DEFINING THE COMPONENTS AND MINIMAL CAPABILITIES OF COMPREHENSIVE STATE AND LOCAL VECTOR-BORNE DISEASE PREVENTION AND CONTROL PROGRAMMING

PROJECT SUMMARY

2019 – 2020

EXECUTIVE SUMMARY

In 2019 – 2020, SGNL Solutions (SGNL), in consultation with the Council of State and Territorial Epidemiologists (CSTE) and with the financial support from the Centers for Disease Control and Prevention (CDC), National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD), facilitated a consensus process with local, state, and national level stakeholders to identify the components and capabilities of a comprehensive approach framework (the framework) to reduce illness and death from vector-borne diseases (VBD). SGNL also analyzed available data to attempt to determine the cost of resources needed to support a comprehensive approach in VBD programs at both the minimal and optimal performance levels. SGNL employed an iterative, consensus-based, mixed-methods approach involving five conference calls with an expert working group, two in-person workshops, an online self-assessment, key informant interviews, and an extensive information gathering and analysis process. Through this process, six components with numerous sub-components and associated minimal capabilities were developed. The process also revealed several challenges, namely an absence of necessary measures and data needed to conduct a cost analysis. SGNL also sought to coordinate the framework with CDC's effort to develop a national strategy for VBD prevention, but given the timing of CDC's strategy development, this coordination was not accomplished. Future alignment between efforts could help strengthen the national VBD strategy and further improve the framework.

ACKNOWLEDGEMENTS

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BACKGROUND

Vector-borne diseases (VBDs) are caused by infective pathogens that are transmitted by living organisms (e.g., ticks, mosquitos, fleas) between humans or from animals to humans. VBDs are a major public health concern in the United States. Between 2004 and 2016, more than 640,000 cases of VBDs were reported in the United States, and 9 new germs spread by bites from infected mosquitoes and ticks were discovered or introduced domestically.[1] Disease cases from mosquito, tick, and flea bites tripled in the United States during this period. Since 2014, major outbreaks of dengue, malaria, chikungunya, yellow fever, and Zika have afflicted populations, claimed lives, and overwhelmed health systems across the globe. While the United States has not yet experienced this level of VBD outbreak, recent reports by the Centers for Disease Control and Prevention (CDC) indicate that the number of cases of domestic VBDs has increased, emerging VBDs pose a rising threat, and jurisdictions have limited capacity to respond.[2] In an assessment conducted by the National Association of County and City Health Officials (NACCHO), 84% of state and local health departments and vector control organizations (the nation's main defense against VBDs) need improvement in at least one core competency area based on the standards for vector control competency developed and promoted by the CDC and American Mosquito Control Association (AMCA).[3] In most jurisdictions across the United States, a comprehensive approach to VBD prevention requires a system in which multiple partners (private, public, and academic) contribute resources and perform mutually reinforcing activities to meet common goals. However, consensus over what constitutes such a comprehensive, jurisdiction-wide approach has not yet been reached.

PROJECT APPROACH

In 2019, SGNL Solutions (SGNL), in consultation with the Council of State and Territorial Epidemiologists (CSTE) and with the financial support from the CDC's National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD),

[1] CDC Vital Signs. May 2018. https://www.cdc.gov/vitalsigns/pdf/vs-0518-vector-borne-H.pdf
[2] Ibid.
[3] Mosquito Control Capabilities in the U.S. October 2017. https://www.naccho.org/uploads/downloadable-resources/Mosquito-control-in-the-U.S.-Report.pdf

facilitated a consensus process with local, state, and national level stakeholders to identify the components and capabilities of a comprehensive approach framework (the framework) to reduce illness and death from vector-borne diseases. SGNL also analyzed available data to determine the cost of resources needed to support a comprehensive vector-borne disease program at both the minimal and optimal performance levels. The original Scope of Work can be found in Box 1.

Timeline

The initial project timeframe was February 15, 2019 to July 31, 2019. However, the contract was extended to December 31, 2019 to provide additional time to coordinate with and be informed by CDC's effort to develop a national strategy for VBD. The project was extended a second time to July 31, 2020 to allow for time to present the findings to the workgroup.

Key Terms

Burden of Disease	Disease burden is the impact of a health problem as measured by financial cost, mortality, morbidity, or other indicators.
Components	Elements and structures that make up a vector-borne disease (VBD) system within a jurisdiction (e.g., city, county, territory, state)
Capabilities	Specific activities/functions within each component that entities of a VBD system within a jurisdiction should be able to collectively perform
Competencies	The specific knowledge, skills, and abilities needed or possessed by individuals within entities of a VBD system within a jurisdiction
Disability-Adjusted Life Year (DALY)	the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences
Quality-adjusted life years (QALYs)	a measure of disease burden, including both the quality and the quantity of life lived

BOX 1 – SCOPE OF WORK

SGNL Solutions will develop a consensus definition of the key elements for a comprehensive state and local vector-borne disease program. This definition will define the core components and competencies needed for each key element to include a range from minimal to optimal performance. SGNL Solutions will lead a workgroup with relevant stakeholders, including federal, state, and local epidemiologists and members of partner organizations to assess existing vector-borne disease programs of varying sizes and vector-borne disease burden. SGNL Solutions will also analyze available data and complete a cost analysis of the resources needed to support a comprehensive vector-borne disease program at both the minimal and optimal performance levels. SGNL Solutions will develop a report, a manuscript suitable for publication in a peer-reviewed journal, and a webinar presentation with key findings.

ACTIVITIES, METHODS, AND PROCESS

SGNL designed and undertook an iterative, consensus-based, mixed-methods process to achieve the project goals. SGNL enlisted the support of the CSTE Vector-Borne Diseases (VBD) Subcommittee and additional national partners (together constituting "the workgroup") and CDC to inform the project activities. Activities included an environmental scan, workgroup conference calls, in-person stakeholder workshops, and an assessment. Descriptions of each activity are provided below. After the process, most workgroup members agreed that components in the framework represented a comprehensive VBD prevention approach and that the minimal capabilities could be considered appropriate as minimal performance.

Workgroup Calls

SGNL conducted five conference calls (see Appendix A for workgroup member list). During each call, the workgroup provided feedback on the current draft of the framework. Audio recordings of the workgroup calls are included with the submission of this report. The first and second workgroup calls oriented the workgroup members to the project goals and offered an opportunity to ask clarifying questions to CDC. The following questions were explored:

- What is CDC's vision for VBD control and prevention?
- What is the vision for VBD control and prevention from the perspective of workgroup members? Does this match CDC's vision?
- What is the purpose of the comprehensive VBD program core components and capabilities?
- What is the mission of a comprehensive VBD program?
    - What are the desired outcomes?
- How do we define comprehensive?
    - Do we include public, private, and academic?
- What factors influence variability in VBD programs?
- What costs are involved with various program components and are data available to be shared?

The third and fourth workgroup calls focused reviewing revisions to the framework and gaining a better understanding of VBD program costs in local and state jurisdictions. The following questions were explored:

- Is the component done by the health department (HD), another governmental entity, or by an external party?
- If done by HD or governmental entity, how many FTEs support the component?
- What is/are the funding source(s) for the component?

The objective of the fifth workgroup call was to validate the revised framework and core capabilities.

Environmental Scan

SGNL conducted an extensive discovery and analysis process based on available reports, data, and evaluations of domestic VBD prevention programming, VBD burden, and associated resource costs. SGNL also provided the workgroup access to an online document repository to submit relevant documents. The environment scan aimed to answer the following questions.

- How do we define vector and VBD?
- What do we know about VBD programs? Have descriptive studies of state or local programs been conducted?
- Have assessments of state or local program capabilities occurred (surveillance, epi, prevention, mitigation)?
- Do related comprehensive components or core capabilities exist?
- What else might we need to align with (federal guidelines, existing standards from Association for Public Health Laboratories, CSTE, Public Health Accreditation Board)?
- What are examples of standards/core components/capabilities that are adaptable?

In-Person Workshops

SGNL held two in-person stakeholder workshops (see Appendix C) for agendas and facilitation guides). The first in-person exploratory workshop was with stakeholders at NACCHO's 2019 Vector Summit. The workshop objectives were to:

- Identify components of a comprehensive VBD program
- Identify capabilities, or specific activities and functions, for various components
- Determine the extent to which components and capabilities are essential or adaptable (can be changed to meet local needs without compromising effectiveness)?

Approximately 15 attendees from local, state, and private/semi-private organizations participated in the workshop. Attendees were provided context and led through a concept mapping process. Although SGNL staff used the then current draft of the Framework to design the discussion, attendees were not asked to review and respond to the draft in order to gather unbiased reactions. Following this workshop, SGNL organized and facilitated a second in-person workshop with personnel from CDC DVBD. Objectives for this workshop were to:

- Identify the vectors of concern, categorized by core, enhanced, and comprehensive
- Identify the vector borne diseases of concern, categorized by core, enhanced, and comprehensive
- Explore the possible program components employed to address the vectors and VBDs of concern, categorized by core, enhanced, and comprehensive

This workshop resulted in a more refined definition of the minimal capabilities within the comprehensive framework that should be exercised in state and local jurisdictions.

Online Self-Assessment

SGNL designed and administered an online self-assessment based on the framework to determine to what extent the components and capabilities were present in range of jurisdictions

and to understand the resources and funding associated with those components and capabilities. Nineteen workgroup members responded to the online assessment. The full instrument and findings can be found in Appendix B. The assessment was designed to explore the following questions.

- Did the respondent's organization perform any surveillance, prevention, or control activities related to six vectors of concern (mosquitoes, ticks, and fleas, and triatominae/kissing bugs, lice, and deer flies)?
- Did the respondent's organization perform any surveillance, prevention, or control activities related to 30 VBDs?
- To what extent were the framework components present in their jurisdiction through the work of the health departments or other organizations?
- Who in their jurisdiction (whether their organization or another organization) was primarily responsible for the core capabilities?
- How did their organization fund the VBD-related efforts performed in the current budget year?
- What were the sources of funding, number of FTEs, types of activities, and infrastructure supported by the funding?

It should also be noted that throughout this project, SGNL made an effort to coordinate our findings and products with CDC's effort to develop a national strategy for VBD prevention. However, the national strategy development process is still underway, so we were not able to align the framework with that effort in the given timeline.

FRAMEWORK OF COMPONENTS AND MINIMAL CAPABILITIES OF COMPREHENSIVE STATE AND LOCAL VBD PREVENTION AND CONTROL PROGRAMMING

Through the activities, methods, and processes undertaken by SGNL, the following framework of the components and minimal capabilities within a comprehensive approach to state and local VBD prevention and control was developed. Our findings indicate that in most jurisdictions across the United States, a comprehensive approach to VBD prevention requires a system in which multiple partners (private, public, and academic) contribute resources and perform mutually reinforcing activities to meet common (though possibly uncoordinated) VBD prevention and control goals. Therefore, rather than focusing entirely on the activities of state and local health departments, this framework reflects the components and minimal capabilities of a system of stakeholders jointly contributing towards VBD prevention and control.

Key Terms

- Components are elements and structures that make up a VBD system within a jurisdiction (e.g., city, county, territory, state).
- Minimal capabilities are specific activities and functions within each component that entities of a VBD system within a jurisdiction should be able to collectively perform.

These components and minimal capabilities are not listed in order of priority.

COMPONENT 1: A designated, functioning mechanism for convening system partners to coordinate VBD efforts.

1.1: Leadership that is knowledgeable and supportive of efforts to address VBD
1.2: A convening entity or mechanism (e.g., program, multi-partner collaborative)
1.3: A plan to address VBD in jurisdiction

Minimal Capabilities

- Identify, access, and educate leaders within the jurisdiction.
- Identify priorities based on surveillance data and public perceptions.
- Include VBD in an all hazards planning process within the jurisdiction.
- Identify and interact with other VBD stakeholders within the jurisdiction.

- Develop a comprehensive and coordinated strategy for VBD efforts within the jurisdiction.

COMPONENT 2: Resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts.

2.1: Facilities, infrastructure, and materials necessary to address VBD
2.2: Staff that possess the core competencies and qualifications necessary to effectively address VBD
2.3: Sustainable, right-sized funding to support VBD prevention
2.4: Partnerships, collaborations, and/or agreements with key local, regional, and state, national, and private sector organizations

Minimal Capabilities

- Maintain a database for VBD related data (e.g., case reporting, surveillance, and analysis).
- Utilize a data transmission mechanism (e.g., HL7).
- Assign epidemiology staffing to support VBD programming.
- Assign laboratory staffing to support VBD programming.
- Assign communications staffing to support VBD programming.

COMPONENT 3: Surveillance system aimed at the accurate and timely measurement of vector ecology and patterns of disease.

3.1: Data collection mechanisms (e.g., pathogen, serological, clinical, syndromic, ecology, vector, risk factors)
3.2: Analysis mechanisms (e.g., laboratory, informatics, GIS)
3.3: Staff that possess the core competencies and qualifications to interpret analysis outputs
3.4: Established mechanisms for disseminating surveillance information to leadership, collaborators, and the public

Minimal Capabilities

- Maintain general awareness of vector distribution
- Collect VBD case reports from providers.
- Confirm VBD cases.
- Transmit case information as required by local, state, and national regulations.
- Conduct routine surveillance activities at local, state, and national levels.

COMPONENT 4: System that makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality.

4.1: Routine review of local data regarding ecology, disease transmission, and other factors (e.g., resistance, public perceptions, resources) to select appropriate prevention and control strategies
4.2: Evidence-based practices related to communication, education, and outreach to the public regarding risk and preventive strategies
4.3 Evidence-based practices related to vector control including environmental alterations (improved design or operation of infrastructure), chemical, physical and cultural control
4.4 Consideration of the public health and ecological impacts on VBD of established and proposed laws, regulations, and infrastructure development, and the enforce laws and regulations that affect VBD

Minimal Capabilities

- Provide timely information about specific risks and comprehensive mitigation strategies to the public, partners, and decision makers.
- Ensure use of a comprehensive menu of evidence-based interventions and adaptation considerations options across social ecological model.

COMPONENT 5: Prepared to react to novel VBD situations (e.g., outbreak).

5.1: Defined risk scenarios based on local data (e.g., jurisdictional characteristics, stakeholder perceptions)
5.2: An early warning system in which reception of predefined signals (e.g. novel vector, novel VBD above norm for place or time, unexpected increase of known vector or VBD, situation exceeding capacity to respond) triggers interventions
5.3: Authorities and collaborators prepared for outbreaks of diseases prior to their arrival

Minimal Capabilities

- Identify risks (vectors, diseases, ecology, public perceptions).
- Determine thresholds for response.
- Activate communication mechanism when response is triggered.

COMPONENT 6: Evaluation and continuous improvement of VBD processes, programs, and interventions.

6.1: Evaluation of interventions and technologies in practice
6.2: Development and testing of possible new interventions and technologies
6.3: Dissemination of findings from evaluation for local improvements
6.4: Contribution of findings to the evidence base of the field

Minimal Capabilities

- Formally evaluate VBD processes, outputs, and outcomes.
- Use evaluation findings to improve VBD efforts.

CHALLENGES TO DEFINING A COMPREHENSIVE APPROACH

Reaching agreement over several key project concepts and definitions presented significant challenges to the workgroup and slowed the framework development process. Most difficult was reaching consensus on the breadth of a comprehensive VBD prevention approach. Specifically, is a comprehensive approach exclusive to state and local health departments or is it inclusive of the entire system (i.e., state and local health departments and other stakeholders)? Similarly, the workgroup heavily debated the meaning of the term core components. For example, the inclusion of academic research and product development and testing (e.g., field testing and evaluating new mitigation products by private entities) was a point of contention. Some workgroup members agreed that this element was essential, or core, to a comprehensive approach while others were reluctant to include an activity that their health departments did not currently include in their VBD prevention efforts. However, it is our belief, and one that was confirmed through discussions with CDC, that in most jurisdictions across the United States, a comprehensive approach to VBD prevention requires a system in which multiple partners (private, public, and academic) contribute resources and perform mutually reinforcing (though not necessarily coordinated or through formal partnerships) activities to meet common goals. We understood this to mean that our charge was to define all the components that could be done in a jurisdiction, or affected by, public, private, and academic partners as core. The proposed framework reflects this.

These difficulties may be related to the composition of the workgroup itself, which included mostly state (75%) and local (6%) VBD health department stakeholders and national association representatives (19%). Also, because VBD concerns are variable by geographic area, needs can differ widely state to state. Therefore, consensus about what should be considered a comprehensive VBD prevention approach could be better framed regionally, rather than nationally. Furthermore, if academic or private sector partners were also involved, we may have found more agreement with a system wide approach.

Interestingly, when polled individually via an online self-assessment, most workgroup members indicated that all the framework components were either primarily performed by their organization or by another organization within their jurisdiction, confirming a system of

stakeholders providing reinforcing activities. There are limitations in the findings from the online self-assessment. Because the respondents were all members of the workgroup, the state health department perspectives were most dominant. Greater representation of local public health, academic, and private sector respondents in the self-assessment may have yielded more diverse results.

Another challenge involved determining which capabilities constituted minimal to optimal performance. Workgroup agreement over what should be considered minimal or optimal performance was not reached, nor were we able to achieve clarity from CDC on what constitutes "optimal". This reluctance within the workgroup could be related to perceived negative undertones related to the terms "minimal" and "optimal", and possible future judgments or consequences (i.e. financial). With the help of CDC, we did define minimum desired capabilities within the components. Again, when polled individually via the online self-assessment, most workgroup members indicated that nearly all the minimum capabilities in the framework were done in their jurisdictions. However, without a clearly defined definition of "optimal", we were unable to derive the upper end of this performance range.

CHALLENGES PREVENTING A COST ANALYSIS

SGNL was charged with analyzing available data and completing a retrospective cost analysis of the resources needed to support a comprehensive vector-borne disease program at both the minimal and optimal performance levels. However, a cost analysis was not possible given the information available at the time of this project.

A cost analysis involves the systematic collection, categorization, and analysis of costs (resources and inputs) associated with a public health program or intervention. Resources and inputs include the labor, buildings, supplies, and equipment used in the delivery of a program. A cost analysis must also consider both the financial and economic costs. Financial costs are those most easily ascertained, such as those in included in a program budget or department expenditure data. Economic costs are costs that exist but may not involve a direct exchange of funding from the program or is provided by another partner in the system. These costs have monetary value but are often hidden. Considering both types costs in a cost analysis is important, doing otherwise will result in an incomplete picture of the resources involved in a program. Such an analysis is not meant to include the change in health outcomes (e.g., morbidity and mortality) and whether the program was effective (e.g., cost benefit analysis). A cost analysis answers the following questions:

1. How much does it cost to implement a program or intervention?
2. Where do the resources to cover the cost come from (the state and local public health system, CDC's, or all parties involved in a comprehensive approach to VBD prevention)?
3. What are the program and cost categories involved?

We undertook several data gathering methods to gather the information needed for the cost analysis. We dedicated large portions of five workgroup calls to discussing program costing and asked cost and funding specific questions in the online self-assessment. SGNL also gathered publicly available VBD program budget documents for some states (California and Florida) and local jurisdictions. We made multiple requests to workgroup members for cost-related data but received none. We also reviewed the Epidemiology and Laboratory Capacity (ELC) funding amounts provided by CDC, but that data only showed what was awarded by CDC to the jurisdictions, not the total cost of jurisdiction VBD programming. We gathered data on vector prevalence and disease cases across jurisdictions of various sizes and sought VBD programming

budgets for those jurisdictions. While this information and data gathered afforded some insight into costing of individual VBD programs, these efforts did not provide enough data to reveal a pattern to programming cost consistent across jurisdictions and states. No discernable pattern or indicators, such vector prevalence, disease prevalence, cost of the diseases, mortality, morbidity, jurisdiction spending per capita, or FTEs per $100,000 in funding, emerged to help us understand costs or budgeted amounts that could be compared across jurisdictions as part of a cost analysis. Funding for VBD programming seemed to be determined less by measurable, outcome-driven factors and more by perception of risk and political motives and pressures. Our task was further complicated in that it involved not only an accounting of the actual costs associated with a single jurisdiction's VBD prevention programming, but also an analysis of the costs of a proposed comprehensive VBD approach that had not been fully vetted by all system stakeholders at minimal and optimal performance levels, which had not yet been defined.

A cost analysis is an important undertaking and could help ensure adequate and strategic funding of VBD prevention programs. While a cost analysis was not possible at this time given the information available to SGNL, an effort could be made in the future once program performance levels are defined and the comprehensive approach components (an output of this project) are better socialized and used within program budgets and CDC funding opportunities. In addition, a cost benefit analysis that involves correlated costs to benefits or outcomes (e.g., population size, vector and disease prevalence, mortality, morbidity, disability adjusted life years, quality of life years) would further support the CDC's mission.

RECOMMENDATIONS

Overall, workgroup members, in-person workshop participants, and other consulted stakeholders seemed supportive of the effort to define the components of comprehensive VBD prevention approaches. Furthermore, we found that most agreed with the current framework as drafted. However, additional steps could be taken to improve upon the framework and to conduct a cost analysis. The following recommendations are not listed in order of priority and can be completed independent of other recommendations.

Components of a Comprehensive VBD Prevention Approach

- Define "optimal" capabilities for each component.
- Define metrics necessary to assess performance across a minimal to optimal capability range.
- Conduct additional pilot tests, especially with local, academic, and private sector representatives, to collect feedback on and further refine the framework.
- Use the framework to inform CDC's effort to develop a national strategy for VBD to ensure alignment of concepts and consistency of terminology.
- Make use of the framework components as programming categories within CDC's ELC funding opportunity.

Costs of a Comprehensive VBD Approach

- Define indicators beyond case incidence, such as DALYs and QALYs associated with VBD in the United States, that could be compared across jurisdictions.
- Develop and require/encourage the use of a standard approach (which includes the costs of all involved parties in the VBD prevention systems) to conduct a cost analysis for use by local and state VBD programs receiving ELC funding.
- Make use of such a standard cost analysis as part of the ELC funding process.

APPENDIX A: WORK GROUP MEMBERS

Vector-Borne Disease Program Core Components Workgroup Roster

Members

Nicole Lindsey	CDC
Roxanne Connelly	CDC
Sue Visser	CDC
Chris Duggar	CDC
Alison Hinckley	CDC
Carina Blackmore	Florida Department of Health and CSTE VBD Subcommittee Co-chair
Elizabeth Dykstra	Washington State Department of Health and CSTE VBD Subcommittee Co-chair
Christine Scott-Waldron	Louisiana Department of Health
Elizabeth Schiffman	Minnesota Department of Health
Sally Slavinski	New York City Department of Health and Mental Hygiene
Jennifer Brown	Indiana State Department of Health
Esther Ellis	USVI Department of Health
Krystal Mason	Pennsylvania Department of Health
Catherine Brown	Massachusetts Department of Public Health
Abelardo Moncayo	Tennessee Department of Health
John Dunn	Tennessee Department of Health
Melissa Kretschmer	Maricopa County Department of Public Health
Jennifer House	Colorado Department of Public Health and Environment
Joe Conlon	AMCA
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Sandra Whitehead	NEHA
Ayana Jones	NEHA
Courtney Youngbar	ASTHO
Kelly Wroblewski	APHL

Staff

Justin Snair	SGNL Solutions (Project Lead)
Laura Runnels	LAR Consulting (Facilitator and Process Designer)
Jordan Peart	CSTE

APPENDIX B: VBD PROGRAM SELF-ASSESSMENT AND FINDINGS

ONLINE SELF-ASSESSMENT INSTRUMENT

Thank you for agreeing to take part in this assessment exploring the components, capabilities, and resourcing of state and local approaches to reduce illness and death from vector-borne diseases (VBD).

We recognize that in most jurisdictions, VBD prevention requires a system in which multiple partners contribute resources and perform mutually reinforcing activities to meet common goals. As such, you will be asked questions related to your own organization and your partners. Your responses will be compiled and used only in the aggregate with no individual attribution. The assessment is expected to take approximately 30 minutes to complete.

If you have questions about this assessment, please contact the project director, Justin Snair, at jsnair@sgnl.solutions. Please click the red button below to begin the assessment.

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Q3 Select the options that best matches your organization.

- ○ State Government
- ○ Local or County Government
- ○ Territorial Government
- ○ Non-Profit Organization
- ○ Corporation

Q4 Enter the name of your organization/program.

_____

Q5 Enter the name of your jurisdiction.

_____

Q6 Enter your jurisdiction's population size.

_____

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Q7 Does your **organization** perform any surveillance, prevention, or control activities related to the following vectors?

	Yes	No	Don't Know
Mosquitoes	○	○	○
Ticks	○	○	○
Fleas	○	○	○
Lice	○	○	○
Triatominae/Kissing Bugs	○	○	○
Deer Flies	○	○	○
Other	○	○	○
Other	○	○	○

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Q8 Does your **organization** perform any surveillance, prevention, or control activities related to the following diseases?

	Yes	No	Don't Know
Rocky Mountain Spotted Fever	○	○	○
Lyme	○	○	○
Tularemia	○	○	○
West Nile	○	○	○
Babesia	○	○	○
Plague	○	○	○
Anaplasmosis	○	○	○
Western Equine Encephalitis	○	○	○
Colorado Tick Fever	○	○	○
Jamestown Canyon	○	○	○
Eastern Equine Encephalitis	○	○	○
Powassan	○	○	○
Japanese Encephalitis	○	○	○
Yellow Fever	○	○	○
Zika	○	○	○
Dengue	○	○	○

LaCrosse	○	○	○
Ehrlichia	○	○	○
Saint Louis Encephalitis	○	○	○
Tick-borne Relapsing Fever	○	○	○
Q Fever	○	○	○
Chikungunya	○	○	○
Bourbon	○	○	○
Heartland	○	○	○
B. miyamotoi	○	○	○
Tick Paralysis	○	○	○
Leishmaniasis	○	○	○
Chagas	○	○	○
Other	○	○	○
Other	○	○	○

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Q10
We recognize that in most jurisdictions a comprehensive approach requires a system in which multiple partners contribute resources and perform mutually reinforcing activities to meet common goals.

Components are the elements and structures that make up a vector-borne disease (VBD) system within a jurisdiction (e.g., city, county, territory, state). Capabilities are the specific activities/functions within each component that entities of a VBD system within a jurisdiction should be able to collectively perform.

Consider all of the organizations and programs in your jurisdiction that work to reduce VBD morbidity and mortality. Indicate the extent to which you agree with each component statement.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
My jurisdiction has a designated, functioning mechanism for convening partners to plan and coordinate VBD efforts.	○	○	○	○	○
My jurisdiction has resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts	○	○	○	○	○
My jurisdiction has a surveillance system aimed at the accurate and timely measurement of the introduction of vectors and pathogens and the incidence of disease.	○	○	○	○	○
My jurisdiction makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality	○	○	○	○	○

My jurisdiction is prepared to react to novel VBD situations (e.g., outbreak).	○	○	○	○	○
My jurisdiction evaluates and continuously improve its VBD processes, programs, and interventions.	○	○	○	○	○

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Q11 COMPONENT 1: A designated, functioning mechanism for convening partners to coordinate VBD efforts

1.1: Leadership that is knowledgeable and supportive of efforts to address VBD
1.2: A convening entity or mechanism (e.g., program, multi-partner collaborative)
1.3: A plan to address VBD in jurisdiction

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily supported by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
Identify, access, and educate leaders within the jurisdiction.	○	○	○	○
Identify priorities based on surveillance data and public perceptions.	○	○	○	○
Include VBD in an all hazards planning process within the jurisdiction.	○	○	○	○
Identify and interact with other VBD stakeholders within the jurisdiction.	○	○	○	○
Develop a comprehensive and coordinated strategy for VBD efforts within the jurisdiction.	○	○	○	○

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Q13 COMPONENT 2: Resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts.

2.1: Facilities, infrastructure, and materials
2.2: Staff that possess the core competencies, qualifications, knowledge, and skills necessary to effectively address VBD
2.3: Sustainable, right-sized funding
2.4: Partnerships, collaborations, and/or agreements with key local, regional, and state, national, and private sector organizations

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily supported by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
A database for VBD related data (e.g., case reporting, surveillance, and analysis).	○	○	○	○
A data transmission mechanism (e.g., HL7).	○	○	○	○
Dedicated epidemiology staffing for VBD. Enter the FTE in the text box.	○	○	○	○
Dedicated laboratory staffing for VBD. Enter the FTE in the text box.	○	○	○	○
Dedicated communications staffing for VBD. Enter the FTE in the text box.	○	○	○	○

Page Break

Q14 COMPONENT 3: Surveillance system aimed at the accurate and timely measurement of vector ecology and patterns of disease.

3.1: Data collection (e.g., pathogen, serological, clinical, syndromic, ecology, vector, risk factors)
3.2: Analysis (e.g., laboratory, informatics, GIS)
3.3: Interpretation of analysis outputs
3.4: Dissemination of surveillance information to leadership, collaborators, and the public

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily supported by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
Collect VBD case reports from providers.	○	○	○	○
Confirm VBD cases.	○	○	○	○
Transmit case information as required by local, state, and national regulations.	○	○	○	○
Conduct routine surveillance activities at local, state, and national levels.	○	○	○	○

Page Break

Q15 COMPONENT 4: System that makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality

4.1: Routine review of local data regarding ecology, disease transmission, and other factors (e.g., resistance, public perceptions, resources) to select appropriate prevention and control strategies
4.2: Evidence-based practices related to communication, education, and outreach to the public regarding risk and preventive strategies
4.3 Evidence-based practices related to vector control including environmental alterations (improved design or operation of infrastructure), chemical, physical and cultural control
4.4 Consideration of the public health and ecological impacts on VBD of established and proposed laws, regulations, and infrastructure development, and the enforce laws and regulations that affect VBD

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily performed by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
Provide timely information about specific risks and comprehensive mitigation strategies to the public, partners, and decisionmakers.	○	○	○	○
Ensure use of a comprehensive menu of evidence-based interventions and adaptation considerations options across social ecological model.	○	○	○	○

Page Break

Q16 COMPONENT 5: Prepared to react to novel VBD situations (e.g., outbreak).

5.1: Defined risk scenarios based on local data (e.g., jurisdictional characteristics, stakeholder perceptions)
5.2: An early warning system in which reception of predefined signals (e.g. novel vector, novel VBD above norm for place or time, unexpected increase of known vector or VBD, situation exceeding capacity to respond) triggers interventions
5.3: Authorities and collaborators prepared for outbreaks of diseases prior to their arrival

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily performed by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
Identify risks (vectors, diseases, ecology, public perceptions).	○	○	○	○
Determine thresholds for response.	○	○	○	○
Activate communication mechanism when response is triggered.	○	○	○	○

Page Break

Q17 COMPONENT 6: Evaluation and continuous improvement of VBD processes, programs, and interventions.

6.1: Evaluation of interventions and technologies in practice
6.2: Development and testing of possible new interventions and technologies
6.3: Dissemination of findings from evaluation for local improvements
6.4: Contribution of findings to the evidence base of the field

Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

	Primarily performed by my organization	Primarily supported by other organizations	Not present in my jurisdiction	Don't know
Formally evaluate VBD processes, outputs, and outcomes.	○	○	○	○
Use evaluation findings to improve VBD efforts.	○	○	○	○

Page Break

Q22 Indicate which funding sources support VBD-related efforts performed by your organization.

- ☐ Local government budget (e.g., taxes, assessments, fees)
- ☐ State government budget (e.g., taxes, assessments, fees)
- ☐ Federal sources (routine/core funding direct or passed through state)
- ☐ Federal sources (supplemental/emergency funding direct or passed through state)
- ☐ Private foundations (e.g., grants)
- ☐ Other _____

Q23 To the best of your ability, provide information about each type of funding that you receive or leverage for VBD-related efforts.

	Source Description	$ Amount	# FTE Supported	Activities Supported	Infrastructure/ Materials Supported
Q22 = Local government budget (e.g., taxes, assessments, fees) Local government budget (e.g., taxes, assessments, fees)					
Q22 = State government budget (e.g., taxes, assessments, fees) State government budget (e.g., taxes, assessments, fees)					
Q22 = Federal sources (routine/core funding direct of passed through state) Federal sources (routine/core funding direct or passed through state)					

Q22 = Federal sources (supplemental/emergency funding direct or passed through state) Federal sources (supplemental/emergency funding direct or passed through state)					
Q22 = Private foundations (e.g., grants) Private foundations (e.g., grants)					
Q22 = Other Other					

End of Block: Default Question Block

SELF-ASSESSMENT FINDINGS

(Responses are unedited, however typographical errors were corrected)

Q3 - Select the options that best matches your organization.

#	Answer	%	Count
1	State Government	73.68%	14
2	Local or County Government	5.26%	1
3	Territorial Government	0.00%	0
4	Non-Profit Organization	21.05%	4
5	Corporation	0.00%	0
	Total	100%	19

Q4 - Enter the name of your organization/program.

Responses removed to maintain anonymity of respondents.

Q5 - Enter the name of your jurisdiction.

Responses removed to maintain anonymity of respondents.

Q6 - Enter your jurisdiction's population size.

Enter your jurisdiction's population size.
n/a
40,000,000
3,000
N/A
7,500,000
4.66 million
3 million
12,800,000
8.9 million
2.912 million
5.69 million
339 million
5.611 million
40 million
4 million
6.8 million
268,597 mi^2
~6.8 million
7.2 million

Q7 - Does your organization perform any surveillance, prevention, or control activities related to the following vectors?

#	Question	Yes		No		Don't Know		Total
1	Mosquitoes	89.47%	17	10.53%	2	0.00%	0	19
2	Ticks	84.21%	16	15.79%	3	0.00%	0	19
3	Fleas	10.53%	2	78.95%	15	10.53%	2	19
4	Lice	5.26%	1	89.47%	17	5.26%	1	19
5	Triatominae/Kissing Bugs	26.32%	5	68.42%	13	5.26%	1	19
6	Deer Flies	0.00%	0	89.47%	17	10.53%	2	19
7	Other	5.26%	1	73.68%	14	21.05%	4	19
8	Other	0.00%	0	78.95%	15	21.05%	4	19

Q8 - Does your organization perform any surveillance, prevention, or control activities related to the following diseases?

#	Question	Yes		No		Don't Know		Total
1	Rocky Mountain Spotted Fever	72.22%	13	27.78%	5	0.00%	0	18
2	Lyme	66.67%	12	33.33%	6	0.00%	0	18
3	Tularemia	66.67%	12	27.78%	5	5.56%	1	18
4	West Nile	94.44%	17	5.56%	1	0.00%	0	18
5	Babesia	61.11%	11	33.33%	6	5.56%	1	18
6	Plague	72.22%	13	27.78%	5	0.00%	0	18
7	Anaplasmosis	61.11%	11	33.33%	6	5.56%	1	18
8	Western Equine Encephalitis	66.67%	12	33.33%	6	0.00%	0	18
9	Colorado Tick Fever	50.00%	9	50.00%	9	0.00%	0	18
10	Jamestown Canyon	66.67%	12	33.33%	6	0.00%	0	18
11	Eastern Equine Encephalitis	61.11%	11	38.89%	7	0.00%	0	18
12	Powassan	50.00%	9	50.00%	9	0.00%	0	18
13	Japanese Encephalitis	66.67%	12	33.33%	6	0.00%	0	18
14	Yellow Fever	72.22%	13	27.78%	5	0.00%	0	18
15	Zika	88.89%	16	11.11%	2	0.00%	0	18
16	Dengue	88.89%	16	11.11%	2	0.00%	0	18
17	LaCrosse	61.11%	11	38.89%	7	0.00%	0	18
18	Ehrlichia	66.67%	12	33.33%	6	0.00%	0	18
19	Saint Louis Encephalitis	88.89%	16	11.11%	2	0.00%	0	18
20	Tick-borne Relapsing Fever	44.44%	8	55.56%	10	0.00%	0	18
21	Q Fever	61.11%	11	27.78%	5	11.11%	2	18
22	Chikungunya	88.89%	16	11.11%	2	0.00%	0	18
23	Bourbon	27.78%	5	72.22%	13	0.00%	0	18
24	Heartland	33.33%	6	66.67%	12	0.00%	0	18
25	B. miyamotoi	55.56%	10	38.89%	7	5.56%	1	18

26	Tick Paralysis	27.78%	5	61.11%	11	11.11%	2	18
27	Leishmaniasis	27.78%	5	72.22%	13	0.00%	0	18
28	Chagas	50.00%	9	50.00%	9	0.00%	0	18
29	Other	11.11%	2	72.22%	13	16.67%	3	18
30	Other	11.11%	2	72.22%	13	16.67%	3	18

Q10 - We recognize that in most jurisdictions a comprehensive approach requires a system in which multiple partners contribute resources and perform mutually reinforcing activities to meet common goals. Components are the elements and structures that make up a vector-borne disease (VBD) system within a jurisdiction (e.g., city, county, territory, state). Capabilities are the specific activities/functions within each component that entities of a VBD system within a jurisdiction should be able to collectively perform. Consider all of the organizations and programs in your jurisdiction that work to reduce VBD morbidity and mortality. Indicate the extent to which you agree with each component statement.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Component 1: My jurisdiction has a designated, functioning mechanism for convening partners to plan and coordinate VBD efforts.	1.00	5.00	1.72	1.04	1.09	18
2	Component 2: My jurisdiction has resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts	1.00	4.00	1.83	0.76	0.58	18
3	Component 3: My jurisdiction has a surveillance system aimed at the accurate and timely measurement of the introduction of vectors and pathogens and the incidence of disease.	1.00	4.00	1.83	0.96	0.92	18
4	Component 4: My jurisdiction makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality.	1.00	4.00	1.61	0.83	0.68	18
5	Component 5: My jurisdiction is prepared to react to novel VBD situations (e.g., outbreak).	1.00	4.00	1.78	0.85	0.73	18

6	Component 6: My jurisdiction evaluates and continuously improve its VBD processes, programs, and interventions.	1.00	4.00	1.83	0.83	0.69	18

#	Question	Strongly agree		Somewhat agree		Neither agree nor disagree		Somewhat disagree		Strongly disagree		Total
1	Component 1: My jurisdiction has a designated, functioning mechanism for convening partners to plan and coordinate VBD efforts.	55.56%	10	27.78%	5	11.11%	2	0.00%	0	5.56%	1	18
2	Component 2: My jurisdiction has resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts	33.33%	6	55.56%	10	5.56%	1	5.56%	1	0.00%	0	18

3	Component 3: My jurisdiction has a surveillance system aimed at the accurate and timely measurement of the introduction of vectors and pathogens and the incidence of disease.	44.44 %	8	38.89%	7	5.56%	1	11.11%	2	0.00%	0	18
4	Component 4: My jurisdiction makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality.	55.56 %	10	33.33%	6	5.56%	1	5.56%	1	0.00%	0	18
5	Component 5: My jurisdiction is prepared to react to novel VBD situations (e.g., outbreak).	44.44 %	8	38.89%	7	11.11%	2	5.56%	1	0.00%	0	18
6	Component 6: My	38.89 %	7	44.44%	8	11.11%	2	5.56%	1	0.00%	0	18

jurisdiction evaluates and continuously improve its VBD processes, programs, and interventions.										

Q11 - COMPONENT 1: A designated, functioning mechanism for convening partners to coordinate VBD efforts 1.1: Leadership that is knowledgeable and supportive of efforts to address VBD 1.2: A convening entity or mechanism (e.g., program, multi-partner collaborative)1.3: A plan to address VBD in jurisdiction Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Identify, access, and educate leaders within the jurisdiction.	1.00	4.00	1.76	1.11	1.24	17
2	Identify priorities based on surveillance data and public perceptions.	1.00	4.00	1.29	0.75	0.56	17
3	Include VBD in an all hazards planning process within the jurisdiction.	1.00	4.00	1.47	0.85	0.72	17
4	Identify and interact with other VBD stakeholders within the jurisdiction.	1.00	2.00	1.12	0.32	0.10	17
5	Develop a comprehensive and coordinated strategy for VBD efforts within the jurisdiction.	1.00	2.00	1.18	0.38	0.15	17

#	Question	Primarily supported by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	Identify, access, and educate leaders within the jurisdiction.	58.82%	10	23.53%	4	0.00%	0	17.65%	3	17
2	Identify priorities based on surveillance data and public perceptions.	82.35%	14	11.76%	2	0.00%	0	5.88%	1	17

3	Include VBD in an all hazards planning process within the jurisdiction.	70.59%	12	17.65%	3	5.88%	1	5.88%	1	17
4	Identify and interact with other VBD stakeholders within the jurisdiction.	88.24%	15	11.76%	2	0.00%	0	0.00%	0	17
5	Develop a comprehensive and coordinated strategy for VBD efforts within the jurisdiction.	82.35%	14	17.65%	3	0.00%	0	0.00%	0	17

Q13 - COMPONENT 2: Resources (e.g., facilities, staffing, partnerships, and funding) that can be used and leveraged to support and sustain VBD prevention efforts. 2.1: Facilities, infrastructure, and materials2.2: Staff that possess the core competencies, qualifications, knowledge, and skills necessary to effectively address VBD2.3: Sustainable, right-sized funding2.4: Partnerships, collaborations, and/or agreements with key local, regional, and state, national, and private sector organizations Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	A database for VBD related data (e.g., case reporting, surveillance, and analysis).	1.00	2.00	1.12	0.32	0.10	17
2	A data transmission mechanism (e.g., HL7).	1.00	4.00	1.47	0.85	0.72	17
3	Dedicated epidemiology staffing for VBD. Enter the FTE in the text box.	1.00	3.00	1.24	0.55	0.30	17
4	Dedicated laboratory staffing for VBD. Enter the FTE in the text box.	1.00	3.00	1.29	0.67	0.44	17
5	Dedicated communications staffing for VBD. Enter the FTE in the text box.	1.00	4.00	1.94	1.00	1.00	17

#	Question	Primarily supported by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	A database for VBD related data (e.g., case reporting, surveillance, and analysis).	88.24%	15	11.76%	2	0.00%	0	0.00%	0	17
2	A data transmission mechanism (e.g., HL7).	70.59%	12	17.65%	3	5.88%	1	5.88%	1	17
3	Dedicated epidemiology	82.35%	14	11.76%	2	5.88%	1	0.00%	0	17

	staffing for VBD. Enter the FTE in the text box.									
4	Dedicated laboratory staffing for VBD. Enter the FTE in the text box.	82.35%	14	5.88%	1	11.76%	2	0.00%	0	17
5	Dedicated communications staffing for VBD. Enter the FTE in the text box.	47.06%	8	17.65%	3	29.41%	5	5.88%	1	17

Q14 - COMPONENT 3: Surveillance system aimed at the accurate and timely measurement of vector ecology and patterns of disease. 3.1: Data collection (e.g., pathogen, serological, clinical, syndromic, ecology, vector, risk factors)3.2: Analysis (e.g., laboratory, informatics, GIS)3.3: Interpretation of analysis outputs3.4: Dissemination of surveillance information to leadership, collaborators, and the public Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Collect VBD case reports from providers.	1.00	3.00	1.53	0.70	0.48	17
2	Confirm VBD cases.	1.00	3.00	1.35	0.68	0.46	17
3	Transmit case information as required by local, state, and national regulations.	1.00	3.00	1.35	0.68	0.46	17
4	Conduct routine surveillance activities at local, state, and national levels.	1.00	3.00	1.47	0.61	0.37	17

#	Question	Primarily supported by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	Collect VBD case reports from providers.	58.82%	10	29.41%	5	11.76%	2	0.00%	0	17
2	Confirm VBD cases.	76.47%	13	11.76%	2	11.76%	2	0.00%	0	17
3	Transmit case information as required by local, state, and national regulations.	76.47%	13	11.76%	2	11.76%	2	0.00%	0	17
4	Conduct routine surveillance activities at	58.82%	10	35.29%	6	5.88%	1	0.00%	0	17

local, state, and national levels.								

Q15 - COMPONENT 4: System that makes use of mutually reinforcing, data-driven, evidence-based actions to reduce VBD morbidity and mortality. 4.1: Routine review of local data regarding ecology, disease transmission, and other factors (e.g., resistance, public perceptions, resources) to select appropriate prevention and control strategies 4.2: Evidence-based practices related to communication, education, and outreach to the public regarding risk and preventive strategies 4.3 Evidence-based practices related to vector control including environmental alterations (improved design or operation of infrastructure), chemical, physical and cultural control 4.4 Consideration of the public health and ecological impacts on VBD of established and proposed laws, regulations, and infrastructure development, and the enforce laws and regulations that affect VBD Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Provide timely information about specific risks and comprehensive mitigation strategies to the public, partners, and decisionmakers.	1.00	4.00	1.44	0.79	0.62	16
2	Ensure use of a comprehensive menu of evidence-based interventions and adaptation considerations options across social ecological model.	1.00	4.00	2.25	1.20	1.44	16

#	Question	Primarily performed by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	Provide timely information about specific risks and comprehensive mitigation strategies to the public,	68.75%	11	25.00%	4	0.00%	0	6.25%	1	16

	partners, and decisionmakers.									
2	Ensure use of a comprehensive menu of evidence-based interventions and adaptation considerations options across social ecological model.	37.50%	6	25.00%	4	12.50%	2	25.00 %	4	16

Q16 - COMPONENT 5: Prepared to react to novel VBD situations (e.g., outbreak). 5.1: Defined risk scenarios based on local data (e.g., jurisdictional characteristics, stakeholder perceptions)5.2: An early warning system in which reception of predefined signals (e.g. novel vector, novel VBD above norm for place or time, unexpected increase of known vector or VBD, situation exceeding capacity to respond) triggers interventions5.3: Authorities and collaborators prepared for outbreaks of diseases prior to their arrival Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Identify risks (vectors, diseases, ecology, public perceptions).	1.00	2.00	1.13	0.33	0.11	16
2	Determine thresholds for response.	1.00	2.00	1.25	0.43	0.19	16
3	Activate communication mechanism when response is triggered.	1.00	4.00	1.38	0.78	0.61	16

#	Question	Primarily performed by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	Identify risks (vectors, diseases, ecology, public perceptions).	87.50%	14	12.50%	2	0.00%	0	0.00%	0	16
2	Determine thresholds for response.	75.00%	12	25.00%	4	0.00%	0	0.00%	0	16
3	Activate communication mechanism when response is triggered.	75.00%	12	18.75%	3	0.00%	0	6.25%	1	16

Q17 - COMPONENT 6: Evaluation and continuous improvement of VBD processes, programs, and interventions. 6.1: Evaluation of interventions and technologies in practice6.2: Development and testing of possible new interventions and technologies6.3: Dissemination of findings from evaluation for local improvements6.4: Contribution of findings to the evidence base of the field Indicate who in your jurisdiction is primarily responsible for each capability statement listed below.

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Formally evaluate VBD processes, outputs, and outcomes.	1.00	4.00	1.69	0.85	0.71	16
2	Use evaluation findings to improve VBD efforts.	1.00	4.00	1.63	0.86	0.73	16

#	Question	Primarily performed by my organization		Primarily supported by other organizations		Not present in my jurisdiction		Don't know		Total
1	Formally evaluate VBD processes, outputs, and outcomes.	50.00%	8	37.50%	6	6.25%	1	6.25%	1	16
2	Use evaluation findings to improve VBD efforts.	56.25%	9	31.25%	5	6.25%	1	6.25%	1	16

Q22 - Indicate which funding sources support VBD-related efforts performed by your organization in the current budget year.

#	Answer	%	Count
1	Local government budget (e.g., taxes, assessments, fees)	11.76%	4
2	State government budget (e.g., taxes, assessments, fees)	23.53%	8
3	Federal sources (routine/core funding direct or passed through state)	41.18%	14
4	Federal sources (supplemental/emergency funding direct or passed through state)	20.59%	7
5	Private foundations (e.g., grants)	2.94%	1
6	Other	0.00%	0
	Total	100%	34

Q23 - To the best of your ability, provide information about each type of funding that your organization receives or leverages for VBD-related efforts in the current budget year.

Q23_1_1 - Local government budget (e.g., taxes, assessments, fees) - Source Description

Local government budget (e.g., taxes, assessments, fees) - Source Description
assessments
unknown
Municipalities collect fees to support VBD activities (e.g., Memphis-Shelby county)

Q23_1_2 - Local government budget (e.g., taxes, assessments, fees) - $ Amount

Local government budget (e.g., taxes, assessments, fees) - $ Amount
N/A
unknown
?

Q23_1_3 - Local government budget (e.g., taxes, assessments, fees) - # FTE Supported

Local government budget (e.g., taxes, assessments, fees) - # FTE Supported
N/A
unknown
Unknown

Q23_1_4 - Local government budget (e.g., taxes, assessments, fees) - Activities Supported

Local government budget (e.g., taxes, assessments, fees) - Activities Supported
surveillance and control
unknown
Mosquito trapping and abatement

Q23_1_5 - Local government budget (e.g., taxes, assessments, fees) - Infrastructure/Materials Supported

Local government budget (e.g., taxes, assessments, fees) - Infrastructure/Materials Supported
equipment and chemical
unknown
Traps, equipment, trucks, treatments

Q23_2_1 - State government budget (e.g., taxes, assessments, fees) - Source Description

State government budget (e.g., taxes, assessments, fees) - Source Description
General fund
Lyme money
State funds
State General fund
general fund
One-time funds to support local vector control

Q23_2_2 - State government budget (e.g., taxes, assessments, fees) - $ Amount

State government budget (e.g., taxes, assessments, fees) - $ Amount
2,500,000
$550,000
as needed
$500,000
500,000

Q23_2_3 - State government budget (e.g., taxes, assessments, fees) - # FTE Supported

State government budget (e.g., taxes, assessments, fees) - # FTE Supported
0
0
4.0

0.5
20
5.25
None

Q23_2_4 - State government budget (e.g., taxes, assessments, fees) - Activities Supported

State government budget (e.g., taxes, assessments, fees) - Activities Supported
~20
Human TBD surveillance, human and mosquito lab testing
Entomologist's time
epi, surveillance, lab
surveillance, lab testing, outreach
Supported trapping and equipment, local jurisdictions could use for staff as well

Q23_2_5 - State government budget (e.g., taxes, assessments, fees) - Infrastructure/Materials Supported

State government budget (e.g., taxes, assessments, fees) - Infrastructure/Materials Supported
Tick surveillance and materials, supports lots of materials for educational outreach activities
Lab testing supplies
lab equipment, supplies, IT infrastructure, vehicles
Equipment for trapping and shipment, abatement

Q23_3_1 - Federal sources (routine/core funding direct or passed through state) - Source Description

Federal sources (routine/core funding direct or passed through state) - Source Description
ELC
CDC ELC
ELC

CDC ELC
ELC grant
CDC ELC
ELC grant
ELC and EIP grant funds
routine
ELC
ELC
ELC
CDC ELC

Q23_3_2 - Federal sources (routine/core funding direct or passed through state) - $ Amount

Federal sources (routine/core funding direct or passed through state) - $ Amount
250,000
500,000
$584,000
297000
150,000
~ 1 million
$700,000
$125,000
350,000
~200K
500,000

Q23_3_3 - Federal sources (routine/core funding direct or passed through state) - # FTE Supported

Federal sources (routine/core funding direct or passed through state) - # FTE Supported
2.5
3.2
4
2.5
3.0
2.4
1.5
7
2
5
3
4

Q23_3_4 - Federal sources (routine/core funding direct or passed through state) - Activities Supported

Federal sources (routine/core funding direct or passed through state) - Activities Supported
Surveillance
surveillance and laboratory capacity
All activities
Surveillance, reporting, education and outreach
Human VBD surveillance, prevention/outreach, tick surveillance, travel to national/regional VBD meetings
235000
epi/lab time, supplies for testing
all/everything
surveillance, laboratory testing, outreach
Lab, Epi, Ento

Entomologist, Microbiologist, Epidemiologist
Lab and Epi

Q23_3_5 - Federal sources (routine/core funding direct or passed through state) - Infrastructure/Materials Supported

Federal sources (routine/core funding direct or passed through state) - Infrastructure/Materials Supported
don't understand the question
small portion toward education materials
lab testing supplies, GIS and statistical analysis software
62000
Arboviral testing reagents
all/everything
Laboratory supplies
reagents for clinical and mosquito testing
Laboratory supplies
Testing and other vector supplies.

Q23_4_1 - Federal sources (supplemental/emergency funding direct or passed through st... - Source Description

Federal sources (supplemental/emergency funding direct or passed through state) - Source Description
ELC Zika supp, CDC hurricane crisis response grant
Hurricane
EIP grant
Crisis Cooperative Agreement
ELC - Zika carryover

Q23_4_2 - Federal sources (supplemental/emergency funding direct or passed through st... - $ Amount

Federal sources (supplemental/emergency funding direct or passed through state) - $ Amount
unsure
variable
6,000,000
~500K

Q23_4_3 - Federal sources (supplemental/emergency funding direct or passed through st... - # FTE Supported

Federal sources (supplemental/emergency funding direct or passed through state) - # FTE Supported
1
usually none
6
3

Q23_4_4 - Federal sources (supplemental/emergency funding direct or passed through st... - Activities Supported

Federal sources (supplemental/emergency funding direct or passed through state) - Activities Supported
additional study objectives
depends - often epidemiology plus laboratory
local mosquito control and state medical entomology expertise
Environmental Health capacity

Q23_4_5 - Federal sources (supplemental/emergency funding direct or passed through st... - Infrastructure/Materials Supported

Federal sources (supplemental/emergency funding direct or passed through state) - Infrastructure/Materials Supported
variable - may be lab supplies, IT or informatics systems, educational materials
Testing, trapping, training of vector borne disease programs

APPENDIX C: WORKSHOP AGENDAS AND FACILITATION GUIDES

Exploring the Core Components of a Comprehensive Vector-Borne Disease Program

Vector Summit | Facilitated Session | 1:00 – 4:00 pm | April15, 2019 |

Session Objectives

- Identify key components of a comprehensive vector-borne disease program
- Identify capabilities, or specific activities and functions, for various components
- Determine the extent to which components and capabilities are essential or adaptable (can be changed to meet local needs without compromising effectiveness)?

Agenda-in-Brief

Day 1	
1:00 PM	Welcome & Introductions
1:15 PM	Context
1:30 PM	Components
2:15 PM	Break
2:30 PM	Capabilities
3:45 PM	Next Steps
4:00 PM	Adjourn

Facilitation Guide

Block	Activity/Talking Points	Notes/Supplies
12:00 PM (60 minutes)	Final Prep ● Sign in sheet ● Materials (packets) ● Check AV ● Queue slides ● Position facilitation supplies ● Table/chair set up	
1:00 PM (15 minutes) Aims ● Orient participants to the space and agenda ● Prepare participants for interactions ● Set expectations for day	Welcome and Introductions ● Welcome – **Justin Snair** with support from **Jordan Peart** ● **Laura Runnels** introduces herself and leads a round of introductions with participants ● **Laura** orients participants to the day of work o Amenities: parking, breaks, bathrooms, private space, water, food, wifi, outlets, suitcases o Emergency Procedures: shelter in place, evaluation o Meeting Objectives (flip chart) o Format: Combination of presentations and discussions o Agenda Review (flip chart) o Materials Provided: o Outputs: Meeting proceedings o Ground Rules (flip chart) ▪ WAIT (Why Am I Talking) ▪ Be present (limit device use & side conversations; participate) ▪ Be transparent (share information openly) ▪ Be curious (limit gut reactions; ask questions; listen to other people to understand their perspective) ▪ Speak one person at the time, one idea at a time	Flip chart Markers
1:15 PM	Context ● Overview – **Justin** with support from **Jordan**	Slidedeck queued

(15 minutes) Aims ● To reach shared understanding of the project background	○ What is a vector-borne disease program? ○ What is the CDC's vision for vector-borne disease control and prevention? ○ Why are we creating the comprehensive vector-borne disease program core components and capabilities?	
1:30 PM (45 minutes) Aims ● To identify key components of a comprehensive vector-borne diseases program	<u>Work Session 1 – Components</u> ● **Laura** leads the group through a concept mapping activity using the sticky wall to identify the components of a comprehensive VBD program ○ Potential components from workgroup to validate include: Laboratory, Surveillance (Case and Outbreak Investigation), Vector Control, Public Education, Policy	Sticky wall Halfsheets Markers
2:15 PM (15 minutes)	<u>Break</u>	
2:30 PM (75 minutes) Aims ● To identify capabilities, or specific activities and functions, for various components ● To determine the extent to which components and capabilities are essential or adaptable (can be changed to meet local	<u>Work Session 2 – Capabilities</u> ● **Laura** leads the group through a concept mapping activity using the sticky wall to identify the capabilities for each of the identified components of a comprehensive VBD program ● (time permitting) **Laura** leads a discussion about the extent to which components/capabilities are core vs adaptable. ○ Which jurisdiction(s) would the components/capabilities apply to? State, Territorial, Local, Tribal	Sticky wall Halfsheets Markers

needs without compromising effectiveness)		

3:45 PM
 	
(15 minutes)
	Next Steps
	● **Justin** prompts participants to share how they use a VBD core components and capabilities document in their work.
	● **Justin** provides information about next steps:
	  ○ Meeting documentation
	  ○ Follow up requests
	  ○ Travel reimbursements	

4:00 PM (30 minutes)	Adjourn ● Staff will complete documentation of activities	

Exploring the Components of a Comprehensive Approach to Vector-Borne Disease Prevention and Control

DVBD Fort Collins | Facilitated Session |8:30 am – 12:00 pm | May 14, 2019

Session Objectives

- Identifying the vectors of concern, categorized by core, enhanced, and comprehensive
- Identifying the vector borne diseases of concern, categorized by core, enhanced, and comprehensive
- Exploring the possible program components employed to address the vectors and VBDs of concern, categorized by core, enhanced, and comprehensive

Agenda-in-Brief

Day 1	
8:30 AM	Welcome & Introductions
8:45 AM	Context Setting
9:10 AM	Work Session 1
10:15 AM	Break
10:25 AM	Work Session 2
11:30 PM	Closing Conversation
12:00 PM	Adjourn

Facilitation Guide

Block	Activity/Talking Points	Notes/Supplies
8:00 AM (30 minutes)	<u>Final Prep</u> ● Check AV ● Queue slides ● Position facilitation supplies ● Table/chair set up	
8:30 AM (15 minutes) Aims ● Orient participants to the space and agenda ● Prepare participants for interactions ● Set expectations for day	<u>Welcome and Introductions</u> ● Welcome and Intros – **Chris Duggar** & **Justin Snair** ● **Laura Runnels** orients participants to the day of work ○ Agenda Review ○ Format: Discussions ○ Materials Provided: ○ Outputs: Information to inform final report ○ Ground Rules (flip chart) ▪ WAIT (Why Am I Talking) ▪ Be present (limit device use & side conversations; participate) ▪ Be transparent (share information openly) ▪ Be curious (limit gut reactions; ask questions; listen to other people to understand their perspective) ▪ Speak one person at the time, one idea at a time	Flip chart Markers
8:45 PM (25 minutes) Aims ● To reach shared understanding of the project background	<u>Context Setting</u> ● Opening Remarks – **Dr, Chris Gregory** (10 min) ● Project Overview – **Justin Snair and Laura Runnels** ○ RFP call to action ○ Proposed process and where we are today ○ Highlights from discussions with working groups and stakeholders so far	Slidedeck queued
9:10 AM	<u>Work Session 1 – Vectors and Diseases</u>	Sticky wall Halfsheets

(45 minutes)
 	
Aims
• To describe a comprehensive approach to vector-borne diseases prevention/control
	• **Laura** leads the group through a concept mapping activity using the sticky wall to identify the components of a comprehensive approach VBD prevention/control
	• **Note:** We first need to zoom out and describe a true comprehensive approach (in terms of vectors, pathogens, resources, partners, strategies) before we define the role of governmental public health in VBD prevention.
	• Key Definitions
	  ○ Components – elements and structures (see draft below)
	  ○ Capabilities – activities/functions of components (to be determined)
	  ○ Levels
	  ▪ Core – minimum viability
	  ▪ Enhanced -
	  ▪ Comprehensive –
	• Discussion to list and refine
	  ○ The Vector(s) of Concern
	  ○ The Vector Borne Disease(s) of Concern
		Markers

10:15 AM (10 minutes)	Break	

10:25 AM
 	
(65 minutes)
 	
Aims
• To identify capabilities, or specific activities and functions, for various components
• To determine the extent to which components and capabilities are essential or
	Work Session 2 – Components
	• **Laura** leads the group through a concept mapping activity using the sticky wall to identify the components of a comprehensive approach VBD prevention/control
	• Discussion to list and refine
	  ○ The Program Component(s) Employed to Address the Vectors and VBDs of Concern
	  ○ The Resources Available to Address the Vectors and VBDs of Concern Using the Employed Program Components
		Sticky wall
		Halfsheets
		Markers

adaptable (can be changed to meet local needs without compromising effectiveness)		

11:30 PM
 	
(30 minutes)
	Closing Conversation
	● **Justin** prompts participants to what value this might to the field (for LHDs, SHDs, Federal programs, others)?
	● **Justin** provides information about next steps:
	  ○ Meeting documentation
	  ○ Follow up requests	

12:00 PM (30 minutes)	Adjourn ● Staff will complete documentation of activities	