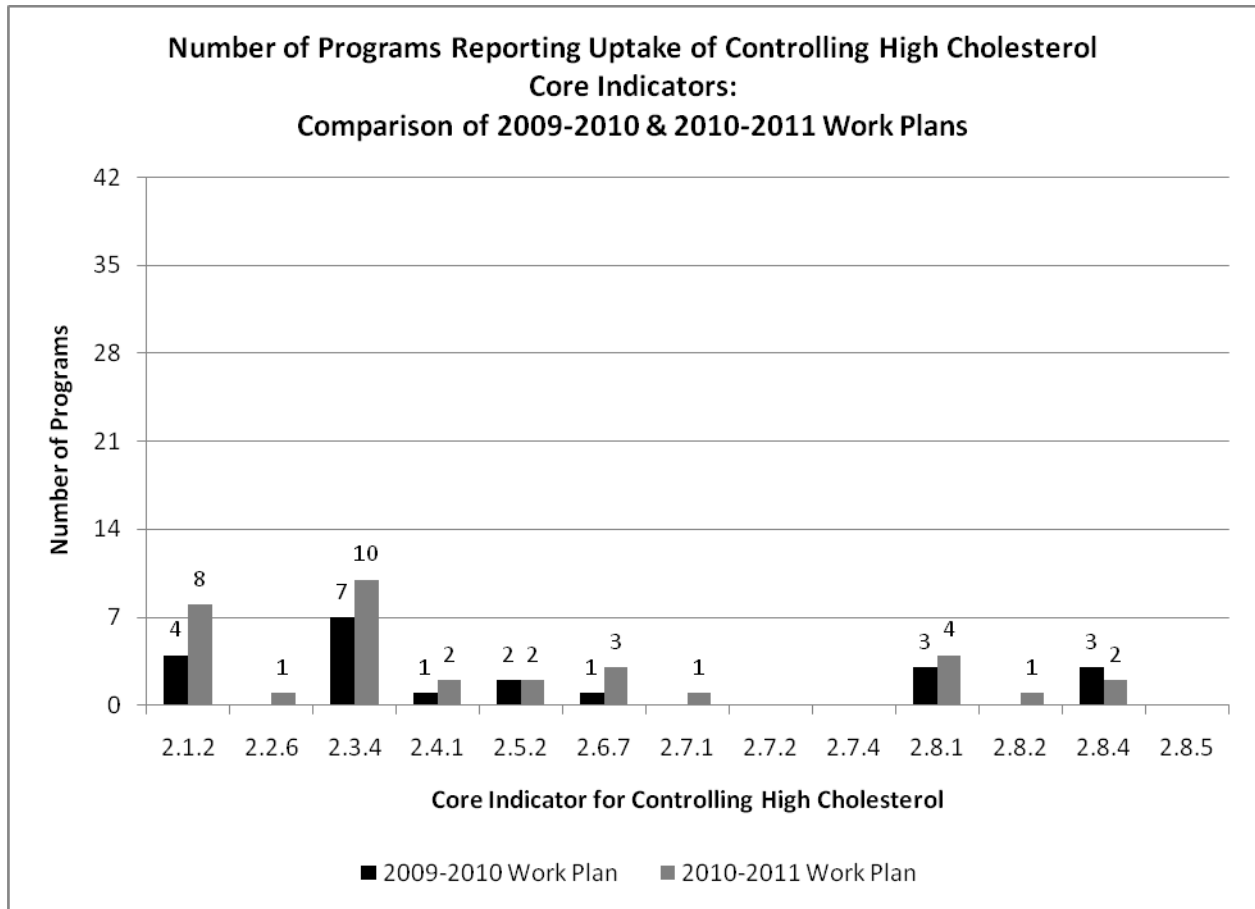


Figure 10 Number of Programs Reporting Uptake of Controlling High Cholesterol Core Indicators: Comparison of 2009-2010 and 2010-2011 Work Plans

3.6.2 Basic Implementation Programs (n=14)

A subsequent, more specific analysis of only Basic Implementation Programs documented an increase in reported uptake of Core Indicators from the 2009-2010 to the 2010-2011 Work Plans. For Controlling High Blood Pressure, more Basic Implementation Programs reported uptake of the following Core Indicators over time: 1.1.3 (+2), 1.2.6 (+1), 1.3.6 (+5), 1.4.2 (+4), and 1.9.5 (+2). For Controlling High Cholesterol, the following Core Indicators were reported by more Basic Implementation Programs over time: 2.1.2 (+3), 2.2.6 (+1), 2.3.4 (+4), 2.4.1 (+1), 2.6.7

(+1), 2.7.1 (+1), and 2.8.1 (+1). Table 6 provides a complete list of reported Core Indicator uptake among Basic Implementation Programs for both priority areas.

Table 6 Reported Uptake of Core Indicators, Basic Implementation Programs

Controlling High Blood Pressure Core Indicators			
Core Indicator	Number of Programs Reporting Uptake: 2009-2010	Number of Programs Reporting Uptake: 2010-2011	Core Indicator Description
1.1.3	2	4	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.2.6	0	1	Proportion of patients who receive provider-initiated prescription and follow-up of therapeutic lifestyle modifications
1.3.6	3	8	Proportion of workplaces with environmental changes to control high blood pressure
1.4.2	0	4	Number of community interventions to control high blood pressure
1.5.1	3	3	Proportion of individuals who are aware of the risks associated with uncontrolled HBP (both causes and consequences)
1.6.9	1	1	Proportion of individuals with high blood pressure in compliance with hypertensive medication regimen
1.7.1	0	0	Average blood pressure levels among individuals with high blood pressure
1.8.1	5	4	Proportion of individuals who have achieved blood pressure control
1.8.2	1	0	Disparity in blood pressure control between general and priority populations
1.9.5	0	2	Mortality rate due to cardiovascular disease associated with high blood pressure
1.10.2	0	0	Disparity in cardiovascular mortality between general and priority populations
Controlling High Cholesterol Core Indicators			
Core Indicator	Number of Programs Reporting Uptake: 2009-2010	Number of Programs Reporting Uptake: 2010-2011	Core Indicator Description
2.1.2	0	3	Proportion of healthcare systems with electronic

Table 6 Continued

			medical records appropriate for treating patients with high cholesterol
2.2.6	0	1	Proportion of patients with high cholesterol who receive provider-initiated recommendation and follow-up of therapeutic lifestyle modifications
2.3.4	3	7	Proportion of worksites with environmental supports to control high cholesterol
2.4.1	0	1	Number of legislative policies to support therapeutic lifestyle behaviors for controlling high cholesterol
2.5.2	1	0	Proportion of adults who have had their cholesterol checked within the previous five years
2.6.7	0	1	Proportion of adults with high cholesterol who adhere to cholesterol-lowering medication regimens
2.7.1	0	0	Average LDL cholesterol level among adults with high cholesterol
2.7.2	0	0	Average HDL cholesterol level among adults with high cholesterol
2.7.4	0	0	Average total cholesterol level among adults with high cholesterol
2.8.1	1	2	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.2	0	0	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.4	2	2	Proportion of adults diagnosed with high cholesterol who have total cholesterol at or below goal as defined by current evidence-based guidelines
2.8.5	0	0	Disparity in high LDL cholesterol control between general and priority populations

3.6.3 Capacity Building Programs (n=28)

Another more specific analysis of only Capacity Building Programs documented an increase in reported uptake of Core Indicators from the 2009-2010 to the 2010-2011 Work Plans. For Controlling High Blood Pressure, the following Core Indicators were reported by more Capacity Building Programs over time: 1.1.3 (+1), 1.2.6 (+2), and 1.5.1 (+4). For Controlling High

Cholesterol, the following Core Indicators were reported by more Capacity Building Programs over time: 2.1.2 (+1), 2.5.2 (+1), 2.6.7 (+1), 2.7.1 (+1), and 2.8.2 (+1). Table 7 provides a complete list of reported Core Indicator uptake among Capacity Building Programs for both priority areas.

Table 7 Reported Uptake of Core Indicators, Capacity Building Programs

Controlling High Blood Pressure Core Indicators			
Core Indicator	Number of Programs Reporting Uptake: 2009-2010	Number of Programs Reporting Uptake: 2010-2011	Core Indicator Description
1.1.3	6	7	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.2.6	3	5	Proportion of patients who receive provider-initiated prescription and follow-up of therapeutic lifestyle modifications
1.3.6	5	5	Proportion of workplaces with environmental changes to control high blood pressure
1.4.2	1	0	Number of community interventions to control high blood pressure
1.5.1	4	8	Proportion of individuals who are aware of the risks associated with uncontrolled HBP (both causes and consequences)
1.6.9	2	2	Proportion of individuals with high blood pressure in compliance with hypertensive medication regimen
1.7.1	3	2	Average blood pressure levels among individuals with high blood pressure
1.8.1	6	6	Proportion of individuals who have achieved blood pressure control
1.8.2	0	0	Disparity in blood pressure control between general and priority populations
1.9.5	4	4	Mortality rate due to cardiovascular disease associated with high blood pressure
1.10.2	3	3	Disparity in cardiovascular mortality between general and priority populations
Controlling High Cholesterol Core Indicators			
Core	Number of	Number of	Core Indicator Description

Table 7 Continued

Indicator	Programs Reporting Uptake: 2009-2010	Programs Reporting Uptake: 2010-2011	
2.1.2	4	5	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
2.2.6	0	0	Proportion of patients with high cholesterol who receive provider-initiated recommendation and follow-up of therapeutic lifestyle modifications
2.3.4	4	3	Proportion of worksites with environmental supports to control high cholesterol
2.4.1	1	1	Number of legislative policies to support therapeutic lifestyle behaviors for controlling high cholesterol
2.5.2	1	2	Proportion of adults who have had their cholesterol checked within the previous five years
2.6.7	1	2	Proportion of adults with high cholesterol who adhere to cholesterol-lowering medication regimens
2.7.1	0	1	Average LDL cholesterol level among adults with high cholesterol
2.7.2	0	0	Average HDL cholesterol level among adults with high cholesterol
2.7.4	0	0	Average total cholesterol level among adults with high cholesterol
2.8.1	2	2	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.2	0	1	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.4	1	0	Proportion of adults diagnosed with high cholesterol who have total cholesterol at or below goal as defined by current evidence-based guidelines
2.8.5	0	0	Disparity in high LDL cholesterol control between general and priority populations

3.7 VARIATION OF REPORTED INDICATOR UPTAKE

3.7.1 All Programs (n=42)

State HDSP programs demonstrated an increase in the variety of Indicators reported in program planning activities. Across all programs over time, the number of different Indicators reported in Work Plans increased from 65 to 80 out of a possible 120 Indicators. This increase of 15 Indicators was made up of state HDSP programs reporting uptake of a total of two additional Controlling High Blood Pressure Indicators and 13 additional Controlling High Cholesterol Indicators from the 2009-2010 to the 2010-2011 Work Plans (see Table 8).

3.7.2 Basic Implementation Programs (n=14)

Basic Implementation programs showed an increase in the variety of Indicators reported in program planning activities. Across all Basic Implementation Programs, the number of different Indicators reported in Work Plans increased from 40 to 58 out of a possible 120 Indicators. This increase of 18 Indicators was made up of Basic Implementation Programs reporting uptake of a total of four additional Controlling High Blood Pressure Indicators and 14 additional Controlling High Cholesterol Indicators from the 2009-2010 to the 2010-2011 Work Plans (see Table 8).

3.7.3 Capacity Building Programs (n=28)

Capacity Building programs also demonstrated an increase in the variety of Indicators reported in program planning activities. Across all Capacity Building Programs, the number of different

Indicators reported in Work Plans increased from 56 to 67 out of a possible 120 Indicators. This increase of 11 Indicators was made up of Capacity Building Programs reporting uptake of a total of five additional Controlling High Blood Pressure Indicators and six additional Controlling High Cholesterol Indicators from the 2009-2010 to the 2010-2011 Work Plans (see Table 8).

Table 8 Variation of Reported Indicator Uptake by Program Type

All Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Number of Different Indicators Reported	65 out of 120 (54%)	80 out of 120 (67%)	+15
Number of Different Controlling High Blood Pressure Indicators Reported	43 out of 63 (68%)	45 out of 63 (71%)	+2
Number of Different Controlling High Cholesterol Indicators Reported	22 out of 57 (39%)	35 out of 57 (61%)	+13
Basic Implementation Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Number of Different Indicators Reported	40 out of 120 (33%)	58 out of 120 (48%)	+18
Number of Different Controlling High Blood Pressure Indicators Reported	27 out of 63 (43%)	31 out of 63 (49%)	+4
Number of Different Controlling High Cholesterol Indicators Reported	13 out of 57 (23%)	27 out of 57 (47%)	+14
Capacity Building Programs	2009-2010 Work Plan	2010-2011 Work Plan	Difference
Number of Different Indicators Reported	56 out of 120 (47%)	67 out of 120 (56%)	+11
Number of Different Controlling High Blood Pressure Indicators Reported	36 out of 63 (57%)	41 out of 63 (65%)	+5
Number of Different Controlling High Cholesterol Indicators Reported	20 out of 57 (35%)	26 out of 57 (46%)	+6

4.0 DISCUSSION

4.1 IN COMPARISON: BASIC IMPLEMENTATION AND CAPACITY BUILDING PROGRAMS

On Average, Basic Implementation Programs Report More Indicators per Work Plan.

Both Basic Implementation and Capacity Building Programs showed an increase in the average number of Indicators reported in Work Plans over time. However, Basic Implementation Programs showed a substantially larger increase in the average number of Indicators reported per program (see Table 9). This observation was likely due to the nature of Basic Implementation Programs in comparison to Capacity Building Programs; Basic Implementation Programs are funded for the purpose of implementing initiatives and, therefore, have the ability to impact more Indicators.

Table 9 Average Increase in Reported Indicators per Work Plan by Program Type

	Basic Implementation Programs	Capacity Building Programs
Average Increase in Number of Reported Indicators per Program from 2009-2011	+5.1	+0.9
Average Increase in Number of Reported Controlling High Blood Pressure Indicators per Program from 2009-2011	+2.6	+0.3
Average Increase in Number of Reported Controlling High Cholesterol Indicators per Program from 2009-2011	+2.5	+0.6

Over Time, State HDSP Programs Showed an Increase in Reporting Use of Indicators.

Table 1 emphasizes that the average number of Indicators reported among each funding-type (Basic Implementation and Capacity Building) were affected by the programs that did not report any Indicators in the 2009-2010 and/or 2010-2011 Work Plans. For that reason, Table 1 includes an “only non-zero analysis” for each funding type to show the difference in the frequency of reported Indicator use among programs that did and did not report Indicators in their Work Plans. However, the “non-zero analyses” did not show a greater increase in average number of Indicators reported over time for Capacity Building Programs, suggesting that (a) the Capacity Building Programs that reported Indicators in 2009-2010 have not increased their average number of Indicators per Work Plan over time, and (b) there are fewer Capacity Building Programs neglecting to report Indicators in Work Plans over time. In other words, as time progresses, more Capacity Building Programs are linking their intervention activities to the DHDSP’s logic models for Controlling High Blood Pressure and Controlling High Cholesterol (via Indicators) and less programs are neglecting Indicators all together.

Indicator 1.1.5. Based on the total frequency of reported use in the 2009-2010 and 2010-2011 Work Plans, Controlling High Blood Pressure Indicator 1.1.5 (*Number of evidence-based quality improvement initiatives to increase practitioner compliance with JNC 7 treatment guidelines*) was the most commonly reported Indicator over time for both Basic Implementation and Capacity Building Programs. This Indicator was reported 25 times across all 2009-2010 and 2010-2011 Work Plans, more than any other Indicator.

Variety Is Increasing Over Time. Both Capacity Building and Basic Implementation Programs increased the variety of Indicators reported over time (see Table 8). Although there are only 14 Basic Implementation Programs, compared with 28 Capacity Building Programs, Basic Implementation Programs showed a larger increase in variation of reported Indicator usage over time. In addition, Basic Implementation Programs increased the average number of Controlling High Cholesterol Indicators reported per program substantially over time (see Table 8). This, again, is likely due to the nature and funding capabilities of Basic Implementation Programs to address more Indicators with their interventions.

Overall Unused Indicators. Many Indicators were not reported by state HDSP programs. This was likely due to the inability of programs to address all of the Indicators provided. Essentially, the “menu” of 120 Indicators was meant to serve as a guide for state HDSP programs to use when planning, implementing, and evaluating interventions. In reality, the DHDSP recognizes that not all of the Indicators can be addressed; however, it is useful to know which Indicators are not used so as to foster better programming and technical assistance. Overall, 36 Indicators were not reported by Capacity Building or Basic Implementation Programs in any Work Plan from 2009 to 2011. Among only Basic Implementation Programs, 54 Indicators were not reported in any Work Plans from 2009 to 2011. Among only Capacity Building Programs, 48 Indicators were not reported in any Work Plans from 2009-2011. Appendix D provides a complete list of all unused Indicators.

4.2 LIMITATIONS

4.2.1 Disproportionate Advantage

Indicators for Controlling High Blood Pressure were made available to programs before the 2009-2010 Work Plans were written, while Controlling High Cholesterol were not available to programs until after the 2009-2010 Work Plans were written. State HDSP programs were provided with a set of Indicators for Controlling High Blood Pressure in 2008. That list of Indicators also denoted the specific Core Indicators for Controlling High Blood Pressure. Since the list of Core Indicators was released by the CDC, the overseeing organization, there existed potential for selection bias when state HDSP program were linking initiatives to Indicators. State HDSP programs were aware of the menu of Controlling High Blood Pressure Core Indicators and may have been more inclined to link activities and objectives to them because of that awareness and a desire to “please the CDC.” However, the Indicators for Controlling High Cholesterol were not released to the state HDSP programs until November 2009, after the 2009-2010 Work Plans were submitted, and the list of Core Indicators for Controlling High Cholesterol was never released. Unlike the Controlling High Blood Pressure Indicators, state HDSP programs were *not* given a list of the Core Indicators for Controlling High Cholesterol to avoid the possibility for programs deliberately choosing them simply to be looked upon favorably (the same bias that was a concern with the release of the Core Indicators for Controlling High Blood Pressure). This, essentially, was likely to have had a negative effect on the reported uptake of Controlling High Cholesterol Indicators in the 2009-2010 Work Plans because programs that had already submitted Work Plans would have had to go back into the HDSP MIS, re-submit all of their interventions, and report on the Controlling High Cholesterol

Indicators. Furthermore, the lack of a Core Indicator list for Controlling High Cholesterol likely had a negative effect on the reporting of Controlling High Cholesterol Core Indicators for both the 2009-2010 Work Plans and the 2010-2011 Work Plans. In essence, the dates of release of Indicators and the denotation of Core Indicators are important factors that were likely to affect the reporting of Indicators among programs.

4.2.2 Unrepresented States and Varied Opportunities

Some programs reported more Indicators in Work Plans compared with others. Twelve programs neglected to report any Controlling High Blood Pressure or Controlling High Cholesterol Indicators in the 2009-2010 Work Plans. These programs represented all geographic regions of the United States. Five programs neglected to report any Controlling High Blood Pressure or Controlling High Cholesterol Indicators in the 2010-2011 Work Plans. These programs represented most regions of the United States (south, west, and northeast). However, neglecting to report Indicators in bi-annual Work Plans is not sufficient evidence to make assumptions about the quality of a program.

When a state HDSP program does not explicitly link an Indicator to an intervention activity, it does not necessarily mean that: (a) their activities will not have an effect on an Indicator or Indicators, or that (b) the state HDSP program is performing poorly. In fact, the opportunities to address CVD vary from state to state and will change over time. The varied amounts of Indicators created by the CDC exemplify the following point: different state HDSP programs may need to address different Indicators because particular Indicators are more relevant to their interventions, partnerships, available resources, etc. For example, a state HDSP might suspect that an initiative will impact multiple Indicators but only has the capacity to

measure one of them, therefore, they choose to only link the activity to one Indicator (even though it will likely impact several).

State HDSP programs are encouraged to select criteria that are most suited to the context of their programs and most important to the key stakeholders involved. Since different states received different amounts of funding to support their state HDSP program activities (Basic Implementation programs receive more funding than Capacity Building programs), the number of activities feasible for each program to fund may be limited. In other words, state HDSP programs that receive a portion of the amount of funding that another state HDSP program receives will have a limited capacity for interventions due to funding or capacity limitations. This would directly affect the ability of a program to impact an Indicator, thus, affecting the reporting of Indicator uptake in Work Plans.

4.2.3 Cultural Competence

While the results of this report may support the guidance of state HDSP programs and help to initiate a common understanding of what Indicators are impacted nationwide, state HDSP programs should not be encouraged to impact one Indicator over another in order to “match” the perceived successes of another state HDSP program. The opposite is true as well; state HDSP program should not be discouraged from impacting an Indicator that another state HDSP showed little success in impacting. As mentioned above, one state HDSP programs activities may not be practical for another to adopt. This emphasizes the importance of culturally relevant approaches to state HDSP program activities. However, for state HDSP programs that share a vision for impacting an Indicator, this report can facilitate and enhance a Community of Practice by encouraging state HDSP programs to share strategies and leverage potential resources.

4.3 FUTURE DIRECTIONS

4.3.1 Improve Reporting in the HSDSP MIS

The quality of the data gathered for these analyses are only as valid as the quality and accuracy of the information put into the HDSP MIS. In reality, there is no way to validate the data entered into the HDSP MIS; that is, there is no way of knowing for certain that a state is truly impacting the Indicators that are reported in their Work Plans (at least in no immediate sense). State HDSP programs use their discretion when deciding what Indicators are impacted by their activities and may or may not go through a complete process of using the Indicators as a true measure of performance. Since, in that sense, the reporting methods are a subjective decision-making process, there remains the possibility that: (a) some activities impact other Indicators that are not included (due to capacity limitations) – especially activities that can impact Indicators for both Controlling High Blood Pressure and Controlling High Cholesterol simultaneously, and (b) the activities do not truly impact the Indicator mentioned and it was chosen simply because it was the “closest match” for the program to choose.

Furthermore, “chosen” Indicators frequently change when a state HDSP program receives technical assistance from DHDSPP personnel. DHDSPP personnel often assist with the re-direction and re-focusing of state activities during conference calls and site visits. Since the state HDSP programs are required to submit a Work Plan bi-annually, some of the information entered into the HDSP MIS may be out of date, which can vary depending on the time of year when accessing the data. Nonetheless, the HDSP MIS Work Plan summaries remain the best source for gathering information about states HDSP programs’ reported use of Indicators when implementing a HDSP intervention.

4.3.2 Maintenance

The information presented in this report can be used to for various purposes: (a) to provide guidance to state HDSP programs, (b) to visualize the trends and patterns in the reported use of Indicators for Controlling High Blood Pressure and Controlling High Cholesterol among state HDSP programs, (c) to encourage accountability, and (d) to share the strengths and/or areas for improvement with state HDSP programs to foster better programming. Regular analysis of Work Plans should be conducted to intermittently acknowledge trends and patterns in the reported use of Controlling High Blood Pressure and High Cholesterol Indicators in state HDSP program planning activities.

4.3.3 Percentage of Objectives with Indicators

A future analysis of the percentage of state HDSP program objectives reportedly linked to Indicators would provide information on the effectiveness of Indicator use in framing a state HDSP program's goals. In other words, by understanding the effect that Indicator use has on a program's ability to measure success, the goals and objectives of a state HDSP program can be more easily achieved. State HDSP programs can, and should, use Indicators to provide a clearer understanding of what to measure in order to document improvements.

4.3.4 Reach and Impact Analysis

State HDSP programs should be strongly encouraged to impact Indicators with their activities and objectives listed in each Work Plan in order to establish a firm understanding of state

planning activities and goals. A more in-depth analysis of the estimated and actual reach and impact of interventions founded upon evidence-based Indicators would yield valuable information. This would help to answer a much larger question, “*Does the appropriate use of Indicators as a performance measure improve documentation of the actual reach and impact for state HDSP programs?*” This would also produce a better understanding of the link between the use of Indicators in state HDSP activities and the actual outcomes that are measured. Findings from that analysis would enhance technical assistance, improve program planning and development, and support the use of indicators as performance measures for any public health program evaluation.

APPENDIX A

COMPREHENSIVE LIST OF CONTROLLING HIGH BLOOD PRESSURE AND CONTROLLING HIGH CHOLESTEROL INDICATORS

Controlling High Blood Pressure Indicators	
Healthcare Systems Indicators	
1.1.1	Proportion of healthcare systems with policies to encourage multi-disciplinary team approach to enhance high blood pressure control
1.1.2	Prevalence of specialized chronic care clinics with a focus on high blood pressure control
1.1.3*	Proportion of healthcare systems with electronic medical records for high blood pressure control (incl. pharmacologic and lifestyle modification components)
1.1.4	Proportion of healthcare systems with computer-based clinical decision support systems
1.1.5	Number of evidence-based quality improvement initiatives to increase practitioner compliance with joint national committee (JNC) 7 treatment guidelines
1.1.6	Proportion of healthcare systems with evidence-based health education programs for high blood pressure control and treatment
1.1.7	Proportion of healthcare systems with policies to follow up with patients screened with high blood pressure
1.1.8	Proportion of healthcare systems with policies to increase patient adherence with high blood pressure treatment (incl. Pharmacologic and lifestyle modification components)
1.1.9	Proportion of healthcare systems with policies to encourage patient self-management of chronic high blood pressure
Healthcare Providers Indicators	
1.2.1	Proportion of providers who measure blood pressure according to JNC guidelines
1.2.2	Proportion of providers who classify blood pressure according to current evidence-based high blood pressure guidelines
1.2.3	Proportion of providers who document major cardiovascular risk factors noted in JNC guidelines
1.2.4	Proportion of providers who follow JNC pharmacologic guidelines prior to initiating therapy
1.2.5	Proportion of providers who follow JNC pharmacologic therapies algorithm for treatment of high blood pressure
1.2.6*	Proportion of patients who receive provider-initiated prescription and follow-up of therapeutic lifestyle modifications
1.2.7	Proportion of patients with uncontrolled high blood pressure who have documented provider initiated changes in high blood pressure pharmaceutical intervention (antihypertensive drug treatment)
Worksite Indicators	
1.3.1	Proportion of worksites with employer payment for services to control high blood pressure and cardiovascular risk factors
1.3.2	Proportion of workplaces with incentive based worksite health promotion programs specific to control of high blood pressure
1.3.3	Proportion of workplaces with behavioral approaches for controlling high blood pressure and cardiovascular risk factors to employees
1.3.4	Proportion of workplaces providing health risk assessments with blood pressure screening for early detection or monitoring
1.3.5	Proportion of workplaces with on-site clinical health services or physician referrals to control high blood pressure
1.3.6*	Proportion of workplaces with environmental changes to control high blood pressure

Appendix A Continued

Community Indicators	
1.4.1	Number of legislative policies to support therapeutic lifestyle behaviors for blood pressure control
1.4.2*	Number of community interventions to control high blood pressure
1.4.3	Prevalence of health education activities to control high blood pressure
1.4.4	Number of community environmental changes to control high blood pressure
1.4.5	Proportion of community-based organizations that are linked to the health care and public health systems
Individual Indicators	
1.5.1*	Proportion of individuals who are aware of the risks associated with uncontrolled high blood pressure (both causes and consequences)
1.5.2	Proportion of individuals who know what therapeutic lifestyle changes are associated with blood pressure control
1.5.3	Disparity between general and priority populations regarding awareness of high blood pressure control risk factors
1.5.4	Proportion of individuals with an identified high blood pressure self management goal to enhance self-efficacy
1.5.5	Proportion of individuals who have participated in at least one high blood pressure education program
1.5.6	Proportion of individuals who have visited a healthcare provider according to clinical guidelines for treatment of high blood pressure
1.5.7	Number of patients with missed follow-up provider appointments for treatment of high blood pressure
1.5.8	Proportion of individuals satisfied with healthcare services
1.5.9	Average annual out-of-pocket patient costs for prescription drugs attributable to the treatment of high blood pressure (per person with high blood pressure)
1.5.10	Average annual out-of-pocket patient costs associated with therapeutic lifestyle modification for the treatment of high blood pressure (per person with high blood pressure)
Risk Factors Indicators	
1.6.1	Disparity in high blood pressure risk factors between general and priority populations
1.6.2	Proportion of individuals reporting lifestyle behavior change to control high blood pressure
1.6.3	Smoking prevalence
1.6.4	Proportion of smokers who have made a quit attempt using proven cessation methods
1.6.5	Prevalence of obesity
1.6.6	Proportion of adults who participate regularly in physical activity
1.6.7	Proportion of individuals adopting the dietary approaches to stop hypertension (dash) eating plan
1.6.8	Proportion of individuals reporting elevated levels of stress
1.6.9*	Proportion of individuals with high blood pressure in compliance with hypertensive medication regimen
1.6.10	Disparity between general and priority populations compliance with high blood pressure control regimens
Blood Pressure Reduction Indicators	
1.7.1*	Average blood pressure levels among individuals with high blood pressure
1.7.2	Average frequency blood pressure levels measured among individuals with high blood pressure
1.7.3	Disparity in blood pressure levels between general and priority populations that have been diagnosed with high blood pressure
Increased Control Indicators	
1.8.1*	Proportion of individuals who have achieved blood pressure control
1.8.2*	Disparity in blood pressure control between general and priority populations
Lower Morbidity/Mortality Indicators	
1.9.1	Proportion of individuals with elevated cardiovascular risk

Appendix A Continued

1.9.2	Average level of quality of life
1.9.3	Proportion of individuals requiring hospitalization/emergency care associated with high blood pressure associated outcomes
1.9.4	Prevalence of nonfatal cardiovascular events associated with high blood pressure
1.9.5*	Mortality rate due to cardiovascular disease associated with high blood pressure
Disparities Indicators	
1.10.1	Disparity in cardiovascular morbidity associated with high blood pressure between general and priority populations
1.10.2*	Disparity in cardiovascular mortality between general and priority populations
Reduced Costs Indicators	
1.11.1	Average annual employer costs attributable to high blood pressure and related health outcomes (per person with high blood pressure)
1.11.2	Average annual outpatient costs attributable to high blood pressure and related health outcomes (per person with high blood pressure)
1.11.3	Average annual inpatient costs attributable to high blood pressure and related health outcomes (per person with high blood pressure)
1.11.4	Average annual costs of emergency room services attributable to high blood pressure and related health outcomes (per person with high blood pressure)
Controlling High Cholesterol Indicators	
Healthcare Systems Indicators	
2.1.1	Proportion of healthcare systems with policies that identify LDL cholesterol as the primary target of lipid-lowering therapy
2.1.2*	Proportion of healthcare systems with electronic medical records appropriate for treating patients with high cholesterol
2.1.3	Prevalence of specialized chronic care clinics with a focus on high cholesterol
2.1.4	Proportion of healthcare systems with treatment algorithms that incorporate recommendations of current evidence-based cholesterol guidelines
2.1.5	Number of quality improvements to increase practitioner adherence to current evidence-based cholesterol guidelines
2.1.6	Proportion of healthcare systems with policies to follow up with patients tested for high cholesterol
2.1.7	Proportion of healthcare systems with policies to increase patient adherence to high cholesterol treatment (incl. lifestyle modification and pharmacologic components)
Healthcare Providers Indicators	
2.2.1	Proportion of providers who order blood cholesterol tests according to current evidence-based guidelines
2.2.2	Proportion of providers who classify LDL, HDL, and total cholesterol according to current evidence-based guidelines
2.2.3	Proportion of providers who document major cardiovascular risk factors noted in current evidence-based cholesterol guidelines
2.2.4	Proportion of providers who increase monitoring and shifts in medication for patients unable to achieve cholesterol treatment goals
2.2.5	Proportion of providers who follow current evidence-based guideline algorithms for pharmacologic therapies to treat high cholesterol
2.2.6*	Proportion of patients with high cholesterol who receive provider-initiated recommendation and follow-up of therapeutic lifestyle modifications
2.2.7	Proportion of providers who counsel patients with high cholesterol on how to take prescribed medicines
2.2.8	Proportion of providers who work with patients to identify cholesterol self management goals
Worksite Indicators	
2.3.1	Proportion of worksites with employer payment for services to control high cholesterol
2.3.2	Proportion of worksites that offer behavioral approaches for employees to control high cholesterol
2.3.3	Proportion of worksites that provide health risk assessments that include high cholesterol monitoring
2.3.4*	Proportion of worksites with environmental supports to control high cholesterol
Community Indicators	
2.4.1*	Number of legislative policies to support therapeutic lifestyle behaviors for controlling high cholesterol

Appendix A Continued

2.4.2	Number of community interventions to control high cholesterol
2.4.3	Number of community environmental supports to control high cholesterol
2.4.4	Proportion of community-based organizations that are linked to healthcare and public health systems to support control of high cholesterol
Individual Indicators	
2.5.1	Proportion of adults who have had their cholesterol checked within the previous five years
2.5.2*	Proportion of adults who have had their cholesterol checked within the previous five years
2.5.3	Disparity in knowledge of the risks of high cholesterol between general and priority populations
2.5.4	Proportion of adults who know which therapeutic lifestyle behavior changes are associated with controlling high cholesterol
2.5.5	Proportion of adults who are aware of their personal risk associated with high cholesterol
2.5.6	Annual out-of-pocket patient costs for prescription medication for the treatment of high cholesterol
2.5.7	Average annual out-of-pocket costs associated with therapeutic lifestyle modification for the treatment of high cholesterol
Risk Factors Indicators	
2.6.1	Proportion of adults who follow a recommended diet to reduce their high cholesterol
2.6.2	Proportion of adults with high cholesterol who participate regularly in physical activity
2.6.3	Prevalence of obesity among adults with high cholesterol
2.6.4	Smoking prevalence among adults with high cholesterol
2.6.5	Proportion of smokers with high cholesterol who have made a quit attempt using proven cessation methods
2.6.6	Disparity in risk factors for high cholesterol between general and priority populations
2.6.7*	Proportion of adults with high cholesterol who adhere to cholesterol-lowering medication regimens
2.6.8	Disparity in adherence to cholesterol-lowering medication regimens between general and priority populations
High Cholesterol Reduction Indicators	
2.7.1*	Average LDL cholesterol level among adults with high cholesterol
2.7.2*	Average HDL cholesterol level among adults with high cholesterol
2.7.3	Average triglyceride level among adults with high cholesterol
2.7.4*	Average total cholesterol level among adults with high cholesterol
Increased Control Indicators	
2.8.1*	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.2*	Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.3	Proportion of adults with high cholesterol who have non-HDL cholesterol at or below goal as defined by current evidence-based guidelines
2.8.4*	Proportion of adults diagnosed with high cholesterol who have total cholesterol at or below goal as defined by current evidence-based guidelines
2.8.5*	Disparity in high LDL cholesterol control between general and priority populations
Reduced Morbidity/Mortality Indicators	
2.9.1	Proportion of adults with high cholesterol who have an elevated 10-year cardiovascular risk
2.9.2	Proportion of adults with high cholesterol who have poor quality of life
2.9.3	Prevalence of nonfatal cardiovascular events associated with high cholesterol
2.9.4	Death rate due to cardiovascular disease associated with high cholesterol
Disparities Indicators	

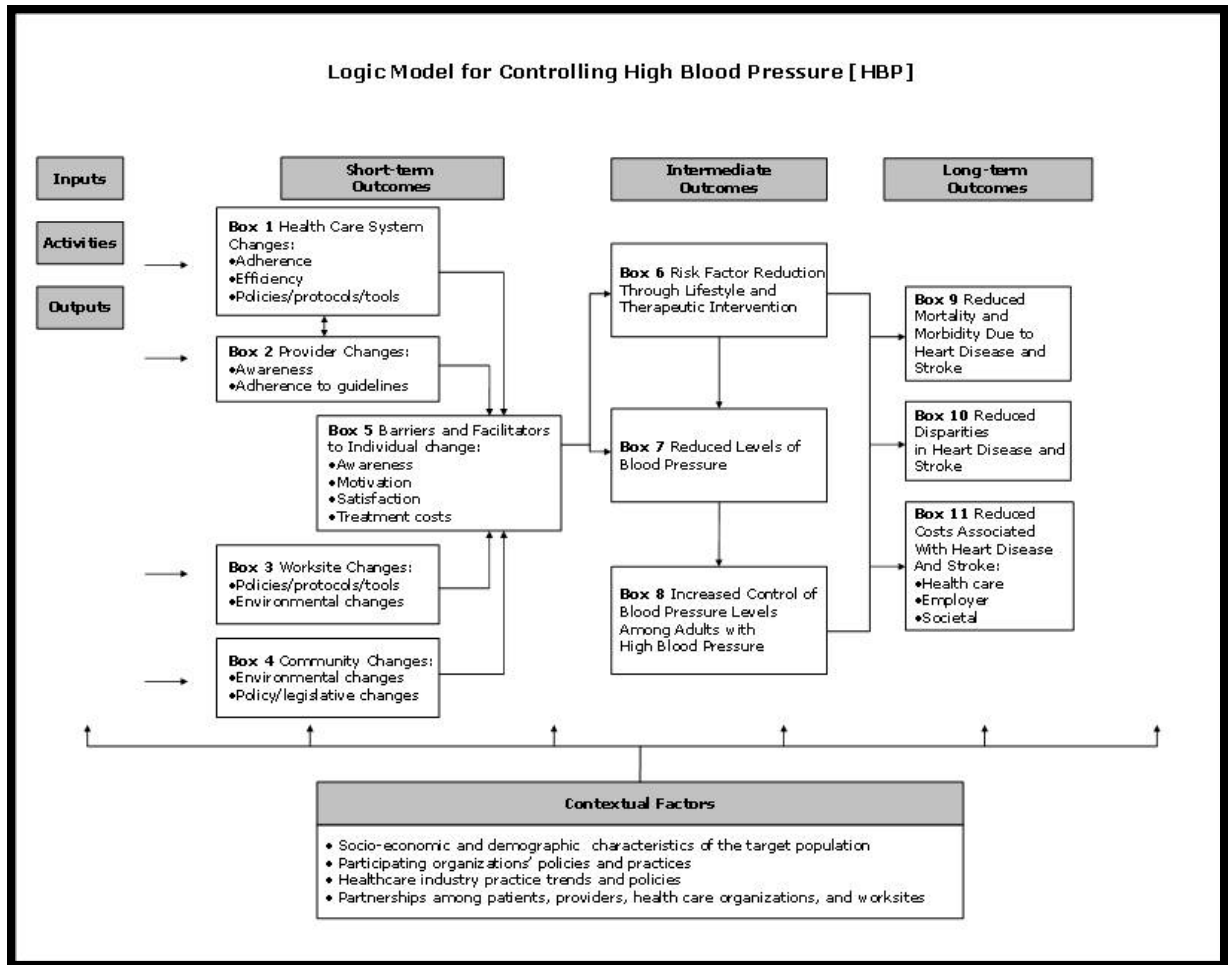
Appendix A Continued

2.10.1	Disparity in cardiovascular morbidity associated with high cholesterol between general and priority populations
2.10.2	Disparity in cardiovascular mortality associated with high cholesterol between general and priority populations
Reduced Costs Indicators	
2.11.1	Average annual employer costs attributable to high cholesterol and related health outcomes
2.11.2	Average annual outpatient costs attributable to high cholesterol and related health outcomes
2.11.3	Average annual inpatient costs attributable to high cholesterol and related health outcomes
2.11.4	Average annual emergency department costs attributable to high cholesterol and related health outcomes

*Core Indicators

APPENDIX B

CONTROLLING HIGH BLOOD PRESSURE LOGIC MODEL

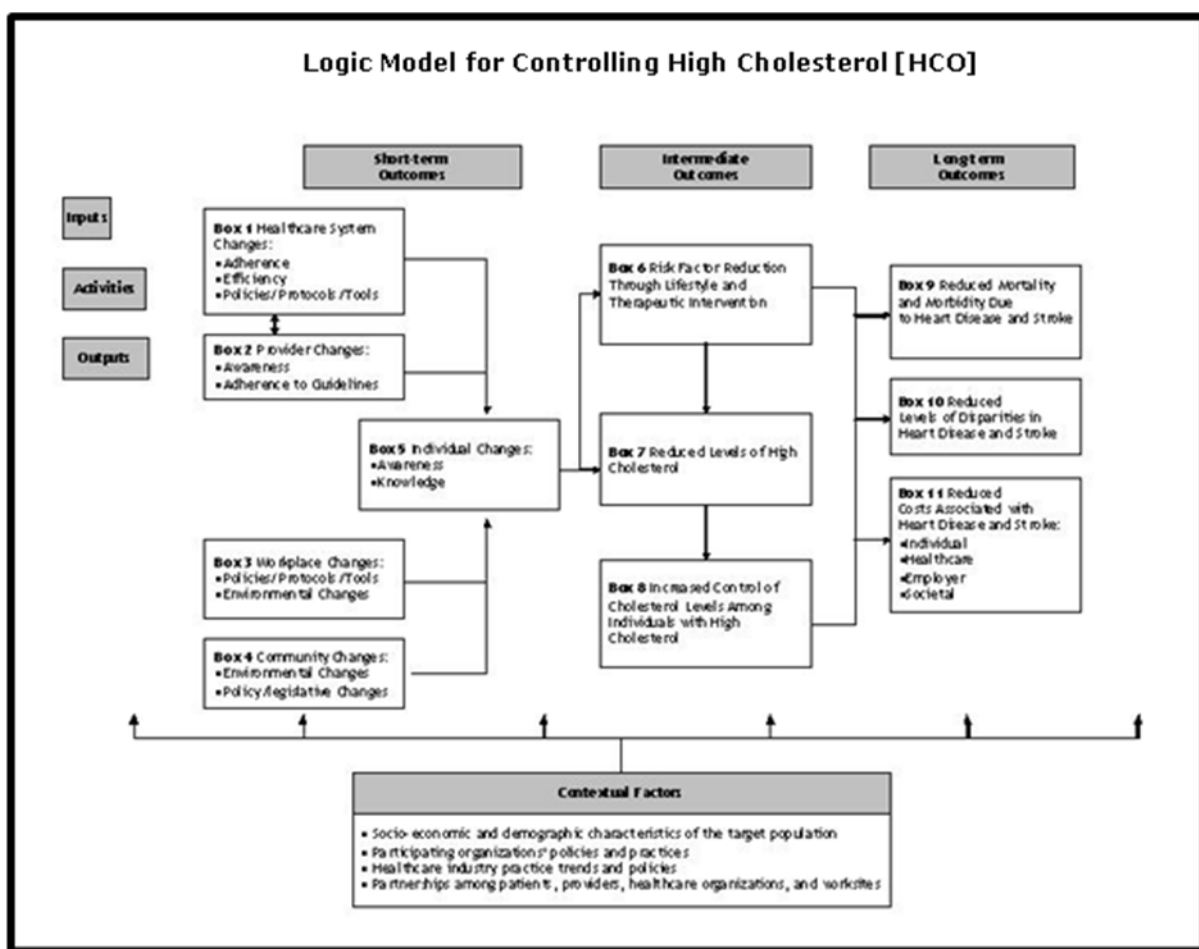


NOTES: Indicators correspond to the logic model in an "a.b.c" format where: "a" indicates the priority area (High Blood Pressure Control = 1, High Cholesterol Control = 2); "b" indicates which Box in the appropriate logic model the indicators corresponds to (i.e. Healthcare System Changes = 1, Provider Changes = 2, etc.); and "c" enumerates and identifies the specific indicators itself (i.e. 1.1.1 = *The proportion of healthcare systems with policies to encourage a multi-disciplinary team approach to enhance high blood pressure control*: Controlling High Blood Pressure Indicator corresponding to Box 1, Health Care System Changes)^{4,5}. (Data as of 8/4/2010).

SOURCE: Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Controlling High Blood Pressure Logic Model. Atlanta, GA: Centers for Disease Control and Prevention. 2008.

APPENDIX C

CONTROLLING HIGH CHOLESTEROL LOGIC MODEL



NOTES: Indicators correspond to the logic model in an “a.b.c” format where: “a” indicates the priority area (High Blood Pressure Control = 1, High Cholesterol Control = 2); “b” indicates which Box in the appropriate logic model the indicators corresponds to (i.e. Healthcare System Changes = 1, Provider Changes = 2, etc.); and “c” enumerates and identifies the specific indicators itself (i.e. 2.1.1 = *The proportion of healthcare systems with policies that identify LDL cholesterol as the primary target of lipid-lowering therapy: Controlling High Cholesterol Indicator corresponding to Box 1, Health Care System Changes*)^{4,5}. (Data as of 8/4/2010).

SOURCE: Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. Controlling High Cholesterol Logic Model. Atlanta, GA: Centers for Disease Control and Prevention. 2008.

APPENDIX D

UNUSED INDICATORS

All Programs Unused Indicators (Core Indicators are bolded):

1. 1.2.4 (*Proportion of providers who follow JNC pharmacologic guidelines prior to initiating therapy*)
2. 1.5.2 (*Proportion of individuals who know what therapeutic lifestyle changes are associated with blood pressure control*)
3. 1.5.7 (*Number of patients with missed follow-up provider appointments for treatment of high blood pressure*)
4. 1.5.8 (*Proportion of individuals satisfied with healthcare services*)
5. 1.5.9 (*Average annual out-of-pocket patient costs for prescription drugs attributable to the treatment of high blood pressure [per person with high blood pressure]*)
6. 1.5.10 (*Average annual out-of-pocket patient costs associated with therapeutic lifestyle modification for the treatment of high blood pressure [per person with high blood pressure]*)
7. 1.6.5 (*Prevalence of obesity*)
8. 1.6.8 (*Proportion of individuals reporting elevated levels of stress*)
9. 1.6.10 (*Disparity between general and priority populations compliance with high blood pressure control regimens*)
10. 1.7.3 (*Disparity in blood pressure levels between general and priority populations that have been diagnosed with high blood pressure*)
11. 1.9.2 (*Average level of quality of life*)
12. 1.9.3 (*Proportion of individuals requiring hospitalization/emergency care associated with high blood pressure associated outcomes*)
13. 1.9.4 (*Prevalence of nonfatal cardiovascular events associated with high blood pressure*)
14. 1.11.2 (*Average annual outpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)

15. 1.11.3 (*Average annual inpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
16. 1.11.4 (*Average annual costs of emergency room services attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
17. 2.1.1 (*Proportion of healthcare systems with policies that identify LDL cholesterol as the primary target of lipid-lowering therapy*)
18. 2.1.4 (*Proportion of healthcare systems with treatment algorithms that incorporate recommendations of current evidence-based cholesterol guidelines*)
19. 2.2.7 (*Proportion of providers who counsel patients with high cholesterol on how to take prescribed medicines*)
20. 2.3.1 (*Proportion of worksites with employer payment for services to control high cholesterol*)
21. 2.5.6 (*Annual out-of-pocket patient costs for prescription medication for the treatment of high cholesterol*)
22. 2.5.7 (*Average annual out-of-pocket costs associated with therapeutic lifestyle modification for the treatment of high cholesterol*)
23. 2.6.4 (*Smoking prevalence among adults with high cholesterol*)
24. 2.6.8 (*Disparity in adherence to cholesterol-lowering medication regimens between general and priority populations*)
25. **2.7.2** (*Average HDL cholesterol level among adults with high cholesterol*)
26. 2.7.3 (*Average triglyceride level among adults with high cholesterol*)
27. **2.7.4** (*Average total cholesterol level among adults with high cholesterol*)
28. **2.8.5** (*Disparity in high LDL cholesterol control between general and priority populations*)
29. 2.9.2 (*Proportion of adults with high cholesterol who have poor quality of life*)
30. 2.9.3 (*Prevalence of nonfatal cardiovascular events associated with high cholesterol*)
31. 2.10.1 (*Disparity in cardiovascular morbidity associated with high cholesterol between general and priority populations*)
32. 2.10.2 (*Disparity in cardiovascular mortality associated with high cholesterol between general and priority populations*)
33. 2.11.1 (*Average annual employer costs attributable to high cholesterol and related health outcomes*)
34. 2.11.2 (*Average annual outpatient costs attributable to high cholesterol and related health outcomes*)
35. 2.11.3 (*Average annual inpatient costs attributable to high cholesterol and related health outcomes*)
36. 2.11.4 (*Average annual emergency department costs attributable to high cholesterol and related health outcomes*)

Capacity Building Program Unused Indicators (Core Indicators are bolded):

1. 1.1.2 (*Prevalence of specialized chronic care clinics with a focus on high blood pressure control*)
2. 1.2.4 (*Proportion of providers who follow JNC pharmacologic guidelines prior to initiating therapy*)
3. 1.5.2 (*Proportion of individuals who know what therapeutic lifestyle changes are associated with blood pressure control*)
4. 1.5.7 (*Number of patients with missed follow-up provider appointments for treatment of high blood pressure*)
5. 1.5.8 (*Proportion of individuals satisfied with healthcare services*)
6. 1.5.9 (*Average annual out-of-pocket patient costs for prescription drugs attributable to the treatment of high blood pressure [per person with high blood pressure]*)
7. 1.5.10 (*Average annual out-of-pocket patient costs associated with therapeutic lifestyle modification for the treatment of high blood pressure [per person with high blood pressure]*)
8. 1.6.3 (*Smoking prevalence*)
9. 1.6.5 (*Prevalence of obesity*)
10. 1.6.6 (*Proportion of adults who participate regularly in physical activity*)
11. 1.6.8 (*Proportion of individuals reporting elevated levels of stress*)
12. 1.6.10 (*Disparity between general and priority populations compliance with high blood pressure control regimens*)
13. 1.7.3 (*Disparity in blood pressure levels between general and priority populations that have been diagnosed with high blood pressure*)
14. **1.8.2** (*Disparity in blood pressure control between general and priority populations*)
15. 1.9.2 (*Average level of quality of life*)
16. 1.9.3 (*Proportion of individuals requiring hospitalization/emergency care associated with high blood pressure associated outcomes*)
17. 1.9.4 (*Prevalence of nonfatal cardiovascular events associated with high blood pressure*)
18. 1.11.1 (*Average annual employer costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
19. 1.11.2 (*Average annual outpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
20. 1.11.3 (*Average annual inpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
21. 1.11.4 (*Average annual costs of emergency room services attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
22. 2.1.1 (*Proportion of healthcare systems with policies that identify LDL cholesterol as the primary target of lipid-lowering therapy*)
23. 2.1.4 (*Proportion of healthcare systems with treatment algorithms that incorporate recommendations of current evidence-based cholesterol guidelines*)

24. 2.2.2 (*Proportion of providers who classify LDL, HDL, and total cholesterol according to current evidence-based guidelines*)
25. 2.2.4 (*Proportion of providers who increase monitoring and shifts in medication for patients unable to achieve cholesterol treatment goals*)
26. **2.2.6** (*Proportion of patients with high cholesterol who receive provider-initiated recommendation and follow-up of therapeutic lifestyle modifications*)
27. 2.2.7 (*Proportion of providers who counsel patients with high cholesterol on how to take prescribed medicines*)
28. 2.2.8 (*Proportion of providers who work with patients to identify cholesterol self management goals*)
29. 2.3.1 (*Proportion of worksites with employer payment for services to control high cholesterol*)
30. 2.5.4 (*Proportion of adults who know which therapeutic lifestyle behavior changes are associated with controlling high cholesterol*)
31. 2.6.3 (*Prevalence of obesity among adults with high cholesterol*)
32. 2.6.4 (*Smoking prevalence among adults with high cholesterol*)
33. 2.6.6 (*Disparity in risk factors for high cholesterol between general and priority populations*)
34. 2.6.8 (*Disparity in adherence to cholesterol-lowering medication regimens between general and priority populations*)
35. **2.7.2** (*Average HDL cholesterol level among adults with high cholesterol*)
36. 2.7.3 (*Average triglyceride level among adults with high cholesterol*)
37. **2.7.4** (*Average total cholesterol level among adults with high cholesterol*)
38. 2.8.3 (*Proportion of adults with high cholesterol who have Non-HDL cholesterol at or below goal as defined by current evidence-based guidelines*)
39. **2.8.5** (*Disparity in high LDL cholesterol control between general and priority populations*)
40. 2.9.2 (*Proportion of adults with high cholesterol who have poor quality of life*)
41. 2.9.3 (*Prevalence of nonfatal cardiovascular events associated with high cholesterol*)
42. 2.9.4 (*Death rate due to cardiovascular disease associated with high cholesterol*)
43. 2.10.1 (*Disparity in cardiovascular morbidity associated with high cholesterol between general and priority populations*)
44. 2.10.2 (*Disparity in cardiovascular mortality associated with high cholesterol between general and priority populations*)
45. 2.11.1 (*Average annual employer costs attributable to high cholesterol and related health outcomes*)
46. 2.11.2 (*Average annual outpatient costs attributable to high cholesterol and related health outcomes*)
47. 2.11.3 (*Average annual inpatient costs attributable to high cholesterol and related health outcomes*)

48. 2.11.4 (*Average annual emergency department costs attributable to high cholesterol and related health outcomes*)

Basic Implementation Program Unused Indicators (Core Indicators are bolded):

1. 1.2.4 (*Proportion of providers who follow JNC pharmacologic guidelines prior to initiating therapy*)
2. 1.3.1 (*Proportion of worksites with employer payment for services to control high blood pressure and cardiovascular risk factors*)
3. 1.3.5 (*Proportion of workplaces with on-site clinical health services or physician referrals to control high blood pressure*)
4. 1.4.3 (*Prevalence of health education activities to control high blood pressure*)
5. 1.5.2 (*Proportion of individuals who know what therapeutic lifestyle changes are associated with blood pressure control*)
6. 1.5.7 (*Number of patients with missed follow-up provider appointments for treatment of high blood pressure*)
7. 1.5.8 (*Proportion of individuals satisfied with healthcare services*)
8. 1.5.9 (*Average annual out-of-pocket patient costs for prescription drugs attributable to the treatment of high blood pressure [per person with high blood pressure]*)
9. 1.5.10 (*Average annual out-of-pocket patient costs associated with therapeutic lifestyle modification for the treatment of high blood pressure [per person with high blood pressure]*)
10. 1.6.1 (*Disparity in high blood pressure risk factors between general and priority populations*)
11. 1.6.5 (*Prevalence of obesity*)
12. 1.6.7 (*Proportion of individuals adopting the Dietary Approaches to Stop Hypertension [DASH] eating plan*)
13. 1.6.8 (*Proportion of individuals reporting elevated levels of stress*)
14. 1.6.10 (*Disparity between general and priority populations compliance with high blood pressure control regimens*)
15. **1.7.1** (*Average blood pressure levels among individuals with high blood pressure*)
16. 1.7.3 (*Disparity in blood pressure levels between general and priority populations that have been diagnosed with high blood pressure*)
17. 1.9.1 (*Proportion of individuals with elevated cardiovascular risk*)
18. 1.9.2 (*Average level of quality of life*)
19. 1.9.3 (*Proportion of individuals requiring hospitalization/emergency care associated with high blood pressure associated outcomes*)
20. 1.9.4 (*Prevalence of nonfatal cardiovascular events associated with high blood pressure*)

21. 1.10.1 (*Disparity in cardiovascular morbidity associated with high blood pressure between general and priority populations*)
22. **1.10.2** (*Disparity in cardiovascular mortality between general and priority populations*)
23. 1.11.2 (*Average annual outpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
24. 1.11.3 (*Average annual inpatient costs attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
25. 1.11.4 (*Average annual costs of emergency room services attributable to high blood pressure and related health outcomes [per person with high blood pressure]*)
26. 2.1.1 (*Proportion of healthcare systems with policies that identify LDL cholesterol as the primary target of lipid-lowering therapy*)
27. 2.1.4 (*Proportion of healthcare systems with treatment algorithms that incorporate recommendations of current evidence-based cholesterol guidelines*)
28. 2.2.7 (*Proportion of providers who counsel patients with high cholesterol on how to take prescribed medicines*)
29. 2.2.8 (*Proportion of providers who work with patients to identify cholesterol self management goals*)
30. 2.3.1 (*Proportion of worksites with employer payment for services to control high cholesterol*)
31. 2.5.1 (*Proportion of adults who have had their cholesterol checked within the previous five years*)
32. 2.5.3 (*Disparity in knowledge of the risks of high cholesterol between general and priority populations*)
33. 2.5.5 (*Proportion of adults who are aware of their personal risk associated with high cholesterol*)
34. 2.5.6 (*Annual out-of-pocket patient costs for prescription medication for the treatment of high cholesterol*)
35. 2.5.7 (*Average annual out-of-pocket costs associated with therapeutic lifestyle modification for the treatment of high cholesterol*)
36. 2.6.4 (*Smoking prevalence among adults with high cholesterol*)
37. 2.6.5 (*Proportion of smokers with high cholesterol who have made a quit attempt using proven cessation methods*)
38. 2.6.6 (*Disparity in risk factors for high cholesterol between general and priority populations*)
39. 2.6.8 (*Disparity in adherence to cholesterol-lowering medication regimens between general and priority populations*)
40. **2.7.1** (*Average LDL cholesterol level among adults with high cholesterol*)
41. **2.7.2** (*Average HDL cholesterol level among adults with high cholesterol*)
42. 2.7.3 (*Average triglyceride level among adults with high cholesterol*)

- 43. **2.7.4** (*Average total cholesterol level among adults with high cholesterol*)
- 44. **2.8.2** (*Proportion of adults diagnosed with high cholesterol who have LDL cholesterol at or below goal as defined by current evidence-based guidelines*)
- 45. **2.8.5** (*Disparity in high LDL cholesterol control between general and priority populations*)
- 46. 2.9.1 (*Proportion of adults with high cholesterol who have an elevated 10-year cardiovascular risk*)
- 47. 2.9.2 (*Proportion of adults with high cholesterol who have poor quality of life*)
- 48. 2.9.3 (*Prevalence of nonfatal cardiovascular events associated with high cholesterol*)
- 49. 2.10.1 (*Disparity in cardiovascular morbidity associated with high cholesterol between general and priority populations*)
- 50. 2.10.2 (*Disparity in cardiovascular mortality associated with high cholesterol between general and priority populations*)
- 51. 2.11.1 (*Average annual employer costs attributable to high cholesterol and related health outcomes*)
- 52. 2.11.2 (*Average annual outpatient costs attributable to high cholesterol and related health outcomes*)
- 53. 2.11.3 (*Average annual inpatient costs attributable to high cholesterol and related health outcomes*)
- 54. 2.11.4 (*Average annual emergency department costs attributable to high cholesterol and related health outcomes*)

BIBLIOGRAPHY

1. American Heart Association. Heart Disease and Stroke Statistics - 2009 Update. Dallas, TX, 2009.
2. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "2008 Program Review." Atlanta, GA: Centers for Disease Control and Prevention, 2008.
3. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "Division for Heart Disease and Stroke Prevention - About Us". 2010. 7/23/2010. <http://www.cdc.gov/dhdsdp/about_us.htm>.
4. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "National Heart Disease and Stroke Prevention Program Staff Orientation Guide - September 2009." Atlanta, GA: Centers for Disease Control and Prevention, 2009.
5. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "Controlling High Blood Pressure Logic Model." Atlanta, GA: Centers for Disease Control and Prevention, 2008.
6. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "Controlling High Cholesterol Logic Model." Atlanta, GA: Centers for Disease Control and Prevention, 2008.
7. Glanz K, Rimer BK, Viswanath K. Health Behavior and Health Education: Theory, Research, and Practice. 4th ed. San Francisco, CA: Jossey-Bass, 2008.
8. Wall HK, Ladd S, Rogers T, Fulmer E, Lim S, Leeks K, Jernigan J. "Outcome Indicators for Policy and Systems Change: Controlling High Blood Pressure." Atlanta, GA: Centers for Disease Control and Prevention, 2010.
9. Ladd S, Wall HK, Rogers T, Fulmer E, Lim S, Leeks K, Jernigan J. "Outcome Indicators for Policy and Systems Change: Controlling High Cholesterol." Atlanta, GA: Centers for Disease Control and Prevention, 2010.
10. Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention. "State Heart Disease and Stroke Prevention Program Management

Information System". 7/23/2010.
<<http://insidencdc.gov/hdspmis/default/default.aspx>>.

11. Weir AJ. 2009-2010 Indicators Workbook (Microsoft Excel), 2010.
12. Weir AJ. 2010-2011 Indicators Workbook (Microsoft Excel), 2010.