Maternal and Child Health Epidemiology and Emergency Preparedness and Response

Capacity Assessment and Key Informant Interview Analysis Report
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Acknowledgments

The Council of State and Territorial Epidemiologists (CSTE) completed this assessment in cooperation with the state and territorial health departments. Thank you to all the public health professionals who responded to this assessment and those who participated in key informant interviews. This participation required your valuable time, as well as coordination and collaboration across practice areas. We are grateful for your thoughtful and knowledgeable insights.

CSTE would also like to thank the members of the CSTE Maternal and Child Health Epidemiology Emergency Preparedness Capacity Assessment Workgroup for their contributions in developing, reviewing, and testing the assessment, key informant interview guide, and this report. CSTE worked collaboratively with the U.S. Centers for Disease Control and Prevention (CDC), Division of Reproductive Health, Field Support Branch, Emergency Preparedness and Response Team to form this committee and complete this work. For more than seven decades, CSTE and CDC have worked together to improve the public’s health by supporting efforts of epidemiologists working at the state, territorial, and local levels by promoting the effective use of epidemiologic data to guide public health practice and improve health. CSTE and its members represent two critical components of public health – epidemiology and surveillance.

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Abbreviations

AMCHP: Association of Maternal and Child Health Programs
ASTHO: Association of State and Territorial Health Officials
BRFSS: Behavioral Risk Factor Surveillance System
CASPER: Community Assessment for Public Health Emergency Response
CDC: U.S. Centers for Disease Control and Prevention
CYSHCN: Children and Youth with Special Healthcare Needs
CSTE: Council of State and Territorial Epidemiologists
ECA: Epidemiology Capacity Assessment
EMS: Emergency Medical Services
EPR: Emergency Preparedness Response
FEMA: Federal Emergency Management Agency
GIS: Geographic Information System
ICS: Incident Command System
IT: Information Technology
MCH: Maternal and Child Health
MCHE(s): Maternal and Child Health Epidemiologist(s)
NIMS: National Incident Management System
PHEP: Public Health Emergency Preparedness
PRAMS: Pregnancy Risk Assessment and Monitoring System
RHAD: Reproductive Health Assessment after Disaster Toolkit
SNAP: Supplemental Nutrition Assistance Program
WRA: Women of Reproductive Age
YRBS: Youth Risk Behavior Surveillance System
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The Council of State and Territorial Epidemiologists (CSTE) is a professional organization that works to advance public health policy and epidemiologic capacity. CSTE periodically collects data from United States and its territorial epidemiologists through various assessment projects to learn more about ongoing work and challenges faced by emerging public health issues. Since 2001, the CSTE Epidemiology Capacity Assessment (ECA) has served a wide range of stakeholders who use the data for program planning, improving public health practice, and understanding workforce training needs. The CSTE Maternal and Child Health (MCH) Epidemiology Emergency Preparedness Capacity Assessment was developed through the help of a workgroup and with input from the Centers for Disease Control and Prevention (CDC).

Background

Natural and human-caused disasters and infectious disease outbreaks have potential to affect access to medical services and health outcomes among women of reproductive age (WRA), especially pregnant and postpartum women, and infants (under one year of age). This is a vulnerable segment of the population with unique needs in disaster settings. This assessment focused on understanding the current state of MCH emergency preparedness and response within state and territorial public health departments. This project was an opportunity to expand on existing assessments and develop new content, with a focus on overall capacity for MCH preparedness and response at an organizational and individual level.

Objectives

The assessment covered four objectives:
1. Understand the basic structural context of the MCH program at the state or territorial health department;
2. Identify the organizational capacity of state and territorial health departments to address the needs of women of reproductive age (WRA), especially pregnant and postpartum women, and infants during public health emergencies;
3. Identify capacity and needs of maternal and child health epidemiologists (MCHEs) in state and territorial health departments to address the needs of women of reproductive age and infants during public health emergencies; and
4. Identify potential enablers and barriers within the public health agency that enable or inhibit collaboration for preparedness and response activities among MCHEs, public health emergency preparedness coordinators, and others.

Methods

The data collection was covered in two parts: an online assessment and key informant interviews. The online assessment was sent to the lead MCH epidemiologist in 54 jurisdictions (50 U.S. states, District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands); a total of 34 completed responses were received (response rate of 63%). Key informant interviews were conducted with state health department staff in six jurisdictions (selected based on geography, type of potential emergency event, and recent public health emergencies) to provide more in-depth information on potential enablers and barriers. The assessment and interview process, itself, increased collaboration between MCH and Public Health Emergency Preparedness (PHEP) program staff in many jurisdictions. Most of the assessments and each of the key informant interviews included feedback from staff in both MCH and PHEP practice areas.
Results

MCH epidemiologists have knowledge, access to data, and relationships with stakeholders that are vital during a public health emergency, which may be less familiar to PHEP staff. Engaged and prepared MCH staff and programs can support and advocate for WRA, a priority population (especially pregnant/postpartum women and infants). However, insufficient planning on how to incorporate MCHEs into a response or on addressing the needs of WRA and infants was found to be commonly reported by individuals completing the assessment. Even when resources were identified, they had not frequently been tested during preparedness exercises or public health emergency activations.

Recommendations

Individuals completing the assessment identified opportunities to address the most common barriers to comprehensive MCH preparedness:

For State and Territorial Health Departments

- Increase collaboration between MCH and PHEP practice areas, through leadership or designating a staff liaison.
- Invite MCHEs to participate in emergency preparedness and response planning to outline roles and expectations before a public health emergency activation.
- Prepare MCHEs to respond through training and essential personnel designations.

For National Partners

- Compile best practices from state and territorial partners.
- Develop and provide additional training to meet the needs of specific MCH populations during public health emergencies.
- Support specific MCH preparedness funding with required MCH-PHEP collaborative activities.
Background

The United States has averaged over 60 major federally-declared disasters annually in the past 10 years. A Major Disaster Declaration is generally requested when a disaster exceeds the response capabilities of the state and local governments, and supplemental federal assistance for individuals and public infrastructure is necessary. These disasters affect access to medical services and health outcomes among women of reproductive age (WRA, ages 15-44 years), especially pregnant and postpartum women, and infants (aged <1 year). Pregnant and postpartum women and infants are classified as a population that may be at-risk of adverse health outcomes related to emerging public health threats in the Pandemic and All-Hazards Preparedness and Advancing Innovation Act of 2019. Because of the broad range of possible injuries and impacts (e.g., direct injury, interruption of prenatal care, environmental exposures, stress and impacts on mental health), Maternal and Child Health (MCH) emergency preparedness planning and response encompasses more than merely a capacity for epidemiology.

In 2019, CSTE and the U.S. Centers for Disease Control and Prevention (CDC) created the MCH Epidemiology Emergency Preparedness Capacity Assessment Workgroup with the purpose of creating a national Epidemiology Capacity Assessment (ECA) module focused on incorporating the emergency preparedness and response needs of WRA, pregnant and postpartum women, and infants in the United States. The workgroup included a mix of state and local epidemiologists as well as members from the CDC Division of Reproductive Health’s Emergency Preparedness and Response team. The project was an opportunity to expand on existing but separate MCH and EPR assessments and to develop new content, with a focus on overall capacity for MCH preparedness and response at an organizational and individual level.

Objectives

The assessment covered four objectives:

1. Understand the basic structural context of the MCH program at the state or territorial health department;
2. Identify the organizational capacity of state and territorial health departments to address the needs of women of reproductive age (WRA), especially pregnant and postpartum women, and infants during public health emergencies;
3. Identify capacity and needs of maternal child health epidemiologists (MCHEs) in state and territorial health departments to address the needs of women of reproductive age and infants during public health emergencies; and
4. Identify potential enablers and barriers within the public health agency that enable or inhibit collaboration for preparedness and response activities among MCHEs, public health emergency preparedness coordinators, and others.
The workgroup developed the Maternal Health Emergency Preparedness and Response Epidemiology Capacity Assessment to gather information on collaborations between MCHEs, Public Health Emergency Preparedness (PHEP), and other agencies and partners. The capacity assessment also sought to identify knowledge gaps and training needs in MCH emergency preparedness and response. Finally, the capacity assessment sought to assess the utility of current data systems for MCH emergency preparedness and response and to identify contingency plans for other necessary programs and data systems.

This project integrated qualitative and quantitative data collection approaches to provide insights on the current state of MCH emergency preparedness and response within state and territorial public health departments. For this assessment, the specific population of interest was WRA, especially pregnant and postpartum women and infants.

Definitions

Citing John M. Last, the 2017 CSTE Epidemiological Capacity Assessment Report defines an epidemiologist as “an investigator who studies the occurrence of disease or other health related conditions or events in defined populations.” A Maternal and Child Health Epidemiologist (MCHE) is, therefore, a person who analyzes and interprets data related to MCH outcomes and risk factors and risk markers for these outcomes.

For the purposes of this assessment, MCHEs are classified as persons who:

- Work at least 50% (2.5 days per week) of their time doing MCH epidemiologic work, and
- Work in the health department, even if they receive their paycheck from another organization (e.g., an academic institution).

MCHEs may assist programs in identifying and interpreting performance measures, developing logic models, conducting and interpreting needs assessments and evaluations, conducting surveillance and screening activities (e.g., newborn hearing and metabolic disorder screening and birth defects, Pregnancy Risk Assessment and Monitoring System (PRAMS), childhood lead screening, immunizations, reproductive cancer surveillance), and assisting with processes related to the maternal mortality review. State MCHEs also typically contribute to activities related to the Title V Block Grant. This definition aligns with the prior MCH ECA modules.

A Public Health Emergency can include an infectious disease outbreak, natural disaster, human-caused disaster, or other event or incident that requires a jurisdictional response to protect the public’s health or to recover from mass injury, loss of life, or widespread property damage.

Assessment Development and Administration

The Maternal Health Emergency Preparedness and Response Epidemiology Capacity Assessment was developed and fielded from March to December of 2019. Members of the MCH Epidemiology Emergency Preparedness Capacity Assessment Workgroup developed a Qualtrics™-based instrument, which was field tested in four jurisdictions and reviewed by an additional three in August 2019.

CSTE initially fielded the final version of the assessment (Appendix 1) September 16, 2019 to October 16, 2019, 19 business days. CSTE sent unique, individual assessment links via email from Qualtrics™ to the lead MCHE contact in the 50 States, the District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands. Additionally, a mass email was sent
directly from CSTE to all lead MCHE contacts announcing the assessment and requesting them to contact CSTE if their unique link did not arrive. CSTE sent 3 reminder emails to non-respondents during the initial field period.

The capacity assessment instructions indicated that the lead MCHE should fill out the assessment in collaboration with staff and managers in Title V Programs, Public Health Emergency Preparedness (PHEP), communicable disease, and/or other practice areas with public health emergency response functions. Participants were informed that the data collected would be used to inform public health practice and that all response data would be provided in aggregate form. Upon request, CSTE provided the jurisdiction with a copy of their individual submission and informed all jurisdictions that the summary report would be made available online in 2020.

During the initial outreach, CSTE confirmed or updated contact information for 52 of 54 jurisdictions. This process included outreach to the state epidemiologist, CSTE subcommittee members, and assistance from CDC. Updating contact information for multiple jurisdictions delayed data collection for multiple sites as well as sites that indicated an inability to meet the target assessment deadline. The initial assessment rate was below 50%, and at the request of CDC Division of Reproductive Health’s Emergency Preparedness and Response team, CSTE continued to pursue completion of the capacity assessment by non-respondents between October and December 2019.

Assessment Analysis

The CSTE consultants used SAS v9.4 (SAS Institute; Cary, NC) for statistical analysis of the online assessment’s quantitative questions. Categorical variables were summarized by calculating frequencies and percentages, and numeric variables were summarized using means, medians, standard deviations (SD), and ranges.

Respondents that completed less than 50% of the assessment were removed from the analysis. Unless noted otherwise, data points in the body of this text reflect the proportion of respondents who answered that specific question, as some data were missing due to unanswered assessment entries. On average, these jurisdictions completed the contact information and a portion of the initial assessment questions.

External data from the U.S. Census Bureau6 and the Federal Emergency Management Agency (FEMA)7 were used to assess differences between jurisdictions that did and did not complete the assessment on characteristics such as population size, geographic area, and number of federal disaster declarations from 2013 to 2018.

Key Informant Interview Development and Administration

CSTE consultants conducted key informant interviews with state health department staff in up to six jurisdictions. A list of potential participants was created with input from workgroup members, stakeholders, and based on prior CSTE collaborations. State and territorial jurisdictions were sorted and categorized by their regional geographies, type of potential emergency event, and their previous experience with a variety of recent public health emergencies (bioterrorism, hurricanes, tornados, extreme cold, extreme heat, and extreme precipitation/flooding). CSTE reached out to six initial jurisdictions (one per category of recent public health emergency) and invited them to participate. When a selected jurisdiction declined, an additional jurisdiction in that category was contacted until the invitation was accepted.

The purpose was to obtain in-depth contextual information not otherwise captured through the online assessment on collaborations between MCHEs and PHEP and other agencies and partners, as well as to determine enablers and barriers to successful MCH public health emergency preparedness and response. The invitation was extended to the MCHE contact. At minimum, we sought to interview the MCHE about their MCH preparedness experience. However, it was strongly encouraged, but not required, that additional interested parties, including PHEP staff and managers in either PHEP or MCH, participate in a group interview as they were willing and able.
Topics covered in the qualitative interviews included: (1) potential enablers and barriers; (2) the organizational capacity of jurisdictions during public health emergencies; and (3) the capacity and needs of MCHEs during public health emergencies (Appendix 2). Participating jurisdictions received an introductory email explaining the purpose of these interviews and received information regarding the overall assessment, so it was unnecessary to spend interview time describing the structure of MCH programs.

Structured in-depth interviews were conducted during October 2019. Each lasted, on average, 45 minutes. The interviews were recorded with permission of the persons participating.

Key Informant Interview Analysis

Detailed notes were made of the content at the time of the interviews, the recordings were reviewed, and selected quotes were transcribed. Major themes were identified and described. Case examples were de-identified and used to highlight implications for practice and to develop recommendations.
Assessment

Response Rate

A total of 34 completed responses were received from the 54 jurisdictions contacted (response rate of 63.0%). All 34 respondents were states; no territories responded during the assessment period. As previously mentioned, two jurisdictions were lost to follow-up as no primary MCHE contact was provided to CSTE during the assessment period. However, as a result of this assessment, CSTE was able to establish new contacts with nine states and one territory.

Among responding jurisdictions, all assessments but three (91.2%) were completed by the lead MCHE contact at the agency, with the three jurisdictions reporting no formal MCHE lead. The majority of respondents (76.5%) indicated that other department staff contributed to the assessment, with the majority of these being other MCH or PHEP staff members.

Among all states invited to participate, the analysis in the tables below compares the responding jurisdictions to those who did not respond within each category. This analysis was provided to ensure representativeness of the data across the following variables: location, population size, and occurrence of declarations for federal emergency assistance.

Assessing first by region (Table 1.1), there was a higher percentage of responders in all regions with the Northeast having the highest (77.8%).

<table>
<thead>
<tr>
<th>Region</th>
<th>Responders</th>
<th>Non - Responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest (N=12)</td>
<td>7</td>
<td>5     3</td>
</tr>
<tr>
<td>Northeast (N=9)</td>
<td>7</td>
<td>2     22.2%</td>
</tr>
<tr>
<td>South (N=16)</td>
<td>10</td>
<td>6     37.5%</td>
</tr>
<tr>
<td>West (N=13)</td>
<td>10</td>
<td>3     23.1%</td>
</tr>
</tbody>
</table>

Results
To take a closer look at respondents, Table 1.2 represents a more detailed look when the regions are separated into smaller divisions. While there is representation from all divisions, the East South Central and West North Central had less than 50% response rates.

Table 1.2  Analysis by US Census Region of responding state jurisdictions compared to non-responding state jurisdictions

<table>
<thead>
<tr>
<th>Division</th>
<th>Responders</th>
<th>Non-Responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>East North Central (N=5)</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>East South Central (N=4)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Middle Atlantic (N=3)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mountain (N=8)</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>New England (N=6)</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Pacific (N=5)</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>South Atlantic (N=8)</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>West North Central (N=7)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>West South Central (N=4)</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 2  U.S. Census Divisions used for comparison of responding state jurisdictions compared to non-responding state jurisdictions.

When looking by population size, states with the largest population had the highest percentage of responders. All categories reached the 50% response threshold with small population states having the lowest percentage. Lastly, states with rare (five or less) or very frequent (12 or more) declaration for federal emergency assistance had the highest percentage of responders by category. States with occasional FEMA declarations (six to eight), did not reach the 50% response rate threshold.

Structure of MCH Program

Objective 1: Understand the basic structural context of the MCH program at the state or territorial health department.
Many respondents (44.1%) reported that their MCHEs were predominantly located within an MCH program unit, i.e., Title V programs. The remaining responses were divided among other structures including having MCHEs embedded within MCH-related programs or other epidemiology units and not located together (14.7%), within a larger epidemiology or health statistics unit (23.5%), or in some other organizational arrangement within the health department (17.7%, e.g., Surveillance & Evaluation, Immunization & Lead).

More than half (52.4%) of MCHE funding comes from federal Title V funds (median: 56.0%, range: 0-100%), followed by non-Title V federal funds (mean: 31.4%, median: 27.5%, range: 0-90%), state or territorial (mean: 15.8%, median: 9.0%, range: 0-100%), or other (mean: 0.5%, median: 0%, range: 0-7%). No jurisdiction reported receiving any local funding support for MCHE programs. Over the past 12 months, many (41.2%) reported that federal or other grant funding had remained the same, while 44.1% reported an increase in funding. Similarly, most respondents indicated that state funding remained the same (73.53%) or increased (14.7%), and staffing for MCHE programs, functions, or activities had remained the same (38.2%) or increased (47.1%).

“Essential personnel” are required to report to work during an emergency. MCHEs are not classified as essential personnel in the majority (54.2%) of jurisdictions. Two jurisdictions reported that all MCHEs were classified as essential personnel, and one reported that only managers were classified as such.

Organizational Capacity of Jurisdiction During Public Health Emergencies

Objective 2: Identify the organizational capacity of state and territorial health departments to address the needs of women of reproductive age, especially pregnant and postpartum women, and infants during public health emergencies.

Table 2 identifies the availability and application of organizational assets during preparedness exercises or during emergency activations or responses in jurisdictions. These are sorted in order of decreasing frequency of availability.

The most commonly available assets included data systems for providing up-to-date demographic information for WRA and infants at the jurisdictional level (e.g., sex, pregnancy status, race, and age); defined health indicators for disaster-affected WRA and infants within existing health information systems.
systems (e.g., PRAMS and Behavioral Risk Factor Surveillance System [BRFSS]); and data sharing agreements, memorandums of understanding, or other documents that support the collection of data for preparedness and response activities related to WRA and infants during public health emergencies. About half of respondents also reported having data collection tools or rapid needs assessments that included questions related to the health of WRA and infants for use at the onset of a public health emergency (e.g., Reproductive Health Assessment after Disaster Toolkit [currently under revision] or Community Assessment for Public Health Emergency Response [CASPER] questionnaires) and 42.4% had lists of stakeholders involved in public health preparedness and response activities related to reproductive health in the jurisdiction. However, the frequency that states reported having tested these available assets (among those with the assets available) during exercises, activations, and/or responses ranged from 71.4% for lists of stakeholders to only 36.4% for health indicators.

Next, jurisdictions were asked about MCHE access to necessary data and information technology (IT) infrastructure. All respondents indicated that MCHEs have access to adequate IT infrastructure and services during normal operation. However, 34.4% reported that MCHEs would face unique challenges in conducting surveillance, accessing and collecting data, or responding to the needs of WRA and infants specifically during an emergency. Such challenges included access to generators, issues with communication between necessary partners, lack of training or planning related to MCHEs, and limited-to-no IT system or data access.

Most jurisdictions reported having access to software packages needed by MCHEs. The most common packages available (reported by two-thirds or more of respondents) included SAS, geographic information system (GIS) software, SUDAAN, and data encryption software. Few jurisdictions reported needing additional access to software packages for MCHEs, but the most common software need reported was access to Tableau (25.0%).

Most jurisdictions also reported having timely and unfettered access to many commonly used/needed MCH-related state datasets, including national surveys such as PRAMS (87.9%), BRFSS (66.7%), and Youth Risk Behavioral Surveillance System (YRBSS) (66.7%); birth and death certificate, fetal death, and linked birth-infant death datasets (69.7%); hospital discharge (57.6%) and emergency department (48.5%) data; and other MCH-specific datasets such as birth defects (60.6%), newborn screening (54.5%), family planning (51.5%), and abortion (45.5%) data. The majority of these were reported to be

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Availability and application of organizational assets during preparedness exercises or during emergency activations or responses among 33 states; “Asset Tested, if Available” denotes whether or not the jurisdiction has been used within an exercise, activation/response, or both (Assessment Questions 10-19, Pages 42-51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Asset</td>
<td>Available (N=33)</td>
</tr>
<tr>
<td>Data systems</td>
<td>24</td>
</tr>
<tr>
<td>Health indicators</td>
<td>22</td>
</tr>
<tr>
<td>Data sharing agreements</td>
<td>19</td>
</tr>
<tr>
<td>Data tools/rapid assessments</td>
<td>16</td>
</tr>
<tr>
<td>List of stakeholders</td>
<td>14</td>
</tr>
<tr>
<td>Legislation or policies</td>
<td>13</td>
</tr>
<tr>
<td>Health-sector response plans</td>
<td>8</td>
</tr>
<tr>
<td>Other response plans</td>
<td>8</td>
</tr>
<tr>
<td>Plans for staff MCH needs</td>
<td>6</td>
</tr>
<tr>
<td>Vulnerability assessments</td>
<td>6</td>
</tr>
</tbody>
</table>
available within one calendar year, for those with access. Datasets that were not commonly available to MCHEs included urgent care (6.0%), prescription drug monitoring (12.1%), Supplemental Nutrition Assistance Program (SNAP) (15.2%), Emergency Medical Services (15.2%), and immunization (21.2%) data.

**Capacity and Needs of MCHEs During Public Health Emergencies**

**Objective 3:** Identify capacity and needs of maternal child health epidemiologists (MCHEs) in state and territorial health departments to address the needs of women of reproductive age and infants during public health emergencies.

Table 3 describes the percent of MCHEs within the health department with at least basic knowledge of specific tools or resources or with at least basic experience or training in specific areas, in order from the most to least knowledge or training.

The only three common areas of knowledge for MCHEs across jurisdictions were knowledge of existing data systems for up-to-date demographic information (59.4%), health indicators for disaster-affected WRA and infants (53.1%), and introductory training in Incident Command System (ICS) and National Incident Management System (NIMS) (50.0%). In general, jurisdictions reported that few to no (<24%) MCHEs had knowledge or training in the following: needs of WRA and infants during public health emergencies; MCH epidemiologists’ roles in jurisdictional emergency response plans; tools that can be immediately deployed for up-to-date sexual and reproductive health-related information; rapid needs assessment tools; jurisdictional emergency response plans; experience in addressing the data needs specific to WRA and infants during disasters; intermediate or advanced ICS and NIMS training; and emergency registries, rosters, or other survey instruments used to list individuals affected by an emergency or disaster and to collect information needed for follow-up.

<table>
<thead>
<tr>
<th>Knowledge/Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most/Some</strong> (25-100%)</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Health indicators for disaster-affected WRA/infants</td>
</tr>
<tr>
<td>Existing data systems for up-to-date demographic information</td>
</tr>
<tr>
<td>Introductory ICS and NIMS training</td>
</tr>
<tr>
<td>Emergency registries, rosters, other survey instruments</td>
</tr>
<tr>
<td>Jurisdictional emergency response plans</td>
</tr>
<tr>
<td>Experience in addressing the data needs specific to WRA/infants in disasters</td>
</tr>
<tr>
<td>Intermediate or advanced ICS and NIMS training</td>
</tr>
<tr>
<td>Tools for up-to-date sexual and reproductive health information</td>
</tr>
<tr>
<td>Rapid needs assessment tools</td>
</tr>
<tr>
<td>MCHEs’ roles in response plans</td>
</tr>
<tr>
<td>Training in the needs of WRA/infants in emergencies</td>
</tr>
</tbody>
</table>
Potential Enablers and Barriers

Objective 4: Identify potential enablers and barriers within the public health agency that enable or inhibit collaboration for preparedness and response activities among MCHEs, public health emergency preparedness coordinators, and others.

The majority of jurisdictions reported that MCHEs were involved in routine surveillance for specific emerging conditions important for WRA and infants, including Zika virus (72.7%) and opioids (66.7%), with fewer reporting involvement in routine surveillance for measles (15.2%), influenza (2.9%), and 2009 H1N1 (2.9%).

Next, jurisdictions were asked about the participation of MCHEs in preparedness exercises, emergency responses, and recovery processes over the past two years. Types of events included tabletop exercises (i.e., facilitated discussion intended to simulate an emergency scenario to identify strengths and weaknesses in a potential response), functional exercises (i.e., activity designed to test capabilities and functions during a simulated emergency), full-scale exercises (i.e., complex activity involving multiple agencies and carried out in real-time), emergency responses or activations, and post-emergency recovery operations. Table 4 highlights MCHE participation by type of event and is ordered by the emergency preparedness and response cycle. MCHEs were infrequently involved in all of the event types assessed. The most frequent event was emergency responses or activations (39.4%).

Events that included MCHE involvement were further broken down by the topic or focus of the most recent event. Across all types of events, infectious disease outbreaks or mass vaccination incidents were the most common topic reported (6 tabletop exercises, 3 functional exercises, 2 full-scale exercises, 7 responses/activations, and 1 post-recovery activity). Planned events or mass gatherings, such as large sporting events, conventions, or concerts, were the next most common topic reported (1 tabletop exercise, 1 functional exercise, and 1 response/activation). There was one functional exercise reported that focused on a man-made event (e.g., chemical release, terrorism, mass shooting), one response/activation related to the opioid epidemic, two functional exercises related to natural or environmental disasters (e.g., hurricane, flood, wildland fire), and two responses/activations related to a flavored vaping ban.

MCHEs typically reported serving as subject matter experts (16 events) or providing data before or during these events (17 events). In five events, MCHEs staffed an incident command section. In four events, MCHEs reported serving other roles during events (e.g., providing injections to hospitals, data entry, phone response, technical support). MCHEs served as command or general staff (e.g., safety officer, operations section chief, planning section chief) in only two events – a tabletop exercise and an emergency response, and served as incident commander in none of the events reported. For all reported events, the jurisdiction’s health department served as the lead agency in 25 events, the CDC served as the lead agency in 4 events, and a local health department served as lead in 3 events.

Next, jurisdictions were asked about collaborations between MCHEs and other

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>Don't Know</th>
<th>%</th>
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<tbody>
<tr>
<td>Tabletop exercise</td>
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<td>24</td>
<td>72.7</td>
<td>2</td>
<td>6.1</td>
</tr>
<tr>
<td>Functional exercise</td>
<td>7</td>
<td>21.2</td>
<td>24</td>
<td>72.7</td>
<td>2</td>
<td>6.1</td>
</tr>
<tr>
<td>Full-scale exercise</td>
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<td>6.1</td>
<td>29</td>
<td>87.9</td>
<td>2</td>
<td>6.1</td>
</tr>
<tr>
<td>Emergency response/activation</td>
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<td>39.4</td>
<td>18</td>
<td>54.6</td>
<td>2</td>
<td>6.1</td>
</tr>
<tr>
<td>Post-emergency recovery</td>
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<td>9.4</td>
<td>27</td>
<td>84.4</td>
<td>2</td>
<td>6.3</td>
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units within the health department. The most common routine collaborations between MCHEs and other units included MCH/Title V programs (90.6%), Title V Directors (78.1%), Title V Children and Youth with Special Healthcare Needs (CYSHCN) (54.8%), and CYSHCN program staff (51.6%). Other collaborations were less routinely reported. For collaborations between MCHE and PHEP staff, 6.5% reported routine contact, 3.2% reported frequent contact, 29.0% reported occasional contact, 41.9% reported rare contact, and 19.6% reported never having contact. For collaborations external to the health department, the most common was routine contact with government organizations (83.9%) and non-governmental organizations (46.9%).

Finally, jurisdictions were asked to report enablers or barriers to MCH preparedness and response activities. Responses are summarized in Table 5.

The most commonly reported enabler was health department executive leadership mission and vision (55.9%). This was followed by the physical proximity between MCH and PHEP staff (47.1%), the relationship between MCH and PHEP leadership (44.1%), the relationship between MCH and PHEP staff (41.2%), and PHEP interest, engagement, and comfort with MCH topics (41.2%). The most common reported barriers or inhibitors including bureaucratic structure (44.1%) and requirements of MCH funding sources and grants (35.3%).

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Enablers and barriers to maternal child health preparedness and response among 34 states (Assessment Question 38, Pages 67-68)</th>
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<tbody>
<tr>
<td><strong>Category</strong></td>
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<td>Executive leadership mission and vision</td>
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<td>Relationship between MCH/ PHEP leadership</td>
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<td>Physical proximity between MCH and PHEP staff</td>
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<td>PHEP interest, engagement, and comfort with MCH topics</td>
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<td>Organizational culture</td>
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<tr>
<td>Requirements of PHEP funding sources and grants</td>
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<tr>
<td>MCHE interest, engagement, and comfort with emergency response operations</td>
<td>9</td>
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<tr>
<td>Over-time labor regulations and policies</td>
<td>9</td>
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<td>Past experience of MCH in responses</td>
<td>10</td>
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<tr>
<td>Bureaucratic structure</td>
<td>8</td>
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<tr>
<td>MCHE staff classifications</td>
<td>6</td>
</tr>
<tr>
<td>Requirements of MCH funding sources and grants</td>
<td>4</td>
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</tbody>
</table>
Key Informant Interviews

Response Rate

It was the goal of this project to complete up to six key informant interviews, and six were completed during October 2019. A total of twenty-seven jurisdictions were contacted (response rate of 22.2%). During the first round of invitations, three of 19 jurisdictions agreed to participate. An additional eight jurisdictions were contacted, and another three participated.

Summary of Participants

Group key informant interviews were conducted with state health department staff in six state health departments. MCHE, PHEP, and others with public health emergency response functions related to the target population were invited to participate. Between two and six individuals participated in each group interview. In all jurisdictions, at least one MCH and at least one PHEP staff member participated. Those interviewed included managers, planners, and epidemiologists. Areas of subject matter expertise included Title V, PRAMS, disease surveillance, health services provision, and community resilience.

Summary of MCH Preparedness Experience

All jurisdictions interviewed had a history of MCH-PHEP collaboration, often stemming from a specific event or response. For example, in one jurisdiction, a post-storm activation several years ago resulted in improved MCH preparedness, and the increased staff capacity and resources facilitated coordinated and successful responses to more recent public health emergencies. In addition to extreme weather events, MCH staff had participated in responses to 2009 Pandemic H1N1 influenza, 2016 Zika virus outbreak, measles, Neonatal Abstinence Syndrome (NAS), and the opioid epidemic. Building on these existing relationships, several participants noted that the assessment prompted more collaboration between MCH and PHEP and sparked additional conversations about ways to improve MCH preparedness capacity.

Potential Enablers and Barriers

Discussion of potential enablers and barriers was prioritized during the key informant interviews. When asked about what challenges currently exist in supporting WRA and infant health in public health emergency preparedness and response, some challenges were specific to the intersection between MCH and PHEP. Several participants mentioned that the prioritization of this target population can be difficult from a preparedness perspective because there are many vulnerable or at-risk populations. However, engaged and prepared MCH staff and programs can support and advocate for this priority population.

“In the emergency management community, MCH is not a thought at all. And even within public health emergency management, MCH falls within a list of about 30 other at-risk populations.”

“However, they [PHEP] do not know how much more they can do to support us. It is up to the MCH side to help them help our families.”

Another major issue was identified which can affect public health preparedness efforts more broadly. Adding new diseases and conditions to existing surveillance systems was a recurring technological challenge. Understanding these systems and designing them to be robust and flexible was important to participants. In some instances, an MCH case management system may provide more timely data than a traditional epidemiology surveillance system. Additionally, communicating the strengths and limitations of these systems (including technology and staff capacity) to leadership and partners was seen as critical.

“Setting fair expectations of what your surveillance can do is critical.”
“Each condition we add to the infrastructure already developed, it requires more technical development, even though the data is already, for the most part, in-house...If you under-emphasize the amount of effort it takes to do that well, then that leaves the overall infrastructure in a precarious position for the next emerging threat.”

Finally, all jurisdictions commented on staff and funding limitations generally. The consensus was that having stable, dedicated MCH preparedness funding was critical. Dedicated funding would support staff positions, training, and program activities. Having trained personnel available before the next event or incident was considered a best practice but difficult to achieve. Navigating bureaucratic processes, specifically human resources and hiring, within an agency was universally challenging. Several jurisdictions commented that in circumstances when they have been awarded time-limited supplemental funding, they struggled to recruit and hire staff. In some cases, there were not open staff positions that could be allocated for these new roles.

“View preparedness as a marathon in the context of many other current marathons, rather than a sprint.”

State public health agencies can benefit from identifying manageable projects that both MCH and PHEP see as valuable. These efforts can improve collaborations and awareness and provide an opportunity for learning and training which is directly applicable to their other efforts.

“Barriers

Some identified barriers were specific to the MCH preparedness context.
- There were often competing priorities within both PHEP and MCH programs.
- PHEP staff worked more regularly with other sections (e.g., environmental, occupational, communicable disease), so without a liaison, MCH was overlooked.

National organizations (including AMCHP, ASTHO, and NACCHO) can support state and territorial MCH preparedness efforts by providing training and conferences specific to this intersection and needs to specific MCH populations, collecting and sharing best practices from after-action reports, and leveraging expertise to create broad guidance on how MCH can become a model of preparedness activities.

“Each condition we add to the infrastructure already developed, it requires more technical development, even though the data is already, for the most part, in-house...If you under-emphasize the amount of effort it takes to do that well, then that leaves the overall infrastructure in a precarious position for the next emerging threat.”

The promotion of the value of MCH preparedness was considered a positive way to address the challenges identified by participants. This can be achieved at the jurisdictional level by dedicated staff, quality partnerships, and strategic organization. Best practices include regional coalitions with health departments and hospitals and having a coordinator or liaison between MCH and PHEP at the agency. These efforts would also be best supported by more, specific funding opportunities available to state public health agencies.

“View preparedness as a marathon in the context of many other current marathons, rather than a sprint.”

State public health agencies can benefit from identifying manageable projects that both MCH and PHEP see as valuable. These efforts can improve collaborations and awareness and provide an opportunity for learning and training which is directly applicable to their other efforts.

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National organizations (including AMCHP, ASTHO, and NACCHO) can support state and territorial MCH preparedness efforts by providing training and conferences specific to this intersection and needs to specific MCH populations, collecting and sharing best practices from after-action reports, and leveraging expertise to create broad guidance on how MCH can become a model of preparedness activities.
Specific response plans did not include provisions for MCH populations.

There was a limited focus on after-action reports or evaluation for developing best practices and improving future responses due to resource constraints and agency culture.

Other identified barriers are applicable to MCH preparedness and may also be applicable across other areas of public health practice.

- Human resources limited program capacity (i.e., hiring/on-boarding, understaffing, burden on existing staff), especially during a response.
- IT infrastructure was a limitation (i.e., creating new surveillance systems, modifying existing surveillance systems, user-friendliness, lack of timely data, lack of coordination across data systems).
- There were often restrictions placed on funding opportunities that emphasize or deemphasize certain types of work, and funding was not always stable (i.e., it is limited or event-specific).

**Enablers**

Participants identified enablers that helped promote MCH preparedness in their jurisdictions. These addressed both the specific and more general barriers above.

- Identifying a coordinator or liaison between MCH and PHEP at the agency was useful to champion the programs, projects, and needs of specific populations.
- Training, exercises, and experience during activations demonstrated the value of collaboration to both MCH and PHEP staff and leadership. This investment was critical to subsequent collaborations because it built expertise and relationships.
- An established network of MCH stakeholders made communication with target populations easier during emergencies. This was a key resource that MCH brought to the table.
- MCH-specific expertise and data knowledge were always valuable. The ability to think creatively about how to use existing data sources to meet preparedness and response needs was important.
- MCH case management data systems were more useful during a public health emergency compared to standard epidemiologic surveillance systems because they are more timely. One jurisdiction highlighted how their MCH case management system was critical during a storm response. Case managers in affected counties were able to collect additional information in a preexisting exceptional event module. Another jurisdiction noted that their MCH client management system for public health nurses has been identified as an asset by PHEP, but that it does not yet have an emergency module.

**Organizational Capacity of Jurisdiction During Public Health Emergencies**

When asked about what resources or assets their organization has available during preparedness exercises or during public health emergencies to address the needs of WRA, especially pregnant and postpartum women, and infants, participants identified and highlighted several of the following resources, but no one jurisdiction discussed all of them.

- Known stakeholders and existing collaborative relationships inside and outside of the health department, including healthcare partners and coalitions interested in survey implementation
- PHEP access to MCHEs to serve as subject matter experts
- Plans and vulnerability assessments that include MCH populations
- Rapid needs assessment tools that are appropriate for MCH populations
- Routine tracking of available pediatric hospital beds
- Public health preparedness caches for general population sheltering that include specific supplies for MCH populations

**Capacity and Needs of MCHEs During Public Health Emergencies**

When asked to identify skills or expertise that MCHEs in their agency can contribute to a public health emergency response, exercise, or planning activity, participants identified some specific capacities.

- MCH surveillance expertise, including for the peri-conceptual period and outbreak/cluster investigations
- Direct access to data systems and sources, including vital statistics and birth records
- Programmatic knowledge
- Individual relationships and contacts with other programs, partners, and community members that are not directly cultivated or maintained by PHEP
- Basic preparedness training including ICS 100 for all staff and additional resources for team leads

When asked to identify gaps in capacity, participants reiterated that the barriers listed earlier affect MCH preparedness from both the department and staff perspective. Gaps identified were:
- Limited and basic preparedness training requirements
- Fixed staff capacity, limited ability to hire, and lack of dedicated staff to focus on MCH preparedness
- Inconsistent MCH involvement in PHEP planning activities
- Limited opportunities to practice or exercise preparedness skills
- Limited real-time data sources
- Limited capacity for active surveillance

Additional Areas for Consideration

Due to time constraints of the key informant interviews (i.e., participants who were unable to complete the interview in the time scheduled due to other commitments), there was not time to fully cover all questions in the interview guide during the 1-hour scheduled with each jurisdiction. The priority identified by the workgroup was to get more in-depth information on enablers and barriers in supporting maternal and infant health during public health emergency preparedness and response. The bulk of the interview time, therefore, covered these areas.

However, there was significant interest from national organizations on how to promote MCH preparedness. Two questions on this topic were included in the interview guide:
- Question 10: Do you have any ideas for how organizations such as ASTHO, NACCHO, CSTE, AMCHP, and other similar organizations could promote collaboration among MCH and PHEP in preparedness so as to facilitate smoother responses?
- Question 12: Do you have any additional thoughts or comments that would be helpful for CSTE to provide recommendations and best practices for improving MCH emergency preparedness and response activities nationally?

Question 10 was asked in five of six interviews, but in two cases the participants said they could not provide substantive suggestions or did not respond. In the others, the responses provided were not specific about national organizations. For example, respondents re-articulated needs for training generally, and mentioned widely available FEMA courses like ICS 100 as being a good start but not fully meeting their needs. They shared activities being done internally at their respective health departments, pivoting away from opportunities for national support. Question 12 was not answered in any of the six interviews due to time constraints.

National support is an area for further investigation. However, it may be incumbent upon national organizations to propose ways they could promote collaboration among MCH and PHEP in preparedness (i.e., provide a menu of options) or seek feedback in a collaborative format (i.e., round table brainstorm with multiple jurisdictions and national organization representatives present) rather than to ask key informant participants to generate suggestions when participants do not know the scope or type of resources that may be available from these national organizations.
Implications for Practice

Nearly all public health emergencies affect WRA and infants, either directly or indirectly. Effects can include increased susceptibility to diseases or conditions, reduced access to clean water or food, disruption of healthcare continuity, increased stress, and special sheltering needs. However, because WRA and infants live in families and communities, planning for these needs, in the context of larger social support systems, is prudent.

For example, one key informant participant noted that while the Zika response was focused significantly on messaging to WRA, specifically women who were pregnant or planning a pregnancy, the MCH interventions included targeted messaging to male partners of WRA, which is not a traditional MCH population. This example highlights the need for coordinated, but perhaps multi-channel messaging, to comprehensively address the needs of women and infants within their families and communities.

MCHEs have served as subject matter experts in preparedness exercises, emergency responses, and recovery processes because of the knowledge they bring to the table. Even in a response focused heavily on WRA, however, there is a need for coordination and collaboration across and beyond traditional public health populations.

Many individuals participating in this project noted that participation in either aspect of the assessment increased collaboration between MCH and PHEP staff and programs in their jurisdictions. Almost four in five MCHEs responding to the assessment indicated that other department staff contributed. All six of the key informant interviews were conducted with at least one MCH and one PHEP participant. While this is a success, it also demonstrates how siloed MCH and preparedness are in many departments of health (3 of 31 responding jurisdictions reported routine or frequent collaborations between MCH and PHEP staff). Respondents in jurisdictions with more robust relationships credited past experience, joint planning, and a liaison between sections for their effective collaboration. Many MCHEs also emphasized that they have excellent community connections and engaged stakeholders with whom they can facilitate preparedness and response activities. Finally, MCHEs have access to critical data and systems that need to be identified and made known to PHEP before an emergency.

Limitations

It was identified during the assessment planning process that MCH emergency preparedness and response capacity likely varied at baseline for participating jurisdictions. As such, information regarding these activities might not have been as available in areas with low levels of MCH epidemiology capacity as compared to areas with high levels of MCH epidemiology capacity. Additionally, jurisdictions with low capacity may have been less likely to participate in the assessment. It is important to note that no territories responded. Additionally, in order to quantify potential gaps, we assessed the differences between states that did and did not complete the assessment on characteristics such as population size, geographic area, and number of federal disaster declarations from 2013 to 2018 (see Table 1 in Response Rates section above). Geography and population size were noted as important differences between responders and non-responders for this assessment.

During project development, the workgroup originally intended to include a select group of larger local health departments, but before implementation, it was decided to limit the assessment and key informant interviews to
state and territorial health departments. The capacity and needs of local health departments might be significantly different than those of state and territorial health departments, but the scope of this project did not allow for full investigation of those differences. This is an opportunity for further study.

For this assessment, the specific population of interest was WRA, especially pregnant and post-partum women, and infants. The workgroup chose to limit the assessment, which was lengthy, to this group because their specific preparedness needs are less well understood than other MCH populations, such as older children. However, respondents from several jurisdictions commented that they do not plan for WRA and infants independently of other MCH populations, including children with special healthcare needs.

When the assessment launched, CSTE did not have current contact information for lead MCHEs in all jurisdictions. Attempts were made to obtain missing information and were successful in all but two cases. This incompleteness delayed the deployment of the assessment to some jurisdictions, resulting in at least one declined assessment due to the shortened assessment window. However, a success of this effort is that CSTE was able to establish new contacts with nine states and one territory. As of October 2019, CSTE had a nearly complete list of MCHE contacts for the 50 States, the District of Columbia, Guam, U.S. Virgin Islands, and Puerto Rico.

Due to the project timeline, key informant interviews were scheduled during the fielding of the assessment. Some jurisdictions did not have the capacity to participate in both. Two jurisdictions completed both the assessment and the key informant interview. Four jurisdictions completed the key informant interview only, but some had staff that were actively involved in the workgroup or participated in the piloting phase of the assessment.
State and Territorial Health Departments

Increase Collaboration

State and territorial health department executive leadership and MCH and PHEP leadership have an opportunity to prioritize a culture of preparedness and inter-department collaboration. Over half of jurisdictions (55.9%) reported that executive leadership mission and vision enabled MCH preparedness, as well as the physical proximity between MCH and PHEP staff (47.1%) and the relationship between MCH/PHEP leadership (44.1%). Yet, only 9.7% of respondents reported routine or frequent contact between MCHEs and PHEP staff (among 31 respondents). Over half of jurisdictions (61.3%) reported rare or no contact. There is significant room for increasing collaboration. Identifying a coordinator or liaison between MCH and PHEP to champion the programs, projects, and needs of specific populations is an additional option for increasing collaboration.

Participate in Emergency Preparedness and Response Planning

This goal of increasing collaboration could be accomplished by continuing to or beginning to include MCHEs as subject matter experts and data provisioners during preparedness exercises, emergency responses, and recovery processes. Additionally, there are opportunities to include MCHEs by inviting them to participate in incident command or emergency response teams, as command or general staff or in other roles, like data entry or technical support.

Respondents in jurisdictions with more robust MCH preparedness emphasized that successful participation begins during the planning process. PHEP activities include significant planning. Identifying how MCHEs can participate and including MCH populations in advance of an emergency is critical. Once a public health emergency response is in progress, PHEP staff rely on known and trusted partners. Yet, less than 2 in 10 jurisdictions (15.6%) reported that 25% or more of the MCHEs had at least basic knowledge or training on their jurisdictional emergency response plans, and less than 1 in 10 jurisdictions (9.4%) reported 25% or more of the MCHEs had at least basic knowledge of or training in their role in a response plan.

Prepare MCHE Personnel

A lack of training was identified as a limitation for MCH preparedness capacity on the individual and organizational level. Half of jurisdictions (50.0%) reported that 25% or more of the MCHEs had at least introductory ICS and NIMS training, and only 12.5% reported intermediate or advanced ICS and NIMS training at this level. A variety of introductory and intermediate trainings are available through FEMA as online Independent Study courses, https://training.fema.gov/is/crslist.aspx. Advanced courses, like ICS 300 and 400 are in-person, multi-day classes which may require travel to attend.

While training will help MCHEs more fully engage with the planning process, to be most useful during a public health emergency response, some jurisdictions may consider designating MCHEs as essential personnel, requiring staff to report to work during an emergency. Currently, over half of jurisdictions (55.9%) do not classify MCHEs this way. Reclassification of employee status and job descriptions may be subject to executive approval and/or collective bargaining agreements and could have implications for staff recruitment and retention. To be most successful, in addition to other staff support planning, jurisdictions should plan for health department staff’s maternal health needs (e.g., lactation and feeding facilities, childcare) during response activities and continuity of operations. Currently only 18.2% of jurisdictions have such plans.
Conclusions and Recommendations

National Partners

The most common external collaborations occur with government organizations (83.9%) and non-governmental organizations (46.9%). This is a significant opportunity for organizations and agencies to explore lessons learned from past responses, compile best practices, develop and provide specific training, and support funding that jointly engages both MCH and PHEP programs.

Compile Best Practices

Some jurisdictions have limited capacity to complete comprehensive after-action reports or to conduct evaluation to improve future responses. Respondents suggested that national organizations can support state and territorial MCH preparedness efforts by collecting and sharing best practices from available after-action reports and leveraging their expertise to create broad guidance on how MCH can become a model of preparedness activities.

Provide Additional and Specific Training

While states have a role in utilizing existing FEMA trainings, these trainings only introduce MCHEs to incident command and general preparedness and response functions, terminology, and procedures. These trainings are not specific to MCH populations and may not be tailored for specific needs or populations. By developing and providing training and conferences specific to this intersection and needs to specific MCH populations, national organizations could support both MCHEs and PHEP staff. Encouraging these two groups to collaborate at national gatherings would set a precedent for additional collaboration in and between jurisdictions.

Support Specific MCH Preparedness Funding

Funding and project requirements that do not provide incentive for MCH preparedness and collaboration between MCH and PHEP programs were identified as a barrier in both the assessment and the key informant interviews. While individual jurisdictions can develop proposals that better address this, the largest opportunity for change comes from funders directly requesting and supporting this work. More than half (52.4%) of MCHE funding comes from federal Title V funds, followed by non-Title V federal funds (31.4%).
References


Overview and Instructions

Background: The United States has averaged over 60 major federally declared disasters annually in the past 10 years, affecting access to medical services and health outcomes among women of reproductive age [WRA (ages 15-44 years)], especially pregnant and postpartum women. Pregnant women are classified as a population with special clinical needs in the Pandemic and All-Hazards Preparedness Reauthorization Act.

Purpose: More information is needed on: 1) collaborations between Maternal Child Health (MCH) and Public Health Emergency Preparedness (PHEP) and Response components of public health systems; 2) collaborations with other agencies and partners; 3) knowledge gaps and training needs in MCH emergency preparedness and response; 4) utility of current data systems for an MCH emergency preparedness and response; and 5) contingency plans for other necessary programs and data systems. For this assessment, the specific population of interest is WRA, especially pregnant and postpartum women, and infants (ages 0-1 years).

Who should be counted as a maternal and child health epidemiologist? Maternal and child health epidemiologists (MCHEs) in local/state and territorial health departments are persons who analyze and interpret data related to MCH outcomes and risk factors/risk markers for these outcomes. MCHEs combine data from different sources (e.g., vital statistics, surveys, programs) and calculate statistics for groups of persons (e.g., by age, health district, and time). MCHEs may assist programs in identifying and interpreting performance measures, developing logic models, conducting and interpreting needs assessments and evaluations, conducting surveillance/registry and screening activities (e.g., newborn hearing and metabolic disorder screening and birth defects, PRAMS, childhood lead screening, immunizations, reproductive cancer surveillance), and reviewing processes related to stillbirths, fetal infant mortality, child death, and maternal mortality. State MCHEs also typically contribute to activities related to the Title V Block Grant. Depending upon their duties and skills, PRAMS coordinators, birth defects registry workers, and data analysts may be considered MCHEs.

For this assessment, MCHEs are classified as persons who:

- Work at least 50% (2.5 days per week) of their time doing MCH epidemiologic work, and
Work in the health department, even if they receive their paycheck from another organization (e.g., an academic institution).

**When possible, the lead MCHE should be the Key Contact, i.e., person responsible for completing this assessment.**
It may be necessary to discuss responses with health department staff and managers in Public Health Emergency Preparedness (PHEP), communicable disease, and/or others with public health emergency response functions, in addition to those working in MCH and Title V Programs. It may also be helpful to consult organization charts or other documents.

**We strongly recommend** reviewing and completing the PDF version of the assessment before proceeding with this online form. You may start and stop this online assessment as many times as needed. Your progress will be saved as you move from page to page or when you click the “save” button. You will not be able to move to the next page unless all responses on that current page have been completed.

**This assessment is expected to take about 2 hours.**

Please share whatever information you know. If you have any questions about this assessment, please contact Valerie Goodson at vgoodson@cste.org or 770-458-3811.

### Key Contact and Other Responders

**When possible, the lead MCHE should be the Key Contact, i.e., person responsible for completing this assessment.**
It may be necessary to discuss responses with health department staff and managers in Public Health Emergency Preparedness (PHEP), communicable disease, and/or others with public health emergency response functions, in addition to those working in MCH and Title V Programs. It may also be helpful to consult organization charts or other documents.

### Key Contact Information

- **First Name**
- **Last Name**
- **State/Territory/Jurisdiction**
- **Agency/Department/Division Name**
- **E-mail Address**
Are you the key contact at the agency / health department for MCH Epidemiology?

- [ ] Yes
- [ ] No

Is there a formal lead MCHE(s)?

- [ ] Yes
- [ ] No

Please list their contact information

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<th>First Name</th>
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<th>State/Territory/Jurisdiction</th>
<th>Agency/Department/Division</th>
<th>Name</th>
<th>E-mail Address</th>
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</tbody>
</table>
**Did other health department staff contribute to this assessment?**

- Yes
- No

**Please list their contact information.**

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<td>E-mail Address</td>
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<td>Agency/Department/Division Name</td>
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</table>
Basic Organizational Capacity

Objective 1. Understand the basic structural context of the MCH program at the state, local, or territorial health department. The questions in this section are about the functioning of your jurisdiction's program broadly, during normal, daily operations. These data are comparable to prior MCH epidemiological capacity assessments conducted by CSTE.

1. How many MCHEs work in your health department, based on the following definition?

For this assessment, MCHEs are classified as persons who:
• Work at least 50% (2.5 days per week) of their time doing MCH epidemiologic work, and
• Work in the health department, even if they receive their paycheck from another organization (e.g., an academic institution).

2. How many other epis work on MCH activities less than 50% (<2.5 days per week) of their time?

3. Please estimate the ideal number of additional MCHEs needed to reach full capacity for your health department (i.e., the number of MCHEs in addition to the current number, regardless of resources).

4. Where are the majority of MCHEs located?
5. What are the funding sources for MCH epidemiology staff within your health department? [Specify value for percentage (e.g., "40" = 40%) of total funding for each source. If no funding, enter "0" for that source. Values should total to 100].

- Federal (Title V):
  - 0
- Federal (non-Title V):
  - 0
- State or territorial:
  - 0
- Local
  - 0
- Other (Please specify and state source):
  - 0
- Total
  - 0

In the past 12 months, have there been changes in:

- Increase
- Decrease
- Stay the Same
- Don't know

6. The amount of federal or other grant funding for MCH epi-related activities?

- 0

7. The amount of state, territorial, or local funding for MCH epi-related activities?

- 0

8. The number of staff related to MCHE programs, functions or activities?

- 0
9. Are MCHEs classified as “essential personnel” (i.e., must report to work during an emergency)?

- Yes – All MCHEs
- Yes – Managers, but not non-management MCHEs
- No
- Other (please describe):

- Don't know

Organizational Capacity of Jurisdiction During Public Health Emergencies

Objective 2. Identify the organizational capacity of state, local, and territorial health departments to address the needs of women of reproductive age (WRA), especially pregnant and postpartum women, and infants during public health emergencies.

A public health emergency can include an infectious disease outbreak, natural disaster, human-caused disaster, or other event or incident that requires a jurisdictional response to protect the public’s health or to recover from mass injury, loss of life, or widespread property damage.

Questions 10-19. Please describe the availability and application of the following organizational assets during preparedness exercises or during emergency activations or responses in your jurisdiction.

10. Data sharing agreements, memorandums of understanding, or other documents that support the collection of data for preparedness and response activities related to WRA and infants during public health emergencies.
Is this asset available in your jurisdiction?

- Yes – Broad public health data sharing agreements
- Yes – Explicit WRA and infant data sharing agreements
- No – But lack does not prohibit data collection
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know

Comments on this asset:

11. **Data Systems** (i.e., for exchange/storage) for providing up-to-date demographic-related information for WRA and infants at the jurisdictional level including sex, pregnancy status, race, and age-disaggregated data.
12. **Data collection tools or rapid needs assessments**, including questions related to the health of WRA and infants for use at the onset of a public health emergency, such as Reproductive Health Assessment After Disaster Toolkit (RHAD Toolkit) or Community Assessment for Public Health Emergency Response (CASPERS) questionnaires.

Is this asset available in your jurisdiction?

- Yes
13. Defined **health indicators** for disaster-affected WRA and infants within existing health information systems, e.g., PRAMS and BRFSS.

Is this asset available in your jurisdiction?

- Yes
- No – In development
- No – No plans to develop at this time
- Don’t know
Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know

Comments on this asset:

---

14. **Health-sector emergency response plan(s)** that includes reproductive health services for WRA (e.g., screenings, contraception, or breastfeeding support).

Is this asset available in your jurisdiction?

- Yes
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
15. Existence of **other response plans**, contingency plans or action plans (e.g., state emergency management, American Red Cross) containing provisions for reproductive health services for WRA (e.g., screenings, contraception, or breastfeeding support).

Is this asset available in your jurisdiction?

- Yes
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know
16. **Plan(s) for health department staff's maternal health needs** (e.g., lactation and feeding facilities, childcare) during response activities and continuity of operations.

Is this asset available in your jurisdiction?

☐ Yes – explicit plans for response activities
☐ No – But general policies and facilities could be used during a response
☐ No – In development
☐ No – No plans to develop at this time
☐ Don't know

Has this asset been used during one the following?

☐ Exercise
☐ Activation/response
☐ Both exercise and activation/response
☐ No
☐ Don't know

Comments on this asset:
17. Existence of **vulnerability assessments** (a review of potential emergencies or disasters and the consequences for health outcomes) that specifically focus on WRA and infants.

Is this asset available in your jurisdiction?

- Yes
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know

Comments on this asset:
18. **Legislation or policies** that support the provision of reproductive health services (e.g., screenings, contraception, or breastfeeding support) to WRA during public health emergencies.

Is this asset available in your jurisdiction?

- Yes – Broad public health authority
- Yes – Explicit authority for WRA
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know

Comments on this asset:

19. **List of stakeholders** (public, non-governmental, private) involved in public health preparedness and response activities related to reproductive health in the jurisdiction.
Is this asset available in your jurisdiction?

- Yes – List is mapped or documented
- Yes – List is understood or known by key staff
- No – In development
- No – No plans to develop at this time
- Don’t know

Has this asset been used during one of the following?

- Exercise
- Activation/response
- Both exercise and activation/response
- No
- Don’t know

Comments on this asset:

Questions 20-24. The following section relates to MCHE access to necessary data and information technology (IT) infrastructure.

20. During normal operations, do MCHEs have access to adequate IT infrastructure and services (e.g., adequate hardware, server space, virus protection, back-up mechanisms, and timely technical support)?

- Yes
- No
21. During an emergency, public health IT systems can be overwhelmed and disconnected due to loss of power, Internet and phone outages, etc. Thinking about the work that MCHEs do, are there unique challenges your jurisdiction would face in conducting surveillance, accessing and collecting data, or responding to the needs of WRA and infants specifically during an emergency?

☐ Yes, please specify:

☐ No

☐ Don't know

22. Do MCHEs have access to the following software packages?

<table>
<thead>
<tr>
<th>Software</th>
<th>Yes access, Yes routine use</th>
<th>Yes access, No routine use</th>
<th>No, need access</th>
<th>No, not needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>SPSS</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>STATA</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>SUDAAN</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>EpilInfo</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Encryption software</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>GIS (geographic information system) software</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
</tbody>
</table>
23. Does one or more of the MCHE staff have unfettered access to the following state data sets?

Use the following response options for the dropdown column:

- Yes, routinely use
- Yes, occasionally use
- Yes, never or rarely use
- No, can request line-level data as needed
- No, can request restricted, aggregate, or summary data as needed
- No, not available to MCHEs
- Not applicable/not collected
- Don’t know

<table>
<thead>
<tr>
<th>Software/Software (describe)</th>
<th>Yes access, Yes routine use</th>
<th>Yes access, No routine use</th>
<th>No, need access</th>
<th>No, not needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>R and R Studio</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>Tableau</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Other software (describe)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Other software (describe)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Do one or more of the MCHEs have direct, unfettered access (i.e., can access as needed, without technical or institutional barriers) to the following datasets for routine MCH use?

<table>
<thead>
<tr>
<th>Dataset</th>
<th>If yes, are data available within 1 calendar year?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth certificate data</td>
<td>Yes access, No routine use</td>
</tr>
<tr>
<td>Death certificate data</td>
<td>Yes access, No routine use</td>
</tr>
</tbody>
</table>

If yes, are data available within 1 calendar year?

- Always
- Almost always
- Rarely
- Never
- Not applicable

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Always</th>
<th>Almost always</th>
<th>Rarely</th>
<th>Never</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth certificate data</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Death certificate data</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Dataset</td>
<td>Access Status</td>
<td>Data Availability in 1 Calendar Year</td>
<td></td>
<td></td>
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<td>---------------------------------------------</td>
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<td>--------------------------------------</td>
<td></td>
<td></td>
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<tr>
<td>Fetal death data</td>
<td>Not applicable/not collected</td>
<td>Always</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linked birth-infant death data</td>
<td>Not applicable/not collected</td>
<td>Always</td>
<td></td>
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<tr>
<td>EMS</td>
<td>Not applicable/not collected</td>
<td>Almost always</td>
<td></td>
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<tr>
<td>Urgent care</td>
<td>Not applicable/not collected</td>
<td>Rarely</td>
<td></td>
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<tr>
<td>Emergency department</td>
<td>Not applicable/not collected</td>
<td>Never</td>
<td></td>
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<tr>
<td>Hospital discharge</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Notifiable disease</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Syndromic surveillance</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Newborn screening</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Birth defects registry</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Family planning</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Abortion</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Immunization</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>Prescription drug monitoring program</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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<tr>
<td>PRAMS (or equivalent)</td>
<td>Not applicable/not collected</td>
<td>Not applicable/not collected</td>
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</tbody>
</table>
24. Are there other datasets MCHEs could/would access during a public health emergency response?

- Yes, please list or describe:
- No
- Don’t know

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Access Status</th>
<th>Availability within 1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>YRBS (or equivalent)</td>
<td>Not applicable/not collected</td>
<td>○ ○ ○ ○ ○ ○ ○ ○ ○ ○</td>
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<tr>
<td>BRFSS (or equivalent)</td>
<td>Not applicable/not collected</td>
<td>○ ○ ○ ○ ○ ○ ○ ○ ○ ○</td>
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<tr>
<td>WIC</td>
<td>Not applicable/not collected</td>
<td>○ ○ ○ ○ ○ ○ ○ ○ ○ ○</td>
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<tr>
<td>SNAP</td>
<td>Not applicable/not collected</td>
<td>○ ○ ○ ○ ○ ○ ○ ○ ○ ○</td>
</tr>
<tr>
<td>Medicaid</td>
<td>Not applicable/not collected</td>
<td>○ ○ ○ ○ ○ ○ ○ ○ ○ ○</td>
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</tbody>
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Capacity and Needs of MCHEs During Public Health Emergencies

Capacity and Needs of MCHEs During Public Health Emergencies
Objective 3. Identify capacity and needs of maternal child health epidemiologists (MCHEs) in state, local, and territorial health departments to address the needs of women of reproductive age (WRA) and infants during public health emergencies.

25. Please quantify the percent of MCHEs with at least basic knowledge of each of the following tools or resources using the scale provided.

Use the following response options:

- Most or All (76 – 100 percent of MCHEs)
- Some (25 – 75 percent of MCHEs)
- Few (1 – 24 percent of MCHEs)
- None (0 percent of MCHEs)
- Not applicable/not available in jurisdiction

Health indicators for disaster-affected WRA and infants

Jurisdictional emergency response plan(s)

MCHEs’ roles in jurisdictional emergency response plan(s)

Tools that can be immediately deployed for providing up-to-date sexual and reproductive health-related information

Existing data systems (i.e., for exchange/storage) for providing up-to-date demographic information for WRA and infants at the jurisdictional level with sex, pregnancy status, language, and age-disaggregated data

Rapid needs assessment tools such as Reproductive Health Assessment After Disaster Toolkit (RHAD Toolkit) or Community Assessment for Public Health Emergency Response (CASPER)

Emergency registries, rosters, or other survey instruments used to list individuals affected by an emergency or disaster (i.e., exposed to a chemical, evacuated to a shelter, or responding to the event) and to collect information needed for follow-up

26. Comments on MCHE knowledge of tools and resources:
27. Please quantify the percent of MCHEs with **at least basic** experience or training in each of the following areas using the scale provided.

Use the following response options:

- Most or All (76 – 100 percent of MCHEs)
- Some (25 – 75 percent of MCHEs)
- Few (1 – 24 percent of MCHEs)
- None (0 percent of MCHEs)
- Not applicable/not available in jurisdiction

Experience (gained through prior response activity, simulations, or organizational exercises) in addressing the data needs specific to WRA and infants in disasters

Training in the needs of WRA and infants during public health emergencies

Introductory training in Incident Command System and National Incident Management System, such as ICS 100 - Introduction to Incident Command Systems, ICS 700 - An Introduction to the National Incident Management System, ICS 200 - Basic Incident Command System for Initial Response

Intermediate or advanced training in Incident Command System and National Incident Management System, such as ICS 300 - Intermediate ICS for Expanding Incidents or ICS 400 - Advanced ICS

28. Comments on MCHE experience and training:
Potential Enablers and Barriers

Objective 4: Identify potential enablers and barriers within the public health agency that enable or inhibit collaboration for preparedness and response activities among MCHEs, public health emergency preparedness coordinators, and others.

29. Are/were MCHEs involved in routine surveillance for the following disease or condition?

<table>
<thead>
<tr>
<th>Disease</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Opioids</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Zika Virus</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Other (please specify):</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<tr>
<td>Other (please specify):</td>
<td>O</td>
<td>O</td>
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<td>O</td>
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<tr>
<td>Other (please specify):</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

30. Please describe the type and level of involvement of MCHEs in the routine surveillance for the diseases and conditions above.
Questions 31-35. Below is a series of questions about participation in preparedness exercises, emergency response, and recovery processes. You will be asked about MCHE participation, topic, roles, etc. for each.

31. A **tabletop exercise** is intended to prompt discussion of a hypothetical, simulated emergency scenario, identify strengths and weaknesses in a potential response, and foster collaboration. It is often structured like a facilitated discussion. In the **past two years**, have MCHEs participated in a tabletop exercise?

- Yes
- No
- Don't know

What was the topic of the **most recent** exercise?

- Infectious disease outbreak or mass vaccination incident
- Opioid epidemic
- Man-made incident e.g., chemical release, terrorism, mass shooting)
- Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- Planned event or mass gathering (e.g., large sporting event, convention, concert)
- Other (please specify):

In what roles did MCHEs epis serve in the **most recent** exercise? (Please select all that apply)

- Incident commander
- Command or general staff (e.g., safety officer, operations section chief, planning section chief)
- Staffed an incident command section (e.g., operations, planning, logistics)
- Served as subject matter expert
- Provided data before or during the exercise
- Other (please specify):

Who was the lead agency for the **most recent** exercise?
32. A **functional exercise** is designed to test capabilities and functions. They are usually conducted with an incident command team, and a controller provides updates to a hypothetical, simulated emergency. Plans and policies are evaluated.

In the **past two years**, have MCHEs participated in a functional exercise?

- Yes
- No
- Don't know

What was the topic of the **most recent** exercise?

- Infectious disease outbreak or mass vaccination incident
- Opioid epidemic
- Man-made incident e.g., chemical release, terrorism, mass shooting)
- Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- Planned event or mass gathering (e.g., large sporting event, convention, concert)

What was the topic of the **most recent** exercise? (Please specify):

- Other

In what roles did MCHEs epis serve in the **most recent** exercise? (Please select all that apply)

- Incident commander
- Command or general staff (e.g., safety officer, operations section chief, planning section chief)
- Staffed an incident command section (e.g., operations, planning, logistics)
- Served as subject matter expert
- Provided data before or during the exercise

What roles did MCHEs epis serve in the **most recent** exercise? (Please specify):

- Other
Who was the lead agency for the **most recent** exercise?

- Respondent's health department
- Local health department
- Non-public local agency
- Other state's health department
- [ ] Other (please specify):

33. **A full-scale exercise** is the most complex type of preparedness exercise. They often involve multiple agencies and partial activation of resources. They usually occur in real-time. In the **past two years**, have MCHEs participated in a full-scale exercise?

- [ ] Yes
- [ ] No
- [ ] Don't know

What was the topic of the **most recent** exercise?

- Infectious disease outbreak or mass vaccination incident
- Opioid epidemic
- Man-made incident e.g., chemical release, terrorism, mass shooting)
- Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- Planned event (e.g., large sporting event, convention, concert)
- [ ] Other (please specify):

In what roles did MCHEs epis serve in the **most recent** exercise? (Please select all that apply)

- [ ] Incident commander
- [ ] Command or general staff (e.g., safety officer, operations section chief, planning section chief)
Who was the lead agency for the **most recent** exercise?

- [ ] Respondent's health department
- [ ] Local health department
- [ ] Non-public local agency
- [ ] Other state's health department
- [ ] Other (please specify):

34. **In the past two years**, have MCHEs participated in an emergency response or activation?

- [ ] Yes
- [ ] No
- [ ] Don't know

What was the topic of the **most recent** response or activation?

- [ ] Infectious disease outbreak or mass vaccination incident
- [ ] Opioid epidemic
- [ ] Man-made incident e.g., chemical release, terrorism, mass shooting
- [ ] Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- [ ] Planned event (e.g., large sporting event, convention, concert)
- [ ] Other (please specify):

In what roles did MCHEs epis serve in the **most recent** response or activation? (Please select all that apply)

- [ ] Staffed an incident command section (e.g., operations, planning, logistics)
- [ ] Served as subject matter expert
- [ ] Provided data before or during the exercise
- [ ] Other (please specify):
Who was the lead agency for the most recent response or activation?

- Respondent's health department
- Local health department
- Non-public local agency
- Other state's health department

Other (please specify):

Is the most recent response or activation ongoing at the time of this survey?

- Yes
- No
- Don't know

Approximately how long was the most recent response or activation? (If ongoing, please quantify how long it has gone to date). Please specify: Days, Weeks, Months

Have there been additional emergency responses or activations that MCHEs have participated in during the past two years?

- Yes
- No
How many additional?

What was/were the topics of this/these emergency response (select all that apply):

- Infectious disease outbreak or mass vaccination incident
- Opioid epidemic
- Man-made incident e.g., chemical release, terrorism, mass shooting)
- Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- Planned event or mass gathering (e.g., large sporting event, convention, concert)
- Other (please specify):

35. In the past two years, have MCHEs participated in a post-emergency recovery operation?

- Yes
- No
- Don't know

What was the topic of the most recent recovery operation?

- Infectious disease outbreak or mass vaccination incident
- Opioid epidemic
- Man-made incident (e.g., chemical release, terrorism, mass shooting)
- Natural or environmental disaster (e.g., hurricane, flood, wildland fire)
- Planned event (e.g., large sporting event, convention, concert)
- Other (please specify):
In what roles did MCHEs epis serve in the most recent recovery operation? (Please select all that apply)

- Incident commander
- Command or general staff (e.g., safety officer, operations section chief, planning section chief)
- Staffed an incident command section (e.g., operations, planning, logistics)
- Served as subject matter expert
- Provided data before or during the exercise

Other (please specify): ____________________________

Who was the lead agency for the most recent recovery operation?

- Respondent's health department
- Local health department
- Non-public local agency
- Other state's health department

Other (please specify): ____________________________

Questions 36-37. Below is a series of questions about collaborations within and outside of the health department.

36. Within your health department, which of the following best characterizes your current level of collaboration between / among MCHEs and others in your health department?

Use the following response options:

- Routinely
- Frequently, but not on a routine basis
- Occasionally/infrequently
- Rarely (why): ____________________________
- Never (why): ____________________________
- Not applicable
37. Which of the following best characterizes the current level of collaboration between / among MCHEs in your local / state health department and epidemiologist in …

<table>
<thead>
<tr>
<th>Role or Department</th>
<th>Level of Collaboration</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCH / Title V program staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Title V Director</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSHCN program staff (Children with Special Health Care Needs) program staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Title V Director for CSHCN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIC staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health Preparedness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infectious Disease</td>
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<tr>
<td>Injury</td>
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<tr>
<td>Oral Health</td>
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<tr>
<td>Mental Health</td>
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<tr>
<td>Substance Abuse</td>
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<tr>
<td>Chronic Disease</td>
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<tr>
<td>Environmental Health</td>
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<tr>
<td>Occupational Health</td>
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<td></td>
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<tr>
<td>Birth Defects</td>
<td></td>
<td></td>
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<tr>
<td>Other (please specify):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
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<td></td>
</tr>
</tbody>
</table>
Questions 38-40. Below is a series of questions about enablers or barriers to MCH preparedness and response.

38. In your jurisdiction, do/does the following enable or inhibit MCH preparedness and response?

Use the following response options:

- Enables MCH preparedness and response capabilities

<table>
<thead>
<tr>
<th>Enables MCH preparedness and response capabilities</th>
<th>If rarely or never, please explain why.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools of Public Health</td>
<td></td>
</tr>
<tr>
<td>Other Academic Institutions</td>
<td></td>
</tr>
<tr>
<td>Government organizations (i.e., CDC, NCBDDD, HRSA)</td>
<td></td>
</tr>
<tr>
<td>Non-governmental organizations</td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
<td></td>
</tr>
<tr>
<td>Other (please specify):</td>
<td></td>
</tr>
</tbody>
</table>
Neither enables or inhibits MCH preparedness and responsible capabilities
- Inhibits MCH preparedness and response capabilities
- Not applicable

39. What is the biggest enabler to MCH participation in public health emergency preparedness activities in your jurisdiction?

40. What is the biggest barrier to MCH participation in public health emergency preparedness activities in your jurisdiction?
41. Would you like to comment on this assessment? What should have been covered but was not? What was covered but not in enough depth? What was covered that could have been omitted?

Thank you for completing this assessment. If you have any questions about this assessment, please contact Valerie Goodson at vgoodson@cste.org or 770-458-3811
Appendix 2: Key Informant Interview Guide

Epidemiologists should use the following content as a guide when conducting MCHE and emergency preparedness interviews with key informants.

Target Population

Maternal Child Health epidemiologists (MCHE) and Public Health Emergency Preparedness (PHEP) staff at state and territorial health departments. Mix geography and types of recent public health emergencies.

Type of Interview and Documentation Method

- Telephone interview using video recording platform to allow for recording
- Introductory email sent by CSTE to include
  - Identify the appropriate staff person to include in the interview (MCHE and PHEP if available)
  - Request to voice record interviews

Target Length

Interviews should be scheduled for one hour in length, but range between 30-60 minutes based on the number of participants per interview.

Interview Guide

Introduction

I am working with the Council of State and Territorial Epidemiologists to conduct a capacity assessment for maternal and infant public health emergency preparedness and response. The purpose of this assessment is to better understand collaborations between Maternal and Child Health Epidemiologists (MCHEs) and Public Health Emergency Preparedness (PHEP) and related collaborations with other agencies and partners, as well as determine enablers and barriers to successful MCH public health emergency preparedness and response. You may be aware of the larger assessment that consists of a standardized survey being completed by state and territorial public health agencies. The key informant interviews, for which your jurisdiction has been selected, is designed to dive deeper into MCH epidemiology and PHEP capacities, enablers, and barriers, and to get a greater variety of perspectives.

Specifically, these questions will focus on women of reproductive age and infants. There has been a national focus on public health emergency preparedness and response related to children for many years; however, there is a gap in current knowledge and a limited focus on women of reproductive age and infants. You should have received an email from CSTE regarding your potential participation in this part of the assessment. Do you have any questions for me before we go any further?

Anything you tell me during this interview is confidential. Nothing you say will be personally attributed to you or your jurisdiction in any reports that result from this interview. The final assessment report will be written in a manner that no individual comment can be attributed to a particular person or jurisdiction; however, participating jurisdictions will be identified in the report.

Are you willing to participate in this interview? Do you have any questions before we begin?

To ensure the accuracy of your answers and the integrity of the process, we would like to record the interview. Are you willing to have your voice recorded? If not, we can proceed without recording; however, we will need to reschedule at a time when a note taker can be present.
For the purposes of this interview, the specific populations of interest include women of reproductive age (ages 15-44 years), especially pregnant and post-partum women, and infants (ages 0-1 years).

Opening Questions

1. Who is participating in this key informant interview for your jurisdiction? Please provide the agency, unit, and/or jurisdiction, as appropriate?
2. How long have you/each of you been working in the field of MCH epidemiology (or public health emergency preparedness if we include this)? How long have you been in your current role?
3. Have you personally or your agency/jurisdiction ever been involved with an emergency activation or response where the hazard had a disproportionate effect on the target population of interest (i.e., women of reproductive age and infants)? Examples of such activations or response may include Zika, neonatal abstinence syndrome as part of an opioid response, or influenza among pregnant women as part of a more general influenza response.
   a. If yes, please describe this activation or response?
      i. Probe: What roles did the MCHEs have during this activation or response? Who do MCHEs work with during these events across programs? Specific MCHE staff training (ICS, serve on IMT)?
      ii. Probe: For jurisdictions who have not participated in an activation or response: Have you or your jurisdiction participated in exercises?

Potential Enablers and Barriers

4. What challenges do you think currently exist in practice regarding maternal and infant health in public health emergency preparedness and response?
   a. Probe: What has kept MCH preparedness from growing/expanding/being successful?
   b. Probe: Both MCHE and PHEP input on challenges – from both perspectives
5. What needs to happen to help MCH preparedness as a whole to address these challenges?

6. What do you think state/local agencies can and should do to help meet these needs?
   c. Probe: If you were charged with being the head of an MCH Public Health Emergency Preparedness and Response Department/Division, what do you think needs to be done? (From both the MCHE and PHEP perspectives)
7. Do you have any ideas for how organizations such as ASTHO, NACCHO, CSTE, AMCHP, and other similar organizations could promote collaboration among MCH and PHEP in preparedness so as to facilitate smoother responses?
8. (For jurisdictions that responded yes to question 3 above) In an earlier question, you indicated that your jurisdiction has been involved in an emergency activation or response that disproportionately affected women of reproductive age and infants. How well do you feel that MCHE and PHEP staff worked together during responses where the hazard had a disproportionate effect on this population? Probe: Why do you feel this way? Can you provide specific examples?

Organizational Capacity of Jurisdiction During Public Health Emergencies

9. What resources or assets does your organization/jurisdiction have available during preparedness exercises or during emergency activations or responses related to our target population of interest? For example, stakeholders, emergency response plans, or specific data sources like vital statistics, PRAMS, BRFSS.
   a. Probe: Have these ever been used in the context of women of reproductive age and infants during such exercises or response?
   b. Probe: What types of stakeholders/emergency response plans/policies/data/information sharing would be/are available?
   c. Probe: What is your level of comfort or experience with the resources or assets that you have listed?
Capacity and Needs of MCHEs During Public Health Emergencies

10. What sort of skills or expertise would you or other MCH epidemiologists in your agency bring to the table during a public health emergency that could help ensure the success of the response/exercises/planning activity? Some examples might include familiarity with data sources specific to the target population or communication strategies and tools.

11. What sort of gaps in capacity exist in your agency that would be necessary to help ensure the success of a public health emergency response or activation? For example, additional training, knowledge, resources, or assets.
   a. Probe: Are there any missing concepts that you see as core or necessary for the function of an MCHE in a public health emergency response or activation?

Closing Questions

12. Do you have any additional thoughts or comments that would be helpful for CSTE to provide recommendations and best practices for improving MCH emergency preparedness and response activities nationally?

13. Was there anyone in your agency (or any group) that should have been involved in this interview to provide a more complete picture of MCH and PHEP interactions, that either was not invited or unable to participate today?
   a. Probe: Were there any specific questions that would have been better answered by someone not participating today? If so, what questions and who should have been included?

14. Were there any questions in the interview today that did not work or did not make sense in general, or specifically, for your jurisdiction?

Summary

- If time allows, interviewer will quickly summarize the major comments heard throughout the interview and ask the informant if all major points were covered.

Thank you for your time!

Follow-up: Send thank you email