DETERMINANTS OF IMPLEMENTATION EFFECTIVENESS OF STATE-BASED INJURY AND VIOLENCE PREVENTION PROGRAMS IN RESOURCE-CONSTRAINED ENVIRONMENTS

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Abstract

KELLY NICHOLE WEIDENBACH: Determinants of Implementation
Effectiveness of State-based Injury and Violence Prevention Programs
in Resource-Constrained Environments
(Under the direction of Rebecca Wells)

Injuries are the leading cause of death for individuals aged 1-44 years in the United

States (National Center for Injury Prevention and Control, 2012). State health agencies have

been recognized as critical to addressing the burden of injury and violence through the

Public Health Approach. Guidance documents for state health agencies describe the critical

activities and components of an effective injury prevention program, yet the factors that

affect the successful implementation of these programs are not well understood. Research is

needed to determine how state health agencies initiate and implement injury prevention

programs with limited resources and within the complex social contexts that state health

policy.

This project was a mixed-method study aimed at exploring and describing the

organizational and environmental factors influencing the implementation of state injury and

violence prevention programs. The study incorporated two separate phases: a series of

holistic case studies examining implementation effectiveness in states health agencies that

have received no Centers for Disease Control core funding among state health agencies in

U.S. Department of Health & Human Services regions 7 and 8, and the development of

policy recommendations for the implementation of an injury prevention program within the Wyoming Department of Health based on the findings from the series of case studies.

Differences in implementation effectiveness among participating state injury and violence prevention programs could be described by meaningful differences in the support for programs among upper-level state health agency administrators, in the availability of resources designated for comprehensive program implementation, and in relevant policies and practices that foster program implementation. Shared decision-making and partnerships with external stakeholders were important in all participating state health agencies but did not explain the differences in the outcome variable. External climate was a limiting factor in all participating states—particularly in regard to funding—but may be overcome when certain organizational factors are present and fostered.

These findings can be used by state health agency leadership to improve implementation of injury and violence prevention programs at the state-level and may have policy implications for improving implementation of other types of state-based public health programs in resource-constrained environments.

To my parents, Nick and Kathy Weidenbach, who taught me to ask questions,

to think critically, and that hard work can make anything possible.

Mom, I know how proud you would be.

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Chapter 1

Introduction

Statement of Problem

Injuries are the leading cause of death for individuals aged 1-44 years in the United States (National Center for Injury Prevention and Control, 2012). State health agencies have been recognized as critical organizations to address the burden of injury and violence through the Public Health Approach (State and Territorial Injury Prevention Directors Association, 1997; Bonnie, Fulco, & Liverman, 1999; Wilcox 2001; State and Territorial Injury Prevention Directors Association, 2003). Despite the burden of injury and violence as a leading cause of premature death and disability, the development and implementation of infrastructure and programs for injury prevention has been slow to develop within state health agencies. In 1997, the Safe States Alliance, formerly known as the State and Territorial Injury Prevention Directors Association (STIPDA) until a name change in 2010, published *Safe States: Five Components of a Model State Injury Prevention Program and Three Phases of Program Development,* which established a list of five essential components of state injury and violence prevention programs. The components of *Safe States* continue to be diffused and adopted throughout the public health community yet great variation continues to exist in terms of the states' fidelity in implementing those core activities. While guidance documents describe the critical activities and components of an effective injury prevention program (STIPDA, 1997; STIPDA, 2003), the factors that affect the successful implementation of these programs are less understood. More research is needed to determine how state health agencies initiate and

implement those programs with limited resources and within the complex social contexts that define the environment of state health policy.

Federal funding has played a critical role in establishing core infrastructure in many states (Klein, O'Connor, & Fuhrman, 1997), yet many state health agencies do not receive this core funding for injury and violence prevention. Recent changes to federal grant requirements for state health agencies in the area of injury and violence prevention have resulted in more competition among state health agencies and have made it more difficult for state health agencies with less pre-existing injury prevention infrastructure to compete against states that have previously received the federal funding and/or those that have been able to develop infrastructure and capacity. Increased competition and stricter requirements for receiving federal funding make it even more important for state health agencies to identify strategies for improving implementation of injury prevention programs. Virtually no literature exists on injury and violence program implementation in states without federal funding provided by the Centers for Disease Control (CDC) and/or states with less established injury prevention infrastructures.

Implementation research provides a context for analyzing the multifactorial processes necessary to initiate and implement state health programs. Implementation research is a field of inquiry aimed at problem-solving and the identification of strategies that enable organizations and leaders to more effectively put programs into place and have those programs produce the desired outcomes. Previous implementation research asserts that initial implementation success of health programs often depends on a number of complex factors, including, but not limited to, innovation-specific, organizational, and environmental variables (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). This dissertation aimed to identify and to describe the organizational and environmental variables that are most

influential to implementation success or effectiveness of state-based injury prevention programs that do not have core federal funding.

Background

History of the State Health Agency as a Leading Organization for Injury Prevention and Control in the United States

Injury is defined as "any unintentional or intentional damage to the body resulting from acute exposure to thermal, mechanical, electrical or chemical energy that exceeds a threshold of tolerance in the body or from the absence of such essentials as heat or oxygen" (Society for the Advancement of Violence and Injury Research & STIPDA, 2005a). Injuries are the fourth leading cause of death among all age groups in the United States and continue to be the leading cause of death among persons aged 1-44 years, according to the National Center for Injury Prevention and Control (NCIPC, 2012). The burden of injury in the United States includes premature death, disability, and the overextension of the healthcare system. According to the US Centers for Disease Control and Prevention (CDC), in 2007 more than 182,000 people die each year due to injury and violence. Furthermore, nearly 50 million individuals are treated in the emergency department each year as the result of injury and violence (NCIPC, 2012). Unintentional and intentional injuries account for over 30% of the years of potential life lost before the age of 65 years, surpassing losses from heart disease, cancer and stroke *combined* (NCIPC, 2012). And, an estimated $406 billion is spent each year due to injuries of which $80 billion is the result of direct medical costs and $326 million is due to lost productivity (Finkelstein, Corso, & Miller, 2006).

In 1999, the Institute of Medicine published a landmark report, *Reducing the Burden: Advancing Prevention and Treatment*, which described how national investments in injury

prevention and control were not proportionate to the magnitude of the problem and outlined specific recommendations to overcome these investment deficiencies, building upon reports from earlier committees (National Research Council, 1988). A major finding of *Reducing the Burden* related to infrastructure for injury prevention and control within state health agencies. In *Reducing the Burden*, the committee called for the creation of core injury prevention programs in each state's department of health and stated that, "the strengthening of a well-developed injury prevention program in the state health department is the foundation for state and local injury prevention efforts"(Bonnie et al., 1999). Years after *Reducing the Burden* was published, the issue of inadequate infrastructure remains. Runyan, Villaveces, and Stephens-Stidham, in their 2008 paper, "Improving infrastructure for injury control: a call for policy action," recommended that governmental bodies overseeing health agencies

> *should recognize the importance of injury control, mandating that units exist and be positioned prominently in agencies at all levels (e.g., federal to local) with funding appropriate to the role of injury as a source of morbidity and mortality. In most if not all jurisdictions, this would mean placing injury control units at levels comparable to those focused on infectious disease and/or chronic disease* (Runyan et al., 2008).

While state and local health agencies are recognized as the foundation of injury prevention and control efforts, these efforts are largely fragmented and limited due to barriers in funding, infrastructure, staffing, and variation in execution (Bonnie et al., 1999).

Federal Support for Injury Prevention and Control in State Health Agencies

Starting in 1989, the National Center for Injury Prevention and Control (NCIPC) at CDC began providing funding for state and local injury prevention programs. Fifteen state and local programs received funding totaling $3.9 million per year for injury prevention capacity-building. An evaluation of these programs by Hersey et al. (1995) found that the

capacity-building funds were critical in strengthening much needed infrastructure in all locations, and because of the programs' success, the evaluators recommended that CDC expand its funding to all 50 states (Hersey et al., 1995). However, the funding mechanisms for these grants changed in the mid-1990s because of federal budget cuts, and NCIPC began to provide funding for injury-specific prevention programs within state health departments like smoke detector and bicycle helmet campaigns through cooperative agreements.

In 2000, NCIPC began its State Core Program (now called Integrated Core Injury Prevention Program)—funding 24 states to develop injury surveillance prevention programs. Between 2000 and 2005, increases in federal funding provided an increase in the number of state receiving CDC core funds from 24 to 30. In December 2010, CDC announced the request for proposals for the third five-year grant cycle for the State Core Program. For this new grant cycle starting in 2011, a total of 28 states were funded for the Base Integration Component through the CDC core funding. These states included: Arkansas, Arizona, California, Colorado, Delaware, Florida, Georgia, Hawaii, Kansas, Kentucky, Maine, Massachusetts, Maryland, Minnesota, Nebraska, New Hampshire, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, and Washington (CDC, 2011). The criteria used to qualify states for this competitive grant also became more stringent in the 2010 request for proposals—making it harder for states with little or no injury prevention infrastructure to compete with states with well-established programs and existing infrastructure for injury and violence prevention and control.

***Safe States'* Core Components: Defining Critical Activities for State-based Injury Prevention and Control Programs**

In 1997, the Safe States Alliance published its first *Safe States* report, which outlined the five core components of state injury and violence prevention programs (STIPDA, 1997). In 2003, the Safe States Alliance refined the five core components to reflect changes in the infrastructure of state injury and violence prevention programs and development in the knowledge base over the previous five years. The revised components are: 1) build a solid infrastructure for injury and violence prevention; 2) collect and analyze injury and violence data; 3) design, implement, and evaluate programs; 4) provide technical support and training; and 5) affect public policy (STIPDA, 1997; STIPDA, 2003). The components have evolved over time and currently include principles of the Public Health Approach to reducing the burden of injury and violence (Rosenberg & Fenley, 1990). The components were developed as part of a consensus-building process organized by the Safe States Alliance and with input from experts in the field of injury prevention and control. State injury programs that successfully implement all five components are well-situated to have an impact on the burden of injury and violence in their state (STIPDA, 2008b; Safe States Alliance, 2011; Safe States Alliance, 2013). In this dissertation, outcome measures for implementation effectiveness will largely be based on the Safe States core components.

Figure 1: Safe States Alliance Core Components
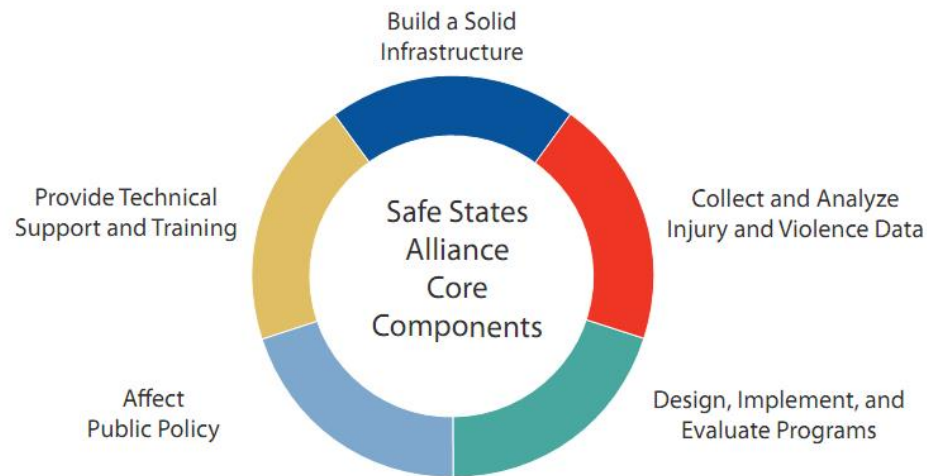
Source: Safe States Alliance (2013)

Component #1: Build a solid infrastructure for injury and violence prevention. Program characteristics that are hypothesized to influence the infrastructure of state-based injury programs include: state mandate for the existence of the program, program focus, program location, strategic planning, staffing, funding, partnerships, and administrative support (Safe States Alliance, 2013). The existence of a state mandate requiring the creation of an injury prevention program at the state level is thought to be important to the successful implementation of state-based injury prevention programs because a legislatively-mandated program may be more likely to have the necessary resources for implementation and program management, may be more sustainable, and may have increased visibility among policy-makers (Safe States Alliance, 2011). The importance of a legislative mandate has not been empirically evaluated. Ideally, the program's activities are imbedded or institutionalized into other public health programs within the state health agency (Bobbitt-Cooke & Cole, 1997; Cassady et al., 1997). State-based injury prevention programs are recommended to have a guidance document, like a strategic plan or a statewide injury prevention plan that

coordinates efforts by various organizations that have a responsibility or interest in reducing the burden of injury and violence (Beauregard-Crowe et al., 1997; Kelter, 1997; STIPDA, 2003; Safe States Alliance, 2013).

The Safe States model has identified adequate staffing, funding, and interagency partnerships as critical pieces of state-based injury prevention program infrastructure. Ideal staffing entails having key positions filled by adequately trained staff in each of the six primary roles (management, data collection/analysis, coalition building/coordination, program coordination/intervention, technical assistance/training and public policy/advocacy) (Cassady et al., 1997; STIPDA, 2003). Funding streams for such programs should be diverse and should include dedicated funding from the state budget (Beauregard-Crowe et al., 1997; Cassady et al., 1997; STIPDA, 1997; Downey et al., 2008). Because injuries and violence have many causes requiring diverse prevention and response strategies, collaboration and coordination between a variety of public and private organizations is essential. Therefore, ideal infrastructure for state-based injury prevention programs includes partnerships among other state health department programs (such as chronic disease, maternal and child health, mental health, aging, substance abuse, public health preparedness), among other state agencies (transportation, police, fire, emergency medical services, criminal justice), and among other community organizations (hospitals, schools, academic institutions, and special interest groups). Interagency and/or intra-organizational agreements that specify the roles, duties and responsibilities of collaborating agencies should be in place (Bobbitt-Cooke & Cole, 1997; Cassady et al., 1997; Kelter, 1997; STIPDA, 2003; Downey et al., 2008). Various aspects of the "infrastructure" core component will be examined in this dissertation as both outcome measures (staffing) and determinants of implementation effectiveness (resource availability).

Component #2: Collect and Analyze Injury and Violence Data. The Public Health

Approach to a problem begins with the collection and analyses of accurate and consistent

public health data through traditional epidemiologic methods (Rosenberg & Fenley, 1990).

The collection and analyses of injury and violence data is critical to understanding how to

prevent injury and violence events and informs the policy-making process. These data allow

state injury and violence prevention programs to monitor incidence of injuries and violence,

to identify high risk groups, to recommend and implement evidence-based prevention

strategies, and to evaluate the effectiveness of such strategies (Bobbitt-Cooke & Cole, 1997;

Kelter, 1997; Klein et al., 1997; Downey et al., 2008; Safe States Alliance, 2013). The

collection and analysis of injury surveillance data is used as a component of the outcome

variable in this dissertation.

Component #3: Design, Implement, and Evaluate Programs. State injury and violence

prevention programs must be able to use surveillance data to inform state injury control

plans and must be able to implement the priorities outlined in the plan. The translation from

data to implementation occurs when state injury prevention programs are able to identify

appropriate, evidence-based interventions, to implement those interventions, and to

continuously evaluate these interventions using epidemiologic data. State injury and violence

prevention programs must ensure that the most appropriate program or agency is

implementing the strategy and that the strategy is targeting the most appropriate group

(Bobbitt-Cooke & Cole, 1997; Hayes, Goodman, & Wilt, 1997; Kelter, 1997; STIPDA, 2003;

Downey et al., 2008). State injury and violence prevention programs often oversee external

organizations that are implementing local and community-based programs and executing

multiple injury prevention and control strategies. The number of injury-specific interventions

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put into place and evaluated by the state injury prevention program is used as a component of the implementation effectiveness outcome variable.

Component #4: Provide Technical Support and Training. Implementation of injury prevention and control strategies often involves organizations external to the state injury and violence prevention programs; therefore, it is necessary for these state programs to provide training and technical support to local injury prevention and control staff and to other stakeholders (Bobbitt-Cooke & Cole, 1997; Klein et al., 1997; Downey et al., 2008). Training should include continuing education for professionals with an emphasis on basic concepts of injury prevention and control and the Safe State Alliance's five components, including: conducting strategic planning, building and sustaining coalitions, collecting and analyzing data, evaluating prevention programs, and affecting public policy. The National Training Initiative for Injury and Violence Prevention, an initiative created by the Society for the Advancement of Violence and Injury Research (SAVIR)-STIPDA Joint Committee on Infrastructure and Development, has developed training competencies for injury prevention professionals and serves as a resource for state injury and violence prevention programs (SAVIR & STIPDA, 2005b). State programs should also develop communication methods so that it can provide additional training and technical assistance to other professionals, students, and the public (STIPDA, 2003). The number of trainings and opportunities for technical assistance provided by the state injury prevention program to partner agencies will be used as a portion of the outcome variable.

Component #5: Affect Public Policy. In order to have the most impact on the burden of injury and violence, state programs must develop methods to inform policy decisions at all

three levels of government (i.e., federal state, and community levels). Much of this work can be done through the work of coalitions and community-based advocates. State injury programs may be directly involved in informing policy by reviewing and recommending health department action on proposed legislation, by testifying on proposed legislation, by providing data regarding the importance and effectiveness of existing state or local policies and programs, by providing surveillance data to inform decision-makers, and by identifying model legislation. However, state injury programs are often limited in the methods through which they can affect policy and may only be able to conduct the activities mentioned above if directly invited by the policy-makers. Hence, coalitions and community-based advocacy groups play an extremely important role in ensuring that policy-makers and the public are well informed about issues affecting injury prevention and control and the state and local infrastructure that carries out basic public health activities like surveillance and data collection, regulation/enforcement, and other activities necessary to protect the public's health (Bobbitt-Cooke & Cole, 1997; Cassady et al., 1997; STIPDA, 2003; Downey et al., 2008). A portion of the outcome variable for this dissertation will depend on the extent to which the state injury prevention program has been able to affect public policy and its use of statewide coalitions.

The core components of implementing state injury prevention programs have been well-defined and provide a framework for activities under these state programs that are grounded in the Public Health Approach (STIPDA, 2003). The components of *Safe States* are regarded as "best practices" for state injury prevention programs even though they have not been empirically evaluated. The framework clearly represents what is currently known about creating and sustaining state injury and violence prevention programs and is used to guide programmatic activities and to evaluate programs receiving federal funding (STIPDA, 2003;

NCIPC, 2008). It is not the intention of this dissertation to evaluate the components of *Safe States*. Previous research has demonstrated that knowing the necessary core components is an important step in timely and effective implementation: "The speed and effectiveness of implementation may depend upon knowing exactly what has to be in place to achieve the desired results for consumers and stakeholders: no more, and no less" (Fixsen & Blase, 1993; Arthur & Blitz, 2000; Winter & Szulanski, 2001).

Great variation continues to exist in terms of the states' capacity and infrastructure needed to carry out the core activities. In 2005, the Safe States Alliance initiated the "State of the States" project, a cross-sectional survey describing capacities of state injury prevention programs. The initial publication, *The STIPDA 2005 State of the States Survey: Highlights Report*, identified major achievements in state-level injury prevention infrastructure but also highlighted continued infrastructural challenges in these comprehensive programs (STIPDA, 2006). Subsequent surveys were conducted in 2007, 2009, and 2011 (STIPDA, 2008a; Safe States Alliance, 2011; Safe States Alliance, 2013). A total of 47 states participated in the 2011 survey. The 2009 survey found that CDC core funding was critical in promoting leadership, partnerships, and policy involvement in the states receiving funding and that states without the core funding were less likely to carry out certain critical activities outlined in the five *Safe States'* components (Safe States Alliance, 2011). The number of states that reported using epidemiologic data to identify program priority areas increased from 63% in 2007 to 92% in 2009, indicating increased use of the Public Health Approach for addressing injury and violence priorities (Safe States Alliance, 2011). Despite increased use of the Public Health Approach for addressing injury prevention in state health agencies, the survey also showed that from 2007 to 2009 state funding sources for injury prevention programs decreased 11%, funding from CDC decreased 9%, and funding from other federal sources decreased 5%

(Safe States Alliance, 2011), highlighting the critical importance of state health agencies to identify ways to facilitate program implementation with less funding and to advocate for injury prevention with state and federal policymakers.

The "State of the States" surveys and reports represent the only national assessments of capacity for injury and violence prevention within state health agencies. The reports provide critical information about current and past activities, funding mechanisms, staffing capacities, partnerships, and program foci among state-based injury prevention programs. The reports indicate that activities of state injury programs continues to vary by state, but that most activities are guided by the Safe States model, and many of the challenges facing programs do not vary greatly. While the reports contain valuable information for national and state-level advocacy and policy development, the reports do not specifically identify determinants of successful program implementation and do not address strategies that state program staff can use to influence their organizational and external climate to better address the burden of injury and violence in their state using the best practices identified in the Safe States model.

Research Objectives

The ultimate objectives of this research were to describe how state health agencies successfully implement complex social programs like state injury and violence prevention programs that have not received federal funding through the CDC core injury program, to explain how organizational and environmental factors interact to influence the implementation of state injury and violence prevention program, and to develop recommendations for a state injury and violence prevention program in Wyoming utilizing knowledge gained regarding the most significant factors. This research focused on factors

that managers and staff at the state health agency have the capability to change or influence. This project entailed organizational research and attempted to describe differences in implementation effectiveness between multiple state health agencies. Furthermore, this project also entailed multilevel research, as it attempted to describe how implementation effectiveness is affected by perceptions among multiple groups of actors , including state injury and violence prevention program staff, state health agency administrators, representatives from community-based organizations, and other stakeholders (Klein & Sorra, 1996).

Primary Question

How do state health agencies successfully implement state injury and violence prevention programs in the absence of core federal funding?

Sub-questions

1) Which organizational and environmental factors, that are subject to managerial or staff influence, shape the implementation of state-based injury and violence prevention programs? How does the interaction of these factors influence implementation effectiveness?

2) How might these factors affect the implementation of a new, comprehensive state and injury violence prevention program in Wyoming?

Rationale and Policy Implications

Implementation tends to be a neglected phase in policymaking. Much that is written about policymaking deals directly with policy formation or policy outcomes but does not

describe how one gets from point A to point B. As Petersilia (1990) stated, "The ideas embodied in innovative social programs are not self-executing." Little research had been conducted to examine the internal and external factors influencing the implementation of state injury and violence prevention programs, particularly in states receiving no CDC core funding. Implementation of state health programs is overwhelmingly complex, and research was needed to foster an in-depth understanding of how these factors influence each other and how they influence the implementation outcome. Furthermore, previous research had identified that involvement of multiple groups of actors , such as staff, community-based organizations, and other stakeholder groups, from various levels within and outside of the agency played an important role in implementation of state injury and violence prevention programs(Cassady et al., 1997); however, these studies did not describe the mechanisms in which these groups influence the implementation process. Additional research was needed to examine these factors among multiple state health agencies (multiorganizational) and between user-groups (multilevel) of state injury and violence prevention programs (Klein & Sorra, 1996). A case study methodology was well suited for this dissertation because it offered the researcher an opportunity to thoroughly examine and describe behaviors of the state health agency and relevant actors and the context that ultimately influences how the program is implemented. The final product of this research is a list of recommendations that can be used by public health leaders in Wyoming and other similar states to guide program implementation.

Chapter 2

Literature Review

Implementation and Implementation Effectiveness

Implementation was defined as "a specified set of activities designed to put into practice an activity or program of known dimensions" (Fixsen et al., 2005). Often, complex innovations, such as state health programs, require the coordination of not only multiple individuals, but also multiple organizational subunits and/or multiple agencies. Implementation requires collective action (Weiner, Lewis, & Linnan, 2009). Because of this, implementation of a state injury and violence prevention program was viewed as an organizational act, and, here, the state injury and violence prevention program was the innovation of interest. Implementation differs from adoption, where adoption is "a decision to make full use of an innovation as the best course of action available" (Rodgers, 2003). Implementation also differs from program planning, where program planning describes the program activities used to address a problem and may provide a guide that specifies the step-by-step details in implementing those activities (Weiner et al., 2009).

Implementation effectiveness was defined as "the overall, pooled, or aggregate consistency and quality" of innovation use (Klein & Sorra, 1996). Implementation effectiveness differs from innovation effectiveness, where innovation effectiveness "describes the benefits an organization receives as a result of its implementation of a given innovation" (Klein & Sorra, 1996). Implementation effectiveness is a necessary and critical component of innovation effectiveness within an organization; however, implementation

effectiveness may not always be sufficient to provide innovation effectiveness (Klein & Sorra, 1996; Klein, Conn, & Sorra, 2001). Thus, effective implementation does not always translate into the innovation having its intended effect.

The implementation of state injury and violence prevention programs represented the implementation of a complex innovation within the multifaceted environment of state health policy. While guidance documents from CDC and the Safe States Alliance provide information regarding "what" needs to be done, the literature on state injury and violence prevention programs and other state health programs was limited and provided modest guidance for public health leaders and program managers on "how" to successfully implement these complex social programs.

Literature review identified only one published study that attempted to empirically measure the implementation of state injury and violence prevention programs. The study's main finding was that constituent participation and organizational capacity had the greatest effect on successful program implementation, where organizational capacity was a function of the number of staff within the program and their skills (Cassady et al., 1997). Strong organizational policies and directives were also positively associated with implementation success. In this study, directors of individual state-level injury programs completed self-administered, written questionnaires regarding five indicators of implementation success, and written questionnaires were followed up with telephone-based, semi-structured interviews in which questions were asked about barriers to program implementation, strategies used to overcome specific barriers, and efforts to institutionalize the program within the state health agencies. The authors defined implementation success as "the incorporation of certain critical programmatic activities" in which the critical programmatic activities included "legislative activities, surveillance, monitoring and evaluation, community involvement, and

the ability to create a permanent place for the program within the state agency (institutionalization)." To measure successful implementation, the researchers created an implementation index (dependent variable) using the five indicators described above. Some of these indicators of success reflect core activities of the Safe States model. These indicators and additional indicators from the Safe States model were used in creating the outcome variable for this dissertation project.

The study by Cassady et al. (1997) represented the only study examining implementation effectiveness of state injury and violence prevention programs. While the study provided useful information regarding significance of various organizational and environmental factors influencing implementation effectiveness, the study did not aim to explain the nature of the multifactorial relationships or how they are influenced by various actors in the organizational setting. The study surveyed only one person per organization, the program director, and did not seek to gather information from other actors within and outside of the state health agency, such as state health agency administrators, state injury and violence prevention program staff, or stakeholders. Furthermore, the study was conducted over 16 years ago, and much has changed within state health agencies since 1997 where many state health agencies have seen an increase in capacity in critical areas of injury and violence prevention such as epidemiology, public health preparedness, evidence-based practice, and policy formulation. Finally, the external sociopolitical climate had also drastically changed since 1997.

Previous research on factors that affect implementation success have identified a host of organizational, environmental, and innovation-specific factors that affect implementation effectiveness. Literature review identified four separate systematic reviews that identified factors influencing implementation (Greenhalgh, Robert, Macfarlane, Bate, &

Kyriakidou, 2004; Fixsen et al., 2005; Stith et al., 2006; Durlak & DuPre, 2008). All reviews

indicated that a multilevel, ecological model is needed to understand implementation.

Although each review focused on different types of programs and target populations, 11

factors influencing implementation were identified by all four reviews (Durlak & DuPre,

2008). These factors included funding, organizational climate, constituent or community

involvement in decision-making, organizational policies and procedures, leadership,

champions, interorganizational coordination/partnerships, management/administrative

support, formulation of tasks, staff skills, training, and technical assistance (Greenhalgh et

al., 2004; Fixsen et al., 2005; Stith et al., 2006; Durlak & DuPre, 2008). Durlak and DuPre

(2008) identified only a few studies that attempted to examine the relationships and influence

on various factors of implementation, and because of the paucity of multifactor research on

implementation, they stated that much more research is needed to determine which factors

are most important and in what contexts the factors are important.

The factors influencing implementation identified through literature review can be

condensed into larger multilevel categories. These categories include innovation factors,

organizational factors, and environmental factors. Figure 2 below depicts a schematic of how

these multilevel factors relate to one another (Damanpour, 1991; Fixsen et al., 2005). This

dissertation focuses on organizational and environmental factors that are subject to influence

by actors within the state health agency.

Figure 2: Multilevel Factors Influencing Implementation Effectiveness
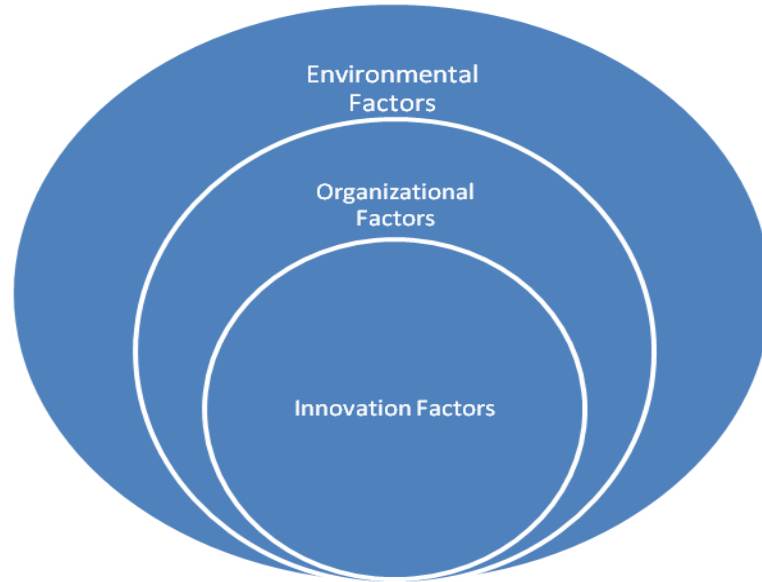
Adapted from Fixsen et al. (2005) and Durlak and DuPre (2008)

Innovation-Specific Factors Affecting Implementation

Innovation-specific factors are characteristics of the innovation itself that influence how the innovation is adopted and implemented. A large body of literature has focused on how organizations identify the right innovation to be adopted, specific to the organization's needs and context, and how characteristics of that innovation can influence implementation effectiveness and outcomes. In addition to innovation appropriateness, a number of other innovation-specific factors have been identified in the literature. A critical assumption of this dissertation was that the Safe States model, discussed above, represents the most effective, available innovation for state health agencies to adopt for comprehensive injury and violence control. Innovation-specific factors of the Safe States model will be assumed to be outside of the reach of managerial control in this study and the researcher will assume that all state-

based injury and violence prevention programs attempt to meet model criteria. Essentially, the innovation is a given here.

Organizational Factors Affecting Implementation

Much of the previous literature on factors of implementation effectiveness focused on organizational factors because of the potential for managerial influence. Rosenheck (2001) hypothesized that organizational behaviors are the critical missing link between research and practice, "The daily decision-making of those who work in complex organizations is shaped more by power structures, ingrained routines, and established resource configurations than by current scientific findings" (Rosenheck, 2001). The factors identified by Durlak and DuPre (2008) can be further characterized into larger categories including: general organizational factors, implementation policies and practices, and leadership characteristics (categories adapted by the author of this dissertation) (Helfrich, Weiner, McKinney, & Minasian, 2007). The remainder of this literature review will follow the categories mentioned above.

General Organizational Factors

Organizational and Implementation Climate. Organization climate is the summation of attitudes, beliefs and perceptions among an organization's members of its policies and procedures, communication processes, role clarity, processes for conflict resolution, member participation in management, leadership, among others and how these perceptions influence collective behavior (Glanz, Rimer, & Viswanath, 2009). This construct is not necessarily specific to the innovation. Conversely, implementation climate is defined as "employees' shared perceptions of the importance of innovation implementation within the

organization" (Klein et al., 2001). Like organizational climate, implementation climate is a collective construct and is the collective perception among organizational members that the innovation is a priority to the organization and that the innovation is "promoted, supported, and rewarded by the organization" (Klein et al., 2001). Implementation climate is specific to each innovation that an organization is implementing. Because of this, implementation climate differs from general organizational climate where an organization may have a positive workplace environment but have a negative implementation climate (Klein & Sorra, 1996).

Glisson and James (2002) differentiated between Klein et al.'s (2001) definition of implementation climate (called "organizational climate" in their paper) as the aggregated, perceived "importance" of an innovation among user groups within the organization by describing implementation climate as the aggregate perceptions of the innovation in terms of its importance *and* of its anticipated impact on their work environment. The investigator believes that both the perceived importance of the state injury prevention program and its anticipated impact on the work environment, as components of implementation climate, may be important to successful implementation. Additionally, implementation climate occurs when individuals within a specific group of actors, such as employees of a particular organizational team or subunit, agree on their perceptions and that those perceptions can be aggregated to characterize the overall implementation climate (Glisson & James, 2002). While implementation climate is an aggregated measure, climate, in general, is a construct belonging to the individuals within the organizational subunit. Glisson and James (2002) stated, "If there is agreement among individuals within a work unit, the individual perceptions are shared and can be aggregated to characterize the work unit (and labeled organizational climate), but the perceptions remain a property of the individuals in the unit."

This dissertation will explore behaviors, perceptions and beliefs across multiple groups of actors to examine implementation climate thoroughly.

Helfrich et al. (2007) developed and tested a framework for organizational factors of implementation in the healthcare sector. In this framework, the authors posited that positive implementation climate is the result of high quality "implementation policies and practices" and influenced by "innovation-values fit" and "champions" and that management support and resource availability directly influence the quality of implementation policies and practices (Klein et al., 2001; Helfrich et al., 2007). Thus, the implementation climate is affected by all of the constructs defined in this framework. Examples of strong implementation climate include employees' perceptions of an organizational policy that supports their use of the innovation or employees' perceptions that engaging in innovation-related activities is expected, rewarded and supported (Klein et al., 2001; Helfrich et al., 2007). Here, implementation climate was hypothesized to be an important factor influencing the implementation of state injury prevention program through implementation policies and practices and through the innovation-values fit posited by Helfrich et al. (2007). Each construct will be discussed more thoroughly below.

Organizational culture. Organizational culture is simply the way things are done within an organization (Glisson & James, 2002; Verbeke, Volgering, & Hessels, 2002). Glisson and James (2002) specifically defined organizational culture as "the normative beliefs and shared behavioral expectations in an organizational unit…These beliefs and expectations prescribe the way work is approached and are the basis for socializing coworkers in the way things are done in the organization." Organizational culture likely varies among different state health

agencies and may partially explain differences in implementation effectiveness of state injury prevention programs.

Organizational readiness to change. Organizational readiness to change is described as the product of two distinct constructs, which include "change commitment" and "change efficacy," where change commitment is defined as "organizational members' shared resolve to pursue the courses of action involved in change implementation" (Weiner et al., 2009) and change efficacy is defined as "organizational members' shared beliefs in their collective capabilities to organize and execute the courses of action involved in change implementation" (Weiner et al., 2009). State health agencies implementing injury prevention programs with greater organizational readiness to change may have more implementation success. Collectively, organizational readiness to change is a construct measuring psychological and behavioral readiness rather than structural readiness of an organization, although organizational structures and resources are important in that they shape the organizational members' perceptions of the change or innovation (Weiner et al., 2009). Furthermore, organizations that have a high readiness for change are more likely to put structures, policies, and procedures into place to reinforce and facilitate implementation of the innovation (Weiner et al., 2009). These constructs may be encompassed by implementation climate as described above; however, the researcher would like to explore these concepts as potentially distinct and important constructs.

Resource availability. In the framework provided by Helfrich et al. (2007), financial resource availability was thought to indirectly influence implementation climate through the implementation policies and practices. Bourgeois (1981) defined resource availability as slack

financial resources or "that cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy as well as to initiate changes in strategy with respect to the external environment." Financial resource availability is directly and positively related to the organization's implementation policies and practices, as these resources are needed to provide the infrastructure needed for implementation (Klein et al., 2001). Thus, many articles on injury prevention programs specifically indicated that available funding was a critical factor in the implementation of the program (Beauregard-Crowe et al., 1997; Bobbitt-Cooke & Cole, 1997; Cassady et al., 1997; Downey et al., 2008). Furthermore, previous research also indicates that the timing in which critical funding is received is important to implementation (Fixsen et al., 2005). In their review of the work of Panzano, Seffrin, Chaney-Jones, Roth, and Crane-Ross (2002), Fixsen et al. (2005) noted, "Top management support and access to dedicated resources during the exploration stage were important to the adoption decision but were not related to later implementation outcomes. However, top management support and access to dedicated resources during the initial implementation stage were directly related to implementation outcomes."

Innovation-values fit. Innovation-values fit was an organizational and group construct. Innovation-values fit was "the extent to which targeted users perceive that use of the innovation will foster (or, conversely, inhibit) the fulfillment of their values" (Klein & Sorra, 1996). A good fit exists when employees consider the innovation as harmonious with their shared organizational values. A poor fit exists when employees' consider the innovation to be contrasting to their organizational values. Weiner et al. (2009) differentiated between "organizational values," which are values shared by *all* employees, and "group values," which

are values shared by members of subunits within the organization. Klein and Sorra (1996) postulated about innovation use when the innovation-values fit differs across groups of actors and suggest that groups with higher authority within the organization will determine if the implementation climate will be strengthened or not (through implementation policies and practices among other factors) to support or thwart the use of the innovation based on their values even if they differ from the values of groups lower than them within the organization's hierarchy. The investigator will examine how aspects of the state injury prevention program foster or inhibit the fulfillment of employees' shared values across different groups of actors within the organization and how the collective perceptions ultimately affect implementation climate.

Organizational Policies and Practices

Implementation policies and practices. Implementation policies and practices were "the formal strategies (i.e., the policies) the organization uses to put the innovation to use and the actions that follow from those strategies (i.e., the practices)" (Klein et al., 2001). In practice, implementation policies and practices can be formal or informal policies, plans, processes, protocols, structures, and work flows (Klein & Sorra, 1996). These policies and practices can designate communication processes, hierarchical chains-of-command, formulation of tasks, hiring practices, etc... as related specifically to implementation. While implementation policies and practices directly influence the implementation climate, it is important to note that they are not the same thing (Klein et al., 2001). Implementation climate includes a summation of the influences of a variety of factors (described above). Not one single policy or practice is critical for implementation, but the quality of the cumulative policies and practices of the organization is positively associated with effective implementation (Klein &

Knight, 2005; Helfrich et al., 2007). In a study of 64 injury prevention programs in 44 states, "attributes of relevant policies and directives" were associated with implementation effectiveness (Cassady et al., 1997). Constructs such as "communication" and "formulation of tasks" identified by Durlak and DuPre (2008) should be included under the construct of implementation policies and practices as defined above, as they are subcategories of the larger construct (Helfrich et al., 2007; Weiner et al., 2009).

Shared decision-making/community involvement. Four systematic reviews found that community input, involvement, and collaboration in implementation-related decision-making was an important construct affecting implementation success (Greenhalgh et al., 2004; Fixsen et al., 2005; Stith et al., 2006; Durlak & DuPre, 2008). Shared decision-making is "the extent to which relevant parties (e.g., providers, administrators, researchers, and community members) collaborate in determining what will be implemented and how" (Durlak & DuPre, 2008). Cassady et al. (1997) examined community involvement and constituent participation as factors for successful implementation of state-based injury prevention programs and found that constituent participation was the factor most strongly associated with implementation success. The authors indicated that advocacy coalitions, in particular, were instrumental in securing additional program funds, evaluating program outcomes, garnering additional support of other community groups and by coordinating legislative activities (Cassady et al., 1997). Thus, implementation is likely affected by the types of community groups involved, the extent to which they are involved, and in which activities they are involved.

Coordination with other agencies/partnerships. Interagency coordination and partnerships was yet another construct identified by several systematic reviews of factors influencing implementation effectiveness (Greenhalgh et al., 2004; Fixsen et al., 2005; Stith et al., 2006; Durlak & DuPre, 2008). The extent to which other local agencies and community groups are involved and contribute expertise, multidisciplinary viewpoints, and other resources is important to the success of implementation of programs (Durlak & DuPre, 2008). As discussed above, the development and use of multiagency, multidisciplinary advocacy coalitions has been associated with successful implementation of state-based injury prevention programs, and to be eligible for core federal funding for state-based injury prevention programs, state health agencies must demonstrate the existence and activities of a statewide, multidisciplinary injury prevention coalition.

Leadership Factors

Management Support. Management support was defined as "managers' commitment to conduct transformation of the organization and to invest in quality implementation policies and procedures to implement the innovation" (Klein & Sorra, 1996). Management support is critical to implementation because implementation is resource intensive. Managers control scarce resources within the organization and have direct control over workflow processes, human resource structures, and reward structures. Managers can also change the implementation climate through symbolic actions that can affect employees' perceptions of the innovation (Sharma & Yetton, 2003). In their study of cancer clinical research networks, Helfrich et al's (2007) findings were consistent with the hypothesized framework discussed above where "group leaders signaled their support for [cancer control and prevention] research through specific implementation policies and practices" and management played a

central role in the implementation process. Furthermore, in a study of a wide range of

organization types, Nutt (1986) found that "implementation by intervention," in which

leaders "became protagonists by creating rationales for action in the minds of key people"

was a more effective tactic than the other three tactics that he studied (i.e., "implementation

by participation," "implementation by persuasion," and "implementation by edict").

Champions/Internal Advocate. In *Diffusion of Innovations*, an innovation champion is a

"charismatic individual who throws his/her weight behind the innovation, thus overcoming

the indifference or resistance that a new idea often provokes in an organization" (Rodgers,

2003). A literature review identified no published articles that examined the role that

champions played in the implementation of injury prevention programs. By adapting the

conceptual framework by Klein et al. (2001) in a qualitative study of cancer prevention and

control research as a complex innovation, Helfrich et al. (2007) found that innovation

champions were an important component of implementation climate and their findings

supported the inclusion of the innovation champions construct in the model.

Summary of Findings of Literature Review

The study by Cassady et al. (1997) appears to be the first and the only study to

empirically examine the implementation of state injury and violence prevention programs.

This study identified constituent participation as the factor most strongly associated with

implementation success. Administrative control over program decisions, organizational

capacity (as defined as the number of staff assigned to injury and violence prevention), and

policies related to injury prevention were also statistically associated with implementation

success (Cassady et al., 1997). This study had a number of limitations regarding relevancy for

current state and injury prevention programs. First, the study was conducted well over 16 years ago. State health agency infrastructure and the knowledge base for state injury and violence prevention programs have changed significantly since 1997. Second, the authors examined indicators for implementation effectiveness that have important organizational and environmental antecedents. To thoroughly examine factors influencing the implementation of such programs, researchers must critically analyze the role in which these organizational and environmental antecedents play in supporting or hindering innovation implementation.

Organizational researchers have developed a multitude of conceptual models for examining implementation and these models vary based on level of perspective (i.e., individual, organizational, and community levels)and constructs of interest (Wandersman et al., 2008). Literature review identified four separate systematic reviews, which individually identified a plethora of factors that potentially influence implementation effectiveness. In their meta-analysis, Durlak and DuPre (2008) summarized 11 factors categorized as general organizational factors, policies and practices and leadership factors that were found in common among the four systematic reviews, which have been consolidated and discussed in detail above. No single conceptual model was found to be comprehensive enough to describe factors that may influence implementation effectiveness of state-based injury prevention programs. Very little literature was found that examined the interrelationships among factors affecting implementation effectiveness. The conceptual model put forth by Helfrich et al. (2007) provides one of the most comprehensive conceptual models for implementation effectiveness in health programs and may be particularly well suited for studying implementation in state health agencies. However, their conceptual model does not address factors related to interagency collaboration, partnerships, and coalitions, that have been identified to be important to the implementation of state-based injury prevention

program and which may be influenced by managers and leaders within the state health agency.

Limitations in the Literature Review and Implications for Future Research

The literature review discovered articles that largely represent a range of single site studies, descriptive program analyses, or guidance documents for state injury and violence prevention programs. Single site studies typically focused on program performance (innovation effectiveness) rather than implementation success or failure. Multiorganizational studies are needed to examine between-organization differences in implementation. A multiorganizational study of injury and violence prevention programs in the diverse environment of state health agencies was needed to more thoroughly describe the organizational factors influencing implementation of these programs. Multiple case study design, with purposive sampling, allows researchers to make more robust comparisons than single case study design allows.

Research was also needed to examine innovation-values fit and other group constructs across multiple groups of actors (i.e., program staff, state health agency administrators, and stakeholders) (Klein & Sorra, 1996). Previous research, in other settings, suggests that shared perception of an innovation among organizational members was an important organizational factor influencing innovation implementation (Klein & Sorra, 1996; DiFranceisco et al., 1999; Helfrich et al., 2007), and that shared perception may vary by horizontal and hierarchical groups within an organization (Klein & Sorra, 1996). Literature on state injury and violence prevention programs also suggests that constituency support and stakeholder involvement, particularly through coalition activities, were also critical factors for

successful implementation (Cassady et al., 1997; Hayes et al., 1997; Klein et al., 1997; Downey et al., 2008), which suggested that the shared perception of the program among these groups of actors were also likely to be important to implementation success.

This research attempted to describe factors influencing the implementation of state injury and violence prevention programs across multiple state health agencies and attempted to utilize acquired knowledge to inform program development of a comprehensive, state and injury violence prevention program in Wyoming.

Chapter 3

Methodology

This project was a qualitative study aimed at exploring and describing the organizational factors influencing the implementation of state injury and violence prevention programs. The study design incorporated two separate phases, which included multiple, holistic case studies and the development of policy and program recommendations.

Research Questions

1) Which organizational and environmental factors influence the implementation of state-based injury and violence prevention programs? How do these factors influence implementation effectiveness?

2) How might these factors affect the implementation of a new, comprehensive state and injury violence prevention program in Wyoming?

Setting

This study investigated the implementation of state injury and violence prevention programs that have received little to no federal monetary support for capacity-building (e.g., received no core IVPP funding from CDC since the 2000 grant cycle). State injury and violence prevention programs were programs implemented in state health agencies with the aim of reducing injuries and violent events. The 2011 Safe States *State of the States* report identified 47 injury and violence prevention programs located within in state health

agencies(Safe States Alliance, 2013). State injury and violence prevention programs vary in size, program foci (i.e., unintentional injuries, intentional injuries, or both), types of injuries addressed (i.e., fire-related injuries, motor vehicle-related injuries, suicides), and target populations (i.e., children, elderly, community-dwelling adults, etc.). Organizational structures among state injury and violence prevention programs vary greatly (Safe States Alliance, 2013).

Case Study Overview and Selection Process

Three state injury and violence prevention programs were chosen for inclusion in the case study analysis. One of the three cases was the pilot site that was used to test and refine the study instruments. The researcher chose cases from a pool of five state health agencies within the same regional network as Wyoming and that have not received core VIPP funding from CDC since the 2000 grant cycle (see map in Appendix L). Previous literature has documented the importance of federal funding for implementing state injury and violence prevention programs (Hersey et al., 1995; Klein et al., 1997). This dissertation project was interested in identifying factors relevant to implementation effectiveness in states that do not currently receive core federal funds. A total of five states met the initial inclusion criteria (States A, B, C, D, and E).

The researcher specifically targeted the three states (States A, B, and C) chosen for participation based on recommendations from the regional network leader and based on that individual's knowledge of each of the states' injury and violence prevention program implementation within the network. The researcher chose these three states because they were considered to be the highest functioning state injury and violence prevention programs among unfunded states in the regional network. One of the five states meeting the inclusion

criteria (State D) was excluded because it lacks a formalized injury and violence prevention program and due to insufficient background information. The regional network leader indicated that she had tried making contact with a delegate from this state's department of health on several occasions and had never received a response. State E was excluded because the injury prevention program manager was new to the position, due to insufficient background information, and because the program was less established than State A, B, and C's programs.

The researcher made initial contact via telephone with each participating state program by contacting the injury prevention program manager with assistance from the regional network leader. During initial contact, each state program manager was asked about their willingness and ability to participate in the study. Each manager was given a chance to ask the principal investigator questions during this initial telephone call. Fortunately, all states solicited for inclusion in the study enthusiastically agreed to participate. The regional network leader played a critical role in garnering buy-in among participating states.

Additional key informants, such as program staff, stakeholders, and administrators, were identified for interview by the state program manager during the manager interview or at a later date. For those participants, initial contact was facilitated by the state program manager and occurred via electronic mail. For all participants, the principal investigator made follow-up contact via electronic mail with each participant individually. In this electronic letter, the investigator provided a personal introduction, a brief description of the study, a description of the nature of the data being collected, the intended use of the data, the anticipated amount of time of their involvement, the nature of their involvement, and contact information for both the principal investigator and the academic advisor (Appendix H). The dissertation proposal abstract was sent as an attachment with that electronic letter

(Appendix I). Stakeholder key informants represented a diverse list of agencies in the three states selected and included representatives from a state department of transportation, a Safe Kids Coalition, an injury prevention research center, a children's hospital, a community hospital, and a local health department.

Prior to starting each participant's interview, the principal investigator provided another overview of the study and provided multiple opportunities for questions. After providing the study overview, the principal investigator gave a description of the human subject/confidentiality/privacy protections. Participants were assured that the project had been reviewed and approved by the University of North Carolina's Institutional Review Board and that all data collected would remain confidential. The principal investigator also asked each participant if it would be okay to record the interview, giving each participant the opportunity to opt out of the audio-recording at any time during the interview. Each participant was asked for oral consent for study participation. The script read to each participant prior to interview is included in each of the participant questionnaires in Appendices D, E, F, and G.

Data Collection Strategy

The investigator employed three primary sources of data for each individual case (Yin, 1998). These data sources included semi-structured key informant interviews with multiple participants in each case, representing multiple groups of actors (e.g., program manager, program staff, state health agency upper-level administrators, and program stakeholders), document review, and an internet based assessment tool that was used to assess the outcome variable. Actor groups were chosen based on recommended activities for state injury and violence prevention programs outlined in the Safe States model.

Respondent-specific interview tools were developed a priori to help guide the semi-structured participant interviews for each actor group to ensure consistency in the data being collected across cases. Program manager interviews ranged in length from about 92 minutes to 180 minutes with the median length being 95 minutes. The longest program manager interview took place at the pilot site. Other participant interviews (staff, administrators, and stakeholders) ranged in length between 33 minutes to 97 minutes with the median length being 48 minutes. All respondents agreed to have the interview be audio-recorded.

To measure the outcome variable "implementation effectiveness," which was a continuous index-type variable, the principal investigator created an assessment tool using an internet-based survey application (SurveyMonkey®). The principal investigator asked the injury and violence prevention program manager, in each state, to complete the assessment prior to beginning key informant interviews or document review in each state. Each of the questions included in the assessment measured indicators of implementation of the five core components of the Safe States model. Participant responses were tabulated to form one over-arching measure for implementation effectiveness and also five component-specific measures for each of the Safe State core components (see Appendix C for Outcome Variable-Implementation Effectiveness).

Following the program manager's completion of the online assessment, the principal investigator attempted to conduct semi-structured key informant interviews with at least one representative from each of the additional groups of actors (i.e., state injury prevention program staff, program administrators or state health agency administrators and representatives from external stakeholder groups). In State B and State C, only one state injury prevention program staff member, in addition to the program manager, existed. In the case of State C, the principal investigator made several attempts to schedule an interview

with the upper-level administrator via electronic mail and voicemail, but was never able to confirm a date/time. Therefore, an administrator interview was not conducted in that state.

Table 1: Summary of Interviews Conducted by Case Study Site

	Target no. per site	State A[†]	State B	State C	Total
Program manager	1	1	1	1	3
Program staff	2 or more	2	1*	1*	4
Administrator	1	1	1	0	2
Stakeholders	2 or more	2	2	2	6
Total		6	5	4	15

† State A was the pilot site.
* Only one additional state injury/violence prevention program staff member existed, in addition to the program manager.

The principal investigator conducted all interviews to ensure consistency. Participants were asked closed and open-ended questions about perceptions related to the state injury program, activities, historical events, organizational infrastructure, and organizational changes. The principal investigator recorded all key informant interviews using a digital recorder and subsequently transcribed all of these interviews using Dragon Naturally Speaking®. The principal investigator conducted a second review of the audio-recorded interviews to ensure accuracy of the transcription. After the second review of the audio-recordings, the principal investigator compiled transcribed interviews and other case study documents into a hermeneutic unit and analyzed these documents in Atlas.ti®. Details on data coding and analyses will be discussed further below.

Documents collected during systematic document review included organizational charts, grant applications, state injury control plans, progress or data surveillance reports, state injury coalition meeting minutes, State Technical Assistance Team (STAT) visit reports, program logic models, and other public agency reports. Access to each of these types of documents varied from state-to-state. All states were able to provide STAT visit reports.

STAT visit reports were helpful in that a team of independent injury prevention experts from various health agencies visited the program to conduct a peer review of the injury and violence prevention program and to develop a list of recommendations for the program to better implement the Safe States model. These reports were used heavily in the document review because they provided an overview the state program in relation to the Safe States core components and were completed by a group of experts that were independent from the program and from the state health agency receiving the STAT visit. Many of the documents collected for the systematic document review were public reports and could be found on the program's website. Permission to obtain non-public documents was obtained from the program director for each case.

Data Analyses Strategy

The principal investigator analyzed the transcribed interviews and documents in Atlas.ti® using thematic coding (Corbin & Strauss, 2008). The investigator began with codes for pre-defined constructs, as described in the literature review section and also summarized in Appendix A. A Question Matrix (Appendix B) was developed as a way to track various questions posed to the various groups of actors and to align them with the pre-defined, study constructs. A coding manual /code tracking document was used to document changes to all codes, to describe inclusion and exclusion criteria for codes (Appendix K), and to ensure reliability of data analyses. Pre-defined constructs were further re-classified, categorized, or split as themes became apparent (Corbin & Strauss, 2008) by creating new "codes" in Atlas.ti® and by updating the code manual/tracking document. The principal investigator individually assessed the presence or absence or "don't know" for each construct using separate codes for each category. The principal investigator used "Memos"

in Atlas.ti® to track the reasoning for applying codes at various points within the transcribed interviews and other documents. Any changes to initial coding in Atlas.ti® were tracked using the "Memos" feature with the date of change and reason for coding change. The principal investigator provided second and third reviews of coding before proceeding to the case analyses. "Memos" were also used to track the researcher's thoughts and observations during data coding.

Coding was an iterative process. The principal investigator provided a preliminary coding run on all documents for States A, B, and C. Once the preliminary data coding was complete, the principal investigator conducted a within-case analysis on State A (the pilot site). Through data analyses on State A, the principal investigator identified new codes, sub-codes, or code families to provide greater granularity to the case analyses. At that time, the principal investigator went back and re-coded documents for State A and all subsequent cases. The principal investigator completed four coding runs on each document. Within-case analyses were completed prior to the cross-case analyses so that individual cases were thoroughly studied before proceeding with the cross-case analysis (Eisenhardt, 1989). The within-case analysis provided an in-depth analysis of each site. The principal investigator used the query and co-occurrence features in Atlas.ti® to summarize coded material by site and by construct. "Families" were created in Atlas.ti® to track interviews and other documents by study site (state) and by respondent-type (i.e., program manager, program staff, administrator, or stakeholder). The principal investigator also used "families" to aggregate "codes" that were part of larger categories (i.e., innovation values-fit: positive and innovation values-fit: negative were grouped into a code family called innovation values-fit). The principal investigator created saved queries and output reports in Atlast.ti® and also used Microsoft Word® documents to store results of each level of analyses.

The principal investigator provided descriptive summaries for each construct by site, including frequency of codes, frequency of co-occurrence with other codes, and non-statistical correlation of code frequency/co-occurrence frequency in relation to the outcome variable, implementation effectiveness and its sub-categories (i.e., infrastructure index, surveillance index, program evaluation index, technical assistance index, and public policy index). Data were presented in table format by site, by outcome variable indices, and by construct, allowing for visual identification of patterns and themes.

Cross-case analyses were conducted to compare programs across variations in implementation effectiveness. The principal investigator compared each construct across each site and across the outcome variable indices and noted when differences did or did not occur between the sites and their various levels of implementation effectiveness. Therefore, the principal investigator summarized the cross-case analyses data by each construct (codes) and groups of constructs (large code families). The principal investigator used these analyses to assess factors associated with implementation effectiveness, particularly when certain constructs were found to be important across all sites and also when certain constructs were found to be more frequently found in sites with larger scores on the outcome variable indices.

Using findings from the comprehensive within-case and cross-case analyses, the investigator drafted a list of recommendations with thorough discussion to guide and inform development of a state injury and violence prevention program at the Wyoming Department of Health. The findings may also be relevant to managers in other states not receiving CDC core funds.

Limitations and Tactics Employed for Addressing these Limitations

As with any research, case study design posed a number of potential limitations. These potential limitations included subjectivity and researcher-induced biases, problems with internal validity when making causal inferences, constraints to the study's generalizability, and reliability (Yin, 2003). The researcher employed a number of tactics to minimize the effects of the limitations or biases mentioned above. The principal investigator used the coding manual/code tracking document to record, as thoroughly as possible, the coding methodology employed as well as changes made to codes and their inclusion/exclusion criteria. The study was not designed to be nationally representative.

Key informant interviews posed the potential for respondent-induced bias because interview participants may have been selective regarding the information that they reported to the researcher. This potential bias was mitigated by using multiple participants for each case and by interviewing participants in a variety of organizational positions and with diverse perspectives (i.e., administration, staff, and stakeholders). Furthermore, the researcher corroborated key informant interview data with archival data from document review. In the case that key informant interview data and document review data diverged, the investigator attempted to reconcile the divergent information to the greatest extent possible and when reconciliation of the data was not possible, the divergence was noted and reported in the case study summary. To further improve construct validity, the researcher requested that injury prevention program managers and other key informants, at the discretion of the program manager, review drafts of the case study reports for their state to ensure its accuracy (Yin, 2003).

The researcher used standardized data collection instruments and a data coding manual to reduce the opportunity for biases during data collection and data analysis stages of

the research. These tools improved study reliability. The researcher also applied a tactic called pattern matching when conducting the within-case and cross-cases analyses, in which the principal investigator compared observed patterns among study constructs to expected/hypothesized patterns (see the theoretical model with hypothesized relationships in Appendix J) (Yin, 2003). The goal of this study was not to make statistical inferences regarding associations between the dependent variable and independent variables. The case study methodology was not meant to be a representative sample of all state injury and violence prevention programs. Case study selection procedures specifically exclude certain types of state injury and violence prevention programs such as states that have received CDC core funding. Therefore, some study findings may not be applicable to all state injury and violence prevention programs.

Human Subjects' Protection and Confidentiality

This dissertation project was submitted to the University of North Carolina's Institutional Review Board (IRB). An exemption from full IRB review was requested from the IRBs, as this project did not involve the collection of protected health information and the information collected involved organizational practices and perceptions among various user groups. The IRB determined this study to be exempt from full review on September 28, 2012. Participants in key informant interviews were not solicited based on gender, race or ethnicity, or age. Only adults were interviewed. Selection of these individuals was based on the role that they played in implementing, supporting or evaluating state-based, comprehensive injury prevention programs.

Potential participants were recruited via electronic letter and/or phone call. In the solicitation letter, potential participants were given an overview of the study which described

the timeline, the nature of the data that was collected, the intended use of that data, and the length of time expected for their participation. To minimize coercion from employers or supervisors, verbal informed consent was acquired from each participant at each stage of the research project. Participants may have chosen to disengage from the research at any time. Participants did not receive any incentives for their participation.

The identities of participants were kept confidential. The principal investigator was the only individual who had access to information pertaining to the participants' identities. All data was stored in password-protected databases on an external hard drive owned by the principal investigator. All data, including audio recordings, will be destroyed once the dissertation has been successfully defended.

Chapter 4

Individual Case Summaries

Case Study A

Background

State A was the pilot site for this study. State A is a rural state in the upper Midwest, with a population density of 52.4 persons per square miles (national average: 79.6 square miles). From 2000-2010, State A's reported lower than average unintentional injury mortality rate. The 2000-2010 unintentional injury mortality rate was 35.39 deaths per 100,000 population per year (US median: 40.67 deaths per 100,000 per year, range: 24.16-64.31 deaths per 100,000 per year). State A's violence-related injury death rate for 2000-2010 was 13.33 deaths per 100,000 per year (US median: 18.06 deaths per 100,000 per year, range: 9.89-32.03). State A had a suicide rate in 2000-2010 of 11.25 deaths per 100,000 per year (US median: 12.34 deaths per 100,000 per year, range: 5.61-21.06) (NCIPC, 2012).

State A's injury and violence prevention program (State A IVPP) is located with the state health department in the Division of Behavioral Health, Office of Disability, Injury, and Violence Prevention. While State A IVPP is designated as the injury and violence prevention program by name, many injury prevention activities are carried out by other organizational subunits within the state health agency (i.e., injury and violence prevention activities are decentralized). These other organizational subunits include the Bureau of Family Health, which houses the maternal and child health programs, and the Bureau of Emergency Medical Services, which houses child car seat programs and a variety of other

injury prevention programs. Due to several re-organizations of the state health agency, various subunits within the health department playing a role in injury prevention have become increasingly separated, administratively, over time (State A STAT visit report). Injury prevention activities are carried out by these various organizational subunits and are not currently well coordinated across these subunits. Funding for injury prevention, in State A, is largely siloed by specific injury issue (i.e., car seats, bicycle helmets, rape prevention, etc.). Often, funding sources limit the use of these funds to specific activities, and the funds cannot be combined to leverage a coordinated approach to injury prevention within the state health agency. The program hosted a STAT visit in June 2007.

Findings

Overall, State A reported moderate implementation effectiveness, and reported the second highest score of the three states. State A had the highest individual scores for each of the five core components except for the data collection/analyses core component, in which it had the second highest score. Despite not having a single organizational subunit implementing the injury and violence prevention activities, State A did well in the infrastructure category because of the number of staff employed to do injury prevention activities recommended in the Safe States model and because of the presence of injury-specific control plans (i.e., sexual violence prevention plan, etc…). State A reported having access to 15% of an epidemiologist's time to do injury data surveillance, and the state reported sending injury indicator data to CDC twice in the past 5 years. State A excelled in the provision of technical assistance and training to local stakeholders. Additionally, despite not having a statewide, comprehensive injury prevention coalition, State A has been active in the public policy arena.

Enabling factors for implementation effectiveness in State A included the state health agency's outward orientation for including stakeholder input in programmatic decision-making (shared decision-making), use of partnerships to enhance the efforts of the state health agency for injury and violence prevention (partnerships), presence of internal champions who are very passionate and motivated, and innovation-values fit. Limiting factors for implementation effectiveness included the external political climate, overall implementation climate, resource availability, and change efficacy. Management support and implementation policies and practices (IP&Ps) were neither enabling nor limiting.

The external climate was a barrier to resource availability. IP&Ps could be strengthened via stronger directives from upper-level administration and by creating consistency around spoken priorities with the allocation of resources for those priorities and creation of organizational structure that mirrors those spoken priorities. Shared decision-making and partnerships were strong areas for State A. Stakeholders indicated that increased support from the state health department's upper level administration would enhance pre-existing IP&Ps that delegate stakeholder involvement in planning and partnerships. Stakeholders agreed that the creation of a single organization subunit for coordinating injury and violence prevention efforts would go a long way in indicating the state health department's commitment to injury and violence prevention.

Table 2: Implementation Effectiveness Scoring for All Participating States

Core component measure	Scale	State A	State B	State C
Core component #1: Build a solid infrastructure for injury prevention				
How many FTE equivalents does your program currently employ?	0 to ∞	5.5	1.5	0.5
Is the state IVPP its own organizational subunit within the state health agency?	Yes=1, No=0	0	1	0
Is there a legislative mandate for the program to exist?	Yes=1, No=0	0	0	0
Does the program have a 3-5 year, comprehensive injury prevention and control plan?	Yes=1, No=0	0	1	1
Does the program have at least one injury-specific control plan?	Yes=1, No=0	1	1.	1
Infrastructure Index Variable	**0 to ∞**	**6.5**	**4.5**	**2.5**
Core component #2: Collect and analyze injury surveillance data				
Does the program have an epidemiologist devoted to injury surveillance?	Yes=1, No=0	0	0	0
What percent of the time is an epidemiologist devoted to injury?	0 to 100	15	25	10
In the last 5 years, how often has the program submitted annual injury surveillance data to CDC?	0 to 5	2	5	0
In the last 5 years, how often has the program completed an injury surveillance report for external/stakeholder use?	0 to ∞	5	12	0
Surveillance Index Variable	**0 to ∞**	**22.0**	**42.0**	**10.0**
Core component #3: Implement and evaluate injury prevention and control interventions				
In the past 5 years, how many injury specific interventions were developed and implemented by your program?	0 to ∞	2	1	1
In the past 5 years, how many of these interventions were evaluated?	0 to ∞	1	1	1
Program Evaluation Index Variable	**0 to ∞**	**3**	**2**	**2**
Core component #4: Provide technical assistance and training				
Provided at least 5 trainings in the past 5 years	Yes=1, No=0	1	1	0
Provided at least 5 opportunities for technical assistance in the last 5 years to local public health agencies and other stakeholders	Yes=1, No=0	1	0	0
Technical Assistance Index Variable	**0-2**	**2.0**	**1.0**	**0.0**
Core component #5: Affect public policy				
In the past 5 years, how many pieces of state or local legislation has the program sought to influence (through education and advocacy)?	0 to ∞	8	3	4
In the past 5 years, how many pieces of state or local legislation has the program requested to review?	0 to ∞	3	2	0
Does your program have a multiagency state injury prevention coalition that can advocate on the program's behalf?	Yes=1, No=0	0	1	1
Public Policy Index Variable	**0 to ∞**	**11.0**	**6.0**	**5.0**
Implementation Effectiveness Score	**0 to ∞**	**44.5**	**55.5**	**19.5**

Case Study B

Background

State B is a rural state in the Rocky Mountain West, with a population density of 6.2 persons per square miles (national average: 79.6 square miles). From 2000-2010, State B reported higher than average unintentional injury mortality rate. The unintentional injury mortality rate was 55.16 deaths per 100,000 per year (US median: 40.67 deaths per 100,000 per year, range: 24.16-64.31 deaths per 100,000 per year). State B's violence-related injury death rate was 25.09 deaths per 100,000 (US median: 18.06 deaths per 100,000 per year, range: 9.89-32.03). State B had a suicide rate in 2010 of 21.86 deaths per 100,000 per year (US median: 12.34 deaths per 100,000 per year, range: 5.61-21.06) (NCIPC, 2012).

State B's IVPP is located within the Emergency Medical Service and Trauma System Section of the Chronic Disease and Health Promotion Bureau of the Public Health and Safety Division of the state department of public health. In State B, the IVPP is housed within one single organizational subunit within the state health agency and has a primary focus on unintentional injury prevention. Primary funding for the program comes from legislatively-appropriated tobacco settlement trust funds at about $125,000 per year. The program also receives support from HRSA/EMSC. During the last round of CDC core VIPP funding, State B applied for funding, was approved, but was not funded due to federal budget cuts. Limited resources for injury prevention in State B are pooled and leveraged. Various violence prevention programs, such as suicide prevention and the rape prevention and education program are housed in a different organizational subunit within the organization. The program hosted a STAT visit in July 2008.

Findings

Overall, State B reported high implementation effectiveness. State B's overall score for implementation effectiveness was 55.5, which was the highest score of the three participating states (range: 19.5-55.5). Table 1 summarizes the implementation effectiveness score for State B compared to the other two states. State B's high overall score was largely in part to a strong score for the injury data surveillance component. In other capacity areas, State B consistently reported the second highest score including in infrastructure, interventions/evaluation, technical assistance/training, and public policy. State B's IVPP was recently formally established. The state legislature approved state funds to be granted to the program on a continuous basis in 2009. Prior to 2009, the program manager had been assigned to give 25% of her time to injury prevention work. Upon the appropriation of state funding, the program manager was assigned to work on injury prevention 100% of her time. State B was the only state to report having the majority of the program's funding to be state legislature-appropriated funds dedicated to the program. State B reported having access to 25% of an epidemiologist's time to do injury data surveillance, the most among all of the participating states, and the state reported sending injury indicator data to CDC five times in the past five years. Many increases in infrastructure are fairly recent.

Enabling factors for implementation effectiveness in State B included management support, resource availability, shared decision-making, partnerships, implementation policies and practices, innovation-values fit, internal champions, implementation climate, and change efficacy. The external climate was found to be a limiting factor for State B. Management support, resource availability, external climate, IP&Ps, partnerships, and shared-decision-making appeared to be most relevant factors affecting implementation effectiveness in State B. The external climate, particularly the state's current political climate, was a barrier to

resource availability. In State B, support from the state health agency's upper-level administration was critical in securing state funding for the program. The state medical officer and bureau chief were cited as internal champions for the program, and were responsible for elevating injury and violence prevention onto the agendas of both the state health agency and of the state legislature. These leaders envisioned and followed-through on a well-formulated funding request for the program. Program staff felt that the upper-level administrators created momentum and positive implementation climate through those actions.

Case Study C

Background

State C is a rural state in the upper Midwest, with a population density of 9.9 persons per square miles (national average: 79.6 square miles). From 2000-2010, State C reported lower than average unintentional injury mortality rate. The unintentional injury mortality rate was 38.93 deaths per 100,000 per year (US median: 40.67 deaths per 100,000 per year, range: 24.16-64.31 deaths per 100,000 per year). State C's violence-related injury death rate was 14.90 deaths per 100,000 (US median: 18.06 deaths per 100,000 per year, range: 9.89-32.03). State C had a suicide rate in 2010 of 13.12 deaths per 100,000 per year (US median: 12.34 deaths per 100,000 per year, range: 5.61-21.06) (NCIPC, 2012).

State C's IVPP is located within Community Health Section of the state department of health. In State C, the IVPP is housed within a single organizational subunit within the state health agency and has a primary focus on unintentional injuries, domestic and sexual violence and rape education and prevention, and suicide prevention. State C's IVPP receives funding from a variety of state and federal sources. The program receives state general

funding for domestic and sexual violence and rape prevention and education, for the poison control hotline, and for suicide prevention. Contracts with partnering state agencies provide funding for fall prevention and child passenger safety. Federal funds provide money for poison control, and domestic and sexual violence and childhood injury prevention. The program hosted a STAT visit in September 2001.

Findings

Overall, State C reported limited implementation effectiveness. State C's overall score for implementation effectiveness was 19.5, which was the lowest score of the three participating states (range: 19.5-56.0). Table 1 provides a summary of the implementation effectiveness score for State C compared to the other two states. In each of the five core component categories, State C had the lowest score. State C reported having 10% of an epidemiologist's time devoted to the program. State C reported having a finalized 3-5 year injury control plan. State C has never provided injury indicator data to CDC due to lack of access to hospital discharge data.

Enabling factors for implementation effectiveness in State C included shared decision-making, partnerships, innovation-values fit, and internal champions. The external climate was found to be a limiting factor. Management support, resource availability, implementation policies and practices, and implementation climate were factors that were present, but not strong enough to be considered to be enabling factors. The program manager in State C indicated support from the state health agency's upper level administrators, particularly when the program faced a budget crisis. The upper-level administrators provided testimony to the state legislature about the need for state funding to cover budgetary gaps left by decreasing federal funds. Certain informants were less

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convinced by the upper administration's commitment to injury and violence prevention and felt that these leaders could better support the program by advocating for more state funds to be directed at a coordinated program. In regards to resource availability, the program did report having a variety of siloed funding sources to cover disparate injury and violence prevention activities. However, program staff reported that they have been faced with continued federal funding cuts and that no funding is provided for program implementation and coordination of the various injury prevention activities. Due to partial management support and resource availability, implementation policies and practices were also limited.

Chapter 5

Cross-Case Findings

The following cross-case analyses were used to explore similarities and differences between the state injury prevention programs that participated in the study and to ultimately answer the posed research questions. Cross-case analyses examined between-case patterns among the case studies, common themes, and congruence/incongruence with the hypothesized model (Appendix J). Relevant findings will be discussed below.

Implementation Effectiveness

Scores for implementation effectiveness among participating states varied greatly. States A and B reported relatively high scores compared to State C (Table 1). Participating states were considered to be the most successful state injury and violence prevention programs in Health and Human Services (HHS) Regions 7 & 8, so a low score for implementation effectiveness in this study does not necessarily represent the program's activities in injury prevention and control that were not measured by the outcome variable index or that are not currently incorporated into the *Safe States* model. Scores for implementation effectiveness are relative, and are being used to compare states that participated in this research project only and specifically in the context of the *Safe States* model, and should not be considered to be indicative of the program's overall ability to carry out other types injury and violence prevention work not currently covered by the *Safe States* model.

The surveillance index variable explained the most significant differences between the three states. Notably, injury epidemiology and surveillance is considered to be one of the most critical functions for state injury and violence prevention programs (NCIPC, 2008). In the 2011 *State of the States* report, the Safe States Alliance found that surveillance data were frequently used by state IVPPs in increasing public awareness around prominent injury issues, in setting program priorities, in evaluating outcomes, and in educating policymakers (Safe States Alliance, 2013). Furthermore, the report also showed that state IVPPs with access to an epidemiologist, statistician, or other data professional were significantly more likely to send materials to policymakers, testify at state and local hearings, and invite state or local legislators to meetings or other events (Safe States Alliance, 2013). Informant interviews in State B clearly indicated a programmatic emphasis on injury epidemiology and surveillance. Management support, resource availability, IP&Ps, and implementation climate appeared to be relevant enabling factors for implementation effectiveness. State B reported the highest score for implementation effectiveness, and each of the factors listed above were present/strong in State B. Each of these factors also varied between State B and the other two states. Table 3 below provides an overview of the case study findings.

Management Support

State B reported the strong presence of management support (upper-level administrator support) where State A and State C both reported presence, but limited management support (Table 4). Overwhelmingly, State B informants reported positive, specific examples of where upper-level administrators displayed support for the program and for implementation. Most notably, administrators in State B successfully petitioned the state legislature to provide funding for continuing implementation of a comprehensive program in

2009. These same administrators initiated the decision to push for the funding within the state health agency, and they also created a case for support that outlined injury surveillance data for the state to demonstrate the burden of injuries to policymakers. In State C, upper-level administrators also successfully petitioned the state legislature for additional funding for the injury prevention program when the program was in dire need of funding to cover gaps left by decreases in federal funding and when critical program activities were on the chopping block (i.e. poison control hotline). In States A and C, informants did not report attempts made by upper-level administrators to secure funding for a comprehensive program implementation as in State B.

Resource Availability

Discrepancies among the cases were also noted with respect to resource availability (Table 5). State B informants reported having funding for comprehensive program implementation. Although informants in State B did note, occasionally, that they would be able to accomplish more with additional funding and personnel, informants indicated that the state-level funding provided to the program was enough to foster basic program implementation and allowed the program to meet most of the recommendations outlined in the *Safe States* model. This finding varies greatly from interviews conducted in State A, where most informants discussed the lack of funding that could be leveraged to foster program implementation. All State A informants felt frustration with the current siloed and narrowly-focused funding streams that dictate program activities. State A indicated a significant loss in funding for injury and violence prevention activities due to state-level budget crises. State C had limited funding. State C reported a variety of state and federal funding sources and also reported an increase in state-level funding over time, but informants felt that the funding

was inadequate for comprehensive program implementation and that little or no funding is provided to coordinate various activities as recommended by the *Safe States* model.

Implementation Policies and Practices

Similar divergences were noted among the three states for IP&Ps (Table 6). Strong, positive IP&Ps were identified in State B, while State A reported a lack of quality IP&Ps and State C reported a mixed bag of IP&Ps. State B informants consistently reported alignment between the comprehensive injury prevention and control plan, the program's internal work plan, the bureau's strategic plan, and the department's strategic plan. A department-wide performance improvement process was cited as an explanation for this top-to-bottom alignment. State B program manager and staff reported that the work plan was very helpful in institutionalizing day-to-day activities and in ensuring that the program is meeting its well-formulated goals and objectives.

Although shared decision-making was high among all participating states, State B differed from States A and C in the extent to which the program solicited stakeholder input in the planning process. State A reported that it did not have a comprehensive injury prevention and control plan; however, the organization frequently solicited stakeholder input on the injury prevention chapter within the department's overarching strategic plan. State A informants reported that stakeholder input was solicited often and early in the planning process. State C reported having a comprehensive injury prevention and control plan, and that stakeholders were actively involved with drafting certain sections of that plan. Conversely, much of the work on the injury prevention and control plan in State B was done by state IVPP staff prior to soliciting stakeholder input. Despite this, stakeholders in State B indicated that they felt adequately informed and involved in the decision-making process and

did not report concerns over the process. All states reported consistently using partnerships, both formal and informal, to implement various program activities.

States A, B, and C reported fundamental differences in IP&Ps. The principal investigator identified a common theme during coding in regards to staff knowledge of the innovation. Repeatedly, informants reported that staff had insufficient or incomplete knowledge of the innovation. Program managers in all states felt well-informed on the innovation. Informants from State A noted that some staff, but not all, had been formally educated at the state's injury research center, but that, in general, staff were lacking a complete education on the innovation and that the program implementation would be better fostered if staff were more well-informed. State B cited out-of-state travel restrictions for lack of formal education for staff on the innovation. State C's primary IVPP staff member reported good knowledge of the innovation due to her participation in the Safe States Alliance, but that other staff were less informed. Lack of staff knowledge of the innovation was a perceived barrier in all participating states.

Implementation Climate

Significant differences in implementation climate were noted among States A, B, and C (Table 7). State B reported a strong, positive implementation climate. State B informants consistently described IP&Ps and group beliefs that they felt supported comprehensive program implementation. Informants cited that upper-level administration had created momentum around requesting for state-level funding and continued that momentum as they created IP&Ps. Innovation-values fit and internal champions helped bolster the implementation climate in State B, but differences in implementation climate in State B from implementation climate in States A and C were largely described by informant's perceptions

of IP&Ps. State A had an overall negative implementation climate. Informants were concerned about the lack of meaningful IP&Ps that fosters comprehensive program implementation, particularly IP&Ps relevant to organizational structure, funding, and communication. State A reported positive presence of innovation-values fit and internal champions; however, the presence of these factors was not enough to overcome the lack in strong IP&Ps. State C had a neutral implementation climate. Some IP&Ps in State C were perceived as fostering program implementation, but some informants were frustrated with the lack of tangible support from upper-level administration except when the program was in need of critical funding. Like in the other states, innovation-values fit and internal champions were strong and present in State C, but neither was strong enough to fully influence the implementation climate.

Organizational Readiness to Change/Change Efficacy

State A and State B had differences in change efficacy (Table 11). Change efficacy was not documented in State C. Change commitment was not documented in any of the participating states. In State B, informants felt highly confident about their collective ability to implement all of the Safe States core components. Program work plans ensured that staff stayed focused on those particular areas, and informants indicated that the successful roll out of a new injury-specific intervention boosted their confidence. Conversely, informants in State A were unconfident in their ability to implement a comprehensive program due to the lack of resource availability for implementation and the lack of strong IP&Ps that fostered implementation. Preliminarily, change efficacy appears as though it may be associated with implementation effectiveness; however, findings in this study do not provide enough information about this construct, especially in the absence of information from State C.

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Table 3: Summary of Case Findings for All Participating States

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Quantitative implementation effectiveness score	**44.5**	**55.5**	**19.5**
Infrastructure Index Variable Score	6.5	4.5	2.5
Surveillance Index Variable Score	22.0	42.0	10.0
Intervention/Evaluation Index Variable Score	3.0	2.0	2.0
Technical Assistance Index Variable Score	2.0	1.0	0.0
Public Policy Index Variable Score	11.0	6.0	5.0
Management support	+/-	+	+/-
Resource availability	-	+	+/-
Implementation policies and practices	+/-	+	+/-
Shared decision-making	+	+	+
Partnerships	+	+	+
Staff knowledge of innovation	-	+/-	+/-
Implementation climate	-	+	+/-
Innovation-values fit	+	+	+
Personal-values fit	+	+	+
Psychological climate	-	+	+
External climate	-	-	-
Internal champions	+	+	+
Change efficacy	-	+	Null
Personal readiness to change	Null	+	Null

Legend:

+   Present and strong.

-   Not present, weak, or lacking.

+/-   Present but limited/needing improvement.

Table 4: Illustrative Narrative of Management Support by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Management support Summary	**Summary rating: +/-** Current administration is partially committed to injury prevention. Growth in injury prevention programming is a priority of the division administrator. Deputy director has been educated by the state's injury control research center. Upper administration has expressed interest in fostering more collaboration between the various programs. Upper administration has shown interest in listening to stakeholders' needs regarding increased injury surveillance data. Administration focus on funding streams results in piecemeal programming and lack of coordination between programs doing injury and violence prevention work. Administration is supportive verbally, but has not allocated funding or issued directives for comprehensive program implementation.	**Summary rating: +** 2009 funding request to state legislature for comprehensive program implementation was initiated by upper level administration. Administration recognized the crucial need for more injury prevention programming and for expanding the pre-existing activities. Upper administration supported inclusion of a question on BRFSS regarding individuals' perception of primary seatbelt law and used the data in legislative testimony and policy briefs. Bureau chief is very supportive/encouraging. Encourages staff to publish their work.	**Summary rating: +/-** Upper administration have successfully advocated for additional funding for the program from the state legislature. Upper level administration gave testimony in favor of the graduated driver's license bill to the state legislature. Administration is supportive when there is a critical need, but no funding is allocated or requested for comprehensive program implementation. Focus is on siloed funding.

Legend:

  + Present and strong.

  - Present, weak, or lacking.

  +/- Present but limited/needing improvement.

Table 5: Illustrative Narrative of Resource Availability by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Resource availability Summary	**Summary rating: -** Applied for CDC Core VIPP funding and was not awarded. State-level budget crisis resulted in loss of organizational subunit for IVP and loss of staff. Funding is siloed and narrowly-focused. No money for program implementation or coordination. Activities are dictated by funding sources. Over time, loss of state funding for IVP Legislature is moving away from funding state programs and towards funding local level agencies for IVP services. Legislature has funded sexual violence prevention. Program receives federal rape prevention and education funds. No trouble in hiring well-trained, qualified staff. Staff are dedicated, stable. Lack of a full-time epidemiologist. Vacant positions that have not been refilled.	**Summary rating: +** Applied for CDC Core VIPP funding, was approved, but funding was not awarded due to federal budget issues. Legislature approved state funding for program on a continuous basis. Funding is provided by the tobacco settlement trust. Money is now designated for IVP and cannot be used for other things without legislative approval. Program has not been able to provide funding for IVP activities to local agencies despite receiving requests. Local programs receive some funding from DOT for child passenger safety.	**Summary rating: +/-** Could not apply for CDC Core VIPP funding; did not meet minimum program criteria. The program has seen an increase in state funding over time. State general funds are used for covering gaps in federal funding for domestic and sexual violence and rape prevention and education; poison control hotline; suicide prevention. Federal funding is used for suicide prevention; rape prevention and education; poison control. Contracts with other state agencies provide funding for fall prevention and child passenger safety. Funding is siloed and narrowly-focused. No money for program implementation or coordination. Activities are dictated by funding sources.

Table 6: Illustrative Narrative of Implementation Policies and Practices by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Implementation policies and practices	**Summary rating: -**	**Summary rating: +**	**Summary rating: +/-**
Shared decision-making	Summary rating: +	Summary rating: +	Summary rating: +
Partnerships	Summary rating: +	Summary rating: +	Summary rating: +
Staff knowledge of innovation	Summary rating: -	Summary rating: +/-	Summary rating: +/-
Summary	IVPP staff and manager have avenue to provide input into Department's strategic plan, which includes objectives for IVP activities. Planning process is very inclusive and stakeholder input is solicited. IVPP manager and staff believe more directives from upper level administration would better facilitate intra-agency coordination for IVP activities. Lacking a statewide, comprehensive injury prevention and control plan. IVPP manager has no supervisory authority over staff doing IVP work in the various subunits. Staff are not provided formal education on the innovation or on general injury prevention core competencies. Some have received formal education at the injury research center and some have not. Most training is informal.	IVPP has statewide, comprehensive injury prevention and control plan, which is aligned back to programmatic work plan, Bureau's strategic plan, and Department's strategic plan. IVPP has work plan that guides staff activities and institutionalizes day-to-day practices. Work plans were developed as part of a department-wide performance improvement process. Statewide injury prevention and control plan was largely developed at state-level and stakeholder feedback was requested after most of the priorities were ironed out. Most decisions were made at programmatic level, but stakeholders felt included.	IVPP activities used to be split into two separate organizational subunits within the state health agency, but were combined to better coordinate IVP activities. Program manager is part of the Community Health section's leadership team, which helps provide better communication across the section and to promote better understanding of IVP activities among upper level administrators. Through this team, program manager is asked to have input on legislative testimony and other processes within the section. Leadership team is used to formulate optional budgetary packages that will be proposed to the Governor and the state legislature. Several optional packages for IVPP funding have been supported and approved.
(continued on next page)			

Most agency staff carrying out IVP activities are not aware of innovation.

Lack of consistent communication between the various programs doing IVP activities. No regular meetings or mechanisms for communication.

Organizational priorities are dictated by funding sources. No funding stream for coordinated approach to IVP activities, so coordination is not a priority.

Staff are praised and appreciated.

Programs do pay for membership to professional associations (i.e., Safe States Alliance)

State health department had plan written to implement a statewide injury prevention coalition, but did not follow-through on the plan.

Achievements are due to highly dedicated staff, but are largely personality driven and day-to-day practices are not institutionalized.

IVPP has MOU with state's hospital association, which provides de-identified hospital discharge data and emergency department data (2011 pilot).

IVPP staff had not received a lot of formal training on the innovation or on daily activities. The program was basically new, so very little precedence had been set.

Program doesn't have a lot of funding to provide formal training to staff. Staff have received informal training through webinars and in-state conferences. Staff were moderately informed about innovation.

IVPP epidemiologist (25% FTE) has spent increased time on injury epidemiology due to increasing data requests from stakeholders. Sometimes epi time is directed to other temporary priorities.

IVPP has many contractual agreements with grantees who receive various funds for IVP activities from the program.

Staff are praised and rewarded.

Program makes an effort to send staff to national conferences for training opportunities. Primary IVP staff person is well trained on the innovation through her participation with Safe States Alliance.

Salaries are an issue. Staff are not being paid for the work that they really do. Salary increases are currently being reviewed in the 2013 legislative session.

IVPP utilizes partnerships to carry out some activities of the Safe States model (i.e., injury-specific intervention). Most partnerships are formalized through contracts.

Stakeholders are involved in decision-making and helped write the state plan; however, some felt that the IVPP could better communicate about its activities.

Table 7: Illustrative Narrative of Implementation Climate by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Implementation climate Summary	**Summary rating: -** Informants agreed that the organizational structure and lack of resources for IVP activities was a hindrance to program implementation. Loss of identity when state health department lost the organizational subunit that previously coordinated IVP activities. "The bureau lost its identity." Siloed funding streams result in no focus on coordinated approach or leveraging resources. Lack of coordination around IVP activities. Staff lack formal training on the innovation. Staff who believe in the importance of the innovation have been to national conferences like the Safe States meetings. Staff are passionate, but are not given the right resources or tools to effectively implement the innovation. Staff do feel that they have a broader connection to injury and violence prevention beyond the organization. Department-wide uncertainty about continuity of certain funding sources, so there is some reluctance to make the organizational changes necessary to fully implement the innovation. STAT visit recommendations were straightforward, but were not implemented.	**Summary rating: +** Upper level administration created positive momentum for program implementation in 2008, which continued after the state legislature appropriated funding for the comprehensive program in 2009. IVPP staff believe that they are "doing the right thing" and believe in injury prevention as a way to impact the community-at-large in a positive way. The department-wide effort for performance improvement resulted in cohesive work plans and alignment at the programmatic level, bureau level and department level. Planning process helped promote buy-in from other programs within the bureau and have fostered a cross-referral program with the IVPP and chronic disease programs. IVPP's presence/participation in bureau meetings has promoted a better understanding of injury prevention as a public health issue among other state health department staff.	**Summary rating: +/-** The IVPP program manager's participation in the section's leadership team has helped promote IVP activities as departmental priorities, in some situations. Lack of resources and siloed funding affects program's ability to implement a comprehensive program. Staff frustration with upper administration verbal support of IVP activities, but no tangible support except in situations where there is dire need. Staff feel like they make a difference and get excited about partnerships that improve the work that they do.

Table 8: Illustrative Narrative of External Climate by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
External climate Summary	**Summary rating: -** Statewide budget crisis/declining state revenue. Legislature has been moving away from funding state agencies toward funding local agencies to implement activities, which results in less coordination, less oversight, less evaluation, and less focus on evidence-based practices (i.e., shift to smaller government). Libertarian political climate in state legislature. Administrative turnover (i.e., Governor, Governor-appointed agency heads, state health director, etc). Natural disasters – flooding Uncertainty over Presidential election and Congressional elections. Uncertainty of Affordable Care Act and its impact on state government. Legislative focus on injury victims and treatment, but not on primary prevention.	**Summary rating: -** Governmental agencies are generally siloed with imperfect interagency communication. Injury prevention field is so big and programs cannot do it all. Political battles over control of state legislature and Governor of a different party make it difficult to get meaningful policies passed. Decision-makers are not necessarily asking for the right information from the program to make informed decisions. Libertarian political climate in state legislature. Uncertainty over recent elections.	**Summary rating:-** State has budget surplus due to oil/gas revenues, but legislature is conservative with state general funds. Libertarian political climate in state legislature. Oil/gas industry has had positive effect on state revenue, but negative impact on injury rates. Affected areas are seeing increases in motor vehicle crashes/injuries. Explosion of oil/gas exploration in the state has changed the state's culture. Focus on emergency preparedness and natural disasters has taken away from comprehensive injury prevention programming. Government employees' inability to lobby or affect policy. Uncertainty of Affordable Care Act and its impact on state government.

Table 9: Illustrative Narrative of Innovation-Values Fit by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Innovation-values fit Summary	**Summary rating: +** Working for community good Program autonomy is important to reduce the fragmented nature of injury prevention work. Collaboration with stakeholders and community is highly important.	**Summary rating: +** Staff believe they are "doing the right thing." Staff are in injury prevention "for the right reasons" to benefit the community-at-large.	**Summary rating:+** Staff feel like they are making a difference. Staff get excited about partnerships.

Table 10: Illustrative Narrative of Internal Champions by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Internal champions Summary	**Summary rating: +** Program manager – team player, open door policy, provides access to data, role model for working collaboratively, able to articulate issues, works on her vacation hours, expert/resource for local agencies, ability to influence policy Other staff person – won national award, community focus, work with external partners, great energy, committed, volunteer work, motivated	**Summary rating: +** Bureau chief and state medical officer – created momentum to create comprehensive program, recognized the need for the program, analyzed data themselves, formulated testimony for legislature when asking for funding, they "get it," willing to do the groundwork. Program manager – passionate, strong networking ability, talented, wonderful, has done an amazing job, has experience and enthusiasm	**Summary rating:+** Primary IVPP staff person – experience at the local level, challenges the status quo, wants to overcome government bureaucracy. General IVPP staff – very committed, passionate

Table 11: Illustrative Organizational Readiness to Change by Case

Construct	State A	State B	State C
Overall implementation effectiveness	**Medium**	**High**	**Low**
Change efficacy Summary	**Summary rating: -** Informants were moderately unconfident in their ability to implement the IVPP. Have tried for CDC core VIPP funding many times and have tried to coordinate activities many times and have been unsuccessful. Uncertain if organization can successfully implement a comprehensive program unless it receives more funding and a directive to do so. Uncertainty in whether or not the program will ever "ramp up" to hire more people and get more done.	**Summary rating: +** Informants felt highly confident in most of the core component areas. Core components are built into program's work plans and are part of the daily routines. Program recently implemented a new intervention with ease, which boosted staff confidence in that area.	**Summary rating: Null** Not documented in informant interviews.

Enabling Factors in All States

The principal investigator noted the presence of each of the following factors in all states: shared decision-making, partnerships, innovation-values fit, personal-values fit, and internal champions (Table 3). The presence of these factors potentially help bolster IP&Ps and implementation climate for state IVPP program implementation; however, these factors do not likely explain significant differences in states with high, low, or medium implementation effectiveness.

All participating states reported a positive outward orientation towards inclusive decision-making. Given that injury and violence prevention is a broad, diverse, multidisciplinary field that requires collaborative effort from many stakeholders to have an impact, this finding is not surprising. The principal investigator noted a transactional relationship between IP&Ps and shared decision-making. An organization's IP&Ps fostered inclusive decision-making, and inclusive decision-making and stakeholder input fostered stronger IP&Ps within the organization.

All participating states also reported the effective use of partnerships in helping to implement various IVPP activities. Interagency partnerships have been cited as a critical element in state IVPP implementation, particularly around building infrastructure for injury and violence prevention. Partnerships were critical in helping the state IVPPs implement various injury-specific interventions like fall prevention, rape prevention and education, and domestic violence prevention. All states reported strong partnerships, but State A and State C reported utilizing partnerships more frequently for implementation of core activities than State B.

Innovation-values fit, personal values fit, and internal champions were present in all participating states. Informants reported that individuals working in state IVPP were committed to injury and violence prevention work, believed in working for the community good, and believed that

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the Safe States model was conducive to their group and personal values. Additionally, informants did not have difficulty in identifying at least one internal champion for injury and violence prevention in their respective states. Even so, the presence of these factors was not able to compensate for the lack of strong IP&Ps to bolster implementation climate. These factors contributed to implementation climate, but are not as relevant as IP&Ps.

Limiting Factors in All States

The external climate was consistently identified as a limiting factor in each of the participating states. Common themes identified in the external climate included the states' political climates, which were largely viewed as libertarian where policymakers favored a smaller role for state government; emergency preparedness and response to actual natural disasters, which resulted in loss of focus on routine injury prevention work; uncertainty over recent elections; and uncertainty over how the Affordable Care Act will impact state governments. Informants overwhelmingly reported that the external climate limited resource availability for the state IVPP.

Expected Vs. Observed Relationships Between Factors

Hypothesized relationships between factors are summarized in the theoretical model presented in Appendix J and discussed in Chapter 2 (literature review). Observed vs. expected findings will be discussed below.

Management support ➔ *Implementation policies and practices.* Research findings supported the relationship between management support and implementation policies and practices (IP&Ps).

When management support was strong, IP&Ps also were strong (State B). When management

support was absent or limited, IP&Ps were also absent or limited (State A and C). In State B, upper-

level administrators fostered program implementation by creating critical structures within the

organization (i.e., creation of a permanent place for the comprehensive program), by formulating

work plans that align with bureau and departmental strategic plans, and by having a more cohesive

view of the program (rather than piecemeal view based on disparate funding streams).

Resource availability → *Implementation policies and practices.* Research findings supported the

relationship between resource availability and IP&Ps. When resources were available for program

implementation, IP&Ps were strong (State B). When resources were not available or were limited for

program implementation, IP&Ps were absent or limited (States A and C). Management support was

critical for obtaining adequate resources for program implementation. This research suggested that

management support augmented IP&Ps both directly (management support → IP&Ps) and

indirectly (management support → resource availability → IP&Ps). In both States B and C, upper-

level administration support and involvement were critical in securing critical funding for the

program.

Community involvement/Coordination with other agencies/Partnerships → *Implementation policies and*

practices. In this project, the principal investigator chose to split out some of these ideas into separate

constructs, including shared decision-making and partnerships. The investigator hypothesized that

these ideas had a bidirectional relationship with IP&Ps. Research findings suggest that shared

decision-making and IP&Ps do indeed have a bidirectional relationship (as discussed above). The

relationship between IP&Ps and partnerships appeared to be more one-way. The organization's

IP&Ps determined how often the program entered into formal or informal partnerships and also

determined with what external agencies and to what extent the partnerships were used to achieve

programmatic objectives (IP&P → partnerships). Subsequently, partnerships appeared to enable

implementation effectiveness, particularly around core component #3—interventions and

evaluation (partnerships → implementation effectiveness). All states reported using partnerships to

roll out various injury-specific interventions at the local level.

Community involvement/Coordination with other agencies/Partnerships → Management support. The

original theoretical model hypothesized that external stakeholders might have influence on the level

of support given by upper-level administrators within the state health agency. The principal

investigator found no evidence of this relationship in the research findings. Informants both internal

and external to the organization were asked if stakeholder groups or coalitions/advocacy groups

played a role in swaying upper-level administrators' support for state IVPP implementation, and all

informants denied a direct relationship between these groups and the state health agencies' upper-

level administrators. Management support seemed to be facilitated from within the organization and

depended upon administrators' knowledge of public health, knowledge of injury prevention, and

knowledge of their state's injury surveillance data.

Community involvement/Coordination with other agencies/Partnerships → Resource availability. The

original theoretical model hypothesizes that external stakeholders might have influence over the

availability of resources provided to the state health agency for program implementation. The

principal investigator found limited evidence to support this. In State B, informants reported that a

few stakeholder groups advocated with the legislature for the provision of state-level funding for the

comprehensive program, but most of the testimony was provided by state health agency upper-level administrators. In State C, informants reported that local agencies involved in domestic violence advocated with the legislature to provide funding to the state IVPP for domestic violence and rape prevention and education activities. In both cases, informants indicated an appreciation for the advocacy support offered by these stakeholder groups, but also believed that the state health agency would have been given the funding without these advocacy efforts. Support from upper-level administrators within the state health agency was seen as more critical.

Implementation policies and practices → *Implementation climate.* Research findings suggested that IP&Ps is likely the most critical factor affecting implementation climate. When IP&Ps were strong, implementation climate was positive. When IP&Ps were absent or limited, implementation climate was negative or neutral and not enabling. IP&Ps around organizational structure, directives, decisions on how to use available funding, and communication processes were most significant in shaping the organization's implementation climate.

Innovation-values fit → *Implementation climate.* Innovation-values fit and personal-values fit were present and strong in each of the participating states. In general, informants reported a good fit between the innovation and their collective and personal values, particularly around their values of working for the community good, having program-level autonomy, and collaboration. Despite good values fit, implementation climate varied greatly by state suggesting that both innovation-values fit and personal-values fit played limited roles in bolstering the overall implementation climate.

Internal champion → *Implementation climate*. All states reported the presence of at least one, and often multiple, internal champions who were instrumental in pushing comprehensive program implementation forward and who continually advocated for coordination of state IVPP activities. Individuals who were identified as internal champions were well informed on the innovation, had extensive experience in the injury and violence prevention field, and were seen as resources both within and outside of the organization. Internal champions were associated with improved implementation climate, but did not compensate for the lack of strong IP&Ps. Internal champions played a limited role in bolstering implementation climate.

Organizational climate → *Implementation climate*. Organizational climate was hypothesized to influence the implementation climate. The principal investigator did not frequently identify comments regarding organizational climate in informant interviews. External climate was cited more frequently by informants and was found to be a limiting factor in all states, particularly in regard to resource availability for program implementation (external climate → resource availability).

Implementation climate → *Implementation effectiveness*. Research findings suggest a relationship between implementation climate and implementation effectiveness. State B had the highest score for implementation effectiveness and was the only state to report a positive implementation climate. However, this relationship may be imperfect. State A had the second highest score for implementation effectiveness, coming in just 9.5 points lower than State B, but was the only state to report an overall negative implementation climate. State C had the lowest score for implementation effectiveness and had a neutral implementation climate.

Based on the findings summarized above, a revised model was created to demonstrate the observed relationships between factors influencing state IVPP implementation (Figure 3). Study findings indicate that, within the organization, management support, resource availability, and IP&Ps were meaningful factors that may explain varying levels of implementation effectiveness among participating cases.

Figure 3: Observed Relationships among Factors Influencing the Implementation of State-based Injury and Violence Prevention Programs
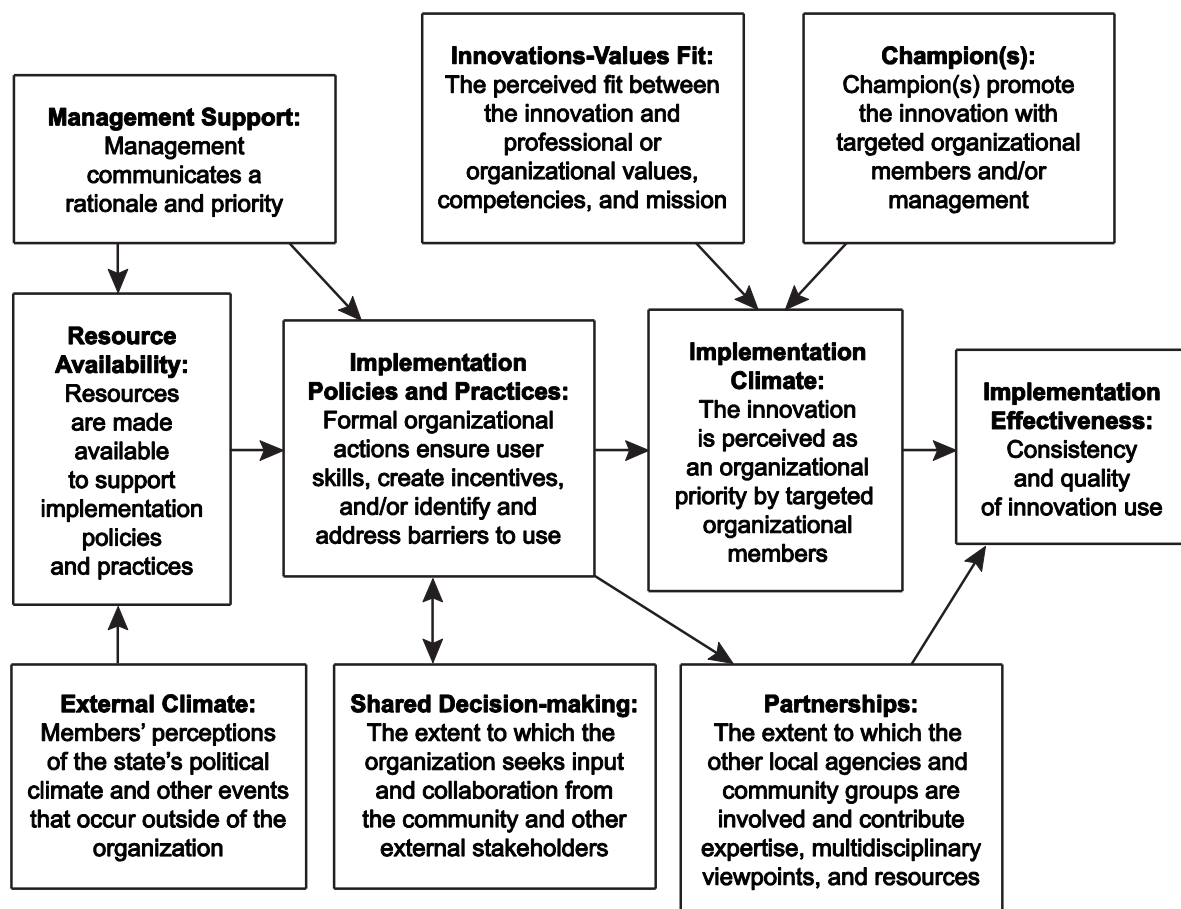
Adapted from Helfrich et al. (2007)

Chapter 6

Discussion

The primary research questions for this dissertation project were "how do state health agencies successfully implement state injury and violence prevention programs in the absence of core federal funding?" and "which organizational and environmental factors, that are subject to managerial or staff influence, shape the implementation of state-based injury and violence prevention programs? How does the interaction of these factors influence implementation effectiveness?" The results can be summarized as follows:

1) Differences in varying levels of implementation effectiveness among state IVPPs without CDC core VIPP funding could be described by meaningful differences in management support (from upper-level state health agency administrators), resource availability for program implementation, implementation policies and practices (IP&Ps), and subsequently implementation climate.

2) The organization's outward orientation towards including external stakeholders in decision-making processes and utilizing interagency partnerships to carry-out various injury-specific interventions was important and found in all cases, but these factors did not provide meaningful explanations for differences in implementation effectiveness. These factors are necessary for injury and violence prevention work, but do not appear to explain whether or not a state IVPP is able to fully implement a program consistent with the Safe States model.

3) Factors associated with organization members' collective and personal traits, such as innovation-values fit, personal-values fit, and internal champion behavior, were creditable, but may not be sufficient to overcome lack of strong IP&Ps in shaping implementation climate and ultimately implementation effectiveness. Injury and violence prevention professionals are dedicated and passionate about their work and believe in working towards the "community good"; however, these characteristics are likely not sufficient to ensure implementation consistency and quality in the absence of IP&Ps that foster comprehensive program implementation.

4) The external climate is likely an important, limiting factor affecting the state IVPP, particularly in regard to resource availability for program implementation. Despite this factor being identified as a limiting factor in all cases, the case of State B demonstrated that overcoming this factor was possible when other organizational factors were present/fostered. It may be that strong management support and strong IP&Ps compensated for an unfavorable external climate demonstrated in State B. Additionally, although this factor may not be subject to direct managerial or staff influence, leaders within the state health agency should remain aware of the current condition of external climate and recognize opportune times to ask for implementation-related funding.

In particular, management support may be the most critical factor determining successful implementation of state IVPPs because the other meaningful factors such as resource availability and IP&Ps are directly influenced by management support. Within the state health agency, upper-level administrators allocate and monitor limited resources and provide clarity for programmatic priorities through formal and informal planning processes,

directives, reorganizations, communication/reporting processes, protocols, and other policies and practices. In the study by Cassady et al. (1997), "attributes of relevant policies" were identified factors associated with successful implementation of injury prevention programs in state health agencies. This dissertation project supports that finding and provides examples of how state health agency leaders can foster stronger IP&Ps (specific recommendations will be discussed in Chapter 7).

As seen with the case of State B, high levels of implementation effectiveness were associated with the stronger presence of management support, resource availability, IP&Ps, and implementation climate as compared with States A and C. However, the strength of these factors did not perfectly align with the implementation effectiveness score. State A reported a relatively high score for overall implementation effectiveness and also had the highest component-specific score in four of five cases, yet State A reported low resource availability for program implementation, negative implementation climate, and negative external climate. Management support and IP&Ps in State A were present, but limited and could be strengthened.

Conversely, State C reported moderate resource availability, IP&Ps, and implementation climate and had the lowest score for implementation effectiveness. So while presence of management support, resource availability, IP&Ps, and positive implementation climate were associated with greater implementation effectiveness, these variables may not fully explain the variability in implementation effectiveness across all cases. Other variables like shared decision-making, partnerships, innovation-values fit, and internal champions may have been sufficient for State A to foster moderate implementation effectiveness. High levels of implementation effectiveness may be the result of the alignment or synergy among factors that is initiated when a factor like management support is present and is not initiated

when management support is limited or absent. Or, other factors that were not measured may be important in describing the differences in implementation effectiveness across cases. Qualitative findings from this dissertation project do suggest that the organizational factors measured here, when present and strong, do appear to foster higher levels of implementation effectiveness.

Applicability of the Theoretical Framework

The theoretical framework used in this dissertation project was adapted from Helfrich et al. (2007). The original framework, as described by Helfrich and his colleagues, described implementation effectiveness as an outcome of positive implementation climate, which resulted from high quality IP&Ps, positive innovation-values fit, and the presences of an internal champion. High quality IP&Ps were fostered directly by management support and resource availability (Helfrich et al., 2007). The original framework was adapted, and additional constructs associated with the organization's inclination toward stakeholder involvement were added to account for findings from other relevant studies on state IVPP implementation (Appendix J). The modified, theoretical framework was useful in categorizing and organizing qualitative data acquired from both key informant interviews and from document review. Here, the research findings largely supported hypothesized relationships from the modified, theoretical framework. The framework was found to be relevant in identifying enabling and limiting factors associated with state IVPP implementation and assisted the principal investigator in creating a new framework based on observed patterns among organizational and environmental factors. Finally, this framework enabled the creation of specific recommendations that could be used by leaders in the

Wyoming Department of Health in state IVPP development and implementation and potentially in other state health agencies that do not have CDC core VIPP funding.

Limitations of the Theoretical Framework

This dissertation project highlighted some notable limitations of both the original and modified frameworks. The original framework did not consider factors associated with the organization's inclination to work with external stakeholders either in planning processes or through formalized partnerships (Helfrich et al., 2007). These factors were added to the modified framework prior to data collection. The modified framework did not consider that partnerships may directly affect implementation effectiveness. Neither the original framework nor the modified framework considered the external climate's influence on resource availability. The original framework did not consider the possible effect stakeholder input might have on IP&Ps. In the original framework, factors associated with the external environment were not believed to be subject to managerial influence from within the organization. This dissertation project demonstrated that external factors can directly influence organization factors (as seen with shared decision-making → IP&Ps) and also showed that, although state health agency leadership cannot directly change the external political climate (except by exercising their right to vote), these leaders can engage in situational awareness so that they are prepared to take advantage of opportunities that might present themselves with changes to that external climate.

Limitations of the Research Project

This dissertation project was subject to a variety of research limitations, which will be discussed in detail:

- Variations in quality and availability of relevant documents for document review by state. The principal investigator requested the same list of documents from each participating state for document review. The availability of the listed documents varied greatly by state. States provided similar documents, but these documents varied in terms of the type of information provided (i.e., state injury prevention and control plan in one state was greatly different than a plan from another state).

- An administrator interview was not completed in State C, despite numerous attempts to schedule that interview.

- The study was not designed to make casual inferences about various factors and their direct effect on implementation climate. This study was designed to explore various factors that might explain differences in implementation effectiveness across a specific group of state IVPPs. Additional research is needed to examine casual or temporal inferences.

- The study was not designed to be nationally representative. Rather, the study was designed to provide specific information to leaders at the Wyoming Department of Health for the purpose of developing and implementing an IVPP. Case selection was designed to choose states that were similar to Wyoming in geographic location, population density, and state health agency infrastructure. Additional research is needed to provide recommendations that are more generalizable.

- This study focused on a number of organizational and environmental factors as its scope of inquiry. Each factor examined in this study could constitute its own research project and deserves additional attention in future research projects.

- The outcome variable index was developed by the principal investigator for the purpose of this study and was formulated using findings from the literature review

(i.e., findings from Cassady et al. (1997), findings from Safe States Alliance *State of the State* reports, CDC portfolio review guidelines for funded states, etc.). However, little guidance or precedence was available that was directly applicable to assessing implementation effectiveness in unfunded states. In this study, more weight was given to infrastructure and epidemiologic capacity based on relevant literature findings.

- A final limitation of this dissertation is that the innovation of interest, the *Safe States* model for model state IVPP implementation, has not been empirically evaluated. At the time of this study, the model represented best practices for state IVPP and had been formulated through a consensus-building process with expert input. However, no research currently exists that empirically examines whether or not state health agencies that implement a state IVPP following the *Safe States* model are better equipped to address the burden of injury and/or violence in their state. The evidence-base for the model is tenuous at this time.

Chapter 7

Recommendations and Plan for Change

This project identified enabling factors and limiting factors that may explain differences in implementation effectiveness across state IVPPs in HHS Regions 7 & 8 that have not received CDC core VIPP funding. This project resulted in the creation of a new framework for describing organizational and environmental factors influencing implementation effectiveness of state IVPPs (Figure 2). The cross-case analyses led to the identification of some recommendations that may help inform leaders within the Wyoming Department of Health in developing and implementing an injury and violence prevention program from scratch. These recommendations also may be relevant to other state health agencies that are seeking to foster better implementation effectiveness of the state IVPP. The recommendations are centered on the most actionable relationships identified in the cross-case analyses and include specific recommendations around management support (from upper-level administrators within the state health agency) and IP&Ps.

Recommendations Relevant to Management Support

Strategies that might foster improved management support from upper-level state health agency administrators around state IVPP implementation include:

- Foster a holistic understanding of the public health model among upper-level administrators

- Foster a holistic understanding of injury prevention as a public health issue among upper-level administrators

- Provide injury and violence epidemiologic data to upper-level administrators to foster a better understanding of the actual burden of injury and violence in the state and how that burden compares to national averages and to other states.

- Formulate a well-timed "ask" to the state legislature for a continuous source of funding for state IVPP implementation, funding that is not injury topic-specific and allows greater flexibility in using the funding as needed to implement a comprehensive program.

- Focus on more flexible, state-level funding for state IVPP implementation, rather than relying on narrowly-focused federal funding sources.

- Invite upper-level administrators to state/regional/national conferences on injury and violence prevention.

- Encourage upper-level administrators to attend training seminars at federally-funded, injury control research centers (ICRCs).

Recommendations Relevant to Implementation Policies and Practices

Strategies that might foster stronger IP&Ps around the implementation of state IVPPs:

- Create a single organization subunit within the state health agency that is tasked with coordinating a comprehensive approach to injury and violence prevention.

- Increase epidemiologic capacity of the program.

- Create program-level work plans that incorporate concepts from the Safe States model into its goals and objectives.

- Ensure that injury and violence prevention are addressed in higher level strategic plans within the organization.

- Align program-level work plans with bureau/section strategic plans and with the department's over-arching strategic plan.

- Create planning processes that solicit stakeholder input.

- Create formalized agreements (such as MOUs) that solidify important partnerships where resources are leveraged by both agencies.

- Create formalized agreements with external agencies that provide critical epidemiologic data to the program (i.e., state hospital association for hospital discharge data).

- Provide ongoing opportunities for staff development/training around the *Safe States* model and program implementation in general. All IVPP staff should have a basic understanding of the *Safe States* model and National Training Initiative core competencies.

- Create communication processes that ensure timely and ongoing intra-agency and interagency information sharing, especially around state and community-level injury surveillance data and around evidence-based interventions.

- Create a statewide injury prevention coalition that solicits participation from a diverse group of stakeholders and representatives from other state agencies.

Plan for Change

Findings from this dissertation will be provided to leadership at the Wyoming Department of Health, to participating state health agencies (cases), to the core VIPP regional network leader, to CDC, and to the Safe States Alliance via a written, executive summary. The primary focus of dissemination will be on organizations that assist, fund, and monitor state IVPP implementation in unfunded states. However, the findings may be applicable to other state IVPP programs and to other state-based public health programs, particularly in the era of federal budget sequestration and state budget crises. The principal investigator will seek to present these findings via oral presentation at relevant national-level meetings (e.g., the annual Safe States Alliance Meeting, Keeneland Conference on Public Health Systems and Services Research). The principal investigator will also consider seeking publication in a widely-disseminated, peer-reviewed journal.

A primary policy implication for this dissertation is that the observed framework may assist state health agencies in assessing the organizational climate as it relates to the initiation or improvement of state IVPP implementation. The relevance of these findings may be particularly important given many state health agencies are facing extensive budget cuts. Identifying ways that state health agencies can sustain their efforts to implement public health programs in a resource-constrained climate will be of continued relevance to public health practice. This research suggests that leadership stemming from within the state health agency can potentially overcome negative implementation climate.

A second policy implication for this dissertation is associated with the Safe States model. As discussed above in the Background and Discussion sections of this dissertation, the Safe States model has not been empirically evaluated. The model is considered to be best

practice for state IVPPs at this time. The timing of this research is relevant because the Safe States Alliance, CDC, and other national injury prevention organizations are currently reviewing and revising the Safe States model and plan to release a revised version in 2013 in celebration of the 10th anniversary of the model that was released in 2003. A limitation of this study was a lack of guidance for evaluating state IVPP implementation against the Safe States model because the Safe States model had a lack of operational definitions for many of the components and due to the lack of definitions for minimum infrastructure needs. Creating operational definitions and minimum standards would allow for more empirical research to be conducted to assess the model's utility and to allow state health agencies to focus on the most critical components when they were not able to fully implement all five.

A third policy implication of this dissertation relates to opportunities for future research. This dissertation proposes a revised theoretical framework (Figure 2) describing observed relationships among three state IVPPs in HHS Regions 7 & 8 that have not received core VIPP funding. Some of these factors had been previously identified by Cassady et al. (1997). Future qualitative and quantitative studies could examine these observed relationships in other state IVPPs, such as unfunded states in other HHS regions or core VIPP funded state IVPPs. Additionally, future studies could examine the relevance of these relationships in other state-based public health programs. Much more research is needed around organizational climate and organizational factors influencing implementation of public health programs within the state health department environment.

Appendix A: Construct Definitions

Implementation

> Theoretical definition:*"A specified set of activities designed to put into place an activity of known dimensions" (Fixsen et al., 2005).*
>
> Operational definition: The specified set of activities designed to put into place a comprehensive, state health agency-based injury and violence prevention program.

Innovation

> Theoretical definition: "*an idea or behaviuor, whether a system, policy, program, device, process, product, or service, that is new to the adopting organization*" (Damanpour, 1992).
>
> Operational definition: A comprehensive, state health agency-based injury and violence prevention program is the innovation of interest in this body of research.

Implementation effectiveness

> Theoretical definition: *"the overall, pooled, or aggregate consistency and quality"* of innovation use *(Klein & Sorra, 1996).*
>
> Operational definition: The consistency and quality in which the state health agency is able to implement components of the "Safe States model" (please see Appendix C for a detailed description in how this construct will be measured).

Organizational climate

> Theoretical definition: the summation of attitudes, beliefs, and perceptions among an organization's members of its policies and procedures, communication processes,

role clarity, processes for conflict resolution, member participation in management, leadership among others and how those perceptions influence collective behavior (Glanz et al., 2009) .

Operational definition: the summation of attitudes, beliefs, and perceptions among staff members of a state health agency that has implemented a comprehensive, injury and violence prevention program. This construct is not specific to the injury prevention program itself but a construct measuring beliefs, attitudes, and perceptions of the whole organization.

Implementation climate

Theoretical definition: *"employees' shared perceptions of the importance of innovation implementation within the organization"* and where or not they believe that the innovation is *"promoted, supported, and rewarded by the organization"*(Klein et al., 2001).

Operational definition: whether or not the employees of the state health agency believe that the implementation of a comprehensive, injury and violence prevention program is being promoted, supported and rewarded by the organization.

Change commitment

Theoretical definition: "*organizational members' shared resolve to pursue the courses of action involved in change implementation*" (Weiner et al., 2009).

Operational definition: Employees' of state health agency shared resolve in the courses of action necessary to implement a state injury prevention program (i.e., employees agree that implementation of components of Safe States model are necessary).

Change efficacy

Theoretical definition: "*organizational members' shared beliefs in their collective capabilities to organize and execute the courses of action involved in change implementation*" (Weiner et al., 2009).

Operational definition: Employees' of state health agency shared beliefs that they are collectively capable of implementing the state injury prevention program consistent with the Safe States model.

Resource availability

Theoretical definition: "*the cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy as well to initiate changes in strategy with respect to the external environment*" (Bourgeois, 1981).

Operational definition: the financial and human resources available to the state health agency for the implementation of the state injury program.

Innovation-values fit

Theoretical definition: "*the extent to which targeted users perceive that use of the innovation will foster (or, conversely, inhibit) the fulfillment of their values*" (Klein & Sorra, 1996).

Operational definition: The extent to which the various groups of actors (i.e. program staff, administrators and external stakeholders [measured separately]) perceive that the state injury program, in accordance with the Safe States model, will fulfill their values (or not).

Implementation policies and practices

Theoretical definition: "*the formal strategies (i.e., policies) the organization uses to put the innovation to use and the actions that follow from those strategies (i.e., the practices)*" (Klein et al., 2001).

Operational definition: the formal policies of the state health agencies and the subsequent practices among staff that support the implementation of the state injury prevention program.

Shared decision-making/community involvement

Theoretical definition: "*the extent to which relevant parties (e.g., providers, administrators, researchers, and community members) collaborate in determining what will be implemented and how*" (Durlak & DuPre, 2008).

Operational definition: the extent to which state health agency staff, state health agency leadership, and external stakeholders collaborate to determine how the state injury prevention program is implemented (i.e., coalition activities, procedures, terms of reference).

Coordination with other agencies/partnerships

Theoretical definition: the extent to which other local agencies and community groups are involved and contribute expertise, multidisciplinary viewpoints, and other resources (Durlak & DuPre, 2008).

Operational definition: the extent to which other local agencies and community groups are involved and contribute to the implementation of the state injury prevention program (i.e., resources leveraged between state health agency and external agency, coalition composition, MOUs) .

Management support

Theoretical definition: "*managers' commitment to conduct transformation of the organization and to invest in quality implementation policies and procedures to implement the innovations*" (Klein & Sorra, 1996).

Operational definition: state health agency administrators commitment (or lack of) to the implementation of the state injury prevention program, the subsequent policies that they put into place to support implementation, and the symbolic actions that they take to signal their support (i.e., written policies stating support for various components of the Safe States model/state injury prevention program).

Champion/internal advocate

Theoretical definition: "*a charismatic individual who throws his/her weight behind the innovation, thus overcoming the indifference or resistance that a new idea often provokes in an organization*" (Rodgers, 2003).

Operational definition: a state healthy agency staff member who throws his/her weight behind the state injury prevention program helping to overcome organizational inertia.

Appendix B: Question Matrix for Examining Organizational and Environmental Factors Affecting the Implementation of State Injury and Violence Prevention Programs (IVPPs)

Implementation Effectiveness (ImpE), dependent variable - refers to how well a state health agency has implemented the "Safe States" five core components of state IVPPs.

	Groups to be Interviewed				Document Review	Online Assessment Tool
	State IVPP staff	State IVPP Director	State health agency director/upper-level administrator	Stakeholders		
ImpE1: Does the state IVPP conduct routine injury surveillance (collection, analyses, and dissemination of injury data)? a) In the last 5 years, how often has your program submitted annual injury surveillance data to CDC? (scale: 0-5) b) In the last 5 years, how often has your program completed an injury surveillance report for external/stakeholder use? (scale: 0-5)	X				X	X
ImpE2: Does your state IVPP design, implement, and evaluation injury prevention or control interventions? a) In the last 5 years, how many injury-specific interventions were developed and implemented by your program? (scale: 0-infinity) b) In the past 5 years, how many of these interventions were evaluated? (scale: 0-infinity)	X				X	X

	Groups to be Interviewed				Document Review	Online Assessment Tool
	State IVPP staff	State IVPP Director	State health agency director/upper-level administrator	Stakeholders		
ImpE3: Does your state IVPP participate in building a solid infrastructure for injury prevention? a) How many FTEs does your program currently employ? b) How many part-time employees does your program currently employ? c) Is the state IVPP its own organizational subunit within the state health agency? d) How many years has the state IVPP been its own organizational subunit within the state health agency? e) Is there a legislative mandate for the IVPP to exist? f) Over the past 5 years, what is the median annual program budget and range? g) Does the state IVPP have a finalized 3-5 year strategic plan or statewide injury prevention plan?		X			X	X
ImpE4: Does your state IVPP provide technical support and training for injury prevention and control? a) In the past 5 years, how many trainings has your program provided? b) In the past 5 years, how many opportunities for technical support has your program provided to local public health agencies and other stakeholders?		X			X	X

	Groups to be Interviewed				Document Review	Online Assessment Tool
	State IVPP staff	State IVPP Director	State health agency director/upper-level administrator	Stakeholders		
ImpE5: Does your state IVPP affect public policy for injury prevention and control? a) In the past 5 years, how many pieces of state or local legislation has your program sought to influence (through education and advocacy)? b) Does the program have a multiagency state injury prevention advocacy coalition that can advocate on the program's behalf?		X			X	X
ImpE6: Which of the STIPDA-defined core components are most feasible? What makes them so?	X	X	X	X	X	

Management support (MS), independent variable– refers to state health agency administrators' shared resolve to promote the successful implementation of state IVPP. For purposes of this study, the state IVPP director is not considered "management."

	Groups to be Interviewed			
	State IVPP staff	State IVPP Director	State health agency director/administrator	Stakeholders
MS1: How committed were the state health agency's formal leaders (i.e., state health agency director) to implementing a state IVPP?	X	X	X	X
MS2: Does the state health agency director have a clear idea about what the state IVPP is trying to accomplish?	X	X	X	
MS3: How confident were you that the state health agency could implement all five of the Safe States IVPP core components? What prompted you to feel this confident? Who shared your level of confidence? Who did not?	X	X	X	
MS4: When your state IVPP was first formed, how supportive of the program were your state health agency administrators/formal leaders? Can you think of specific things that these individual did or said that expressed their support or lack of support? Were some more supportive than others?	X	X	X	

Resource Availability (RA), independent variable—refers to the accessibility of financial, material, or human assets that can be used to support initial and ongoing implementation of state IVPPs.

	Groups to be Interviewed			
	State IVPP staff	**State IVPP Director**	**State health agency director/administrator**	**Stakeholders**
RA1: To what extent do state general funds cover the cost of your state IVPP's infrastructure?		**X**		
RA1: Other than state general funds, what are this state IVPP's sources of funding? How have these funds been used?		**X**		
RA3: What financial or in-kind contributions do stakeholder organizations make to this state IVPP?	**X**	**X**	**X**	**X**
RA4: Have you experienced any difficulty hiring or retaining qualified, state IVPP staff? Is the pool of qualified people adequate?		**X**	**X**	
RA5: How have your state IVPP funding sources changed over time?		**X**		
RA6: What education and training does your state IVPP provide its staff? Who provides it? How often?	**X**	**X**	**X**	

Implementation Policies and Practices (IP&P), independent variable—refer to the plans, practices, structures, and strategies than an organization employs to implement and support the state IVPP.

	Groups to be Interviewed			
	State IVPP Staff	State IVPP Director	State health agency director/administrator	Stakeholders
IP&P2: How are tasks delegated among state IVPP staff?	X	X	X	
IP&P4: What skills and experiences do you believe are necessary for state IVPP staff?		X	X	
IP&P6: How does your state IVPP disseminate new information about best practices for injury prevention and control to your staff?	X	X	X	X
IP&P8: How often and by what mean does the state IVPP receive feedback on its performance from state health agency administrators?	X	X	X	
IP&P9: How often does the state IVPP staff receive feedback on their performance? What kinds of feedback do they receive? How do they get that feedback?	X	X	X	
IP&P10: Does your state have a state injury control plan? Who helped identify the priorities and develop this plan? How were the statewide injury prevention priorities decided upon?	X	X	X	X
IP&P12: How does your state IVPP evaluate whether or not your organization is meeting objectives in the statewide injury control plan? Who evaluates? What data is collected for evaluation?	X	X	X	
IP&P14: Does your organization have written interagency/organizational agreements (e.g., memoranda of understanding) related to the shared roles, duties, and responsibilities of staff?		X	X	X
IP&P15: Does your organization have a statewide injury planning group or coalition? Who serves on the group? How is it decided who will participate? How are the roles and responsibilities of this group defined?	X	X	X	X

Implementation Climate (ImpC), independent variable—refers to the organizational members' shared perceptions of implementation policies and practices in terms of their meaning and significance for implementing state IVPP.

	Groups to be Interviewed			
	State IVPP Staff	**State IVPP Director**	**State health agency director/administrator**	**Stakeholders**
ImpC1: Do state IVPP staff have a clear idea of what the state IVPP is trying to do?	**X**	**X**		
ImpC2: How committed are your program staff to implementing a state IVPP?	**X**	**X**		
ImpC4: How confident were you that your organization could implement all five of the Safe States core components? What prompted you to feel this confident? Who shared your level of confidence? Who did not?	**X**	**X**		
ImpC5: Do state IVPP staff know what they are personally supposed to do and how they are supposed to do it?	**X**	**X**		
ImpC6: Do state IVPP staff feel enthusiastic about the state IVPP?	**X**	**X**		
ImpC7: Are state IVPP staff knowledgeable about the five Safe States model-defined core components? How do they learn about those concepts?	**X**	**X**		
ImpC8: Do state IVPP staff feel they have the knowledge, skills, and tools they need to play their part in their state IVPP?	**X**	**X**		
ImpC9: Do state IVPP staff feel that there are major barriers or disincentives to getting the work done?	**X**	**X**		
ImpC10: Do state IVPP staff feel recognized and rewarded for doing their part? Do they know how well they are doing?	**X**	**X**		

Innovation-Values Fit (IVF), independent variable—refers to the extent to which targeted employees perceive that the state IVPP will foster the fulfillment of their values. Values are concepts or beliefs that a) pertain to desirable end-states or behaviors, b) transcend specific situations, and c) guide the selection and evaluation of behavior and events.

	Groups to be Interviewed			
	State IVPP Staff	**State IVPP Director**	**State health agency director/administrator**	**Stakeholders**
IVF2: How important to state IVPP staff is maximizing their productivity? Do some staff hold this more dearly than others? Is implementing state IVPPs consistent with this value, or does it conflict with this value?	**X**	**X**		
IVF3: How important to state IVPP staff is contributing to the benefit of the community? Do some staff hold this value more dearly than others? Is implementing state IVPPs consistent with this value, or does it conflict with this value?	**X**	**X**		
IVF4: How important to state IVPP staff is having a lot of autonomy in how they perform their work? Does implementing a state IVPP support this value, or does it conflict with this value?	**X**	**X**		
IVF5: How important to state IVPP staff is having opportunities to learn and grown on the job? Does implementing a state IVPP support this value, or does it conflict with this value?	**X**	**X**		
IVF6: How important to state IVPP staff is working in a low-stress environment? Does implementing a state IVPP support this value, or does it conflict with this value?	**X**	**X**		
IVF7: How important to state IVPP staff is implementing IVPP consistent with CDC and STIPDA recommendations? Does implementing a state IVPP support this value, or does it conflict with this value?	**X**	**X**		

Innovation-Champion(s) (InnC), independent variable—refers to a charismatic individual who throws his/her weight behind the innovation, thus overcoming the indifference or resistance that a new idea often provokes in an organization.

	Groups to be Interviewed			
	State IVPP Staff	State IVPP Director	State health agency director/administrator	Stakeholders
InnC1: Are there any state IVPP staff or state health agency staff who really stand out as champions of the state IVPP? By champion, I mean someone who goes above and beyond the call of duty, someone who is personally invested in making the state IVPP succeed?	X	X	X	X

Organizational Readiness for Change (ORC)– refers to the extent to which targeted organizational members are psychologically and behaviorally prepared to make the changes in the organizational policies and practices that are necessary to put the innovation into practice and to support innovation use.

	Groups to be Interviewed			
	State IVPP Staff	State IVPP Director	State health agency director/administrator	Stakeholders
ORC1: What issues were considered in deciding to implement a state IVPP? What were the "pros" and "cons"?	X	X	X	
ORC2: How committed was your state health agency director? How committed were state IVPP staff? Were there any important groups or individuals who seemed unsure or reluctant?	X	X	X	

Stakeholder Influence and Participation

	Groups to be Interviewed			
	State IVPP Staff	**State IVPP Director**	**State health agency director/administrator**	**Stakeholders**
SIP1: Do stakeholders have a clear idea of what the state IVPP is trying to accomplish?	X	X	X	X
SIP2: How much competition is there among the state IVPP and other stakeholder groups?	X	X	X	X
SIP3: Are there any stakeholders or representatives from the external community that stand out as advocates for the state IVPP?	X	X	X	X
SIP4: Who are the state IVPP's external stakeholders? Which stakeholder groups have been most influential on your state IVPP? Why? Are there any stakeholder groups that the state IVPP should be engaging but has not? Why not?	X	X	X	X
SIP5: How committed were stakeholder organizations' leaders to seeing the state health agency implement the state IVPP?	X	X	X	X
SIP6: Has stakeholder opinion impacted the level of commitment of your state health agency director to the state IVPP? Of your state IVPP director? Of your staff?	X	X	X	X
SIP7: How has the state IVPP engaged important stakeholder groups?	X	X	X	X
SIP8: What education and training does the state IVPP provide to stakeholder groups? Who provides it? How often?	X	X	X	X
SIP9: How does the state IVPP disseminate new knowledge regarding best practices in injury prevention and control to outside groups?	X	X	X	X
SIP10: How has your organization benefited from engaging with the state IVPP? Have there been any disadvantages to the organization for participating?	X	X	X	X

Innovation Effectiveness (InnE), potential confounder—refers to the benefits an organization realizes from an innovation.

	Groups to be Interviewed			
	State IVPP Staff	State IVPP Director	State health agency director/administrator	Stakeholders
InnE1: How has your organization benefited from engaging in injury and violence prevention programming? Have there been any disadvantages to the organization for participating?	X	X	X	
InnE3: Has the state IVPP had any impact on the organization's public image (e.g., marketing values)? What kind of impact? Is this impact measureable?	X	X	X	

Other Questions

	Groups to be Interviewed			
	State IVPP Staff	State IVPP Director	State health agency director/administrator	Stakeholders
Have any major events occurred in your organization or your community that have taken time and attention away from the state IVPP? If so, what? What impact has this event had?	X	X	X	
How much technical assistance have you received from CDC to help get you started? What technical assistance have you received? What would you like to receive?	X	X	X	

Appendix C: Coding Protocol for Outcome Variable - Implementation Effectiveness

	Scale	Score
Core component #1 Build a strong infrastructure for injury prevention		
How many FTE equivalents does your program currently employ?	Continuous 0-∞	
Is the state IVPP its own organizational subunit within the state health agency?	Binomial 1=Yes 0=No	
Is there a legislative mandate for the IVPP to exist?	Binomial 1=Yes 0=No	
Does the state have a finalized 3-5 year strategic plan or statewide injury prevention plan?	Binomial 1=Yes 0=No	
Does the program have at least one injury-specific control plan?	Binomial 1=Yes 0=No	
Infrastructure Index Variable	**Continuous 0-∞**	
Core component #2 Collect and analyze injury surveillance data	**Scale**	**Score**
Does your state IVPP has an epidemiologist devoted to injury surveillance?	Binomial 1=Yes 0=No	
What percent of the time is an epidemiologist devoted to injury prevention?	0 to 100	
In the last 5 years, how often has your program submitted annual injury surveillance data to CDC?	Continuous 0-5	
In the last 5 years, how often has your program completed an injury surveillance report for external/stakeholder use?	Continuous 0-5	
Surveillance Index Variable	**Continuous 0-11**	
Core component #3 Implement and evaluate injury prevention and control interventions	**Scale**	**Score**
In the past 5 years, how many injury-specific interventions were developed and implemented by your program	0-∞	
In the past 5 years, how many of these interventions were evaluated?	0-∞	
Program Evaluation Index Variable	**Continuous 0-∞**	

Core component #4 Provide technical assistance and training	Scale	Score
Provided at least 5 trainings in the page 5 years	Binomial 1=Yes 0=No	
Provided at least 5 opportunities for technical assistance in the last 5 years to local public health agencies and other statekholders	Binomial 1=Yes 0=No	
Technical Assistance Index Variable	**Continuous 0-∞**	
Core component #5 Affect public policy	**Scale**	**Score**
In the past 5 years, how many pieces of state or local legislation has your program sought to influence (through education and advocacy)?	Continuous 0-∞	
In the past 5 years, how many pieces of state or local legislation has your program requested to review?	Continuous 0-∞	
Does your program have a multiagency state injury prevention advocacy coalition that can advocate on the program's behalf?	Binomial 1=Yes 0=No	
Public Policy Index Variable	**Continuous 0-∞**	
Implementation Effectiveness Index Variable (Primary outcome variable- sum of five core component index variables)	**Continuous 0-∞**	

Appendix D: State Injury Prevention Director Interview

"Thank you for taking the time to talk with me today. My name is Kelly Weidenbach and I am a doctoral student at the University of North Carolina's Gillings School of Global Public Health. I am undertaking a research study for my doctoral dissertation. I also work full-time for a state health department. The main aim of this research is to better understand what kinds of factors affect successful implementation of injury and violence prevention programs in state health agencies. Identifying different types of factors and the relationships between these factors may help organizations like yours successfully implement evidence-based injury and violence prevention activities, including activities that are required in order to be eligible for CDC core funding. The Safe States Alliance (formerly known as STIPDA) developed a list of five core components that are considered to be the foundation of state-based injury and violence prevention programs. This list of components is also known as the Safe States model. I am interested in identifying organizational behaviors, policies, practices, and relationships that might help state health agencies better implement the Safe States model.' I will be asking you some general questions about your injury and/or violence prevention program and about your past experience in adopting and implementing various components and activities.

"Your participation in this interview is entirely voluntary. The interview is designed to be completed in under an hour. Your personal identity will be kept strictly confidential throughout this research process and will not be reported in the dissertation or in any publications, presentations, or reports that may come out of this research. No summary or excerpt from our conversation will be shared with anyone else at your organization. You may decline to answer any question and you may end the interview at any time. You will not

receive any direct compensation for your involvement in this research. Do you have any

questions? Do I have your permission to continue with the interview?"

"To help ensure that I do not miss anything that you tell me I'd like to record our

conversation. I will maintain security over this recording, which will be used only for this

research and will be deleted upon completion of my dissertation. If at any time you would

prefer something not be recorded, please indicate that, and I will turn off the recording. Do

I have your permission to record our conversation?"

State_____ Date of interview_____

Name _____ Title_____

Start of Interview

1. Please tell me a little about your experience with this state injury and/or violence prevention program? When did you first come into the program? How many years have you been with this program? Has your role changed since you've been with the program?

2. Is your state injury and/or violence prevention program a stand-alone program within your state health agency or are various injury/violence prevention activities divided up between a variety of programs?

3. How long has your state had an injury/violence prevention program?

4. How does your state injury/violence prevention program evaluate whether or not your organization is meeting objectives in the statewide injury control plan? Who evaluates? What data is collected for evaluation?

5. Does your organization have a statewide injury planning group or coalition? Who serves on that group? How is it decided who will participate? How are the roles and responsibilities of this group defined?

6. To what extent do state general funds cover the cost of your state injury/violence prevention program infrastructure?

7. Other than state general funds, what are other sources of funding for the state injury/violence prevention program?

8. What financial or in-kind contributions do stakeholder organizations make to your state injury/violence prevention programs?

9. How have the state injury/violence prevention program's funding sources changed over time?

10. Have you experienced any difficulty in hiring or retaining qualified staff for the injury/violence prevention program? Is the pool of qualified people inadequate?

11. What skills and experiences do you believe are necessary for state injury/violence prevention program staff?

12. What education and training does your state injury/violence prevention program provide its staff? Who provides it? How often?

13. How important to state injury/violence prevention program staff is implementing components of a state IVPP as outlined by the "Safe States" model? Are some components more important to you and your staff than others? [If needed, review the five "Safe States" components].

14. How confident are you that your state injury/violence prevention program is able to implement all five of the "Safe States" core components? Are there certain components that you are more confident about than others? What prompted you to feel this confident? Who shared in your level of confidence? Who did not?

15. Which of the "Safe States" components are most feasible? What makes them so?

16. Are your staff knowledgeable about the "Safe States" core components? How do they learn about those concepts?

17. Does your state injury/violence prevention program conduct routine injury surveillance (collection, analyses, and dissemination of injury data)?

    a. How long has the state injury/violence prevention program been conducting injury surveillance?
    b. In the last 5 years, how often has your program submitted annual injury surveillance data to CDC?
    c. In the last 5 years, how often has your program completed an injury surveillance report for external/stakeholder use?

18. Does your state injury/violence prevention program design, implement, and evaluate injury/violence prevention and control interventions?

     a.   In the last 5 years, how many injury/violence-specific interventions were developed and implemented by your program?

     b.   In the past 5 years, how many of these interventions were evaluated?

19. Does your state injury/violence prevention program provide technical support and training for injury prevention and control in your state?
     a.   In the past 5 years, how many trainings has your program provided?
     b.   In the past 5 years how many opportunities for technical support has your program provided to local public health agencies and other stakeholders?

20. Does your state injury/violence prevention program attempt to affect public policy for injury/violence prevention in your state?
     a.   In the past 5 years, how many pieces of state or local legislation has your program asked to review and/or comment on?
     b.   In the past 5 years, how many pieces of state or local legislation has your program provided educational information regarding the issue?
     c.   Does the program have a multiagency injury/violence prevention coalition that can advocate on the program's behalf?

21. In the past 5 years, were any of the activities outlined in the "Safe States" model new to your state injury/violence prevention program? If yes, which ones? Were there activities that had been part of the program that are no longer part of the program?

22. When your agency decided to take on new activities outlined in the "Safe States" model, what prompted your agency to implement that new activity? What issues were considered? What were the "pros" and "cons"? How committed was your state health agency director? How committed were your staff? Were there any important groups or individuals who seemed unsure or reluctant to take on this new activity?

23. When implementing core state injury/violence prevention program activities, how committed are your organization's formal leaders (i.e., the state health agency director or other upper-level administrators) to those activities?

24. Does the state health agency director have a clear idea about what the state injury/violence prevention program is trying to accomplish? How do you know?

25. Can you think of specific things that the state health agency director and/or upper-level administrators did or said that expressed their support or lack of support for the program? Were certain administrators more supportive than others?

26. How are tasks delegated among the state injury/violence prevention program staff?

27. How does your state injury/violence prevention program disseminate new information about best practices for injury/violence prevention and control to the program staff?

28. How often and by what means does the state injury/violence prevention program receive feedback on its performance from state health agency administrators?

29. How often do state injury/violence prevention staff receive feedback on their performance? What kinds of feedback do they receive? How do they get that feedback?

30. Does your state injury/violence prevention program have written interagency/organizational agreements (e.g. memoranda of understanding, etc) related to shared roles, duties, and responsibilities of staff among the involved agencies?

31. Do your state injury/violence prevention program staff have a clear idea of what the program is trying to accomplish?

32. Do your staff know what they are personally supposed to do and how they are supposed to do it?

33. Do your staff feel enthusiastic about the state injury/violence prevention program?

34. Do your staff feel that they have the knowledge, skills, and tools they need to play their part in the program?

35. Do your staff feel that there are major barriers or disincentives to getting the work done?

36. Do your staff feel recognized and rewarded for doing their part? Do they know how well they are doing?

37. How important to your staff is maximizing the productivity? Do some staff hold this more dearly than others? Is implementing the program consistent with this value or does it conflict with this value?

38. How important to your staff is contributing to the benefit of the community? Do some staff hold this value more dearly than others? Is implementing the program consistent with this value, or does it conflict with this value?

39. How important to your staff is having a lot of autonomy in how they perform their work? Does implementing the program support this value, or does it conflict with this value?

40. How important to your staff is having opportunities to learn and grow on the job? Does implementing the program support this value, or does it conflict with this value?

41. How important to your staff is working in a low-stress environment? Does implementing the program support this value, or does it conflict with this value?

42. Are there are any of your staff or other state health agency staff who really stand out as champions of the state injury/violence prevention program? By champion, I mean someone who goes above and beyond the call of duty, someone who is personally invested in making the state injury/violence prevention program succeed?

43. Do your injury/violence prevention program stakeholders have a clear idea of what your program is trying to accomplish?

44. How much competition is there among the state injury/violence prevention program and other stakeholder groups?

45. Are there any stakeholders or representatives from the external community that stand out as advocates for the state injury/violence prevention program?

46. Who are the program's external stakeholders? Which stakeholder groups have been most influential in your program? Why? Are there are stakeholder groups that the program should be engaging but has not? Why not?

47. How committed were stakeholders when the program decided to take on new activities from the "Safe States" model (specific activities identified above)?

48. Has stakeholder opinion impacted the level of commitment of your state health agency director to the state injury/violence prevention program? Has it impacted the level of commitment among your staff?

49. How has the program engaged important stakeholder groups?

50. What education and training does your program provide to stakeholder groups? Who provides it? How often?

51. How does the program disseminate new knowledge regarding best practices in injury prevention and control to external groups (outside of the state health agency)?

52. How has your organization benefited from engaging in injury/violence prevention programming? Have there been any disadvantages to the organization participating?

53. Has the state injury/violence prevention program had any impact on the organization's public image? What kind of impact? Is this impact measureable?

54. Has the program had an impact on the state health agency's revenue? What kind of impact? Is this impact measurable?

55. Have any major events occurred within the state health agency or in the community that have taken time and attention away from the state injury/violence prevention program? If so, what? What impact has this had on the program?

56. How much technical assistance have you received from CDC to help implement components of the "Safe States" model? What technical assistance have you received? What would you like to receive?

Appendix E: State Injury Prevention Program Staff Interview

"Thank you for taking the time to talk with me today. My name is Kelly Weidenbach and I am a doctoral student at the University of North Carolina's Gillings School of Global Public Health. I am undertaking a research study for my doctoral dissertation. I also work full-time for a state health department. The main aim of this research is to better understand what kinds of factors affect successful implementation of injury and violence prevention programs in state health agencies. Identifying different types of factors and the relationships between these factors may help organizations like yours successfully implement evidence-based injury and violence prevention activities, including activities that are required in order to be eligible for CDC core funding. The Safe States Alliance (formerly known as STIPDA) developed a list of five core components that are considered to be the foundation of state-based injury and violence prevention programs. This list of components is also known as the Safe States model. I am interested in identifying organizational behaviors, policies, practices, and relationships that might help state health agencies better implement the Safe States model. I will be asking you some general questions about your injury and/or violence prevention program and about your past experience in adopting and implementing various components and activities.

"Your participation in this interview is entirely voluntary. The interview is designed to be completed in under an hour. Your personal identity will be kept strictly confidential throughout this research process and will not be reported in the dissertation or in any publications, presentations, or reports that may come out of this research. No summary or excerpt from our conversation will be shared with anyone else at your organization. You may decline to answer any question and you may end the interview at any time. You will not

receive any direct compensation for your involvement in this research. Do you have any

questions? Do I have your permission to continue with the interview?"

"To help ensure that I do not miss anything that you tell me I'd like to record our

conversation. I will maintain security over this recording, which will be used only for this

research and will be deleted upon completion of my dissertation. If at any time you would

prefer something not be recorded, please indicate that, and I will turn off the recording. Do

I have your permission to record our conversation?"

State_____ Date of interview_____

Name _____ Title_____

Start of Interview

1. Please tell me a little about your experience with this state injury and/or violence prevention program? When did you first come into the program? How many years have you been with this program? Has your role changed since you've been with the program?

2. Does the state injury/violence prevention program have a finalized 3-5 year strategic plan or statewide plan? If yes, can you tell me a little bit about how this plan was developed and who was involved? How were priorities identified?

3. How does your state injury/violence prevention program evaluate whether or not your organization is meeting objectives in the statewide injury control plan? Who evaluates? What data is collected for evaluation?

4. Does your organization have a statewide injury planning group or coalition? Who serves on that group? How is it decided who will participate? How are the roles and responsibilities of this group defined?

5. What education and training does your program provide to you (staff)? Who provides it? How often?

6. How important to you is implementing components of a state IVPP as outlined by the "Safe States" model? Are some components more important to you and your staff than others? [If needed, review the five "Safe States" components].

7. How confident are you that your state injury/violence prevention program is able to implement all five of the "Safe States" core components? Are there certain components that you are more confident about than others? What prompted you to feel this confident? Who shared in your level of confidence? Who did not?

8. Which of the "Safe States" components are most feasible? What makes them so?

9. Do you feel knowledgeable about the "Safe States" core components? How did you learn about those concepts?

10. In the past 5 years, were any of the activities outlined in the "Safe States" model new to your state injury/violence prevention program? If yes, which ones? Were there activities that had been part of the program that are no longer part of the program?

11. When your agency decided to take on new activities outlined in the "Safe States" model, what prompted your agency to implement that new activity? What issues were considered? What were the "pros" and "cons"? How committed was your state health agency director? How committed were you in this decision? Were there any important groups or individuals who seemed unsure or reluctant to take on this new activity?

12. When implementing core state injury/violence prevention program activities, how committed are your organization's formal leaders (i.e., the state health agency director or other upper-level administrators) to those activities?

13. Does the state health agency director have a clear idea about what the state injury/violence prevention program is trying to accomplish? How do you know?

14. Can you think of specific things that the state health agency director and/or upper-level administrators did or said that expressed their support or lack of support for the program? Were certain administrators more supportive than others?

15. How are tasks delegated among the program staff?

16. How does your state injury/violence prevention program disseminate new information about best practices for injury/violence prevention and control to the program staff?

17. How often and by what means does the program receive feedback on its performance from state health agency administrators?

18. How often do you receive feedback on your performance? What kinds of feedback do you receive? How do you get that feedback?

19. Do you have a clear idea of what the program is trying to accomplish?

20. Do you know what you are personally supposed to do and how you are supposed to do it?

21. Do you feel enthusiastic about the state injury/violence prevention program?

22. Do you feel that you have the knowledge, skills, and tools you need to play your part in the program?

23. Do you feel that there are major barriers or disincentives to getting the work done?

24. Do you recognized and rewarded for doing your part?

25. How important to you is maximizing the productivity? Do you hold this more or less dearly than others? Is implementing the program consistent with this value or does it conflict with this value?

26. How important to you is contributing to the benefit of the community? Do you hold this value more or less dearly than others? Is implementing the program consistent with this value, or does it conflict with this value?

27. How important to you is having a lot of autonomy in how you perform your work? Does implementing the program support this value, or does it conflict with this value?

28. How important to you is having opportunities to learn and grow on the job? Does implementing the program support this value, or does it conflict with this value?

29. How important to you is working in a low-stress environment? Does implementing the program support this value, or does it conflict with this value?

30. Are there are any of staff within the program or other state health agency staff who really stand out as champions of the state injury/violence prevention program? By champion, I mean someone who goes above and beyond the call of duty, someone who is personally invested in making the state injury/violence prevention program succeed?

31. Do your injury/violence prevention program stakeholders have a clear idea of what your program is trying to accomplish?

32. How much competition is there among the state injury/violence prevention program and other stakeholder groups?

33. Are there any stakeholders or representatives from the external community that stand out as advocates for the state injury/violence prevention program?

34. Who are the program's external stakeholders? Which stakeholder groups have been most influential in your program? Why? Are there are stakeholder groups that the program should be engaging but has not? Why not?

35. How committed were stakeholders when the program decided to take on new activities from the "Safe States" model (specific activities identified above)?

36. Has stakeholder opinion impacted the level of commitment of your state health agency director to the state injury/violence prevention program? Has it impacted your level of commitment?

37. How has the program engaged important stakeholder groups?

38. What education and training does your program provide to stakeholder groups? Who provides it? How often?

39. How does the program disseminate new knowledge regarding best practices in injury prevention and control to external groups (outside of the state health agency)?

40. How has your organization benefited from engaging in injury/violence prevention programming? Have there been any disadvantages to the organization participating?

41. Has the state injury/violence prevention program had any impact on the organization's public image? What kind of impact? Is this impact measureable?

42. Have any major events occurred within the state health agency or in the community that have taken time and attention away from the state injury/violence prevention program? If so, what? What impact has this had on the program?

43. How much technical assistance have you received from CDC to help implement components of the "Safe States" model? What technical assistance have you received? What would you like to receive?

Appendix F: State Health Agency Administrator Interview

"Thank you for taking the time to talk with me today. My name is Kelly Weidenbach and I am a doctoral student at the University of North Carolina's Gillings School of Global Public Health. I am undertaking a research study for my doctoral dissertation. I also work full-time for a state health department. The main aim of this research is to better understand what kinds of factors affect successful implementation of injury and violence prevention programs in state health agencies. Identifying different types of factors and the relationships between these factors may help organizations like yours successfully implement evidence-based injury and violence prevention activities, including activities that are required in order to be eligible for CDC core funding. The Safe States Alliance (formerly known as STIPDA) developed a list of five core components that are considered to be the foundation of state-based injury and violence prevention programs. This list of components is also known as the Safe States model. I am interested in identifying organizational behaviors, policies, practices, and relationships that might help state health agencies better implement the Safe States model. I will be asking you some general questions about your injury and/or violence prevention program and about your past experience in adopting and implementing various components and activities.

"Your participation in this interview is entirely voluntary. The interview is designed to be completed in under an hour. Your personal identity will be kept strictly confidential throughout this research process and will not be reported in the dissertation or in any publications, presentations, or reports that may come out of this research. No summary or excerpt from our conversation will be shared with anyone else at your organization. You may decline to answer any question and you may end the interview at any time. You will not

receive any direct compensation for your involvement in this research. Do you have any

questions? Do I have your permission to continue with the interview?"

"To help ensure that I do not miss anything that you tell me I'd like to record our

conversation. I will maintain security over this recording, which will be used only for this

research and will be deleted upon completion of my dissertation. If at any time you would

prefer something not be recorded, please indicate that, and I will turn off the recording. Do

I have your permission to record our conversation?"

State_____ Date of interview_____

Name _____ Title_____

Start of Interview

1. Please tell me a little about your experience with this state injury and/or violence prevention program?

2. How long has your state had an injury/violence prevention program?

3. Is there a legislative mandate for the program to exist? If yes, how did this mandate come to exist?

4. Does the state injury/violence prevention program have a finalized 3-5 year strategic plan or statewide plan? If yes, can you tell me a little bit about how this plan was developed and who was involved? How were priorities identified?

5. How does your state injury/violence prevention program evaluate whether or not your organization is meeting objectives in the statewide injury control plan? Who evaluates? What data is collected for evaluation?

6. Does your organization have a statewide injury planning group or coalition? Who serves on that group? How is it decided who will participate? How are the roles and responsibilities of this group defined?

7. To what extent do state general funds cover the cost of your state injury/violence prevention program infrastructure?

8. Other than state general funds, what are other sources of funding for the state injury/violence prevention program?

9. What financial or in-kind contributions do stakeholder organizations make to your state injury/violence prevention programs?

10. How have the state injury/violence prevention program's funding sources changed over time?

11. Have you experienced any difficulty in hiring or retaining qualified staff for the injury/violence prevention program? Is the pool of qualified people inadequate?

12. What skills and experiences do you believe are necessary for state injury/violence prevention program staff?

13. Are you knowledgeable about the "Safe States" core components? How did you learn about those concepts?

14. How confident are you that your state injury/violence prevention program is able to implement all five of the "Safe States" core components? Are there certain components that you are more confident about than others? What prompted you to feel this confident? Who shared in your level of confidence? Who did not?

15. Which of the "Safe States" components are most feasible? What makes them so?

16. In the past 5 years, were any of the activities outlined in the "Safe States" model new to your state injury/violence prevention program? If yes, which ones? Were there activities that had been part of the program that are no longer part of the program?

17. When your agency decided to take on new activities outlined in the "Safe States" model, what prompted your agency to implement that new activity? What issues were considered? What were the "pros" and "cons"? How committed were you with the decision to take on new activities? Were there any important groups or individuals who seemed unsure or reluctant to take on this new activity?

18. Do you have a clear idea about what the state injury/violence prevention program is trying to accomplish? How do you know?

19. How often and by what means does the state injury/violence prevention program receive feedback on its performance from state health agency administrators?

20. How often do state injury/violence prevention staff receive feedback on their performance? What kinds of feedback do they receive? How do they get that feedback?

21. Does your state injury/violence prevention program have written interagency/organizational agreements (e.g. memoranda of understanding, etc) related to shared roles, duties, and responsibilities of staff among the involved agencies?

22. Are there are any of your staff or other state health agency staff who really stand out as champions of the state injury/violence prevention program? By champion, I mean someone who goes above and beyond the call of duty, someone who is personally invested in making the state injury/violence prevention program succeed?

23. Do your injury/violence prevention program stakeholders have a clear idea of what your program is trying to accomplish?

24. Are there any stakeholders or representatives from the external community that stand out as advocates for the state injury/violence prevention program?

25. Who are the program's external stakeholders? Which stakeholder groups have been most influential in your program? Why? Are there are stakeholder groups that the program should be engaging but has not? Why not?

26. How committed were stakeholders when the program decided to take on new activities from the "Safe States" model (specific activities identified above)?

27. Has stakeholder opinion impacted the level of commitment of your state health agency director to the state injury/violence prevention program? Has it impacted the level of commitment among your staff?

28. How has the program engaged important stakeholder groups?

29. How has your organization benefited from engaging in injury/violence prevention programming? Have there been any disadvantages to the organization participating?

30. Has the state injury/violence prevention program had any impact on the organization's public image? What kind of impact? Is this impact measureable?

31. Has the program had an impact on the state health agency's revenue? What kind of impact? Is this impact measurable?

32. Have any major events occurred within the state health agency or in the community that have taken time and attention away from the state injury/violence prevention program? If so, what? What impact has this had on the program?

Appendix G: State Injury Prevention Program Stakeholder Interview

"Thank you for taking the time to talk with me today. My name is Kelly Weidenbach and I am a doctoral student at the University of North Carolina's Gillings School of Global Public Health. I am undertaking a research study for my doctoral dissertation. I also work full-time for a state health department. The main aim of this research is to better understand what kinds of factors affect successful implementation of injury and violence prevention programs in state health agencies. Identifying different types of factors and the relationships between these factors may help organizations like yours successfully implement evidence-based injury and violence prevention activities, including activities that are required in order to be eligible for CDC core funding. The Safe States Alliance (formerly known as STIPDA) developed a list of five core components that are considered to be the foundation of state-based injury and violence prevention programs. This list of components is also known as the Safe States model. I am interested in identifying organizational behaviors, policies, practices, and relationships that might help state health agencies better implement the Safe States model. I will be asking you some general questions about your injury and/or violence prevention program and about your past experience in adopting and implementing various components and activities.

"Your participation in this interview is entirely voluntary. The interview is designed to be completed in under an hour. Your personal identity will be kept strictly confidential throughout this research process and will not be reported in the dissertation or in any publications, presentations, or reports that may come out of this research. No summary or excerpt from our conversation will be shared with anyone else at your organization. You may decline to answer any question and you may end the interview at any time. You will not

receive any direct compensation for your involvement in this research. Do you have any questions? Do I have your permission to continue with the interview?"

"To help ensure that I do not miss anything that you tell me I'd like to record our conversation. I will maintain security over this recording, which will be used only for this research and will be deleted upon completion of my dissertation. If at any time you would prefer something not be recorded, please indicate that, and I will turn off the recording. Do I have your permission to record our conversation?"

State_____ Date of interview_____

Name _____ Title_____

Start of Interview

1. Please tell me a little about your experience with this state injury and/or violence prevention program?

2. Does the state injury/violence prevention program have a finalized 3-5 year strategic plan or statewide plan? Was your organization involved in the planning process? How were priorities identified?

3. Does your organization participate in the statewide injury planning group or coalition? Who serves on that group? How is it decided who will participate? How are the roles and responsibilities of this group defined?

4. How important to you is it that the state program implements components of a state IVPP as outlined by the "Safe States" model? Are some components more important to you and your staff than others? [If needed, review the five "Safe States" components].

5. How confident are you that the state injury/violence prevention program is able to implement all five of the "Safe States" core components? Are there certain components that you are more confident about than others? What prompted you to feel this confident? Who shared in your level of confidence? Who did not?

6. Which of the "Safe States" components are most feasible? What makes them so?

7. Do you feel knowledgeable about the "Safe States" core components? How did you learn about those concepts?

8. How committed are the state health agency's formal leaders (i.e., the state health agency director or other upper-level administrators) in implementing an evidence-based injury/violence prevention program?

9. Can you think of specific things that the state health agency director and/or upper-level administrators did or said that expressed their support or lack of support for the program? Were certain administrators more supportive than others?

10. Do you have a clear idea of what the program is trying to accomplish?

11. Do you feel enthusiastic about the state injury/violence prevention program?

12. Are there are any of staff within the program or other state health agency staff who really stand out as champions of the state injury/violence prevention program? By champion, I mean someone who goes above and beyond the call of duty, someone who is personally invested in making the state injury/violence prevention program succeed?

13. How much competition is there among the state injury/violence prevention program and other stakeholder groups?

14. Are there any stakeholders or representatives from the external community that stand out as advocates for the state injury/violence prevention program?

15. Who are the program's external stakeholders? Which stakeholder groups have been most influential? Why? Are there are stakeholder groups that the program should be engaging but has not? Why not?

16. How committed is your organization when the state program decides to take on new activities from the "Safe States" model (specific activities identified above)?

17. How has the program engaged important your organization?

18. What education and training does your organization receive from the state IVPP? How often?

19. Does your organization receive new knowledge regarding best practices in injury prevention from the state IVPP? If so, how often and by what means?

20. How has your organization benefited from engaging in injury/violence prevention programming? Have there been any disadvantages to the organization participating?

21. Have any major events occurred within the state health agency or in the community that have taken time and attention away from the state injury/violence prevention program? If so, what? What impact has this had on the program?

Appendix H: Email Recruitment/Follow-up Letter

My name is Kelly Weidenbach and I am a doctoral student at the University of North Carolina's Gillings School of Global Public Health. I am undertaking a research study for my doctoral dissertation. I also work full-time for a state health department. The main aim of this research is to better understand what kinds of factors affect successful implementation of injury and violence prevention programs in state health agencies. Identifying different types of factors and the relationships between these factors may help organizations like yours successfully implement evidence-based injury and violence prevention activities, including activities that are required in order to be eligible for CDC core funding. The Safe States Alliance (formerly known as STIPDA) developed a list of five core components that are considered to be the foundation of state-based injury and violence prevention programs. This list of components is also known as the "Safe States model." I am interested in identifying organizational behaviors, policies, practices, and relationships that might help state health agencies better implement the "Safe States model." I am specifically interested in states in Regions 7 & 8 that have not received CDC core VIPP funding.

Study objective:

This dissertation aims to identify and to describe the organizational and environmental variables that affect implementation success or effectiveness of state-based injury prevention programs that have not received CDC core funding for injury prevention and control.

How do state health agencies successfully implement state injury and violence prevention programs in the absence of core federal funding? Which organizational and environmental factors, that are subject to managerial or staff influence, shape the implementation of state-based injury and violence prevention programs? How does the interaction of these factors influence implementation effectiveness?

Participants' anticipated activities in this project:

- State injury/violence prevention program director will be asked to complete a short survey used to gauge the degree to which certain Safe States core components have been implemented in the state.

- State injury/violence prevention program director will be asked to participate in a 60-90 minute telephone interview used to gather information about the organizational and environmental factors that might influence implementation. Additional time may be warranted post-interview for follow-up or clarification. The questions in this interview are general questions about your injury/violence prevention program and about your past experience in adopting and implementing various components and activities.

- State injury/violence prevention program director will be asked to provide documents relevant to the state IVPP that will be used to corroborate information provided in the survey and interview.

- State injury/violence prevention program director will be asked to identify staff, state health department administrators (higher level than state IVPP director), and external stakeholders who have played key roles in the implementation of the state IVPP for telephone interview by the researcher. These interviews are anticipated to take 30-45

minutes per respondent. The study aims to gather information from a multitude of viewpoints.

Documents that may be requested for document review:

- State injury/violence control plan

- Progress reports

- State injury/violence prevention coalition meeting minutes

- Technical reports

- Grant applications

- Published manuscripts

- Release of state-level "State of the States" data from Safe States Alliance

- Other public agency reports pertaining to injury/violence prevention

Informed consent and confidentiality:

All individuals solicited for interview will be granted an opportunity to provide informed consent prior to participation in the research. Participation is voluntary and individuals' identities will be kept confidential.

Participating state programs will decide if they want the state names published in the final dissertation. There may be benefits to releasing or not releasing state names (i.e., your program may want to be recognized for some of the great work you do). If one participating state does not wish to be identified in the final dissertation, then none of the state names will be released.

The dissertation proposal abstract is attached to this email. If you wish to see the entire

dissertation proposal, you may request that from me at any time.

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Appendix I: Dissertation Proposal Abstract

Abstract

KELLY NICHOLE WEIDENBACH: Determinants of Implementation

Effectiveness of State-based Injury and Violence Prevention Programs

in Resource-Constrained Environments

(Under the Direction of Rebecca Wells)

Background: Injuries are the leading cause of death for individuals aged 1-44 years in the United States (NCIPC, 2012). State health agencies have been recognized as critical organizations to address the burden of injury and violence through the Public Health Approach. Guidance documents for state health agencies describe the critical activities and components of an effective injury prevention program, yet the factors that affect the successful implementation of these programs are not well understood. Research is needed to determine how state health agencies initiate and implement injury prevention programs with limited resources and within the complex social contexts that define the environment of state health policy.

Objective: This dissertation aims to identify and to describe the organizational and environmental variables that affect implementation success or effectiveness of state-based injury prevention programs that have not received CDC core funding for injury prevention and control.

Methods: This project is a mixed-method study aimed at exploring and describing the organizational and environmental factors influencing the implementation of state injury and

violence prevention programs. The study design will incorporate two separate phases, which include a series of holistic case studies examining implementation effectiveness in states health agencies that have received no CDC core funding and that are in the same regional injury leadership network as Wyoming, and the development of policy recommendations for the implementation of an injury prevention program within the Wyoming Department of Health based on the findings from the series of case studies.

Appendix J: Theoretical Model

Hypothesized Relationships among Factors Influencing the Implementation of State Injury and Violence Prevention Programs
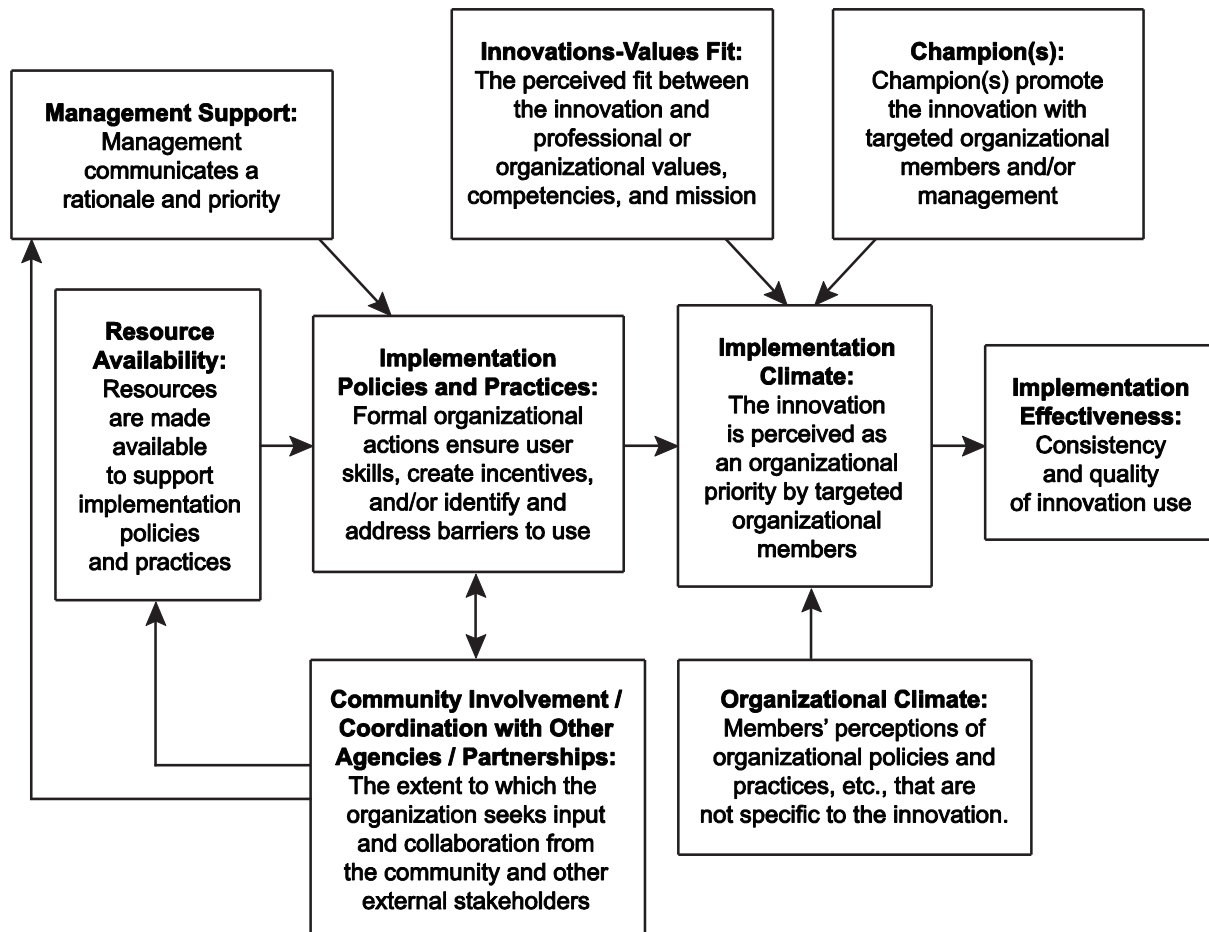
Adapted from Helfrich et al. (2007)

Appendix K: Coding Manual

Adapted from Helfrich et al. (2007)

To ensure consistency in data coding, the investigator has developed a coding manual that defines each code conceptually, outlines the decision rules for when to apply the code and when not to apply the code, provides examples of appropriate and inappropriate uses of the codes, and tracks any revisions made to the code as the research progressed. To create this code, the investigator used the study's conceptual framework (Appendix J) to generate a starting list of codes, which were supplemented with new codes as coding and analyses proceeded. This coding manual was considered to be a "living document." As codes were applied to interview transcripts and other study documents, questions arose about the meaning of the codes, the differences between codes, and the decision rules about when to apply codes. Each question prompted discussion and changes to the coding manual. Definitions were sharpened, new codes were added, decision rules were modified, and examples were changed.

Atlas.ti was used for coding and data analyses. The investigator took an "inclusive" coding approach, meaning when doubt existed about whether a code should have been applied, the investigator chose to favor applying the code. During analyses, comments and memos were used in Atlas.ti to note coding questions or ambiguity so that the research could revisit and review coding that was less than straightforward. Memos were created when the investigator considered applying a specific code but decided not to do so; the memo was created to explain which code was considered and why it was not applied.

IMPLEMENTATION EFFECTIVENESS

Implementation effectiveness refers to the consistency and quality in which the state health agency is able to implement components of the "Safe States model" (innovation use) (Klein & Sorra, 1996). Implementation effectiveness is an organizational-level construct.

<u>Use when:</u>
- Interview participants comment on:
  - State IVPP performance (collective, not individual performance)
  - Number of employees currently employed by state IVPP
  - Existence (or lack of) of single organizational subunit within the state health agency devoted to injury/violence prevention
  - Existence (or lack of) legislative mandate for single program to exist
  - Finalized strategic plan for injury/violence prevention and control (or lack of)
  - Presence (or lack) an epidemiologist devoted to injury/violence prevention
  - Submission of injury surveillance data to CDC (state injury indicators report)
  - Completion of injury surveillance report for external/stakeholder use
  - Injury-specific interventions that were developed and implemented by the state program
  - Evaluation of injury-specific interventions
  - Provision of technical assisting or training by the state health program
  - Legislative activities by the state program
- Use to code both positive and negative statements about the state IVPP performance

<u>Do Not Use When:</u>

- Interview participants comment on an individual employee's performance rather than collective performance
- Interview participants mention individual or organizational benefits of the state IVPP (use code innovation effectiveness instead)

<u>Code progress notes:</u>

- 1/19/2013 – Created "code family" for **implementation effectiveness**. Under code family, created codes for **implementation effectiveness:positive** and **implementation effectiveness:negative** to distinguish between text strings where the informant discusses when implementation effectiveness has been achieved and where the informant discusses shortcomings in implementation. Positive=presence, completion of activities listed above. Negative=lack of, inability to complete activities listed above.

- 1/29/13 – Created separate codes for the core component index variables, so I could easily pull out text strings associated with each of the core components. These codes include: **core component1:infrastructure**, **core component2: surveillance**, **core component3: interventions**, **core component4: technical assistance**, **core component5: public policy**. These codes were always paired with **implementation effectiveness: positive** or **implementation effectiveness:negative**. This coding greatly assisted with query building. For example, if I wanted to pull all text strings that were labeled as positive implementation effectiveness around building a solid infrastructure in State A, I could create a query where the scope was limited to State A primary documents, and I could select quotes where I had coded **implementation effectiveness: positive** AND (Boolean operator) where **core component1:infrastructure** was also coded.

ORGANIZATIONAL CLIMATE

Organizational climate is the summation of attitudes, beliefs, and perceptions among staff members of a state health agency that has implemented a comprehensive, injury and violence prevention program. This construct is not specific to the injury prevention program itself but a construct measuring beliefs, attitudes, and perceptions of the whole organization (Glanz et al., 2009).

Use when:
- Interview participants comment on:
  o Collective perspective of the health department and its general policies, procedures, communication processes, role clarity, processes of conflict resolution, member participation in management, leadership, etc.
- Construct is collective, not individual
- Use to code both positive and negative statements about the state health agency climate

Do Not Use When:

- Interview participants mention their personal feelings, attitudes, beliefs about the organization
  and general processes/policies. Use **psychological climate** instead.

Code progress notes:
- 1/19/2013 – created "code family" for **organizational climate** when codes for **organizational climate: positive** and **organizational climate: negative** underneath. Positive – indicates that general organizational policies, procedures, etc are sufficient or enhance the workplace environment. Negative-indicates that these policies, practices and procedures are insufficient or do not enhance the workplace environment.

IMPLEMENTATION CLIMATE

Implementation climate refers to *"employees' shared perceptions of the importance of innovation implementation within the organization"* and whether or not they believe that the innovation is *"promoted, supported, and rewarded by the organization"* (Klein et al., 2001). Implementation climate is whether or not the employees of the state health agency believe that the implementation of a comprehensive, injury and violence prevention program is being promoted, supported and rewarded by the organization.

Use when:
- Interview participants comment on the extent to which a particular policies and practices support (or does not support) innovation use (engaging those activities as defined by the Safe States model). Support could take the form of enhancing knowledge and skills (means), encouraging effort (motives), or creating opportunities or removing barriers for innovation use (opportunities). Use of the **implementation climate** code will often, but not always, overlap with the use of the **implementation policies and practices** code.
- Interview participants mention that engaging in Safe States model-related activities is something that is expected, supported, and rewarded—even if they do not link this perception to a particular policy or practice.
- Interview participants comment on the extent to which specific groups (e.g., staff, administrators or external stakeholders) or organizational members as a whole (i.e., "everyone") share the perception that a particular policies or practices supports (or does not support) innovation use. Such perceptions might be widely shared, somewhat shared, nor not shared at all.

Do Not Use When:
- Interview participants talk only about their personal perceptions of implementation policies and practices and do not comment at all on whether those perceptions are shared by specific groups or organizational members as a whole. Use the **psychological climate** code instead.
- Interview participants mention internal motivating factors as opposed to external motivating factors. Use the **innovation-values fit** or **personal values-fit** code instead. Implementation climate is about people's perceptions of their work environment—especially those aspects of their work environment pertaining to the innovation.
- Interview participants focus on management's support or lack of support for the Safe States model. Use the **management support** code instead.

Code progress notes:

- 1/19/2013: Created "code family" for **implementation climate**. Created codes for **implementation climate: positive** and **implementation climate: negative** to

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distinguish between places where informants mention that particular policies and practices support or conversely do not support innovation use/implementation.

CHANGE COMMITMENT

Change commitment "organizational members' shared resolve to pursue the courses of action involved in change implementation" (Weiner, 2009). Change commitment occurs when employees' of state health agency share resolve in the courses of action necessary to implement a state injury prevention program (i.e., employees agree that implementation of components of Safe States model are necessary).

Use when:
- Interview participants comment on the level of commitment that specific groups (e.g., employees, administrators, or external stakeholders) or organizational members as a whole (i.e., "everyone") had for components of the Safe States model. Use the code regardless of whether the level of commitment was high or low, or whether the commitment was widely shared or limited to certain groups. Look for words like "motivated," "supported" "excited," "reluctant," "skeptical," "open," etc.

Do Not Use When:
- Interview participants talk only about their own personal commitment or sense of efficacy about their role in the implementation process. If they do not reference collective (i.e., group or organizational) commitment or efficacy, did not code change commitment.

Code progress notes:
- 1/19/13 – created higher-level, "umbrella" code family, **organizational readiness for change**, for **change commitment** and **change efficacy**.
- 1/19/13 – created separate codes for **change commitment: positive** and **change commitment: negative** to distinguish between places where the commitment was strong from the places where the commitment was not strong/lacking.
- 1/19/13 – Considered creating a code for **personal change commitment**, but determined that it was not needed because it was not identified in the interviews.
- 1/31/13 – Noted that the code was not used yet, so I went through all of the interviews again and found no place where code would be used appropriately.

CHANGE EFFICACY

Change efficacy is "organizational members' shared beliefs in their collective capabilities to organize and execute the courses of action involved in change implementation" (Weiner, 2009). Employees' of state health agency shared beliefs that they are collectively capable of implementing the state injury prevention program consistent with the Safe States model.

Use when:
- Interview participants comment on the level of confidence that specific groups (e.g., staff, managers, or administrators) or organizational members as a whole (i.e., everyone) that they could mobilize the resources, take the actions necessary, and make adjustments along the way. Look for words like "can," "could," "confident," "sure," and "certain" (as well as their antonyms).

Do Not Use When:
- Interview participants mention outcome expectancies: what might or might not occur if they successfully perform the action. *Efficacy* focuses on the question: Can I (or we) do this? *Outcome expectancy* focuses on the question: If I (or we) do this, what will happen?

Code progress notes:
- 1/19/13 – created higher-level, "umbrella" code family, **organizational readiness for change**, for change commitment and change efficacy.
- 1/19/13 – created codes for **change efficacy: positive** and **change efficacy: negative** to distinguish between places where the collective commitment/level of confidence was high vs. places where collective commitment/level of confidence was low.
- 1/19/13 – created a code for **personal readiness to change** for places where informants spoke about their personal commitment or level of confidence for implementing the program. Ended up only using the code once.
- 1/19/13 – created a code for **stakeholder change efficacy** to highlight places where stakeholder informants indicated their level of commitment or level of confidence in the state health agency's ability to implement the program. Ended up only using the code once.

RESOURCE AVAILABILITY

Resource availability is "the cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy as well to initiate changes in strategy with respect to the external environment" (Bourgeois, 1981). The financial and human resources that are available to the state health agency for the implementation of the state injury program.

Use when:
- Interview participants comment on:
  - Financial and non-financial assistance provided by the state health agency, the federal government, or stakeholders to the state IVPP
  - The amount and accessibility (or lack) of core VIPP funding from CDC
- Use to code both positive and negative statements about resource availability

Do Not Use When:
- Interview participants mention staffing issues (e.g., inexperience, turnover, short-staffing). Use the **other barriers** code instead.
  - 1/19/13: Use **human resource availability** here instead (see progress notes below).
- Interview participants mention the general "support" provided by the state health agency leaders. Code these statements as **management support** if no specific form of assistance is mentioned.

Code progress notes:
- 1/19/13 – This code was broken out into two new code families with underlying codes to distinguish between the type of resources that are available or lacking and also to distinguish between whether they are, indeed, available or lacking.
  - **Financial resource availability** – used when informants mention financial resources needed/available/missing.
    - **Financial resource availability: positive**
    - **Financial resource availability: negative**
  - **Human resource availability** – used when informants mention availability of staff and personnel available/needed/missing/lost
    - **Human resource availability: positive**
    - **Human resource availability: negative**

INNOVATION-VALUES FIT

Innovation-values fit is "the extent to which targeted users perceive that use of the innovation will foster (or, conversely, inhibit) the fulfillment of their values" (Klein & Sorra, 1996). The extent to which the various groups of actors (i.e. program staff, administrators and external stakeholders [measured separately]) perceive that the state injury program, in accordance with the Safe States model, will fulfill their values (or not).

Use when:
- Interview participants comment on the fit (or lack of fit) that specific groups (e.g., IVPP employees, managers, or administrators) or other organizational members collectively perceive between the IVPP and the values that they hold. For example, the IVPP might or might not be compatible with the following values:
  - Autonomy/flexibility/discretion/control over one's work processes
  - Innovation/novelty/state-of-the-art/experimental/leader in the field of injury prevention
  - Evidence-based/scientific
  - Community-oriented/community benefit
- Interview participants mention the importance that specific groups or organizational members as a whole ascribe to the abovementioned values. Whereas the first decision rule emphasizes fit, this decision rule emphasizes intensity, or the amount of feeling attached to a particular value.

Do Not Use When:
- Interview participants talk about **personal values-fit** rather than group or organizational values-fit. That is, they talk about themselves as individuals and do not reference groups within the IVPP or the organization as a whole.
- Interview participants talk about operational fit (e.g., fit with workflow).
- Interview participants talk about the fit of the IVPP in relation to the organization's mission. Do not code these statements as **innovation-values fit** unless you get the sense that certain groups or organizational members as a whole believe in the mission (i.e., hold those values dearly).
- Interview participants comment on the benefits or outcomes that result from being an IVPP. Consider coding these statements as **innovation effectiveness**. People can value the benefits or outcomes that result from the innovation (e.g., greater resources) but not necessarily value the innovation itself. There are many ways to gain resources, for example.

Code progress notes:
- 1/19/13: Created code family for **innovation-values fit** with codes under this family, which included **innovation-values fit: present** and **innovation-values fit: absent** to

distinguish between places where informants discuss how the innovation fits (or doesn't fit) with their collective values.

- 1/19/13: Created code for **personal values-fit** to identify places where people talk about alignment between the innovation and their personal values.
- 1/19/13: Created code for **innovation effectiveness** to identify places where informants discuss benefits or outcomes of the innovation. Only used once.

IMPLEMENTATION POLICIES AND PRACTICES

Implementation Policies and Practices (IPP) are "the formal strategies (i.e., policies) the organization uses to put the innovation to use and the actions that follow from those strategies (i.e., the practices)" (Klein et al., 2001). IPP are the formal policies of the state health agencies and the subsequent practices among staff that support the implementation of the state injury prevention program.

Use when:
- Interview participants mention specific policies or practices intended to support the implementation of the IVPP.
  - New decision-making policies or practices (e.g., new committees, roles, or authority)
  - Training and education (e.g., conferences, etc.)
  - Rewards or incentives (e.g., recognition, praise, monetary and non-monetary reward)
  - Persuasive communication (e.g., state health administrators provide strong communication for the state IVPP)
  - Workflow or workload changes (e.g., reorganization for the state IVPP to better meet the Safe States model)
  - New reporting relationships
  - Changes in staffing levels or mix (e.g., redistributing work roles)
  - New documentation, monitoring, or enforcement procedures (e.g., tracking systems)
- Use the code regardless of whether the described policy or practice was actually used or merely considered but postponed or rejected.
- Interview participants mention that a specific policy or practice is missing or needed.
- Interview participants mention either focusing on certain kinds of trials or otherwise adapting trial attributes (e.g., advocating for changes in the trial's eligibility criteria).

Do Not Use When:
- Interview participants mention policies or practices that originate outside the state IVPP (e.g., from CDC or other stakeholders).
- Interview participants mention a change in policy or practice that had an unintended effect on IVPP implementation and performance. These changes are important, but they are not IPPs. Consider the possibility of coding these **implementation climate**.

Code progress notes:
- 1/19/13: Created code family for **implementation policies and practices**, and then created two new codes for **implementation policies and practices:** present and **implementation policies and practices: absent** to distinguish between when informants indicate presence or absence of such policies, procedures, and practices (discussed above).

- 1/26/13: Created code for **staff knowledge of core components: present** and **staff knowledge of core components: absent.** Considered to be a sub-construct of IP&P because it suggests that staff have not been adequately trained, educated, or informed on the innovation. Identified as theme across the various state cases. Collective sub-constructed. Used when informant discusses staff as a whole and does not talk about individual staff members.
- 1/26/13: Considered whether **shared decision-making** and **partnerships** were also sub-constructs to **IP&P**. Shared decision-making is a practice towards an outward orientation to stakeholders and openness to stakeholder input and involvement in programmatic planning processes. The organization's tendency to form partnerships with outside agencies was also considered to be a sub-construct of **IP&P**. These codes were added under the code family for **implementation policies and practices**.

SHARED DECISION-MAKING

Shared decision-making is "the extent to which relevant parties (e.g., providers, administrators, researchers, and community members) collaborate in determining what will be implemented and how" (Durlak & DuPre, 2008). Here, defined as the extent to which state health agency staff, state health agency leadership, and external stakeholders collaborate to determine how the state injury prevention program is implemented (i.e., coalition activities, procedures, terms of reference).

Use when:
- Interview participants discuss ways in which the state IVPP solicited input on implementation and priorities from external stakeholders.
- Interview participants mention colleagues from outside of the state IVPP who had input or control over how the state IVPP set implementation priorities.
- Interview participants report collaboration between various partners in setting goals and objectives for the program.
- Interview participants report that the state IVPP has specific policies or procedures that require or encourage stakeholder involvement in state IVPP implementation.
- Interview participants mention giving stakeholders the opportunity to review policies, documents, and plans created by the state IVPP.

Do Not Use When:
- Interview participants mention decision-making that solely occurred within the state IVPP and did not include external stakeholders.
- Interview participants mention formal or informal agreements for resources between the state IVPP and the partner (use **partnerships** instead).

Code progress notes:
- 1/19/13: Created new codes for **shared decision-making: present** and **shared decision-making absent**. **Shared decision-making: absent** was used when the informant mentioned that the organization specifically chose not to involve external stakeholders in a specific decision-making process. Categorized under the **IP&P** code family.

PARTNERSHIP

Partnership is the extent to which other local agencies and community groups are involved and contribute expertise, multidisciplinary viewpoints, and other resources (Durlak & DuPre, 2008). Here, it is defined as the extent to which other local agencies and community groups are involved and contribute to the implementation of the state injury prevention program (i.e., resources leveraged between state health agency and external agency, coalition composition, MOUs).

Use when:
- Interview participants mention that partners were used to help implement some of the activities outlined by the Safe States model.
- Interview participants report that various partners helped to write, edit, or author state IVPP documents or plans or were otherwise solicited for specific expertise.
- Interview participants mention the existence of formal or informal agreements between the state IVPP and other stakeholder groups.
- Interview participants mention that stakeholder resources were critical for implementation of various state IVPP activities.
- Interview participants report in-kind contributions received from external stakeholders.
- Informant mentions the lack of a critical partnership that is typically recommended to IVPPs.

Do Not Use When:
- Interview participants mention external stakeholder input in decision-making and setting priorities, instead use **shared decision-making**.

Code progress notes:
- 1/19/13: Created codes for **partnerships: present** and **partnerships: absent** to distinguish between situations where the partnership was present or formed and when a partnership is lacking/needed. Codes were categorized under the **IP&P** code family (see explanation under IP&P).

MANAGEMENT SUPPORT

Management support is "managers' commitment to conduct transformation of the organization and to invest in quality implementation policies and procedures to implement the innovations" (Klein & Sorra, 1996). State health agency administrators commitment (or lack of) to the implementation of the state injury prevention program, the subsequent policies that they put into place to support implementation, and the symbolic actions that they take to signal their support (i.e., written policies stating support for various components of the Safe States model/state injury prevention program).

Use when:
- Interview participants refer specifically to support for the state IVPP among state health department leaders (hierarchical level hired than the injury prevention program director), such as the state health director, the state medical officer, the state epidemiologist, etc.
- Interview participants mention management's provision or non-provision of financial, material, or human resources to support implementation
- Interview participants mention management's verbal expressions of support (or lack of expressions of support) for the innovation, including statements about the innovation's importance to the organization.
- Interview participants mention management's efforts to overcome resistance or otherwise alter the intra-organizational political situation regarding the innovation.
- This code may overlap with **IPP** if the interview participant mentions management support in connection with an implementation policy or practice.

Do Not Use When:
- Program staff mention receiving support or lack of support from the injury prevention program manager. Here, the injury prevention program manager is not considered to be "management" in this case. Here, we are looking for management support from upper-level state health agency administrators.

Code progress notes:
- 1/19/13: Created code family for **management support** and created two new codes for **management support: present** and **management support: absent** to distinguish between the presence or absence of such support.

CHAMPION/INTERNAL ADVOCATE

Champion/internal advocate is "a charismatic individual who throws his/her weight behind the innovation, thus overcoming the indifference or resistance that a new idea often provokes in an organization" (Rodgers, 2003). A state healthy agency staff member who throws his/her weight behind the state injury prevention program helping to overcome organizational inertia.

Use when:
- The champion's role is explicit. Interview participants identify someone who made a difference in implementation, particularly where they have made a personal investment in the innovation, e.g., putting personal prestige on the line.
- Champions are likely to be the injury prevention program manager or other dedicated injury prevention program staff. Use the code to capture descriptions of someone who goes "above and beyond" the call of duty on behalf of state IVPP implementation.

Do Not Use When:
- Interview participants refer to support for the state IVPP among state health agency leaders or upper-level administrators. Use the **management support** code instead.

Code progress notes:
- 1/19/13: Created code family for **internal champion**. Created two new codes for **internal champion: present** and **internal champion: absent**.
- 1/19/13: Created code for **external champion: present** to identify places where the informant mentions an external stakeholder who acts as a champion and advocates for the program (as described above, but again, is external). I wanted to determine if certain stakeholders played critical roles in advocating for critical funding for program infrastructure, etc… (i.e., legislative advocates who worked with the program).

PSYCHOLOGICAL CLIMATE

Psychological Climate refers to individual organizational members' own perceptions of implementation policies and practices in terms of their meaning and significance for innovation use (James & Jones, 1974; James & Snells, 1981). Climate is a multilevel construct. Psychological climate refers to individual perceptions of the way things are done around here. It concerns the perceptions of individual employees as to what is expected, rewarded, and supported in the organization. When individual employees <u>share</u> the same perception of the work environment, then an organizational climate is said to exist. In this project, **psychological climate** is a "control variable." The construct does not figure into the conceptual model. Code this construct so that it can be determined if psychological climate is a plausible alternative explanation for **implementation climate**.

<u>Use When:</u>
- Interview participants talk only about their personal perceptions of **IP&Ps** and do not comment at all on whether those perceptions are shared by specific groups or organizational members as a whole.

<u>Do Not Use:</u>
- Interview participants comment on the extent to which specific groups (e.g., nurses, managers, or physicians) or organizational members as a whole (i.e., "everyone") share the perception that a particular IPP supports (or does not support) innovation use. Such perceptions might be widely shared, somewhat shared, nor not shared at all. Use **implementation climate**, when perceptions are shared by others within the state health agency.
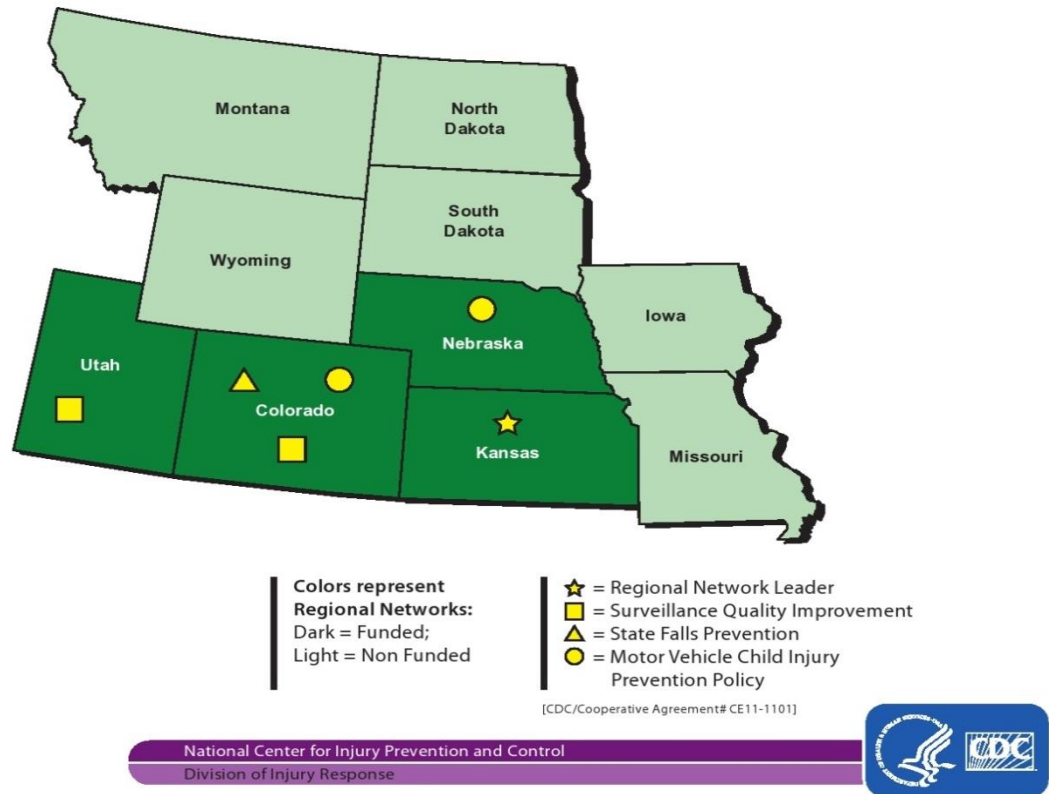
<u>Code progress notes:</u>
- 1/19/13: Created code family for **psychological climate** and two new codes for **psychological climate: positive** and **psychological climate: negative** to distinguish between when informants talked about their personal perceptions of IP&Ps being positive or negative in relation to the climate for implementation.

MISCELLANEOUS CODES

- **Background information:** Used to code text strings that were useful in providing background history on the state IVPP. Created on 1/29/13.

- **Stakeholder knowledge of innovation:** Used to examine if important stakeholders had knowledge of the innovation (or not) and to see if that affected the level of shared decision-making or partnerships. Created on 1/26/13.

- **Other barriers:** Used to document any other challenges or barriers that affected IVPP implementation or performance when no other code seems to apply. Created on 1/19/13.

Appendix L: Map of State Injury and Violence Prevention Programs in Health and Human Services (HHS) Regions 7 & 8, 2012-2016

Colors represent Regional Networks:
Dark = Funded;
Light = Non Funded

☆ = Regional Network Leader
□ = Surveillance Quality Improvement
△ = State Falls Prevention
○ = Motor Vehicle Child Injury Prevention Policy

[CDC/Cooperative Agreement# CE11-1101]

National Center for Injury Prevention and Control
Division of Injury Response

References

Arthur, M. W., & Blitz, C. (2000). Bridging the gap between science and practice in drug abuse prevention through needs assessment and strategic community planning. *Journal of Community Psychology, 28*(3), 241-255.

Beauregard-Crowe, C., Cimicata, L., Redden, G. M., & Swarmer-Witte, M. (1997). Family violence councils: The Missouri model. *Journal of Public Health Management and Practice, 3*(6), 43-51.

Bobbitt-Cooke, M., & Cole, T. B. (1997). Critical factors in building local capacity to prevent and control injury: North Carolina's experience. *Journal of Public Health Management and Practice, 3*(6), 35-42.

Bonnie, R. J., Fulco, C. E., & Liverman, C. T. (Eds.). (1999). *Reducing the burden of injury: advancing prevention and treatment*. Washington, DC: National Academy Press.

Bourgeois, L. J., III. (1981). On the measurement of organizational slack. *The Academy of Management Review, 6*(1), 29-39.

Cassady, C. E., Orth, D. A., Guyer, B., & Goggin, M. L. (1997). Measuring the implementation of injury prevention programs in state health agencies. *Injury Prevention, 3*(2), 94-99.

Centers for Disease Control. (2011). Core violence and injury prevention program (Core VIPP). Retrieved from http://www.cdc.gov/injury/stateprograms/index.html.

Corbin, J., & Strauss, A. (Eds.). (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Safe Publications, Inc.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *The Academy of Management Journal, 34*(3), 555-590.

Damanpour, F. (1992). Organizational size and innovation. *Organization Studies, 13*(3), 375-402.

DiFranceisco, W., Kelly, J. A., Otto-Salaj, L., McAuliffe, T. L., Somlai, A. M., Hackl, K., … Rompa, D. J. (1999). Factors influencing attitudes within AIDS service organizations toward the use of research-based HIV prevention interventions. *AIDS Education and Prevention: Official publication of the International Society for AIDS Education, 11*(1), 72-86.

Downey, L. M., Ireson, C. L., Slavova, S., & G. McKee. (2008). Defining elements of success: A critical pathway of coalition development. *Health Promotion Practice, 9*(2), 130-139.

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology, 41*(3-4), 327-350.

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review, 14*(4), 532-550.

Finkelstein, E. A., Corso, P. S., & Miller, T. R. (2006). *Incidence and economic burden of injuries in the United States.* New York, NY: Oxford University Press.

Fixsen, D. L., & Blase, K. A. (1993). Creating new realities: Program development and dissemination. *Journal of Applied Behavioral Analysis, 26*(4), 597-615.

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature.* Tampa, FL: University of South Florida, Louis de Parte Florida Mental Health Institute, The National Implementation Research Network.

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2009). *Health behavior and health education theory, research, and practice.* San Francisco, CA: Jossey-Bass.

Glisson, C., & James, L. R. (2002). The cross-level effects of culture and climate in human service teams. *Journal of Organizational Behavior, 23*(6), 767-794.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly, 82*(4), 581-629.

Hayes, R., Goodman, A., & Wilt, S. (1997). Developing injury prevention capacity in New York City: The role of a local health department in fostering collaborations. *Journal of Public Health Management and Practice, 3*(6), 25-29.

Helfrich, C. D., Weiner, B. J., McKinney, M. M., & Minasian, L. (2007). Determinants of implementation effectiveness: adapting a framework for complex innovations. *Medical Care Research and Review, 64*(3), 279-303.

Hersey, J. C., Mitchell, K., Diver, A. R., Butler, M. O., & Abed, J. (1995). *Reducing the burden of injury: An evaluation of CDC injury grant programs. Final report.* Arlington, VA: Battelle.

Kelter, A. (1997). Reinventing injury prevention in California: A model for reinventing local public health programs. *Journal of Public Health Management and Practice, 3*(6), 30-34.

Klein, K. J., Conn, A. B., & Sorra, J. S. (2001). Implementing computerized technology: An organizational analysis. *Journal of Applied Psychology, 86*(5), 811-824.

Klein, K. J., & Knight, A. P. (2005). Innovation implementation. *Current Directions in Psychological Science, 14*(5), 243-246.

Klein, S. J., O'Connor, P., & Fuhrman, J. M. (1997). Injury prevention capacity building in New York state: Federal support played a significant role. *Journal of Public Health Management and Practice, 3*(6), 17-24.

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *The Academy of Management Review, 21*(4), 1055-1080.

National Center for Injury Prevention and Control. (2005). Web-based injury statistics query and reporting system (WISQARS). Retrieved from http://www.cdc.gov/ncipic/wisqars.

National Center for Injury Prevention and Control (2008). *Public health injury surveillance prevention: A program that works.* Atlanta, GA: U.S. Centers for Disease Control and Prevention.

National Center for Injury Prevention and Control. (2012). Injury prevention & control: Data and statistics (WISQARS). Retrieved from http://www.cdc.gov/injury/wisqars/index.html

National Research Council. (1988). *Injury control: A review of the status of progress of the injury control program at the Centers for Disease Control.* Washington, DC: National Academy Press.

Nutt, P. C. (1986). Tactics of implementation. *The Academy of Management Journal, 29*(2), 230-261.

Panzano, P. C., Seffrin, B. A., Chaney-Jones, S., Roth, D., & Crane-Ross, D. (2002). The innovation diffusion and adoption research project (IDARP): Moving from the diffusion of research results to promoting the adoption of evidence-based innovations in the Ohio mental health system. *New Research in Mental Health, 16*, 78-89.

Petersilia, J. (1990). Conditions that permit intensive supervision programs to survive. *Crime Delinquency, 36*(1), 126-145.

Rodgers, E. (2003). *Diffusion of innovations.* New York, NY: Simon and Schuster.

Rosenberg, M. L., & Fenley, M. A. (Eds). (1990). *Violence in America: A Public Health Approach.* New York, NY: Oxford University Press.

Rosenheck, R. A. (2001). Organizational process: A missing link between research and practice. *Psychiatric Services (Washington, D.C.), 52*(12), 1607-1612.

Runyan, C. W., Villaveces, A., & Stephens-Stidham, S. (2008). Improving infrastructure for injury control: A call for policy action. *Injury Prevention, 14*(4), 272-273.

Safe States Alliance. (2011). *State of the states: 2009 report.* Atlanta, GA: Safe States Alliance.

Safe States Alliance. (2013). *State of the states: 2011 report.* Atlanta, GA: Safe States Alliance.

Sharma, R., & Yetton, P. (2003). The contingent effects of management support and task interdependence on successful information systems implementation. *MIS Quarterly, 27*(4), 533-556.

Society for the Advancement of Violence and Injury Research & State and Territorial Injury Prevention Directors Association. (2005a). Injury and violence prevention glossary. Retrieved from http://www.safestates.org/associations/5805/files/Glossary.pdf.

Society for the Advancement of Violence and Injury Research & State and Territorial Injury Prevention Directors Association. (2005b). National training initiative for injury and violence prevention. Retrieved from http://www.safestates.org/associations/5805/files/Core%20Competencies.pdf.

State and Territorial Injury Prevention Directors Association. (1997). *Safe states: Five components of a model state injury prevention program and three phases of program development.* Atlanta, GA: State and Territorial Injury Prevention Directors Association.

State and Territorial Injury Prevention Directors Association. (2003). *Safe states.* Atlanta, GA: State and Territorial Injury Prevention Directors Association.

State and Territorial Injury Prevention Directors Association. (2006). *The STIPDA 2005 state of the states survey: Highlights report.* Atlanta, GA: State and Territorial Injury Prevention Directors Association.

State and Territorial Injury Prevention Directors Association. (2008a). *The STIPDA 2007 state of the states report.* Atlanta, GA: State and Territorial Injury Prevention Directors Association.

State and Territorial Injury Prevention Directors Association. (2008b). *Strategies for sustaining state injury and violence prevention programs.* Atlanta, GA: State and Territorial Injury Prevention Directors Association.

Stith, S., Pruitt, I., Dees, J. E., Fronce, M., Green, N., Som, A., & Linkh, D. (2006). Implementing community-based prevention programming: A review of the literature. *The Journal of Primary Prevention, 27*(6), 599-617.

Verbeke, W., Volgering, M., & Hessels, M. (2002). Exploring the conceptual expansion within the field of organizational behavior: Organizational climate and organizational culture. *Journal of Management Studies, 35*(3), 303-329.

Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., … Saul, J. (2008). Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *American Journal of Community Psychology, 41*(3-4), 171-181.

Weiner, B. J., Lewis, M. A., & Linnan, L. A. (2009). Using organization theory to understand the determinants of effective implementation of worksite health promotion programs. *Health Education Research, 24*(2), 292-305.

Wilcox, S. (2001). Promoting private health insurance in Australia. *Health Affairs, 20*(3), 152-161.

Winter, S. G., & Szulanski, G. (2001). Replication as strategy. *Organization Science, 12*(6), 730-743.

Yin, R. K. (1998). The abridged version of case study research: Design and method. In. L. Bickman & D. Rog, *Handbook of applied social research methods* (pp. 229-260). Thousand Oaks, CA: Sage Publications.

Yin, R. (2003). *Case study research*. Thousand Oaks, CA: Sage Publications.