BRIDGING PREPAREDNESS, INFECTIOUS DISEASE, AND MATERNAL-CHILD HEALTH WITHIN CITIES AND COUNTIES

A Covid-19 Hotwash with Local Health Department Directors and Staff

Prepared by:
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Project Overview

The COVID-19 pandemic has been the longest pandemic in the history of the United States. Because of this, it is important for local health departments (LHDs) to take the time to reflect on their response efforts and ask what went well and what needs to be addressed for future public health emergencies. Toward this end, LHD directors and staff who participated in this project were asked to provide insight into their health department’s COVID¹ response by completing a survey and participating in one of two Hotwash sessions. The overall goal of this project was threefold: 1) identify the strengths and/or weaknesses of the collaboration between MCH, infectious disease, and emergency preparedness, 2) identify strategies and tools developed during the pandemic that should be utilized in the future, and 3) identify what needs to be in place so that LHDs can ensure pregnant people and infants have access to needed support during the next pandemic.

Key Findings

Hotwash participants identified twelve vulnerable groups they were able to support during the COVID pandemic by providing education, vaccinations, and/or resources for mitigation strategies. While Maternal-Child Health (MCH) was specifically mentioned, many of the vulnerable groups also include the MCH population (e.g., domestic violence victims, homeless, migrant workers, etc.).

Participants also identified three overarching themes that emerged to make the COVID public health response unique: 1) length of the pandemic, 2) spread of misinformation, and 3) politicization around the COVID public health response. These overarching themes led to several issues for LHDs including changes in staffing, decline in staff mental health, increased need for and reliance on external partners, expansion and adaptation of communication and outreach strategies, and degradation of the public’s trust in public health. It is important to note that all of these issues were extremely interdependent for

¹ COVID is used as shorthand for COVID-19 or Coronavirus Disease 2019.
LHDs during their COVID response efforts. Any one of these issues had the potential to intensify the other issues.

**Staffing**

The majority of directors (74%) and staff (66%) reported on the survey that their role changed as part of their LHD’s COVID response. As a result, some public health programming was stopped, some diminished, and some continued as usual. While a majority (68.8%, 33/48) of LHDs in the survey reported their staffing stayed levels stayed within the same full-time employee range, 29% (14/48) said their staffing increased. New staff included 1) communications staff, 2) COVID unit staff, 3) contact tracers and case investigators, 4) epidemiologists, and 5) medical assistants.

**Challenges Encountered with Respect to Hiring Temporary Staff**

- Temporary staff were not really temporary. Due to the prolonged nature of the pandemic, a lot of the temporary staff have been working at the LHDs for over a year.
- There were perceived inequities between staff categories. Temporary staff often did not get paid leave, sick pay, or vacation pay. In some cases, temporary staff were paid more than the full-time permanent staff they worked with.
- The need to rapidly hire a high volume of staff put a strain on the human resources (HR) and information technology (IT) departments at LHDs.

**Benefits of Hiring Temporary Staff**

- New efficiencies in the onboarding process were created to meet the hiring need.
- Temporary employees have helped build a public health workforce pipeline.

**Recommendations with Respect to Staffing**

- Create a system to streamline the hiring of new staff.
- Classify temporary staff as limited term staff.
- Add or maintain key roles such as community liaison, communications specialists, and epidemiologists.
- Identify sustainable funding streams to cover staffing needs.

**Mental Health of Public Health Staff**

The demands placed on LHD staff, the duration of the COVID response, and the perceived lack of support due to the politicization of the response resulted in public health workers experiencing anxiety, depression, and burnout. Directors began addressing mental health needs later in the pandemic but in the future, this needs to be addressed at the outset.

**Recommendations for Supporting Mental Health of Public Health Employees**

- Cross-train LHD staff to allow for mental health breaks when needed.
- Teach resiliency techniques to staff so they can engage in self-care.
- Discuss compassion fatigue and burnout so workers know when to seek help.
• Bring in external partners to provide mental health support to public health workers.
• Have dedicated staff who deliver employee wellness programming.
• Hold employee appreciation events/programs.
• Partner with mental health experts within and outside of public health to provide support and education for employees.

Collaboration
Survey respondents rated collaboration between Emergency Preparedness and Response (EPR), Infectious Disease (ID), and MCH high prior to and during the COVID response. Of concern is survey respondents’ rating on the survey item “Working with MCH, EPR, and ID during our COVID response accomplished things for pregnant and postpartum people and infants in our community,” which was rated low (i.e., 3 on a 5-point scale). This can be problematic; if the collaboration is not perceived to be making a difference, groups will be less likely to work together in the future. While hotwash participants shared success stories with respect to reaching various vulnerable populations - homeless, rural, victims of sexual assault, migrants, refugees, etc. - they may not realize these groups include the MCH population. Reminding staff of these important outcomes and celebrating the successes will improve their perception of the collaboration and increase their willingness to collaborate in the future.

Mutually Beneficial Collaboration Outside EPR, ID, and MCH
• Community partners helped with vaccine distribution and administration, COVID testing, monitoring for community outbreaks, disseminating public health messaging, distributing and providing needed resources, connecting with hard-to-reach populations, and providing feedback on the impact of the public health regulations on school and local businesses.
• Community partners were able to educate the public on their services at LHDs’ vaccine events.
• Public health supported businesses by supporting employee health.
• Public health officials stepped in to provide services to those in quarantine and isolation (e.g., voting sites, temporary housing) that other agencies could not.

Recommendations for Building and Sustaining Collaborative Relationships
• Maintain contact with new partners; dedicate LHD staff to ensuring those relationships are sustained.
• Include partners (e.g., politicians) in planning and educate partners on all public health services.

Communication and Outreach
Hotwash participants identified several modes of communication that were utilized during the COVID response, ranging from expected modes such as social media to more innovative and unexpected modes like a pen pal system for reaching an Amish population. However, in trying to communicate and conduct outreach with their communities, LHDs were confronted with large amounts of misinformation, especially on social media. Research reveals three main types of misinformation that emerged during the COVID-19 pandemic: false claims, conspiracy theories, and pseudoscientific health therapies.
Recommendations to Combat Misinformation

- Conduct regular updates and briefings.
- Provide public facing data dashboards and update them regularly.
- Leverage partners who are respected and trusted by the community to help combat misinformation.
- Stay ahead of the information as much as possible.
- Disable comments on social media platforms if they become problematic.
- Incorporate strategies for addressing an infodemic in your preparedness and response plans.

Inconsistent messaging between different levels and even within the same levels of the government led to frustration by LHD staff and communities. It also contributed to the loss of trust in public health.

Recommendations with Respect to Inconsistent Messaging

- Encourage the use of conversation templates within your LHD and, if possible, across your region or state to ensure consistent messaging.
- Include politicians and representatives from other government agencies in your LHD’s planning efforts as this may help prevent breakdowns in communication during rapidly changing responses.
- Reinforce the message that sometimes “change is good” when it comes to response efforts. Protracted responses will require changes in guidance as the emergency and the data evolve over time.

Another barrier to LHDs’ communication and outreach efforts during their COVID response was a perceived lack of trust in public health.

Recommendations for Improving Trust in Public Health

- The response to a public health crisis should be led by public health. Public health should educate politicians on their emergency response plans and welcome feedback from those partners.
- Highlight your LHD’s existing public health promotion and disease prevention programs.
- Be transparent and proactive: share data and information early and often.
- Work with your state to designate public health employees as first responders.
- Foster and encourage a culture that separates public health and politics.
- Find creative ways to give back to the community (e.g., food vouchers/coupons).

Planning for the Next Public Health Emergency

Hotwash participants emphasized the importance of LHDs conducting their own hotwashes, or After-Action Reviews (AARs), to ensure lessons learned are not lost and mistakes are not repeated in future pandemics. LHDs should use the lessons learned to create or update their emergency preparedness plans. The CMIST Frameworkiii and Toolkit for State and Local Planning and Responseiv can be used to ensure the needs of vulnerable populations are met.
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Project Overview

As we continue to endure the COVID-19 pandemic, the longest pandemic in the history of the United States, it is important for local health departments (LHDs) to stop and reflect on the last two years so that they can learn from their mistakes, celebrate their successes, and identify ways to improve their response to future public health emergencies. Toward this end, the National Association of County and City Health Officials (NACCHO) partnered with the Center for Public Health Innovation at CI International to gather input from LHD directors and staff between December of 2021 and February of 2022. Directors and staff who participated in the project were asked to provide insight into their health department’s COVID\(^1\) response by completing a survey and participating in a live Hotwash session.

The overarching goal of this project was threefold:

1. Identify the strengths and/or weaknesses of the collaboration between Maternal-Child Health (MCH), Infectious Disease (ID), and Emergency Preparedness and Response (EPR).
2. Identify strategies and tools developed during the pandemic that should be utilized in the future.
3. Identify what needs to be in place so that LHDs can ensure pregnant people and infants have access to needed support during the next pandemic.

In addition to the above goals, this project also set out to give LHDs a voice as they emerge from the stress and uncertainty of the COVID pandemic, a chance to share lessons learned with one another, and an opportunity to foster a sense of solidarity and pride in everything they have endured and accomplished over the last two years.

\(^1\) Throughout the report, COVID is used as shorthand for COVID-19 or Coronavirus Disease 2019.
How to Read This Report

Throughout this report, colors are used to distinguish the two different categories of individuals who participated in this project: local health department directors and local health department staff. Directors are represented by a burgundy color in quotes and charts while staff are represented by a green color.

“Direct quote from a director participant.” (Director)

“Direct quote from a staff participant.” (Staff)

It is important to note that everyone who took part in the project completed a survey. All staff who completed a survey were also able to participate in the Hotwash but not all directors who completed a survey were able to participate in the Hotwash. Therefore, a lighter shade of burgundy is used in charts to represent all directors while the darker shade of burgundy is used to represent the subset of directors who completed the survey and participated in the Hotwash.

Key takeaways, recommendations, and lessons learned are interspersed throughout the report either as bolded text in the body of the report or in a callout box like the one shown below. These takeaways, recommendations, and lessons learned were provided by participants or were identified in supporting research.

RECOMMENDATION

Key takeaways, recommendations, and lessons learned are presented in a callout box like this.
A survey and a hotwash with LHD directors and staff comprised the two methods of data collection for this project. The survey captured background information on participants and their LHDs and helped identify accessibility needs as well as optimal dates and times for the Hotwash. The Hotwash gathered detailed insight into LHDs’ COVID response efforts through rich and reflective discussion. Preliminary findings from the survey and Hotwash were shared with NACCHO’s Maternal-Child Health, Infectious Disease, and Preparedness (MIP) work group to ensure validity and to capture feedback on what might be missing. Feedback from the MIP work group, which came in the form of recommendations for response strategies, has been incorporated in the project findings which are presented throughout the report.

Overview of the Hotwash and Survey

The Hotwash discussions carried out for this project followed the After-Action Review (AAR) format which asks four main questions, listed below.

- What was supposed to happen?
- What happened?
- What did and did not go well?
- What do you recommend for the future?

To recruit for the Hotwash, the NACCHO emailed invitations to the following NACCHO work groups: Maternal, Child, and Adolescent Health; MIP; and Public Health Preparedness. These work groups include both director level and frontline LHD staff. NACCHO also promoted the Hotwash on their Virtual Communities’ COVID-19 page, an online platform for NACCHO members. The recruitment email stated 1) the objectives of the hotwash, 2) that the discussion would take three hours, and 3) that NACCHO would cover participants’ registration fees for their Annual Preparedness Summit. Those who were interested were instructed to complete a survey that asked questions on demographic information (for the participant and their LHD), accessibility needs, LHD’s goals for their COVID response, perceived interdepartmental collaboration at the LHD, and available dates/times for participating in the Hotwash.
Overview of Survey Respondents and Hotwash Participants

A total of 59 people expressed interest in taking part in the Hotwash. Of these, 48 completed the survey: 29 directors, nine frontline staff, and 10 who did not specify whether they were a director level employee or general staff. See Appendix A for a full description of each survey respondent group. All nine staff and 29 directors who completed the survey were invited to take part in either a Staff or Director three-hour Hotwash. All nine staff and 21 out of the 29 directors participated in the Hotwash. The health service districts of the 30 hotwash participants’ LHDs comprise 40 counties across 18 states.

Survey respondents were asked if they work in any of the following areas: Maternal-Child Health, Infectious Disease, and Emergency Preparedness and Response. The majority of directors reported working in all three areas while the majority of staff reported working in only one (Figure 2).

Figure 1. Overview of the representation of survey respondents in the Hotwash.

Figure 2. The Number of areas (Emergency Preparedness, Infectious Disease, and Maternal Child Health) worked in by all directors (n=29), directors who participated in the Hotwash (n=21), and staff who responded to the survey and participated in the Hotwash (n=9).
In terms of expertise, Emergency Preparedness had the most representation among survey respondents and hotwash participants, followed closely by Infectious Disease (see Appendix A). While participants were probed throughout the Hotwash to address the MCH population, less than half of the Hotwash participants actively work with that group.

![Figure 3. Areas of expertise represented by survey respondents and Hotwash participants.](image)

<table>
<thead>
<tr>
<th>Areas of Expertise</th>
<th>Directors (All), 86.2%</th>
<th>Directors (Hotwash), 80.0%</th>
<th>Staff, 66.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Prep.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>Directors (All), 72.4%</td>
<td>Directors (Hotwash), 75.0%</td>
<td>Staff, 44.4%</td>
</tr>
<tr>
<td>Maternal Child Health</td>
<td>Directors (All), 51.7%</td>
<td>Directors (Hotwash), 50.0%</td>
<td>Staff, 33.3%</td>
</tr>
</tbody>
</table>
Wide Diversity of Vulnerable Populations Discussed

Throughout the hotwash discussions, several vulnerable populations were identified. These groups were discussed in the context of what was done, who was missed, or because the facilitators specifically probed on the needs of pregnant people, postpartum people, and families with young children. While pregnant people, postpartum people, and families with young children came up more than other populations – most likely due to specific discussion probes – these MCH groups are part of almost all of the vulnerable populations mentioned; the focus is just on another defining factor of the populations that were discussed (e.g., homeless). This other focus is mostly likely due to that fact that only half of the participants work in MCH.

The vulnerable groups identified more than once during the Hotwash are listed below in order of most frequently mentioned to least frequently mentioned:

- population served by MCH programs;
- rural population;
- non-English speakers or English as a second language speakers (includes refugees and migrant workers);
- Hispanic population;
- homeless;
- Black, Indigenous, and People of Color (BIPOC);
- homebound; and
- victims of sexual assault and violence.

The groups that were only mentioned once include:

- multi-generational families;
- lesbian, gay, bisexual, transgender, queer, and others (LGBTQ+);
- travelers who were stranded with COVID; and
Factors That Shaped the Response and Recommendations for Future Responses

During the hotwash discussions, it became clear that there were three overarching themes that made the COVID public health response unique:

- length of the pandemic;
- spread of misinformation; and
- politicization around the response.

These overarching issues drove staffing changes at LHDs, impacted public health staff’s mental health, required LHDs to find new partners and/or strengthen existing community partners, affected LHDs’ communication and outreach strategies, and may have contributed to a degradation of trust in public health.

Change in Staffing

As stated earlier, COVID has been the longest pandemic in the United States. This prolonged response has been problematic because the initial strategy for most local health departments was to reassign existing staff to help with the public health response (See Appendix C). The majority of directors (74%) and staff (66%) listed on the survey that their role changed as part of their LHD’s COVID Response. As a result, some public health programming was stopped, some diminished, and some continued as usual. Regardless, public health agencies needed more staff. Hotwash participants stated that the new staff included (most frequently to least frequently mentioned):

- communications staff (directors and staff);
- COVID unit staff (directors);
- contact tracing and case investigators (directors and staff);
- epidemiologist (directors); and
- medical assistants (staff).

While a majority (68.8%, 33/48) of LHDs in the survey reported their staffing stayed in the same range, 29% (4/48) said their staffing increased.

Challenges Due to Hiring Temporary Staff

During the hotwash discussions, directors mentioned that the increase in staffing was accomplished by hiring temporary staff. This led to some unique challenges.

(Personally, I think it’s because this was such a protracted response. If it’s only going to be one, two, three months, we’re not asking people to develop a whole new program. Here we are going on three years now.” (Staff)
• Temporary staff were not really temporary. Due to the prolonged response of the pandemic, a lot of the temporary staff have been working at the LHD for over a year. As one director stated, “...I’ve got temporary staff that have been working for us for nearly 18 months.” This is problematic because temporary staff do not get sick leave, paid time off, health benefits, etc.

• Having two types of staff – permanent and temporary – has led to staff frustration and perceived inequities.

“We saw some of those same things with some of those temporary employees being second-class citizens, but we also saw the opposite of it in some particular instances where we hired temporary staff at a higher classification or a higher pay than full-time staff [who supervised them].” (Director)

• The need to rapidly hire a high volume of staff put a strain on the human resources (HR) and information technology (IT) departments at LHDs.

Benefits Due to Hiring Temporary Staff

While temporary staffing posed challenges, it has also provided opportunity. Temporary staff could step in when a program needed assistance between outbreaks. “When we had times where work slowed for some of our temp employees, I was able to do some just-in-time training and have them assist in programs that suffered over COVID response and still have them ready for the next wave.” (Director)

Directors noted that these temporary staff have helped build a workforce pipeline for LHDs. As one director stated, “We've filled quite a few of our permanent positions with temp COVID staff.” Research reports that the COVID pandemic has had a negative impact on the public health workforce. One study reported that 66.2% of public health workers in their study reported burnout and those who planned to continue in public health for more than three years dropped from 85.2% in January 2020 to 61.6% in September 2020.

Another benefit to hiring temporary staff is that it has improved the efficiency of the hiring system. As one director stated “…we would say ‘well we can’t do this in our systems in these bureaucracies. We will never be able to hire folks.’ Well, we hired folks, we did everything we said we couldn’t do. We can’t get a contract before six weeks, well we got them in three weeks…there was efficiencies that we put in place and I’m just hoping and praying and doing everything I can to keep those efficiencies in place, especially as it relates to HR, and even some IT areas and some of the other operational areas.” (Director)

Staffing Recommendations

Both staff and directors provided recommendations around staffing for future pandemics.
• There needs to be a **system in place to quickly hire** temporary staff, track their equipment, and ensure you have fiscal support to help manage the temporary funds to pay for these staff and equipment.

> “We had to hire 300 contact tracers early on. This put a strain on HR, IT. All departments were affected by that. Moving forward, if something like this happens again, we’re going to have to be able to build up capacity in a short amount of time and we should have systems in place to track equipment, laptops, as well as staff, etc.” (Director)

• **Classify temporary staff as limited term staff** so that they have access to benefits and are more equal to permanent staff.

Directors also recommended that now is the time to **start re-building the public health workforce** so that they can meet the needs of communities. As stated above, tapping into those who were temporary workers during the pandemic is one place to start but one director also talked about working with universities and colleges to find student apprentices who could gain experience to meet the minimum qualifications for their public health roles.

Directors also noted that **adding or keeping some key staff roles** was important in being ready for the next pandemic. Some roles specifically mentioned were:

- community liaisons;
- communication positions; and
- epidemiologists.

The community liaison and communication roles help LHDs in their future responses by helping to maintain the partnerships they have built during their COVID response and helping them improve communication and combat miscommunication; all key issues in the COVID response.
To meet these staffing goals, “we need to think how to enhance local health departments with funding and staffing for coming pandemic or other emerging diseases.” (Director) As one director stated, a silver lining of the pandemic is that public health departments have received money to increase staffing to meet the need. However, “new funding is not enough. For sustainable local health departments, we need sustainable funding flow to [build] local PH capacities.” (Director) A few of the directors stated that temporary federal funding is important, but that funding goes away when a new crisis emerges. The public health system needs to identify 1) how to get sustainable funds to cover staffing needs and 2) mechanisms for how to get any new funding to the LHDs because these funds can get held up at the state level.

Mental Health of Public Health Staff

As part of the COVID response, public health staff were pulled in many directions. They were asked to:

- stop or reduce their everyday work to assist with the COVID response;
- transition the COVID work they had been doing for months to new, temporary employees who may not have public health experience;
- respond to and educate others on the changing messaging and recommendations; and
- deal with the politicization of the pandemic response including anger and mistrust directed at them from community members.

Moreover, while 94% (17/18) of the directors voluntarily changed their roles due to COVID, only 57% (4/7) of staff whose roles changed said that change was voluntary. These demands, the prolonged
duration of the COVID response, and the perceived lack of support due to politicization took a toll on the mental health of LHD staff. As one staff member shared, the shrinking public health workforce is because of the mental health stress public health workers have faced as part of the COVID response. “I have colleagues diagnosed with PTSD and several have left public health.” (Staff) This view is supported by research stating that symptoms of anxiety, depression, and burnout were widely reported amongst public health workers, especially those who had been in the field between one and nine years.

Mental health needs were identified as “something that did not go well” in LHDs’ COVID response and as a need that has to be addressed in future pandemic responses.

Directors did identify efforts to address the mental health needs later in the pandemic response. These efforts are outlined below and should be considered early on in future public health responses.

- LHDs designated a staff member to focus on employee wellness by:
  - leading staff through self-care exercises like breathing and basic exercises;
  - talking about work/life balance; and
  - putting out messages of appreciation and providing gifts like t-shirts, snacks, or water.
- LHDs partnered with mental health experts within and outside of public health to provide support via information, videos, etc.
- Therapy dogs visited work sites weekly.

There were also recommendations for other approaches to try in the future to ensure public health staff’s mental health needs are met. Suggestions included:

- cross-training LHD staff so all staff can get mental health breaks when a public health response will take longer than a few months;
- actively engaging in activities to support mental health of the workers such as teaching resiliency techniques and discussing issues like compassion fatigue and burnout so workers know what to look for and are willing to seek help; and
- bringing in outside partners to provide mental health support to public health workers.
**Collaboration**

When resources and staffing are tight, collaboration with other departments and external partners becomes key. Survey respondents felt that prior to COVID, EPR, ID, and MCH departments/units were ready to collaborate because they already had experience working together. Respondents rated their collaborative efforts as strong (see Appendix D for survey responses around collaboration between these three LHD areas). One director provided an example of how the units worked together. “One of the things I first did when we started talking about vaccine is [reach out to] my immunizations coordinator. And I’m the director of emergency preparedness. I don’t know anything about immunizations, she does...we started planning everything together well in advance of what was going on.” (Director)

While understanding the perceived level of collaboration is important, perhaps what is most important and predicts future collaboration is the belief that the collaboration was productive. This is one area of concern. On a five-point scale, survey respondents rated their belief that the collaboration was productive for the MCH community as “neutral”; it was the lowest average score on the collaboration scale.

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**STRATEGIES FOR SUPPORTING THE MENTAL HEALTH NEEDS OF LHD STAFF**

- Cross-train LHD staff to allow for mental health breaks when needed.
- Teach resiliency techniques to staff so they can engage in self-care.
- Discuss compassion fatigue and burnout so workers know when to seek help.
- Bring in outside partners to provide mental health support to public health workers.
- Have dedicated staff who deliver employee wellness programming.
- Hold employee appreciation events/programs.
- Partner with mental health experts within and outside of public health to provide support and education.

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*Figure 4. Perception that Collaboration was Useful in Assisting MCH population Mean Item Score.*
There are many articles in behavior change literature that state the importance of celebrating success to reinforce desired behaviors.\textsuperscript{vi} It seems important, therefore, for LHDs to be able to recognize and celebrate their successes, however small, when it comes to supporting MCH and other vulnerable populations.

Expanding Partnerships

While collaboration within the LHD was strong, hotwash participants stated that the length of the pandemic, politicization of the COVID response, and the need to battle misinformation made it even more important to work with community partners. Public health professionals have excelled at partnering with agencies and community groups outside of their LHD; these partnerships became more important during the COVID response because of the barriers LHDs faced. A few hotwash participants mentioned having strong coalitions that were in place prior to the pandemic and that assisted them during the pandemic. One director explained “...we have had the partnerships with those who serve domestic violence survivors as well as sexual assault child abuse. And so, when the schools closed down as well, you know, we also had strong partnerships with our child protective services divisions.” These partnerships were mutually beneficial; the community partners helped the public health department meet the needs of their community and the public health department helped community partners accomplish their priorities.

Oftentimes it can be difficult to see the impact of collaboration on the communities being served. This is especially true when the goal is to improve outcomes for the MCH population, but staff do not realize they are working with the MCH population when they are working with homeless, rural, victims of sexual assault, migrants, and refugee populations, for example. Hotwash participants shared stories of the impact of collaboration in being able to vaccinate migrant families and providing hotel rooms for members living in multi-generational households to keep “grandma separate from baby, separate from whoever is sick.” (Director). These are MCH successes that came from collaborations with EPR and ID and meet the goal of improving outcomes for the MCH population. Reminding staff of these important outcomes and that they positively impacted the MCH population is important.
Community partners helped meet community needs by:

- setting up and volunteering at vaccination sites and testing sites;
- conducting COVID testing;
- monitoring for community outbreaks;
- disseminating public health education messaging;
- distributing resources to first responders and homeless populations;
- providing resources to vulnerable populations which included pregnant people and families with young children;
- getting messaging out to hard-to-reach populations; and
- providing feedback on regulations, what they needed from the public health department, what was working, what wasn’t working, etc.

Local health departments supported community organizations as well. Community partners were able to leverage LHDs’ COVID-related outreach efforts to educate people on the services they provide. One director explained “They set up a table and pass out goody bags/strike up conversations with those interested in learning more about their services available. It helps their agency and it helps the population we’re serving also.” Public health could also provide direct support to businesses. “I got a call from the plant manager, which is first time that ever happened, I said ‘okay how are we gonna make this work? Let's give them the resources they need,’ and that's how the...relationship started, and it grew from there.” (Director)

In some cases, public health officials stepped in to provide services these agencies could not. One public health director said they “provided a site for voting for people who are in isolation in quarantine. We had our local elections and our election board reach out to us and we had folks get deputized to be election workers and we hosted a site so people could vote.” Below are quotes from directors in the Hotwash that highlight the various ways partnerships were utilized to support innovative response efforts.
As illustrated in the last quote above, community partners also helped LHDs meet the mental health needs of their workforce.

The breadth and depth of partners was a positive outcome of the COVID response. Survey respondents identified 13 partners outside of EPR, ID, and MCH whom they collaborated with during their COVID response; hotwash participants identified another 17 (see Figure 5). While many of the partners listed may have worked with LHDs prior to COVID, the partnership was strengthened as a result of collaborating on COVID response efforts. In some cases, new partners such as voting advocacy groups came about because the LHD realized they were having a hard time reaching all of the groups in their community.
<table>
<thead>
<tr>
<th>Animal Control</th>
<th>Animal Shelters</th>
<th>Businesses &amp; Chamber of Commerce</th>
<th>City &amp; County Municipalities</th>
<th>Clinical Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Engagement (CBOs, Existing Collaboratives)</td>
<td>Colleges and Universities</td>
<td>Cultural Experts or Liaisons (e.g., CHWs)</td>
<td>Dentists</td>
<td>Election Board &amp; Voting Advocacy Groups</td>
</tr>
<tr>
<td>Elected Officials</td>
<td>Environmental Health</td>
<td>Epidemiology</td>
<td>Faith Based Agencies</td>
<td>Federal Partners (e.g., Forestry, Ntl Guard)</td>
</tr>
<tr>
<td>Health Education</td>
<td>Healthcare Providers and Clinics Outside LHD</td>
<td>Immunizations</td>
<td>Jails</td>
<td>Law Enforcement</td>
</tr>
<tr>
<td>Long-term Care Facilities</td>
<td>Medical Forensics</td>
<td>Occupational Health Partners</td>
<td>Refugee Health</td>
<td>Schools &amp; Childcare Centers</td>
</tr>
<tr>
<td>SNAP (Food Stamps)</td>
<td>State Agencies (e.g., Child Protective Services)</td>
<td>Transportation</td>
<td>Vital Records</td>
<td>WIC</td>
</tr>
</tbody>
</table>

*Figure 5. All partners identified in the survey and the Hotwash.*

**Sustaining Partnerships**

Both directors and staff highlighted the importance of keeping these collaborative partnerships going strong. Below are the recommendations suggested by hotwash participants to accomplish this task.
Communication and Outreach

The protracted nature of the COVID response, in combination with the politicization around the response, led to an adaptation and expansion of the communication channels and outreach strategies LHDs use to deliver critical information and resources to their communities. With respect to communication, directors and staff who participated in the Hotwash identified several modes of communication their LHDs utilized during the COVID response, ranging from expected modes such as social media to more innovative and unexpected modes like a pen pal system for reaching an Amish population (see Figure 6).

Maintain Collaboration with Community Partners

- There is a person at the LHD whose role is to reach out and continue to work with community partners.
- Have a database of partners and contact information. Include agencies or providers that call in to public health for resources.
- Routinely check contact information to make sure it is up to date. Suggest the contact information is by role at the organization rather than by person (e.g., email address is for the role, not a specific person).
- Include politicians in preparedness and response planning efforts.
- Include community partners in preparedness and response planning efforts.
- Incorporate community partners into the local healthcare coalition. Their role could be as simple as attending once a year to stay up-to-date or being more actively involved.
- Attend community meetings to maintain relationships and, if possible, volunteer on the committee(s).
- Educate partners on all public health services.
Communication and Outreach with Vulnerable Populations

With so many in-person services shut down, local health department directors and staff identified a wide range of strategies to conduct outreach with vulnerable and harder to reach populations during the COVID response. These strategies include:

- leveraging partners who work with vulnerable populations (e.g., Women, Infants, and Children, Department of Human Services, Ob/Gyns, non-profits, childcares, schools, etc.) to disseminate COVID-related information and guidance;
- using community health workers, or Promotoras, for outreach and education;
- using the Health Alert Network (HAN) to send important updates on vaccines and testing to Ob/Gyns, childcare centers, etc. as a means of reaching the mother and infant population;
- bringing vaccinations to those who are homebound;
- providing educational content in other languages (e.g., Spanish-speaking townhalls, educational videos in languages other than English);
- attending a weekly meeting with faith leaders from African American churches;
• sharing information and/or conducting vaccine clinics with large employers (meat processing facilities, motor companies, food distributors, agricultural businesses, etc.);
• sending LHD staff into the community to do outreach (e.g., community resource centers, churches, salons, baby stores, door-to-door, Kwanzaa event);
• disseminating messages through community coalitions, committees, or task forces;
• tapping into voting advocacy groups to identify methods for reaching various populations as mentioned earlier; and
• conducting focus groups to tailor outreach and education efforts for vulnerable populations.

“As mentioned earlier, partners were extremely important in helping LHDs communicate and conduct outreach with their communities during the COVID response. When asked specifically about the ways in which LHDs reached their pregnant and postpartum population during the COVID response, many discussed the Women, Infants, and Children (WIC) program as being instrumental in ensuring this population continued receiving necessary resources and information. According to one LHD director, “[WIC] came down real quick with the plan to the states so I was impressed with WIC and I actually think our caseload is actually up...So, I have to give a big shout out federally to WIC and their proactive approach to getting us remote and really working with our clients as best we could.”

Other partners who helped LHDs reach the pregnant and postpartum population included Ob/Gyns, medical forensics teams, healthcare coalitions, non-profits, churches, and large employers who expanded vaccine clinics and outreach activities to include families of employees.”
During their COVID response efforts, LHDs were not focused solely on the one-way transmission of information to their communities. They also wanted to hear back from their communities in terms of what was going well, what wasn’t going well, and what their concerns, questions, and needs were. Directors who participated in the Hotwash discussed some of the ways they sought feedback from their communities including focus groups, meetings with faith leaders, and a feedback system with businesses through the chamber of commerce. Directors who employed these feedback loops found them extremely helpful in guiding their response efforts and in reaching different populations.

**Communication Challenges**

Despite such comprehensive efforts to communicate and conduct outreach with their communities, local health departments were faced with a multitude of challenges. The challenges identified during the hotwash discussions can be categorized into the themes which are listed below in order or prominence.

- social media
- misinformation
- inconsistent messaging
- response not led by public health

**Social Media**

Social media introduced several unanticipated barriers during the extended COVID pandemic. While some local health departments relied heavily on social media for messaging and education, others were not allowed to utilize any form of social media or were only allowed to use one or two social media platforms. Staff from this latter group of LHDs felt this was a barrier in being able to reach their communities effectively. However, those who did use social

“...we’re not allowed to use social media, only Twitter and Nextdoor. That’s a big hindrance when they’re on TikTok and Instagram - that MCH universe.” (Staff)
media were confronted with waves of misinformation. In addition, some of the LHDs using social media pointed out its limitations in reaching the citizens in their health district. As stated by one hotwash participant, “One of the things that we saw as a local health department, we were able to utilize social media to put messages out, but it became a crutch. When I analyzed the age, sex of the people using social media, it was a small percentage of our actual health district. We have 57,000 people in our health district. Only about 2,000 people that we saw on Facebook were actually from our health district. It became a crutch for us because it was really easy to pump a message out there, but we wouldn’t duplicate that message to the radio, the newspaper, and the local TV channels.” (Staff)

Due to the potential challenges of social media, LHD staff and directors suggested supplementing social media with other messaging strategies to ensure a broader reach and to help dilute the misinformation being encountered on social media.

SOCIAL MEDIA RECOMMENDATIONS

- Disable comments on social media platforms if they become problematic.
- When conducting your community health improvement plan (CHIP), ask your community “what is the most effective way to reach you with important information?”
- Be sure to incorporate lessons learned with respect to social media into future preparedness and response plans.
- Incorporate multiple messaging strategies into your LHD’s response plans to offset the limitations of social media.

Misinformation

Misinformation was a common barrier to response efforts, especially with respect to public health guidelines. This issue was brought up by directors and staff during the Hotwash. Although health departments were expanding and innovating their methods for disseminating evidence-based guidelines and information, local health departments were confronted with large amounts of misinformation, especially on social media. Research reveals three main types of misinformation that emerged during the COVID-19 pandemic: false claims, conspiracy theories, and pseudoscientific health therapies.ii

“Misinformation included fertility issues with mRNA vaccines. This has hindered vaccine uptake for those planning to have children.” (Staff)
The ease with which these types of misinformation were spread on social media contributed to what the Director-General of the World Health Organization referred to as a misinformation epidemic, or ‘infodemic’. According to hotwash participants, a lot of their COVID response efforts had to go toward addressing this infodemic, which was affecting vaccine acceptance and vaccine uptake in their health service districts. As one hotwash participant put it, “there really is a group that...they dispel everything ... all the public health messaging. What’s difficult is we had to maneuver through that. There was a lot of response to just the messaging part. It affected our maternal-child health people and our program managers and really affected those that became very vaccine hesitant in this pandemic that weren’t that way prior.” (Staff)

“The fact that anybody can put their opinion into social media and they’re talking to an echo chamber, and it gets amplified because of the algorithms of social media, they can say things like ‘I heard that the vaccine will cause you to turn purple’ and they’re like ‘oh yeah my aunt’s cousin’s brother’s sister turned purple from it.’ Now that becomes an amplified message and then you have people that do their blogs, vlogs, and they have a YouTube channel. Social media has complicated things. Someone’s site might look very valid, their blog might look very official, like it’s a valid scientific study, when in fact they talked to two people.” (Staff)

Responding to this unanticipated infodemic has proven extremely challenging for LHDs. However, hotwash participants found that conducting frequent response updates or briefings, providing public facing data dashboards, utilizing a trusted spokesperson to disseminate the correct information, and disabling comments on social media were helpful tactics for countering misinformation.

**RECOMMENDATIONS FOR COMBATTING MISINFORMATION**

- Conduct regular updates and briefings.
- Provide public facing data dashboards and update them regularly.
- Leverage partners who are respected and trusted by their communities to help combat misinformation.
- Stay ahead of information as much as possible.
- Disable comments on social media platforms if they become problematic.
- Incorporate strategies for addressing an infodemic in your response plans.
Inconsistent Messaging

Directors and staff who participated in the Hotwash conveyed their frustrations, as well as their communities’ frustrations, with the inconsistent messaging between different levels and even within the same levels of the government. While some felt the inconsistent messaging was due to the rapidly changing situation, others felt it was due to a fragmented response which led to communication breakdowns between different government levels and sectors.

“Public trust has suffered immensely. I believe it’s going to be a challenge to get public trust back and I think that was in part due to rapidly changing messaging and sometimes contradictory messaging at different levels of government, whether it was local, state, federal. And then sometimes messaging coming out in the media prior to any of us really even knowing the changes were forthcoming so I think that’s partly it so then people stop listening to the messaging, period, or challenging it even more.” (Director)

According to a survey conducted early in the COVID pandemic, approximately 75% of US adults surveyed reported recently hearing conflicting information from health experts, politicians, and/or others. Hotwash participants felt this inconsistent or conflicting messaging contributed to a lack of trust in state and local health departments, thus making it more difficult for LHDs to disseminate crucial information effectively.

“...we’re a small county so most of our TV coverage goes to a large population in [nearby city] and their LHD wasn’t always consistent with the message that we were trying to put out. So, we were always trying to compete with them as well as trying to get the message out as much as possible. (Staff)

Conversation templates (see Appendix F) can be a useful tool for ensuring consistent messaging, either internally at the LHD, or externally across partners. To promote consistency across other government levels and sectors, LHDs are encouraged to include politicians and government representatives in their preparedness planning efforts.
COVID Response Not Led by Public Health

One way the response to this pandemic differed from previous public health responses is that it was not always led by public health at the state level. According to some of the hotwash participants, the inconsistent messaging was due, at least in part, to public health not being the lead agency in their state’s COVID response efforts. This was brought up by staff and directors more than once in each Hotwash discussion. Specifically, participants expressed the following concerns/frustrations that stemmed from states designating a non-public health entity to lead their response:

- Politicians, specifically those not entirely sold on the science behind the pandemic, were leading the public health response.
- Public health was not viewed as a subject matter expert.
- Public health’s experience with pandemic planning was ignored or unnecessarily duplicated.

“\textit{I feel like the change (between zika, h1n1 and covid) in [state] is a result of Health not taking the lead in the response effort. As [participant] stated, we have been doing pandemic planning for years, but the Department of Public Safety was tasked with taking the lead. In my opinion, that was the start of crumbling credibility of the public health response. I feel it would have been best received with Health in the lead, and with strong support for public health provided by other agencies.}” (Staff)

RECOMMENDATIONS FOR CONSISTENT MESSAGING

- Encourage the use of conversation templates within your LHD and, if possible, across your region or state, to ensure consistent messaging.
- Include politicians and representatives from other government agencies in your LHD’s planning efforts. This may help prevent breakdowns in communication during rapidly changing responses.
- Reinforce the message that sometimes, “change is good” when it comes to response efforts. Protracted responses will require changes in guidance as the emergency and the data evolve over time.
“I think I want to just kind of echo what was just said in terms of the people of authority. In many instances, it was absolutely unreasonable, difficult, and just making things very problematic, and they continue to do that. This bipartisan kind of thing here, real conservative, science deniers, all that stuff, just really having to do to deal with that and having those people lead what is obviously a public health response was challenging. (Director)

Hotwash participants stressed the importance of including politicians in LHDs’ planning efforts to increase their awareness of and respect for public health’s expertise in public health preparedness planning and response.

**RECOMMENDATION TO INCREASE PUBLIC HEALTH’S ABILITY TO LEAD RESPONSE TO PUBLIC HEALTH EMERGENCY**

Make sure politicians and representatives from other government agencies are aware of your LHD’s preparedness plans and consider inviting them to participate in future preparedness planning activities. This may help reinforce public health’s role as subject matter expert when it comes to pandemic preparedness and response and convince leaders to designate public health as the lead agency in response efforts.
Loss of Trust in Public Health

The communication issues, including public health not leading the COVID response, have led to an ongoing challenge that public health will need to overcome – the loss of trust in public health. During the Hotwash discussions, directors and staff both brought up a perceived lack of trust in public health and how it has negatively impacted local health departments’ ability to effectively share COVID-related information with their communities. Hotwash participants identified a variety of reasons for this waning trust including politicians speaking and acting on behalf of public health, public health not having the lead role in their state’s COVID response, inconsistent messaging between the different levels of government, and an inadequate/late focus on vulnerable populations.

“Talking about the disjointed messaging and what contributed to the mistrust. I think one of the really challenging things from the federal level on down, is that we had politicians speaking for public health and politicians making public health decisions and recommendations.” (Director)

Hotwash participants were asked for ideas on how to rebuild the public’s trust in public health. The most frequently mentioned recommendation was to shift from the heavy COVID messaging to talking about all the services public health offers. Participants thought the breadth and depth of what public offers was not really clear to community members. Another recommendation was public health agencies increasing their transparency by sharing data and information early and often. One recommendation that did not come up but could help increase trust is for public health agencies to share how they helped and supported their community partners (e.g. businesses, voting groups). This messaging could come directly from the community partners.

RECOMMENDATIONS TO REBUILD PUBLIC TRUST

- Highlight your LHD’s existing public health promotion and disease prevention programs.
- Be transparent and proactive: share data and information early and often.
- Work with your state to designate public health employees as first responders.
- Foster and encourage a culture that separates public health and politics.
- Find creative ways to give back to the community (e.g., food vouchers/coupons).
- Share how LHDs helped community partners.
As seen throughout the report, the hotwash participants offered many recommendations on the issues discussed above. A final set of recommendations focuses on taking the lessons learned from this pandemic to better prepare for future emergencies and ensure plans are in place to guide those efforts and the needs of vulnerable populations. First, participants recommended that groups (LHDs, specific units, coalitions) conduct their own After-Action Review (AAR) or Hotwash. As we stated earlier, the AAR format guides participants through four questions:

- What was supposed to happen?
- What happened?
- What did and did not go well?
- What do you recommend for the future?

There is an AAR and hotwash resource guide in Appendix F. The AAR format is gathers data on what did go well and what did not go well. If done correctly, the process is less about blame and more about highlighting what needs to continue and what new things need to be tried.

One potential outcome from a local AAR is for the group to create or update emergency plans. Both directors and staff recommended creating or updating an existing Public Health and Emergency Preparedness plan that could serve as a guide for the next emergency, including another pandemic. Access and Functional Needs planning and Continuity of Operation plans were mentioned. LHDs may want to update or create plans now while their experience with this pandemic is still fresh. The CMIST Framework and Toolkit for State and Local Planning and Response can be used to ensure the needs of vulnerable populations are met. Plans should also ensure that an Incident Management Team, with representation from all health department units, is in place. Two resources for building the IMT are listed below.

- Federal Emergency Management Agency’s ICS Organizational Structure and Elements
- Incident Management Team Chart
While updating the plans is important, it may not be critical. Staff mentioned that although the plans did not account for new technology such as social media they still “gave you a starting off point, but it’s important to understand that plans are just plans and, in an emergency, they’re just going to be used as a very rough draft of what you’re going to be able to do. It takes innovation on the fly to be able to adequately respond to any kind of public health emergency.” (Staff)

One other suggestion was to make sure the continuity of operations plan details how the LHD intends to continue offering its regular public health services while also staffing the pandemic response.

It was also suggested that preparedness plans explicitly address the distribution and scheduling of vaccines. One specific example was how to create a HIPAA compliant system to schedule and document when a person receives a vaccine. A few participants also stated the preparedness plan should address a mass distribution system to get vaccines out to community sites and maximize vaccination rates. The final suggestion around vaccine distribution was to pair the administration of a new vaccine with an existing vaccine for sake of efficiency. The example given was to provide the COVID vaccine at the same time as the flu vaccine.

Hotwash participants felt it was important to use the lessons learned from this pandemic response to prepare for future public health emergencies. Writing an emergency response plan is a long, comprehensive process that will take time and resources that LHDs may not have right now. There should be support in place to help LHDs with their planning and with the resources needed to create or update those plans. As stated earlier, this pandemic has led to burnout and many public health professionals are leaving the field. The institutional knowledge needs to be captured as quickly as possible to inform future planning so public health professionals have a strong foundation of preparedness and can provide support to their workforce while serving all members of their community.
As stated throughout this report, the COVID-19 response was difficult due to length of the pandemic, spread of misinformation, and politicization around the public health response. These difficulties drove staffing changes at LHDs, impacted public health staff’s mental health, required LHDs to find new partners and/or strengthen existing community partners, and affected LHDs’ communication and outreach strategies. Participants also felt that these difficulties led to the public no longer trusting public health.

However, due to strong collaboration between EPR, ID, and MCH prior to COVID, and the breadth and depth of collaboration between LHDs and their community partners, public health has slowly figured out how to minimize these challenges and meet the needs of their communities. The LHDs who participated in the Hotwash highlighted the innovative response strategies (e.g., using wastewater to track outbreaks), the compassion for the workforce (e.g., addressing the public health workforce mental health needs during the latter parts of their response), and the care and concern for the community (e.g., vaccination clinics at migrant work sites and using voting advocates to find hard-to-reach communities). Hotwash participants also identified silver linings like increased efficiencies around onboarding new staff, creating a public health pipeline with the temporary employees who were part of the COVID response, and finally, being able to hire community health workers because of COVID funding. They shared their wisdom of what worked, what didn’t work, and what they recommend for the next public health emergency.

It is extremely important to take the time to step back and look at what was supposed to happen, identify what actually happened, and make recommendations for the future. However, the value of that exercise is only realized if the lessons learned can be shared and utilized by LHDs, policy makers, and those who provide training, support, and funding to public health agencies. One way to support these agencies is to identify funding that aligns with the recommendations in this report to support the long-term needs of LHDs beyond this pandemic and into the preparedness phase before the next emergency. In addition, support around emergency planning should ensure the needs of vulnerable populations, especially MCH populations, are met. Additional support for LHDs should be in the form of educating the public on the need for public health to be nimble in their response to meet the needs of the community.
based on the best information available to them. Finally, it is important to make sure the public health workforce’s mental health needs are supported so they can perform their duties to the best of their abilities. This begins with reminding local health department employees and the public of the successes that occurred during the COVID pandemic, in large part due to the tireless efforts of LHDs.

“We’ve dealt with wildfires here... You don’t fight every fire the same and fires change. So does the commander in charge say they just keep fighting it the same way and hope it works. No, you better change or that's insanity... But I just wanted to say [participant], you’re spot on and we all should stand tall, and we all should show that we did the darndest we can. I think we did really well. We probably saved millions of lives.” (Director)
REFERENCES


Appendix A - Complete Demographics of Survey Respondents

Appendix B – LHD’s COVID Response Goals

Appendix C - How Roles Changed During LHD’s COVID Response

Appendix D – Collaboration Data from the Survey

Appendix E – How Survey Respondents Rated Their LHD’s COVID Response

Appendix F – Tools

Appendix G – Recommendations

Appendix H - Abbreviations
Appendix A - Complete Demographics of Survey Respondents

Accessibility Needs to Participate in the Hotwash

The survey gathered accessibility data to ensure everyone could participate.

- Three people needed accommodations to ensure they could fully participate in the hotwash. These accommodations included turning on close captioning and increasing type for low vision.
- A few participants were not sure if the brainstorming/sharing tool used would work with their firewall. IdeaBoardz was used and there were no issues. CPHI did ask all participants to test this tool prior to the actual hotwash to identify issues.
- A few participants were worried about internet stability. The facilitators recommended these participants join Zoom for visual only and use the phone for sound so that they could hear if their internet froze up.

Size of Population LHDs Served

In terms of communities represented, the majority of survey respondents (60.4%) represented mid-sized communities (50,000-499,999) that were a mix of rural, urban, and suburban (56.3%).

<table>
<thead>
<tr>
<th>Which best represents the size of the population your LHD serves?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (&lt;50,000)</td>
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<td>1</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Mid-sized (50,000-499,999)</td>
<td>18</td>
<td>6</td>
<td>5</td>
<td>29</td>
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<tr>
<td>Large (500,000+)</td>
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<td>2</td>
<td>3</td>
<td>10</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>9</strong></td>
<td><strong>10</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

*Table A-1. Which best represents the size of the population your LHD serves?*

<table>
<thead>
<tr>
<th>Which best represents the degree of urbanization served by your LHD?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
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<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Mostly Urban/Suburban</td>
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<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Pretty mixed – Rural and Urban/Suburban</td>
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<td>4</td>
<td>6</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>9</strong></td>
<td><strong>10</strong></td>
<td><strong>48</strong></td>
</tr>
</tbody>
</table>

*Table A-2. Which best represents the degree of urbanization served by your LHD?*
**Size of LHD**

Survey respondents represented local public health departments with (LHDs) that ranged in size from to more than 200 FTEs at the time of the survey. The most frequently represented size was 100-199.9 full-time equivalent (FTE) (35.4%). While a majority (68.8%, 33/48) of LHDs in the survey reported their staffing stayed the same, 29% (4/48) said their staffing increased.

<table>
<thead>
<tr>
<th>Which best represents the size of your LHD before COVID?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9.9 FTEs</td>
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<td>1</td>
<td>2</td>
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<tr>
<td>10-24.9 FTEs</td>
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<td>2</td>
<td>0</td>
<td>6</td>
</tr>
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<td>0</td>
<td>1</td>
<td>5</td>
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<td>50-99.9 FTEs</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>100-199.9 FTEs</td>
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<td>1</td>
<td>5</td>
<td>12</td>
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<tr>
<td>200 or more FTEs</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>9</td>
<td>10</td>
<td>48</td>
</tr>
</tbody>
</table>

Table A-3. Which best represents the size of your LHD before COVID?

<table>
<thead>
<tr>
<th>Which best represents the size of your LHD now?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9.9 FTEs</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>10-24.9 FTEs</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>25-49.9 FTEs</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>50-99.9 FTEs</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>100-199.9 FTEs</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>200 or more FTEs</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>9</td>
<td>10</td>
<td>48</td>
</tr>
</tbody>
</table>

Table A-4. Which best represents the size of your LHD now?
Public Health Areas

Survey respondents were asked which areas they worked in. Emergency Preparedness was the best represented closely followed by Infectious Disease.

- 81.3% of the 48 survey respondents indicated they worked in Emergency Preparedness.
- 68.8% in Infectious Disease.
- 47.9% in Maternal Child Health.

<table>
<thead>
<tr>
<th></th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Preparedness</td>
<td>25</td>
<td>6</td>
<td>8</td>
<td>39</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>21</td>
<td>4</td>
<td>8</td>
<td>33</td>
</tr>
<tr>
<td>Maternal and Child Health</td>
<td>15</td>
<td>3</td>
<td>5</td>
<td>23</td>
</tr>
</tbody>
</table>

Table A-5. Which of the following areas do you work in? (Check all that Apply)

This was mirrored by the Hotwash participants.


**Titles of Survey Participants**

The 48 survey respondents reported 25 different job titles.

- Administrator (x2)
- Assistant Director/Deputy Director (x2)
- Bio-Defense Preparedness and Response Division Manager
- Chief Environmental Health Specialist
- Community Health Nursing Director
- COVID Lead (x2)
- Director/Executive Director (x7)
- Director Health & Emergency Management
- Director of Nursing
- Director of Public Health
- Disaster Epidemiologist
- Emergency Response Coordinator/Planner; Public Health Emergency Preparedness Coordinator (x9)
- Epidemiologist
- Health Commissioner
- Health Director (x2)
- Health Educator Consultant
- Health Officer (x2)
- Incident Commander
- LPN & Public Health Nurse (x2)
- Medical Director/ Health Authority
- Project Coordinator
- Public Information Officer/Community Engagement Specialist
- Quality Improvement Director
- Social Service Manager
- WIC
Length of Time in Public Health Field

The majority of directors who completed the survey (69%) had been in the field over 10 years (responses ranged from less than one year to over 10 years). Staff were more evenly distributed between three years and 10 years; the largest group (44.4%) had been in the public health field three to five years.

<table>
<thead>
<tr>
<th>How long have you been in the public health field?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than a year</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1-3 years</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3-5 years</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>6-10 years</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>20</td>
<td>3</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>9</td>
<td>9</td>
<td>47</td>
</tr>
</tbody>
</table>

Table A-6. How long have you been in the public health field?
Appendix B – LHDs’ COVID Response Goals

Survey respondents were asked to list their COVID response goals prior to the vaccine being available and after. Those responses were then coded to identify themes. Prior to the COVID vaccine being available, reducing the spread was the number one goal followed by sharing information, testing, contract tracing and education.

**COVID Response Goals Prior to the Vaccine**

<table>
<thead>
<tr>
<th>Rank</th>
<th>All</th>
<th>Directors</th>
<th>Staff</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reduce the spread (39)</td>
<td>Reduce the spread (25)</td>
<td>Reduce the spread (9)</td>
<td>Reduce the spread (5)</td>
</tr>
<tr>
<td></td>
<td>Information sharing / messaging (26)</td>
<td>Information sharing/messaging (16) Testing (16)</td>
<td>Contact tracing/case investigations (4)</td>
<td>Education (2) Vaccines (2) Testing (2) Contact tracing / case investigations (2)</td>
</tr>
<tr>
<td>3</td>
<td>Testing (21)</td>
<td>Contact tracing/case investigations (10)</td>
<td>Testing (3) PPE (3)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Contact tracing / case investigations (16)</td>
<td>Education (9)</td>
<td>Education (2)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Education (13)</td>
<td>Reduce the impact (8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table B-1. What was the goal of your LHD’s COVID response from March 2020 to when vaccines were available?*
Once the vaccine was available, the response goals broadened. While the goals prior to vaccination still existed, new goals were added including getting people vaccinated, partnerships, data monitoring and surveillance, and ensuring hospital capacity. As can be seen from the table below getting people vaccination was by far the primary goal. being the number one goal by far.

**COVID Response Goals After the Vaccine**

<table>
<thead>
<tr>
<th>Rank</th>
<th>All</th>
<th>Directors All</th>
<th>Staff</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vaccines (54)</td>
<td>Vaccines (36)</td>
<td>Vaccines (10)</td>
<td>Vaccines (8)</td>
</tr>
<tr>
<td>2</td>
<td>Information sharing / messaging (9)</td>
<td>Information sharing / messaging (7)</td>
<td>Education (2)</td>
<td>Reduce the spread (2)</td>
</tr>
<tr>
<td></td>
<td>Reduce the spread (9)</td>
<td></td>
<td>Reduce the impact (2)</td>
<td>Reduce the spread (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contact tracing / case investigations (2)</td>
</tr>
<tr>
<td>3</td>
<td>Education (6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partnerships (6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact tracing / case investigations (6)</td>
<td>Reduce the spread (5)</td>
<td>Partnerships (5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduce impact (6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Data (monitoring, surveillance) (4)</td>
<td>Education (3)</td>
<td>Contact tracing / case investigations (3)</td>
<td>Reduce impact (3)</td>
</tr>
<tr>
<td>5</td>
<td>Ensure hospital capacity (2)</td>
<td>Ensure hospital capacity (2)</td>
<td>Data (monitoring, surveillance) (2)</td>
<td></td>
</tr>
</tbody>
</table>

*Table B-2. What was the goal of your LHD’s COVID response once vaccines became available (May 2021)?
Appendix C - How Roles Changed During LHD’s COVID Response

In a previous project for NACCHO, CPHI learned through focus groups with MCH staff that some LHD staff became part of the COVID response, either voluntarily or involuntarily. The ability to choose could impact how one feels about their LHD’s COVID response. Therefore, the survey gathered data on whether respondents’ roles changed voluntarily or involuntarily. Overall, 65% of survey respondents said their role changed as part of their LHDs’ COVID response. The majority of directors (63%) and staff (44%) said they voluntarily changed roles.

<table>
<thead>
<tr>
<th>Did your role change as part of your LHD’s COVID response?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>2</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>9</td>
<td>8</td>
<td>46</td>
</tr>
</tbody>
</table>

*Table C-1. Did your role change as part of your LHD’s COVID response?*

<table>
<thead>
<tr>
<th>Were you able to volunteer to be part of your LHD’s COVID response?</th>
<th>Director</th>
<th>Staff</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I did volunteer</td>
<td>17</td>
<td>4</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Yes but I did not volunteer</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Not sure if it was an option</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>No, there was no option to volunteer</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>9</td>
<td>7</td>
<td>43</td>
</tr>
</tbody>
</table>

*Table C-2. Were you able to volunteer to be part of your LHD’s COVID response?*

Survey respondents were then asked to describe their role change. This was coded into common themes. The most common theme was that roles became COVID related followed by reducing or stopping pre-COVID work responsibilities, maintaining public health operations, and vaccination work.

<table>
<thead>
<tr>
<th>Rank</th>
<th>How did your role change as part of your LHD’s COVID pandemic response?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COVID related (15)</td>
</tr>
<tr>
<td></td>
<td>Directors: COVID related (10)</td>
</tr>
<tr>
<td></td>
<td>Staff: COVID related (4)</td>
</tr>
<tr>
<td></td>
<td>Unspecified: COVID related (1)</td>
</tr>
<tr>
<td>2</td>
<td>Less / none of usual work (6)</td>
</tr>
<tr>
<td></td>
<td>Directors: Maintaining public (3) health operations (3) Vaccines (3)</td>
</tr>
<tr>
<td></td>
<td>Less / none of usual work (3)</td>
</tr>
<tr>
<td></td>
<td>Staff: Less / none of usual work (3)</td>
</tr>
<tr>
<td></td>
<td>Unspecified: Maintaining public health operations (1)</td>
</tr>
<tr>
<td>3</td>
<td>Maintaining public health operations (4) Vaccines (4)</td>
</tr>
<tr>
<td></td>
<td>Directors: Vaccines (1)</td>
</tr>
</tbody>
</table>

*Table C-3. How did your role change as part of your LHD’s COVID pandemic response?*
Appendix D – Collaboration Data from the Survey

One important goal of this project was to track collaboration and changes in collaboration as the result of COVID. As a result, the survey included open-ended and closed-ended questions to capture this information.

Collaboration Within LHDs

Figures x and y show which groups the survey respondents most often collaborated with prior to COVID and at the time of the survey. For directors, collaboration was higher post-COVID with all groups.

![Figure D-1. Directors’ perceived change in collaboration between LHD departments prior to COVID and now.](image)

For Staff, collaboration remained relatively close pre and post COVID with the exception of the “other”.
Figure D.2. Staff’s perceived change in collaboration between LHD departments prior to COVID and now.

Of the three LHD groups specifically addressed in the survey, the majority of directors reported that prior to COVID, they met regularly with Emergency Preparedness (73.7%, 14/19) and Infectious Disease (66.6%, 16/24). The majority of staff also reported that they met regularly with Infectious Disease prior to COVID (66.6%, 4/6). The “other” group identified in the open-ended responses in the survey are listed in the two tables below. As mentioned in the body of the report, Survey respondents identified 13 partners outside of EPR, ID, and MCH; hotwash participants identified another 17.
<table>
<thead>
<tr>
<th>Rank</th>
<th>All</th>
<th>Directors All</th>
<th>Staff</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clinical services (6)</td>
<td></td>
<td></td>
<td>Environmental health (6)</td>
</tr>
<tr>
<td></td>
<td>Environmental health (7)</td>
<td></td>
<td></td>
<td>Clinical services (2)</td>
</tr>
<tr>
<td></td>
<td>WIC (3)</td>
<td></td>
<td></td>
<td>Environmental health (1)</td>
</tr>
<tr>
<td></td>
<td>Health education (1)</td>
<td></td>
<td></td>
<td>Vital records (1)</td>
</tr>
<tr>
<td></td>
<td>Epidemiology (1)</td>
<td></td>
<td></td>
<td>Immunizations (1)</td>
</tr>
<tr>
<td></td>
<td>Medical forensics (1)</td>
<td></td>
<td></td>
<td>Health promotion (1)</td>
</tr>
<tr>
<td></td>
<td>Community/school health (1)</td>
<td></td>
<td></td>
<td>Office of communication, engagement, and education (1)</td>
</tr>
<tr>
<td>3</td>
<td>Health education (1)</td>
<td>WIC (2)</td>
<td></td>
<td>WIC (2)</td>
</tr>
<tr>
<td></td>
<td>Epidemiology (1)</td>
<td></td>
<td></td>
<td>Vital records (2)</td>
</tr>
<tr>
<td></td>
<td>Medical forensics (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community/school health (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transportation (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vital records (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Immunizations (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health promotion (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Office of communication, engagement, and education (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Health education (1)</td>
<td>Epidemiology (1)</td>
<td></td>
<td>Epidemiology (1)</td>
</tr>
<tr>
<td></td>
<td>Epidemiology (1)</td>
<td>Medical forensics (1)</td>
<td></td>
<td>Medical forensics (1)</td>
</tr>
<tr>
<td></td>
<td>Medical forensics (1)</td>
<td>Community/school health (1)</td>
<td></td>
<td>Community/school health (1)</td>
</tr>
<tr>
<td></td>
<td>Community/school health (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transportation (1)</td>
<td>Refugee health (1)</td>
<td></td>
<td>Health promotion (1)</td>
</tr>
<tr>
<td></td>
<td>Refugee health (1)</td>
<td>SnapED (1)</td>
<td></td>
<td>Nutrition</td>
</tr>
<tr>
<td></td>
<td>SnapED (1)</td>
<td>Animal control (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Animal control (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table D-1. Who did your unit collaborate with before COVID (besides Emergency Preparedness, Infectious Disease, and Maternal-Child Health)*
<table>
<thead>
<tr>
<th>Rank</th>
<th>All</th>
<th>Directors All</th>
<th>Staff</th>
<th>Unspecified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clinical services (5)</td>
<td>Clinical services (3) Environmental health (3)</td>
<td>Clinical services (2)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Environmental health (4)</td>
<td>Epidemiology (1) Medical forensics (1) Community/school health (1) WIC (1) Vital records (1)</td>
<td>Environmental health (1) WIC (1) Vital records (1) Immunizations (1) Health promotion (1)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>WIC (2) Vital records (2)</td>
<td>Nutrition (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Epidemiology (1) Medical forensics (1) Community/school health (1) Health promotion (1) Nutrition (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table D-2. Who does your unit collaborate with now (besides Emergency Preparedness, Infectious Disease, and Maternal-Child Health)*?
Measuring Changes in Collaboration

Many measures of collaboration view it as a continuum from sharing information to coordinating actions to being an integrated unit.¹ To track this movement, the survey included a collaboration scale based on Bazzoli’s et al.’s work which captured perceptions around (1) shared goals, (2) effective communication, (3) sharing resources, and (4) incorporating other partners objectives into your group’s work.²

Collaboration Prior to COVID

Based on the survey responses, the LHDs were ready to collaborate when COVID hit—both staff and directors ranked collaboration high. Because there was no significant difference in the mean scores, the figures below report the mean reported by all survey participants who answered each question, regardless of position.

Collaboration During COVID

As can be seen in Figure D-4, survey respondents overall felt that EPR, ID, and MCH had a strong collaboration especially around resource sharing. The weakest point was around communication and incorporating other units’ objectives but even those were fairly high. It should also be noted that the highest level of collaboration—being an integrated unit—is not often the level of collaboration that most inter-disciplinary group members strive for so it is not surprising that incorporating objectives amongst units is one of the lower scores.


Collaboration Useful

As stated in the report, the belief that the collaboration was productive was scored the lowest. This is one area of concern. On a five-point scale, survey respondents rated the belief that the collaboration was productive for the MCH community as “neutral”; it was the lowest average score on the collaboration scale.

| Working with MCH, EPR, and ID during our COVID response accomplished things for pregnant and post-partum people and infants in our community. |
|--------------------------------------------------|----------|----------|--------|--------|
| not at all                                      | Director | Staff    | Unspecified | Total |
| 2                                               | 7        | 0        | 0       | 7      |
| 3                                               | 5        | 2        | 0       | 7      |
| 4                                               | 7        | 5        | 1       | 13     |
| very much so                                    | 2        | 0        | 0       | 2      |
| Total                                           | 25       | 8        | 1       | 34     |

Table D-3. Working with MCH, EPR, and ID during our COVID response accomplished things for pregnant and post-partum people and infants in our community.
Appendix E – How Survey Respondents Rated Their LHD’s COVID Response

How Respondents Rate Their LHD’s COVID Response

Survey respondents were asked to rate their LHD’s COVID Response. Their ratings are shown in Figure E-1 below.

Figure E-1. The breakdown of how directors rated their LHD’s COVID response prior to and following vaccination.

When making sense of the ratings it is important to note that 79.3% (23/27) of the directors and 55.5% (5/9) of the staff who completed the survey were involved in the decision around which staff, other than themselves, were pulled in for the COVID response. Furthermore, 63% (17/27³) of the directors and 44%

³ Not all directors answered this question.
(4/9) of the staff who completed the survey said they chose to volunteer to be part of their LHD’s COVID response while 62.1% (18/29) of the directors and 77.7% (7/9) of the staff said their role in their health department changed as part of the LHD’s COVID pandemic response. It should be noted that staff who rated their LHD’s initial COVID response lower were significantly more likely to only be somewhat or not at all involved in the decision of who was pulled into the COVID response ($\chi^2=9.2$, df=4, $p<.05$). Staff who rated both their LHD’s initial and post-vaccine response lower were significantly more likely to report that their role changed as part of the LHD’s COVID response ($\chi^2=9.0$, df=2, $p<.02$). See Appendix C for the analysis of how the roles changed.
## Appendix F – Tools

### After Action Review and Hotwash Resource Guide

*Updated: 11/12/2021*

This guide provides a list of resources that can be used to support the execution of after-action reviews (AARs) or hotwashes. The table below lists each resource by name and author and includes a description of the resource, a note about how it can be adapted for use by a local health department (LHD), a list of the specific tools included in with the resource, and the URL where the resource can be accessed online.

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Author</th>
<th>Resource Description</th>
<th>Application to Local Health Departments</th>
<th>What’s Included</th>
<th>Access Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 After Action Review Toolkit</td>
<td>Mathematica and Public Health Foundation</td>
<td>This toolkit, developed by Mathematica in collaboration with the Public Health Foundation, was designed to help organizations conduct effective, equitable, and trauma-informed AARs of their system’s COVID-19 response. The toolkit contains two modules: one for planning an AAR and one for conducting an AAR. Each module contains accompanying resources to support the corresponding phase of the AAR, including templates for activities such as pain point mapping and root cause analysis fishbone diagram. In addition, the toolkit provides a list of supplemental resources and trainings to help public health authorities and their partners build knowledge, skills, and resilience on topics that are likely to be relevant to the findings of their AAR.</td>
<td>This resource can be immediately applied in the LHD setting. According to the developers, “[the] toolkit focuses specifically on After Action Reviews that public health authorities and their partners can conduct to assess COVID-19 response, recovery, and resiliency work.”</td>
<td>• Four online modules:  o Overview  o Planning the AAR  o Conducting the AAR  o Resources for building resiliency following the AAR  • Roles and responsibilities table  • Preparation meeting agenda  • Sample meeting agenda  • Challenge and best practice brainstorming worksheet  • Root cause analysis and fishbone diagram  • Pain point mapping worksheet</td>
<td><a href="https://www.mathematica.org/feature...covid-19-after-action-review-toolkit">https://www.mathematica.org/feature...covid-19-after-action-review-toolkit</a></td>
</tr>
<tr>
<td>Guide to the After Action Review</td>
<td>VA Center for Implementation Practice and Research Support</td>
<td>This resource serves as a user’s guide to the AAR. The guide covers key steps and recommendations for the three main stages of an AAR: planning the AAR, conducting an AAR, and sharing the results of an AAR. The guide includes facilitator tips and ground rules which help ensure best practices for conducting AARs. According to the authors, “this tool is for all teams who want to maximize learning from their work (ranging from one-time events to long-term projects).” This guide can be easily adapted by LHDs for the review of their COVID-19 (or other) response.</td>
<td></td>
<td>• Step-by-step user’s guide  • AAR report template</td>
<td><a href="https://www.cebm.ca/wp-content/uploads/Guide-to-the-after_action_review.pdf">https://www.cebm.ca/wp-content/uploads/Guide-to-the-after_action_review.pdf</a></td>
</tr>
</tbody>
</table>
| Resource Name: Guidance for After Action Review (AAR) | Author: World Health Organization | Resource Description: This resource was designed to guide countries in the review of actions taken in response to any event of public health concern. The document and accompanying toolkits provide guidance on four formats for conducting an after-action review (AAR):  
- Debrief  
- Working group  
- Key informant interview  
- Mixed-method  

There is an accompanying toolkit for each of the formats listed above. | Application to Local Health Departments: The authors note that every agency or organization is different and “the principles presented in this guide should be adapted to the institutional culture, practice and needs around which the review is taking place.”  

The guidance and toolkit are not specific to a particular emergency response and can therefore be applied to any public health response (e.g., COVID-19). This resource can be helpful for local health departments (LHDs) considering different formats for an AAR (e.g., group debrief vs. key informant interviews) and can be especially useful in providing structure around designing, preparing for, conducting, and reporting on an AAR conducted in one of the four formats discussed in this resource. | What’s Included:  
- Guidance document  
- Working Group Toolkit:  
  - Planning checklist  
  - Concept note template  
  - Budget template  
  - Facilitators’ preparation day agenda template  
  - Facilitators’ preparation day presentation template  
  - AAR agenda template  
  - AAR presentation template  
  - Activity sheet template  
  - Trigger question database  
  - Objective based evaluation matrix  
  - Final report template  
  - Workshop evaluation survey  
  - Evaluation survey score worksheet  
- Key Informant Interview Toolkit:  
  - Planning checklist  
  - Concept note template  
  - Introductory email template  
  - Team leader recruitment language  
  - Briefing presentation template  
  - Interview tracking sheet  
  - Sample interview questions  
  - Survey on observations and recommendations  
  - Trigger questions  
  - Objective based evaluation  
  - Final report template | Access Link:  
Toolkits: [https://www.who.int/publications/m/item/aar-toolkits] |
<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Author</th>
<th>Resource Description</th>
<th>Application to Local Health Departments</th>
<th>What’s Included</th>
<th>Access Link</th>
</tr>
</thead>
</table>
| Guidance for Conducting a Country Covid-19 Intra-Action Review              | World Health Organization                                   | This guidance document and accompanying toolkit were designed to guide countries in conducting periodic intra-action reviews (IARs) of their ongoing COVID-19 response. This resource is focused on identifying best practices, gaps, and possible improvements to the current COVID-19 response, but the process can also contribute to improving and strengthening the response to concurrent and future emergencies.                                                                 | Although designed for a large-scale intra-action review of a country’s COVID-19 response, many elements from this resource can be adapted for use on a smaller scale, such as for a LHD, or for use in an after-action review. In addition, the guidance and tools can be adapted to guide the review of a non-COVID response. The toolkit can be especially useful in providing ample structure around the different phases of an intra- or after-action review: designing, preparing for, conducting, writing the report, and conducting follow-up. | Debrief Toolkit:  
• [Could not access - hyperlink disabled for this toolkit]  
Mixed Method Toolkit:  
• The toolkits for the other formats are to be used for a mixed-method AAR | https://www.who.int/publications/item/WHO-2019-nCoV-Country_IAR-2020.1 |
| Conducting an Outbreak Hotwash: Tools and Tips                               | Colorado Integrated Food Safety Center of Excellence        | This resource was developed to aid public health agencies in conducting a hotwash upon completion of an outbreak investigation. The document includes simple instructions for preparing for the hotwash (i.e., selecting stakeholders and topics, setting the agenda, and preparing meeting materials) and for running the hotwash. The guide includes recommendations and instructions for conducting a virtual hotwash. There is a sample agenda, action item tracking | LHDs can use this approach to conduct a streamlined AAR in which they just identify the successes and challenges in their COVID or other responses. The step-by-step instructions make this resource immediately accessible to even a novice facilitator.                                                                 | • Guidance document  
• Concept note template  
• Facilitator’s manual  
• Agenda template  
• Presentation template  
• Trigger question database  
• Note-taking template  
• Final report template  
• Participant feedback form  
• Participant feedback form - summary table  
• Exemplar story template  
• Conducting safe onsite COVID-19 intra-action reviews during the pandemic  
• Conducting effective online COVID-19 intra-action reviews during the pandemic - 28 April 2021 | https://coloradoспh.cuanschutz.edu/docs/librariesprovider203/default-document-library/conducting-an-outbreak-hotwash.pdf?sfvrsn=e1683fb9_0 |
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| After Action Review / Improvement Plan and Strategic Planning Toolkit | Inter Tribal Council of Arizona: Tribal Epidemiology Center | This resource serves as a planning tool for Tribal government leaders and public health workers wanting to conduct an AAR. Guidance is provided on the entire AAR process, from designing to conducting to following up with stakeholders afterward. The toolkit utilizes concepts from several organizations (e.g., WHO, CDC, FEMA, etc.) and includes tribal specific considerations. The process outlined in this resource utilizes the CDC’s fifteen Public Health Emergency Preparedness and Response Capabilities. Prior to conducting the AAR, reviewers identify their focus areas by identifying the capabilities most relevant and important to their community. | | • Guidance document  
• Capabilities performance rating worksheet  
• Improvement plan matrix template  
| After-Action Review Technical Guidance | United States Agency for International Development (USAID) | Like the other resources above, this handbook provides guidance on the four key stages of an AAR: planning, preparing, conducting, and following up. Key action items and recommendations are outlined for each phase of the AAR. This generic approach outlined in this handbook can be adapted for use in any context, including that of an LHD wanting to conduct a review of their COVID response, for example. The handbook guides reviewers through an AAR process that is very similar to the processes outlined by the other resources in this guide. | | • Guidance document  
• A checklist for planning and conducting an AAR  
• Logistical arrangements and setup checklist for an AAR  
• Sample ground rules  
• Sample agenda  
| Guidance Notes and Template for Conducting After Action Reviews | Economic Community of West African States (ECOWAS) | These guidance notes discuss key considerations and options in planning and conducting an AAR. In addition to providing guidelines for the different stages of the AAR (e.g., planning, conducting, and following up), this resource discusses key elements of Although some of the guidelines in this resource are specific to the context of ECOWAS and its stakeholders, many of the guidelines can be applied to the LHD setting. Specifically, the guidelines for selecting participants, group size, duration, and facilitators of the AAR can | | • Guidance document  
• Sample agenda  
• Process template for facilitating an AAR  
• Examples of agenda organized by key stages/events | https://pdf.usaid.gov/pdf_docs/PAD007NP5.pdf |
<table>
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<tr>
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<td></td>
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<td>successful AARs and offers guidelines on the group size and duration of the AAR as well as on selecting internal or external facilitators.</td>
<td>be especially useful for an LHD planning an AAR.</td>
<td>• AAR report template</td>
<td></td>
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</tbody>
</table>
On this website you can download a toolkit designed to improve emergency preparedness activities for state and local public health agencies.

The authors of the toolkit state “The contents include potential strategies for addressing special needs, summaries of promising practices implemented in communities across the country, information on how to select one or more practices that will work in a specific community, information on how to determine whether a practice is working, and a Web-based Geographic Information Systems (GIS) tool to identify and enumerate those with special needs in communities across the United States. Used together, this toolkit and the GIS tool are intended to provide a comprehensive resource to enable public health planners to account for special needs populations in their emergency preparedness efforts.”

Citation:
COVID-19 Case Investigation Script

Confirmed Case Name: _______________________________ Date: ________________

☐ Greeting, intro, purpose

  • Good morning. May I speak with (insert case name), please? This is (insert name) from the [Health Department Name].

  • I’m calling today to follow-up with you about your recent positive COVID-19 test result. We usually reach out to patients who test positive to visit with them about their symptoms and when those symptoms started so that we may help determine how long they will be contagious/how long your infectious period will be. Do you feel up to visiting at this time?

☐ Complete CDC Case Investigation Form

☐ Provide summary from the Case Investigation Form

  • According to the CDC, a person is considered to be infectious for 10 days after the onset of symptoms (this varies some depending on which variant). However, the CDC indicates a person is believed to be most infectious during the 2 days before and 5 days after symptom onset. This means that you should avoid others through your Day 5 (insert date). If you have no symptoms, or symptoms are resolving after 5 days, you may wear a mask around others an additional 5 days (Days 6-10).*

  (*A limited number of persons with severe illness may produce replication-competent virus beyond 10 days, that may warrant extending duration of isolation for up to 20 days after symptom onset. Consider consultation with infection control experts.)

☐ Please let those that you have been in close contact with while infectious know that they should watch for symptoms for at least 10 days after the last date of exposure to you (for example, this may include friends, other family, co-workers, classmates, etc.). Close contact means that you have been within 6 feet of an individual for 15 minutes or more in a 24-hour period. An infected person can spread SARS-CoV-2 starting from 2 days before they have any symptoms (or, for asymptomatic people, 2 days before the positive specimen collection date), until their infectious period ends.

  • For household contacts, that means watching for symptoms for 5 days after your own infectious period ends (as they would have continuous exposure by living in the same household throughout your infectious period) and then following additional guidance (below) for masking/testing based on vaccination status.

  • Those who have been boosted, completed a primary COVID-19 mRNA vaccination series in the last 6 months, or completed the primary series of J&J vaccine within the last 2 months, should consider testing on Day 5 and wearing a mask around others for 10 days.
- Those who completed the mRNA vaccine over 6 months ago and NOT boosted, or those who completed the primary series of J&J over 2 months ago and are NOT boosted, or those that are unvaccinated, should avoid being around others for 5 days. After that, continue to wear a mask around others for an additional 5 days. If you can't avoid people, wear a mask for 10 days. Test on Day 5, if possible.

☐ Provide mAb information and other resource education as applicable

☐ Answer any final questions

______________________________  ___________  __________
Staff Member  Date  Time
Appendix G – Recommendations

Below are all of the recommendations listed throughout the report. While a majority of the recommendations came from hotwash participants, a few are based on the literature and MIP work group members’ feedback. As stated in the report, the themes identified are all interdependent so a recommendation under one theme could also apply to another theme.

Highlighting the Maternal Child Health Population

- Remind LHD staff that the MCH population are part of all the vulnerable populations and thus planning should account for their needs (e.g. nutrition and feeding, basic essentials like diapers and menstrual products, etc.). All of the vulnerable groups identified are listed below.
  - rural population
  - non-English speakers or English as a second language speakers (includes refugees and migrant workers)
  - Hispanic population
  - homeless
  - Black, Indigenous, and People of Color (BIPOC)
  - homebound
  - victims of sexual assault and violence
  - lesbian, gay, bisexual, transgender, queer, and others (LGBTQ+)
  - travelers who get stranded
  - Amish

Staffing Recommendations

- There needs to be a system in place to quickly hire temporary staff, track their equipment, and ensure you have fiscal support to help manage the temporary funds to pay for these staff and equipment.
- Classify temporary staff as limited term staff so that they have access to benefits and are more equal to permanent staff.
- Now is the time to start re-building the public health workforce. Tapping into those who were temporary workers during the pandemic is one place to start; working with universities and colleges to find student apprentices who could gain experience to meet the minimum qualifications is another.
- Adding or keeping some key staff roles is important in order to be ready for the next pandemic. Some roles specifically mentioned were:
  - community liaisons
  - communication positions
  - epidemiologists
• The public health system needs to identify (1) how to get sustainable funds to cover staffing needs and (2) mechanisms for how to get any new funding to the LHDs because these funds can get held up at the state level.

**Recommendations to Meet the Mental Health Needs for Public Health Staff**

• Actively engaging in activities to support mental health of the workers. This might include:
  o teach resiliency techniques;
  o discuss issues like compassion fatigue and burnout so workers know what to look for and are willing to seek help;
  o Designate a staff member to focus on employee wellness by:
    ▪ leading staff through self-care exercises like breathing and basic exercises;
    ▪ talking about work/life balance; and
    ▪ putting out messages of appreciation and providing gifts like t-shirts, snacks, or water.
    ▪ Bringing in support like therapy dogs to the worksite weekly.

• Partner with mental health experts within and outside of public health to provide support via information, videos, etc.

• Cross-training LHD staff so all staff can get mental health breaks when a public health response will take longer than a few months.

**Recommendations Around Collaboration**

• It is important for leadership to recognize and celebrate the small successes that occur as a result of interdepartmental or interagency collaboration. This is often missed by those who are doing the work. Doing so can highlight that the collaboration does lead to important outcomes and ensures it will continue.

**Maintaining Collaborative Relationships**

• There is a person at the LHD whose role is to reach out and continue to work with community partners.

• Have a database of partners and contact information. Include agencies or providers that call in to public health for resources.

• Routinely check contact information to make sure it is up to date. Suggest the contact information is by role at the organization rather than by person (e.g., email address is for the role, not a specific person).

• Include politicians in preparedness planning efforts.

• Include community partners in preparedness planning efforts.

• Incorporate community partners into the local healthcare coalition. Their role could be as simple as attending once a year to stay up-to-date or being more actively involved.

• Attend community meetings to maintain relationships and, if possible, volunteer on the committee(s).
• Educate partners on all public health services.

**Communication and Outreach Recommendations**

• The Women, Infants, and Children (WIC) program has proven to be instrumental in ensuring the MCH population continues receiving necessary resources and information during the COVID pandemic. Reach out to them for help with resources and information dissemination.
• Other partners who can help LHDs reach the pregnant and postpartum population include Ob/Gyns, medical forensics teams, healthcare coalitions, non-profits, churches, and large employers.
• LHDs should seek feedback from their communities using strategies such as focus groups, meetings with faith leaders, and a feedback system for businesses through the chamber of commerce. Directors who employed these feedback loops found them extremely helpful in guiding their COVID response efforts and in reaching different populations.

**Social Media Recommendations**

• Disable comments on social media platforms if they become problematic.
• When developing your community health improvement plan (CHIP), ask your community “what is the most effective way to reach you with important information?”
• Be sure to incorporate lessons learned with respect to social media into future preparedness plans.
• Incorporate multiple messaging strategies into your LHD's response plans to offset the limitations of social media.

**Recommendations for Combatting Misinformation**

• Conduct regular updates and briefings.
• Provide public facing data dashboards and update them regularly.
• Leverage partners who are respected and trusted by their communities to help combat misinformation.
• Stay ahead of information.
• Disable comments on social media platforms.
• Incorporate strategies for addressing an infodemic in your preparedness plans.

**Recommendations for Consistent Messaging**

• Encourage the use of conversation templates within your LHD and, if possible, across your region or even state, to ensure consistent messaging.
• Include politicians and representatives from other government agencies in your LHD’s planning efforts. This may help prevent breakdowns in communication during rapidly changing responses.
• Reinforce the message that sometimes, “change is good” when it comes to response efforts. Protracted responses will require changes in guidance as the emergency and the data evolve over time.

**Recommendations to Rebuild Public Trust in Public Health**

• Highlight your LHD’s existing public health promotion and disease prevention programs.
• Be transparent and proactive: share data and information early and often.
• Work with your state to designate public health employees as first responders.
• Foster and encourage a culture that separates public health and politics.
• Find creative ways to give back to the community (e.g., food vouchers/coupons).

**Other Recommendations**

• Groups (LHDs, units within LHDs, collaborative partnerships) should conduct their own hotwash or After-Action Review (See Appendix F for a list of tools)
• LHDs should either update or create a plan to help guide the response for the next public health emergency including another pandemic.
  o the CMIST Framework and Toolkit for State and Local Planning and Response can be used to ensure the needs of vulnerable populations are met.
  o The plan should address distribution and scheduling of vaccines.
• A Continuity of Operations plan should account for how to ensure all public health services can be offered while also having staff handle the pandemic response.
### Appendix H – Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAR</td>
<td>After-Action Review</td>
</tr>
<tr>
<td>BIPOC</td>
<td>Black, Indigenous, and People of Color</td>
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<tr>
<td>CBO</td>
<td>Community Based Organization</td>
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<tr>
<td>CHW</td>
<td>Community Health Worker</td>
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<tr>
<td>COVID</td>
<td>Coronavirus Disease 2019</td>
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<tr>
<td>EPR</td>
<td>Emergency Preparedness Response</td>
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<tr>
<td>HAN</td>
<td>Health Alert Network</td>
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<tr>
<td>HR</td>
<td>Human Resources</td>
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<tr>
<td>ICS</td>
<td>Incident Command System</td>
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<tr>
<td>ID</td>
<td>Infectious Disease</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>LGBTQ+</td>
<td>Lesbian, Gay, Bisexual, Transgender, Queer, and Others</td>
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<tr>
<td>LHD</td>
<td>Local Health Department</td>
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<tr>
<td>LTCF</td>
<td>long-term care facilities</td>
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<td>MCH</td>
<td>Maternal-Child Health</td>
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<tr>
<td>MIP</td>
<td>MCH, Infectious Disease, and Preparedness Work Group (NACCHO)</td>
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<tr>
<td>NACCHO</td>
<td>National Association of County and City Health Officials</td>
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<td>PH</td>
<td>Public Health</td>
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<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
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<tr>
<td>PTSD</td>
<td>Post-Traumatic Stress Disorder</td>
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<tr>
<td>SNAP</td>
<td>Supplemental Nutrition Assistance Program</td>
</tr>
<tr>
<td>WIC</td>
<td>Women, Infants, and Children</td>
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