Mosquito Surveillance and Control Assessment in Zika Virus Priority Jurisdictions

prepared by the
National Association of County and City Health Officials

December 2016
Background

• In mid-2016, the CDC Zika State Coordination Task Force (SCTF), in collaboration with the Zika Vector Issues Team, identified a need to assess local vector control capability within 10 jurisdictions deemed as high priority for assessing necessary support for Zika response. Zika prevention activities were underway beginning in January 2016, when CDC’s Emergency Operation Response was activated.

• NACCHO was funded to conduct this assessment through the CDC Office of State, Tribal, Local and Territorial Support (OSTLTS) cooperative agreement OT13-1302, “Building Capacity of the Public Health System to Improve Population Health through National, Nonprofit Organizations.”

• The intent of this assessment was to provide a quick snapshot (including anecdotal data) of the capabilities of the identified jurisdictions to carry out mosquito control activities. The assessment was not designed to be a scientific study or go through a scientific or peer-review rigor.

• The assessment was developed using CDC’s framework for vector control competency, as outlined in CDC’s guidance document titled “Zika Virus Mosquito Control for Professionals” accessed at http://www.cdc.gov/zika/vector/for-professionals.html. NACCHO worked with CDC and the American Mosquito Control Association to design a scoring matrix, with definitions for competency.
Objectives

• Support for local vector-borne disease response to Zika across the USA.

• Perform an assessment of current Zika preparedness and response challenges, needs, and gaps related to vector control and surveillance among local jurisdictions.

• Increase awareness among NACCHO, CDC, LHDs, and other stakeholders of local capacity, competency, facilitators, and barriers to preventing, preparing for, and responding to Zika and other events of public health significance.
Activities

• Establish and implement a plan for assessing vector control competencies of:
  • A comprehensive local cohort in ten (10) priority potentially impacted Zika jurisdictions.

• Update and expand the list of district-level vector control resources across the US.

• Distribute assessment tool; follow up with non-respondents to increase response rates.

• Analyze information to identify opportunities and possible activities to address local jurisdiction gaps, challenges, and needs.
Outputs/Deliverables

• A summarizing slide deck on Mosquito Surveillance and Control Assessment in Zika Virus Priority Jurisdictions.

• A methodology for assessing competency of vector control and surveillance.

• A summary document of vector control competencies.

• A comprehensive document detailing local-level vector control resources across the country.
Methodology
Assessment Tool

• In coordination with CDC, NACCHO developed and executed an electronic quantitative instrument to assess vector control competency.

• Developing Partners:
  • CDC Office of State, Tribal, Local and Territorial Support
  • CDC Office of Public Health Preparedness and Response, Division of State and Local Readiness
  • CDC Division of Vector-Borne Infectious Diseases
  • National Association of County and City Health Officials
Scoring and Ranking Methodology

• A scoring matrix was created to prioritize questions based on necessary capabilities of a competent vector control program.

• The 10 questions covered:
  • 5 Core Competencies (e.g. routine mosquito surveillance, standardized trapping, species identification; larviciding and adulticiding capabilities; routine vector control (e.g. chemical, biological, source reduction, or environmental management); species specific activities; and pesticide resistance testing).
  
  • 5 Supplemental Competencies (e.g. licensed pesticide application requirements; non-chemical vector control; community outreach and education activities; communication with local health departments on surveillance and epidemiology; and cooperation with nearby/partner vector control programs).
Scoring and Ranking Methodology

• Based on the CDC framework for vector control competency, five core competencies were weighted to rank each organization as *fully capable*, *competent*, or *needs improvement*:
  • Any organization that answered positively to all 10 questions was ranked as “fully capable.”
  • Any organization that answered positively to all five of the core questions (1, 2, 3, 4, or 5) was ranked as “competent.”
  • A negative answer to ANY of the core questions resulted in the “needs improvement” ranking.
## Core Competency Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>FULLY CAPABLE</th>
<th>COMPETENT</th>
<th>NEEDS IMPROVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Does your program conduct routine surveillance for mosquitoes through standardized trapping and species identification? (If “No,” respondent skips to Q3.)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>2.</strong> Does your program make treatment decisions based on that surveillance?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>3.</strong> Does your program have the capability to conduct larviciding and/or adulticiding, or neither?</td>
<td>Larviciding</td>
<td>Larviciding</td>
<td>Larviciding</td>
</tr>
<tr>
<td>Adulticiding</td>
<td>Adulticiding</td>
<td>Adulticiding</td>
<td>Adulticiding</td>
</tr>
<tr>
<td>Neither</td>
<td>Neither</td>
<td>Neither</td>
<td>Neither</td>
</tr>
<tr>
<td><strong>4.</strong> Does your program engage in routine vector control (e.g., chemical, biological, source reduction, or environmental management) specifically for <em>Aedes aegypti</em> and/or <em>Aedes albopictus</em>?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>None identified in area</td>
<td>None identified in area</td>
<td>None identified in area</td>
<td>None identified in area</td>
</tr>
<tr>
<td><strong>5.</strong> Does your program conduct pesticide resistance testing?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
# Supplemental Competency Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>When applying pesticides, does your jurisdiction require that your program: (Choose all that apply)</td>
<td>Operate on a general use applicator license</td>
<td>Operate on a separate mosquito control pesticide applicator license</td>
<td>Operate with each individual applicator licensed to apply pesticides</td>
</tr>
<tr>
<td></td>
<td>Operate on a separate mosquito control pesticide applicator license</td>
<td>Operate with each individual applicator licensed to apply pesticides</td>
<td>No licensing required</td>
</tr>
<tr>
<td></td>
<td>Operate on a separate mosquito control pesticide applicator license</td>
<td>Operate with each individual applicator licensed to apply pesticides</td>
<td>No licensing required</td>
</tr>
<tr>
<td></td>
<td>Operate with each individual applicator licensed to apply pesticides</td>
<td>No licensing required</td>
<td></td>
</tr>
<tr>
<td>Does your program engage in control activities other than chemical control (i.e., biological, source reduction, or water management)?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Does your program directly engage in or provide community outreach and education campaigns that inform people on how mosquito-borne diseases are transmitted and how they can be avoided?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Does your program currently communicate with and receive human surveillance, epidemiology, and activity reports from a state or local public health department/program?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Is your program willing and able to communicate or share equipment/personnel with nearby mosquito control programs?</td>
<td>Yes</td>
<td>No</td>
<td>Not sure</td>
</tr>
<tr>
<td>Required answers for each rating are indicated by the color corresponding to the rating. If a question has several possible answers, accepted answers for each rating are indicated by a lighter shade corresponding to rating color.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Audience for Assessment

• A total of 381 local vector control departments and districts were originally identified in the ten priority jurisdictions by cross-referencing contact lists shared by the CDC and the American Mosquito Control Association (AMCA) with NACCHO’s membership database.

• NACCHO attempted to contact all 381 vector control departments to verify vector control activities and identify an appropriate contact (i.e., name and e-mail) to participate in the survey.
Audience for Mosquito Surveillance & Competency Assessment

**VECTOR CONTROL ORGANIZATION TYPE**

- Local Health Department: 42%
- Mosquito Abatement District: 25%
- Other: 33%

**VECTOR CONTROL ORGANIZATIONS ASSESSED IN THE TEN PRIORITY JURISDICTIONS**

Alabama, Arizona, California, Florida, Georgia, Hawaii, Louisiana, Mississippi, Texas, and Los Angeles County
Assessment Tool Methodology

• The questionnaire was designed such that the responses could be uniquely linked to each identified organization.

• All questions required a response therefore participants could not skip any questions.

• All data were self-reported.

• NACCHO did not independently verify the data provided by responding organizations.
Results

Summary Findings
State Specific Findings
Response Rates

- A total of 185 questionnaires were completed in-full, and five partially completed questionnaires were included in the analysis for a total of 190 responses (54% response rate, 190/351).

### ASSESSMENT RESPONSE RATE: OVERALL AND BY PRIORITY AREA

<table>
<thead>
<tr>
<th>County</th>
<th>Overall</th>
<th>42%</th>
<th>69%</th>
<th>56%</th>
<th>60%</th>
<th>73%</th>
<th>100%</th>
<th>54%</th>
<th>30%</th>
<th>51%</th>
<th>88%</th>
<th>54%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>21</td>
<td>11</td>
<td>44</td>
<td>39</td>
<td>16</td>
<td>1</td>
<td>30</td>
<td>6</td>
<td>22</td>
<td>7</td>
<td>190</td>
<td></td>
</tr>
<tr>
<td>Total Assessed</td>
<td>50</td>
<td>16</td>
<td>78</td>
<td>65</td>
<td>22</td>
<td>1</td>
<td>56</td>
<td>20</td>
<td>43</td>
<td>8</td>
<td>351</td>
<td></td>
</tr>
</tbody>
</table>
Competency Rankings

- Just over one fifth (21%) of local vector control respondents, (39/190), were ranked as “fully capable.”

- 9% (17/190) ranked as “competent.”

- The majority of local vector control organizations that responded to this assessment were ranked as “needs improvement” (129/190, 68%).

- The incomplete responses (5/190, 3%) were not assessed for competency.
Competency Rankings
Needs Improvement by Missing Core Competencies

NUMBER OF CORE COMPETENCIES MISSING FOR “NEEDS IMPROVEMENT” ORGANIZATIONS

- 5 Areas: 17%, 22 respondents
- 4 Areas: 19%, 25 respondents
- 3 Areas: 15%, 19 respondents
- 2 Areas: 5%, 7 respondents
- 1 Area: 43%, 56 respondents

Number of Respondents
Needs Improvement by Missing Core Competencies

<table>
<thead>
<tr>
<th>Missing core competency</th>
<th>1 CC</th>
<th>2 CCs</th>
<th>3 CCs</th>
<th>4 CCs</th>
<th>5 CCs</th>
<th>Total “needs improvement” per core competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: Does your program conduct routine surveillance for mosquitoes through standardized trapping and species identification?</td>
<td>0</td>
<td>1</td>
<td>14</td>
<td>22</td>
<td>22</td>
<td>59</td>
</tr>
<tr>
<td>Q2: Does your program make treatment decisions based on that surveillance?</td>
<td>0</td>
<td>4</td>
<td>18</td>
<td>25</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>Q3: Does your program have the capability to conduct larviciding/adulticiding?</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Q4: Does your program engage in routine vector control (e.g., chemical, biological, source reduction, or environmental management) specifically for <em>Aedes aegypti</em> and/or <em>Aedes albopictus</em>?</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>17</td>
<td>22</td>
<td>53</td>
</tr>
<tr>
<td>Q5: Does your program conduct pesticide resistance testing?</td>
<td>51</td>
<td>5</td>
<td>19</td>
<td>25</td>
<td>22</td>
<td>122</td>
</tr>
</tbody>
</table>
Summary Response Statistics: Core Questions

Q1: Does your program conduct routine surveillance for mosquitoes through standardized trapping and species identification? (If “No,” respondent skips to Q3.)

- Yes: 67%
- No: 33%

Q2: Does your program make treatment decisions based on that surveillance?

- Yes: 91%
- No: 9%

Q3: Does your program have the capability to conduct larviciding and/or adulticiding, or neither?

- Larviciding: 10%
- Adulticiding: 3%
- Both: 68%
- Neither: 19%
Summary Response Statistics: Core Questions

Q4: Does your program engage in routine vector control (e.g., chemical, biological, source reduction, or environmental management) specifically for *Aedes aegypti* and/or *Aedes albopictus*

- **Yes**: 51%
- **No**: 30%
- **There is no *Ae. aegypti/Ae. albopictus* in the area**: 20%

Q5: Does your program conduct pesticide resistance testing?

- **Yes**: 34%
- **No**: 67%
Summary Response Statistics: Supplemental Questions

Q6: When applying pesticides what type of licensing does your program require (Choose all that apply)?

- Operate on a general use applicator license: 48
- Operate on a separate mosquito control pesticide applicator license: 63
- Have several applicators operate under one Master applicator’s license: 51
- Operate with each individual Applicator licensed to apply pesticides: 88
- No licensing required: 30

Q7: Does your program engage in control activities other than chemical control (e.g., biological, source reduction, or water management)?

- Yes: 66%
- No: 35%
# Summary Response Statistics: Supplemental Questions

Q8: Does your program directly engage in or provide community outreach and education campaigns that inform people on how mosquito-borne diseases are transmitted and how they can be avoided?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>84%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Q9: Does your program currently communicate with and receive human surveillance, epidemiology, and activity reports from a state or local public health department or program?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>83%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Q10: Is your program willing and able to communicate or share equipment/personnel with nearby mosquito control programs?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>14%</td>
<td>32%</td>
</tr>
</tbody>
</table>
Summary Findings

- Using the scoring matrix based on CDC guidelines, 21% of the responding jurisdictions were identified as “fully capable”, 9% were identified as “competent”, and 68% were identified as “needing improvement”. Response rate was 54% (190 out of 351) from ten high priority states and local jurisdictions.

- 2/3 of respondents performed non-chemical vector control activities while 1/3 only used chemical controls.

- Most treatment decisions were based on vector surveillance information (91%).

- Community outreach, engagement and communication on epidemiology and human surveillance with local health departments was relatively common (83%).

- More than half of the respondents were willing to share equipment, personnel and communication support with their neighboring vector control programs.
State-Specific Results: Alabama

**VECTOR CONTROL ORGANIZATION TYPE**

- Local Health Department: 62%
- Mosquito Abatement District: 33%
- Public Works Department: 5%

**COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS**

- Fully Capable: 86%
- Competent: 10%
- Needs Improvement: 0%
- Cannot assess: 5%
State-Specific Results: Alabama

NUMBER OF CORE COMPETENCIES MISSING FOR ALABAMA’S “NEEDS IMPROVEMENT” ORGANIZATIONS

- 1 No. of Missing Core Competencies
  - 17%, 3 respondents
- 2 No. of Missing Core Competencies
  - 22%, 4 respondents
- 3 No. of Missing Core Competencies
  - 28%, 5 respondents
- 4 No. of Missing Core Competencies
  - 28%, 5 respondents
- 5 No. of Missing Core Competencies
  - 100%
State-Specific Results: Arizona

**VECTOR CONTROL ORGANIZATION TYPE**
- Local Health Department: 55%
- Mosquito Abatement District: 27%
- Public Works Department: 9%
- Environmental Health Services: 9%

**COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS**
- Fully Capable: 0%
- Competent: 9%
- Needs Improvement: 91%
State-Specific Results: Arizona

NUMBER OF CORE COMPETENCIES MISSING FOR ARIZONA’S “NEEDS IMPROVEMENT” ORGANIZATIONS

<table>
<thead>
<tr>
<th>No. of Missing Core Competencies</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>10%, 1 respondent</td>
</tr>
<tr>
<td>4</td>
<td>20%, 2 respondents</td>
</tr>
<tr>
<td>3</td>
<td>40%, 4 respondents</td>
</tr>
<tr>
<td>2</td>
<td>0%, 0 respondents</td>
</tr>
<tr>
<td>1</td>
<td>30%, 3 respondents</td>
</tr>
</tbody>
</table>

- **100% pesticide resistance testing**

100%
State-Specific Results: California

VECTOR CONTROL ORGANIZATION TYPE
- Local Health Department: 75%
- Mosquito Abatement District: 16%
- Agricultural Commission: 2%
- Environmental Health Services: 7%

COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS
- Fully Capable: 34%
- Competent: 64%
- Needs Improvement: 2%
State-Specific Results: California

**NUMBER OF CORE COMPETENCIES MISSING FOR CALIFORNIA’S “NEEDS IMPROVEMENT” ORGANIZATIONS**

<table>
<thead>
<tr>
<th>No. of Missing Core Competencies</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>18%, 5 respondents</td>
</tr>
<tr>
<td>4</td>
<td>14%, 4 respondents</td>
</tr>
<tr>
<td>3</td>
<td>7%, 2 respondents</td>
</tr>
<tr>
<td>2</td>
<td>4%, 1 respondent</td>
</tr>
<tr>
<td>1</td>
<td>57%, 16 respondents</td>
</tr>
</tbody>
</table>

100% pesticide resistance testing
State-Specific Results: Los Angeles County, California

**VECTOR CONTROL ORGANIZATION TYPE**
- Local Health Department: 71%
- Mosquito Abatement District: 29%

**COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS**
- Fully Capable: 0%
- Competent: 29%
- Needs Improvement: 71%

[Diagram: Pie charts showing the distribution of vector control organization types and competency rankings.]

[Logo: NACCHO]
State-Specific Results: Los Angeles County, California

NUMBER OF CORE COMPETENCIES MISSING FOR LOS ANGELES COUNTY’S “NEEDS IMPROVEMENT” ORGANIZATIONS

- 0%: 0 respondents
- 20%: 1 respondent
- 40%: 2 respondents

[Diagram showing the number of missing core competencies and respondents per each level.]
State-Specific Results: Florida

**Vector Control Organization Type**
- Local Health Department: 15%
- Mosquito Abatement District: 23%
- Environmental Health Services: 3%
- Natural Resources Department: 8%
- Public Works Department: 26%

**Competency Ranking of Assessed Vector Control Organizations**
- Fully Capable: 67%
- Competent: 64%
- Needs Improvement: 26%
State-Specific Results: Florida

NUMBER OF CORE COMPETENCIES MISSING FOR FLORIDA’S “NEEDS IMPROVEMENT” ORGANIZATIONS

- 5 core competencies missing: 20%, 5 respondents
- 4 core competencies missing: 16%, 4 respondents
- 3 core competencies missing: 8%, 2 respondents
- 2 core competencies missing: 4%, 1 respondent
- 1 core competency missing: 52%, 13 respondents

Pie chart showing:
- 85% (routine vector control)
- 15% (pesticide resistance testing)
State-Specific Results: Georgia

VECTOR CONTROL ORGANIZATION TYPE

- Local Health Department: 38%
- Mosquito Abatement District: 25%
- Public Works Department: 31%
- Environmental Health Services: 6%

COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS

- Fully Capable: 6%
- Competent: 6%
- Needs Improvement: 88%
- Cannot assess: 0%
State-Specific Results: Georgia

NUMBER OF CORE COMPETENCIES MISSING FOR GEORGIA’S “NEEDS IMPROVEMENT” ORGANIZATIONS

<table>
<thead>
<tr>
<th>No. of Missing Core Competencies</th>
<th>No. of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0%, 0 respondents</td>
</tr>
<tr>
<td>4</td>
<td>43%, 6 respondents</td>
</tr>
<tr>
<td>3</td>
<td>0%, 0 respondents</td>
</tr>
<tr>
<td>2</td>
<td>14%, 2 respondents</td>
</tr>
<tr>
<td>1</td>
<td>43%, 6 respondents</td>
</tr>
</tbody>
</table>

100% pesticide resistance testing
State-Specific Results: Hawaii

- Zero areas of improvement for Hawaii’s Vector Control Organization as is ranked “Fully Capable” with no missing competencies.
State-Specific Results: Louisiana

**VECTOR CONTROL ORGANIZATION TYPE**
- Parish Police Juries: 53%
- Mosquito Abatement District: 40%
- Public Works Department: 3%
- Environmental Health Services: 3%

**COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS**
- Fully Capable: 30%
- Competent: 43%
- Needs Improvement: 23%
- Cannot assess: 3%
State-Specific Results: Louisiana

NUMBER OF CORE COMPETENCIES MISSING FOR LOUISIANA’S “NEEDS IMPROVEMENT” ORGANIZATIONS

<table>
<thead>
<tr>
<th>No. of Missing Core Competencies</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>31%, 4 respondents</td>
<td>31%</td>
</tr>
<tr>
<td>2</td>
<td>8%, 1 respondent</td>
<td>8%</td>
</tr>
<tr>
<td>3</td>
<td>8%, 1 respondent</td>
<td>8%</td>
</tr>
<tr>
<td>4</td>
<td>0%, 0 respondents</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>54%, 7 respondents</td>
<td>54%</td>
</tr>
</tbody>
</table>
State-Specific Results: Mississippi

**VECTOR CONTROL ORGANIZATION TYPE**
- Local Health Department: 67%
- Mosquito Abatement District: 17%
- Public Works Department: 17%

**COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS**
- Fully Capable: 83%
- Competent: 17%
- Needs Improvement: 0%
- Cannot assess: 0%
State-Specific Results: Mississippi

NUMBER OF CORE COMPETENCIES MISSING FOR MISSISSIPPI'S “NEEDS IMPROVEMENT” ORGANIZATIONS

<table>
<thead>
<tr>
<th>No. of Missing Core Competencies</th>
<th>No. of Respondents</th>
<th>Percentage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>0% 0 respondents</td>
<td>0%</td>
<td>0 respondents</td>
</tr>
<tr>
<td>4</td>
<td>20%, 1 respondent</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0% 0 respondents</td>
<td>0%</td>
<td>0 respondents</td>
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<tr>
<td>2</td>
<td>20%, 1 respondent</td>
<td>20%</td>
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</tr>
<tr>
<td>1</td>
<td>20%, 1 respondent</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60%, 3 respondents</td>
<td>60%</td>
<td></td>
</tr>
</tbody>
</table>

Pie chart: Pesticide resistance testing: 100%
State-Specific Results: Texas

VECTOR CONTROL ORGANIZATION TYPE

- Local Health Department: 36%
- Mosquito Abatement District: 32%
- Public Works Department: 18%
- Environmental Health Services: 14%

COMPETENCY RANKING OF ASSESSED VECTOR CONTROL ORGANIZATIONS

- Fully Capable: 73%
- Competent: 14%
- Needs Improvement: 14%
State-Specific Results: Texas

NUMBER OF CORE COMPETENCIES MISSING FOR TEXAS’ “NEEDS IMPROVEMENT” ORGANIZATIONS

- 63%, 10 respondents (6%)
- 31%, 5 respondents (10%)
- 0%, 0 respondents (90%)

Pie chart showing:
- 10% routine vector control
- 90% pesticide resistance testing
State-Specific Competency Ranking: Fully Capable

<table>
<thead>
<tr>
<th></th>
<th>AL</th>
<th>AZ</th>
<th>CA</th>
<th>LA County</th>
<th>FL</th>
<th>GA</th>
<th>HI</th>
<th>LA</th>
<th>MS</th>
<th>TX</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Fully Capable</td>
<td>0%</td>
<td>0%</td>
<td>34%</td>
<td>29%</td>
<td>26%</td>
<td>6%</td>
<td>100%</td>
<td>30%</td>
<td>0%</td>
<td>14%</td>
<td>21%</td>
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<tr>
<td>No. Fully Capable</td>
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<td>15</td>
<td>2</td>
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<td>1</td>
<td>9</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Respondents</td>
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<td>11</td>
<td>44</td>
<td>7</td>
<td>39</td>
<td>16</td>
<td>1</td>
<td>30</td>
<td>6</td>
<td>22</td>
<td>190</td>
</tr>
</tbody>
</table>
State-Specific Competency Ranking: Competent

<table>
<thead>
<tr>
<th>State</th>
<th>Percent Competent</th>
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<th>Respondents</th>
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<td>AL</td>
<td>5%</td>
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</tr>
<tr>
<td>AZ</td>
<td>9%</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CA</td>
<td>2%</td>
<td>1</td>
<td>44</td>
</tr>
<tr>
<td>LA County</td>
<td>0%</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>FL</td>
<td>10%</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>GA</td>
<td>0%</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>HI</td>
<td>0%</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>LA</td>
<td>23%</td>
<td>7</td>
<td>30</td>
</tr>
<tr>
<td>MS</td>
<td>0%</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>TX</td>
<td>14%</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>Overall</td>
<td>9%</td>
<td>17</td>
<td>190</td>
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</table>
State-Specific Competency Ranking: Needs Improvement

<table>
<thead>
<tr>
<th>State</th>
<th>Percent Needs Improvement</th>
<th>No. Needs Improvement</th>
<th>Respondents</th>
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<td>AZ</td>
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<td>64%</td>
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<td>LA County</td>
<td>71%</td>
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</tr>
<tr>
<td>FL</td>
<td>64%</td>
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<tr>
<td>GA</td>
<td>88%</td>
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<td>16</td>
</tr>
<tr>
<td>HI</td>
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<td>1</td>
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<tr>
<td>LA</td>
<td>43%</td>
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<tr>
<td>MS</td>
<td>83%</td>
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<td>6</td>
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<tr>
<td>TX</td>
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<td>22</td>
</tr>
<tr>
<td>Overall</td>
<td>68%</td>
<td>129</td>
<td>190</td>
</tr>
</tbody>
</table>
State-Specific Findings

• The majority of vector control programs within jurisdictions were mosquito abatement districts followed by local health departments.
• The core competency not performed by most jurisdictions was pesticide resistance testing.
• The majority of the jurisdictions are in need of improvement for vector control.
• Less than 25% of jurisdictions were ranked as competent.
• With the exception of Hawaii, fully capable jurisdictions only ranged from 0–34%.
Challenges, Needs & Gaps

• Vector control programs are structured and operated differently in each jurisdiction.
• Gaps due to vector control funding were not assessed.
• Not all vector programs responded to the assessment.
• Further data collection is needed and should include analysis of additional jurisdictions.
• It is important to obtain a complete baseline understanding of mosquito surveillance and control activities in the United States.
Importance and Relevance

• Quick availability of data and rapid assessment.

• The point-in-time information in the report was helpful to Zika Incident Management.
  • Identified immediate needs in the vector control community.
  • Updated database for communication and information sharing.
  • Hosted a national call with local vector control and national partners to address lessons learned and an in-progress review of Zika response efforts.

• This assessment is one of several information sources used throughout the Zika response to inform planning and technical assistance needs related to vector control.
Limitations

• The assessment was not designed to be a scientific survey/study and, therefore, information obtained is not generalizable.

• The response rate of 54% may not be adequate to provide a comprehensive assessment of the total capability and capacity of state and local jurisdictions.

• The sample of respondents may likely NOT be representative of the true population of vector control authorities.
Acknowledgments

• The members of NACCHO’s Zika Response and Preparedness Team for their tireless work on this project:
  • Dr. Oscar Alleyne, Jennifer Li, Laura Biesiadecki, Nathalie Robin, Tahlia Gousse, Katie Dwyer, Michelle Nichols, and Dr. Chelsea Gridley-Smith.

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References

