



Improving North Carolina's Health: Applying Evidence for Success

September 2012

North Carolina Institute of Medicine

In collaboration with the North Carolina Center for Public Health Quality, the Center for Healthy North Carolina, and the North Carolina Division of Public Health.

Funded by the Centers for Disease Control and Prevention's National Public Health Improvement Initiative





North Carolina Institute of Medicine

shaping policy for a healthier state

The North Carolina Institute of Medicine (NCIOM) is a nonpolitical source of analysis and advice on important health issues facing the state. The NCIOM convenes stakeholders and other interested people from across the state to study these complex issues and develop workable solutions to improve health, health care access, and quality of health care in North Carolina.

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Executive Summary

In North Carolina, the Division of Public Health (DPH) and the local health departments (LHDs) are charged with “promot[ing] and contribut[ing] to the highest level of health possible for the people of North Carolina.”^a To fulfill this mission, DPH and LHDs are tasked with preventing health risks and disease; promoting healthy lifestyles; promoting a safe and healthful environment; promoting the availability and accessibility of quality health care services through the private sector or directly if not otherwise available. To accomplish this with limited financial resources means that public health practitioners must find ways to optimize the impact of their work. Evidence-based public health, the practice of incorporating scientific evidence about what works into management decisions, program implementation, clinical services, and policy development, is one way to do this.¹

The use of research and evidence to inform public health decision making is gaining momentum across federal, state, and local public health agencies. Using evidence-based strategies (EBSs) in public health yields many benefits including increasing the likelihood that programs, clinical interventions, and policies implemented at the state or local level will be successful, and increasing public resource efficiency.² Additionally, using evidence to inform practice can help practitioners avoid implementing programs and policies deemed ineffective or harmful. The state and LHDs have limited resources to meet broad missions and are required to account for the funds they spend.¹ Therefore, investing these limited resources in programs, clinical treatments, and policies that have shown results makes sound economic sense. While implementing EBSs in public health is an appealing concept, there are challenges that DPH and LHDs face in trying to increase the use of EBSs. Selecting, implementing, and evaluating EBSs often requires skills, knowledge, and resources that LHDs may not currently have. Therefore there is a need for education, training, and other support to help LHDs increase the use of EBSs.

Over the past few years, the North Carolina Institute of Medicine (NCIOM), DPH, and other state partners have worked together to develop a vision and roadmap for improving public health efforts to save lives, reduce disability, improve quality of life, and, potentially, decrease costs. The *Prevention Action Plan for North Carolina* included evidence-based strategies to improve population health.³ *Healthy North Carolina 2020: A Better State of Health* includes 40 objectives to improve population health by 2020 as well as EBSs to help achieve the objectives.⁴ Together, the *Prevention Action Plan for North Carolina* and *Healthy North Carolina 2020: A Better State of Health* provided the vision, goals, and an evidence-based roadmap for improving the health of North Carolinians. The Task Force on Implementing Evidence-Based Strategies in Public Health builds on these previous efforts by focusing on what can be

a NCGA 130A-1.1(b), Session Law 2012-126



Evidence-based public health is the practice of incorporating scientific evidence about what works into management decisions, program implementation, clinical services, and policy development.

The Task Force on Implementing Evidence-Based Strategies in Public Health focused on what can be done at the local level by health departments to improve health outcomes.

done at the local level by health departments to improve outcomes for the HNC 2020 objectives. *Improving North Carolina's Health: Applying Evidence for Success* lays out a framework for how DPH and LHDs, with help from other partners, can support each other to increase the use of evidence-based programs, policies, and clinical practices at the local level.

The NCIOM, in collaboration with the North Carolina Center for Public Health Quality, the Center for Healthy North Carolina, and DPH, convened the Task Force in the spring of 2012. The NCIOM Task Force on Implementing Evidence-Based Strategies in Public Health was charged with developing recommendations to assist public health professionals in the identification and implementation of evidence-based strategies within their communities to improve population health. The Task Force was chaired by Alice Ammerman, DrPH, director, Center for Health Promotion and Disease Prevention, professor, Department of Nutrition, Gillings School of Global Public Health, University of North Carolina (UNC) at Chapel Hill; Laura Gerald, MD, state health director, Division of Public Health, North Carolina Department of Health and Human Services; and Gibbie Harris, health director, Buncombe County Health Department. In addition to the co-chairs, the Task Force had 30 other members including representatives of state and local agencies, key health care leaders, public health experts, foundation leaders, and other interested individuals. A Steering Committee of four individuals guided the work of the Task Force. (See pages 7-9 for a complete listing of Task Force and Steering Committee members.) The Task Force was funded by the Centers for Disease Control and Prevention's National Public Health Improvement Initiative, which provides grant funding to state, tribal, local and territorial health departments to enhance the nation's public health infrastructure and strengthen the public health workforce. The Task Force met six times between March and September of 2012.

The following provides a summary of the recommendations from the Task Force on Implementing Evidence-Based Strategies in Public Health. The summary recommendations are numbered and correspond to the chapter where they are discussed in more detail.

Recommendations for Selecting, Implementing, and Evaluating Evidence-Based Strategies in Public Health

Education is needed to ensure key public health staff understand the importance of focusing limited public health resources on implementing strategies that have been shown to be effective in producing positive health outcomes. DPH and LHD staff need a basic understanding of what EBSs are, why it is important to implement EBSs, and the need to implement these strategies with fidelity to their tested design. More detailed trainings and coaching are needed for people who are charged with implementing specific EBSs.

Recommendation 5.1: Educate State and Local Public Health Staff about Evidence-Based Strategies

State public health staff, in partnership with other state agencies and other partners should offer generic trainings on evidence-based strategies to appropriate state, regional, and local staff.

When selecting an EBS to implement, public health practitioners must weigh all the information obtained—about EBSs themselves, the needs and wants of the population they are serving, and the resources available—and make a decision about what will be the best fit for their organization and community. As part of this analysis, they need more information about the different EBSs including the level of evidence supporting the various EBSs, staffing needs, the costs of implementation, and whether or not the program offers technical assistance and/or coaching to implement the program with fidelity. They also need to consider whether they have, or could obtain, the appropriate staff and/or resources to be able to implement the EBS with fidelity.

Recommendation 5.2: Select Appropriate Evidence-Based Strategies

The Division of Public Health (DPH) should provide guidance to local health departments (LHDs) around selecting appropriate evidence-based strategies (EBSs). As part of this effort, DPH should work with local health directors, academic institutions, and partnering organizations to identify two state-selected EBSs for 10 of the priority HNC 2020 objectives identified by LHD action plans, and at least one expert contact for each selected EBS.

Once an EBS is selected, the LHD must ensure that the program, policy, or clinical intervention is implemented with fidelity. Evidence-based strategies have achieved positive health outcomes by following certain key programmatic, clinical, or policy guidelines. A community cannot expect to achieve the same outcomes unless it follows the core components of an evidence-based program, policy, or clinical intervention. Successful implementation requires leadership, organizational commitment, staff training and coaching, quality improvement efforts, data collection, and performance assessment as well as fidelity to the core implementation components of the selected EBS.

Recommendation 5.3: Implement Evidence-Based Strategies

The Division of Public Health should create a system that supports and encourages local health departments to implement evidence-based strategies with fidelity through utilizing a quality improvement approach; pursuing and publicizing funding opportunities; promoting learning collaboratives; and providing training, technical assistance, and coaching to the extent possible.

Evaluation is also an important component of effective implementation of EBSs in LHDs. Collection of both process and outcome measures is critical. Without knowing if the initiative was implemented with fidelity, it is difficult to interpret the success or failure of a given EBS on changing health outcome measures. LHDs may also need data about program effectiveness to support ongoing funding.

Recommendation 5.4: Monitor and Evaluate Process and Outcomes

To evaluate the effectiveness of state-selected evidence-based strategies (EBSs) implemented in North Carolina, the Division of Public Health and local health departments (LHDs) should identify or develop evaluation design and data collection tools for each state-selected EBS and provide training and coaching to local staff to enable them to collect the appropriate data. To ensure that state-selected EBSs are implemented with fidelity and properly evaluated, LHDs should ensure that staff who collect data receive appropriate training, collect and submit to the state requisite process and outcome data, and review local process measures to ensure program fidelity.

Reciprocal Obligations

The Task Force identified many ways in which DPH and collaborating partners could assist LHDs in implementing evidence-based programs, policies, and clinical interventions, including education, assistance identifying appropriate EBSs, technical assistance and coaching to ensure EBSs are implemented with fidelity, and evaluation support. If the state provides this assistance, then LHDs have reciprocal obligations to implement evidence-based strategies.

Recommendation 5.5: Revise the Consolidated Agreement

If the Division of Public Health (DPH) fulfills the obligations outlined in recommendations 5.1-5.4, then DPH should revise the 2013 Consolidated Agreement to require local health departments (LHDs) to identify and implement two new evidence-based strategies (EBSs) to address HNC 2020 priority objectives from different HNC 2020 focus areas as identified through the community health assessment. The LHD action plans should articulate the selected EBSs, and plans for staffing, training, implementation, and evaluation.

Partnering Organizations

The Task Force recognized that the Division of Public Health may not have sufficient resources or expertise to support LHDs with selection, implementation, and evaluation for all the state-selected EBSs. Nonetheless, everyone recognized the importance of moving as forcefully as possible towards implementation of EBSs to improve population health. One way to expand DPH's capacity to support LHDs is by working with state and national partners.

Recommendation 5.6: Collaborate with Partner Organizations

The Center for Training and Research Translation, within the University of North Carolina at Chapel Hill, should convene academic and other appropriate organizations to work with the Division of Public Health and local health departments in implementing evidence-based strategies to address the Healthy North Carolina 2020 (HNC 2020) objectives. These organizations should, to the extent possible, assist the state in identifying appropriate EBSs to address priority HNC 2020 objectives; provide implementation support; assist with the collection and analysis of data.

Conclusion

The Division of Public Health and local health departments can help improve the health and well-being of North Carolinians by increasing efforts to provide evidence-based programs, policies, and clinical interventions. The Task Force on Implementing Evidence-Based Strategies in Public Health developed strategies that provide a roadmap for how DPH, LHDs, and other state and national partners can work together to facilitate the adoption or expansion of EBSs by LHDs, with the goal of improving HNC 2020 health outcomes in local communities. By working together to make such changes, DPH, LHDs, and other partners can help make North Carolina a healthier state.

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North Carolina has made significant progress in improving the health of its population over the last five years.^{1,2} This improvement is due to a number of factors, including an increased focus within North Carolina's Division of Public Health (DPH) on investing in the kinds of evidence-based population-, community-, and clinical-level strategies and interventions that can help keep people as healthy as possible. In 2007, North Carolina was ranked as the 37th healthiest state by the United Health Foundation (with the healthiest state ranked as number 1).¹ By 2011, the state ranked 32nd, demonstrating considerable progress.² Continued progress will require an even more concerted effort between DPH, local health departments (LHDs), and numerous community partners.

Over the past few years, the North Carolina Institute of Medicine (NCIOM) has worked with DPH and many state partners to develop a vision and roadmap for improving public health efforts to save lives, reduce disability, improve quality of life, and, potentially, decrease costs. The Task Force on Implementing Evidence-Based Strategies in Public Health grew out of these previous collaborations between the North Carolina Institute of Medicine, DPH, and other partners. In 2008, NCIOM and DPH convened a task force to develop a comprehensive prevention plan for the state. Released in October 2009, *Prevention for the Health of North Carolina: Prevention Action Plan* included evidence-based strategies (EBSs) to improve population health.³ Due to the NCIOM's work on developing the state's *Prevention Action Plan*, the Governor's Task Force for Healthy Carolinians asked the NCIOM to facilitate the development of the Healthy North Carolina 2020 (HNC 2020) objectives, in collaboration with the Governor's Task Force for Healthy Carolinians and DPH. *Healthy North Carolina 2020: A Better State of Health* includes 40 health objectives in 13 focus areas: tobacco use, physical activity and nutrition, sexually transmitted diseases and unintended pregnancy, substance abuse, environmental health, injury and violence, infectious disease and food-borne illness, mental health, and social determinants of health (all originally identified in the *Prevention Action Plan*), as well as maternal and infant health, oral health, chronic disease, and a cross-cutting focus area.⁴ For each of the 40 health objectives, HNC 2020 includes a 2020 health target. Targets were set at levels to achieve ambitious yet attainable improvements in health. Together, these projects have provided the vision and goals for improving the health of North Carolinians, as well as an evidence-based roadmap for how to get there.

The Task Force on Implementing Evidence-Based Strategies in Public Health builds on these previous task forces by focusing on what can be done at the local level to improve outcomes for the HNC 2020 objectives. DPH is working to increase the focus on HNC 2020 objectives and the use of EBSs both at the state and community level. EBSs, including programs, clinical interventions, and policies, are those that have been evaluated and shown to produce positive outcomes. EBSs cover a continuum of strategies with various levels of



The Task Force was charged with developing recommendations to assist public health professionals in the identification and implementation of evidence-based strategies within their communities in order to improve population health.

**The Task Force
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2020 objectives.**

evaluation and evidence behind them. DPH has used a number of methods to either encourage or, at times, mandate the use of EBSs targeting the HNC 2020 objectives. For example, through changes to the Community Health Assessment and Community Health Action Plans, DPH is encouraging LHDs to focus on HNC 2020 objectives and to think about how EBSs could be used to positively impact community health outcomes.

Every LHD must conduct a Community Health Assessment every four years.⁵ The Community Health Assessment is intended to be a collaborative effort between the LHD and local partners such as hospitals and community partnerships. The Community Health Assessment team collects primary data at the county level and secondary data from the state and other sources to document the health concerns of the area served by the LHD. Using data collected for the Community Health Assessment, the LHD and partners are required to identify and prioritize a list of community health issues. LHDs are then required to develop action plans to address each of the issues listed as priorities. Beginning in 2012, DPH is requiring that LHDs include a minimum of two HNC 2020 objectives be addressed in their action plans. The two HNC 2020 objectives must come from two different focus areas.

To encourage LHDs to consider the use of EBSs to address prioritized community health problems, the Community Health Action Plan now requires LHDs to “list the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group.”⁵ However, there is no requirement for LHDs to implement EBSs identified in the Action Plan. LHDs must also list interventions currently supported in the community.

To further facilitate the adoption or expansion of EBSs by LHDs, the Task Force on Implementing Evidence-Based Strategies in Public Health examined LHDs current capacity for implementing EBSs, LHDs training and support needs, and DPH’s role in providing support to LHDs. The Task Force focused on developing strategies to help LHDs implement more evidence-based programs, policies, and clinical practices, with the goal of improving HNC 2020 health outcomes in local communities. With the *Prevention Action Plan* in 2009, DPH began to make concerted efforts to move towards evidence-based prevention strategies to improve health. The recommendations developed by this Task Force provide a framework for how to support the expansion of EBSs at the community level through LHDs. *Improving North Carolina’s Health: Applying Evidence for Success* lays out a framework for how DPH and LHDs, with help from other partners, can support each other to increase the use of EBSs at the community level.

Task Force Charge

The North Carolina Institute of Medicine, in collaboration with the North Carolina Center for Public Health Quality, the Center for Healthy North Carolina, and the North Carolina Division of Public Health, convened the Task Force in the spring of 2012. The Task Force was chaired by Alice Ammerman,

DrPH, director, Center for Health Promotion and Disease Prevention, professor, Department of Nutrition, Gillings School of Global Public Health, University of North Carolina (UNC) at Chapel Hill; Laura Gerald, MD, MPH, state health director, Division of Public Health, North Carolina Department of Health and Human Services; and Gibbie Harris, health director, Buncombe County Department of Health. In addition to the co-chairs, the Task Force had 30 additional members including representatives of state and local agencies, key health care leaders, public health experts, foundation leaders, and other interested individuals. A Steering Committee of four individuals guided the work of the Task Force. (See pages 7-9 for a complete listing of Task Force and Steering Committee members.)

The Task Force was funded by the Centers for Disease Control and Prevention's National Public Health Improvement Initiative, which provides grant funding to state, tribal, local, and territorial health departments to enhance the nation's public health infrastructure and strengthen the public health workforce. The National Public Health Improvement Initiative is designed to encourage health departments to improve the delivery and impact of the public health services they provide by improving how they track the performance of their programs; fostering the identification, dissemination, and adoption of public health's best and most promising practices; building a network of performance improvement managers across the country that share strategies for improving the public health system; and maximizing cohesion across states' and communities' public health systems to ensure seamless and coordinated services for residents.

Specifically, the NCIOM Task Force on Implementing Evidence-Based Strategies in Public Health was charged with developing recommendations to assist public health professionals in the identification and implementation of evidence-based strategies within their communities in order to improve population health. To accomplish this goal, the Task Force was asked to do the following:

- Identify how widely EBSs are being applied in local health departments, as well as the reasons why EBSs are not always utilized.
- Provide recommendations as to how DPH can assist health departments in increasing access to and adoption of EBSs for prevention and wellness.
- Provide information about easy-to-access and user-friendly resources to assist local health departments and community partners in the application of evidence-based public health strategies.
- Identify areas where cross-jurisdictional efforts could increase the development, identification, implementation, and dissemination of EBSs.

The Task Force met six times between March and September of 2012. *Improving North Carolina's Health: Applying Evidence for Success* contains six chapters, with this chapter being an introduction to the work of the Task Force and evidence-

Evidence-based strategies, including programs, clinical interventions, and policies, are those that have been evaluated and shown to produce positive outcomes.

The recommendations developed by this Task Force provide a framework for how to support the expansion of evidence-based strategies at the community level through local health departments.

based strategies. Chapter 2 reviews the role of evidence-based strategies in public health. Chapter 3 provides an overview of the steps for implementing evidence-based public health strategies. Chapter 4 focuses on what local health departments need in order to implement evidence-based strategies. Chapter 5 reviews the Task Force recommendations for selecting, implementing, and evaluating EBSs in public health. Chapter 6 summarizes the findings and recommendations of the Task Force and includes a chart of all the recommendations along with the organizations with responsibility for implementing the recommendations of the Task Force. The report also contains three indices: Appendix A presents the full recommendations, Appendix B provides an overview of a selection of evidence-based registries, and Appendix C presents the results of the survey that was distributed to directors of health departments throughout the state (discussed at length in Chapter 4). *Improving North Carolina's Health: Applying Evidence for Success* presents a way to improve the health of North Carolinians that can occur if DPH and LHDs, as well as other state partners, work together collaboratively to effectively select, implement, and evaluate evidence-based strategies.

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Public health is the science of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research that furthers the prevention of disease and injury. Public health practitioners are concerned with the health and well-being of the entire population, in addition to addressing the health care needs of the individual people they serve. In North Carolina the Division of Public Health (DPH), within the Department of Health and Human Services, as well as local health departments (LHDs) are charged with “promot[ing] and contribut[ing] to the highest level of health possible for the people of North Carolina.”^a

To fulfill this mission, LHDs are tasked with preventing health risks and disease; identifying and reducing health risks in the community; detecting, investigating, and preventing the spread of disease; promoting healthy lifestyles; promoting a safe and healthful environment; promoting the availability and accessibility of quality health care services through the private sector; and providing quality health care services when not otherwise available.

Local health departments must fulfill this mission, often with access to only the most limited of federal, state, and local resources. Specifically, LHDs are tasked with the following services and supports:

1. Preventing and reducing health risks and disease by developing policies and plans that support individual and community health efforts.
2. Monitoring the health status of the community in order to identify areas of concern.
3. Detecting, investigating, and preventing the spread of disease.
4. Promoting healthy lifestyles by informing, educating, and empowering citizens about health issues.
5. Promoting a safe and healthful environment.
6. Promoting the availability and accessibility of quality health care services through the private sector and assuring the provision of health care when not otherwise available.
7. Mobilizing community partnerships to identify and solve health problems.
8. Enforcing laws and regulations that protect health and ensure safety.

Public health is the science of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research that furthers the prevention of disease and injury.

^a NCGA 130A-1.1(b), Session Law 2012-126

9. Assuring a competent public health workforce and personal health care workforce.
10. Evaluating effectiveness, accessibility, and quality of personal and population-based health services.
11. Conducting research.

The mission to improve public health, the charge to provide a wide array of services to improve health, and the reality of limited financial resources means that public health practitioners must find ways to optimize the impact of their work. Evidence-based public health is one way to do this. Evidence-based public health is the practice of incorporating scientific evidence about what works into management decisions, program implementation, clinical services, and policy development.¹

The use of research and evidence in informing public health decision making is gaining momentum across federal, state, and local public health agencies. Although there are challenges related to translating research into public health practice, the necessity for and benefits of using evidence-based interventions and policies are clear. Using evidence-based practices in public health yields many benefits including increasing the likelihood that programs, clinical interventions, and policies implemented at the state or local level will be successful, and increasing the efficiency of public resources.² Using evidence to inform practice can help practitioners avoid implementing programs and policies deemed ineffective or harmful. Ultimately, the state and LHDs have limited resources to meet broad missions and are required to account for the funds they spend.^b Therefore, investing these limited resources in programs, clinical treatments, and policies that have proven results makes sound economic sense.

While implementing evidence-based strategies (EBSs) in public health is an appealing concept, there are challenges and barriers that DPH and LHDs face in trying to increase the use of EBSs. Because establishing a practice as an evidence-based strategy depends on rigorous research, establishing EBSs for a given public health issue can take many years. Although there has been tremendous expansion in the public health research base in recent years, there are still important public health issues that require action but lack informative research. Additionally, determining what is and is not an EBS can be a complicated process given varying definitions of EBSs and differences in evaluation methods. EBSs may require higher initial and on-going funding and resources compared to other non-EBSs. Furthermore, EBSs frequently require staff to have competencies in effective implementation strategies. So while there are distinct benefits to utilizing EBSs in public health practices, there are also many challenges that must be overcome. (See Chapter 3.)

b NCGA 130A-1.1(b), Session Law 2012-126

Using evidence-based practices in public health yields many benefits including increasing the likelihood that programs, clinical interventions, and policies implemented at the state or local level will be successful, and increasing the efficiency of public resources.

Defining Evidence-Based Public Health

Although researchers agree that evidence-based strategies should produce positive outcomes when replicated accurately and adequately, wide variation exists among what researchers and practitioners actually define as “evidence-based.” This variation is due to intervention type differences (e.g. program, clinical, and policy) and is based on the research methods used to make evidence-based determinations. Evidence-based evaluation criteria may include the design, number, and quality of studies; effect size; reach; feasibility; sustainability; transferability; and consideration of other expert review/opinion among others. Additionally, at the federal and state level there is a lack of agreement as to what constitutes an EBS. Because of these definitional differences and a lack of federal and state agreement, it is often difficult for organizations interested in implementing EBSs to determine which strategies or interventions are actually “evidence-based.”

At the federal level, the US Preventive Services Task Force and the Community Preventive Services Task Force are tasked with making evidence-based recommendations about clinical preventive services in a primary care setting and community preventive services, programs, and policies, respectively. While both were created by federal bodies, they are independent, nonfederal, unpaid task forces. The US Preventive Services Task Force covers more than 50 topics including many types of cancer, immunizations, alcohol and tobacco use, blood pressure, and depression.³ The Community Preventive Services Task Force has guides for more than 20 topics including adolescent health, diabetes, nutrition, social health, and worksite wellness.⁴ The two task forces use similar processes to develop recommendations around a given topic. They identify all relevant studies, assess their quality, assess the benefits and harms of the intervention, summarize the evidence, and assign a grade or rating to the evidence.^{5,6} The US Preventive Services Task Force uses five letter grades while the Community Preventive Services Task Force uses three categories: recommended, recommended against, and insufficient evidence. A clinical preventive service assigned an “A” by the US Preventive Services Task Force is recommended by the Task Force because “there is high certainty that the net benefit is substantial.”⁷ For a service, program, or policy to be recommended by the Community Preventive Services Task Force indicates that a “systematic review of available studies provides strong or sufficient evidence that the intervention is effective.”⁸ The registries of services developed by these two task forces are discussed further in Chapter 3. In addition to the work of these two task forces at the federal level, there are other federal and state agencies, academic institutions, and nonprofit organizations that have developed definitions, registries, and other resources around defining and identifying evidence-based services. (See Chapter 3 and Appendix B.)

When beginning their work, the NCIOM Task Force on Implementing Evidence-Based Strategies in Public Health began with a discussion of how to define evidence-based strategies. The Task Force started with the “gold standard”

Evidence-based strategies should produce positive outcomes when replicated accurately and adequately.

The Task Force adopted a broad definition of evidence-based strategies.

definition that defines evidence-based strategies as those that have been subject to rigorous evaluation and have been shown to achieve positive outcomes in multiple settings, often with diverse populations (equivalent to the US Preventive Services Task Force’s “A” grade or the Community Preventive Services Task Force’s “recommended” category). While this is the level of services the NCIOM Task Force hopes to see implemented in all of North Carolina’s LHDs over time, they struggled with limiting their definition to such strict guidelines.

Given that LHDs have different resources and are at various stages in moving towards implementing EBSs, the Task Force wanted to adopt a definition that encouraged a dialogue about how to move everyone forward. They wanted to use a definition that was more representative of what is happening in public health in North Carolina—a definition that included the broader continuum of evidence-based strategies, all the way from emerging strategies to gold standard strategies. The Centers for Disease Control (CDC) and Prevention’s Best Practices Workgroup has developed a continuum of evidence-based practices that includes four levels of practices. (See Table 2.1.) On one end, “emerging” practices are supported by only initial evidence (e.g. evaluations in-progress, or field-based summaries). On the other end, “best” or “proven” practices are supported by evidence from systematic review.

Table 2.1
Evidence-Based Strategies Continuum

<p>Best (B), Proven, or EBP: These practices are supported by intervention evaluations or studies with rigorous systematic review that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.</p>
<p>Leading (L): These practices are supported by intervention evaluations or studies with peer review of practice that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.</p>
<p>Promising (P): These practices are supported by intervention evaluations without peer review of practice or publication that have evidence of effectiveness, reach, feasibility, sustainability, and transferability.</p>
<p>Emerging (E): These practices are supported by field-based summaries or evaluations in progress that have plausible evidence of effectiveness, reach, feasibility, sustainability, and transferability.</p>

Source: Adopted from the Centers for Disease Control and Prevention Best Practices Workgroup

The Task Force agreed that moving public health efforts towards strategies that are most effective (best and leading) is the ultimate goal. The Task Force felt that this continuum provides a broad enough definition that all LHDs can see themselves and the work they are doing as part of this continuum. This continuum model illustrates how LHDs and other organizations can move forward, even if incrementally, towards adopting higher levels of evidence-based strategies. This broad definition aligns well with the current state of public health practice in North Carolina and the nation while at the same time encouraging movement towards practices in the best or leading categories. Therefore, the Task Force decided to embrace the full continuum as their definition of evidence-based strategies; however, policies, programs, and clinical interventions that achieve the higher levels of evidence (best and leading) were prioritized. (See Chapter 5.)

Evidence-Based Public Health in North Carolina

In North Carolina, DPH and LHDs are currently implementing both EBSs and non-EBSs. However the goal is to increasingly move efforts towards EBSs, where possible. LHDs are already implementing many strategies and interventions which meet criteria across the four CDC EBS levels. This broad definition is inclusive of those efforts. Nonetheless, as will be discussed further in Chapter 5, the Task Force's goal is to move toward and expand the usage of those EBSs which are supported by the highest levels of evidence (best or leading). This relatively wide definition of EBSs also allows local health departments to utilize all federal and federally-supported EBS registries (see Chapter 3 and Appendix B), as all of these registries include programs that meet at least the emerging level as defined by the CDC. To continue to expand upon the movement toward evidence-based public health, the CDC framework should be used intentionally to inform local health department discussion and decision-making.

Going forward, LHDs should strive to implement strategies that are evidence-based and well supported (i.e. at the best or leading level). Yet it is important to acknowledge that level of evidence is not the sole selection criterion for LHDs. In addition to considering variables included in the EBS rating such as effectiveness, reach, feasibility, sustainability, and transferability, local health directors must also weigh factors such as cost, local needs, staff competencies, transportation, and others. Regardless of the strategy chosen, LHDs should strive to assess the effectiveness of any strategy implemented. Evaluation is needed so that LHDs can justify continuing to fund a strategy that is effective or redirecting resources when a strategy is shown to be ineffective. This is particularly important when emerging or promising strategies are chosen since their effectiveness has not been well established. (See Chapters 3 and 5 for more discussion.) Public health decision making is complex and requires the consideration of many, often competing, factors. Ultimately, shifting to an evidence-based framework will help LHDs stay focused on using resources effectively to improve the impact of their public health work.

Local health departments should strive to implement strategies that are evidence-based and well supported.

North Carolina's Division of Public Health has focused increasingly on the use of EBSs to improve the health of our state. LHDs engage in a variety of programs, policies, and clinical interventions to promote and support the health of their communities. Thus, there are multiple settings for LHDs to implement EBSs. The overall goal for implementing EBSs is to improve the quality of work being done by DPH and LHDs, increase the impact of this work, and, ultimately, improve the health of North Carolinians. EBSs offer an opportunity for public health practitioners to make a substantial impact on the health of their community by implementing those interventions that have been documented to have a positive impact.

The overall goal for implementing EBSs is to improve the quality of work being done by Division of Public Health and local health departments, increase the impact of this work, and, ultimately, improve the health of North Carolinians.

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Using evidence-based strategies (EBSs) in public health yields many benefits, primarily, investing limited dollars in strategies that have been shown to have a positive effect on outcomes. However, selecting, implementing, and evaluating EBSs is not a simple process. Research, preparation, and diligence are needed to properly implement EBSs. While EBSs have been evaluated and shown to produce positive outcomes, those outcomes are specifically tied to the implementation of the strategy. Thus, to replicate success, the strategy must be implemented in the same way as the original model program, clinical intervention, or policy. In addition, organizations interested in using EBSs must take other steps to ensure success. For example, it is important to collect health data and to conduct community health assessments before selecting evidence-based practices for implementation so that the intervention or strategy implemented is well suited to the context. Conducting health assessments and collecting health data (i.e., through surveillance or other mechanisms) are critical steps in defining and prioritizing health areas as well as in engaging community stakeholders.¹ The steps and the sequence thought to be required to implement EBSs successfully are outlined below:^a

Research, preparation, and diligence are needed to properly implement evidence-based strategies

- Education on the Importance and Value of EBSs
- Priority Setting
- Selection
 - ◆ Determine what is known through scientific literature
 - ◆ Develop and prioritize program and policy options
- Implementation
 - ◆ Plan implementation
 - ◆ Determine core implementation components
 - * Leadership Drivers
 - * Competency Drivers
 - * Organizational Drivers
 - ◆ Assess Performance
 - * Continuous quality improvement
 - * Staff performance/fidelity assessment
- Evaluation

^a Adapted from Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: A fundamental concept for public health practice. *Annu. Rev. Public Health.* 2009;30:175-201.

A general understanding of the importance of using science to inform practice as well as the importance of monitoring and evaluation is critical.

Education on the Importance and Value of EBSs

Public health professionals represent a unique workforce. Local public health agencies employ professionals with varying experience and educational backgrounds. Some may have been exposed to evidence-based practice concepts through education or training, while many others have not.² Promoting a general understanding (e.g. through training) of the importance of using science to inform practice as well as the importance of monitoring and evaluation is critical to organizational change that is stimulating, meaningful, and lasting.

Priority Setting

Priority setting often involves collecting community-level data and engaging key stakeholders. In North Carolina, local health departments (LHDs) engage in a comprehensive community health assessment (CHA) process every three to four years. This process involves bringing community stakeholders together to work collaboratively to determine the factors influencing community health and the resources available to address these factors. These stakeholders include community leaders, public health agencies, businesses, hospitals, private practitioners, and academic centers.³

Once a CHA team is formed, primary and secondary data is collected. County health statistics are gathered as well as qualitative feedback from community members. The CHA team reviews and analyzes quantitative and qualitative data and then convenes a larger group to discuss findings and establish community health priority areas. This work lays the foundation for the selection and implementation of appropriate community-based public health interventions and policies.

Selection

Determine What is Known Through Scientific Literature

After identifying community health needs and other community variables, public health administrators and practitioners at the state, local, and community level can turn to the research and evidence that exists to aid in the selection of programs, policies, and clinical interventions.

There are many ways to identify individual EBSs. However, over the past decade, a number of organizations have begun to conduct systematic reviews of EBSs which has served to simplify the process *somewhat*. Systematic reviews, which use well-defined methods to evaluate published research, have helped to adapt and translate the growing research base of evidence based public health into

a more usable format for practitioners interested in identifying and reviewing evidence-based programs, clinical interventions, and policies.¹ Systematic reviews have been conducted by many different organizations (governmental, non-governmental, academic institutions, etc.) and have been released and published in a variety of formats. As discussed in Chapter 2, the US Preventive Services Task Force and the Community Preventive Services Task Force are tasked by the federal government with making evidence-based recommendations about clinical preventive services in a primary care setting and community preventive services, programs and policies, respectively. Both Task Forces have online guides to potential strategies as well as evaluations of their effectiveness. In addition to these two systematic review efforts, many other federal agencies, nonprofits, and academic organizations have systematic reviews of EBS available online including the Cochrane Collaboration, the Agency for Healthcare Research and Quality's Evidence-Based Practice Centers, and the Substance Abuse and Mental Health Services Administration's National Registry of Evidence-Based Programs and Practices (NREPP), all of which review specific programs, clinical practices, and/or policies. (See Appendix B for information on some of the online EBS guides that cover topics relevant to the mission of LHDs.)

Although significant variation exists among these and other systematic review resources, evidence-based registries often include information involving research quality/strength of evidence, the target population, implementation resources, and cost information. It is important to note that systematic reviews are not available for all public health topics.⁴ While some areas, such as tobacco use, have extensive research available, others, such as the reduction in unintentional poisonings, have less information available.

Develop and Prioritize Program and Policy Options

Practitioners have noted that systematic reviews and original research often fail to include contextual information that can help inform whether a program or policy is a good fit for a particular community or context.⁵ Although systematic reviews are an important tool used to identify community interventions, each EBS (and its target outcomes) must be considered in the context of many other factors. LHD staff bring important community knowledge and an understanding of local health issues which are critical to the selection and prioritization process. In reviewing potential EBSs for the correct community-fit, LHDs should consider a number of factors. Table 3.1 and Figure 3.1 highlight important factors for consideration.

Priority setting involves collecting community-level data and engaging key stakeholders to determine community health priorities.

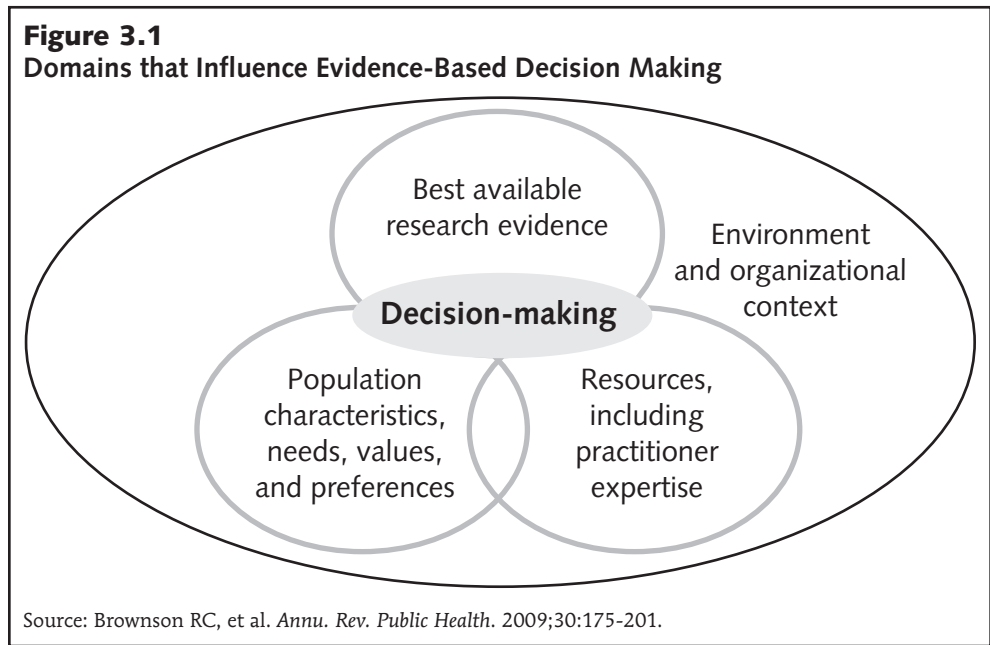
When reviewing potential evidence-based strategies for the correct community fit, local health departments should consider a number of factors.

Table 3.1
Factors to Consider When Evaluating Evidence-Based Strategies

Factor	Specific Question
Size of the problem	<ul style="list-style-type: none"> • Is it important? • What is the public health burden?
Problem preventability	<ul style="list-style-type: none"> • What is the efficacy? • Can it work at least in ideal circumstances? • What do we know about the plausibility? Is it logical (theory-based)?
Intervention effectiveness	<ul style="list-style-type: none"> • What is the effectiveness? • Does it work in real-world settings? Would it work in the community settings being considered (is it generalizable to our community)? • How much less effective would it be compared with ideal settings? • Is there better evidence for alternative interventions?
Benefits and harms	<ul style="list-style-type: none"> • What are all the consequences of the intervention? • What are the trade-offs?
Intervention cost	<ul style="list-style-type: none"> • Is it affordable?
Comparison of benefits and costs	<ul style="list-style-type: none"> • What is the value? • How does it compare to other alternatives?
Incremental gain	<ul style="list-style-type: none"> • What are the additional costs and benefits (value) compared to what is already being done (if anything)?
Feasibility	<ul style="list-style-type: none"> • Are adequate time and money available?
Acceptability	<ul style="list-style-type: none"> • Is it consistent with community priorities, cultures, values, and the political situation?
Appropriateness	<ul style="list-style-type: none"> • Is it likely to work in this specific setting? • Are there ways to better understand the context for intervention in various populations?
Equitability	<ul style="list-style-type: none"> • Does it distribute resources fairly?
Sustainability	<ul style="list-style-type: none"> • Are resources and incentives likely to support conditions to maintain the intervention?

Anderson LM, Brownson RC, Fullilove MT, et al. Evidence-based public health policy and practice: Promises and limits. *Am. J. Prev. Med.* 2005;28(5 Suppl):226-230.

Asking such questions when reviewing potential EBSs can help LHDs gain the information needed to make well-informed decisions. Public health practitioners must weigh all the information obtained—about EBSs themselves, the needs and wants of the population they are serving, and the resources available—and make a decision about what will be the best fit for their organization and community. (See Table 3.1.) Ultimately, the level of evidence which supports a given program is just one factor among many important factors public health practitioners must consider. (See Figure 3.1.)



Ultimately, the level of evidence which supports a given strategy is just one factor among many important factors public health practitioners must consider.

Policy Considerations

Introducing and passing new local policies requires the careful consideration of many factors discussed in Table 3.1 (e.g., what are unintended consequences, how does it compare to alternatives). However, moving policies forward also requires additional strategizing and coalition building. For example, understanding the various forums to introduce and pass policies (e.g. county ordinances, municipality referendums, local health department policies) and carefully timing the introduction of new policies is critical to implementation success. ⁶

Implementation

Plan Implementation

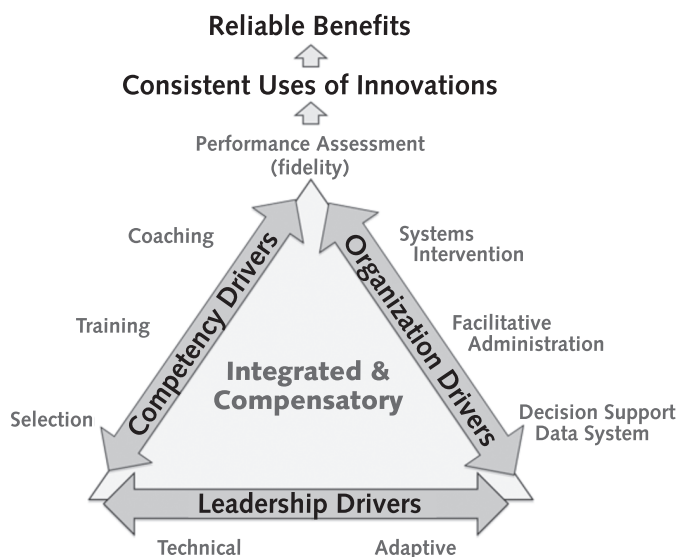
Once an EBS has been selected, implementation can begin. Before a program, policy, or clinical intervention becomes operational, organizational planning must occur. An implementation timeline should be created to detail and guide the sequence of implementation activities.

Additionally, program administrators (in consultation with state or national program experts) should discuss and define the core intervention components. Core intervention components are the key intervention elements which must be in place in order to achieve the desired outcomes. Adherence to these core intervention elements is referred to as implementation fidelity. Fidelity describes implementation quality and the degree of fit between the evidence-based model and the replicated intervention.⁷ Research suggests that although fidelity should be maintained with regard to these functional components, “each core component may allow for flexibility in form (e.g. processes and strategies), without sacrificing the function associated with the component.”⁸ Implementing with a high level of fidelity requires careful planning, the alignment of organizational goals and capacity (e.g. leadership), as well as continuous staff support.

Implementation often occurs in phases. Organizations may pilot programs or interventions on a smaller scale before expanding to full implementation. This may mean training and utilizing a subset of staff and/or targeting a smaller group of initial participants. Piloting allows program administrators and staff to test programs and interventions on a smaller scale first; adjustments can then be made before implementing at full scale.

Determine Core Implementation Components

Figure 3.2
Domains that Influence Evidence-Based Decision Making



Source: Blasé KA, Van Dyke M, Fixsen DL, Bailey FW. Implementation science: key concepts, themes, and evidences for practitioners in educational psychology. In Kelly B, Perkins DF, eds. *Handbook of Implementation Science for Psychology in Education*. Cambridge, MA: Cambridge University Press; 2012:16.

Core implementation components (or “implementation drivers”) are components which have emerged from the implementation literature.⁸ (See Figure 3.2.) These components have been found to be essential to implementing EBSs with fidelity. These components should be addressed and maintained from initial implementation through full implementation. They are summarized below.

Leadership Drivers

Leadership forms the foundation for organizational change. Leaders are individuals who help organizations confront change, set direction, and build coalitions.⁹ Leaders manage and mitigate internal and external factors so that change is possible.⁸

Leaders and managers of public health agencies face many challenges in shifting to an environment where evidence and innovation are able to consistently drive organizational decision making. Risk aversion and prescriptive governmental procedures and rules are just a few of the challenges public health leaders and managers face. However,

overcoming these obstacles is of critical importance, as achieving high public health system performance is directly related to science, quality, and performance in practice.^{2,8}

Research has depicted leaders as individuals who help organizations confront change.⁹ Leaders are direction setters and coalition builders. Leaders manage and mitigate internal and external factors so that change is possible. Leaders must be able to tackle both technical and adaptive problems as they arise. Technical problems typically are easier to identify; can be easily and quickly solved; and require change in one or a few places. In contrast, adaptive challenges are more difficult to identify; require changes in values, beliefs, roles, relationships, and approaches to work; require change across organizational boundaries; and require many people working together to solve the problem. Adaptive problems cannot be solved by edict, instead leaders must have the skills needed to identify the problem and then mobilize their organization through the changes needed to be successful.^{8,10}

Competency Drivers

Selection: Selecting staff with the experience and skills to complement and meet the needs of the program or intervention to be implemented is critically important. This may mean identifying existing staff or hiring new staff. A host of key roles need to be filled, each requiring different skills and experience. Practitioners work directly with program participants or consumers. Other organizational staff may include trainers, coaches, evaluators, and administrators. Finally, experts (often national program experts) support implementing organizations and staff to ensure successful program implementation as well as program fidelity.⁸

Training: Training is necessary for all staff. Training content will vary according to the program or intervention that is being deployed and according to staff roles and responsibilities. Implementation research suggests that, although training content will vary and be tailored to the specific program or intervention being implemented, delivery methods are frequently comparable. Initial training often occurs in a lecture format, where basic information is imparted (e.g. program history, program theory, core components). Engaging trainees in discussion and demonstration is also common. Additionally, involving training participants in role playing can be helpful preparation for working directly with program consumers or participants. Some trainings use established program training manuals as a guide while others do not.⁸

Coaching and consultation: Research has shown that “the essence of implementation is behavior change.”⁸ Classroom-type, theory-based training alone has been found to be an ineffective means for stimulating and maintaining behavior change.¹¹ Training which incorporates skill demonstrations has also been found to be ineffective for changing workplace practices. Even when participants are given the opportunity to practice new skills or behaviors in

Core implementation components are those components that have been found to be essential to successful implementation.

training and are given feedback, still only a small percentage of participants have been found to implement the skills practiced in training successfully in their workplace environment. In contrast, when traditional training is supplemented with active and ongoing practice-based coaching and consultation, the vast majority of participants are able to successfully implement new skills or behaviors in their workplace.^{8,11} (See Table 3.2.)

Table 3.2
Percent of Participants who Demonstrate Knowledge, Demonstrate New Skills in a Training Setting, and Use New Skills in the Classroom

Training Components	Knowledge	Skill Demonstration	Use in Workplace
Theory and discussion	10%	5%	0%
Theory and discussion + demonstration in training	30%	20%	0%
Theory and discussion + demonstration in training +practice and feedback in training	60%	60%	5%
Theory and discussion + demonstration in training +practice and feedback in training + coaching in Classroom	95%	95%	95%

Joyce B, Showers J. Student Achievement through Staff Development. Ed. Anonymous 3rd ed. Alexandria, VA: Association for Supervision and Curriculum Development; 2002.

Coaching and consultation activities include supervision, teaching while engaged in practice activities, assessment and feedback, and the provision of emotional support. Coaching and consultation are important because they allow staff to get on-the-job feedback and encouragement as they learn new skills and practices. Research shows that having robust training, with all the components discussed in this section, is critical to successful adoption of new behaviors and practices.⁸

Organizational Drivers

Facilitative administration: Internal organizational structures and procedures must be in place to direct and support selection, implementation, and evaluation of EBSs. For an LHD, this may include changing paper or electronic forms to include new information, developing new patient education materials, or setting up new billing codes.⁸

Decision support data systems: Data systems must be in place to enable data collection, analysis, and reporting. To comply with funding requirements, most programs need a mechanism for the collection of data. Program data can also be a powerful tool for program administrators. Data can reveal important

relationships as well as track progress towards achieving intended outcomes. Data are critical for short-term evaluation (e.g. through continuous quality improvement efforts) as well as long-term evaluation.⁸

Systems intervention: Administrators must also ensure external factors and influences (e.g. political support, funding) align with or allow for implementation activities and goals. This often involves working toward eliminating or reducing barriers which could impede implementation progress.⁸

Assess Performance

As discussed earlier, programs and interventions with a strong base of evidence (i.e. CDC levels best and leading) should achieve positive outcomes when implemented with fidelity. Rigorous (and repeated) evaluation efforts have established effectiveness for interventions at the best and leading levels which should preclude the need for further intensive, long-term evaluation. However, assessing implementation fidelity and monitoring immediate program/intervention outcomes remains an important step in the EBS implementation process. To rapidly assess and monitor evidence-based programs and interventions, administrators often use continuous quality improvement methods and program fidelity scales. These methods are discussed in more detail below.

Continuous Quality Improvement

Quality improvement (QI) refers to “a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.”¹² QI methods can be used continuously throughout the process of implementing EBSs to monitor and manage organizational change.

The Model for Improvement is an example of a QI framework used to test and implement changes as well as assess implementation success.¹³ The Model for Improvement is widely used in public health settings in North Carolina (and nationally) as well as by community partners, such as businesses, hospitals and physician practices.¹⁴ The Model addresses three key questions regarding implementation¹³:

1. What are we trying to accomplish?
2. What changes do we need to make to accomplish improvement (i.e., core implementation elements)?
3. How do we know the changes resulted in improvement (assessment)?

Another key component of this model is the Plan-Do-Study-Act (PDSA) cycle, which is used to test and evaluate small changes (before programs are brought to scale) so that intervention effects can be systematically analyzed. PDSA cycles help to engage administrators in rapid-cycle monitoring to ensure outcomes

are being achieved, or program/intervention adjustments are being made when necessary.¹⁵

While an EBS focuses on “doing the right thing,” QI efforts focus on “doing things right.” EBSs prescribe practices that have been proven to produce outcomes whereas QI efforts focus on achieving high performance and efficiency throughout public health, regardless of the programs, clinical interventions, or policies that the LHD is implementing.

Staff performance and fidelity assessment

Performance assessment is an important milestone in the implementation process. Performance expectations and assessment frequency should be described and discussed with staff during initial training and orientation sessions. Staff performance evaluations should connect to knowledge and competencies acquired in training and refined through ongoing coaching/consultation. Performance evaluations may assess individual performance related to overall organizational performance or may assess performance related to adherence to research protocols, including core intervention components. Evaluators use program fidelity scales to assess adherence to program models and research protocols. Local program implementers can often gain access to fidelity scales through national program contacts or through the contacts listed in evidence-based registries.

Research describes three types of common fidelity measures: context, compliance, and competence.⁸ Context measures assess implementation according to basic operational principles or aspects (e.g., staff qualifications, location of services). Compliance measures assess fidelity to identified core implementation components. Competency measures assess the skill of practitioners in adhering to core implementation components while appropriately addressing participants/consumers who present unique and varied situations, contexts, and needs.

Staff performance assessments and fidelity scales often include observational assessments, case file/document reviews, and stakeholder input. Evaluators require specific training around conducting performance evaluations and completing fidelity scales. Assessing fidelity to the model is critical as research shows that higher levels of fidelity are correlated with achieving better outcomes. Assessing fidelity can also help to inform and reinforce key training and coaching areas of focus.⁸

Evaluation

Where evidence is still accumulating in certain topic areas (e.g. at the promising and emerging levels), evaluations can help answer important questions regarding the outcomes and impact of the intervention. Administrators who invest significant time and resources to implement innovative or emerging policies,

Fidelity to the model is critical as research shows that higher levels of fidelity are correlated with achieving better outcomes.

programs, or clinical interventions should conduct longer-term evaluations to determine program effectiveness and to contribute to the field of evidence-based research.

In contrast, where the evidence-base is already quite solid (e.g. at the best and leading levels) there is less of a need for intensive evaluation. That does not mean that no outcome data should be collected. Rather, in cases where best and leading EBSs are being implemented, administrators should collect basic evaluation data to illustrate the impact of the program, clinical intervention, or policy, but do not need to do the kind of in-depth data collection and analysis that should be conducted when the outcomes of the intervention are less certain or not as well documented.

Regardless of the level of EBS being implemented, public health administrators should consider and plan for evaluations from the beginning. As discussed earlier, building data collection systems to house critical data elements is important because such systems allow for immediate monitoring and adjustment as well as long-term evaluation.

Policy Considerations: Policies that are passed must also be evaluated to assess the effectiveness of implementation and their ultimate impact. Policy evaluations may evaluate process as well as outcomes and may be short-term or long-term designs.⁶

Evaluations can help answer important questions regarding the outcomes and impact of the intervention.

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What Local Health Departments Need in Order to Implement Evidence-Based Strategies

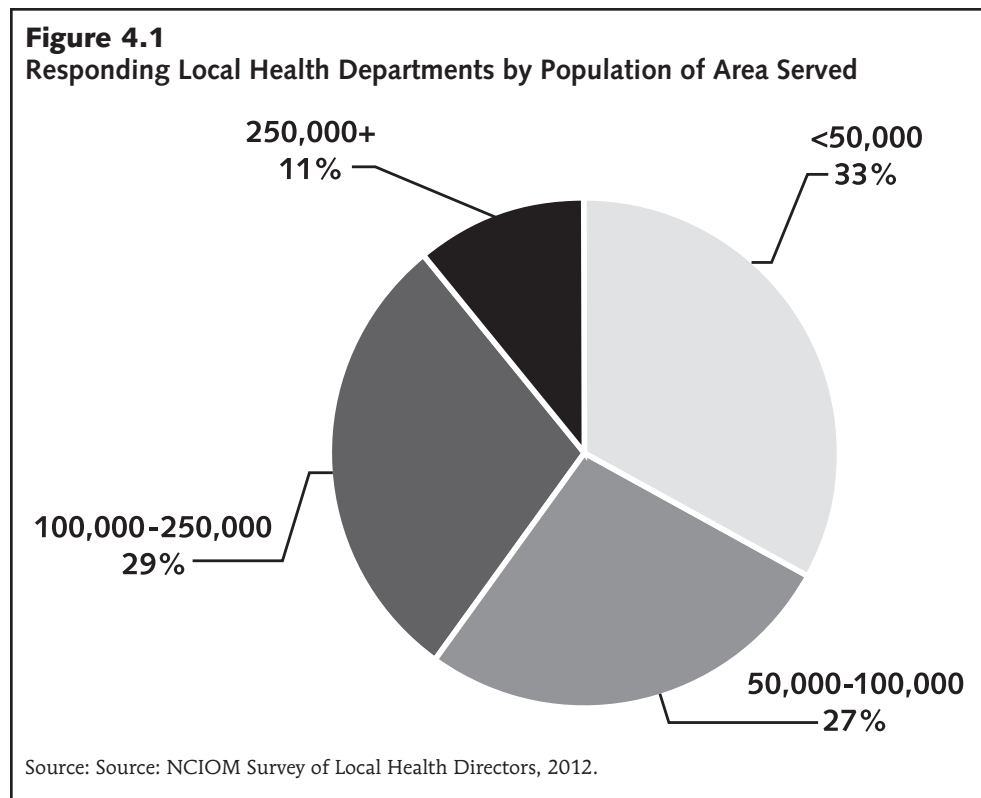
Chapter 4



In order to inform their work and better support local leaders in the selection, implementation, and evaluation of evidence-based strategies, the Task Force sought the perspective of local health directors. A brief, 11-question electronic survey was distributed to North Carolina's 85 local health directors to learn what local health departments (LHDs) need from the state in order to successfully meet expectations to increase and improve the implementation of evidence-based strategies (EBSs). The survey was designed to gauge current awareness and implementation of EBSs, community and LHD priorities, the biggest barriers to implementing EBSs, the most valued forms of assistance, and the resources and partners LHDs currently engage. (See Appendix C for the survey questions and a full summary of the responses.)

The survey had a 78% response rate with 66 completed surveys. The completed surveys represent all six LHDs that serve multiple county districts and 60 of the 79 LHDs serving single county districts. LHDs serving Tier 1 counties^a and those serving Tier 2/Tier 3 counties are evenly represented. Figure 4.1 shows the distribution of LHDs that responded by the population of the area served.

The survey highlighted the need for a strong partnership between the Division of Public Health and local health departments as they work together to increase the use of evidence-based strategies to improve public health outcomes.



^a The North Carolina Department of Commerce annually ranks the state's 100 counties based on economic well-being and assigns each a tier designation. The 40 most distressed counties are designated as Tier 1. (North Carolina Department of Commerce. 2011. County tier designations. <http://www.nccommerce.com/research-publications/incentive-reports/2011-county-tier-designations>. Accessed September 6, 2012.

Staff Awareness and Current Implementation of Evidence-Based Strategies in Public Health

The survey provides a snapshot of the level of awareness and implementation of EBSs in North Carolina's LHDs. Local health directors were asked to estimate the percent of their staff who are aware of EBSs in public health and rate the extent of current implementation of evidence-based programs, clinical interventions, and policies. More than two-thirds (68%) of responding local health directors reported that half or fewer of their staff are aware of evidence-based strategies in public health. LHDs serving rural and Tier 1 counties were more likely to report a greater percent of staff as being unaware of EBSs. Similarly, LHDs serving rural and Tier 1 counties were less likely to report using EBSs. Local health directors were asked to rate current implementation on a scale from 1-10 for which 1 represents none—no programs or policies currently implemented are based on evidence-based strategies—and 10 signifies that all programs and policies use evidence-based strategies. Over half of the responses fell in the 5-7 range. While this seems high when compared to the low levels of reported staff awareness, the Task Force believes this disproportionately represents clinical interventions rather than programs and policies, and/or that staff are implementing EBSs without being aware of the connection between their work and the evidence.

Community and Department Priority Areas

In order to help the Task Force reflect local community needs and priorities, the survey asked local health directors to select and rank their department's top five priorities using the 13 Healthy North Carolina 2020 (HNC 2020) focus areas: tobacco use, physical activity and nutrition, injury and violence, maternal and infant health, sexually transmitted diseases and unintended pregnancy, substance abuse, mental health, oral health, environmental health, infectious disease and food borne illness, social determinants of health, chronic disease, and cross-cutting measures.^b The majority of local health directors (over 92%) identified physical activity and nutrition as one of their top five priorities. Though the relative order differs slightly, the top seven priority areas are the same across urban and rural communities and Tier 1 designation.

Top Seven Priority HNC 2020 Focus Areas:

1. Physical activity and nutrition
2. Chronic disease
3. Sexually transmitted diseases and unintended pregnancy
4. Tobacco use
5. Maternal and infant health
6. Substance abuse
7. Social determinants of health

^b Nine of the Healthy North Carolina 2020 focus areas cover the major preventable risk factors contributing to the state's leading causes of death and disability. The remaining four (maternal and infant health, oral health, chronic disease, and cross-cutting issues) capture other significant public health problems and summary measures of population health.

Local health directors also identified a similar set of priorities when asked which program areas in their health departments need the most assistance in implementing evidence-based strategies. Promotion of healthy lifestyles and chronic disease education and management, the most identified program areas, align closely with the physical activity and nutrition and chronic disease HNC 2020 focus areas. More than half of local health directors identified promotion of healthy lifestyles as one of the three program areas in their departments requiring the most assistance in the implementation of EBSs. Prenatal and postpartum care and communicable diseases were also noted and are similarly congruous with the HNC 2020 maternal and infant health and sexually transmitted diseases and unintended pregnancy focus areas. The program areas needing the most assistance are those critical to the efforts of LHDs addressing high priority local health needs.

Top Five Health Department Program Areas Needing Assistance:

1. Promotion of healthy lifestyles
2. Chronic disease education and management
3. Child health services^c
4. Prenatal and postpartum care
5. Communicable diseases

Biggest Barriers to Implementing Evidence-Based Strategies and Important Forms of Assistance

When asked to identify the biggest barriers to implementing EBSs in public health, local health directors identified limited financial resources as the first and foremost concern. Eighty-two percent of local health directors named limited financial resources as one of the top three barriers to implementing EBSs in their health departments. Not surprisingly, obtaining and, to a lesser extent, identifying new funding sources were recognized as important types of assistance the state could offer LHDs. Almost 47% of local health directors reported help with grant writing to obtain funding to implement EBSs as one of the top three forms of valuable assistance the state could offer LHDs. Additionally, 25% selected easy access to information about potential funding sources. (See Appendix C.)

Four Biggest Barriers to Implementing EBSs:

1. Limited financial resources
2. Lack of knowledge and skills about how to test and adapt EBSs or approaches so they work in the LHD's community
3. Availability of ongoing staff training to ensure EBSs can be implemented appropriately/as intended
4. Time required to learn about how to implement a particular EBS

^c Child health was not a focus area of HNC 2020, however, child health services are a major component of the work of LHDs.

Four Most Important Types of Assistance:

1. Help with grant writing to obtain funding to implement EBSs
2. Staff training to improve knowledge and skills
3. Good examples of successful EBS implementation
4. Strategies and data to help LHDs demonstrate the impact of EBSs in their communities

Beyond limited financial resources, local health directors' responses to the biggest barriers to implementing EBSs in their departments focus on appropriately implementing EBSs. As discussed in Chapter 3, implementing EBSs with fidelity is critical to achieving the desired outcomes. About one-third of local health directors identified the lack of knowledge and skills to adapt EBSs to their setting, and lack of available ongoing staff training to ensure implementation with fidelity as one of the three biggest barriers to implementing EBSs in their departments. Over one-quarter of local health directors also noted the time required to learn about how to implement a particular EBS as an additional barrier.

**Available Evidence-Based Strategies Resources and
Community Partnership Opportunities**

In addition to awareness of and barriers to implementing EBSs, the survey also aimed to identify which available resources local health directors are currently using, and what types of other community organizations LHDs are partnering with to identify, implement, and evaluate EBSs. The results identified a lack of awareness and/or use of recognized resources for EBSs. However, it is not known to what extent health directors consulted with LHD staff in completing the survey, so the awareness of information sources for EBSs may be greater among the staff involved with direct implementation. The Centers for Disease Control and Prevention Guide to Community Preventive Services was the most recognized and referenced—two-thirds of local health directors were both aware of and used the Guide.

Overall, local health directors reported partnering with other entities in the community most frequently when identifying EBSs, followed by partnerships to implement and evaluate EBSs, respectively. The North Carolina Division of Public Health (DPH) and other LHDs were widely reported as partners along with funders, universities, and law enforcement agencies, all of which were reported as primary partners in the implementation and evaluation of EBSs. LHDs were least likely to report partnering with the Division of Mental Health, Developmental Disabilities and Substance Abuse Services, local businesses, municipal planning departments and local management entities/managed care organizations. (See Appendix C.) All of these organizations represent opportunities for future collaboration.

Local Health Departments Need Support to Successfully Implement Evidence-Based Strategies

This survey shows that while LHDs are currently implementing EBSs, they need additional education and support to expand these efforts. LHDs recognize both the difficulty and the importance of implementing EBSs to improve outcomes in the HNC 2020 focus areas. Continued progress will require a concerted effort on the part of DPH, LHDs, and other community partners. There are many organizations in North Carolina whose mission includes working with LHDs to identify and implement EBSs, including those that identify other partner organizations at the state and national level that may be able to assist in this effort.^d More could be done to connect LHDs with these organizations. The Task Force recognized that neither the state nor LHDs currently have the resources to identify, implement, and support EBSs in all program areas. Thus the Task Force worked to develop realistic recommendations about what could and should be accomplished in the immediate future to identify, implement, and evaluate evidence-based strategies in North Carolina.

d Organizations that may be able to help LHDs identify and implement EBSs include: the Center for Training and Research Translation, the North Carolina Institute for Public Health, the National Implementation Research Network, the Department of Public Health at East Carolina University, the North Carolina Center for Public Health Quality, the Department of Public Health at East Carolina University, the North Carolina Center for Health and Wellness, and the Family and Consumer Sciences Department at North Carolina State University.

Recommendations for Selecting, Implementing, and Evaluating Evidence-Based Strategies in Public Health

Chapter 5



The NCIOM Task Force on Implementing Evidence-Based Strategies strongly recommends that the Division of Public Health (DPH) and local health departments (LHDs) implement evidence-based strategies (EBSs) including clinical interventions, programs, and policies, and focus this effort on implementing EBSs to meet the Healthy North Carolina (HNC 2020) objectives. This is the surest way of improving the overall population health of the state. This chapter includes recommendations regarding how to build the infrastructure needed to support successful selection, implementation, and evaluation of EBSs by the Division of Public Health and local health departments, with the goal of improving North Carolinians' health outcomes.

The results from the survey of local health directors helped guide the Task Force as they developed recommendations to support and expand implementation of EBSs in public health at the state and local levels. The survey highlighted the need for a strong partnership between DPH and LHDs as they work together to increase the use of EBSs to improve public health outcomes. Early on, the Task Force realized that for these efforts to be successful, the relationship between DPH and LHDs must be one of reciprocal accountability. Reciprocal accountability emphasizes the reciprocal obligations of the state and the LHDs: for every increment of performance demanded from local health departments, the state has an equal responsibility to provide local health departments with the capacity to meet that expectation.¹

The Task Force recognized three critical steps that must be taken to effectively implement EBSs: selection of appropriate EBSs to meet community health needs, implementation of those strategies with fidelity, and evaluation of the selected EBS. While this process sounds simple, it is anything but. As explained more fully in Chapter 3, selecting, implementing, and evaluating EBSs requires new skills and significant implementation resources (including training, coaching, and technical assistance).

The Task Force recognized that, for the immediate future, state and local health departments are unlikely to have significant new resources available to implement EBSs (aside from new federal or private grant opportunities). Thus, it is important to consider different strategies to implement EBSs that include enhancing existing efforts, shifting existing resources to EBSs, and pursuing new funding to implement EBSs. These strategies are discussed below:

- *Enhance existing efforts.* LHDs provide a variety of clinical services and prevention programs. Some of these existing efforts could be improved through additional training, coaching, and supervision to reach evidence-based standards for the delivery of clinical or prevention programs. DPH and LHDs have already successfully used this strategy to implement Bright

Implementing evidence-based strategies is the surest way of improving the overall population health of the state.

Three critical steps must be taken to effectively implement evidence-based strategies: selection of appropriate evidence-based strategies to meet community health needs, implementation of those strategies with fidelity, and evaluation of the selected evidence-based strategy.

Futures in children's health programs and to implement motivational interviewing in the clinic setting.² (The Bright Futures initiative is described more fully below).

- *Shift existing resources.* LHDs implement many different programs aimed at improving the health of the people in their community. Some of these initiatives are evidence-based while others are good ideas that may not have been subject to sufficient testing to determine effectiveness. Health departments can be encouraged to shift existing resources from some of the programs that have not been thoroughly evaluated for effectiveness, to other similar programs that are evidence-based. For example, Buncombe County Health Department moved some of the existing maternal and child health staff that were providing community health nursing services into implementation of a Nurse Family Partnership program.
- *Pursue new resources.* In addition to redirecting existing resources into EBSs, the state and LHDs can seek out new funding or other opportunities to implement new EBSs. For example, the US Department of Health and Human Services offered a grant opportunity to the states to implement evidence-based home visiting programs, through the Maternal, Infant, and Early Childhood Home Visiting program (MIECHV). The grant required that the state use this funding to support implementation of evidence-based home visiting programs. DPH distributed the federal funds on a competitive basis to seven communities in the state to support the implementation of two different evidence-based home visiting programs: Nurse Family Partnership and Healthy Families.³ (These initiatives are described more fully below.)

Regardless of whether the state or LHDs choose to redistribute existing resources or create new programs, they will need to collaborate to effectively select, implement, and evaluate EBSs. Successful implementation of EBSs in LHDs across the state will require DPH and LHDs to fulfill reciprocal obligations. DPH must provide support to LHDs in the selection, implementation, and evaluation/monitoring process to ensure the success of LHD efforts. And, if the state provides the necessary help, LHDs have an obligation to implement EBSs targeted to addressing their high priority health needs.

Successful State-Local Partnerships to Implement Evidence-Based Strategies

As part of their mission and responsibilities, public health agencies advocate for and implement programmatic, clinical, and policy interventions that have been shown to improve the health of the public. State staff, including those working in Raleigh and in regional offices, can play an important role in helping LHDs successfully implement EBSs. Several successful partnerships between DPH, state regional consultants, and LHDs in implementing evidence-based programs, clinical interventions, and policies are described below.

Programs

The Division of Public Health has worked with LHDs to implement a number of evidence-based programs. Two of the more recent efforts were the implementation of Maternal, Infant, and Early Childhood Home Visiting program (MIECHV) and the Community Transformation Grant program (CTG). For each of these programs, DPH submitted a proposal to the federal government on behalf of the broader state public health community for competitive grant funds. DPH was successful in obtaining grant funding, and then partnered with LHDs to implement the evidence-based strategies.

MIECHV: DPH was awarded \$3.2 million per year for three years in MIECHV funds from the Administration for Children and Families (ACF) within the US Department of Health and Human Services. ACF identified a total of 22 evidence-based home visiting programs that states could implement with the MIECHV funds.^a Before submitting its application, DPH conducted a needs assessment and reviewed the ACF-approved EBSs to determine which strategies were most likely to work best in North Carolina. DPH identified five different EBSs that the state would support. The federal funding was only sufficient to support nine communities over the three year grant period (2011-2013). Therefore, DPH developed an application process to identify communities that had high needs and had the capacity to implement EBSs in their community. DPH received 24 applications for MIECHV funding. DPH then identified early adopters in different types of communities (e.g. Tier 1, urban/rural), with committed leadership and a high likelihood of success (to achieve early wins).

Based on this strategy and available funding, DPH identified seven LHDs or other nonprofits to receive funding (although there are seven lead agencies, the grants provide services for residents of 12 counties).³ The partner agencies included a mix of rural and urban, single county and district health departments and other nonprofit organizations. In five of the seven communities selected, an LHD or a partnership of multiple LHDs is the grant recipient. In the other two communities, nonprofits are the recipients. Grant recipients were given the opportunity to select one of the five EBSs identified by the state. Ultimately, the participating LHDs selected only two models—Nurse Family Partnership (NFP)^b and Healthy Families (HF).^c These two EBSs are distinct in terms of program design and implementation requirements. NFP had already been implemented in 10 counties across the state, and HF in five counties. MIECHV funds were used by LHDs to both implement new and expand existing NFP

For every increment of performance demanded from local health departments, the state has an equal responsibility to provide local health departments with the capacity to meet that expectation.

a US Department of Health and Human Services. Home visiting evidence of effectiveness. <http://homvee.acf.hhs.gov/Default.aspx>. Updated July 26, 2011. Accessed July 18, 2012.

b Nurse-Family Partnership is an evidence-based nurse home visiting program that targets first-time low-income mothers and provides RN home visits to mothers during pregnancy and for two years after the child is born. More information is available online at <http://www.nursefamilypartnership.org/>.

c Healthy Families America is an evidence-based home visiting program designed to ease stress and reduce risk of child maltreatment for families who are overburdened or at risk for issues such as substance abuse or domestic violence. More information is available online at <http://www.healthyfamiliesamerica.org/home/index.shtml>.

and HF programs. The state assisted local partners in implementing NFP and HF by hiring an NFP state nurse consultant to provide support for home-visiting nurses and nurse supervisors; collecting and analyzing data to inform performance improvement; assisting with staff selection; and providing fiscal oversight, budget management, and contracts administration.³ In addition, as part of this grant, DPH contracted with the National Implementation Research Network to support implementation of NFP and HF at the local level.³

Community Transformation Grants: The Affordable Care Act included funding for Community Transformation Grants (CTGs). The CTG program is being administered by the Centers for Disease Control and Prevention (CDC). CTGs support community-level efforts to increase tobacco free living, healthy eating, and active living, as well as increased links between the community and clinical systems around hypertension and cholesterol control.⁴ All of these efforts are to be implemented through a lens of creating health equity. Funding was available on a competitive basis for states and for larger urban areas (with 500,000 people or more). In 2011, North Carolina was awarded a “rest of state” (excluding Mecklenburg and Wake) five-year grant, with an annual award of \$7.4 million, the fourth largest award in the country.⁵ This funding allows North Carolina the opportunity to advance implementation of evidence based interventions such as assisting multiunit housing managers that are recipients of HUD funding to effectively adopt recommendations to become smoke free; and implementation of Quality Improvement Systems that enhance the care of hypertensive patients in the North Carolina Area Health Education Centers (AHEC) and Community Care of North Carolina networks.^d One goal of the CTG program is for states to build the evidence-base around the specific health impact of particular promising practices, such as expanding access to healthy foods in areas with the greatest health needs and health disparities through opening farmers markets. Therefore CTG funds will also be used to support and evaluate promising practices.

Clinical Interventions

The mission of the Children and Youth Branch of the Division of Public Health is to build, maintain, and assure access to systems of care that will optimize the health, social and emotional development for all children and youth. To further this mission, DPH decided to adopt the Bright Futures guidelines for preventive and screening services. Bright Futures, developed jointly by the American Academy of Pediatrics (AAP) and the Maternal and Child Health Bureau of HRSA, is a set of child health preventive screening and treatment guidelines that are theory-based, evidence-driven, and systems-oriented that can be used to improve the health and well-being of all children. As part of this work, DPH partnered with the Division of Medical Assistance (DMA) to align North Carolina’s Medicaid and Health Choice well child visit requirements

^d Petersen, R. Section Chief, Chronic Disease and Injury Section, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication September 13, 2012.

for infants, children, and adolescents with Bright Futures recommendations.^{e,f} DPH also required all LHDs offering clinical services for children to implement the Bright Futures guidelines in child health clinics and as part of the health department's electronic medical record system. To help LHDs meet this new requirement, DPH utilized a quality improvement approach that focused on outcomes; involved stakeholders from the beginning; allowed for local flexibility; used data to inform improvement decisions and document change; and tested and spread best practices.⁶ DPH decided to pilot implementation in 8 health departments before implementing Bright Futures across the state. Implementation became a partnership between the state staff (including state regional nursing consultants), and the early adopting LHDs.

The Division of Public Health, in collaboration with the North Carolina Center for Public Health Quality, created a collaborative learning environment among these early adopters to provide a forum where the early adopters could learn from one another. In addition, a DPH child health nurse consultant helped them with implementation. The partners used data and created a feedback loop to help identify problems as well as solutions to assist in implementing Bright Futures with fidelity. The participating LHD staff identified small changes that were needed in some of the required documentation, as well as materials that needed to be translated into other languages. These changes were non-substantive and were readily approved by DPH and AAP. Once the participating health departments successfully implemented Bright Futures in their child health clinics, these county staff served as messengers and coaches for other LHDs as they began implementing Bright Futures.⁶

According to those involved, one component that was critical to the success of this initiative was the role of DPH's regional nursing consultants.⁶ In the past, the regional consultants were more involved in quality control/quality assurance efforts (e.g. monitoring services and programs to ensure that they met federal or state requirements). In contrast, during this project, the regional nursing consultants were more involved as quality improvement coaches as part of the Bright Futures roll-out. Rather than just providing compliance oversight as in the past, the regional nurse consultants worked collaboratively with LHDs in a partnering relationship to find out what was working, what the barriers were, and to devise solutions to overcome barriers. LHDs described the consultants as "passionate, knowledgeable, responsive, and customer-focused."⁷ Using this process, DPH and regional consultants were able to support the successful statewide rollout of Bright Futures in all health departments in approximately 15 months, which was widely regarded as impossible using the traditional approach.

e The Affordable Care Act requires that all insurers pay for evidence-based child health preventive screenings and treatment identified by Bright Futures. (Sec. 1001 of the Affordable Care Act, amending Sec. 2713(a)(3) of the Public Health Service Act, 42 USC 300gg-13)

f Tant, C. Head, Children and Youth Branch, Women's and Children's Health Section, Division of Public Health, North Carolina Department of Health and Human Services. Written communication (email) September 13, 2012.

Collaborative leadership, built on a foundation of reciprocal accountability that recognizes and builds on the responsibilities, assets, and strengths of the state and local levels is important to create lasting and positive change.

Policy

The Task Force also heard from DPH staff about successful efforts to implement changes in tobacco laws. Implementing evidence-based policies is different than implementing evidence-based programmatic or clinical strategies, as policy change may focus more heavily on educating policy makers at the state or local governmental level.^g However, there are some elements required to successfully implement evidence-based policies that are parallel to the process used to successfully implement evidence-based program or clinical strategies. First, DPH or LHDs must identify the priority health need to be addressed and examine the research literature to determine if there is an evidence-based policy solution that is appropriate for the community (selection). Second, DPH and/or LHDs must identify other community partners that can help with advocacy and implementation (implementation). Effective implementation of public policies requires more than getting a law or ordinance passed. Thus, LHDs, with the support of the state, must also track compliance with the law to ensure that the law is enforced (evaluation).

The Tobacco Prevention and Control Branch (TPCB), within the Division of Public Health Chronic Disease and Injury Section, worked with LHDs to implement the 2009 law regulating tobacco smoke in public places (including restaurants and bars).^h DPH staff created an implementation team, including state and regional staff from DPH, the University of North Carolina at Chapel Hill School of Government, and LHDs. The state staff also helped create an implementation timeline, webinar trainings, and monitoring tools. They also created a website with all the information necessary to support implementation.ⁱ As part of this process, they educated the public and the business owners, and publicly celebrated successes. Compliance with North Carolina's smoke-free restaurant and bars law has been very strong. There have, however, been several legal challenges to the law, and the TPCB has continued to work with local health directors, boards of health, and county attorneys where available to meet these challenges.

This new law also gave local governments the authority for additional regulations for smoke free government buildings, grounds and public places (defined as "An enclosed area to which the public is invited or in which the public is permitted.^j") The TPCB is working with LHDs to build support for evidence based smoke-free policies in these settings, as well as on college and community college campuses as a part of the Community Transformation Grant(CTG). In addition, the US Department of Housing and Urban Development (HUD) has recommended that housing supplemented with HUD funds be smoke-free,

g To fulfill their mission, public health agencies have responsibilities to promote the use of scientific knowledge in public policies to assure the conditions in which people can be healthy. Institute of Medicine, *The Future of Public Health*. Washington, DC: National Academy Press; 1988.

h NCGS 130A-496

i SmokeFree.NC.gov. North Carolina Division of Public Health website. <http://tobaccopreventionandcontrol.ncdhhs.gov/smokefreenc/>. Accessed September 9, 2012.

j NCGS 130A-496.

so TPCB and CTG are working collaboratively with owners and managers of affordable housing, market rate housing, and local housing boards for public housing in order to protect people in multi-unit housing from involuntary exposure to tobacco smoke that drifts through buildings.

In addition to these examples of DPH-led efforts, there are many other examples of EBS being implemented at the local level by LHDs. In these cases, LHDs took the lead in identifying appropriate EBSs to address priority health needs. In many of these instances, the health departments worked with national program offices to obtain the necessary technical assistance and support to implement these programs with fidelity. When technical assistance was not available from national program purveyors, LHDs attempted to implement the programs using internal resources.

Lessons Learned from Past Efforts to Implement Evidence-Based Strategies

A review of the implementation literature, as well a review of as past efforts to implement evidence-based programs, clinical interventions, and policies, highlight several lessons in successfully implementing evidence-based strategies. These lessons are highlighted below.

1. Leadership is critically important at the state and local levels. Collaborative leadership, built on a foundation of reciprocal accountability that recognizes and builds on the responsibilities, assets, and strengths of the state and local levels is important to create lasting and positive change.
2. LHDs need help identifying and selecting appropriate EBSs to address their priority health needs.
3. DPH and LHDs should identify champions to support implementation of evidence-based strategies. EBS champions should be trained in implementation science and quality improvement to understand the necessary steps to ensure implementation of EBSs with fidelity.
4. When implementing statewide or multicounty initiatives, DPH should initially select LHD partners with strong leadership, passion, commitment to success, and the capacity to successfully implement the initiative. DPH should also select a mixture of different types of LHDs (e.g., rural/urban, single county/regional districts, Tier 1 counties) to ensure the initiative can be successfully implemented in different types of communities across the state.
5. DPH should involve state and regional staff and LHD staff in a collaborative arrangement while implementing any statewide or multi-county initiative. LHDs need to be at the table early in the design of the implementation strategy. Not only can LHDs provide important input to ensure implementation success, but, once they have successfully

There is a need for broader education to ensure that everyone in the public health community understands the importance of focusing limited public health resources on implementing strategies that have been shown to be effective in producing positive health outcomes.

implemented a strategy, they can become important messengers to other LHDs who are interested in implementing similar EBSs.

6. LHDs will need assistance in staff training, coaching and technical assistance.
7. State, regional, and local staff need to be trained in strategic planning for policy work and quality improvement methods for program, policy, and clinical implementation. They need to understand how to monitor policy and program implementation progress and adjust implementation as needed (within EBS parameters).
8. EBSs must be monitored and outcomes assessed in order to determine if the intervention is being implemented appropriately and achieving its desired goals.

The Task Force recognized that neither the state nor LHDs had the resources to identify, implement, and support EBSs in all program areas immediately. Thus, the Task Force acknowledged that it was important for the state and local communities to set realistic expectations about what could and should be accomplished in the immediate future to identify, implement, and evaluate EBSs in North Carolina.

In addition, knowledge of what works is constantly evolving. Information is currently lacking about effective interventions for some of the major health problems facing the state. Additionally, some EBSs that have been shown to be effective in certain communities or with select populations may not work equally well in other communities or with other populations. Moreover, the state and local communities should also have some flexibility to develop and test new interventions in order to build knowledge of other effective EBSs. However, the Task Force recommends that there be greater emphasis on program and outcome evaluation when LHDs implement a strategy that is not considered best or leading for one of its two EBSs identified to address community health priorities (described more fully below).

This following section lays out the reciprocal obligations of LHDs and DPH in educating LHD leadership, staff, and partners; selecting appropriate EBSs; implementing EBSs with fidelity; and continuous monitoring and evaluation of the initiatives.

Educating Local Health Department Leadership, Staff, and Partners

In the survey sent to LHD directors (see Chapter 4 and Appendix C), 68% of the health directors reported that fewer than half of the staff in the health departments were aware of evidence-based strategies in public health. In addition, 39% reported needing help with staff training to improve knowledge and skills of evidence-based strategies as one of their top three types of assistance needed from the state. These responses highlight the need for broader education to ensure that everyone in the public health community understands the importance of

focusing limited public health resources on implementing strategies that have been shown to be effective in producing positive health outcomes. While the Task Force recognized the need to provide basic education to the broader public health community, including policy makers and community partners, the Task Force focused its attention on how to ensure that health department staff received the necessary training. DPH and LHD staff, including public health leadership and senior management and staff involved in selecting evidence-based strategies need a basic understanding of what EBSs are, why it is important to implement EBSs, and the need to implement these strategies with fidelity to their tested design. Educating key public health staff at different levels is critical in order to create a paradigm shift to focus more of public health's limited resources on implementing evidence-based programs, policies, and clinical interventions.

Because the need for education and training around EBSs is widespread, the Task Force looked for opportunities to educate and train staff from multiple LHDs together. Information about the importance of implementing EBSs should be built into existing statewide conferences and training events in multiple venues (e.g. annual state health directors' meeting, monthly health directors meetings), regional meetings, and meetings targeting specific types of health department staff (e.g. nurses, health educators). The state should also use regional and statewide meetings to highlight local success stories (e.g. EBSs implemented by LHDs in North Carolina that have led to positive health outcomes). The goal of these trainings is to educate LHD staff about the reason to implement EBSs, excite them about the possibilities for positive health outcomes, and encourage their interest in implementing similar strategies in their communities. More detailed trainings and coaching are needed for people who are charged with implementing specific EBSs (these trainings are discussed more fully below).

In addition, partner organizations including, but not limited to, the Center for Healthy North Carolina, the North Carolina Institute for Public Health, and the North Carolina Center for Public Health Quality, and other academic partners should use their dissemination mechanisms to inform other public health and community partners about the need to implement EBSs, as well as successful implementation efforts in North Carolina.

To effectuate this broader paradigm shift to support implementation of EBSs, the Task Force recommends:

Recommendation 5.1: Educate State and Local Public Health Staff about Evidence-Based Strategies

- a) State public health staff, in partnership with other state agencies, the National Implementation Research Network (NIRN), the North Carolina Institute for Public Health (NCIPH), the Center for Training and Research Translation (Center TRT) at the University of North Carolina at Chapel**

Hill, the North Carolina Center for Public Health Quality (NC CPHQ), and other appropriate partners should identify or, if necessary, develop generic trainings about evidence-based strategies (EBSs), and offer these trainings in multiple settings, including but not limited to existing state and regional public health meetings, Area Health Education Centers (AHECs), and online. These generic trainings should focus on the reasons for and importance of implementing evidence-based strategies. These trainings should include information on national compendiums of evidence-based strategies; how specific programs, policies, and clinical interventions are evaluated by different organizations to determine whether they are evidence-based; the importance of selecting appropriate strategies to meet the communities' needs; implementing EBSs with fidelity; and the need to include monitoring and feedback loops to ensure that the EBS is achieving its desired goals. The trainings should also highlight examples of successful EBSs that have been implemented in North Carolina.

- b) The Division of Public Health should ensure that appropriate state (including regional) staff receive EBS training. Specifically, all Division directors, management, and key program staff should attend or participate in the generic EBS training to understand the importance of implementing EBSs and gain a basic understanding of what is needed to ensure that EBSs are implemented with fidelity.**
- c) Local health department directors should ensure that appropriate staff receive EBS training. Specifically, all members of the local health department leadership and senior management, those involved in selecting EBSs, and other relevant staff should attend or participate in the generic EBS training to understand the importance of implementing EBSs and gain a basic understanding of what is needed to ensure that EBSs are implemented with fidelity.**
- d) Partner organizations, including but not limited to the Center for Healthy North Carolina, NCIPH, Center TRT, NIRN, NC CPHQ, the Department of Public Health at East Carolina University, the North Carolina Center for Health and Wellness at the University of North Carolina at Asheville, and the Family and Consumer Sciences Department at North Carolina State University, should disseminate information about the reason to implement evidence-based strategies, as well as examples of successful implementation and impact on health outcomes.**

Selecting Appropriate Evidence-Based Strategies

Before selecting an EBS, the LHD must first identify the need it is trying to address. As discussed previously, DPH is using the community health assessment (CHA) and action plan process to increase LHDs' focus on HNC 2020 objectives and EBSs.^k As part of CHAs, LHDs are required to examine the health needs of their community and involve the community in setting health priorities. LHDs are required to develop action plans for each community health priority identified in the CHA. CHAs are submitted in December (with a shorter report, the State of the County's Health, required in non-CHA years). Action plans must be

submitted to DPH by the following June. In order to ensure that all health departments focus on some of the statewide health priorities, each LHD must include in their county action plan at least two Healthy North Carolina 2020 objectives from the 40 objectives. These objectives must come from at least 2 of the 13 focus areas. The current action plan requires LHDs to "list the 3-5 evidence-based interventions (proven to effectively address this priority issue) that seem the most suitable for your community and/or target group."⁸ However, there is no requirement for LHDs to implement any of the EBSs that they identify in their action plans.

Local health departments have historically conducted their CHA on a staggered basis. As of December 2012, 32 LHDs will have submitted their community action plans to DPH with their priority HNC 2020 objectives. This is the first round of CHAs that will include the priority HNC 2020 objectives.

As noted in Chapter 3, the process of selecting an appropriate EBS to address a specific community health need is more involved than merely identifying a strategy that was successful in another community. Communities need to determine whether particular strategies are a good fit for their community. As part of this analysis, they need more information about the different EBSs including the level of evidence supporting the various EBSs, staffing needs, the costs of implementation, and whether or not the program offers technical assistance and/or coaching to implement the program with fidelity. They also need to consider whether they have, or could obtain, the appropriate staff and/or resources to be able to implement the EBS with fidelity. For some EBSs this information is readily available—for others the information is more difficult to obtain.

As discussed in Chapter 4, approximately one in four LHD directors reported that one of their health department's top three needs for state support was selecting appropriate EBSs for their community. Many health directors were unaware of, or did not routinely use, nationally recognized repositories of evidence-based

^k Nonprofit hospitals are also required to conduct a community health assessment to maintain their charitable tax status. However, under federal law, nonprofit hospitals are required to conduct this assessment at least once every three years. Thus, some of the LHDs have gone to a three year community health assessment cycle to work collaboratively on the community health assessment with their local hospital.

strategies, such as the Centers for Disease Control and Prevention’s Guide to Community Preventive Services (for EBSs on a wide range of topics) or the National Registry of Evidence-Based Programs and Practices (for EBSs on mental health and substance abuse. (See Chapter 4 and Appendix C.) Health directors were also interested in information about where strategies had been successfully implemented, particularly those implemented in North Carolina.

Local health directors and their staff need more education about what EBSs are, how to identify EBSs, and the factors that should be weighed when considering EBSs for implementation in their community. As discussed in Recommendation 5.1, DPH should educate LHD staff about EBSs. Information about national compendiums of public health EBSs should be included in the EBS education and training. Additionally, information about EBSs being implemented or supported by the state, state contacts for selected EBSs, and links to national compendiums of EBSs should be maintained on a central website.

Table 5.1
Preliminary Priority Healthy North Carolina 2020 Objectives^a

Reduce the percentage of non-elderly uninsured individuals (aged less than 65 years)
Increase the percentage of adults who are neither overweight nor obese
Increase the percentage of high school students who are neither overweight nor obese
Increase the percentage of adults getting the recommended amount of physical activity
Increase the percentage of adults who consume five or more servings of fruits and vegetables per day
Reduce the cardiovascular disease mortality rate (per 100,000 population)
Decrease the percentage of adults with diabetes
Reduce the colorectal cancer mortality rate (per 100,000 population)
Reduce the percentage of high school students who had alcohol on one or more of the past 30 days
Reduce the percentage of individuals aged 12 years and older reporting any illicit drug use in the past 30 days
Decrease the percentage of adults who are current smokers
Decrease the percentage of high school students reporting current use of any tobacco product

^aas identified by 32 local health departments in their 2011 community health assessments
Source: Nelson D. Assistant Branch Manager, Heart Disease and Stroke Prevention Branch, Division of Public Health, North Carolina Department of Health and Human Services. Written (email) communication September 14, 2012.

Given the broad need for help identified by LHD directors and the DPH requirement that LHDs identify EBSs, the Task Force explored different ways in which DPH and other state partners could support LHDs in selecting appropriate evidence-based strategies. The group recognized that DPH did not have the resources to provide background information or implementation support for every program, policy, or clinical intervention that has some level of evidence to support its effectiveness. Rather, the Task Force recommends that DPH staff work with local health directors to identify at least two EBSs (when available) for 10 of the HNC 2020 objectives identified as priority objectives in the community health assessments submitted to DPH. The selection of HNC 2020 priority objectives should be informed by the community health action plans already submitted to DPH. (See Table 5.1.) While the Task Force supported the CDC definition of four levels of EBSs, the Task Force recommends that DPH focus on EBSs that fall into the leading or best categories, when available. This will help ensure that state resources are only supporting strategies with very high levels of effectiveness. The selected strategies should include a mix of clinical, programmatic, and policy strategies (when

available and appropriate). DPH should identify these EBSs for the first group of priority objectives no later than July 1, 2013.

For each of the selected EBSs, DPH should put together information about the strength of the supporting evidence, the potential for population impact, the resources and staffing needed for implementation, potential costs, and available training or technical assistance at the regional, state, or national level to support implementation. For every EBS, DPH should identify an expert who can answer questions about the EBS, such as the strength of the evidence for the EBS and basic requirements for successful implementation. The expert should also know what level of implementation support is provided by the program or other appropriate organizations. DPH should also develop a list of questions for LHDs to consider in selecting appropriate EBS.

To maximize the likelihood of success in implementing EBSs, DPH should provide or help identify sources of implementation support for any selected EBSs. (See Recommendation 5.3.) DPH should also help LHDs in identifying or preparing a quality improvement and basic evaluation plan to ensure that the state-selected EBSs are being implemented with fidelity and capture appropriate process and outcome data. (See Recommendation 5.4.) The expert for each EBS should also know of any potential funding sources and information about other communities in North Carolina that have implemented the same EBS.

The Task Force also recognized that some of the DPH branches may have flexibility to redirect some of their existing staff to assist LHDs in the selection, implementation, or evaluation of EBSs. Other branches may have less flexibility because of restrictions in state or federal funding used to support those positions.

In those instances, DPH should try to identify state or national partner organizations that may be able to assist in this effort. Some of the partnering organizations could include national program offices (for a specific EBS), Center TRT, NCIPH, NIRN, NC CPHQ, the Department of Public Health at East Carolina University, the North Carolina Center for Health and Wellness, and the Family and Consumer Sciences Department at North Carolina State University.

While greater state support should be available if the LHDs implement one of the state-selected EBSs, LHDs are still free to select from other EBSs. However, if the LHD chooses to implement an EBS that does not have the level of evidence to support a Best (B) or proven or Leading (L) ranking, then it should also include a stronger evaluation to ensure that the health department collects the data needed to determine whether the intervention is making a positive impact on the community health need.

The Task Force members also recognized that there are times when DPH may require statewide implementation of an EBS. This may occur when the state changes a public health law and county health departments are required to

monitor its implementation (for example, implementation and monitoring of the smoke free restaurant and bars legislation). Or it may occur when there are new federal requirements that must be implemented. It may also occur when implementing clinical guidelines that should be part of the regular standard of care provided by all health departments. In these instances, DPH can identify the appropriate EBS and require implementation across the state.

Recommendation 5.2: Select Appropriate Evidence-Based Strategies

- a) **To support the selection of appropriate evidence-based strategies (EBSs) at the local level, the Division of Public Health (DPH) should, to the extent possible:**
 - 1) **Work with local health directors, academic institutions, and partnering organizations to identify two EBSs for ten HNC 2020 objectives identified as priorities in the action plans submitted to DPH by local health departments (LHDs). DPH should identify these state-selected EBSs no later than July 1, 2013. To the extent possible, DPH should focus on EBSs that would meet the standards for best or leading practices. DPH and collaborating partners should also try to identify a mix of evidence-based policies, programs, and clinical interventions, and should focus on those EBSs that, based on prior evaluation evidence, would have the best chance of having a positive health impact in communities throughout North Carolina.**
 - 2) **Identify at least one expert within DPH, or another appropriate state agency, academic institution, or partnering organization for each of the selected EBSs. Each EBS expert should be able to provide information about the populations targeted, strength of the evidence and, to the extent possible, the expected impact; costs, staffing requirements, and other necessary implementation resources; implementation barriers; the availability of implementation and evaluation resources including training, technical assistance, coaching, and evaluation tools; any potential funding sources (if known); and information about any other communities in North Carolina that have implemented the same EBS.**
- b) **The Center for Healthy North Carolina should maintain a website with information about EBSs. The information maintained in the Center for Healthy North Carolina's website should be linked to other state websites, including HealthStats for North Carolina and the North Carolina Center for Public Health Quality. Specifically, the website should include:**
 - 1) **Detailed information about each of the EBSs identified by DPH, along with a DPH or other expert for each of the selected EBSs.**

- 2) Information about other EBSs being supported by DPH.**
 - 3) Information about communities in North Carolina that are implementing each of the selected strategies.**
 - 4) Links to national compendiums of EBSs to assist communities in selecting other appropriate strategies.**
 - 5) A search or sorting mechanism so that LHDs can easily identify sources of EBSs with potentially appropriate program, clinical, and policy strategies by HNC 2020 objectives.**
 - 6) Links to organizations that provide information and/or assistance with implementing EBSs including, but not limited to, the National Implementation Research Network.**
 - 7) Archived webinars on the importance of implementing EBSs (basic training), as well as more detailed training, if available, about those EBSs being supported by DPH.**
- c) DPH should select EBSs and assist in statewide roll-out when implementation of a specific EBS is required as part of state or federal law, or supported by changes in clinical standards of care.**

Implementing Evidence-Based Strategies with Fidelity

Selecting an appropriate EBS is an important first step towards effective implementation. Once selected, the LHD must ensure that the program, policy, or clinical intervention is implemented with fidelity. This is the primary way in which the health department can ensure that the intervention has the desired health impact. However, 23% of local health directors reported that they needed help with implementation as one of their top three priorities for state assistance. In addition, 20% noted the need to create a peer support network, and 15% reported that they needed help recruiting and retaining qualified staff.

The primary reason to implement an EBS is because these strategies have been tested in multiple settings and have been shown to achieve a positive health outcome. These initiatives have achieved these health outcomes by following certain key programmatic, clinical, or policy guidelines. A community cannot expect to achieve the same positive health outcomes unless it follows the core components of an evidence-based program, policy, or clinical intervention. While there are certain components that must be followed exactly to ensure fidelity, there may be other components that LHDs may vary to meet specific local needs. It is important to work closely with the national program office or other experts to determine which components are critical to successful

implementation, and which components can be adapted to meet the needs of different communities or cultural groups.

Local health departments must follow certain key steps to ensure successful implementation of EBSs. (See Chapter 3.) For example, there must be leadership support for the initiative. Program staff must also be adequately trained, and there should be ongoing coaching and/or technical assistance to help staff implement the EBS. Local health departments should build the capacity internally to have staff who can serve as coaches to train and support other program staff and other community partners, when allowable within the context of the specific EBS. In addition, staff need to be trained on quality improvement methods, so they can monitor progress and modify implementation as needed (and as allowed) to achieve program goals. Successes should be celebrated and shared with other health departments to help disseminate successful interventions across the state.

As noted earlier, new funding may be needed to support implementation of some EBSs, particularly new programmatic initiatives. It is not surprising, therefore, that local health directors also noted the need for new funding as a top need from the state. For example, 31 respondents (47%) noted that they needed state help with grant writing to fund EBSs, and 26% noted that they needed access to information about funding sources. The Task Force recommends that the state seek funding from national funding sources when grants were available to support statewide and/or multi-county initiatives. However the Task Force recognized that grant funding is not always available to support statewide or

multi-county interventions. In those instances, DPH can assist LHDs by keeping them apprised of funding opportunities and by providing LHDs with information about grant writing workshops.

Although the Task Force recommends that DPH identify EBSs to support 10 of the 40 HNC 2020 objectives identified as priorities by LHD's community health assessments, it was aware that different DPH divisions are helping support implementation of EBSs that address other priority health objectives (e.g. those that were not specifically listed as one of the 40 HNC 2020 objectives). To the extent possible, DPH should provide the same level of support to LHDs implementing these EBSs as is recommended for state-selected EBSs targeting HNC 2020 objectives.

Thus, to support successful implementation of the state-selected EBSs, the Task Force recommends:

Recommendation 5.3: Implement Evidence-Based Strategies

- a) The Division of Public Health (DPH) should build state and local staff capacity around implementation science, coaching, and quality improvement methods.**
 - 1) DPH should identify champions for EBSs in each Branch and within regional staff. These champions should be trained in implementation science and quality improvement to understand the necessary steps to ensure that evidence-based programs, policies, and clinical interventions are implemented with fidelity. These champions should be able to assist the state and local health departments to support a broad array of EBSs, rather than focus on implementation of a specific EBS.**
 - 2) Provide training to state, regional, and local public health staff—through the North Carolina Center for Public Health Quality and other partners—about quality improvement methods, including rapid cycle testing (PDSA cycles), monitoring, and feedback loops to ensure successful implementation.**
 - 3) Disseminate information on grant writing trainings.**
- b) For each of the state-selected evidence-based strategies (EBSs), the Division of Public Health (DPH) should:**
 - 1) Disseminate information on funding opportunities when available.**
 - 2) Promote collaborative learning approaches among local health departments (LHDs) and regional staff who are working on implementing similar EBSs.**
 - 3) Celebrate implementation successes and distribute information about successes to other health departments across the state.**
- c) When leading a statewide or multi-county implementation of an EBS, DPH should:**
 - 1) Pursue funding opportunities when needed to support statewide or multi-county implementation of EBSs. Select a mix of different LHDs to pilot a statewide roll-out of an EBS, or when funding is only available to support implementation in a small number of counties. The LHD partners should be selected with the goal of ensuring successful implementation. Selection criteria should**

include, but not be limited to: need, leadership support, past history of successful implementation of EBSs, staffing and resource capacity, and commitment to success. To the extent possible, DPH should select a cross-section of LHDs that is broadly representative of the state including rural and urban health departments in different geographic areas of the state, those covering Tier 1 low-resource communities, and single county and district health departments.

- 2) Partner with LHDs and other organizations early in the implementation process in order to include the important knowledge and perspectives these groups bring as well as to improve the likelihood of a successful spread of the EBS across the state.**
 - 3) Use a quality improvement rather than a quality control approach to collaborative partnerships with LHDs.**
 - 4) Provide training, technical assistance, and coaching, or ensure that these resources are available through national program staff, or other partnering organizations. This training, technical assistance, and coaching should be available to all LHDs that are seeking to implement the specific EBS (whether funded through the state or not), unless directly prohibited by national program rules, or the state lacks sufficient resources to assist all LHDs that request help. If resources are limited, DPH staff can phase-in the technical assistance on a rollout basis. Training should be experientially based to give participants the skills needed to implement the EBS in their own communities. To the extent possible, LHD staff should be involved in the trainings so that they can explain how they addressed implementation barriers to those interested in implementing a similar strategy.**
- d) To support successful implementation at the local level, LHD leadership should:**
- 1) Serve as champions within their own LHDs to implement EBSs to address priority community health objectives.**
 - 2) Create teams of trained staff who can help support implementation of specific evidence-based strategies in the LHD. Ensure that every staff member who is involved in the implementation of an EBS receives appropriate training.**
 - 3) Engage community partners as necessary to the success of the EBS.**
 - 4) Serve as a resource to other local health departments who are interested in implementing a similar EBS in their community.**

Evaluation

Evaluation is also an important component of effective implementation of EBSs in LHDs. This does not mean that LHDs need to conduct randomized controlled studies to test the effectiveness of particular interventions—at least not for those that have been thoroughly evaluated elsewhere. But effective implementation does require the collection of some outcome measures to ensure that the intervention is achieving its desired purpose. LHDs may also need data about program effectiveness to support ongoing funding. For example, if an initiative was initially supported through outside grant funds, LHDs may need support from their local county commissioners or state government to continue the effort once the initial funding period is elapsed. County commissioners or other potential funding sources will want basic information about cost-effectiveness or return on investment to ensure that continued funding is a wise investment.

Collection of both process measures (as part of implementation of an EBS) and outcome measures is critical. Evidence-based programs, policies, and clinical interventions may fail to meet their desired goals because the selected initiative was not properly implemented. Or it may fail to meet goals because it did not match the community needs. Without knowing if the initiative was implemented with fidelity, it is difficult to interpret the success or failure of a given EBS on changing health outcome measures.

Twenty-two of the surveyed health directors (33%) noted that they needed state help in capturing the data needed to demonstrate the impact of EBSs in the community as one of the top three needs for state assistance, and another 15% noted the need for help with evaluation. The state can assist with this effort by providing training to LHD staff on what data to collect and how to collect and analyze data. The state may also help analyze data, particularly for statewide or

multi-county initiatives. To help facilitate data collection, the Task Force recommends that DPH create basic common data collection tools utilizing Excel or other common software for each of the state-selected EBSs. These tools should be easy to understand and use and should capture the basic data that is needed to assess whether a program is having a positive impact on participants. Such tools could be used by LHDs seeking to implement one of the state-selected EBSs if the national program office does not already require the use of particular tools. Common data tools will help ensure that data is being captured consistently across the state. LHDs implementing state-selected EBSs who use the state-developed data tools should submit their data to the state expert for that EBS. The Task Force recommends that the state, through the EBS experts or staff at the State Center for Health Statistics staff, take the lead in analyzing the data to determine the outcomes for the state and local counties. LHDs will still have the independent responsibility of monitoring internal process measures to ensure that the program is being implemented with fidelity.

As noted earlier in this chapter, there are legitimate reasons why a LHD may choose not to implement a state-selected EBS, or may choose to implement an EBS that does not yet have the level of evidence to be considered best or leading. (See Chapter 2.) LHDs that choose to implement EBSs that are not state-selected, or that are not best or leading have different evaluation responsibilities. For example, if a LHD chooses to implement a best or leading EBS, but not one supported by the state, then the LHD will need to work with the national program office to ensure that the program is implemented with fidelity (e.g. through the use of a fidelity monitoring tool). Those LHDs that choose to implement EBSs that are promising or emerging should assume a greater responsibility to evaluate health outcomes, and to help expand the knowledge base about these interventions. This may require LHDs to contract with academic institutions or independent organizations for a more detailed evaluation.

To ensure that the evidence-based strategy is being implemented appropriately and achieving desired outcomes, the Task Force recommends:

Recommendation 5.4: Monitor and Evaluate Process and Outcomes

- a) To evaluate the effectiveness of state-selected evidence-based strategies (EBSs) being implemented in North Carolina, the Division of Public Health (DPH) and local health departments (LHDs) should, in collaboration with academic institutions and other partner organizations:**
 - 1) Identify or develop an evaluation design and data collection tools for each state-selected EBS appropriate to the level of evidence-base that already exists.**
 - 2) Provide training and coaching to local staff to enable them to collect the appropriate data.**
 - 3) Gather data from LHDs and analyze process and outcome measures at the state level to determine impact of EBSs for the state and local counties.**
 - 4) Assist with dissemination of program results.**
- b) To ensure that state-selected EBSs are implemented with fidelity and that the program can be properly evaluated, LHDs should:**
 - 1) Ensure staff receive necessary training on collecting data on EBSs.**

- 2) Collect requisite process and outcome data and submit to the state for analysis.**
- 3) Review local process and outcome measures and make necessary changes in the program implementation to ensure fidelity to key program components.**
- c) If a LHD chooses to implement an EBS that is not state-selected but that is considered best or leading the LHD should work with the national program office to identify the information needed to ensure that the program has been implemented with fidelity, and collect the appropriate data.**
- d) If a LHD chooses to implement an EBS that is promising or emerging, then the LHD should develop a more thorough evaluation plan that captures both process and outcomes measures.**

Reciprocal Obligations

The Task Force identified many ways in which DPH and collaborating partners could assist LHDs in implementing evidence-based programs, policies, and clinical interventions. As described above, this included generic training about evidence-based strategies; assistance identifying appropriate EBSs to help reach the Healthy North Carolina (HNC) 2020 objectives; training, technical assistance and coaching to ensure that EBSs are implemented with fidelity; and monitoring and evaluation support.

If the state provides this assistance, then LHDs have reciprocal obligations to implement evidence-based strategies. To support expansion of EBSs aimed at improving HNC 2020 objectives, LHDs should identify and implement (as the lead agency) an EBS not currently being implemented in their community for

each of the two HNC 2020 priority objectives identified as priorities in their community health assessment and action plans. Alternatively, the LHD could choose to expand an EBS currently in use to reach a new target population. These EBS can be selected from among the state-selected EBSs, or can be another EBS identified in one of the national compendiums. While greater state support should be available if the LHDs implement one of the state-selected EBSs, LHDs are still free to select from other EBSs. However, if the LHD chooses to implement an EBS that does not have the level of evidence to support a best or leading ranking, then it should also include a stronger evaluation to ensure that the health department collects the data needed to determine whether the intervention is making a positive impact on the community health need.

LHDs that select an EBS that the state has identified will receive support from DPH, or partnering organizations, in the implementation and evaluation phases. LHD leadership and staff must attend the necessary trainings, implement the EBSs with fidelity, and collect and report the required evaluation data to the state. These requirements should be built into the annual contract the LHD signs with the state. Therefore, the Task Force recommends:

Recommendation 5.5: Revise the Consolidated Agreement

- a) **If the Division of Public Health (DPH) provides the necessary support as reflected in Recommendations 5.1-5.4, DPH should revise the 2013 Consolidated Agreement to reflect a new requirement that local health departments (LHDs) implement two new evidence-based strategies (EBSs) (or expand an existing EBS to a new target population) to address at least two HNC 2020 priority objectives identified through the community health assessment and articulated in the LHD action plans. The priority objectives should be selected from at least two of the HNC 2020 focus areas.**
- b) **DPH should change the community action plans to require LHDs to identify the EBSs that they have selected, along with a staffing, training, implementation, and monitoring/evaluation plan.**

Partnering Organizations

The Task Force recognized that the Division of Public Health may not have sufficient resources or expertise to be able to support LHDs with selection, implementation and monitoring/evaluation for all the state-selected EBSs. Some divisions have more flexibility to be able to redirect existing staff and resources to support this effort; others may be more proscribed in what they can accomplish. Nonetheless, everyone recognized the importance of moving as forcefully as possible towards implementation of EBSs to improve population health.

One way to expand DPH's capacity to support LHDs is by working with state and national partners. There are a number of other academic and nonprofit organizations in North Carolina with this mission, as well as some funding that can be used to help support implementation of evidence-based strategies in local health departments. These organizations do not have unlimited resources or staff, so cannot (and should not) assume DPH's role in supporting LHDs in this effort. However, these community partners can expand the work of DPH to help support LHDs.

Representatives of the Center for Training and Research Translation (Center TRT) within the Center for Health Promotion and Disease Prevention at the

University of North Carolina at Chapel Hill¹ have agreed to help convene other academic institutions and nonprofit organizations with the expertise to help support the state and local effort to expand use of EBSs to address the HNC 2020 objectives. The Center TRT's mission is to enhance the public health impact of state and community obesity prevention efforts by providing the training and evidence that public health practitioners need to improve nutrition and physical activity, behaviors, environments, and policies. Such efforts could significantly help support the state and local effort to select, implement, and evaluate EBSs by local health departments. Therefore the Task Force recommends:

Recommendation 5.6: Collaborate with Partner Organizations

- a) **The Center for Training and Research Translation (Center TRT), within the University of North Carolina at Chapel Hill, should convene academic and other appropriate organizations to work with the Division of Public Health and local health departments in implementing evidence-based strategies to address the Healthy North Carolina (HNC 2020) objectives. Some of the other academic or community partners may include, but not be limited to: the North Carolina Institute of Public Health (NCIPH), the North Carolina Center for Public Health Quality, the National Implementation Research Network (NIRN), the Department of Public Health at East Carolina University, North Carolina Center for Health and Wellness, the Family and Consumer Sciences Department at North Carolina State University, and the Center for Healthy North Carolina.**
- b) **To the extent possible within existing funding, these academic and nonprofit organizations should:**
 - 1) **Assist the state in identifying appropriate EBSs to address priority HNC 2020 objectives.**
 - 2) **Provide implementation support such as training, coaching, or other technical assistance.**
 - 3) **Assist the state in developing appropriate data collection instruments needed for evaluation, or help communities develop implementation plans (if the EBS is not one of the state-selected EBSs).**
 - 4) **Assist with the collection and analysis of evaluation data.**

¹ The Center for Training and Research Translation (Center TRT) within the Center for Health Promotion and Disease Prevention at the University of North Carolina at Chapel Hill is a Prevention Research Center of the Centers for Disease Control and Prevention. As such, the CDC provides the majority of Center TRT's funding.

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In recent years, North Carolina's Division of Public Health (DPH) has worked with state and local partners to develop a vision and roadmap for improving public health efforts to save lives, reduce disability, improve quality of life, and, ultimately, improve the health of our state. In *Prevention for the Health of North Carolina* (2009), the state identified the key preventable risk factors contributing to the major causes of death and disability in the state. This report also began the process of identifying evidence-based strategies (EBSs)—those that have been documented to have a positive impact on health outcomes—to prevent or reduce these risk factors. *Healthy North Carolina 2020* (2011) built on this effort by identifying 2020 health outcome targets for the 40 top health objectives in the state. The state can concentrate its efforts to have a positive impact on population health by focusing on a limited number of key health objectives,

The Task Force on Implementing Evidence-Based Strategies in Public Health built on these previous efforts by focusing on how to increase the use of EBSs at the local level. Local health departments (LHDs) are essential partners in these efforts to improve the health of North Carolinians. LHDs engage in a variety of programs, policies, and clinical interventions to promote and support the health of their communities. *Improving North Carolina's Health: Applying Evidence for Success*, the report of the Task Force on Implementing Evidence-Based Strategies in Public Health, presents a way to improve the health of North Carolinians that can occur if DPH and LHDs, as well as other state partners, work together collaboratively to effectively select, implement, and evaluate evidence-based strategies. Many of the recommendations focus on the need for DPH to create a system that encourages and supports the use of EBSs by local health departments. The Division of Public Health provides some basic support services to all 85 LHDs. As part of this overall support, the Task Force envisions DPH building the infrastructure needed to support EBSs at the local level through activities such as:

- Promoting awareness and understanding of evidence-based public health strategies among state, regional, and local public health staff.
- Providing guidance to LHDs around selecting appropriate evidence-based strategies.
- Creating a system within North Carolina public health that supports and encourages local health departments to implement evidence-based strategies with fidelity.
- Developing evaluation and data collection tools as well as providing training and coaching to local staff to enable them to collect and analyze data.



In return, the Task Force believes that local health departments have a reciprocal obligation to begin to implement EBSs in very specific ways. If DPH provides the foundation for EBS work at the local level, then LHDs have an obligation to ensure their staff receive the appropriate trainings and to start implementing EBSs with fidelity to address North Carolina's public health needs. The Task Force believes that this reciprocal obligation is central to advancing the use of EBSs in North Carolina. Therefore, one of the recommendations is to amend the agreement between DPH and LHDs to reflect this obligation. Finally, the Task Force recognizes that many of our academic institutions and other organizations have developed extensive knowledge about implementing EBSs. Partnering with such organizations is critical to extending the capacity of DPH to educate public health staff about EBSs, identify appropriate EBSs, provide implementation support, and assist with the collection and analysis of data.

State and local public health agencies and supporting partners need to use existing funds wisely to improve the health status of North Carolinians. This report provides a blueprint for how DPH, LHDs, and other partners can work together to accomplish this goal. By implementing these recommendations, North Carolina can strengthen the infrastructure needed to support the implementation of evidence-based public health strategies across the state. Selecting appropriate strategies, implementing these strategies with fidelity, and ensuring that they are having their intended impact offers the greatest chance of continuing the state's past efforts of improving the health and well-being of North Carolinians.

	Department of Public Health	Local Health Departments	Other
<p>Recommendation 5.1: Educate State and Local Public Health Staff about Evidence-Based Strategies</p> <p>State public health staff, in partnership with other state agencies and other partners should offer generic trainings on evidence-based strategies to appropriate state, regional, and local staff.</p>	✓	✓	✓ NIRN, NCIPH, Center TRT, NC CPHQ, DPH ECU, NC CHW, FCSD NCSU, AHEC
<p>Recommendation 5.2: Select Appropriate Evidence-Based Strategies</p> <p>The Division of Public Health (DPH) should provide guidance to local health departments (LHDs) around selecting appropriate evidence-based strategies (EBSs). As part of this effort, DPH should work with local health directors, academic institutions, and partnering organizations to identify two state-selected EBSs for 10 of the priority HNC 2020 objectives identified by LHD action plans, and at least one expert contact for each selected EBS.</p>	✓	✓	✓ NIRN, NCIPH, Center TRT, NC CPHQ, DPH ECU, NC CHW, FCSD NCSU
<p>Recommendation 5.3: Implement Evidence-Based Strategies</p> <p>The Division of Public Health should create a system that supports and encourages local health departments to implement evidence-based strategies with fidelity through utilizing a quality improvement approach; pursuing and publicizing funding opportunities; promoting learning collaboratives; and providing training, technical assistance, and coaching to the extent possible.</p>	✓	✓	✓ NIRN, NCIPH, Center TRT, NC CPHQ, DPH ECU, NC CHW, FCSD NCSU
<p>Recommendation 5.4: Monitor and Evaluate Process and Outcomes</p> <p>To evaluate the effectiveness of state-selected evidence-based strategies (EBSs) implemented in North Carolina, the Division of Public Health and local health departments (LHDs) should identify or develop evaluation design and data collection tools for each state-identified EBS and provide training and coaching to local staff to enable them to collect the appropriate data. To ensure that state-selected EBSs are implemented with fidelity and properly evaluated, LHDs should ensure that staff who collect data receive appropriate training, collect and submit to the state requisite process and outcome data, and review local process measures to ensure program fidelity.</p>	✓	✓	✓ NIRN, NCIPH, Center TRT, NC CPHQ, DPH ECU, NC CHW, FCSD NCSU

	Department of Public Health	Local Health Departments	Other
<p>Recommendation 5.5: Revise the Consolidated Agreement</p> <p>If the Division of Public Health (DPH) fulfills the obligations outlined in recommendations 5.1-5.4, then DPH should revise the 2013 Consolidated Agreement to require local health departments (LHDs) to identify and implement two new evidence-based strategies (EBSs) to address HNC 2020 priority objectives from different HNC 2020 focus areas as identified through the community health assessment. The LHD action plans should articulate the selected EBSs, and plans for staffing, training, implementation, and evaluation.</p>	✓	✓	
<p>Recommendation 5.6: Collaborate with Partner Organizations</p> <p>The Center for Training and Research Translation, within the University of North Carolina at Chapel Hill, should convene academic and other appropriate organizations to work with the Division of Public Health and local health departments in implementing evidence-based strategies to address the Healthy North Carolina 2020 (HNC 2020) objectives. These organizations should, to the extent possible, assist the state in identifying appropriate EBSs to address priority HNC 2020 objectives; provide implementation support; assist with the collection and analysis of data.</p>			✓ <small>NIRN, NCIPH, Center TRT, NC CPHQ, DPH ECU, NC CHW, FCSD NCSU</small>

Acronym	Full Name
AHEC	Area Health Education Centers
Center TRT	Center for Training and Research Translation at the University of North Carolina at Chapel Hill
DPH	Division of Public Health, North Carolina Department of Health and Human Services
DPH ECU	Department of Public Health at East Carolina University
FCSD NCSU	Family and Consumer Sciences Department at North Carolina State University
LHD	Local health departments
NC CHW	North Carolina Center for Health and Wellness at the University of North Carolina at Asheville
NC CPHQ	North Carolina Center for Public Health Quality
NCIPH	North Carolina Institute for Public Health
NIRN	National Implementation Research Network



Recommendation 5.1: Educate State and Local Public Health Staff about Evidence-Based Strategies

- a) **State public health staff, in partnership with other state agencies, the National Implementation Research Network (NIRN), the North Carolina Institute for Public Health (NCIPH), the Center for Training and Research Translation (Center TRT) at the University of North Carolina at Chapel Hill, the North Carolina Center for Public Health Quality (NC CPHQ), and other appropriate partners should identify or, if necessary, develop generic trainings about evidence-based strategies (EBSs), and offer these trainings in multiple settings, including but not limited to existing state and regional public health meetings, Area Health Education Centers (AHECs), and online. These generic trainings should focus on the reasons for and importance of implementing evidence-based strategies. These trainings should include information on national compendiums of evidence-based strategies; how specific programs, policies, and clinical interventions are evaluated by different organizations to determine whether they are evidence-based; the importance of selecting appropriate strategies to meet the communities' needs; implementing EBSs with fidelity; and the need to include monitoring and feedback loops to ensure that the EBS is achieving its desired goals. The trainings should also highlight examples of successful EBSs that have been implemented in North Carolina.**
- b) **The Division of Public Health should ensure that appropriate state (including regional) staff receive EBS training. Specifically, all Division directors, management, and key program staff should attend or participate in the generic EBS training to understand the importance of implementing EBSs and gain a basic understanding of what is needed to ensure that EBSs are implemented with fidelity.**
- c) **Local health department directors should ensure that appropriate staff receive EBS training. Specifically, all members of the local health department leadership and senior management, those involved in selecting EBSs, and other relevant staff should attend or participate in the generic EBS training to understand the importance of implementing EBSs and gain a basic understanding of what is needed to ensure that EBSs are implemented with fidelity.**
- d) **Partner organizations, including but not limited to the Center for Healthy North Carolina, NCIPH, Center TRT, NIRN, NC CPHQ, the Department of Public Health at East Carolina University, the North Carolina Center**

for Health and Wellness at the University of North Carolina at Asheville, and the Family and Consumer Sciences Department at North Carolina State University, should disseminate information about the reason to implement evidence-based strategies, as well as examples of successful implementation and impact on health outcomes.

Recommendation 5.2: Select Appropriate Evidence-Based Strategies

- a) To support the selection of appropriate evidence-based strategies (EBSs) at the local level, the Division of Public Health (DPH) should, to the extent possible:
 - 1) Work with local health directors, academic institutions, and partnering organizations to identify two EBSs for ten HNC 2020 objectives identified as priorities in the action plans submitted to DPH by local health departments (LHDs). DPH should identify these state-selected EBSs no later than July 1, 2013. To the extent possible, DPH should focus on EBSs that would meet the standards for best or leading practices. DPH and collaborating partners should also try to identify a mix of evidence-based policies, programs, and clinical interventions, and should focus on those EBSs that, based on prior evaluation evidence, would have the best chance of having a positive health impact in communities throughout North Carolina.
 - 2) Identify at least one expert within DPH, or another appropriate state agency, academic institution, or partnering organization for each of the selected EBSs. Each EBS expert should be able to provide information about the populations targeted, strength of the evidence and, to the extent possible, the expected impact; costs, staffing requirements, and other necessary implementation resources; implementation barriers; the availability of implementation and evaluation resources including training, technical assistance, coaching, and evaluation tools; any potential funding sources (if known); and information about any other communities in North Carolina that have implemented the same EBS.
- b) The Center for Healthy North Carolina should maintain a website with information about EBSs. The information maintained in the Center for Healthy North Carolina's website should be linked to other state websites, including HealthStats for North Carolina and the North Carolina Center for Public Health Quality. Specifically, the website should include:
 - 1) Detailed information about each of the EBSs identified by DPH, along with a DPH or other expert for each of the selected EBSs.

- 2) **Information about other EBSs being supported by DPH.**
 - 3) **Information about communities in North Carolina that are implementing each of the selected strategies.**
 - 4) **Links to national compendiums of EBSs to assist communities in selecting other appropriate strategies.**
 - 5) **A search or sorting mechanism so that LHDs can easily identify sources of EBSs with potentially appropriate program, clinical, and policy strategies by HNC 2020 objectives.**
 - 6) **Links to organizations that provide information and/or assistance with implementing EBSs including, but not limited to, the National Implementation Research Network.**
 - 7) **Archived webinars on the importance of implementing EBSs (basic training), as well as more detailed training, if available, about those EBSs being supported by DPH.**
- c) **DPH should select EBSs and assist in statewide roll-out when implementation of a specific EBS is required as part of state or federal law, or supported by changes in clinical standards of care.**

Recommendation 5.3: Implement Evidence-Based Strategies

- a) **The Division of Public Health (DPH) should build state and local staff capacity around implementation science, coaching, and quality improvement methods.**
- 1) **DPH should identify champions for EBSs in each Branch and within regional staff. These champions should be trained in implementation science and quality improvement to understand the necessary steps to ensure that evidence-based programs, policies, and clinical interventions are implemented with fidelity. These champions should be able to assist the state and local health departments to support a broad array of EBSs, rather than focus on implementation of a specific EBS.**
 - 2) **Provide training to state, regional, and local public health staff—through the North Carolina Center for Public Health Quality and other partners—about quality improvement methods, including rapid cycle testing (PDSA cycles), monitoring, and feedback loops to ensure successful implementation.**

- 3) Disseminate information on grant writing trainings.**
- b) For each of the state-selected evidence-based strategies (EBSs), the Division of Public Health (DPH) should:**
- 1) Disseminate information on funding opportunities when available.**
 - 2) Promote collaborative learning approaches among local health departments (LHDs) and regional staff who are working on implementing similar EBSs.**
 - 3) Celebrate implementation successes and distribute information about successes to other health departments across the state.**
- c) When leading a statewide or multi-county implementation of an EBS, DPH should:**
- 1) Pursue funding opportunities when needed to support statewide or multi-county implementation of EBSs. Select a mix of different LHDs to pilot a statewide roll-out of an EBS, or when funding is only available to support implementation in a small number of counties. The LHD partners should be selected with the goal of ensuring successful implementation. Selection criteria should include, but not be limited to: need, leadership support, past history of successful implementation of EBSs, staffing and resource capacity, and commitment to success. To the extent possible, DPH should select a cross-section of LHDs that is broadly representative of the state including rural and urban health departments in different geographic areas of the state, those covering Tier 1 low-resource communities, and single county and district health departments.**
 - 2) Partner with LHDs and other organizations early in the implementation process in order to include the important knowledge and perspectives these groups bring as well as to improve the likelihood of a successful spread of the EBS across the state.**
 - 3) Use a quality improvement rather than a quality control approach to collaborative partnerships with LHDs.**
 - 4) Provide training, technical assistance, and coaching, or ensure that these resources are available through national program staff, or other partnering organizations. This training, technical assistance, and coaching should be available to all LHDs that are seeking to implement the specific EBS (whether funded through the state or not), unless directly prohibited by national program rules, or the state lacks**

sufficient resources to assist all LHDs that request help. If resources are limited, DPH staff can phase-in the technical assistance on a rollout basis. Training should be experientially based to give participants the skills needed to implement the EBS in their own communities. To the extent possible, LHD staff should be involved in the trainings so that they can explain how they addressed implementation barriers to those interested in implementing a similar strategy.

- d) To support successful implementation at the local level, LHD leadership should:**
- 1) Serve as champions within their own LHDs to implement EBSs to address priority community health objectives.**
 - 2) Create teams of trained staff who can help support implementation of specific evidence-based strategies in the LHD. Ensure that every staff member who is involved in the implementation of an EBS receives appropriate training.**
 - 3) Engage community partners as necessary to the success of the EBS.**
 - 4) Serve as a resource to other local health departments who are interested in implementing a similar EBS in their community.**

Recommendation 5.4: Monitor and Evaluate Process and Outcomes

- a) To evaluate the effectiveness of state-selected evidence-based strategies (EBSs) being implemented in North Carolina, the Division of Public Health (DPH) and local health departments (LHDs) should, in collaboration with academic institutions and other partner organizations:**
- 1) Identify or develop an evaluation design and data collection tools for each state-selected EBS appropriate to the level of evidence-base that already exists.**
 - 2) Provide training and coaching to local staff to enable them to collect the appropriate data.**
 - 3) Gather data from LHDs and analyze process and outcome measures at the state level to determine impact of EBSs for the state and local counties.**
 - 4) Assist with dissemination of program results.**

- b) To ensure that state-selected EBSs are implemented with fidelity and that the program can be properly evaluated, LHDs should:**
 - 1) Ensure staff receive necessary training on collecting data on EBSs.**
 - 2) Collect requisite process and outcome data and submit to the state for analysis.**
 - 3) Review local process and outcome measures and make necessary changes in the program implementation to ensure fidelity to key program components.**
- c) If a LHD chooses to implement an EBS that is not state-selected but that is considered best or leading the LHD should work with the national program office to identify the information needed to ensure that the program has been implemented with fidelity, and collect the appropriate data.**
- d) If a LHD chooses to implement an EBS that is promising or emerging, then the LHD should develop a more thorough evaluation plan that captures both process and outcomes measures.**

Recommendation 5.5: Revise the Consolidated Agreement

- a) If the Division of Public Health (DPH) provides the necessary support as reflected in Recommendations 5.1-5.4, DPH should revise the 2013 Consolidated Agreement to reflect a new requirement that local health departments (LHDs) implement two new evidence-based strategies (EBSs) (or expand an existing EBS to a new target population) to address at least two HNC 2020 priority objectives identified through the community health assessment and articulated in the LHD action plans. The priority objectives should be selected from at least two of the HNC 2020 focus areas.**
- b) DPH should change the community action plans to require LHDs to identify the EBSs that they have selected, along with a staffing, training, implementation, and monitoring/evaluation plan.**

Recommendation 5.6: Collaborate with Partner Organizations

- a) The Center for Training and Research Translation (Center TRT), within the University of North Carolina at Chapel Hill, should convene academic and other appropriate organizations to work with the Division of Public Health and local health departments in implementing evidence-based strategies to address the Healthy North Carolina (HNC 2020) objectives. Some of the other academic or community partners may include, but not be limited to: the North Carolina Institute of Public Health (NCIPH), the North Carolina Center for Public Health Quality, the National Implementation Research Network (NIRN), the Department of Public Health at East Carolina University, North Carolina Center for Health and Wellness, the Family and Consumer Sciences Department at North Carolina State University, and the Center for Healthy North Carolina.**

- b) To the extent possible within existing funding, these academic and nonprofit organizations should:**
 - 1) Assist the state in identifying appropriate EBSs to address priority HNC 2020 objectives.**

 - 2) Provide implementation support such as training, coaching, or other technical assistance.**

 - 3) Assist the state in developing appropriate data collection instruments needed for evaluation, or help communities develop implementation plans (if the EBS is not one of the state-selected EBSs).**

 - 4) Assist with the collection and analysis of evaluation data.**

and Matrix

This appendix contains two sections. The first section lists and describes evidence-based public health registries. Each registry description includes the registry name, website address, background information, and evidence-based review methodology.

A matrix tool is presented in the second section of this appendix. The matrix can be used to identify types of interventions (clinical, programmatic, or policy) according to priority topic areas (physical activity and nutrition, chronic disease, STDs and unintended pregnancy, tobacco use, maternal and infant health, substance abuse, and social determinants of health) covered by each registry. Notation is used within the matrix to provide additional registry content detail (see footnote description/key).

Federal Resources

Registry: The Guide to Community Preventive Services (CDC)

Website: <http://www.thecommunityguide.org/>

Background: Charged by the US Department of Health and Human Services and appointed by the director of the Centers for Disease Control and Prevention, the Community Preventive Services Task Force issues evidence-based public health recommendations based on findings from systematic reviews. Evidence-based summaries are presented by general health topic.

Methods: Individual interventions and approaches are evaluated and summarized in the context of broader topics or strategies. The Task Force issues recommendations according to three levels: recommended, recommended against, and insufficient evidence. Determinations are made based on study design, number of studies, and consistency of observed effect. Where available, the Community Guide links to “research-tested intervention programs” (RTIPs), a site which provides more detailed implementation information regarding specific programs and policies. (Note that not all strategies link to RTIPs.)

Registry: US Preventive Services Task Force (USPSTF) (AHRQ)

Website: <http://www.uspreventiveservicestaskforce.org/>

Background: The US Preventive Services Task Force (USPSTF) is an independent, non-Federal body. USPSTF members (appointed by the Agency for Healthcare Research and Quality) include physicians representing a range of disciplines. USPSTF is charged with reviewing and evaluating clinical research around preventive measures including screening, counseling, immunizations, and preventive medications.

Methods: Research is reviewed and synthesized and evidence-based reports are created. The process includes opportunity for public comment. USPSTF recommendations are assigned a letter grade based on recommendation certainty level (i.e. strength of evidence).

Registry: National Registry of Evidence-Based Programs and Practices (NREPP) (SAMHSA)

Website: <http://www.nrepp.samhsa.gov/>

Background: The National Registry of Evidence-Based Programs and Practices (NREPP) is an initiative of the Substance Abuse and Mental Health Services Administration (SAMHSA). Mental health and substance abuse interventions are reviewed and rated by independent reviewers.

Methods: NREPP rates interventions and approaches based on research quality as well quality of training and implementation resources.

University Partnerships

Registry: Center for Training and Research Translation (Center TRT) (UNC-CH)

Website: <http://www.center-trt.org/>

Background: The Center for Training and Research Translation (Center TRT) is part of the Center for Health Promotion and Disease Prevention at the University of North Carolina at Chapel Hill (UNC-CH). The Center aims to enhance the impact of two CDC programs – WISEWOMAN and the Nutrition and Physical Activity Program – through the provision of implementation training and translation tools.

Methods: The Center has developed methods and criteria to review and evaluate research-tested interventions, practice-tested interventions, and emerging interventions.

Registry: Best Evidence Encyclopedia (Johns Hopkins University)

Website: <http://www.bestevidence.org/>

Background: The Best Evidence Encyclopedia was created by Johns Hopkins University School of Education's Center for Data-Driven Reform in Education (CDDRE). The Encyclopedia summarizes scientific reviews of math, reading, science, and early childhood curricula and programs.

Methods: Educational programs are rated based on strength of evidence supporting intended outcomes. Reviews are categorized according to the following levels: strong evidence, moderate evidence, and limited evidence.

Registry: Blueprints for Violence Prevention (University of Colorado Boulder)

Website: <http://www.colorado.edu/cspv/blueprints/>

Background: The Blueprints for Violence Prevention is a project of the Center for the Study and Prevention of Violence at the University of Colorado Boulder. Staff systematically assess research on violence and drug abuse programs to identify evidence-based interventions and policies.

Methods: Blueprints' programs are categorized as model programs or promising programs. Criteria considered include evidence of deterrent effect with a strong research design, sustained effect, and multiple site replication.

Registry: What Works for Health (University of Wisconsin and RWJF)

Website: <http://www.countyhealthrankings.org/what-works-for-health>

Background: What Works for Health is an initiative of the University of Wisconsin's Population Health Institute in collaboration with the Robert Wood Johnson Foundation. Programmatic and policy research has been reviewed across a number of topics including health behaviors, clinical care, social and economic factors, and physical environment.

Methods: Individual interventions and approaches are evaluated and summarized in the context of broader topics and strategies. Information on evidence of effectiveness, population reach, health disparities impact, implementation, and other key information is included.

Registry: Washington State Institute for Public Policy

Website: <http://www.wsipp.wa.gov/pub.asp?docid=12-04-1201>

Background: The Washington State Institute for Public Policy works to systematically assess research to determine what works across the policy areas of K-12 education, early childhood education, prevention, child welfare, mental health, substance abuse, and public health.

Methods: In identifying evidence-based programs, the Institute considers priority outcomes identified by the state and reviews available research (only including research that meets quality standards). After identifying evidence-based policies and programs, the Institute calculates the costs, benefits, and risk associated with each option. Note that the costs and benefits are based on state-specific data.

Private/Nonprofit/Other

Registry: Lifecourse Interventions to Nurture Kids Successfully Database (LINKS) (Child Trends)

Website: <http://www.childtrends.org/LINKS/>

Background: The Lifecourse Interventions to Nurture Kids Successfully (LINKS) database summarizes research and evaluation of out-of-school initiatives that aim to strengthen and enhance early childhood development.

Methods: Research must meet LINKS' eligibility criteria (based on study type and study characteristics); however, LINKS intends to be as inclusive as possible.

Registry: Promising Practices Network (PPN) (RAND)

Website: <http://www.promisingpractices.net/>

Background: The Promising Practices Network (PPN) was developed and is operated by the RAND Corporation, a nonprofit research organization. PPN reviews research in topics such as physical health, mental health, poverty and welfare, and substance use to identify proven and promising practices.

Methods: RAND has established two evidence levels: proven and promising. Types of evidence reviewed include outcome type, effect size, statistical significance, comparison groups, sample size, and documentation availability.

Registry: Social Programs that Work (Coalition for Evidence-Based Policy)

Website: <http://evidencebasedprograms.org/wordpress/>

Background: The Coalition for Evidence-Based Policy supports and maintains the Social Programs that Work research initiative and website. The Social Programs that Work initiative aims to cover all social policy issues including education, crime prevention, housing, health, employment, and welfare.

Methods: The Coalition employs rigorous evaluation criteria according to the Top Tier Evidence initiative (with some exceptions). The Top Tier Evidence initiative ranks programs as Top Tier or Near Top Tier. Top Tier interventions are “well-designed and implemented randomized controlled trials, preferably conducted in typical community settings, [that] produce sizeable, sustained benefits to participants and/or society.” Near Top Tier interventions have met “almost all elements of the Top Tier standard...in a single site, and just need a replication trial to confirm the initial findings and establish that they generalize to other sites.”^a

^a Top Tier Evidence. Coalition for Evidence-Based Policy website. <http://toptierevidence.org/wordpress/>. Accessed September 6, 2012.

Registry: The Cochrane Library (The Cochrane Collaboration)

Website: <http://www.thecochranelibrary.com/>

Background: The Cochrane Collaboration is an international network (representing more than 100 countries) which maintains the Cochrane Database of Systematic Reviews – part of the Cochrane Library. There are 53 topical Cochrane review groups. Review groups are primarily clinical; however there is a public health review group.

Methods: Each Cochrane Review reflects a peer-reviewed systematic review, guided by specific protocol. Research must meet quality criteria for inclusion.

Table B.1
Matrix of Evidence-Based Registries and the Information They Contain

		Physical Activity and Nutrition	Chronic Disease	STDs and Unintended Pregnancy	Tobacco Use	Maternal and Infant Health	Substance Abuse	Social Determinants of Health (i.e. education, housing, poverty, and employment)
Federal Resources								
The Guide to Community Preventive Services (CDC)	Clinical			X	X _{A,B,C,D}			
	Program	X _{A,B,C,D}	X _{A,B,C,D}	X	X _{A,B,C,D}		X	X
	Policy	X _{A,B,C,D}	X _{A,B,C,D}		X _{A,B,C,D}	X	X	
US Preventive Services Task Force (USPTF) (ARHQ)	Clinical	X _{A,B}	X _{A,B}	X _{A,B}	X _{A,B}	X _{A,B}	X _{A,B}	
National Registry of Evidence-Based Programs and Practices (NREPP) (SAMHSA)	Clinical					X _{A,B,C,D}	X _{A,B,C,D}	
	Program				X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}	
	Policy				X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}	
University Partnerships								
Center for Training and Research Translation (Center TRT) (UNC-CH)	Clinical		X _{A,B,C,D}			X _{A,B,C,D}		
	Program	X _{A,B,C,D}	X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B}		
	Policy	X _{A,B,C,D}	X _{A,B,C,D}			X _{A,B}		
Best Evidence Encyclopedia (Johns Hopkins University)	Program							X _{A,B}
	Policy							X _{A,B}
Blueprint for Violence Prevention (University of Colorado at Boulder)	Clinical					X _{A,B,D}		
	Program				X _{A,B,D}	X _{A,B,D}	X _{A,B,D}	X _{A,B}
	Policy				X _{A,B,D}		X _{A,B,D}	
What Works for Health (University of Wisconsin and RWJF)	Clinical	X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B,C,D}		X _{A,B,C,D}	
	Program	X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}
	Policy	X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B,C,D}
Washington State Institute for Public Policy	Clinical				X _{A,D}		X _{A,D}	
	Program	X _{A,D}		X _{A,D}	X _{A,D}	X _{A,D}	X _{A,D}	X _{A,D}
	Policy							X _{A,D}
Private/Non-Profit/Other								
Lifecourse Interventions to Nurture Kids Successfully Database (LINKS) (Child Trends)	Clinical	X _{A,B}		X _{A,B}		X _{A,B}		
	Program	X _{A,B}		X _{A,B}		X _{A,B}	X _{A,B}	
	Policy	X _{A,B}		X _{A,B}		X _{A,B}	X _{A,B}	
Promising Practices Network (PPN) (RAND)	Clinical					X _{A,B,C,D}		
	Program			X _{A,B,C,D}			X _{A,B,C,D}	X _{A,B,C,D}
	Policy			X _{A,B,C,D}		X _{A,B,C,D}	X _{A,B,C,D}	X _{A,B,C,D}
Social Programs that Work (Coalition for Evidence-Based Policy)	Clinical					X _{A,B}		
	Program	X _{A,B}		X _{A,B}		X _{A,B}		X _{A,B}
The Cochrane Library (The Cochrane Collaboration)	Clinical	X _{A,B,D}	X _{A,B,D}	X _{A,B,D}	X _{A,B,D}	X _{A,B,D}	X _{A,B,D}	

Subscript Key
 A – Strength of evidence/research quality
 B – Study population/target population
 C – Implementation resources
 D – Cost information

The following survey was distributed to all 85 North Carolina local health directors via email in April 2012. The survey was designed to gauge current awareness and implementation of evidence-based strategies (EBSs), community and local health department (LHD) priorities, the biggest barriers to implementing EBSs, the most valued forms of assistance, and the resources and partners LHDs currently engage. A total of 66 (78%) surveys were completed. For the purpose of comparing responses between LHDs serving urban and rural communities, the 28 LHDs serving either multiple counties or single counties with populations less than 50,000 are categorized as rural, and the remaining 38 LHDs serving single counties with populations greater than or equal to 50,000 are considered urban. Not every question in the survey received 66 responses and some questions allow multiple answers to be selected. Therefore for some questions responses and response rates may not sum to 66 or 100% respectively.

Question 1: Local health departments are required to include a minimum of two Healthy North Carolina 2020 objectives from different focus areas in their community health assessment action plans. Based on those focus areas, please rank your local health department’s top five priorities.

Table C.1

HNC 2020 Objective	Number of LHDs That Identified Objective as a Top 5 Priority	Mean Rank	Urban	Rural	Tier 1	Tier 2/ Tier 3
Physical activity and nutrition	61	2.1	35	24	26	29
Chronic disease (e.g. diabetes, CVD, cancer)	46	2.8	28	16	22	18
Sexually transmitted diseases and unintended pregnancy	37	3.1	21	15	19	16
Tobacco use	36	2.7	18	17	19	16
Maternal and infant health	36	3.0	20	15	15	20
Substance abuse	21	2.9	12	9	10	11
Social determinants of health	20	3.3	10	10	9	9
Mental health	14	3.6	7	7	4	8
Infectious disease and foodborne illness	11	3.4	9	2	3	8
Oral health	11	3.9	6	5	5	6
Environmental health	8	3.9	6	2	3	5
Cross-cutting issues (e.g. average life expectancy, percentage of adults reporting good, very good, or excellent health)	3	5.0	2	1	1	2
Injury and violence	3	2.7	2	1	0	2

Question 2: What would you say are the three BIGGEST BARRIERS IN YOUR HEALTH DEPARTMENT to implementing EBSs to improve population health?

Table C.2

Answer	Number of LHDs That Identified Barrier as One of Their 3 Biggest Barriers	Percent	Urban	Rural	Tier 1	Tier 2/ Tier 3
Limited financial resources	54	82%	82%	82%	93%	79%
Lack of knowledge and skills about how to test and adapt EBSs or approaches so they work in your setting	22	33%	37%	29%	24%	42%
Availability of ongoing staff training to ensure EBS can be implemented appropriately/as intended	21	32%	34%	29%	41%	27%
Time required to learn about how to implement a particular EBS	17	26%	29%	21%	21%	27%
Lack of technical assistance or guidance on how to implement a particular EBS	14	21%	26%	14%	14%	27%
Lack of awareness of existing EBSs or approaches	14	21%	24%	18%	21%	15%
Time required to search for EBSs	12	18%	13%	25%	24%	12%
Inability to garner support of staff, LHD board, county commissioners, or community partners to agree that using EBSs is necessary	10	15%	8%	25%	21%	12%
Lack of adequate information about the resources needed to successfully implement a particular EBS	8	12%	18%	4%	3%	18%
Lack of knowledge regarding how to select the best EBS for your particular needs if there are several options	7	11%	11%	11%	7%	15%
Lack of understanding of how to identify EBSs	5	8%	3%	14%	3%	9%
Other, please specify	<ul style="list-style-type: none"> ■ Too much money going to the state for overhead ■ Access to qualified staff/lack of staff ■ Lack of access to professional journals which weakens the ability to maintain an evidence-based practice that utilizes the most current research ■ Lack of EBSs for priority area ■ EBS requires community wide participation 					

Question 3: About how many public health staff in your health department ARE AWARE of evidence-based strategies in public health?

Table C.3

Answer	Response	Percent	Urban	Rural	Tier 1	Tier 2/ Tier 3
0	0	0%	0%	0%	0%	0%
1-25%	27	41%	34%	50%	55%	24%
26-50%	18	27%	24%	32%	28%	30%
51-75%	7	11%	13%	7%	10%	12%
76-100%	11	17%	24%	7%	3%	30%
Not sure	3	5%	5%	4%	3%	3%

Question 4: On a scale of 1 to 10, to what extent would you say that programs and policies CURRENTLY implemented by your health department staff are based on EBSs?

Table C.4

Answer	Response	Urban	Rural	Tier 1	Tier 2/ Tier 3
1 (None)	0	0	0	0	0
2	2	1	1	2	0
3	5	3	3	3	2
4	9	3	3	3	4
5	11	5	5	7	4
6	14	10	10	4	9
7	11	6	5	3	8
8	10	7	3	5	4
9	3	2	1	2	1
10 (All programs/ policies use EBSs)	1	1	0	0	1
Mean	5.88	6.16	5.5	5.62	6.15

Question 5: Which program area in your health department needs the most assistance implementing EBSs? Please select the top three.

Table C.5

Answer	Response	Percent	Urban	Rural	Tier 1	Tier2/ Tier 3
Promotion of healthy lifestyles (including health education about nutrition, physical activity, and use of tobacco products)	37	56%	58%	54%	52%	55%
Chronic disease education and management (including diabetes, asthma, cardiovascular diseases, and others)	32	48%	53%	43%	38%	55%
Child health services (including immunizations, newborn home visits, well-child care, CC4C, and school nursing)	24	36%	45%	25%	28%	45%
Prenatal and postpartum care (including pregnancy care and management)	21	32%	24%	43%	34%	27%
Communicable disease (including testing, treatment, and investigation of STD, HIV/AIDs, and TB)	18	27%	26%	29%	31%	24%
Environmental health (including restaurant, wells, and pool inspections)	15	23%	24%	21%	21%	27%
Surveillance (including data analysis of NC DETECT, the Controlled Substance Reporting System, and NC EDSS)	11	17%	16%	18%	24%	12%
Animal control	9	14%	16%	11%	24%	6%
Nutrition services (including WIC)	7	11%	5%	18%	10%	9%
Oral health (including fluoride applications, school-based oral health services, and dental treatment for children or adults)	6	9%	3%	18%	3%	15%
Other, please specify	<ul style="list-style-type: none"> ■ Family planning/preconception health care (x2) ■ Substance abuse ■ Public health preparedness 					

Question 6: Are you aware of, and does your staff use any of the following websites of EBSs to accomplish the Healthy North Carolina 2020 objectives or community health assessment action plans?

Table C.6

Resource	Aware and Use It	Aware But Don't Use It	Not Aware	Would Like to Learn More About It
Guide to Community Preventive Services (CDC)	44	11	5	9
US Preventive Services Task Force (AHRQ)	30	12	16	10
National Registry of Evidence-Based Programs and Practices (NREPP) (SAMHSA)	18	13	27	17
Knowing What Works in Health Care (RWJF)	20	15	23	13
Center for Training and Research Translation (UNC-CH)	17	20	23	14
Best Evidence Encyclopedia (Johns Hopkins University)	4	7	46	24
Blueprints for Violence Prevention (University of Colorado Boulder)	3	9	47	16
Child Trends that Work (National Resource Center for Health and Safety in Child Care and Early Education)	9	16	34	18
Promising Practices Network (RAND)	10	13	35	17
Social Programs that Work (Coalition for Evidence-Based Policy)	4	7	44	21
Other, please specify	<ul style="list-style-type: none"> ■ The Cochrane Library ■ NACCHO Toolbox ■ Eat Smart, Move More NC ■ Community Care case management ■ We are happy to learn more about other options but there is not enough time to do all the research and the daily activities or work too 			

Question 7: What are the most important types of assistance DPH or other organizations could provide to your health department to help you implement EBSs? Please select the top three.

Table C.7

Answer	Response	Percent	Urban	Rural	Tier 1	Tier 2/ Tier 3
Help with grant writing to obtain funding to implement EBSs	31	47%	39%	57%	59%	39%
Staff training to improve knowledge and skills	26	39%	34%	46%	45%	33%
Good examples of successful EBS implementation	24	36%	45%	25%	28%	42%
Strategies and data to help you demonstrate the impact of EBSs in your community	22	33%	47%	14%	10%	55%
Assistance selecting community appropriate EBSs	18	27%	34%	18%	28%	27%
Easy access to information about potential funding sources	17	26%	21%	32%	28%	24%
Assistance with implementation	15	23%	21%	25%	34%	15%
Creation of a peer support network with other North Carolina health departments implementing similar strategies	13	20%	21%	18%	14%	24%
Evaluation assistance	10	15%	18%	11%	14%	18%
Help recruiting and retaining qualified staff	10	15%	3%	32%	24%	6%
Assistance with communicating the importance of implementing EBSs to staff, local health department board, county commissioners, or other community partners	6	9%	11%	7%	7%	12%
Other, please specify	<ul style="list-style-type: none"> ■ Unlimited access to peer-review journals and articles ■ Funding/ongoing funding 					

Question 8: Do you partner with any of the following entities in your community (or surrounding communities) in identifying, implementing, or evaluating the implementation of evidence-based strategies? Check all that apply.

Table C.8

Entity	Identifying EBSs	Implementing EBSs	Evaluating EBSs	Do Not Work With Organization to Identify, Implement, or Evaluate EBSs
Other local health departments	47	33	20	7
Division of Public Health	43	46	27	2
Division of MHDDSAS	10	4	3	39
Universities/colleges	33	26	23	18
AHECs	31	19	14	20
Community-based organizations	34	28	17	14
Hospitals	33	30	15	16
Funders	28	34	23	14
Businesses	14	15	7	30
Municipal planning departments	22	14	9	29
Local educational authorities	33	31	23	15
Local management entities(LMEs)	22	21	11	25
Local departments of social services (DSS)	27	19	12	21
Other	1	2	0	1

Question 9: What is the population size of the district your department serves?

Table C.9

Population Size	Response
<50,000	22
50,000-100,000	18
100,001-250,000	19
250,000+	7

Question 10: Does your department cover one or multiple counties?

Table C.10	
Answer	Response
Single county	59
Multiple counties	7

Question 11: Does your health department/district cover Tier 1 counties?

Table C.11	
Answer	Response
Yes	29
No	33

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