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Oregon
Health
Authority



PUBLIC HEALTH RESPONSE TO THE COVID-19 PANDEMIC IN OREGON

Report 1 of 3

Version 1.1

Produced by Rede Group in November 2022

Acknowledgments

Rede Group produced this report as a neutral third party contractor of the Oregon Health Authority, Public Health Division in response to a legislative requirement set in Senate Bill 1554 (2022). We want to acknowledge the many people who contributed to this report, including Community-based Organizations (CBOs), Coordinated Care Organizations (CCOs) City, County, and Tribal Emergency Management, Health Care Associations, Local Public Health Authorities (LPHAs), OHA Staff, Managers, and Directors, other State Agencies, the Oregon Public Health Advisory Board (PHAB), Professional Associations, Tribal Nations, and Tribal Organizations.



In addition to the study team, community partners contributed to this report by reviewing data collection instruments, supporting recruitment efforts, and reviewing and interpreting key findings.

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OHA also convened a study review committee comprised of OHA staff, LPHAs, Tribal Health Directors, and CBOs to review and interpret key findings for this report.

Everyone has a right to know about and use OHA programs and services. OHA provides free help, and some examples of this help include:

- Sign language and spoken language interpreters
- Written materials in other languages
- Braille
- Large print
- Audio and other formats

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Executive summary

Study of Oregon's public health system response to the COVID-19 pandemic

This summary includes high-level key findings and recommendations.

The purpose of this study is to fulfill the requirements of Senate Bill 1554 (2022), which calls for a comprehensive study of Oregon's public health systems COVID-19 pandemic response. This is the first of three legislatively mandated reports. Primarily focused on the government-led and government-funded public health systems response to the COVID-19 pandemic, this report is based on a narrow definition of the term "public health systems response" to mean activities undertaken to equitably control the spread of a deadly, infectious disease.

Design and limitations: The study team used an exploratory sequential design for this study, a robust mixed-methods study design that integrates qualitative data to provide an enhanced understanding and interpretation of quantitative findings. Study findings, however, should be interpreted in the context of the limitations of this study. The most significant limitation in this phase of the study was the time constraint (four months). Another limitation was the retrospective nature of this study, which covers over two years, introducing recall bias in which participants may not accurately recall past events. Public health workforce turnover, limited incentive availability for specific informant groups, documents lacking dates and other context, and reliance on self-reported data for online surveys were also limitations.

Resources

Key findings: Prior to 2020, Oregon's public health system was critically underfunded. Efforts to modernize the system by increasing state resources to rebuild the public health system from 2017-2020 were laudable but inadequate. Sustained state funding is necessary to rebuild the public health system and recover from the strains on the system caused by the COVID-19 pandemic.

Recommendations:

1. As the COVID-pandemic is ongoing and additional population-level health emergencies have surfaced, the Oregon State Legislature must fund the public health system at the level requested in 2023-2025 OHA budget request for \$286,000,000 devoted to public health modernization and \$32,000,000 to develop a pandemic response information system.

COVID-19 health outcomes

Key findings: As of the week of July 31, 2022, OHA recorded 860,300 COVID-19 cases in Oregon. There were 34,376 hospitalizations (4%), and 8,291 people died. The COVID-19 case rate peaked at 1,332.3 during the week of January 10, 2022. It is evident that COVID-19 exacerbated already existing health inequities in the state of Oregon. In particular, Tribal Nations and communities of color were impacted by the COVID-19 pandemic disproportionately in comparison to White communities.

Health equity

Key findings: Health equity was a central focus in Oregon's public health system response to the COVID-19 pandemic. Study participants noted they were highly motivated to center equity in pandemic response efforts and were aligned in naming that the central elements of an equitable pandemic response are equitable access to information and equitable access to resources. LPHAs and CBOs were seen as invaluable resources in the response.

The greatest health equity challenges Oregon faced in its public health pandemic response were an emergency management infrastructure that did not include equity practitioners and communities impacted by health inequities in decision-making; limited equity capacity across the state, including significant delays and challenges producing accessible and culturally-tailored public messaging; and inconsistent buy-in for equity work. A few factors that facilitated and enhanced an equitable pandemic response included strong partnership networks with role clarity; and adequate, timely, and flexible funding.

Recommendations:

1. Improve equitable communication by ensuring information is timely and accessible for all Oregonians. OHA should do everything possible, including conducting translation in-house, to eliminate the lag in the translation of critical health information into non-English languages. OHA should be hiring, recruiting, and retaining bilingual, and preferably bicultural, staff into various departments- as opposed to hiring that is done solely in response to a critical need.
2. Ensure that timely and accurate morbidity, hospitalization, and mortality data about historically marginalized communities (those most likely to experience health inequity) are collected and available to those communities and partnering organizations serving them as well as government public health.
3. Continue to fund public health-focused community-based organizations serving historically marginalized communities.

Emergency management + coordination

Key findings: Throughout the pandemic, some state-level primary response agencies in Oregon struggled to collaborate in coordinating the response and defining leadership roles and authorities. The lack of role clarity between the Oregon Health Authority and the Oregon Department of Emergency Management likely led to confusion early on in the pandemic. Issues arising from this confusion affected the overall response but directly impacted Local Public Health Authorities and City and County Emergency Management.

Recommendations:

1. Explore the concept of a fully resourced, flexible, and scalable unified command structure between the Department of Emergency Management (OEM) and Oregon Health Authority (OHA) in support of future public health emergencies. This would allow the full weight and power of the authorities outlined in the Oregon Revised Statutes (ORS) §401 et seq to be utilized. Additionally, OEM and OHA should commit resources to develop and participate in an integrated Multi-Year Training and Exercise

Program (MYTEP) with a specific focus on executive leadership training. MYTEP goals may include achieving a thorough understanding of the agencies' roles and responsibilities and updating the state's Emergency Operations Plan and its associated annexes.

2. OEM and OHA should work together to establish an equity-specialists team that is formally adopted into the response structure, including roles and responsibilities, job action sheets, inclusion into the MYTEP training and exercises, and integration into the state's emergency plans and procedures.

Enforcement of public health mandates

Key findings: Enforcement of public health mandates was inconsistent across Oregon, especially after Stage 1 of the pandemic when the politicization of the response effort took root, and a widespread misinformation campaign marred the compliance landscape. Interviews with State Agencies, Health Care Associations, LPHAs, and City, County, and Tribal Emergency Management highlight pandemic-response inconsistencies across Oregon, not only in enforcing public health mandates but also in other areas of the pandemic. They raised concerns that the localized decision-making of LPHAs created responses that put politics over health. Multiple State Agencies worked together to enforce public health mandates. While laudable, this structure led to confusion and gaps in enforcement.

Recommendation:

1. Local and state agency partners should be convened in a formal committee to determine if the enforcement mechanisms used to protect the public's health from COVID-19 in 2020-2022 are the best fit for Oregon, given all the factors described in this report. If changes to the enforcement structure for public health mandates are deemed necessary by OHA, partners and the Oregon State Legislature should work to enact necessary statutory or regulatory changes. Finally, enforcement of public health mandates and various roles and responsibilities should be clearly articulated, and all parties in the public health system should educate themselves accordingly. Minimally, this committee should include OHA, Department of Justice (DOJ), LPHAs, CBOs, OR-OSHA, and OLCC.

Terminology

Frequently used acronyms

Acronym	Meaning
AOC	Association of Oregon Counties
CBO	Community-based organization
CCO	Coordinated care organization
CLHO	Coalition of Local Health Officials
CMS	Centers for Medicare & Medicaid Services
COVID-19	Novel coronavirus disease
CRF	Coronavirus Relief Fund
CRR	COVID Response and Relief
CRRU	COVID Response and Recovery Unit
EANS	Emergency Assistance to Non-Public Schools
ELC	Epidemiology and Laboratory Capacity for Prevention/Control of Emerging Infectious Diseases
EMS	Emergency medical services
EO	Executive Order
Epi	Epidemiology/epidemiologist
HAI	Health care associated infection
HAI/AR	Health care associated infections and antimicrobial resistance
HAN	Health Alert Network
ICS 201	Incident briefing
LOC	League of Oregon Cities
LPHA	Local public health authority

Acronym	Meaning
MAC-G	Statewide Multiagency Coordinating Group
ODE	Oregon Department of Education
OEM	Oregon Department of Emergency Management
OHA	Oregon Health Authority
OPCA	Oregon Primary Care Association
ORS	Oregon Revised Statutes
OR-OSHA	Oregon Occupational Safety and Health Administration
PE	Program Element
PH	Public health
Oregon PHAB	Oregon Public Health Advisory Board
PHD	Public Health Division
PPE	Personal protective equipment
SB 1554	Senate Bill 1554

Key terms

Emergency management: For the purposes of this study emergency management includes Oregon state, county, city, and tribal offices that are responsible for the mitigation, preparation for, response to, and recovery from emergencies and natural disasters, acts of terrorism, or other man-made disasters.

Public health emergency preparedness (PHEP): PHEP programs are administered at the state, county, and tribal levels. PHEP is the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, respond to, and recover from health emergencies, particularly those in which scale, timing, or unpredictability threatens to overwhelm routine capabilities. Preparedness involves a coordinated

and continuous process of planning and implementation that relies on measuring performance and taking corrective action (American Journal of Public Health. 2007 April; 97(Suppl 1): S9-S11).

Health Care Associations: A health care association is an organization with members who work in or share an interest in health care. Members of health care associations will often meet regularly to discuss upcoming news in their field or will host events for other members to meet and network.

Professional Associations: A professional association is an organization with members who work in or share an interest in a specific job field or industry. Members of professional associations will often meet regularly to discuss upcoming news in their field or will host events for other members to meet and network. The professional associations included in primary data collection for this report were professional associations with members representing government. The study team conducted interviews with representatives of the professional associations who were involved in the COVID-19 pandemic response.

Secondary data: Finding existing data from administrative datasets, public records, grant funding, etc. as opposed to interviews and surveys conducted by the study team.

State Agency(ies): When capitalized, refers to non-OHA state agency study participants. OHA study participants are referenced as OHA Staff and Managers, OHA Staff, OHA Manager, or OHA Director(s).

Study team: This includes Rede Group staff, Dr. Kara Skelton, Vashti Boyce, April Lawless, Tina Wesloskie, and P. Diane Reed.

Study participant: General term for anyone who responded to a survey, was interviewed, or participated in a focus group.

Tribal organizations: This refers to community based or non-profit organizations that primarily serve tribal members, including urban American Indians/Alaska Natives, and excludes Oregon's nine federally recognized tribes that are referred to as Tribal Nations in this report.

A full list of terminology and definitions can be found in Appendix A.

Introduction

Study purpose

The purpose of this study is to fulfill the requirements of Senate Bill 1554 (2022), which calls for a comprehensive study of Oregon's public health system COVID-19 pandemic response. The study aims to comprehensively examine Oregon's public health system response to the COVID-19 pandemic, identify lessons learned from the COVID-19 response, and outline recommendations for improving and strengthening Oregon's public health system capacity and resiliency for responding to future public health emergencies. Rede Group will submit results of this study to Oregon Health Authority, in three mandated reports in November 2022, March 2023, and September 2023.

This study is not an external evaluation of an individual's, team's, or agency's performance, but instead is a systematic examination of Oregon's complex and evolving public health system response to the COVID-19 pandemic. As such, this study takes into account the perspectives of a diverse array of organizations engaged in the pandemic response across the state. To ensure objectivity, reduce bias, and provide neutrality, OHA contracted with Rede Group (based on results of an open, competitive solicitation process) to conduct this study. Rede Group has no affiliation with Oregon's public health system response to the COVID-19 pandemic and was not involved in Oregon's public health system response.

Public health system response

Public health is the science of protecting and improving the health of people and their communities (Center for Disease Control and Prevention [CDC], n.d.). Therefore, public health work includes promoting healthy lifestyles, researching disease and injury prevention, and detecting, preventing, and responding to infectious diseases.

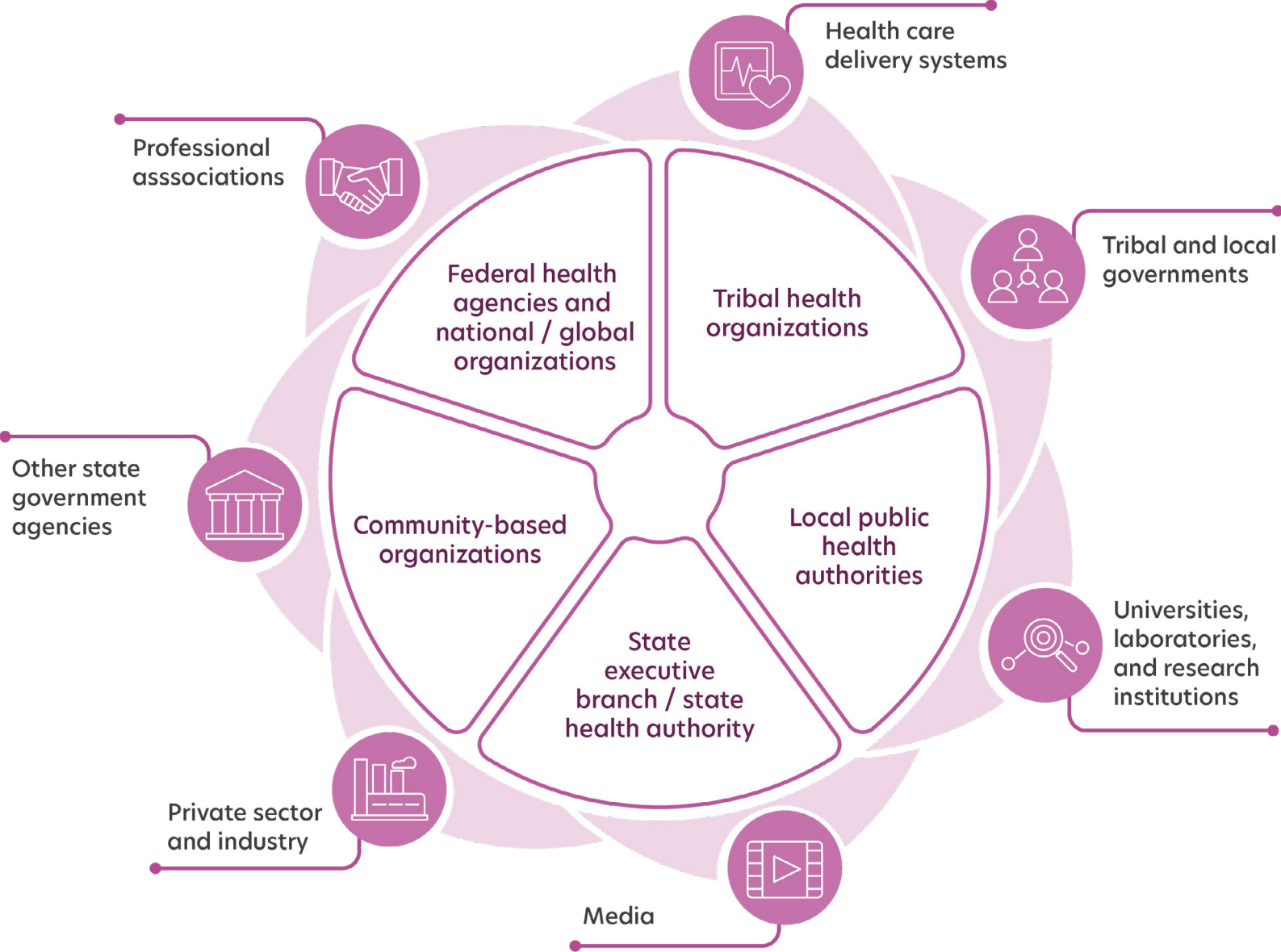
A public health system, typically defined as, "all public, private, and voluntary entities that contribute to the delivery of essential public health services within a jurisdiction," is formed by a network of actors including government agencies, laboratories, hospitals, nongovernmental public and private agencies, and community members (CDC, 2021). Public health systems focus on protecting and promoting the health of populations across an array of ecological levels, including community-, state-, national-, and global-levels. Regardless of scale, a well-functioning public health system requires aligned goals, clarity about the distinct roles of each actor, a strong infrastructure that supports coordination and collaboration, and sufficient resources to accomplish its mission.

National standards for public health were initially released by the CDC in 1994 and updated in 2020 (CDC, 2021). The CDC outlines 10 essential public health services, spanning assessment and monitoring, investigation, communication, community partnership, program and policy implementation, regulation, equitable access to care, workforce development, evaluation and continuous quality improvement, and infrastructure. In 2015, the Oregon Legislature passed House Bill 3100, which aimed to improve the efficiency and effectiveness of Oregon's public health system through establishing a framework of 11 foundational capabilities and programs. In turn, HB 3100 launched an effort to modernize the public health system with focused investments on identified gaps in the foundational capabilities and programs.

Embedded within Oregon's public health system is a network of diverse partners composed of state, local, and tribal governments, health care delivery partners, private organizations, universities, professional associations, and other partners. For more than two years, Oregon's public health system has been responding to the COVID-19 pandemic, with each of these partners playing a critical role in the delivery of essential public health services. Whether messaging public health guidance for communities, contact tracing, providing essential goods for individuals during quarantine and isolation, delivering vaccines, or other critical public health pandemic response activities, the importance of each actor's role and the coordination of efforts within communities and across the state is essential.

Pursuant to Senate Bill 1554 (2022), this study covers Oregon's public health system response to COVID-19 from the beginning of the pandemic (March 2020) to July 2022. Although Oregon's public health response to COVID-19 during 2020-2022 included numerous entities and individuals (see Figure 1 on the following page), this study primarily focuses on governmental public health agencies and other organizations, such as community-based organizations, funded by the governmental public health system to support pandemic response. These entities included federal health agencies and national/global organizations, state executive branch/state health authority, tribal governments, local public health authorities, and community-based organizations. Importantly, Oregon's health care system, social service sector, higher education system, industries, and businesses were all represented in Oregon's public health system response to the COVID-19 pandemic. These partners, however, are beyond the scope of this study.

Figure 1: Public health system overview



Overview of pandemic history

In December 2019, the novel coronavirus disease (COVID-19), caused by the SARS-CoV-2 virus, emerged from Wuhan, China and began spreading rapidly throughout China and across the globe. Over the last two and a half years (2020-2022), the COVID-19 pandemic has ravaged health care and public health systems, delivered lasting blows to the global economy, and forever changed the lives of individuals and communities. The global toll of the COVID-19 pandemic has been catastrophic, with 6,524,568 total COVID-19 deaths and 615,310,890 confirmed cases as of September 30, 2022 (World Health Organization [WHO], n.d.). Since the initial outbreak, the public health and emergency response communities have mobilized to research, report, and track the disease, implement evidence-based public health measures that prevent and mitigate widespread transmission, and attempted to resource communities to address the long-term health, social, and economic impacts of COVID-19.

Oregon's first case of COVID-19 was identified on February 28, 2020 and confirmed March 1, 2020. Though the latest research now indicates that COVID-19 was likely circulating in Oregon and across the U.S. as early as December 2019, widespread transmission and public awareness grew rapidly beginning in March 2020 (Basavaraju et al, 2020). At that time, Governor Kate Brown issued Executive Order (EO) 20-03, which declared a state of emergency in Oregon and authorized action to respond to, control, mitigate, and recover from the emergency. Between March 2020 and July 2022 Governor Brown issued 39 executive orders to control the spread of the virus and protect the public's health (see Figures 3-6 and Appendix B).

The pandemic progressed in multiple waves with COVID-19 cases surging and declining due to a variety of environmental factors as well as the evolution of the coronavirus itself. New information about the disease emerged and informed the mounting public health response. Evidence-based public health practices that Oregon implemented to help control the pandemic included public information campaigns, gathering bans, stay-at-home orders, restaurant and bar closures, school and workplace closures, mask mandates, and vaccine mandates, among others. Waves of federal and state emergency response and recovery funding supported

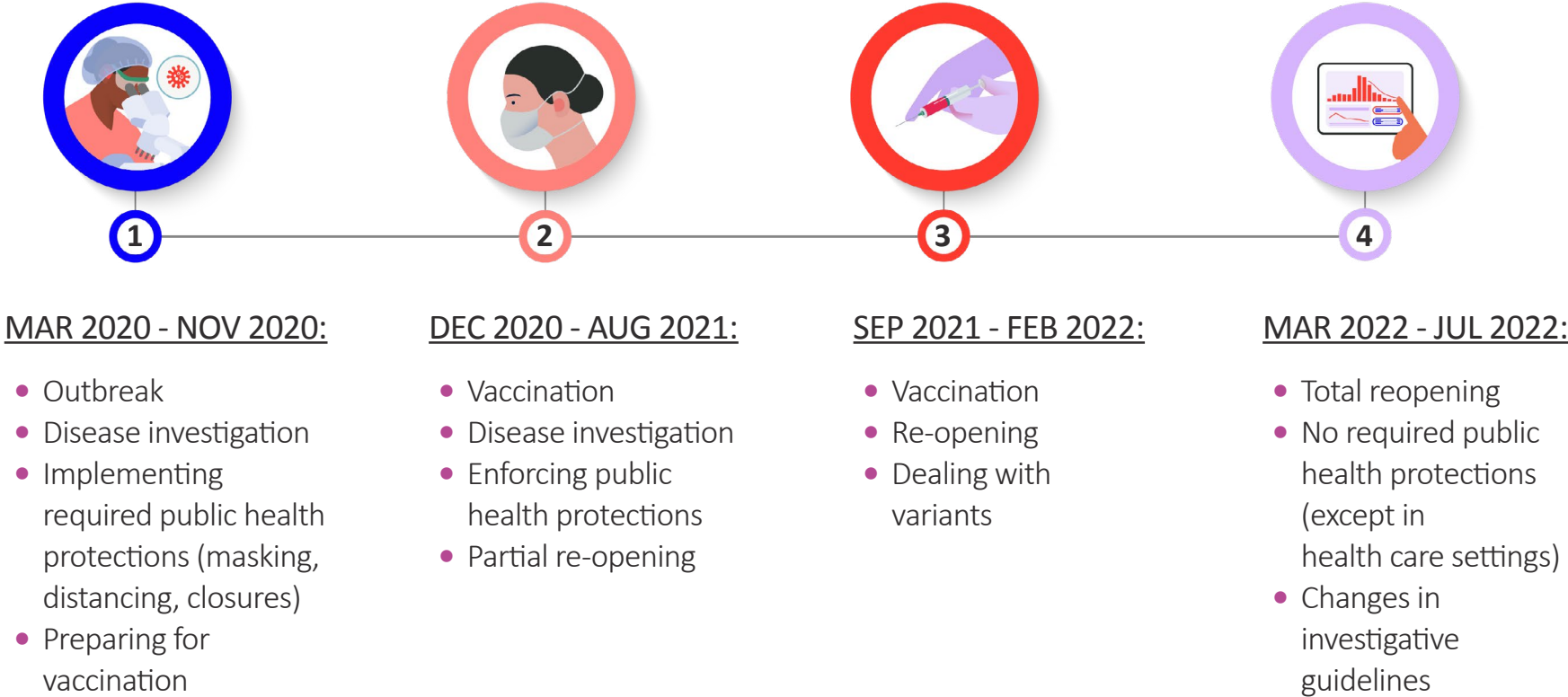
Oregon's public health system response as well. Despite these efforts, the impact of COVID-19 in Oregon has still been great, with 8,561 total deaths and 894,776 confirmed cases as of September 28, 2022 (Oregon Health Authority [OHA], accessed Oct. 1.).

One critical aspect of studying Oregon's public health response to COVID-19 is acknowledging that the burden of the pandemic was not experienced equally. The population health impacts of COVID-19 have cast light on longstanding inequities in access to health care, educational and economic opportunity, and safety. Racism, ableism, sexual orientation and gender identity discrimination, and other systemic biases have persistently undermined the physical, social, economic, and emotional health of entire communities and populations across Oregon and the nation long before the COVID-19 pandemic. Attention must be given to understanding the disparities in COVID-19 outcomes and intentionally addressing the root causes of inequities throughout the long-term COVID-19 public health response and recovery.

COVID-19 pandemic stages overview

As of the publication date of this report, Oregon's public health response to COVID-19 is ongoing. This study is primarily focused on government-led and government-funded activities between March 2020 through July 31, 2022. The COVID-19 pandemic landscape has been complex and evolving since COVID-19 first arrived in Oregon. As the study team gathered data from key informants and analyzed a wide array of documents, distinct stages of the pandemic began to emerge. In an effort to acknowledge the transformation of the COVID-19 pandemic, and thus Oregon's public health system response to the pandemic, the study team, after consultation with OHA, developed a framework separating the pandemic into four distinct stages. Although delineations between stages are imperfect, these stages provided a framework for analyzing public health system capacity, mobilization, and response alongside COVID-19 health outcomes. Figure 2 was used to describe the pandemic stages for qualitative research used in this report.

Figure 2: Stages of public health response to COVID-19 in Oregon



Executive orders

Figures 3-6 on the following pages detail the public health response executive orders (EOs) enacted from March 2020 through July 2022.

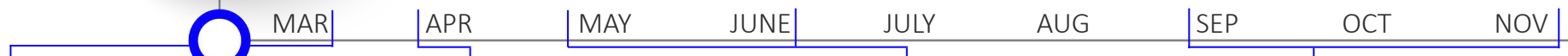
EOs were only included if they directly impacted the public health response to COVID-19 in Oregon, including those that prevented/limited transmission of COVID-19, bolstered the governmental and clinical workforce, and preserved necessary resources to treat individuals infected with coronavirus. For the purposes of this study, public health is defined as the science of protecting and improving the health of people and their communities.

Figure 3: Stage 1 executive orders: March - November 2020



LEGEND:

- 2X-XX Executive order number (year - annual sequence)
- ! State of emergency
- ⊘ Closure
- 📄 Virtual modality
- 🧤 Safety measures (face coverings, social distancing, etc.)
- OPEN Reopening
- 📄 Vaccination



May 2020

- ! 20-03: Declaration of state of emergency
- 🧤 20-05: Prohibiting large gatherings
- ⊘ 20-07: In-person restaurant closure
- ⊘ 20-08: School and child care closures
- ⊘ 20-09: Suspension of in-person instruction: Higher education institutions
- 🧤 20-10: Conserving PPE and hospital beds, postponing non-urgent health care procedures, and restricting visitation
- ⊘ 20-12: Stay at home order: closing specified retail businesses, requiring social distancing measures, and imposing requirements for outdoor areas and licensed childcare facilities

April 2020

- ! 20-14: Extending the in-person restaurant closure
- OPEN 20-16: Ordering necessary measures to ensure safe public meetings and continued operations by local governments
- 📄 20-17: Extending the suspension of in-person instruction: Higher education
- ⊘ 20-19: Extending the closure of non-compliant childcare facilities
- 📄 20-20: Continued suspension of in-person K-12 instruction
- 📄 20-22: Resumption of non-urgent health care procedures
- ⊘ 20-24: Extending the declaration of emergency

May - June 2020

- OPEN 20-25: Reopening Oregon's economy Phase I
- OPEN 20-27: Reopening Oregon's economy Phase II
- 🧤 20-28: In-person higher education resumes with safety measures
- 🧤 20-29: In-person K-12 resumes with safety measures
- ! 20-30: Second extension of state of emergency

Sep - Nov 2020

- ! 20-38: Third extension of state of emergency
- ! 20-56: Fourth extension of state of emergency
- ! 20-65: Temporary freeze to address surge in cases

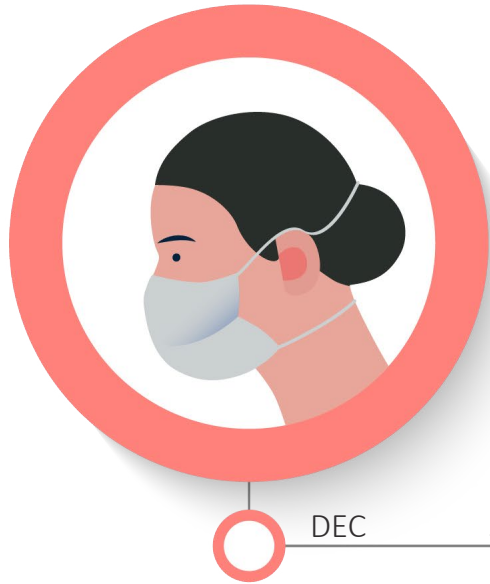


Figure 4: Stage 2 executive orders: December 2020 - August 2021

LEGEND:

- 2X-XX Executive order number
(year - annual sequence)
- ! State of emergency
- ⊘ Closure
- 💻 Virtual modality
- 🧤 Safety measures
(face coverings, social distancing, etc.)
- OPEN Reopening
- 🪡 Vaccination



FEB - APRIL 2021

- ! 21-05: Sixth extension of state of emergency
- OPEN 21-06: Ordering public schools to offer fully on-site or hybrid in-person instruction, requiring all schools to continue to comply with health and safety protocols
- ! 21-10: Seventh extension of state of emergency

JUNE - AUGUST 2021

- OPEN 21-15: Rescinding all remaining COVID-19 restrictions; continuing state efforts to support ongoing COVID-19 vaccination, response, and recovery efforts
- 🪡 21-29: COVID-19 vaccination requirement for state executive branch

Figure 5: Stage 3 executive orders: September 2021 - February 2022

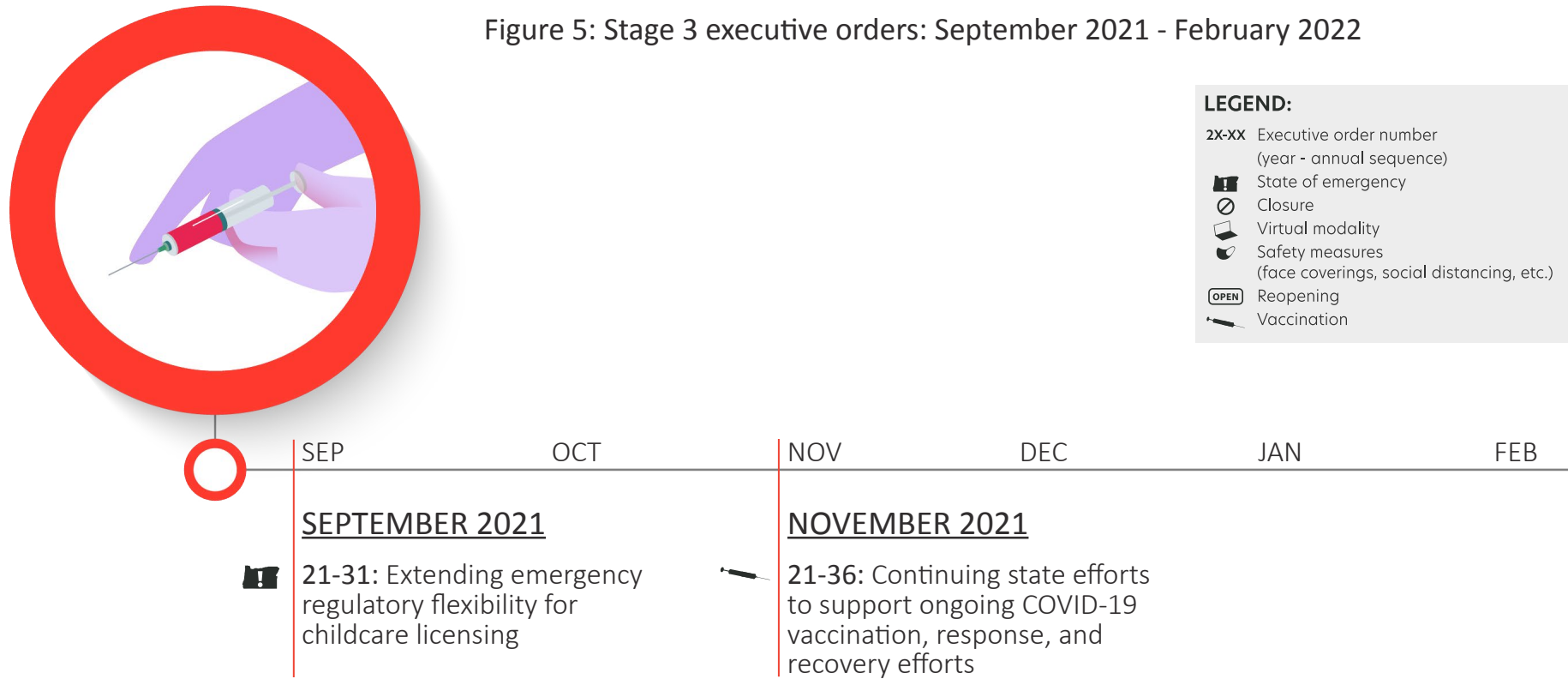
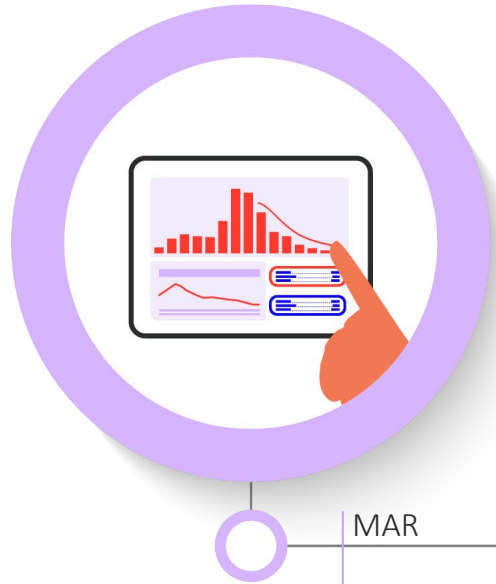


Figure 6: Stage 4 executive orders: March - July 2022



LEGEND:

- 2X-XX Executive order number (year - annual sequence)
- 🏠 State of emergency
- 🚫 Closure
- 💻 Virtual modality
- 🧐 Safety measures (face coverings, social distancing, etc.)
- 📄 OPEN Reopening
- 📌 Vaccination



MARCH 2022

OPEN 22-03: Terminating state of emergency, rescission of 21-29

Study design, methods + analysis overview

Scope of study

The scope of this study was set forth by the 81st Oregon Legislative Assembly through Oregon Senate Bill 1554 (2022 Regular Session; see Appendix C). This study primarily focuses on the government-led and government-funded public health system's response to the COVID-19 pandemic. **For this first report, Rede Group applied a narrow definition of the term "public health system's COVID-19 response" to mean activities undertaken to equitably control the spread of a deadly, infectious disease.**

Several interested parties have offered perspectives on the scope of the study and have requested examination of specific topics or study questions. In each case, the study team collectively and carefully reviewed requests to determine whether or not inclusion of those questions or topics was appropriate.

Importantly, Rede Group understands that numerous pandemic-related public health impacts and specific public health system responses unfolded throughout 2020-2022. For example, due to pandemic-caused economic difficulty (layered on top of extant, pernicious socio-economic inequities), population-level food insecurity was exacerbated. In response, numerous actors in the public health system worked to get Oregonians the food they needed. However, the scope of this report does not include an in-depth overview of secondary public health effects of COVID-19. This is not intended to downplay the significance of these effects, but rather to acknowledge that within the time parameters for this report, developing a complete analysis of secondary public health effects was not feasible.

Other items of note about the scope of this report:

1. Senate Bill 1554 (SB 1554) called for an analysis of enforcement of COVID-19 public health requirements in Oregon's schools; data collection with schools is on-going and results will be shared in the second report (March 2023). OHA's migrant seasonal farmworker COVID-19 response program and the work specific farmworker partners will also be covered in the second report.
2. For some state and local governmental officials, pandemic response began prior to March 2020 as they utilized extant systems to monitor and track the spread of the disease to Oregon. The period of time between December 2019 and Oregon's first presumptive case on February 28, 2022 is referenced but not included for thorough analysis.

Study questions + methods

This report covers eight components outlined in SB 1554. To ensure we were able to successfully answer the research questions set forth by the Oregon State Legislature, we used an exploratory sequential design for this study, a robust mixed-methods study design. A mixed-methods study design was most appropriate for this study, as it allows the integration of qualitative data to provide an enhanced understanding and interpretation of quantitative findings. With this design, the qualitative phase of the study, including data collection (see Appendices D-E for interview and focus group interview guides) and preliminary analysis precedes quantitative data collection (see Appendix F for survey instruments) and analysis. Quantitative data instruments were informed by qualitative study findings, enhancing the validity of the quantitative measures. This study design incorporated qualitative and quantitative methods in interviews, focus groups, surveys, document review, and secondary data analysis. An overview of data collected and analyzed for this report is shown on the following page and a detailed description of study methods is included in Appendix G.

Report 1 study questions:

1. Focus on the public health system, including federal, state, and local resources, and how funding was coordinated between the state, counties, and local governments and community organizations.
2. Identify efficiencies and deficiencies in the public health system response, areas for improvement, and needed investment.
3. Consider emergency management coordination with the public health system, including distribution of PPE, where vaccines and testing were provided, and isolation and quarantine best practices and guidance.
4. Analyze the enforcement of public health requirements by the state, local governments, and schools.
5. Examine outcomes related to public health modernization implementation, including the roles that public-private partnerships played and any challenges posed by the current intersection of state and county public health systems.
6. Compare the health equity outcomes related to the COVID-19 pandemic response, including second-hand health disparities resulting from the increased strain on hospitals, health systems, and resources.
7. Engage in a qualitative, in-depth analysis of utilization of resources, differing regulations, and enforcement of evidence-based pandemic control practices across the state.
8. Assess messaging in general, including whether best practices in public health communication were used during the COVID-19 pandemic.

The study team conducted:

- **106 interviews** with 117 participants, with a response rate of 90%;
- **11 focus groups** with 36 participants; and
- **132 surveys** with a response rate of 29%.

The study team analyzed secondary data from:

- **15 sources;** and reviewed over
- **1,000 records** from OHA, web research, and other state agencies.

Study sampling

Qualitative phase sampling

Qualitative data collection is both time and resource-intensive to collect. Given the time constraints of this study, it was not possible to interview every person involved in Oregon's public health system response to the COVID-19 pandemic. Therefore, the study team used both probability and purposeful sampling strategies. Stratified random sampling, a type of probability sampling strategy in which the population is divided into smaller subgroups called strata, was utilized to ensure representativeness of our evaluation sample to the larger target population and thus, generalizability of findings. In stratified random sampling, the population of key informants were grouped into mutually exclusive, non-overlapping sampling strata. Within each stratum, we then pulled a simple random sample by assigning each potential informant a number and used a random number generator to pull individuals. See Appendix G for additional information on sampling strategies.

Quantitative phase sampling

Purposeful sampling was used by the study team to recruit participants for online surveys. With this sampling method, the survey was sent to specific members of each informant group. More details about the specific recruitment methods for each informant group can be found in Appendix H. Briefly, OHA provided lists of state-specific organizations, including LPHA contacts and City, County, and Tribal Emergency Management contacts.

Analysis

Qualitative Phase Analysis

The study team performed a series of qualitative data analyses to answer each report's key evaluation questions. All qualitative data were audio-recorded for accuracy and professionally transcribed. After transcription, all transcripts were analyzed using Dedoose mixed-methods software using thematic content

analysis. To do this, the study team developed an initial coding tree for each group and piloted the coding scheme on a small sample of transcripts. The study team then examined findings by many different variables, codes, and descriptors to identify the strongest themes.

Quantitative Phase Analysis

Quantitative data, including surveys and health system data, were analyzed using standard descriptive statistics. Rede Group performed subclass analysis to examine differences across sociodemographic characteristics, including race, ethnicity, age, disability, and geographic location for each outcome of interest, when available. Rede Group also examined these metrics over time. See Appendix H for preliminary survey analysis.

Limitations overview

There were many strengths to this study, including the robust study design and sampling strategy. Our health equity-centered approach was also a study strength, as we were able to include many community partners throughout the study. Community study partners informed and reviewed data collection tools, assisted with recruitment of study participants, and aided in the interpretation of data findings.

Study findings, however, should be interpreted in the context of limitations of this study. The largest limitation impacting this study was time constraints. The accelerated timeline of this study, including the due date for Report 1, hindered the study team's ability to be exhaustive of all of Oregon's public health system response. In effort to address this limitation, an array of study design features were used. Additionally, the retrospective nature of this study, which covers a period of over two years, introduced recall bias in which participants may not accurately recall past events. Other limitations of this study include public health workforce turnover, limited incentive availability for specific informant groups, documents lacking dates and other context, and reliance on self-reported data for online surveys. See Appendix I for detailed description of study limitations.

Findings

Public health workforce contributions

Staff at all of Oregon's local health departments, Tribal Health Offices, and OHA's Public Health Division shouldered much of the operational and leadership burden of mounting the public health response to the COVID-19 pandemic. A host of partners willingly supported governmental public health through shared responsibility and delivered a significant impact in controlling the spread of the virus. Still, statutorily a great burden fell on these government officials. Analysis of interviews and surveys across all study participant groups found the following:

- LPHA staff exerted exceptional, sustained effort throughout the pandemic, often doing so in hostile environments;
- LPHA staff had critical insights into the needs of their communities and had previously established trusting relationships that were effective in pandemic response;
- Tribal Health Offices worked tirelessly and faced extraordinary challenges (such as the effects of longstanding, deeply rooted systemic inequities) in keeping tribal members safe and healthy.
- Tribal Health Offices met the test as a trusted resource for Tribal members amidst an onslaught of general misinformation that caused fear and heightened mistrust of non-tribal government;

"I think the pieces that went well were the agency's desire to do the right thing. I was surprised at how many people were like, 'We want to be here.' And we were working seven days a week, 10-hour days, 12-hour days. And there were so many of us that said, 'I'm going to do whatever it takes to make sure that whatever's given to me or whatever's given to our team gets done.' So there was a big, it's like the public servant desire in the folks that were working on the agency command center."

— OHA Staff Interviewee

- OHA, Public Health Division (PHD) staff also exerted exceptional sustained effort throughout 2020-2022; they advocated for strong public health measures, stood-up systems, centered equity, and worked tirelessly to communicate massive amounts of information effectively; and
- Staff at these three governmental bodies understood and honored their responsibility to the people of Oregon.

This report will cover in more detail specific operational successes across the entire public health system. It will also cover systemic deficiencies and failures. Discussions of weaknesses in the public health system's response must never be construed as a criticism of people within the system. The report concludes unequivocally that Oregon's public health workforce, in concert with capable partners, served Oregonians unwaveringly with integrity and courage.

"We did really incredibly well and especially...where we had lots of backlash from our people in our county. We were threatened with assault, literally we had some constituents tell us they were going to shoot us in the face and we just said, 'Bring it on.'"

—LPHA Administrator Interviewee

"It just really took a toll on everyone in public service, including all direct services. That includes healthcare. It was just always one emergency after another. It was hard to experience it. It was hard to see coworkers and friends that you care about experience it."

—LPHA Administrator Interviewee

Health equity

The CDC defines health equity as "the state in which everyone has a fair and just opportunity to achieve their highest level of health" (CDC, 2022). Awareness has been growing for decades about the persistence of health inequities caused by a long history of systemic and institutional bias and discrimination in the United States. Specific to public health emergencies, national events such as Hurricane Katrina and the Flint Michigan water crisis have shed light on the disproportionate health and social impacts of large-scale emergencies on populations that have been historically marginalized. As a result, recent federal, state, and local calls to action have been made to improve health equity within public health, health care, emergency management, and other sectors. This section will focus on findings related to health equity capacity and practice throughout the pandemic.

The vast majority of survey respondents, interviewees, and focus group participants shared experiences and insights related to Oregon's efforts to address health equity in its public health pandemic response. Study participants reflected on the extent to which Oregon's public health pandemic response gave all Oregonians a fair and just opportunity to be protected from COVID-19 and have their COVID-19-related health needs met. Health equity findings are important to understand for the purpose of reflection and improvements moving forward.

The following are key findings from study participants related to health equity in Oregon's public health pandemic response.

Health equity as a value + priority

Most study participants, including OHA Directors, OHA Staff and Managers, LPHAs, and CBOs, named equity as a central focus in Oregon's public health system response to the COVID-19 pandemic. Study participants noted their high motivation to center equity throughout pandemic response efforts. This motivation was informed by an understanding of social determinants of health and existing health inequities; learning from past public health emergencies; and forecasting that the COVID-19 pandemic would exacerbate inequities and have a disproportionate impact on historically marginalized communities. This prediction was brought to bear as real-time data highlighted disparities in COVID-19 cases, hospitalizations, and deaths. Motivation and urgency to center equity persisted, and for many study participants, grew throughout the pandemic.

Study participants also noted a clear call to action from leadership and from communities. Oregon has been on its own journey to prioritize and operationalize health equity in the years prior to the pandemic. In October 2019, the Oregon Health Policy Board and Oregon Health Authority adopted a definition for health equity that acknowledges health equity as both a long-term goal and a daily practice (see definition on the right).

Oregon will have established a health system that creates health equity when all people can reach their full health potential and well-being and are not disadvantaged by their race, ethnicity, language, disability, age, gender, gender identity, sexual orientation, social class, intersections among these communities or identities, or other socially determined circumstances.

Achieving health equity requires the ongoing collaboration of all regions and sectors of the state, including tribal governments to address the equitable distribution or redistribution of resources and power; and recognizing, reconciling, and rectifying historical and contemporary injustices (OHA, n.d.).

Having this health equity definition alongside OHA's strategic goal of eliminating health inequities by the year 2030 created a sturdy foundation to build upon. OHA was seen as a leader in health equity work by other State Agency, LPHA, and City and County Emergency Management interviewees.

Another factor in the prioritization of health equity was Oregon's work on public health modernization. Since the passage of House Bill 3100 in 2015, Oregon has been working to modernize its public health system by improving capacity and effectiveness across four foundational programs and seven foundational capabilities. Two of the capabilities speak directly to the importance of health equity: health equity & cultural responsiveness, and community partnership development. Many study participants, particularly LPHA study participants and others with public health training, reflected that Oregon has been building practices and partnerships to support a stronger focus on health equity throughout Oregon's public health system for several years. Public health modernization funding was named as an important resource that LPHAs leveraged for developing partnerships with CBOs prior to and during the pandemic.

"I think that the biggest impact for us as an agency has been to take that health equity strategic goal seriously, and to see a sudden shift, at least policy wise, to looking at and integrating the words 'health equity', 'transformation', 'inclusion', and you sort of see this shift that everyone has a recognition that we need to use that language and that terminology in how we write policy and how we operationalize our processes."

— OHA Manager Interviewee

Operationalizing health equity

Study participants described what it means to operationalize health equity in the context of a public health pandemic. A majority of study participants noted the importance of equitable access to information and resources as central elements in an equitable pandemic response. Study participants reported that accessible communications and public messaging requires:

- Having information translated into all languages spoken by Oregonians;
- Ensuring communication is accessible for individuals experiencing disabilities;
- Attention to broadband and technology access; and
- Culturally tailoring information for different communities across Oregon.

Regarding pandemic response resources, study participants noted the importance of equitable distribution of resources like PPE, tests, and vaccines, as well as equitable funding practices to adequately resource front-line organizations serving historically marginalized communities.

Study participants also spoke to the important values that undergird an equitable public health pandemic response, such as collaboration, trust, transparency, and inclusive and representative decision-making. When these values were present and shared amongst collaborators, equity work felt highly effective. In the absence of one or more of these values, equity work was limited and collaborators experienced confusion, frustration, and overwhelm.

"I would say that my findings with working with the county was that they definitely had a way that they did things and there wasn't necessarily a lot of flexibility. And so me knowing, I think, going into a future partnership, knowing that for that to be successful, I'm going to need to conform to what they already have established and not try to use a lot of my time to shift the way that they do things."

—CBO Interviewee

Health equity challenges

While having a strong vision and prioritizing equity conceptually is important, it is not sufficient. Nearly all study participants named a gap in capacity, skills, and tools for meaningfully centering equity throughout Oregon's pandemic response efforts at the state and local level. While the breadth and depth of the equity challenges named by study participants varied, some commonalities in experiences and reflections emerged.

First, Oregon lacked an emergency management infrastructure that intentionally included equity practitioners and communities impacted by health inequities into decision-making. Study participants described incident command structures (ICS) as hierarchical, rigid, and primarily staffed by emergency responders. There was large variation in the inclusion of equity expertise in local incident management teams (IMT). Few IMTs had equity officers involved as decision-makers (in command-level positions), some had equity officers involved as participants who were consulted to varying degrees, and others had no representation of equity officers.

Second, equity capacity across the state were limited. While OHA has a dedicated Division of Equity and Inclusion, their team of equity practitioners was stretched far beyond their capacity. Demand for hands-on support, technical assistance, and tools for planning and decision-making was incredibly high. Many OHA Directors interviewed for this study identified their own knowledge and skill gaps around how to design an equitable pandemic response. LPHA interviewees spoke at length about their desire for a specific plan and guidance around how to center equity

"It is a traditional sort of bureaucratic structure that was not adept at responding in a way that was consistent with health equity and reaching priority populations. It was a very sort of military type model where there were just a handful of folks making some very important decisions that impacted a lot of people who were not well versed with the disciplines of equity and social determinants of health and accessibility and meaningful engagement in all those pieces."

—OHA Manager Interviewee

in their work. Other State Agency study participants noted they relied heavily on OHA to bring an equity lens to the pandemic response. CBO and Tribal Nation study participants that were leading front-line health equity work since day one of the pandemic had trouble building and sustaining their capacity as their work necessarily expanded.

Another area of stretched capacity was related to the collection, reporting, and use of data specific to race, ethnicity, language, or disability (REALD) and sexual orientation or gender identity (SOGI). Study participants noted that REALD data were collected as legislatively mandated, however, were not always collected consistently and there were varying levels of understanding and experience related to REALD data collection. According to a February 2021 report on REALD and COVID-19:

- Race and ethnicity data were available for 82.9% of COVID-19 cases and 62.9% of reported COVID-19 encounters;
- A preferred language was not documented for 40% of COVID-19 cases and 14.9% of COVID-19 encounters; and
- Disability information was not available for 65.2% of cases and 61.2% of encounters (OHA, 2021).

Additionally, REALD data were not shared back publicly on a regular basis except at high level categories of race and ethnicity (Asian, American Indian/Alaska Native, Black, Hispanic, Multiracial, Pacific Islander, and White). Study participants noted that OHA was in the process of putting plans in place to improve collection and reporting on SOGI data. This meant that there were not strong practices in place or sufficient capacity to build

"So the very beginning especially, not building in a specific, or having the tools or expertise or direct leadership being built in from an equity perspective. Also, the importance of through a response that community work engagement and community expertise and knowledge to build into that decision making was not well established at the beginning and definitely grew over time. But that was definitely an area of challenge at the beginning."

—OHA Director Interviewee

and adapt standard practices to improve data collection and reporting across governmental public health entities and the array of partners engaged in pandemic response activities. These capacity challenges hindered the use of REALD and SOGI data to inform Oregon's health equity work in response to the public health pandemic.

Third, buy-in for equity work varied significantly by region and also waxed and waned, especially in the face of the politicization of COVID-19. Study participants recalled encountering overt racism from some LPHAs and county officials and noted that health equity messaging doesn't resonate with many rural communities that are disenfranchised and distrust the government. Those who advocated for equitable approaches were often devalued and demeaned and had to fight for credibility, attention, and resources. CBOs and equity practitioners within OHA named this as a challenge more often than other respondents. They recalled multiple instances when they encountered resistance around prioritizing equitable access to information and resources. For example, CBOs and OHA staff who called for prioritizing migrant farmworkers in Oregon's vaccine roll-out; delaying the launch of the Get Vaccinated Oregon app to address accessibility issues; and keeping public health protections like masking mandates in place longer to protect vulnerable communities all received pushback and were told they were "penalizing the majority of people for this minority of people" (OHA Manager Interviewee). Many study participants observed that true equity values are brought to light when the time comes for difficult decision-making.

"Every single thing we did required a ton of advocating and convincing, so much that we wasted so much time... It was just a ton of convincing and fighting for every penny."

—OHA Manager Interviewee

Health equity in practice throughout Oregon's pandemic response

There was large consensus across study participants that health equity efforts improved throughout Oregon's public health pandemic response.

Study participants named early equity missteps like a lag in translating and culturally tailoring communications materials; inequitable distribution of PPE across the state; and missed opportunities to develop trust in communities to improve compliance with statewide public health mandates and address vaccine hesitancy. Many found the lack of forethought on communication with marginalized communities "demotivating" and "avoidable" (CBO interviewees). CBOs in particular also wished there was more effort to combat misinformation. Rumors and myths circulated in communities and were hard to address without strong and consistent messaging statewide and from authority figures as well as trusted messengers like local doctors.

Alongside these early missteps, nearly all study participant groups noted the rapid and substantial resourcing of CBOs and the deepened collaboration with Tribal Nations and the honoring of their sovereignty as significant wins in the drive toward an equitable pandemic response. There was early recognition of the importance of resourcing CBOs and Tribal Nations, which had positive impacts on supporting health equity throughout the pandemic. The role that CBOs played during the pandemic was critical and their impact cannot be overstated; they kept communities safe, informed, and connected, and saved lives. They met needs on the ground every day while also engaging in crucial advocacy work to elevate the needs of their communities with decision-makers at the county and state level. CBO voices were central to informing Oregon's pandemic

"One of the frustrations in doing this work as long as I have is that people just assume that you just flip a switch and it's accessible. There's Google translate and you can get it in other languages, that ASL is just English but in a different format. And just a misunderstanding about how people view information, view the government, engage with information, and how they use that information to make decisions for themselves. And that all takes time. That takes resources, commitment from people, building trust. And they just didn't care."

—OHA Manager Interviewee

response and ensuring a focus on health equity and reaching historically marginalized communities. Tribal Nations also played a critical role in centering equity by tailoring their own pandemic response efforts to address the realities of existing health inequities in Tribal communities. They led public messaging and communication efforts, implemented public health mandates, conducted contact tracing and disease investigation, provided wraparound support, and coordinated vaccines.

Study participants across every participant group felt that equity issues became a central focus in vaccine roll-out. Study participants reflected that the Governor's Office and OHA missed opportunities to include historically marginalized communities in decision-making around prioritizing vaccinations, and also didn't have clear messaging and rationale for how populations were prioritized. Mass vaccination clinics were also noted as an equity misstep as they felt unwelcoming and unsafe to communities with valid distrust and fear in the government.

Throughout the vaccine roll-out process there were efforts to hear feedback from communities and adapt strategies to more effectively center equity in decision-making around prioritization of vaccines and vaccine communication with various populations. Some examples included having state and local public health staff out in communities to build trust and communicate about vaccines (e.g., going to local markets to build rapport with the Latinx community); having vaccines set aside early for Tribal Nations with the ability to prioritize populations differently than the rest of Oregon (e.g., prioritizing elders ahead of other populations); and shifting strategies from larger mass vaccination clinics to smaller local vaccine clinics often hosted by CBOs.

"When the pandemic first hit and we were dealing with the shutdown, the PPP loans and COVID-19 grants provided a lot of income that helped sustain and grow our programs as service providers."

—CBO Interviewee

"We could not show up in fatigues [military combat boots] and expect people who were non-documented or had concerns with the military in their home communities to feel comfortable getting vaccinated. We had some real conflict with our commitment to both lead with equity and showed up using the same tool."

—State Agency Interviewee

"Because we do everything through an equity lens, we were connecting constantly with partners who serve vulnerable communities and historically underserved and marginalized groups to get people to reduce barriers, basically. So we added in ways for people to get transportation to the vaccination events. We had home vaccinations through various first volunteer clinics. We were going out and vaccinating in homes."

—LPHA Interviewee

"My most difficult decisions had to do with allocating scarce resources during a time of shortage. The early days of the vaccine rollout were really difficult because there were a lot of people who really needed vaccines, that couldn't get it because we did not have the capacity to get vaccines to the right places at the right time."

— OHA Director Interviewee

Oregon continued to build its capacity and implement systems for equity-driven decision-making in the later stages of the pandemic. OHA Directors and OHA Staff and Managers interviewed for this study named tools used to inform resource allocation, including an equity impact framework. Multiple study participant groups named the importance of the COVID-19 Vaccine Advisory Committee and other groups composed primarily of representatives from historically marginalized and underserved communities, and organizations that serve them, that OHA pulled together to inform pandemic response strategies. Having structures for two-way communication like weekly partner meetings were an opportunity for Tribal Nations, LPHAs, and CBOs to hear state updates and also provide feedback around evolving community needs and concerns. Tribal Nation, CBO, and some OHA Staff and Manager interviewees named a palpable shift in mindset as decision-makers learned that prioritizing communities disproportionately impacted by COVID-19 required different strategies than prioritizing helping the most people possible, and they became more willing to make those difficult decisions.

"We really want to start at, 'Who are our vulnerable populations and why?' It doesn't matter that there's only 500 people. I think that COVID has helped push the conversation to talk about vulnerability and impact to a specific population, as opposed to, 'Show me the high numbers and then we'll talk.'"

—OHA Manager Interviewee

Facilitators to achieving an equitable public health pandemic response

As they reflected on the pandemic overall, the majority of study participants were proud of their respective efforts to center equity while acknowledging they were imperfect. They noted several factors that facilitated or enhanced putting health equity into practice, including:

- Equity work depended on strong partnership networks with role clarity. All study participants noted that when strong partnerships were in place already, pandemic response work took off quickly and was bolstered by clearly delineated roles across communications activities, contact tracing, vaccination, wraparound supports, etc. Having partners familiar with and representative of the community ensured that early response efforts were grounded in community needs and aimed to address the disparate impacts of health inequities and disparate access to information, health care, and important resources.
- Adequate, timely, and flexible funding was another facilitator of health equity work. Decision-makers dedicated federal, state, and regional funding to resourcing CBOs and Tribal Nations to ensure that historically marginalized and underserved populations were prioritized for tailored communications and outreach, and for allocation of critical pandemic response resources.

"Just having the FTE available to really be responsive quickly was really helpful because things changed so fast and families needs were different hour to hour or week to week or month to month. Them allowing us to have funding that was very flexible, and I felt like they trusted us with knowing the families that we serve, knowing our population, and being able to quickly change how we were serving those families was like number one for us."

—CBO Interviewee

Looking ahead

Lessons learned from Oregon's successes and failures in centering health equity in its pandemic response can inform improvements for the future. Study participants elevated key learnings related to building shared understanding, representative leadership, capacity, and infrastructure for equity work moving forward.

Key learnings are:

- **Importance of shared definitions and goals statewide**
The OHA health equity definition and strategic goal was foundational, but it wasn't shared across other agencies and there wasn't time to build shared understanding of the goal, its importance, and how OHA operationalizes a focus on health equity once the chaos of the pandemic hit.
- **Representation in leadership matters**
Many informants called attention to the need for state executive level and agency leadership to be reflective of historically marginalized communities. Having leaders and decision-makers reflect and represent diverse communities means equity work is an inherent value and practice rather than a cause that needs to be explained or fought for.
- **Resourcing CBOs and Tribal Nations**
The pandemic illuminated and validated the critical and irreplaceable role CBOs and Tribal Nations play in Oregon's public health system. Future public health emergency response will be

"Equity is a discipline and an approach, meaning that it requires people with specific skill sets, knowledge, and expertise; needs to be infused throughout the entire process and not limited to just one area (i.e. community engagement); and requires existing systems and procedures to be flexible or open to change in order to be incorporated."

—OHA Director Interviewee

stronger if Oregon continues to intentionally resource CBOs and Tribal Nations and supports their long-term sustainability.

- **Adapting decision-making structures and tools**

Several study participant groups, including CBOs, City and County Emergency Management, OHA Directors and Staff and Managers, and LPHAs, noted how impactful it was to have built equity capacity throughout the pandemic, including developing and using decision-making tools for centering equity. City, County, and Tribal Emergency Management focus group participants in particular noted how valuable it was to have equity officers as technical experts embedded into their work and desired to continue having equity deeply integrated into emergency operations in the future. Exploring ways to formalize, resource, and continually update these structural adaptations is important.

Overall, the prioritization of health equity was highlighted as an efficiency of the public health system's response to the COVID-19 pandemic, with significant room for improvement.

"Funding the CBOs and the tribes the way we did, now and into the future. The people that are on the ground doing the work, they're the experts. It doesn't matter if you're an MPH or a public health authority, it matters that you know your community and their needs. The state's responsibility is to support community needs. Whatever that tribe needs or whatever that county needs or whatever that region needs, it's our responsibility to support them. We are not the experts of them. They are the experts and they just need to tell us what they need and we need to support that."

—OHA Director Interviewee

Public health emergency preparedness

Many entities within the public health system had procedures in place to respond to large-scale public health emergencies; however the resources needed to respond to COVID-19 eclipsed previous preparations and projected needs. Nonetheless, preparations that these and other entities made helped in response efforts. Frequently updated plans, more comprehensive training and preparation, clear communication and command structures, and preemptively built relationship networks were common themes that study participants cited to improve future public health responses to emergencies like COVID-19.

Training + preparation

To prepare for public health emergencies, LPHA and OHA Staff, Manager, and Director study participants shared details about emergency preparedness plans, but, despite these plans, found the magnitude and duration of COVID-19 hindered their capacity for the initial and continued response. Additionally, a lack of emergency preparedness training and bilingual staff or training prevented some staff from LPHAs, OHA, and OEM from successfully implementing preexisting plans or engaging in response. Organizations did not prepare for the number of resources needed for the response, including space to store PPE, funding, availability of vaccines, and staffing. Additionally, CBO study participants shared frustration at the lack of preparedness by various sectors to disseminate information in a timely and culturally appropriate manner. Of LPHA study participants who felt their LPHAs were prepared, LPHAs shared that the preparedness of their leadership and governance structures allowed them to onboard staff quickly for the response.

OHA

OHA Staff, Managers, and Directors shared about OHA's public health emergency preparedness through individual interviews. During interviews, staff from the OHA Director's Office shared that typical emergency management systems were not set up for a prolonged global pandemic. Emergency management systems were meant to respond to local emergencies and disasters like a flood or fire that is a shorter-term

incident and that requires mobilizing resources from other places. During the COVID-19 pandemic, every community, every county, every state, and the country were in dire need and resources (funding, PPE, vaccines, staffing, etc.) couldn't be pulled from elsewhere. Despite preparedness planning, the public health system was not prepared to respond to an emergency of this scale and duration.

Specifically related to training and preparation, LPHA and OHA Staff and Manager interviewees shared that their staff had not undergone sufficient training to know how to effectively respond to a pandemic. Although some staff had previous experience responding to the H1N1 pandemic, much of that expertise had been lost without ongoing training and many of those staff members were no longer working at these organizations. One OHA interviewee shared a need to be more creative during training scenarios, and another stated that there was a learning curve as people had to learn how to respond to a pandemic. This caused the response to an emergency of this scale to be chaotic and disorganized. OHA Staff and Manager interviewees cited the following factors as contributing to OHA's lack of preparedness to respond to COVID-19:

- Inability to obtain needed resources, such as PPE, vaccines, funding, and staffing; and
- Lack of preparedness for the duration and magnitude of the COVID-19 pandemic.

Lastly, with the expectation of a Continuity of Operations update in 2017, OHA's pandemic flu response plan had not been updated since 2008 and, thus, was likely outdated going into the pandemic (OHA, 2020). A replacement plan was put in place in March of 2020; however, this plan did not include functional supplements that described key activities and specific procedures and resources to support a pandemic response, including epidemiology and surveillance, health care coordination and surge capacity, vaccine distribution and use, information management, and community disease control and prevention.

LPHAs

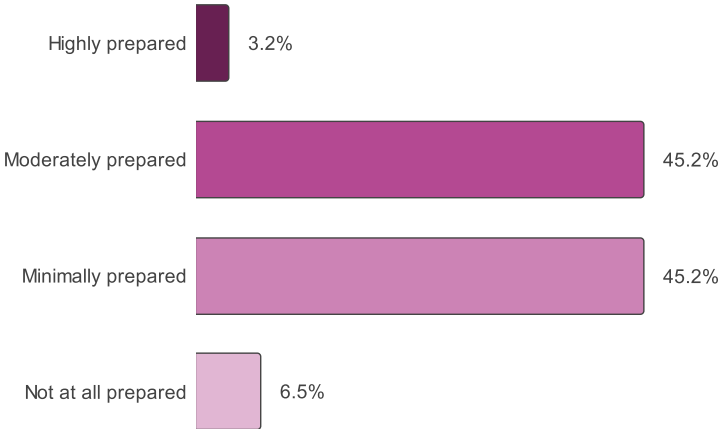
LPHA leadership shared about emergency preparedness through interviews and surveys. When asked about the level of their LPHA's preparedness during Stage 1 (initial pandemic response), 48.4% (n=15) of respondents working on COVID-19 during Stage 1 felt their LPHA was moderately or highly prepared. Fifty-two percent (51.7%, n=16) responded that their LPHA was not at all or minimally prepared (see Figure 7). These data show the individual perception of their LPHA's preparedness by LPHA survey respondents.

LPHA interviewees who felt their LPHAs were prepared early cited a government structure that allowed them to hire and train staff quickly and leadership foresight to prepare for COVID-19 before state guidelines required they do so. Also mentioned by LPHA interviewees was a lack of functioning data systems to track COVID-19 data.

"If we had not gone through that, not made assessments of the equipment we had [prior to COVID-19], we never would've been able to scale it up the way we did [to respond to COVID-19]. And that timing was very fortunate for us, but I think it drives home the point that you have to plan for these things, you have to be prepared, and that does take funding."

—LPHA Interviewee

Figure 7: LPHA preparedness among LPHA staff working in Stage 1 (N=31)



Specifically related to training and preparation, LPHA interviewees cited the following factors as contributing to their LPHA’s lack of preparedness to respond to COVID-19:

- Lack of physical space to store PPE;
- Underprepared for the length and magnitude of the COVID-19 pandemic, which led to staff burnout and fatigue;
- Difficulty hiring new staff and implementing new programs to respond to the pandemic; and
- Lack of robust and functioning data systems.

Finally, LPHA survey respondents were asked about the status of their LPHA’s jurisdictional pandemic response plan. The majority of respondents (64.1%, n=25) reported that their LPHA had an existing plan, with over half of those (35.9%, n=14) reporting it was updated after the beginning of the pandemic. Five percent (5.1%) of respondents (n=2) reported that their LPHA did not have a plan (see Table 1).

Table 1: Status of LPHA jurisdictional response plans (N=39)

My LPHA had a plan that was developed or updated prior to the start of the COVID-19 pandemic	28.2%
My LPHA had a plan that was outdated that was updated after the start of the pandemic	35.9%
My LPHA did not have a plan at the start of the pandemic, but developed one after the start of the COVID-19 pandemic	10.3%
My LPHA does not have a plan	5.1%
I don't know	20.5%

"So I thought once we went through the pain of the first few months, once that was sort of put in place and some structures were developed, it went or worked pretty well."

—LPHA Interviewee

"High institutional knowledge but a lack of resources in place to be highly prepared."

—LPHA Survey Respondent

City, County, and Tribal Emergency Management

OEM staff shared about preparedness and training through surveys. Most City, County, and Tribal Emergency Management survey respondents (54.6%, n=12) felt that their emergency management office/program was either highly or moderately prepared for the COVID-19 pandemic in general, not specific to pandemic start-up in Stage 1 like LPHAs. Of the respondents who felt minimally or not at all prepared, respondents reported that staff were not familiar with existing emergency plans or convening/coordinating an emergency operations center, or were not in a position to support telework and had to pivot quickly.

"We can barely focus on the hazards that affect our area regularly, let alone be resourced to plan for a pandemic.

—OEM Survey Respondent

"I had expectations that our Health Department had functional plans.... They did not."

—OEM Survey Respondent

"No prior knowledge of a pandemic, I believed that public health would have taken a more active role in the beginning."

—OEM Survey Respondent

CBOs

Staff working at CBOs during the pandemic shared about CBO preparedness through interviews, focus groups, and surveys.

Interviewees from CBOs defined a public health system response as being on the frontlines of educating and supporting communities, with a focus on the most vulnerable communities. The following were described as key elements of the response:

- Built on a foundation of equity, equity-centered throughout response;
- Clear messaging and guidance delivered in a trauma-informed and culturally-responsive manner to community;
- Identifying and building resources to manage all the impacts of a global pandemic for communities;
- Maintaining a focus on broader public health issues and health outcomes (e.g., mental health, substance use disorder);
- Responsive to data and emerging information; and
- Urgency and efficiency in setting up response structures, teams, and processes.

Interviewees reported experiencing frustration with the lack of forethought that was put into getting information to the communities they serve. The communities that relied on CBOs were some of the most marginalized in the state and while CBOs made great impacts on their communities, the difficulties that were reported were described as "demotivating" and "avoidable."

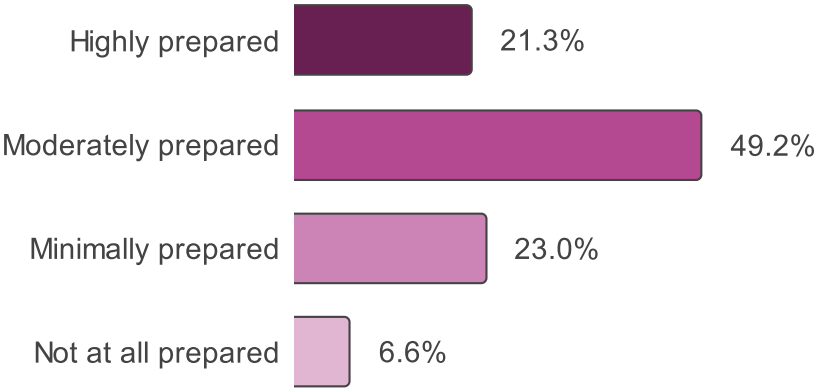
"We had the infrastructure in place to reach our community, but we lacked the resources to do so."

—CBO Survey Respondent

CBO survey respondents were asked how they would evaluate the level of their CBO’s preparedness to date. Not all CBO survey respondents worked at their CBO from the beginning of response efforts. Their answers span the entirety of the pandemic and are not specific to pandemic start-up. Twenty-nine percent (29.6%, n=18) believed their CBO was not at all or minimally prepared, while 70.5% (n=43) believed their CBO was moderately or highly prepared (see Figure 8).

CBO focus group participants were asked what would have helped improve the rollout of vaccines in their communities. They shared a need for equitable resource and information distribution and accessibility, culturally and linguistically relevant thought partners, and translations, which, in their absence, deeply impacted vaccine rollout in the CBOs’ communities. CBO study participants also expressed a desire to have had more training to equip them for an emergency response.

Figure 8: CBO preparedness (N=61)



"I would just have to say more accessibility to the resources and the information and other languages for the different cultures in the community."

—CBO Focus Group Participant

"Our CBO is consistently performing better with each vaccine drive, but there is always room for improvement."

—CBO Survey Respondent

"We immediately learned what we needed to do to protect our clients and the public and kept up with any updates provided by the CDC and OHA."

—CBO Survey Respondent

Overall, a lack of training and preparedness for a public health emergency such as the COVID-19 pandemic was highlighted by study participants as a deficiency in the public health system's response.

Strong relationships + command structures

LPHAs and CBOs shared how relationships and communication formed the bedrock of their COVID-19 response. Conversely, when organizations lacked relationships, it was difficult to build those relationships in a short period to begin collaborating on response efforts. Additionally, for LPHAs, the ability to communicate and the adherence to command structures were elements that were important to their response. Command structures helped LPHAs focus their efforts and understand the chain of communication.

LPHAs + CBOs

LPHA and CBO study participants shared about relationships through interviews. In their definition of the public health system response, some interviewees focused on the relationship between the state and counties, while others named OHA, OEM, other LPHAs, CBOs, and city and county emergency management as key actors sharing work. LPHA interviewees, in part, attributed their LPHA's preparedness to preexisting strong relationships with community organizations. Some LPHA interviewees felt that when strong relationships were not in place, work did not happen as efficiently or thoroughly as it could have, resulting in poorer preparation for and response to the pandemic.

"In this post COVID world, I think mandating people go through that [incident leadership] training [is necessary] and then rotating through response teams that get together and practice this work."

—OHA Manager Interviewee

Interviewees from CBOs attributed the success of public health response to collaborative relationships, including partnerships with other CBOs and LPHAs.

LPHA interviewees were found to have a consensus on the role of public health in alignment with existing emergency management and support structures. Interviewees agreed that following a chain of command existed for high-level decision-making during the response to the pandemic: Governor's Office making executive decisions, flowing through OHA, OEM, and other state agencies, who in turn gave guidance to counties, who then worked with local partners to implement requirements and communications to the public.

Most LPHA interviewees described specific aspects of their response under the broader umbrella of emergency preparedness and management. They named the incident command system and emergency management offices as key elements of the response.

Looking ahead

Despite previous preparation for public health emergencies, study participants' reflections about their organizations' lack of preparedness for COVID-19 provides the opportunity to look ahead to future large scale public health emergencies and plan accordingly. Thorough and ongoing training on emergency response plans are needed, especially training for bilingual staff. Familiarity with plans is vital, as well as coordinating an emergency operations center.

"I would say our partnerships were our biggest success. Like I mentioned before, we're a small community, we already had really good relationships with a lot of different agencies. So like I said, we had people's personal numbers going into this, and so it was really pretty seamless. I think maybe one downside is that work never quit, because even when you go home, people have your personal number and they're calling and texting, which is fine."

—LPHA Interviewee

Reflecting on what worked well, ensuring government structures with flexibility to quickly hire and train staff is vital to response efforts, as well as the ability to telework. Additional efforts will be needed to base response in equity, tailor culturally appropriate communications, and be able to work on other ongoing public health issues for future response. Finally, strong preexisting relationships and ability to follow emergency command structures will be needed for a robust future response.

"I would define public health system response as a coordinated effort between stakeholders that have a lens of population health. So I think it means having a broad ... I mean, public health is literally everyone."

—LPHA Interviewee

Funding

Federal funds were allocated or made available to claim for reimbursement through OHA to LPHAs, CBOs, Tribal Nations, and other partners through two main pathways: contractually-based funding and program elements (PEs).

Note: Due to the ongoing nature of the pandemic and a lack of detailed categorization and dates on many of the budget documents provided to the study team, total funding amounts and the number of fundees in each funding stream may vary to what is written in this report and are subject to change. A more detailed description of OHA funding for COVID-19 will be included in the second report.

According to documents provided to the study team by OHA and information collected from process interviews with OHA Director's Office and Public Health Division staff, OHA received federal funding from multiple funding streams over the course of the study period. OHA, PHD received over \$700 million in federal grant funds to spend and allocate for Oregon's pandemic response. In addition, over \$700 million in claims have been submitted for Federal Emergency Management Agency (FEMA) reimbursement for expenditures spent through OHA, PHD to support pandemic activities.

Multiple federal funding streams were awarded through various cooperative agreements with the Centers for Disease Control and Prevention, including:

- Public Health Crisis Cooperative Agreement;
- Hospital Preparedness Program;
- Epidemiology and Laboratory Capacity Emerging Infections Program;
- Immunization and Vaccines for Children; and
- COVID-19 Health Disparities Among Populations at High Risk and Underserved, Including Racial and Ethnic Minority Populations and Rural Communities.

The different cooperative agreement funding streams most often contained specific requirements about specific areas of work for which the funds could be used.

Examples of FEMA-reimbursement claims that have been submitted to FEMA include:

- COVID-19 response activities that went beyond what was funded by other federal grants;
- Wraparound services for individuals in isolation and quarantine;
- Vaccine access and distribution, including the Vaccine Operations Team – Equity (VOTE) which supports community-based vaccination events serving historically marginalized populations;
- Testing and vaccination sites and mobile clinics through the OHA Field Operations Team; and
- Distribution of and access to COVID-19 therapeutics to mitigate severe COVID-19 cases especially in high-risk individuals.

Other local, state and federal funding streams were also leveraged to support the pandemic response efforts throughout the state by various state, tribal, and local agencies and organizations responding to the pandemic.

Over \$700 million in COVID-19 funding has supported contracts and grants to LPHAs, Tribal Nations and the Urban Indian Program (NARA), CBOs, and other agencies and organizations for COVID-19 public health response activities around the state. OHA, PHD reported that they allocated:

- Over \$220 million in funding to LPHAs;
- Over \$29 million in funding to Tribal Nations and NARA; and
- Over \$89 million in funding to CBOs.

CBO funding through the Community Engagement Team

The OHA, PHD Community Engagement Team provided funding to over 170 CBOs to support community engagement activities including COVID-19 prevention and education; wraparound services for people

facing isolation or quarantine, including direct client supports; and contact tracing. Multiple federal funding streams and FEMA-reimbursement claims supported these allocations. Agreements with CBOs outlined which funding streams could be used for which activities as different funding streams had different parameters. In addition to this CBO funding initiative, OHA, PHD supported CBOs through VOTE. There was also a separate initiative to support migrant and seasonal farmworker partner organizations through a separate program within OHA.

As described in the health equity section of this report, OHA provided funding and assets to CBOs as a pathway to best reach historically marginalized populations and bolster their efforts toward an equitable pandemic response. CBOs were asked about funding in interviews, focus groups, and surveys (see Appendices D-F). CBO study participants reported receiving COVID-19 response funding from federal, state, and local government as well as other public and private entities. Specific funding sources identified by CBOs across data collection methods included:

- Federal funding described above;
- Paycheck Protection Program (PPP) loans;
- ODE grants;
- LPHA grants and contracts;
- Health care Associations (such as CCOs);
- Other non-profit organizations (such as Oregon Food Bank); and,
- Philanthropy.

Funding through program elements (PEs) to LPHAs and tribal nations

LPHAs

LPHAs (and Tribes) received funding through OHA-issued intergovernmental agreements that included multiple program elements outlining scopes of work and deliverables for the different funding streams, each of which had different areas of work and budget parameters. LPHAs were authorized to use various PEs for pandemic response, which allowed them to shift funding and staffing from certain PEs to COVID-19 response. As of June 2022, LPHAs reported spending funds from several PEs on COVID-19 response. Some of these PEs were dedicated to COVID-19 response and others were dedicated to other deliverables which OHA deemed permissible to redirect to COVID-19 response expenses. Deliverables for PEs used for COVID-19 response activities varied and included running communicable disease programming, public health emergency preparedness and response activities, and providing immunization services.

LPHA study participants were asked about funding in the survey and in individual interviews. Many LPHA survey respondents were unable to answer questions about funding, since it was not a part of their role in the COVID-19 response. Five respondents reported affirmatively that their LPHA received COVID-19 funding from entities other than OHA, ten reported that they did not, and 24 did not know. Other sources of funding reported by LPHA study participants included the American Rescue Plan Act (ARPA), Foundation, CCO, Modernization dollars, General fund, and volunteer labor.

Tribal Nations

According to funding guidance from March 4, 2020 provided to the study team, Tribal Nations and the Urban Indian Program (i.e., NARA) were initially authorized to use PE 31- Public Health Emergency Preparedness, PE 58/59- Public Health Modernization, and PE 65/66- Communicable Disease Response for general activities to support the COVID-19 response. The funding model for PEs was an equal split between Tribal Nations and NARA, except for PE 65/66-02 which was based on individual Tribal Nation activity selection and

preferred funding model. Allowable activities for Tribal Nations using funding from these PEs was similar to those allowed by LPHAs, and included staffing/capacity building, community interventions, and providing immunization services.

Uses of funding to support COVID-19 response activities at the local and tribal level

The majority of study participants were asked about the use of funding to respond to the COVID-19 pandemic. The study participants highlighted in this section include LPHAs, CBOs, and Tribal Nations, who were responding to community needs at the county, city, and tribal level. During analysis, some common themes emerged for use of funding to respond to the COVID-19 pandemic across participant groups.

Staffing + operations:

LPHA, CBO, and Tribal Nation interviewees all named hiring staff as a primary use of COVID-19 funding. Study participants hired a mixture of temporary and permanent staff for their pandemic response, and used staff hours for all the categories of activities described below. CBO interviewees reported that operational costs included purchasing PPE for staff, and equipment for staff to transition to remote work (e.g., sit-stand desks, upgrading internet).

According to PE funding guidance for Tribal Nations, staffing-related costs could include any necessary staff support related to COVID-19 response activities, including conducting disease investigations; planning for distribution of COVID-19 vaccines; communicating about COVID-19 prevention; participating in development and exercise of Continuity of Operations Plans (COOP) related to COVID-19; and any activities promoting community resilience.

LPHAs were able to expand the role and capacity of public health and communicable diseases staff. Funding was designated to support hiring public health nurses who would provide an equivalent of six months of protected time for each communicable disease nurse selected by their LPHA to obtain infection control

training and prepare for the Certification in Infection Prevention and Control (CIC) certification exam. All 36 LPHAs were also allowed to fund public health nurses to conduct Infection Control Assessment Responses (ICARs). Lastly, funds could be used to support attendance of each of the 36 communicable disease RNs selected for infection prevention and control training through one relevant conference during the budget period.

Broad workforce development of LPHA staff; contracts for the provision of disease investigation services; and COOP development and exercise related to COVID-19; was also allowable under PE funding for LPHAs.

Community engagement + health equity:

Through PEs, LPHAs were funded to provide education and activities related to community prevention, preparedness, and response and recovery. Related to health equity, allowable activities for LPHAs included providing education and immunization services to communities at highest risk of comorbidity from influenza, pneumonia, and COVID-19; supporting COVID-19 vaccine delivery with an equity focus; and ensuring long-term improvements for health equity and cultural responsiveness. “Activities promoting community resilience” was also listed as an allowable activity under PE funding for LPHAs and Tribal Nations.

Personal Protective Equipment + other supplies or equipment:

Analysis of the interview data shows that LPHAs and Tribal Nations played a lead role in the purchase and distribution of personal protective equipment (PPE) and other supplies to their communities. Tribal Nation interviewees specifically reported purchasing and distributing supplies to allow for social

"We had no public health department. We stood up quickly. We started addressing the most important things first, getting policies together, training staff, letting the community know how we could help them"

—Tribal Nation Interviewee

"Just having the FTE available to be responsive quickly was really helpful. I felt like they trusted us with knowing the families that we serve, knowing our population, and being able to quickly change how we were serving those families was like number one for us."

—CBO Interviewee

distancing in clinical settings. According to PE funding guidance for Tribal Nations, allowable equipment expenses also included computers, telephones, software, and other equipment needed to assist with the COVID-19 response.

Testing + contact tracing

Case investigation, contact tracing, and the provision of testing services were all funded activities. LPHAs were also allowed to support their COVID-19 County Testing Coordinators to participate in the local Regional Healthcare Coalition (RHCC) and assist with testing in high-risk settings and vulnerable populations. Tribal Nation and CBO interviewees also reported using funding for contact tracing. LPHA and Tribal Nation study participants also used funding for purchasing and distributing testing kits.

Vaccination

According to PE funding guidance provided to LPHAs, allowable activities related to vaccination included planning, maintaining, and engaging the local and regional immunization infrastructure, including providing communication and training. LPHA, Tribal Nation, and CBO study participants were all involved in supporting vaccination in their communities to some degree. LPHA and CBO interviewees often reported working together to host vaccination events. This includes securing and setting up an event space for mass vaccination clinics, staffing vaccination events, conducting community outreach, purchasing vaccines, and the purchase and operation of mobile vaccination units (vans). Tribal Nation interviewees reported that funding was also used to provide community members with incentives for getting vaccinated.

Wraparound supports

Although some LPHA interviewees mentioned providing wraparound supports for individuals in quarantine or isolation, our qualitative data analysis shows that Tribal Nations and CBOs were most involved in this aspect. LPHA involvement in providing wraparound services varied in what they did and across LPHAs depending on resources, etc. CBO interviewees reported a wide range of wraparound supports provided to

their communities, including food deliveries and rent and utility assistance. Tribal Nation interviewees specifically named temporary housing, economic support, grocery delivery, cleaning supplies, and support for tribal childcare services as some of the wraparound supports they were providing during the pandemic response.

Media + communications:

COVID-19 communications were funded through PEs for LPHAs and Tribal Nations. LPHA interviewees reported that funding was used for media campaigns and other COVID-19-related communications. Some specific purchases named by LPHAs include billboards, an improved readerboard, and radio ad campaigns. LPHA interviewees also noted success in getting creative with their communication methods, and subcontracting with CBOs for translation and other communication services.

In addition to translating and culturally tailoring COVID-19 communications materials, CBO interviewees also reported using funding for the purchase of laptops, zoom accounts, and cell phones to stay connected and engaged with community members.

Necessary improvements to funding processes + mechanisms

Nearly all key players in Oregon's public health response to COVID-19, including CBOs, LPHAs, and Tribal Nations, highlighted resources that could be used to better implement investments during a significant emergency response. They also discussed how federal fund allocation and use at the local and tribal level could go more smoothly in the future. During data collection, participants were asked about mechanisms for determining funding formulas and PEs, timelines for making funds

"We were serving as a wraparound services provider. When people tested positive in our clinic, we made sure that they could successfully quarantine by providing them with at least partial rent, grocery delivery that we paid for through state funds eventually, and paid their utilities so they didn't have to feel compelled to work."

—CBO Interviewee

"Our health administrator was a nurse practitioner and was really well known in the community. She and I did a lot of messaging through Facebook live sessions and videos. That was really well received by the community."

—LPHA Interviewee

available, disbursements, budget/reporting requirements, and flexibility within funding streams. Conversations through interviews and focus groups, as well as quantitative data collected from surveys, resulted in the following needs to be addressed for funding future public health emergencies.

The most frequently reported overarching challenge by CBO survey respondents was inadequate staff, while lack of adequate funding was the fourth most frequently mentioned challenge, with 31% of survey respondents indicating this as a challenge.

Unrestricted and flexible funding

The need for unrestricted and flexible funding during emergency response was mentioned by CBO, LPHA, Tribal Nation, State Agency, and PHAB study participants. Many LPHA interviewees noted that limitations around the use of funds for specific funding streams were often confusing, adding stress during an already challenging time. Eighty-five percent (85%) of LPHA survey respondents reported that flexibility within funding streams for different PEs was needed to manage monetary resources during a public health emergency.

Spending funds was easy when the funding received was unrestricted and designated for general operations. For some grants, there were predetermined categories for what funds could be spent on with predetermined amounts for those categories that were inflexible, making it difficult for grant recipients to spend funds on certain response activities.

For Tribal Nations, although the amount of funding received met their needs, insufficient flexibility for how funding could be used caused concern that funding would go to waste because it needed to be spent on a particular aspect of their response, which was not always where the biggest need was.

"Response to changing environment: the learning curve was steep and pace of change was high."

—CBO Survey Respondent

"Public health funding is way too categorical, funds can only be used for certain activities."

—LPHA Interviewee

"They were all very set amounts and evenly distributed. There was no wiggle room, and that is unreasonable."

—CBO Interviewee

"It was difficult when the money was specifically earmarked for testing only, or for quarantine."

—Tribal Nation Interviewee

State Agency interviewees shared that they felt Oregon’s public health organizations, particularly OHA, were generally underfunded compared to other state’s public health organizations, and that being underfunded delayed response work. Several interviewees, including LPHA interviewees, felt that a more sustained investment into emergency management would better prepare Oregon for future emergencies and build a more robust public health system.

Predictable funding schedules + timelines

LPHA and CBO interviewees discussed the need for predictable funding schedules and timelines to improve their emergency response. A few LPHA interviewees reported frustration with delays in funding disbursements from the state, resulting in short windows to spend down large amounts of funding. LPHA survey respondents also expressed this need, with 56% (n=22) of respondents noting “rapid timelines for making funding available” as a support needed to manage monetary resources during a public health emergency.

Simplified funding applications

Professional Associations interviewees shared that the process for receiving funding was overall complicated, slow, and inequitable. However, the majority of CBO interviewees found the application processes to be generally straightforward, especially for OHA and foundation grants. CBOs felt that government agencies and other funders intentionally tried to streamline application processes to get funding out the door and into communities quickly, which was appreciated. That being said, a few CBOs believed gatekeeping occurred with funding, feeling that if you did not have a

"We need better funding for OHA so they can staff up."

—State Agency Interviewee

"Clear timelines (although probably impossible to predict) would have allowed for us to hire additional staff to help with education, outreach, and reengagement."

—CBO Survey Respondent

"We have funding for something and yet we're unable to hire for that position, or we're hiring someone in three months and we're supposed to spend it all before then."

—LPHA Interviewee

professional background in applying for funding, it was difficult to receive. It should be noted that the sampling frame for CBO study participants only included CBOs that received funding from OHA, so the perspective of CBOs that were successful in applying for and receiving funding may be overrepresented in this data.

Easier reporting, consistent requirements, and easy to use data systems

LPHAs, CBOs, + Tribal Organizations reported that easier funding reporting would have improved their ability to respond to COVID, including clear communication about funding reporting requirements, consistent requirements, and reporting data systems that were easier to use. Approximately 16% (n=10) of CBO survey respondents reported that they did not encounter any barriers to efficient use of COVID-19 funds. The majority of respondents, however, (84%, n=51) reported experiencing at least one barrier. The most commonly cited barrier among CBO survey respondents was reporting requirements associated with the funding source (46%, n=28), followed by spending requirements for the funding source (43%, n=26) and the use of a reimbursement structure or model of funding (36%, n=22). Forty-one percent (41%) of LPHA survey respondents also indicated that streamlined reporting requirements would help with managing monetary resources.

Challenges with reporting also came up in CBO interviews. According to CBO interviewees, reporting requirements weren't communicated clearly, they changed multiple times, and the mechanisms for tracking data and submitting reports were cumbersome. Several CBO interviewees felt that

"I think other states' disbursement of federal funds was much more equitable and cognizant of the fact that local entities, be they cities, counties, or special districts, had born the brunt of the public health crisis, whereas in Oregon, they seemed to keep a significant amount of the funds for the state."

—Prof. Association Interviewee

"Submitting documentation was cumbersome and took weeks.

—CBO Survey Respondent

"We were eligible for additional funding, but declined to apply due to our experience with reporting for our existing COVID-19 funding through OHA."

—CBO Survey Respondent

they spent too much of their time helping clients fill out paperwork tied to reporting requirements.

Tribal Nation interviewees shared that there were not always clear guidelines on how the money could be spent, which led to confusion. Tribal Organization interviewees reported challenges securing tribe-specific funding as they did not want to be in competition with tribes for the same funds, and changing funding guidelines were also burdensome.

State Agency and OHA Staff and Manager interviewees both stated they did not have full visibility on all of the federal funds coming into the state, even though they felt it was their role to understand this process.

Grant + funding management technical assistance

CBO study participants brought up several needs around technical assistance for grant and funding management. A few CBO interviewees believed gatekeeping occurred with funding, feeling that if you did not have a professional background in applying for funding, it was difficult to receive. Funding from sources other than OHA lacked a predictable schedule for receiving funds, which was challenging. Additionally, CBO interviewees that received funding tied to invoicing and reimbursements found that process burdensome and stressful, as CBOs reported that they didn't always have the right funding at the right time to respond to community needs. Lastly, several CBO interviewees noted they had difficulty coordinating multiple grants and understanding how some grants impact others.

"Every reporting period the report templates changed, so you would have to re-enter the previous information because you had to download the revised template. Also, the template had errors in the formulas."

—CBO Survey Respondent

"Funding is a blessing, but it's also a lot of work. It doubles or triples my workload, honestly."

—Tribal Nation interviewee

"We really did not have visibility on federal funds that were coming to our state."

—State Agency Interviewee

In surveys, nearly three quarters of LPHA respondents (n=23) identified a lack of staff capacity to stand up and maintain programs as the top barrier to efficient use of COVID-19 funds. Additionally, LPHA interviewees reported a complicated reporting process for FEMA funds, and recommended additional training and support to maximize these funds in the future.

Improved overall communication

Communication about funding opportunities could be improved, especially for smaller and more emergent CBOs that don't have existing relationships or a history of partnering with state and local government. Streamlining grant and contract requirements and parameters was another area for improvement noted by the vast majority of CBO interviewees. CBO study participants expressed that funding streams often lack capacity for required administration to manage the funds, and that there is a need for clearer direction regarding funding uses and constantly changing funding guidelines.

A couple of LPHA interviewees reported they were initially hesitant about the decision to fund CBOs directly, due to unclear expectations about CBOs, lack of existing infrastructure to support funding of this size, and lack of CBOs in specific communities.

Solutions for Staffing + sustainability after COVID funding

One of the biggest funding-related challenges reported by LPHA study participants was the surge staffing. Specifically, funding deadlines and

"They didn't explain to us how those grants could work with or interfere with each other. So if we charge something to one grant, maybe the rules are different for the other. None of that was very clear."

—CBO Interviewee

"The changes in directions for the funding and reporting wasted a lot of time and effort for CBOs and added to staff burnout."

—CBO Interviewee

"No information, unclear funding, totally unclear expectations of the CBOs, need I say more?"

—LPHA Interviewee

an inability of “roll-over” funds made it difficult to recruit necessary staff during the response, since the position could not be guaranteed for a set amount of time.

Many LPHA interviewees mentioned that COVID-19 specific funding has run out for some functions, yet LPHAs are continuing to do this work, forcing LPHAs to pull funds from other public health programs to continue to the COVID-19 public health response. In the long-term, several LPHA interviewees talked about planning for the day when COVID funds run out, and how they will sustain their services. Many are hoping to retain some of the staff they hired on as expansions to their emergency preparedness, incident command, and communications teams. There is also some curiosity and concern about what happens with other programs that had funding diverted to the pandemic response, now that it’s become clear that the pandemic response is more long-term than initially thought.

Tribal Organization interviewees and focus group participants reported that their funding opportunities did not come with FTE, which posed further problems for tribal organizations. This, along with higher staff burnout at nonprofits and difficulties hiring, impacted tribal organizations’ ability to push out funding to the community efficiently.

To respond to the pandemic, CBOs have grown their teams and expanded their work significantly and are now worried about how to financially sustain their size and operations. Several CBO interviewees noted that they would have appreciated support with planning for sustainability as COVID-19 funding runs out.

"But sometimes if you don't have enough people and you don't have the tools that they need in order for them to stay in the job and to grow in the job, you can't just [use] money alone to build a public health system."

—LPHA Interviewee

"All this money was poured into the system, hospitals and public health, and those physicians are not funded anymore, and so the rug is coming out from under us, and there's no more help, there's no more resources, right?"

— Health Care Assoc. Interviewee

Looking ahead: streamlining + sustaining investments in public health

All of the necessary improvements identified by study participants in the previous section indicate a general desire to streamline funding processes and increase access to funding sources, especially during a public health emergency.

Across data collection methods, most participant groups reported that one of the biggest lessons learned from the COVID-19 pandemic was that Oregon's public health system overall is lacking critical, sustainable funding for permanent staff needed to stand up and maintain an effective emergency response.

Interviewees from the OHA Director's Office specifically noted that typical emergency management systems are not set up for a prolonged global pandemic. Emergency management systems are meant to respond to local emergencies and disasters like a flood or fire that is a shorter term incident and that requires mobilizing resources from other places. During the COVID-19 pandemic, every community, every county, every state and country was in dire need and resources (funding, PPE, vaccines, staffing, etc.) couldn't be pulled from elsewhere.

When asked about "lessons learned" throughout the pandemic response, State Agency and LPHA interviewees consistently stated that investments are needed in Oregon's response structures at the state and local level to ensure adequate numbers of staff who are fully trained and exercised, ready to address any future public health emergencies including pandemics and natural disasters.

"The recruitment for CBOs was good, however, the expectation for funds to carry out the response was delayed. Also, the initial response from the Public Health contact person was almost non-existent, and we needed more direct interaction from OHA. The position was finally eliminated, and OHA finally took over."

— CBO Survey Respondent

"I don't need one time funding. I need funding for staff, and maybe that means I will have to lay off people later, I don't know, but we can't provide public health services without the people."

— LPHA Interviewee

Operationalizing the COVID-19 response

Numerous entities were involved in operationalizing the pandemic response, chiefly, public health and emergency management agencies. Emergency Management Coordination refers to the response structure in which Oregon state, county, city, and tribal government agencies, private sector organizations, and community based organizations, collectively respond to emergencies and disasters. As a result of the passing of House Bill (HB) 2927 in 2021, The Oregon Department of Emergency Management (OEM) was officially established as a stand-alone cabinet-level department and reports directly to the governor. OEM maintains Oregon's Emergency Operations Plan which describes the authorities, the structure, and the roles and responsibilities for managing any large-scale emergency.

The coordination of a state incident response is accomplished through emergency support functions (ESFs) which rely on both lead and coordinating agencies to accomplish specific capabilities. For example, during the COVID-19 response, Oregon Health Authority became the "lead" agency for ESF-8, Public Health and Medical Services which involves close coordination with the US Department of Health and Human Services, at the federal level. ESF representatives from state agencies work together within a state emergency operations center following a disaster in order to provide coordinated assistance to local jurisdictions that have exceeded their capacity to respond.

This section includes key findings related to emergency management coordination during the COVID-19 response including operational coordination, vaccine distribution and administration, personal protective equipment (PPE) distribution, and public information dissemination. Emergency management staff at both the state and local level participated in interviews, focus groups, and surveys and their responses are captured here along with data from other study participant groups. It is important to note that the information in this section does not solely reflect activities conducted or influenced by emergency management agencies, rather, it includes details on how these emergency management components were coordinated by all participating entities, regardless of their sector.

Operational coordination

Definition of the public health system response

Although LPHA interviewee responses varied greatly, there was overall consensus on the overarching structure of the public health system, the collaborative nature of the response, the focus on prevention, and the role of public health in alignment with existing emergency management and support structures. Interviewees agreed on a general chain of command when it comes to the public health system: the Governor's Office makes executive decisions, those decisions flow through OHA, OEM, and other state agencies who give guidance to counties, and counties work with their local partners to implement requirements and communicate with the public. LPHA interviewees named the incident command system and emergency management offices as key elements of the response.

Some LPHA interviewees focused on the relationship between the state and counties in their definition of the public health system response, naming Oregon Health Authority, Oregon Emergency Management, LPHAs, and local emergency management as key actors in this system.

One LPHA interviewee stated that although there was communication between some aspects of Oregon's public health system, there was sometimes a disconnect in bringing public health to the tables.

State Agency interviewees explained that the public health system response relates to establishing the structure of the healthcare system and ensuring it aligns to support the public health impacts of an emergency.

"When I think of the Oregon public health response, I think of emergency support function eight, which is health and medical in the emergency management framework, and the CDC's 15 core capabilities for public health emergency preparedness. We can't perform all these functions on our own, so, we focus on what we have the legal obligation to do in public health, and then beyond that, ensure that those folks who are most vulnerable, most susceptible to disease, death, have those protections in place.

—LPHA Interviewee

"It's really implementing all the preparedness planning that started at post 9/11 and putting that into practice in a larger scale."

—LPHA Interviewee

Interviewees made a strong connection to sector partnerships- state public health, local public health, and the healthcare sector- working together to collectively respond to a public health emergency or public health aspects of an emergency. There was emphasis on the healthcare system, its integration into the community, and its reliance on the public health system to support this work.

COVID-19 incident command system, unified command system, and other structures

Tribal Nations: Tribal Nation interviewees coordinated with other Tribal Nations, local public health authorities, and OHA. Some interviewees mentioned that their tribe did not have the resources to have a tribal health department, and that there was no public health infrastructure in place at the tribal level to allow for staff to be prepared for this level of coordination.

State Agencies: The primary role of OEM was to set up and lead the state's emergency operations and coordination centers, joint information centers, and unified command structures in support of both the public health and emergency management components of the pandemic response. As a standard role of emergency management, a federal disaster declaration was made which led to a request for federal FEMA assistance and standing up the emergency coordination center for full engagement of state emergency management.

"I saw that the Oregon Health Authority was in close communication with CDC and as well as our neighboring states to try and align strategies and support systems and decisions. I saw our health system partners rely a lot on local public health to do direct service that is not in our normal scope of work. I saw our emergency management partners often communicate within their systems in absence of connection with public health. So we were in parallel instead of in the same room at the same tables when we needed to be..."

—LPHA Interviewee

In conjunction with the Governor's Office and as the subject matter experts on requesting declarations, OEM drafted and revised the emergency and disaster declarations, ensuring the proper statutes and references were listed. This included not only the public health statutes but also the general emergency management authorities needed to carry out the emergency components and elicit federal disaster resources. Emergency management became "...the focal point for engagement with FEMA for federal disaster assistance." (State Agency interviewee). Once the declarations were made, specific Oregon statutes provided emergency management the authority to coordinate emergency management activities and the state's preparedness response, recovery, and mitigation efforts.

One State Agency interviewee noted that there were several incident command and unified command structures set up at various times throughout the pandemic response that were led by either OHA, OEM, or other state leaders. Matters were also complicated by a series of wildfires that occurred in fall of 2020 and a winter ice storm that occurred in the beginning of 2021 that resulted in additional stresses on the already strained emergency response structures.

State Agency interviewees spoke of the Oregon Health Authority's agency operations center that was operational in the beginning of the response. According to interviewees, when the Oregon Health Authority became overwhelmed, the OEM set up the emergency coordination center (ECC). It was noted from one interviewee that there was limited presence from OHA at the ECC. The ECC included a unified command group comprised of OEM, OHA, and the Governor's Office. The primary objective was to operationalize the policy direction and inform the state ECC. Reportedly, OHA delegated their position in the unified command group to their Chief Financial Officer (CFO) and the Governor placed her Resiliency Officer/Policy Advisor in the unified command group. Although a State Agency interviewee explained this group was nominally effective, there were still decisions being made that were never shared back to the ECC and unified command group. This interviewee shared that often they would not hear about policy decisions (or policy decision changes) until they were announced at press conferences.

One State Agency interviewee explained that the ECC was demobilized in April and May of 2020, but still coordinated calls and helped to coordinate state agency actions. The agreed-upon plan was that state public health would run public health operations through their agency operations center. The COVID Response and Recovery Unit (CRRU) was set up and did not include all partners, including emergency management. Tangential to the CRRU was a multi-agency coordination group (MAC-G) that emergency management initially participated in. OEM was later removed from the decision-making level within the MAC-G, and their role at that point was only to listen and operationalize key components of the response back through the ECC.

LPHAs: In the beginning stages of the pandemic, LPHA interviewees explained that they were establishing their incident command structures. State Agency interviewees noted that they were also setting up and maintaining their structures and coordinating with other state agencies, LPHAs, and local emergency management programs and offices.

Whether it was LPHAs interacting with OHA, other state agencies, CBOs, their Board of Commissioners (BOC), law enforcement, or any other partnership, LPHA interviewees often felt like their specific role in the response was unclear, and a few said they felt like they were "gap fillers", stepping up wherever others in this list would or could not. Clearer procedural guidelines and stronger partnerships were recommended from interviewees to prevent this confusion in future responses.

Some LPHA interviewees felt like LPHAs should have "a seat at the table" at the state level or expressed concern over a top-down approach. Other LPHA interviewees condoned having decision-making power lie with the state.

"I think also communicating the shared responsibilities to our leadership. Many local public health authorities didn't know that they were local public health authorities until the pandemic. Distinguishing those roles and responsibilities versus their role versus our role as the administrator or the ones doing the public health work.

—LPHA Interviewee

"A lot of it was advocating to OHA what we thought was needed. It was very much a top down response. And from my perspective, that was most effective and needed. A piecemeal effort county by county for a global pandemic, to me, doesn't make a lot of sense.

—LPHA Interviewee

City and County Emergency Management: City and County Emergency Management Focus Group participants noted they were also setting up and/or participating in their jurisdiction's incident command system, unified command, and/or joint information center operations. City and County Emergency Management Focus Group participants spoke about coordinating with local public health frequently during the response. One interviewee noted that they assisted local public health in navigating emergency response functions and systems. Some City and County Emergency Management Focus Group participants said they had joint operations and unified command with public health and emergency management at the emergency operations center. One interviewee noted that public health's operations were located in the public health branch within their incident command system structure.

Two City and County Emergency Management Focus Group participants noted they established a multi-agency command (MAC) group including public health, emergency management, environmental health, County planning, and emergency medical services (EMS). The public health representatives in the MAC group would receive direction from OHA and recommendations from other local public health directors. The public health representatives would then bring that information back to the MAC group.

One City and County Emergency Management Focus Group participant noted that they had separate command structures between public health and emergency management. They conducted their own contact tracing out of the emergency management emergency operations centers, but they did this in conjunction with public health's department operations center.

"The county emergency management staff, I don't want to say they divorced themselves from it because that's not true, but they stepped back. They were still involved and remained that way. But the lead and the decision making and the management process was all handled through [county in Region 3] Public Health."

—City and County EM Focus Group Participant

Another City and County Emergency Management Focus Group participant noted that although public health remained the lead, they brought in an incident management team from the state fire marshal's office to assist them. Other interviewees noted that if a county did not activate their emergency operations center, public health took the lead response role through the public health department operations center.

Several City and County Emergency Management Focus Group participants noted that because there were municipal (city) emergency management agencies without a sister municipal public health department, they had to operate independently and unique from the county. Another City and County Emergency Management Focus Group participant acknowledged that there was a municipal emergency management department (through fire or law enforcement) but not a sister public health department at the municipal level. Therefore, they coordinated emergency response operations at one jurisdictional level up to the county. They further recognized that the county had the response authority and resources to assist them.

Yet another City and County Emergency Management Focus Group participant noted it was very challenging to have a municipal (city) emergency management department but not a municipal public health department.

"So the county doesn't have enough people to address the population within the [city in Region 1], so they have to work with the city emergency managers. But the city emergency managers had no direct authority around this. My understanding, I was not in directly on these conversations, but my understanding was that the county was not willing to delegate, at least initially, any of those authorities to the city to allow the city to make some of those decisions regarding the population."

—City and County EM Focus Group Participant

Operational coordination in Stages 1 through 4

During Stage 1, State Agency interviewees explained that they were setting up and maintaining incident command and unified command system structures. Interviewees also discussed setting up and participating in various incident command and unified command system structures such as the COVID Response and Recovery Unit (CRRU), emergency coordination center, and joint information centers. One interviewee noted that they began to activate the Governor's Disaster Recovery Framework and the state's recovery function (SRF). However, they were quickly told to focus on solely leveraging federal funds.

OHA Staff and Manager interviewees spoke about the rapid and efficient ramping up of the Incident Management Team (IMT). They commented about the staff's diligence and teamwork.

During Stage 2, explained one State Agency interviewee, the CRRU was set up mostly in conjunction with Oregon Health Authority, operating consistently, and supported by emergency management to the extent possible as allowed by Oregon Health Authority. This interviewee explained that the early incident command system structures were demobilized when the CRRU was solidly in place.

OHA Staff and Manager interviewees explained that in Stage 4, there were specific challenges around mass staff turnover especially with temporary positions, as well as the CRRU dissolving.

Operational coordination, communication, and responsiveness among state agencies

State Agency interviewees spoke consistently about the lack of coordination, communication, and responsiveness among the state agencies. Concerns included a perceived lack of collaboration among the various coordinating bodies such as the emergency coordination center (ECC) and CRRU. Additionally, interviewees reported significant role confusion among state agencies and various programs/departments and difficulty among non-OHA state agencies in connecting with or collaborating with CRRU. For example, one State Agency interviewee remarked that they were not incorporated into various conversations specifically regarding reopening strategies nor were provided with a statewide COVID vaccine strategy. This interviewee remarked that the CRRU was not part of the vaccine strategy which complicated vaccine administration further and resulted in their lack of planning for mass vaccine distribution events.

Many interviewees opined that role confusion made response operations difficult as state agencies had to first determine roles and responsibilities before actions could be taken. Concomitantly, confusion or over technical terms and nomenclature occurred, possibly adding to the confusion.

Several City and County Emergency Management focus group participants noted that the lack of decision-making authority and clarity around roles complicated emergency operations center and/or joint command operations. One participant stated that they did not always know who within the county was in charge, and it was very difficult to maintain continuity for longer term initiatives.

"Early in COVID, the OHA was like, 'You need to stop calling it an emergency coordination center and start calling it an emergency operation center. We need to operationalize our response.' I'm like, 'Well yeah, that's what you do at your agency operation center. You operationalize your public health response.' ODOT operationalizes their transportation response [etc.]. Emergency management, we coordinate, we operationalize through the ECC all the time, but function number one is coordination.

— State Agency Interviewee

"After a couple of months, we had the state ECC established, but not great coordination with OHA. At the state ECC, they sent one person down the first day we were activated. And then after that first day, didn't have any presence at all in state ECC. And then they sent folks who literally, when they would call back to OHA for information to inform what was happening at the ECC, would be told we can't share that. Some of the OHA folks would be in tears because they were so frustrated because of their lack of information since they were not up in Portland and down at the ECC. Just, OHA was unwilling to share information.

—State Agency Interviewee

"We would be told what policy decisions had been made, or we would find out what policy decisions had been made through press conferences at a later date. And then through the unified command group, we would try to take those policy decisions and operationalize them through the ECC. But again, there was still that disconnect between the Oregon Health Authority's operation center and the state emergency coordination center."

—State Agency Interviewee

"[OEM would say one thing] and then we would backtrack and OHA would say another."

—City and County EM Focus Group Participant

Utilizing existing plans + structures

Stage Agency interviewees noted there were significant coordination issues with not following the already established plans and protocols for the response. One interviewee noted that the state was not following the state's emergency operations plan or what was outlined in the executive order that establishes the governor's disaster cabinet. Another State Agency interviewee commented that although there was a unified command established, the state did not follow the state's Capitalize Emergency Operations Plan. They noted this is because the Oregon Health Authority said to operate differently which received buy-off from the Governor's Office and executive leadership who deferred to the state's public health partners. They noted that the state's emergency operation's plan includes a specific annex on public health emergency operations, ESF-8, that outlines the key roles, responsibilities, and actions of public health in an emergency. They further remarked that there were many people in decision-making roles that did not understand the foundations and systems of emergency management.

Several City and County Emergency Management Focus Group participants noted that the state of Oregon did not have a published pandemic flu plan in place. This "...provided an aggravating factor when it came to really understanding what are we trying to accomplish here." (City and County Emergency Management Focus Group participant)

"OEM's role in recovery was exclusively to make sure that we were leveraging FEMA federal funds. And that was it."

—State Agency Interviewee

Policy decisions among varying decision-making authorities

Several City and County Emergency Management Focus Group participants noted that the lack of decision-making authority complicated emergency operations center and/or joint command operations. One participant stated that they did not always know who within the county was in charge, and it was very difficult to maintain continuity for longer term initiatives. It was noted that OEM would say one thing and "...then we would backtrack and OHA would say another." (City and County Emergency Management Focus Group participant)

Operational coordination staffing

One City and County Emergency Management Focus Group participant noted that their permanent employees were burned out and could not accomplish the demands of their regular job on top of the response.

Another City and County Emergency Management Focus Group participant remarked that staff turnover and constant staff changes were challenging.

Operating separate command structures

One City and County Emergency Management Focus Group participant said that public health wanted to have a separate incident command structure with their own staffing within their own building. Even after attempts from emergency management to set up joint command, one interviewee noted that they declined and were just integrated into their own operations section.

"Building a program from scratch without staffing was an incredible challenge, and I think not a lot of people with experience both in a clinical setting or in an emergency, we just didn't have those resources..."

—City and County EM Focus Group Participant

"A lot of times, there was change and turnover. And so, we may build kind of a system in place and then you'd get a new person and then they would be learning again. So, almost like we're starting over from scratch."

—City and County EM Focus Group Participant

Another City and County Emergency Management Focus Group participant shared that because they did not have an emergency operation center and a good flow of information coming through.

One City and County Emergency Management Focus Group participant said that there were more resources available to help with response operations, but because public health was operating their separate department operations center, they were not receptive to accepting this assistance.

Another City and County Emergency Management Focus Group participant shared that the health and medical MAC took planning and staffing resources from their emergency operations center. This parallel structure was not then providing the information needed.

Public health operational coordination training and experience

Several City and County Emergency Management Focus Group participants noted the lack of public health operational incident command system training and experience as a key challenge. This was particularly seen in joint command centers within the command group.

Another City and County Emergency Management Focus Group participant noted that some of the language and terminology was challenging for public health. Therefore, emergency management had to put a lot in place to make sure that they were not operating with a sense of urgency when it was not needed (and to operate with a sense of urgency when it was needed).

"We didn't know what they were doing and what they were not doing. It was very siloed, best way to put it, of public health's response."

—City and County EM Focus Group Participant

"We were in competition with our efforts and not in coordination, I did not feel like that was an effective framework for the response..."

—City and County EM Focus Group Participant

Another City and County Emergency Management Focus Group participant noted that the lack of Emergency operations center (EOC) experience from public health resonated mostly in the beginning of the response until several weeks had been spent in the EOC.

City and County Emergency Management Focus Group participants provided additional feedback on public health's operational coordination training and experience.

LPHA Survey respondents noted they had a variety of public health emergency preparedness and emergency management experience.

- "I've been a HO [health officer] for several years, we have a good response structure, but it had never been really practiced to a point to feel really ready for this"
- "I have knowledge, training, experience, and expertise related to communicable disease epidemiology and emergency preparedness. I was able to train all our Covid-19 case investigators and contact tracers to support the early disease interventions during 2020. EOC was stood up, JIC stood up and partners involved, workforce was surged after first major outbreak"
- "I had completed the required ICS trainings, and had several years of experience with communicable disease and outbreak response. I had not yet been involved in preparedness exercises, live or tabletop, and was not aware of details of public health emergency planning."

"When it comes time to stand up, these emergency command posts or disaster command posts, they struggle to get out of the weeds and get out of the operational side of things. They want to be directing boots on the ground at the event or at a dispensing location at a vaccination site. And it's like, 'No, no, no, your high level, step back.'"

—City and County EM Focus Group Participant

"My role along with my county emergency manager, we were more of instructors for the public health because they lacked the experience in response. We had to teach them how to do things on the fly."

—City and County EM Focus Group Participant

- "...had training, and plans, but no real life experience with a pandemic response"
- "Have the relevant trainings in ICS but was not in practice during H1N1, which would have been practical preparation"
- "I had completed the required ICS trainings and done exercises for points of dispensing, but no further"
- "I was new to the job and our department didn't emphasize much emergency preparedness aside from ICS courses"
- "I was 6 months into working in Public Health, I had completed the minimal/mandatory ICS online trainings but had not participated in any table top exercises or situational analysis. The PHEP coordinator was actually working in EM, not in PH"

"And because we have a lack of understanding about what an Incident Command System is, how our objectives are created, I think a lot of people in positions of power did not allow us to adjust our objectives to meet our resources, and so we blew out staff, we lost a lot of really, really good people, I think."

—City and County EM Focus Group participant

"Public health staff didn't have robust ICS Training - they adapted to a very complex model that others couldn't easily integrate into which provided challenges."

—Emergency Management Survey Respondent

Lessons learned and improvements

Healthcare Associations: Healthcare Association interviewees discussed how the pandemic created stronger collaboration and coordination efforts and a good statewide area for improvement would be to continue and foster those strong collaborations. To continue to utilize the infrastructure that was created throughout the pandemic.

"I think one of the things that Oregon needs to figure out is what is a local function versus a state function versus a regional function. We're a unique state where I think a lot of things do need to happen regionally, and I just don't think we're there yet on some of the way the public health system is designed with a county-by-county structure. I think there's clearly things that need to be held at the state level, and things that need to be done locally. Regionally, I still don't think we have all of that figured out, or how we want to take this on. As I say, what functions need to be centralized, and what functions can be local, and what decisions can be made locally within some framework, whether it's reopening or setting-up vaccine sites, or whatever.

—Healthcare Association Interviewee

State Agencies: Several State Agency interviewees noted the importance of adhering to already established plans within the state public health emergency preparedness and emergency management systems while specifically stating "follow the plan." Although there was recognition that the state's Emergency Operations Plan was not perfect, State Agency interviewees explained that there are systems, infrastructure, and roles and responsibilities already established for emergencies. These plans provide the framework for how to organize the response and align with the federal response and recovery expectations. State Agency interviewees commented that to improve the preparedness and response to future pandemics, key leadership and decision-makers need to understand their agency's roles and responsibilities during emergencies and participate in training and exercises so that there is a commitment to following these existing and established plans and procedures.

One State Agency interviewee explained the criticality of state agency partnerships.

"There was too many disconnections, too many things happening in a vacuum, probably too much distrust, an unfamiliarity of what the emergency management system was, and an unwillingness to rely on the experts, the people that know how to do this work to help guide some of those decision making processes."

—State Agency Interviewee

Another State Agency interviewee explained that the joint COVID response structure that was set up should be fully funded, trained, and exercised as a standing operation going forward, particularly to address any future public health emergencies. A thoughtful investment into emergency management will better prepare Oregon for other emergencies such as the Cascadia Subduction Zone.

There were several comments and lessons learned shared from State Agencies that related to the very serious need to improve the relationship between emergency management and public health.

- "Public health needs to realize that they own the public health aspect of the response, but everything else needs to be able to leverage the full weight and strength of the enterprise, and the way you leverage that is through your Office of Emergency Management." (State Agency Interviewee)
- "So you've got to have this connectivity. You've got to understand that in a public health emergency, you've got the public health subject matter experts, but there are so many other things that are involved in public health emergency that the Oregon Health Authority or public health in general does not have expertise in, or shouldn't have responsibility for, like logistics, like all of the public information piece. Sure, you're the subject matter experts, you can tell me about how a contagion works and what protective measures to take, but you know what? We've got professionals that can better articulate how to share that information, how to get that information where it needs to go." (State Agency Interviewee)

"We need to look at it as an insurance policy, rather than looking for return on investment. You don't buy insurance and hope that you collect on it. You actually buy that so that you're prepared if something happens, to be able to deal with circumstances. And I think our approach and mindset toward emergency management needs to shift to that model versus, 'Should I really put money into this?'

—State Agency Interviewee

- "I think some of those learnable lessons are better connectivity, transparency, and a willingness to share information between public health and emergency management." (State Agency Interviewee)
- "I did not want to be in charge of a pandemic response. Still don't want to be in charge of a pandemic response, but I have a skillset and my team has a skillset. We have planned and trained and exercised for these types of events where we can be incredibly useful. And I think emergency management in Oregon and probably across the country was greatly marginalized and made to be ineffective to lead this response." (State Agency Interviewee)
- "But, you just had these structures in place and folks unwilling to even try to utilize the structures that had been trained and practiced and were quite frankly really time tested. I will say, if I had it to do over again, I would've been much more intentional about trying to permanently adhere myself to the side of the OHA director." (State Agency Interviewee)

LPHAs: LPHA interviewees had recommendations regarding the Operational Coordination of the COVID-19 pandemic.

- "Well, like I mentioned before, when suddenly the communication was severed between the Governor's Office and OHA, things got really tricky. I would say, in the future, making sure that the right decision makers are at all the meetings and have a voice would be really important locally. It's interesting because, like I mentioned, I felt like the LPHA did not have any decision making power, which sometimes was a frustration, but at other times it was a relief. Like I said, because it was so conservative here, if I would've said mask mandate, they would've hung me out to dry. Here's the thing, I'm pretty sure this whole study came about because when they decided to give the LPHAs decision making power, not a whole lot changed. At the state level, they're like, "Well, that's not what we wanted. Let's look at how we can do this better." I don't know what the answer is, but somehow I guess giving a little more voice to the LPHAs at the state level could be helpful." (LPHA Interviewee)

- "And my other lesson is Oregon is lopsided. We have more public health, OHA policy wonks, as I'm going to say. There are far more of those than there are actually boots on the ground. And so we did have a good partnership with OHA and we had lot really good communications, probably the best we've ever had, but I would like to stress in times of emergency, you need people that are actually on the ground doing the work, and Oregon really has more people in Salem than there... I mean, it does not correspond with the rest of the country." (LPHA Interviewee)
- "At a local level, I would say we need continued investment in public health and that emergency response framework and training. I think the funding being so categorical was pretty awful, pretty bad. I think that more collaboration between agencies would be helpful in the future so that we don't get conflicting guidance, and we have clearly what was the responsibilities that are outlined for each agency." (LPHA Interviewee)

Operational coordination successes

Healthcare Association interviewees commented that having the healthcare association embedded into the OHA incident command team and having the healthcare association at meetings with OHA enabled them to deliver information to their members and bring information from their members to OHA.

One State Agency interviewee spoke about being able to mobilize an entire state even through a series of bumps along the way. This interviewee noted that they established an entire reporting mechanism to an animated dashboard in three days and noted when there is a "...level of latent capacity, when there is clear focus, urgency, direction, we are actually really, really capable."

One Stage Agency interviewee noted that in the beginning stages of setting up the unified command structure, they had streamlined access to information and were able to obtain situational awareness because they were co-located in the same building.

Another State Agency interviewee said that building the CRRU was the greatest contribution to the pandemic response. This interviewee stated that the CRRU was a single point where people knew their questions would be answered or their concerns heard and that many levels of staffing and leadership across multiple agencies participated in the CRRU.

Another State Agency interviewee said that the support and access to their emergency response structures was their agency's greatest contribution. This included connections to tribes and local governments and utilizing logistics resources such as the National Guard. Even though they felt underutilized by the larger CRRU structure, they were proud of what they brought to the table because overall it supported the local governments and solidified the partnerships with the National Guard.

One State Agency interviewee noted the success of the CRRU and encouraged that this system become a standing joint response for public health emergencies.

Another State Agency interviewee spoke about developing a COVID advice tracker that became a repository for any attorney researching COVID advice or legal recommendations. They shared that although that was a good resource, they needed to do a better job at developing better data management tools that document the legalities of a pandemic response.

OHA Staff and Manager interviewees said that the creation of the CRRU, the top down chain of command model and communication structure, and the emergency management structure and extensive documentation allowed for smoother and more efficient meetings and clear set of directions.

"It's just is a reminder that our community is all of us and it isn't segmented by which department can provide or does provide the service. So, that cross fertilization, I think, was really beautiful."

— State Agency Interviewee

"You had to build it. You couldn't just ask people to put it also on their playlist of things they do when the next big crisis happens. You have to build it. Invest in the insurance."

— State Agency Interviewee

One City and County Emergency Management Focus Group participant commented that their health department had a very robust incident management team system and were very knowledgeable. Therefore, coupled with emergency management's trained and regularly exercised personnel, there was a strong team in place for the response. Another City and County Emergency Management Focus Group participant agreed and said that because public health and emergency management were in a joint unified command structure, they were directly coordinating and supporting their local public health actions every day. Another interviewee noted that they played a supportive role to their Disease Control and Prevention staff, including procuring food, and linking them to employee and behavioral health assistance.

City and County Emergency Management Focus Group participants also spoke about setting up and integrating a joint information center for shared message development and handling media inquiries.

Another City and County Emergency Management Focus Group participant agreed and said their regional joint information system helped to provide support to local public health in message development and regional coordination.

Other City and County Emergency Management Focus Group participants remarked that the local officials supported standing up the emergency operations center which included reorganizing emergency management to aid in improving efficiencies. Another said that all response personnel were willing to step up and adapt to formerly unfamiliar environments. Emergency management personnel would acknowledge their lack of

"Having a joint information center with a collaboration, really got all of the influences in and made sure that we were supporting a good message."

—City and County EM Focus Group Participant

"There was a very strong and regional joint information system, which was connected to the regional Public Health multi-agency coordination group, which consisted of all the Local Public Health administrators who were their health officers and a few support people who were getting together several times a week in the beginning."

—City and County EM Focus Group Participant

medical background, and they were willing to solve problems quickly. This same interviewee applauded those in the academic medical field and specifically noted that they were able to ramp up and operate within the incident command structure.

Vaccine distribution + administration

Definition of the public health system response

Most respondents considered messaging, distribution (e.g., PPE, masks, vaccines) and contact tracing key elements of the public health system response. LPHAs explained that emergency support for the public health system response was related to the Public Health Emergency Preparedness (PHEP) 15 core capabilities, one of which is Medical Countermeasure Dispensing and Administration (vaccines). The Professional Associations also acknowledged that vaccine administration was part of the public health system response.

Roles in vaccine distribution and administration

Study participants held various roles for Vaccine Distribution and Administration activities during the COVID-19 response.

LPHA interviewees reported they were prepared to receive the vaccine in December 2020 having recently completed drive-through vaccine exercises in November 2019. State Agency interviewees reported playing a significant role in vaccine administration including:

- Reviewing and implementing policy decisions regarding the vaccine, vaccine prioritization, and required workplace vaccinations;
- Operating or supporting the operation of mass vaccination and mobile clinics at the state and local levels;

- Assisting with vaccine-related supplies and distribution;
- Providing guidance; and
- Working with partners to coordinate services for vulnerable populations.

City and County Emergency Management focus group participants also reported having an integral role, including:

- Assisting with COVID-19 testing operations such as scheduling and conducting the actual testing;
- General vaccination coordination, set up, clinic planning and operations, and staffing
- Points of Dispensing (POD) operations and logistics, including securing venues;
- Data management and data entry;
- Tracking vaccine administration for first responder personnel at the municipal level;
- Developing local agreements for vaccine administration;
- Monitoring and staffing to support clinic operations; and
- Activities related to their own internal protocols and processes including distilling and disseminating testing and vaccine requirements for first responders and hiring temporary staff to support emergency operations;
- Facilitating the ordering of vaccines from the state and delivering them to the health department;
- Facilitating reimbursement for costs through ARPA funds;
- Facilitating agreements between the county and fire districts for staffing mass vaccination clinics; and
- Assisting with coordinating the vaccination of first responders including vaccination forms and recordkeeping.

City and County Emergency Management focus group participants explained that they utilized the existing infrastructure set up for early COVID-19 testing services to support vaccine administration once vaccines had

been distributed. One interviewee noted that the local jurisdiction had a point of dispensing (POD) plan but that the plan was developed for dispensing medications (i.e., pills).

Healthcare Organization interviewees reported they had various roles in vaccine distribution and managed a multitude of vaccination events. They provided information about allocation, rollout, and administration of vaccines to providers. They communicated regularly with state officials and the governor about supporting vaccinations and advertised for vaccinations throughout the entire pandemic. One interviewee said their Healthcare Organization was crucial in setting up mass vaccination events, mobile vaccination events, and daily vaccination via providers at hospitals and community organizations.

Stage Agency interviewees described their various roles in vaccine distribution and administration including:

- Assisting with vaccination clinics for migrant seasonal farmworkers;
- One State Agency noted that not only were they responding to the pandemic within their role of protecting employers and employees, but they were navigating vaccination requirements pursuant to the governor's orders as it related internally to the agency;
- Adopting rules for the Medical Relief Benefit for healthcare workers on the federal level. If a healthcare worker wanted to claim specific benefits, they had to be vaccinated or would need to undergo an exemption process.
- Working with OHA to address exposure concerns because many of the labor housing workers live in such close proximity to each other,
- Coordinating with OHA to make connections to specific employers, setting up on-site vaccination events, or getting employers connected to local community vaccination events.

OHA Staff and Manager interviewees noted their ongoing collaboration with LPHAs in assisting with gaps they had in emergency response. Some interviewees made it clear that all emergency response pieces including vaccine distribution and administration were handled in a flow of command that went from the state through LPHAs on out into communities, typically via CBOs.

Vaccine distribution and administration in Stage 2

LPHA interviewees emphasized the importance of partnerships and coordination, while some interviewees placed an emphasis on vaccine success during this stage. Many interviewees reported they were proud of their vaccine-related work, resulting in high vaccine uptake. However, LPHA interviewees remarked they were starting to feel the impact of vaccine mistrust in their communities, and the politicization of the pandemic was taking a heavy toll on some of their efforts. Staff burnout was also starting to take its toll. Rural counties were reporting backlash to masking, vaccination, and shut-down requirements.

During this Stage, Healthcare Association interviewees stated that they supported their members in coordinating vaccinations in the following ways:

- Advocating for health centers to be a point of contact to deploy vaccinations within their communities and working to ensure all health centers had access to vaccines;
- Ensuring clinics had what they needed to vaccinate and were using vaccines to meet the State's goals related to equitable vaccine distribution;
- Working with both state and medical associations to brief their members about the status of the vaccination development, when to expect to receive vaccines; and
- Supporting the response of their members by talking to communities, volunteering in vaccination clinics, working within clinics to resolve the patient backlog, and helping them understand the implications of the distancing and masking requirements in their own clinics.

"I think that when we were engaging in our efforts to do door-to-door vaccine outreach, we did not do a good job of initially considering the safety of the teams that were going out into the community. I think our ability to have varied messages for the diverse, rural, urban, the vaccine hesitancy, kind of the stages of where people were at with their beliefs around vaccine. I think that we could have done a better job at knowing our community or working with our community to have them as partners with us."

—LPHA Interviewee

During Stage 2, Tribal Nation interviewees reported they were particularly focused on COVID-19 testing and vaccination. Interviewees shared that they were able to acquire vaccines quickly and that their clinics were successful.

In Stage 2, the State Agencies that were interviewed were heavily involved in the vaccine rollout. They were assisting the Governor's Office and OHA with navigating the legal complexities of the masking and vaccination requirements, including preparing for defense trials from lawsuits. Another State Agency explained they were immersed in the legal aspects of vaccination prioritization, primarily resulting from lawsuits that involved individuals who were not included in the first priority tier for vaccinations. Once there were enough vaccines for the entire population, this interviewee also assisted with the development of rules and guidance for required vaccines. Another State Agency assisted with vaccine administration at FEMA-operated vaccine clinics, operating as a conduit between FEMA and the other state agencies. This included setting up mobile and permanent vaccination sites. OEM was also directing and guiding city and county emergency management on standing up vaccine clinics and mass vaccination sites.

OHA Staff and Manager interviewees noted that during this stage, direction from the Governor and OHA leadership on the prioritization of vaccines was helpful, and they were grateful for the speed and decisiveness. Having vaccines available lifted spirits, and felt positive and motivational. OHA hired more staff, and the CRRU was set up. They launched Field Operations Teams with regional coordinators that conducted on-the-ground work like providing free on-site testing for congregate care settings and implementing mass vaccination clinics.

While some OHA Staff and Manager interviewees reported their gratitude for Governor and OHA leadership decision-making related to vaccine roll-out, others felt a lack of leadership and clear decision-making in the day-to-day operations of vaccine roll-out; staff were given conflicting objectives and goals, deadlines that felt arbitrary or unrealistic, and staff reported frequent gaps in communication. OHA Staff and Manager interviewees also began to experience pushback, and in some cases, threats and violence, related to the pandemic control efforts. Some staff felt fearful of the risks involved with putting on vaccine clinics in

communities with a lot of opposition to the vaccine, and several staff noted they received threats from people who knew they worked for OHA.

Vaccine distribution and administration in Stage 3

LPHA interviewees reported that by Stage 3, they felt their vaccination events were going smoothly, for the most part, and that their relationships with community organizations and/or the public were being maintained.

Additionally, although the vaccine events were reported to be going well in most counties, the political climate had not softened, and there was still a lot of pushback around public health requirements. A few LPHA interviewees reported that they felt some pressure from the public, their BOC, or both to avoid vaccinating people under the age of 18, despite an Oregon law that gives 15-year-olds medical autonomy. Lastly, many LPHA interviewees experienced high staff turnover, which made it difficult to continue adapting to new variants and changing requirements.

In Stage 3, the PHAB focused on equity work, ensuring all marginalized groups were able to get vaccinated and were receiving vaccination messaging. The information provided to PHAB in Stage 3 was focused on the evaluation of the response (who was vaccinated and who wasn't, the outcomes, who was suffering and who wasn't, who was benefiting, and who was still having significant poor outcomes) and how to leverage health equity strategies.

"There were protests at [work office building]. During that time, any time I went out in a company car, I was usually yelled at. When I was on deployment with people, all sorts of things that happened during that time."

—OHA Manager Interviewee

"We had a really successful vaccination campaign. Our testing was going really well. We were leveraging all of our resources and assets in the best way for the broadest community reach."

—LPHA Interviewee

Healthcare Association interviewees during this stage said they were responding to variants and conducting awareness via the media to increase vaccination rates with the goal of not breaching the capacity of hospital Intensive Care Unit (ICU) units.

Tribal Nation interviewees noted that testing and vaccination remained at the forefront of tribes' priorities during Stage 3. Tribes worked to push out boosters and educate their communities on the importance of getting a booster shot.

In Stage 3, OHA Staff and Manager interviewees noted improved partnership and coordination between OHA and LPHAs especially around vaccine roll-outs and public messaging for different age groups. Several noted that vaccine messaging vastly improved by tailoring it for specific populations and overall better cultural responsiveness and because of the partnerships with CBOs.

Vaccine distribution and administration in Stage 4

LPHA interviewees remarked that they were continuing vaccination and outreach events at this time. At this point, testing events were also going smoothly and home tests were being distributed. One LPHA partnered with their local library to distribute tests.

"In Stage 3 we did have the variants, so the Delta and Omicron surge were harder on hospitals than anything before, especially during that Delta surge when we were seeing ICUs really at capacity. That's when we were doing a lot of media and trying to get people to get vaccinated because our ICUs were just packed."

—Healthcare Association Interviewee

"The libraries send books to each other all the time, so we utilized that network. We just dropped off 2,000 at home kits at one library and they send them out to all the other libraries and they've got 300 or 400 kits that people can come in and pick up."

—LPHA Interviewee

LPHA interviewees were also concerned about sustaining vaccine demands in Stage 4.

During Stage 4, Healthcare Association interviewees noted that they were still working on vaccine information dissemination and communication and provider redeployment.

"The Bi-Mart was closed and then Walgreens reduced its hours from 10:00 to 6:00 Monday through Friday, which has been a disaster. It's very hard to get regular prescriptions filled. I don't know what the impact of a fall booster shot is going to be on a system that is already so strained, especially when it's not normalized in all of our clinical practices. So that's the fear going forward, we don't have the resources for mass vaccination clinics anymore, our pharmacies are already struggling, our provider groups are also struggling with staffing, I don't know who's going to give these vaccines or how people in long-term care facilities are going to get them."

—LPHA Interviewee

"In stage four, I would say we're as directly involved as we ever have been because our people are going out to communities and community-based organizations that are specifically at risk to talk about this in as much as we help share information all throughout with our members about the vaccine so that they could have the confidence to talk to their patients. And that was the information we had was something like 50 to 60% of all their conversations with patients were a good six months were about the vaccine and they had information that we had provided."

—Healthcare Association Interviewee

Coordination with OHA

City and County Emergency Management focus group participants spoke about several coordination issues with the state. One interviewee shared that one of the biggest challenges they faced was that the state set up state-run clinics at locations throughout the county without informing county staff that these clinics were being operated within their own county. Another noted that the state would hire contractors to assist local clinics even though the clinics were not asking for staffing assistance.

Another City and County Emergency Management focus group participant remarked that the state would deploy resources without coordinating with the local jurisdiction.

"We didn't ask for them, but they showed up anyway and they wouldn't leave. And then we have a veteran's home over in [city in region 2]. It's a state run facility. Anytime the veteran's home needed anything, they'd go directly to the state."

—City and County EM
Focus Group Participant

"All of a sudden you have the state deploy the National Guard to [city in region 2] for a COVID outbreak and they never even told us, and so there was no coordination at the state's response level. They would drop off PPE. They'd go do quarantining. They would do testing, vaccines, and they would never say anything to anybody."

—City and County EM
Focus Group Participant

Vaccine hesitancy

One State Agency interviewee remarked that vaccine hesitancy was a key issue with vaccine distribution and administration.

One City and County Emergency Management interviewee stated their biggest challenge with vaccine administration was the cultural environment within their rural jurisdiction. This interviewee noted that they have a community with many anti-vaxxers.

"How this was managed and handled led to actually unfortunately a lot of people dying because they resisted vaccines, et cetera. So, I think unless that issue is addressed, and naturally the other piece is education, perhaps more education to help people understand. We had stories of people on their deathbed that said, 'We want the vaccine now.' And unfortunately that's too late. So, supporting public health professionals and public health decisions is something that would definitely change this narrative."

—State Agency Interviewee

"I can tell you that the only downfall we had was just the culture we have around here. It's largely conservative based, and there's a lot of controversy around whether to take the shot or whether not. So, we had a lot of resistance locally. We battled that. We talked about that all throughout the whole process, is how do we reach these folks that are resistant? How do we entice them?"

—City and County Emergency Management Interviewee

Equitable and accessible vaccine distribution and administration

One LPHA interviewee expressed that they felt like the state was requiring them to address equity but did not give them a specific plan. Therefore, they developed their own local solutions.

The most significant challenge named by OHA Staff and Manager interviewees was the need for more community engagement to inform an equitable vaccine roll-out.

"So we actually bought two vans and we brought them out to all of those little areas around the county. But the state never had that plan. They stressed equity, but then they never had the plan."

—LPHA Interviewee

"In the early vaccine rollout, I think that the state had a strong focus on planning and a really strong emphasis on equity in their planning, but we did not have a strong set of concrete steps and actions that we could actually implement."

—OHA Manager Interviewee

One State Agency interviewee spoke about bringing in an equity advisor, at first to assist with the wildfire response.

Another State Agency interviewee spoke about their reliance on public health's ties to equity partners and committees such as health equity coalitions and vaccine equity workgroups. State Agency interviewees noted that there was a push from OHA to have their vaccine administration be informed through an equity lens.

"That position ended up doing some of the work on the vaccine stuff, looking at signage and making sure things were accessible and translations were the right way, but he was mostly focused on our wildfire recovery piece. Did not have a whole heck of a lot of conversations on the front end prior to vaccines about equity. I mean, we heard a little bit about it and talked about it a little bit, but I didn't get the sense that that was really informing a lot of our work."

—State Agency Interviewee

"The feedback that I got and my observations from what I heard was, they convened this group and said, 'Yeah, we want to be really equitable with how we're doing our distribution and prioritize communities of color and underserved communities and historically marginalized communities.' And then two-thirds of the way through that equity groups work were told, 'Well, legally, we really can't prioritize the things you guys are asking us to prioritize, but thanks for coming.' And it just kind of let the air out of the room and was so deflating."

—State Agency Interviewee

Another State Agency interviewee noted that the state did well in making information available in multiple languages and formats and ensuring vaccination sites were accessible for people with disabilities and limited access to transportation.

One State Agency interviewee noted that although the vaccines were not well received in some communities, they worked to identify strategies to increase vaccine administration among certain groups.

City and County Emergency Management focus group participants noted that county vaccination operations were focused on equity. As one participant shared “...trying to find those corners where you have marginalized, underrepresented populations and really doing targeted small clinics out to those communities.” Another interviewee shared that the clinics focused on the black, indigenous, and people of color (BIPOC) community resulting in 85% of the vaccines being administered to people of color and others who had underlying conditions.

"We started doing really clever things, like going to Hispanic markets and communities, and just continuing to show up every Tuesday, and building the trust, which was what we needed in relationship to be able to then administer vaccines. And a lot of those relationships weren't formally established with government employees and some of our ethnically diverse communities, so we really had to look at that differently."

—State Agency Interviewee

Another City and County Emergency Management Focus Group participant noted that their city and the county equity offices were heavily involved in messaging, selecting vaccination sites, and ensuring there were accessible communications. They also addressed equity by offering vaccination and testing clinics in areas of the city where the residents were more reliant on public than private healthcare systems.

One City and County Emergency Management Focus Group participant spoke about overcoming the cultural fears that existed and specifically referenced the Tuskegee studies on African Americans.

"So we're going to focus on parts of the city that are the lower income, the high density housing, non-native English speakers, all of that. So we looked at those hotspots and they figured out all the vaccination sites in the city based on that right from the get-go. That's one thing [city in Region 1] and [county in Region 1] both do very well on a regular basis. So very aware of that. I can absolutely give them credit for that, a 100%."

—City and County EM Focus Group Participant

"This concept that the government is now telling everybody that they have to be vaccinated and supplying that vaccine, and how do we trust that? And so there were a lot of conversations around, how do we connect with these communities and make sure that they know and understand that this isn't about any one individual, this isn't about any one government office. This is a collective and collaborative effort on everybody's part. Anybody who wants to see that or participate in it, is welcome.

—City and County EM Focus Group Participant

Another City and County Emergency Management Focus Group participant spoke about providing accessible communications to Spanish speakers and other languages like Somali. They utilized their local community college nurses to assist with this and had translators onsite. They also ensured there were Spanish speakers within the vaccine clinics who could answer questions, both along the route for the drive through portion and those that were administering the vaccines.

Vaccine distribution + administration partners

LPHA interviewees credited the CBOs for their targeted outreach efforts for vaccination and for standing up, working in, and operating mobile vaccination units. LPHA interviewees mentioned several other partners such as community health workers who were tasked with directing people to vaccination resources and helping them navigate through the changing requirements. They partnered with their first responders to provide vaccines in a large county where not everyone could easily access the main hospital. Churches supported vaccine clinics and food drives, and libraries provided assistance with distributing supplies and tests. Fairgrounds, parks, and recreation departments were utilized as event spaces for vaccine clinics. Many LPHAs also named hospitals as key partners for education and vaccine delivery.

OHA Staff and Manager interviewees also applauded the efforts of CBOs in providing vaccination information, rollout, and COVID-19 testing. CBOs collaborated with OHA to create culturally relevant messaging and more direct pathways to disseminate vaccine information to communities. Different communities had unique questions about and perspectives

"We had so many partners. The vaccine distribution was culturally specific CBOs. It was a lot of our local fire agencies, our ambulance companies. The community college provided student nurses... Our equity liaison team convenes a weekly meeting of all of the CBOs in the county that receive COVID funding. And that's a space we come together to coordinate, to share successes and lessons learned, to talk about the work that's happening in the community, talk about what supports people need or help people need. We did a lot of culturally specific vaccine popup events. So it was lots and lots and lots of partnerships, lots and lots and lots.

—LPHA Interviewee

about vaccines and different barriers to receiving vaccines. One of the main barriers for communities was language. CBOs and OHA collaborated on translating information into various languages and distributing it in a way that made the most sense for the people they served. This helped to instill trust in the vaccine process as it was “...more comfortable for people with historical trauma to get COVID info or vaccines from the people they trusted at CBOs.” (OHA Staff and Manager Interviewee)

City and County Emergency Management Focus Group participants credited the use of Medical Reserve Corp (MRC) volunteers who were beneficial by screening individuals and assisting with other POD activities. There were approximately 900 MRC volunteers that assisted with the response. Another interviewee noted that coordinating with universities and utilizing their facilities, venues was a great opportunity.

A City and County Emergency Management Focus Group participant noted that the county did not initially have agreements with universities and school districts to administer vaccines. It was challenging and time consuming to execute these agreements while trying to also meet the demands of vaccine planning and operations.

Vaccine prioritization

PHAB interviewees shared that OHA and governmental health did a good job of reaching priority populations with their vaccination rollout and in general with their pandemic response.

Tribal Nation interviewees noted that the state prioritized tribes when it came to allocating resources and setting their own vaccine prioritization

"I think it was especially beneficial in the vaccine push-out, roll out, because as a sovereign nation they can set their own priority list. We didn't have to follow OHA's, which enabled us to get vaccines out to the general population a little sooner than other agencies could, a lot sooner actually."

—Tribal Nation Interviewee

"The state [stepped up] and [met] their commitment to have the vaccines available to tribes early and at a higher level than were available to other parts of the counties in order to address those disparities and advance equity."

—Tribal Nation Interviewee

process allowed tribes to vaccinate their communities quickly and efficiently.

State Agency interviewees spoke about the initial confusion about who would be receiving the priority vaccinations when the vaccines first became available. One state agency remarked that there was some back and forth regarding prioritizing vaccinations for educators. Another interviewee commented about the complexity of vaccine prioritizations with the limited amount of vaccine.

One State Agency interviewee credited the work conducted around vaccine prioritization and administration with the education system to a better relationship between school districts and local public health. Many staff worked long hours gathering accurate workforce information for vaccine prioritization to support the education system.

Vaccine distribution and administration lessons learned and areas for improvement

Healthcare Association interviewees provided some emergency management statewide improvement recommendations. They noted that the vaccine roll-out could be improved by utilizing existing databases such as the Patient Center Primary Care Home Program to identify vaccinators and to have a database in place to utilize previous/current vaccinators for additional vaccine efforts.

"Folks were asking for lots, and we had to make some hard decisions sometimes where you got lots minus some, because we didn't see the need there or we saw a greater need. So, there were times where, frankly, I think we felt a little bit like God, which was an uncomfortable position to have to say no to folks when you knew it was a life-saving opportunity, but we did it."

—State Agency Interviewee

"There is a database of 600 clinics that are certified PCPCH (Patient Center Primary Care Home Program) clinics across the state. At no time did anyone think to tap those clinics as high-functioning clinics that might be able to be a good place to ask who wants to be a vaccinator. ...The siloing that we could see from the outside within OHA was really, I don't know, surprising. And not surprising, distressing it just slowed stuff down so much. And the people working on trying to gather names of vaccinators didn't really know that data existed."

—Health Care Organizations
Interviewee

"Yeah, I think definitely looking at that federal state partnership, coordination, communication. Also, communication I'd say and collaboration internally within the different teams working on this in the state. So for instance, those that were working on testing are separate from vaccination that are separate from therapeutics, and sometimes it seemed like there could be some better cross department or cross team collaboration and communication within OHA."

—Health Care Organizations
Interviewee

"I think if the state had thought about... If there were a mechanism in the future where the state could engage medical societies like mine, anybody to help coordinate volunteering because we had a lot of members who wanted to do something and they were coming to us saying, 'How can we help? How can I give vaccines? What can I do that's safe? I'm retired but I still have time to give, and I don't want to get sick, but I could be on a call. I could be in a call center answering questions.'"

—Health Care Organizations
Interviewee

Vaccine distribution and administration successes

LPHA interviewees remarked that they were proud of their ability to center equity throughout their pandemic response, and a few mentioned high vaccination rates as their greatest contribution.

Tribal Nation interviewees also shared being proud of their vaccination efforts, contributing this success through their relationship building through other tribes or through building trust in their own communities.

PHAB interviewees noted that the design of vaccination events and the rollout of vaccinations went well.

"It's a quick gratifying answer, but it was the vaccine work, not just in the ability to deliver the actual vaccines to the community, but also for the collaboration with our community partners, and the team building aspect, and the ability for the tribe to do something really good within the community and share those resources.

—Tribal Nations Interviewee

"I do think that the governmental public health really made an effort to reach populations that might be underserved, that might not be native English speakers or English first language. There was a lot that they would come and present to us, like what was being done with the tribes, the vaccinations. They would come to present what was being done for certain groups. I do think that OHA in this area, recognized that it needs to have specific outreach and that was normally done best through some CBOs."

—PHAB Interviewee

State Agency interviewees commented on several successes with vaccine distribution and administration. Some State Agency interviewees remarked that they would take advantage of opportunities to vaccinate at already-established testing sites since testing had occurred several months prior to the vaccine becoming available. This included showing up at community events and mobile testing units and also offering vaccination services. This helped communities who may not have had the resources to travel to multiple locations for both services.

Another State Agency noted that the expansion of the Public Readiness and Emergency Preparedness (PREP) Act expanded the scope of practice on those individuals who could administer vaccines.

OHA Staff and Manager interviewees said establishing and deploying the Field Operations Teams was a successful strategy for vaccine rollout and operationalizing vaccine clinics. This team was deployed on a county-by-county basis, and mass vaccination events were hosted in metropolitan areas as well as other areas of the state and typically hosted by either the national guard or OHA Field Operations. OHA Field Operations staff were also dispersed across communities to help answer questions about vaccines (e.g., requirements, recommendations, vaccine rollout, co-occurring symptoms, etc.)

Healthcare Association interviewees spoke about several contributions to vaccine distribution and administration, including an alternative payment and care model program.

"We have an alternative payment and care model program, so to get work with the state, to get vaccinations carved out of that so that health centers were reimbursed not through their per member per month payment that they were getting, to be paid on top of that for vaccination was a huge win for our health centers that are part of that program... We're continuing to advocate for the needs of our members, and ensure that our members are able to keep the doors open and continue to provide access to the communities in which they serve."

—Healthcare Association
Interviewee

Healthcare Association interviewees also commented that their members were involved in a federal state partnership with FEMA for mass vaccination sites, and their health centers took the lead.

City and County Emergency Management focus group participants noted they were proud of offering up spaces for vaccine clinics and their home vaccination services.

"And I think that that worked well, but it was a lot of work to stand those up. But I think that that relationship and now that we've done that, and we have some history from that, we can learn from that and we know that we've done it in the past and that that's a possibility to do in the future, those relationships and that infrastructure that was able to be stood up pretty quickly in order to have these large mobile vaccination sites, hospital... Sites in different communities. And that was between FEMA and the Biden administration and our state and the governor's office that we all came together, and health centers were involved in three of these areas throughout the state to help with running those."

—Healthcare Association Interviewee

"We were able to provide a service to our residents that I don't think they would ever receive before. And where else can you make a phone call and have somebody show up at your house two hours later to give you a COVID vaccine? That's pretty amazing in itself that we were able to do that."

—City and County EM Focus Group Participant

Vaccine distribution + administration survey data

LPHA Survey: LPHA Survey respondents were asked about factors related to vaccine distribution and administration. When asked about funding for COVID-19 vaccination, 64% of respondents agreed or strongly agreed that their LPHA received adequate funding for vaccination (n=16). About a quarter of respondents were neutral and only 12% disagreed or strongly disagreed (see Figure 9).

Nearly all respondents (97%, n=34) reported that their LPHA coordinated or provided vaccination clinics. The most common types of vaccine distribution methods were pop-up clinics (n=33), drive through clinics (n=30), and school-based vaccination sites (n=2) (see Figure 10). Methods included in “other” are door-to-door, EMS fire, clinics in workplaces, community events, home health visits, drop-in, pcp clinics, and pharmacies.

The two most commonly reported challenges in coordination and implementation of LPHA vaccination plans were community confidence in vaccine or other issues (n=27) and staffing issues related to vaccine distribution (n=21) (see Figure 11).

Figure 9: LPHA received adequate COVID-19 funding (N=25)

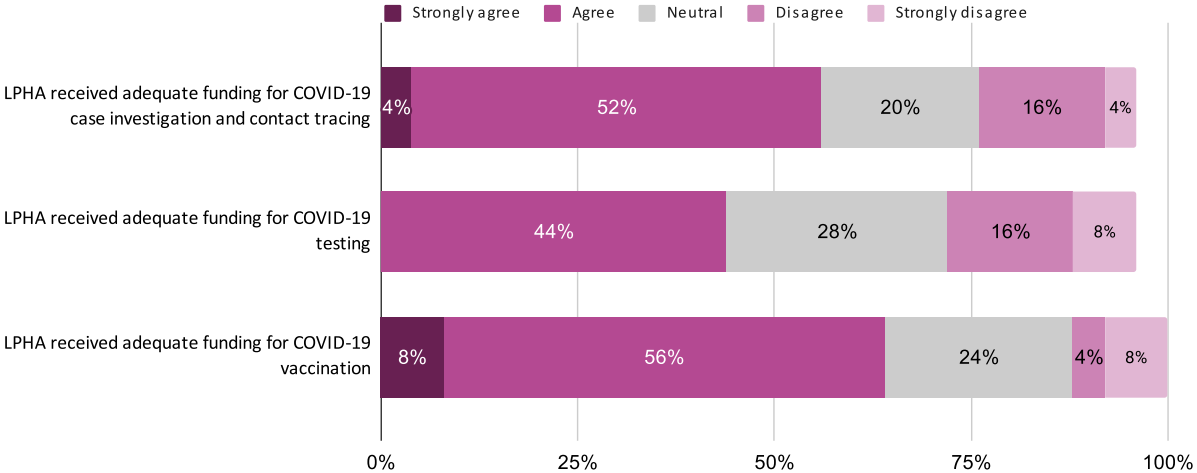


Figure 10: Types of vaccine distribution methods (LPHA respondents, N=35)

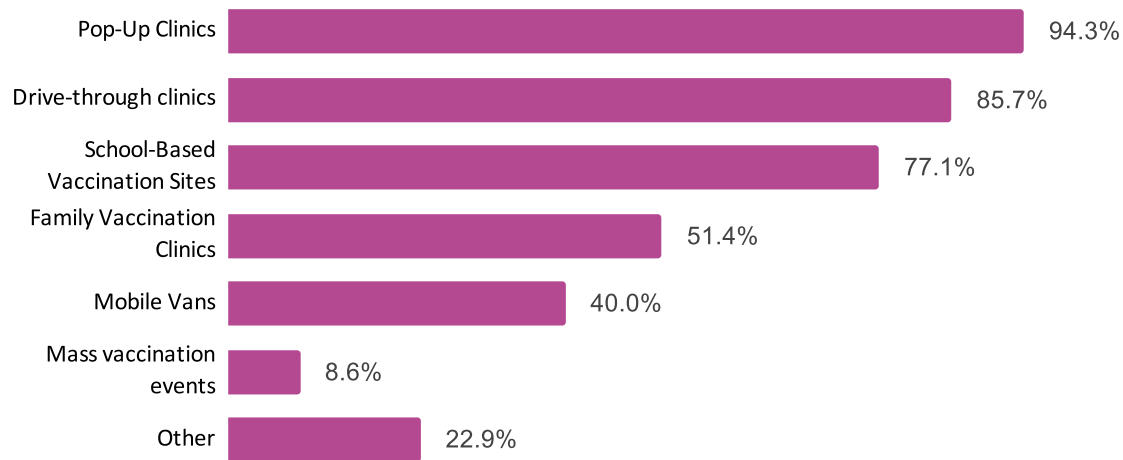
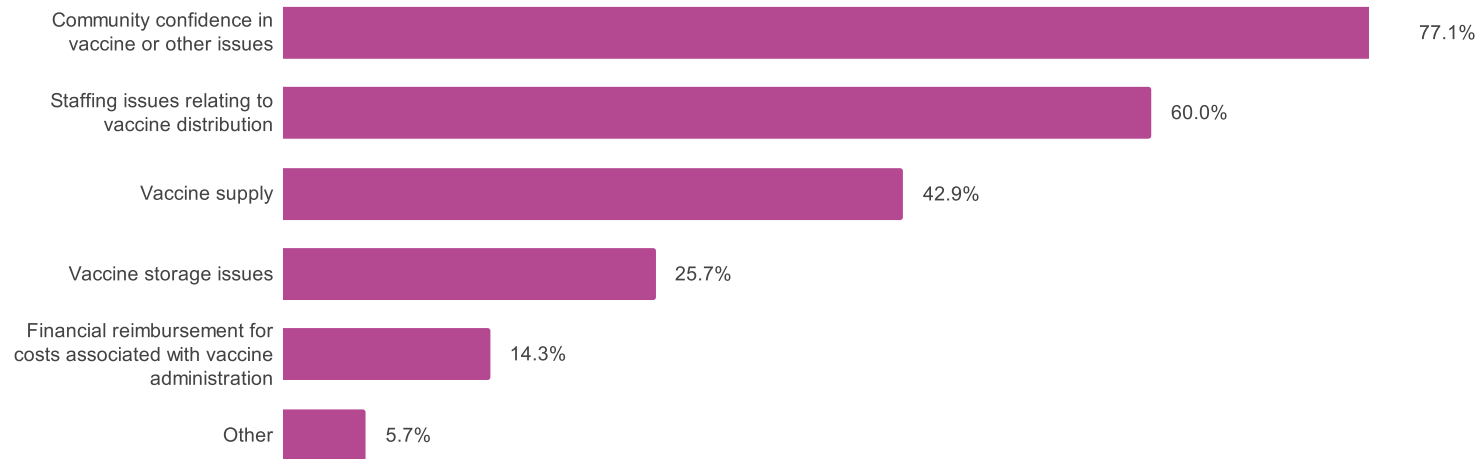


Figure 11: Challenges in coordination and implementation of LPHA vaccination plans (N=35)



Survey respondents were asked to rate Oregon’s public health response to COVID-19 across a range of activities, including vaccine rollout and availability. Forty-one percent (41%) of respondents rated the vaccine rollout and availability as being excellent or good and 59% rating the activity as fair or poor (see Figure 12).

Emergency Management Survey: Emergency Management Survey respondents were asked to rate Oregon’s Public Health System response to COVID-19, including vaccine rollout and availability (see Figure 13).

Figure 12: Rating of Oregon's public health system vaccination rollout and availability (LPHA respondents, N=39)

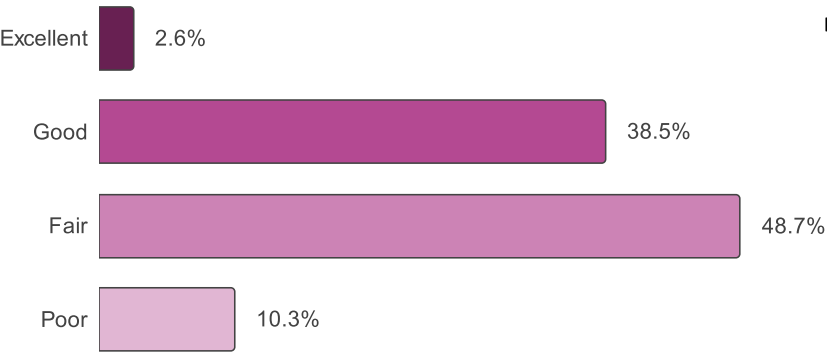
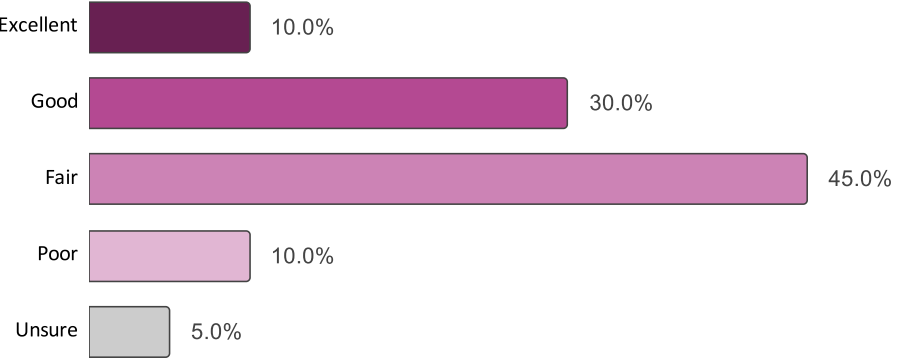


Figure 13: Rating of Oregon's public health system vaccination rollout and availability (Emergency Management respondents, N=20)



Almost all respondents (90.1%, n=20) reported their emergency management office provided support to LPHAs for vaccine distribution using various vaccine methods (see Figure 14).

CBO Survey: CBO Survey respondents were asked to select response activities they conducted for the COVID-19 response, including activities relating to vaccine distribution and administration (see Figure 15).

About 66% of respondents reported they coordinated or provided vaccination clinics in their community; 18% reported their CBO did not coordinate or provide vaccination clinics. Nearly three-quarters of CBO survey respondents reported that they addressed vaccine hesitancy.

Figure 14: Vaccine distribution methods supported by City, County, and Tribal Emergency Management (N=22)

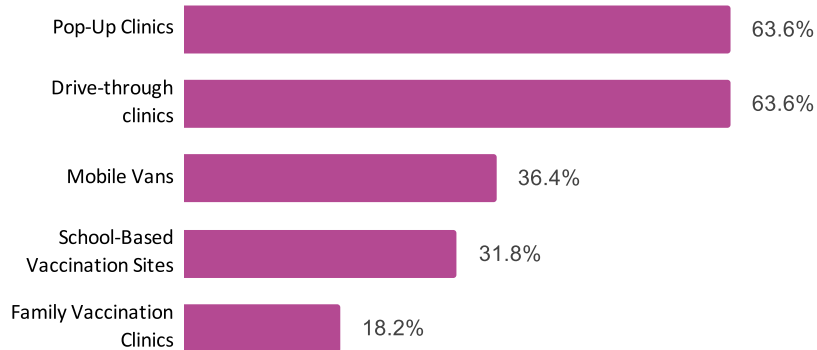


Figure 16: Vaccine distribution methods used by CBOs involved in vaccine clinic coordination and response (N=47)

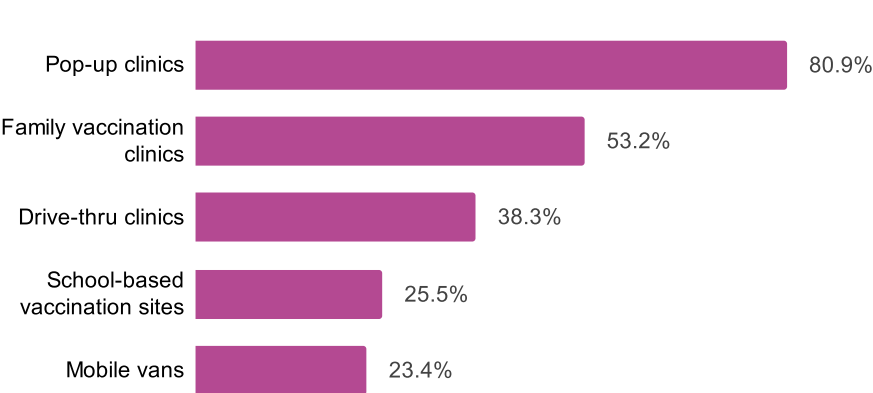


Figure 15: CBO COVID-19 vaccination activities (N=61)

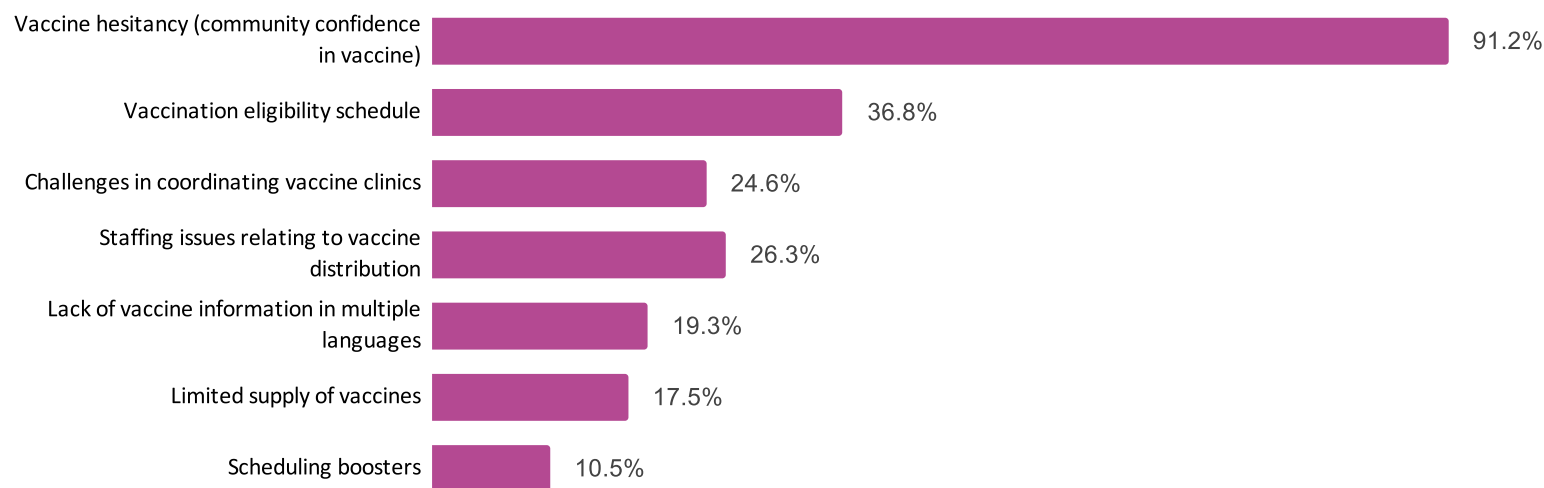


A breakdown of the vaccination distribution methods CBOs provided or supported are shown in Figure 16. Some CBOs provided additional distribution methods, including the following:

- Vaccination events with the county using their facilities;
- Faith-based sites;
- Locations serving vulnerable populations (e.g., congregate sites, disability-specific sites);
- Weekly clinics, including temporary sites CBOs rented as well as permanent clinic sites; and
- Culturally and linguistically responsive vaccination events.

Survey respondents were also asked to select from a variety of challenges they may have experienced in supporting vaccination efforts. The top five reported barriers were vaccine hesitancy (91.2%, n=52), vaccine eligibility schedule (36.8%, n=21), staffing issues related to vaccine distribution (26.3%, n=15), challenges in coordinating vaccine clinics (24.6%, n=14), and lack of vaccine information in multiple languages (19.3%, n=11) (see Figure 17).

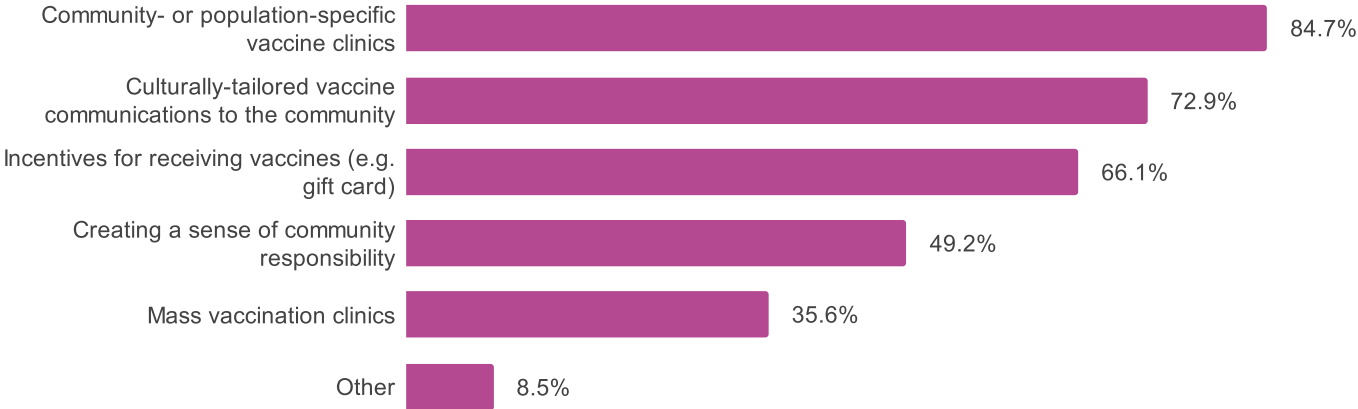
Figure 17: Barriers CBOs experienced when supporting vaccination efforts (N=57)



Respondents also provided feedback on what strategies helped increase COVID-19 vaccination uptake. The top three responses were community- or population-specific vaccine clinics (84.7%, n=50), culturally tailored vaccine communications to the community (72.9%, n=43), and incentives for receiving vaccines (66.1%, n=39 (see Figure 18)). The other responses provided were:

- “Drag performances doubled our attendance!”
- “Created welcome for PWD [Persons with Disabilities] was vital and got better over time.”
- “Communicating that we are keeping ourselves vaccinated so that those that are vulnerable will be safe.”
- “Collaborating with a group of CBOs with the same goals”
- “I don't like the idea of giving cash incentives which causes so much moral hazard in the community and makes same efforts much less effective.”

Figure 18: What was helpful in increasing the number of people who received the COVID-19 vaccine? (CBO respondents, N=55)



Overall, vaccine distribution and delivery was highlighted by a majority of study participants as an efficiency in the public health systems' response to the COVID-19 pandemic. LPHA, Tribal Nation, OHA, and City, County, and Tribal Emergency Management study participants identified the organization and distribution of COVID-19 vaccinations as one of their greatest accomplishments during the pandemic response. Partnerships with CBOs were essential to eliminating barriers to vaccination for historically underserved and marginalized groups.

"I think shifting away to smaller sites has just made all the difference. Being able to just have a community event. And there is a vaccine clinic and it's at a location that people know, and it's much smaller and they've got their appointment, they can come in and out, that just really improved the experience, and I think improved those numbers."

—CBO Interviewee

Personal protective equipment (PPE) distribution

Roles in PPE distribution

Study participants held various roles for PPE distribution during the COVID-19 response, including some current and ongoing activities.

Healthcare Associations' role in PPE distribution was largely to coordinate and communicate the availability and accessing supplies to their members. Additionally, they were asked to gather PPE supply needs from hospitals for the State. Another role was to provide funding to their health centers to purchase PPE.

State Agencies' roles varied and included PPE distribution or warehousing activities either from direct involvement, prioritization, or general and ongoing logistics. This included obtaining and distributing PPE for schools and school districts, businesses, healthcare facilities, private providers, correctional facilities, etc.

OHA played a significant role in PPE procurement and distribution, including, in part:

- Securing a major PPE stockpile from federal funds and state government;
- Making PPE distribution priority decisions from key hospital data;
- Applying risk assessments and an equity framework when making early decisions on PPE distribution; and
- Maintaining regional emergency coordinators to coordinate with county officials and LPHAs in requesting PPE.

City and County Emergency Management focus group participants explained that they also had a significant role in procurement and distribution of PPE, including working within their logistics sections to assist in the delivery of PPE and collecting and disseminating donated PPE. Larger jurisdictions were handling PPE warehousing and distribution out of their emergency operations center logistics section while some City and County Emergency Management focus group participants explained that they still receive requests for PPE from local departments, such as the library district because of the face-to-face public interactions.

PPE distribution in stage 1

During Stage 1, many study group participants discussed that PPE distribution was a key activity. They noted that the backdrop of limited PPE resources and supply chain issues complicated PPE distribution. LPHA interviewees noted that they were conducting target outreach specifically noting their coordination with long-term care facilities (LTCFs), ensuring staff understood the various PPE recommendations. Healthcare Association interviewees explained that they were procuring PPE for their clinics and obtaining supplies through a preferential pricing contract with national parent associations. Tribal Nation interviewees stated they also struggled to obtain the limited PPE resources.

The Stage Agencies interviewed played several other roles in PPE distribution, such as:

- Distributing \$11 million dollars of free PPE to businesses in Oregon including working with a logistics supply firm to distribute PPE to Oregon businesses;
- Assisting in warehousing operations by reviewing existing caches of PPE to determine their viability and use for various employee sectors in the field; and
- Assisting in warehousing operations and the logistics of PPE dissemination, including distributing the limited PPE out to where it could be best utilized and attempting to procure additional PPE and supplies into the state for further distribution.

Emergency Management Survey respondents commented that the PPE end users were grateful and thankful for receiving the PPE.

Warehousing + storing

An overarching observation among many of the study participants was a lack of available warehousing space. City and County Emergency Management focus group participants explained that they struggled with finding and allocating space and began to randomly place it in offices, empty closets, maintenance sheds,

and basements. One City and County Emergency Management focus group participant noted they still have PPE stored in several storage locations throughout the county, saying "I still have a bunch of PPE sitting in a warehouse. I still have about 500 gallons of hand sanitizer. Most of that I never even asked for, but it arrived."

State Agency interviewees assisted in staffing the warehouse, organizing supplies, answering questions relating to the PPE's viability and use, and administering KN95s and other PPE for labor housing workers.

The Oregon Department of Administrative Services was instrumental in the PPE warehousing and distribution processes as they operated a statewide inventory management and distribution center. There was a statewide recognition that Oregon Health Authority's existing logistics resources could not handle disseminating PPE to 36 different counties and that the entire state logistics enterprise would be needed.

City and County Emergency Management focus group participants in the rural counties struggled with warehousing staffing capacity. One respondent said they managed, "...the inventory and distribution by myself. I could have used a part time person to take over PPE Distribution."

Funding

LPHA interviewees noted that they utilized some of the funding provided to purchase and distribute PPE and other related supplies. There were frustrations among the Professional Associations; interviewees explained that that funding was given to CBOs to support PPE and vaccinations instead of maintaining the funding at the county health department level. Finally, some tribal respondents noted that when funding for testing supplies finally came to the tribes, it was no longer needed for testing. Rather, it was needed for PPE and other uses.

Assistance from partners

PPE distribution had assistance from many other partners throughout the response. LPHA interviewees noted that county commissioners and board members stepped up by purchasing PPE ahead of time along

with testing supplies. Another commissioner, "...literally with his own pickup truck, he was driving out delivering cases of N95s and stuff." (LPHA Interviewee)

Study participants spoke about the very important assistance from CBOs for PPE distribution. LPHA, OHA Staff and Manager, and State Agency interviewees and City and County Emergency Management focus group participants spoke highly of the CBO contribution in disseminating PPE. These CBOs served as hubs to the most impacted communities. Resources were then pushed out to those organizations who, in turn, distributed it to their community members. CBOs also helped to develop prioritization matrices for how to distribute PPE.

There was great collaboration and partnership with others such as the National Guard that handled logistics out of the warehouse and led to an efficient PPE distribution. A City and County Emergency Management focus group participant commented that public health had "really good existing relationships" with groups that emergency management did not previously have. Yet another participant spoke about a group called the Sewing Brigade that made thousands of masks to help support the early masking mandates.

Ordering, delivering, and receiving PPE

Half of the Tribal Nation interviewees shared that PPE distribution processes went well between tribal, state, and local agencies; the other half noted that coordination with logistics changed and processes for ordering and shipping could be improved.

Stage Agency interviewees spoke about the lack of inventory control in the beginning of PPE dissemination mainly from an existing cache remaining from the H1N1 stockpiling. This resulted in OHA initially sending boxes of PPE without verifying the type or quantity of PPE within the boxes. OHA quickly became overwhelmed as there were reports of key stakeholders not receiving the correct amount of PPE that was ordered. Emergency management had to step in and worked with the Oregon Department of Administrative Services to procure a warehouse to manage the statewide logistic operations.

OHA Staff and Manager interviewees spoke about the use of the Smartsheet portal. This weekly report was generated from county governments and CBOs reporting their PPE and vaccine availability data.

City and County Emergency Management focus group participants spoke about different methods for receiving PPE within their local jurisdictions. Some interviewees would order PPE from the state and pick it up from the state warehousing locations. For others, the PPE would be shipped to them. Many participants noted that this worked well.

Receiving + storing PPE

Some City and County Emergency Management focus group participants noted that they received last minute communications stating they were receiving trucks of PPE of which they were not prepared to receive. Individuals within the emergency operations centers who were not logisticians diluted the urgency of this causing chaos within the logistics section. Additionally, some explained that they received additional unusable PPE items such as donut gloves that could not be used at many businesses and hand sanitizer dispensers that did not fit the hand sanitizer already in stock.

City and County Emergency Management focus group participants spoke about the additional burden of maintaining storage and disposal for unused or expired items. One noted they still have several gallons of hand sanitizer in storage that will be expiring soon resulting in additional storage costs. Also, because hand sanitizer is an alcohol-based product, it must be treated as hazardous waste due to the ignitability characteristic, thus leading to the additional cost of disposing of a hazardous waste.

"From the state, from the emergency management side of things, anything that I wanted or needed for the county, I put in an op center request through emergency management, and it was granted. I also distributed, maintained and distributed the PPE. I still have a bunch. I generally got what I was asking for, within a reasonable amount of time. I mean, from my perspective, it seemed like everything on the state side worked out well.

—City and County EM Focus Group Participant

Additionally, they still have several thousand boxes of KN95s that are unusable because the emergency use authorization has now expired.

PPE Tracking + reporting

Some State Agency interviewees shared that the constant tracking and updating of PPE dashboards for leadership was a source of frustration. Compiling data for the dashboard of available masks, gloves, and gowns was very time consuming and did not inform the bigger picture of how well the state was handling the response. They stated the MAC-G became obsessed with these numbers.

One State Agency interviewee explained that emergency management assisted with tracking and reporting burn rates. They found that the questions that they were asking hospitals about their PPE burn rate was leading them to request more than they needed at the time of the request.

PPE supply chain issues + shortages

Several study participants commented that the lack of adequate supply chain was a key issue to efficient distribution of PPE.

"Definitely the supply chain was the biggest challenge. Those initial weeks and months of the pandemic were stressful times for everyone, but even more so for work locations that required the appropriate PPE to perform their work. We weren't able to supply that adequately for some time. The blame should be shared collectively as we did not prepare well enough for this type of supply distribution needs, and we need to collectively identify solutions for future situations that would require similar response efforts. The entire globe was competing for supplies - but can the United States, Oregon, and our jurisdiction adjust our preparations enough to be more resilient locally?"

—City, County, and Tribal EM
Survey Participant

Push versus pull: PPE request process

Some City and County Emergency Management focus group participants had strong feelings about the State's decision to push PPE rather than using the pull method of distributing PPE. The push system is when PPE is being sent without requesting versus a pull system where PPE is requested/ordered and then delivered. Many participants remarked that the push system was extremely challenging and inefficient and would have preferred the pull method of ordering and receiving the PPE.

Another City and County Emergency Management focus group participant remarked that the pull method was working well: partners would request PPE and emergency management would order through the state request process.

"Our normal process in emergency management for requesting resources from the county, follows a process under the US Stafford Act, you exhaust your local options first, before you go to the next level of government. So for us, that would then be to the county, and then the county to the state. So that's how all everything is written, our processes, the whole bit, it's all set up on that. So that's what we were attempting to do. That's how the county was expecting us to make those requests as well."

—City and County EM Focus Group Participant

"We'll never recommend doing the push model for anything because it creates too much chaos."

—City and County EM Focus Group Participant

Furthermore, one City and County Emergency Management focus group participant explained that the push model was detrimental to having adequate warehousing space. They said that the local fire marshal was considering shutting down their warehouse due to hazardous materials such as hand sanitizers.

"The state just kept sending big trucks after big trucks, full of stuff. We didn't even know what was coming at times unless OEM got on the ball and sent us the invoice, which was very rare that tracked shipping list of what was coming beforehand, not with the driver. So it created a lot of problems."

—City and County EM Focus Group Participant

"Then the state decided to change that and go to a push method based on caseloads and population and that created such a mess that it was a mess up until last week when [county in region 2] finally got rid of the last of the excess PPE that the state basically forced on us and not giving us an option or anything like that."

—City and County EM Focus Group Participant

Survey data related to PPE distribution

LPHA Survey: LPHA Survey respondents gave a favorable rating for Oregon's Public Health System Response to the distribution of PPE. Fifty-four percent (53.8%, n=21) marked that the distribution of PPE was "Good" or "Excellent" (see Figure 19).

CCO Survey: CCOs also gave a favorable rating for Oregon's Public Health System Response to the distribution of PPE (n=7). Seventy-one percent (71%) marked that the distribution of PPE was "Good" or "Excellent" (see Figure 20).

Figure 19: Rating of Oregon's public health systems distribution of personal protective equipment (LPHA respondents, N=39)

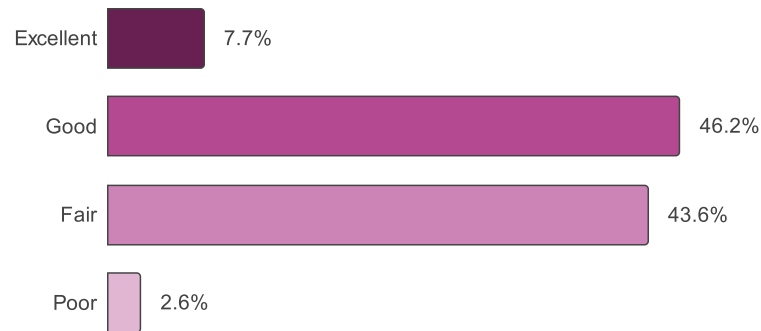
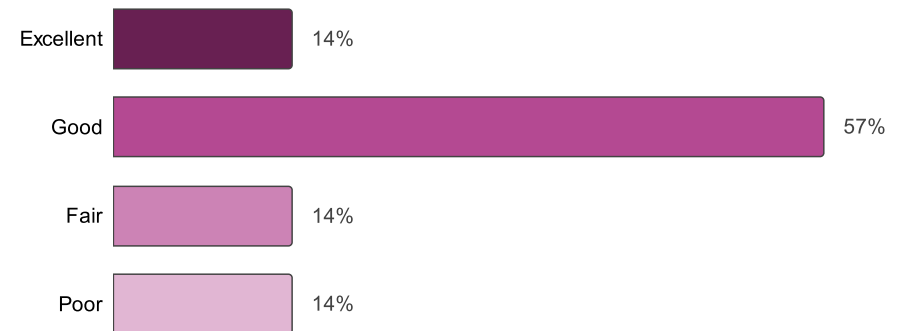


Figure 20: Rating of Oregon's public health systems distribution of personal protective equipment (CCO respondents, N=7)



CBO Survey: CBO Survey respondents were highly involved (82%) in the distribution of PPE during the COVID-19 response. The majority of CBOs surveyed (88.5%) utilized COVID-19 funding for PPE distribution (see Figures 21-22).

Figure 21: CBO respondents who supported distribution of personal protective equipment (N=61)



Figure 22: CBO respondents who utilized COVID-19 funding for personal protective equipment distribution (N=61)



Public information dissemination

Most study participants considered messaging, distribution (e.g., PPE, masks, vaccines) and contact tracing key elements of the public health system response, which all involve public information dissemination. One LPHA focus group participant defined public information dissemination as "...a key part of our response and what we see as part of the public health system."

State Agency interviewees said that the public health system establishes a communication and reporting structure that moves information among other agencies (state and local) and the Governor's Office, and then out to the general public and media. An effective public health response requires communication to all communities and regions of the state, recognizing that different information dissemination approaches may be better suited to each individual community's circumstances.

Roles in public information dissemination

Study participants played various roles in public information dissemination during the COVID-19 response. LPHA and State Agency study participants both described their involvement in integrating and disseminating public information through the pandemic response. OHA also had a significant role in public information dissemination which included deploying public information officers (PIOs). These PIOs represented several different groups that were divided into "general or medical" according to one interviewee, and acted as a liaison for that group. OHA interviewees also reported coordinating with CBOs to disseminate materials in a culturally relevant way. At the local level, Oregon counties are in control of their own

"After a few missteps in public messaging and public information and overwhelming the information center that the Oregon Health Authority had, we were able to consolidate efforts and have a true, by the plan, joint information center."

—State Agency Interviewee

public information dissemination. This means that in addition to public information disseminated by OHA or other state actors, it was up to each county government/LPHA to disseminate information to the public in whichever way they viewed as most appropriate and effective.

Additionally, City and County Emergency Management focus group participants reported setting up and maintaining a local Joint Information Center (JIC), and assisting both state and local public health officials with public information dissemination.

Public information structures

Some State Agency interviewees remarked that the public information system was flawed because of the existence of two separate statewide Joint Information Centers (JICs). One interviewee noted that after messaging was developed at one of the JICs, OHA and Oregon Department of Human Services (ODHS) might not approve the content, or would sometimes go in a different direction with the messaging, as a reaction to negative press. This was a large source of frustration for public information personnel working on the pandemic response.

Looking ahead

Public information dissemination successes

OHA interviewees stated that many aspects of public information dissemination were successful, including the coordination of public information officers, creation of COVID Communications Units, and the

"[OHA] really wanted to maintain a tight grip on public information. So we had this ridiculous JIC north and JIC south, and trying to get messages approved took forever. It was just really disconnected and disjointed. After about three or four weeks, we finally consolidated the joint information center, and I think things worked pretty well at that point."

—State Agency Interviewee

top-down chain of command model and communication structure.

LPHA study participants reported that they placed a lot of emphasis on communication with the public and it helped them maintain credibility in their communities.

Many City and County Emergency Management Focus Group participants were very impressed with the collection of public information professionals and saw this as a key strength for the COVID-19 response. Several interviewees spoke about the competency, professionalism, and adaptability of their PIO staff. To enhance the coordination of public information professionals, PIOs were also able to leverage their existing networks. By adding a PIO into the ICS team and the ICS team, there was one person there was one person to go to for public information. This person was securing billboard space and engaging the media for interviews, monitoring social media, and facilitating translations for accessible communications.

Tribal governments felt that public information dissemination went well within their communities. They utilized radio, newspaper, social media, and flyers in public locations. They felt the materials received from OHA, CDC, Indian Health Service (IHS), and the Northwest Portland Area Indian Health Board (NPAIHB) were helpful and adaptable for their communities.

Public information dissemination lessons learned

State Agency interviewees remarked that to increase trust among the public, early and transparent reporting was a critical strategy. This required that all response partners agree upon a plan and follow the plan, from

"I think my health department, in particular, we made ourselves available to the media, to community groups... just the willingness to talk through the hard questions with honest answers, I feel like I and my colleagues, I feel like that's where we really showed up."

—LPHA Focus Group Participant

"What worked really well was the vast availability of resources, whether it's OHA, or CDC, or Indian Health Services, for all the various public health interventions. There's just a wide variety of print and digital media available to use and make our own."

—Tribal Nation Interviewee

state-level decision-makers to those engaging directly with the public. State Agency study participants regretted not adequately preparing the public for the fact that information and guidance related to the pandemic would be changing constantly as expert knowledge evolved. One State Agency interviewee said that if they had to do it all over again, they would start every press conference with, "Here's what we know today. This information will change."

"One thing that did come out of [the challenges with public information dissemination] in a positive though, is that the county has realized that all the departments need a public information officer."

—City and County EM Focus
Group Participant

Public health mandates: Compliance + enforcement

Evidence-based, population-level public health mandates to slow the spread of the virus were central to Oregon's approach to responding to COVID-19. Acting under executive authority, Oregon's Governor, Kate Brown, issued over 40 Executive Orders (see Appendix B) specifying public health mandates. According to individuals from Brown's office and the OHA, public health mandates such as masking, school closures, limited social gatherings, and restrictions on indoor dining were developed with input from the federal Centers for Disease Control and Prevention and the Association of State and Territorial Health Officials. Officials at OHA's Public Health Division also consulted with neighboring states to gather evidence and input to inform decision-making. Importantly, these officials had to balance the potential benefit of public health mandates- which were set in place to slow transmission leading to fewer people getting infected and thus fewer hospitalizations and deaths- against the serious ramifications of closing schools, negatively affecting Oregon's economy, and creating social isolation.

Enforcing public health mandates in a public health emergency

Interview and survey results demonstrate a system-wide understanding that enforcement of public health regulations during a pandemic is a complex issue that must take into consideration multiple competing factors, such as the appropriate level of enforcement given competing urgent priorities and the historical context of individuals and communities that have been (and continue to be) harmed by government enforcement structures. Other factors, such as the socio-political environment (including the potential for backlash), statutory and regulatory enforcement parameters, staff capacity and knowledge, and return on investment for enforcement activities, are equally important.

Enforcement of COVID-19 mandates

Structurally, efforts to ensure compliance with public health mandates were knitted together using regulatory and enforcement authority housed at several government agencies, including the Oregon Occupational Safety and Health Administration (OR-OSHA), the Oregon Liquor Control Commission (OLCC),

the Oregon State Lottery (OSL), the Oregon Department of Agriculture (ODA), LPHAs and OHA. These agencies worked together with the governor's office to establish a triage system for managing complaints. Compliance and enforcement activities were complaint-driven, meaning that in order for noncompliance to be addressed, an individual would have to complain to a government agency. Both OR-OSHA and OHA had complaint forms available online or via telephone. Most LPHAs opted out of enforcement activities and therefore routed complaints to state agencies (OR-OHSA, OLCC, or OHA) for follow-up and enforcement based on the nature of the complaint.

Analysis of records and primary data collected in this study points to the following important factors about enforcement of public health mandates in the COVID-19 pandemic (2020- 2022):

- Enforcement of public health mandates was inconsistent across Oregon, especially after Stage 1 of the pandemic when the politicization of the response effort took root, and a widespread misinformation campaign marred the compliance landscape;
- Enforcement of public health mandates did not fall neatly into the jurisdiction of any one agency in Oregon nor does it naturally fall in the domain of local law enforcement. Enforcement authority was confusing to those who were not steeped in bureaucratic regulations and, thus, many individuals became frustrated with why more was not being done to effectively enforce the statewide mandates;
- Interviews with State Agencies, Health Care Associations, LPHAs, and City and County Emergency Management highlighted pandemic-response inconsistencies across Oregon, not only in enforcing public health mandates but also in other areas of the pandemic. They raised concerns that the localized decision-making of LPHAs created responses that put politics over health;
- State agencies (listed above) worked together to support compliance and enforce the mandates under their extant statutory authorities;
- Several State Agencies remarked there was a lack of available staff and the capacity to conduct adequate enforcement activities or that not all staff engaged in enforcement were prepared or effective;
- Lag times between a complaint being filed and follow-up caused frustration among some complainants and hindered the perception of the importance of the mandates;

- The role of governmental public health agencies in enforcing public health mandates was impacted by the following:
 - Issues with statutory enforcement authority for OHA coupled with the belief held by some that public health cannot or should not enforce laws and regulations.
 - A lack of desire to or experience in enforcing public health regulations at LPHAs- Common themes from LPHA individual interviews around enforcement challenges were that 1) enforcement is a great administrative burden with little reward to the county or community, 2) fear of deteriorating relationships within the community, and 3) LPHAs were confused about what to enforce, and who should be doing the enforcing. More than one LPHA reported they did not know where to go for help with enforcement.
- Problems created by the structure of enforcement impacted the entire pandemic response. The top challenge around compliance with public health mandates noted by CBOs was that Oregon did not have consistent enforcement mechanisms. With no apparent authority designated for enforcement, the role often fell to local businesses and CBOs that continued to operate to serve the community. In particular, the lowest-paid employees had to enforce public health mandates, which they felt was inequitable and ineffective. Many CBOs noted a lack of local leadership around compliance and enforcement was a challenge. According to CBO study participants, many county officials either wanted to stay neutral or openly disagreed with public health mandates;

"I didn't see any messaging really that was really strongly supporting any of the requirements. I felt like... Which I know is hard, but in our county, there was a lot of resistance. And even if I called the county and asked, 'Can you message this? Can you talk to people that are coming in?' And I just felt like they also felt the resistance, and so they were trying to stay neutral within that. And there just really wasn't leadership from our county really reinforcing that."

—CBO Interviewee

- State and local government agency representatives faced political and social opposition to public health mandates from vocal members of their communities or local elected officials. Not infrequently, enforcing the public health measures resulted in personal threats;
- Interviewees representing State Agencies, OHA Staff, Managers and Directors, LPHAs, and CBOs all noted that continuously changing guidelines were difficult for the public and that may have impacted adherence to public health mandates;
- Governmental public health agencies felt they were effective in providing education and support to individuals and businesses in complying with mandates. Interviewees and study participants outside of OHA reported that OHA performed well in communicating with the public about the mandates. Further, specific mandates that affected businesses were handled through emergency rule-making processes that allowed businesses to be prepared and informed about upcoming regulatory changes;
- Interviewees from seven of Oregon's nine federally recognized Tribal Nations reported that their tribes worked to abide by all the Executive Orders as a way to protect the community. Several noted that social distancing and refraining from gatherings presented cultural challenges because of a community value of interpersonal connection; Tribal Nations worked to explain the necessity of social distances toward the greater good of the community and especially elders;

"The attitude toward public health workers changed, while in the beginning months of the pandemic, they were celebrated as heroes. They quickly became villains in the eyes of many."

—State Agency Interviewee

"We had a lot of willful violations relating to masking. Unfortunately, this is where things probably got really heightened for our staff because we got a lot of threats, and anger, and meanness, and people showing up at our individual houses, having barbecues in front of their houses, chanting with bullhorns that they should be carted off to the gas chamber."

—State Agency Interviewee

- CBOs were essential in disseminating education and supporting compliance with public health mandates. Many CBOs noted a general will to comply with public health mandates was especially high for marginalized communities that already faced health disparities;
- CBOs directly supported community compliance with public health mandates by modeling compliance themselves (being diligent about mask-wearing and social distancing when interacting with clients and community members, for example). CBOs also built on the trust and relationships they had within the communities they served to communicate public health mandates and guidance in a way that was easy to understand. Several CBOs noted they played a 'cultural liaison' role by translating the evidence, explaining complex rules, and messaging the importance of complying in ways that spoke to the values in their communities. CBOs bought and supplied masks and other PPE and directly supported compliance with quarantine and isolation protocols by providing wraparound support for community members with COVID-19;
- Some CBOs felt that decision-making was not grounded in science and best practices for controlling the pandemic (allowing bars to stay open when gyms and churches were shut down, for example). They shared that as COVID-19 became more political, the evolving guidance seemed to be driven by public will and fear of backlash more than science; and
- Due to the complaint-driven nature of enforcement protocols, the level of adherence to public health mandates by individuals and businesses is unknown. The study team reviewed documents and data provided by OHA and OR-OSHA related to specific compliance and enforcement activities undertaken by OR-OSHA or OLCC.

"Most people in the community that I serve really wanted to follow the rules. They wanted to protect the people that they loved, and they were kind of on board with that. And I didn't see enforcement about any of that stuff happening."

—CBO Interviewee

"Asking public health to enforce those was crazy. There were no guidelines on enforcement. We had one place that went out of their way to be [difficult] and they opened up before they should've. OSHA still hasn't figured that one out, this was in 2020. So the state really needs to decide when we're going to do these things and who is going to enforce them."

—LPHA Interviewee

Looking ahead

Examining how public health mandates should be enforced (including the level of enforcement) and delineating roles and responsibilities for state and local agencies at each stage of the compliance continuum is highly recommended. While several State Agencies worked diligently to support enforcement, without one centralized enforcement agency, their efforts left gaps for certain conditions. For example, a church with no employees might not be covered by OR-OSHA, OLCC (unless they had a liquor license), or Oregon Video Lottery. Additionally, regional variation, driven by elected officials who were opposed to certain recommendations, also created gaps in compliance and enforcement. As the state public health authority, OHA should convene local and state agency partners to determine if the enforcement mechanisms used in 2020- 2022 are the best fit for Oregon, given all the factors described above. If changes to the enforcement structure for public health mandates are deemed necessary by OHA, partners and the Oregon State Legislature should work to enact necessary statutory or regulatory changes. Finally, enforcement of public health mandates and various roles and responsibilities should be clearly articulated, and all parties in the public health system should educate themselves accordingly.

Public health messaging + communication

Public health messaging and communication throughout the pandemic was critically important to keeping the public informed, reaching historically marginalized communities and populations, and sharing information between partner organizations (OHA, LPHAs, CBOs, tribes, etc.). Communication took many forms, including information provided to the general public from OHA and LPHAs through mass and social media. There were also internal systems of communication between Oregon's executive branch, the CDC, OHA, other state government agencies, LPHAs, CBOs, and the many health and business organizations affected by measures and rules created during the pandemic. The means and timing by which information was disseminated had a direct impact on the public's clarity and trust in the information. Best practices in public health communication ensure that messages are clear (expressed in plain language), inclusive (accessible by a wide range of abilities and languages), and trusted. It is imperative that best practices are followed not only to reach the general public, but especially to reach historically marginalized groups with potential to bear the harshest effects from the pandemic.

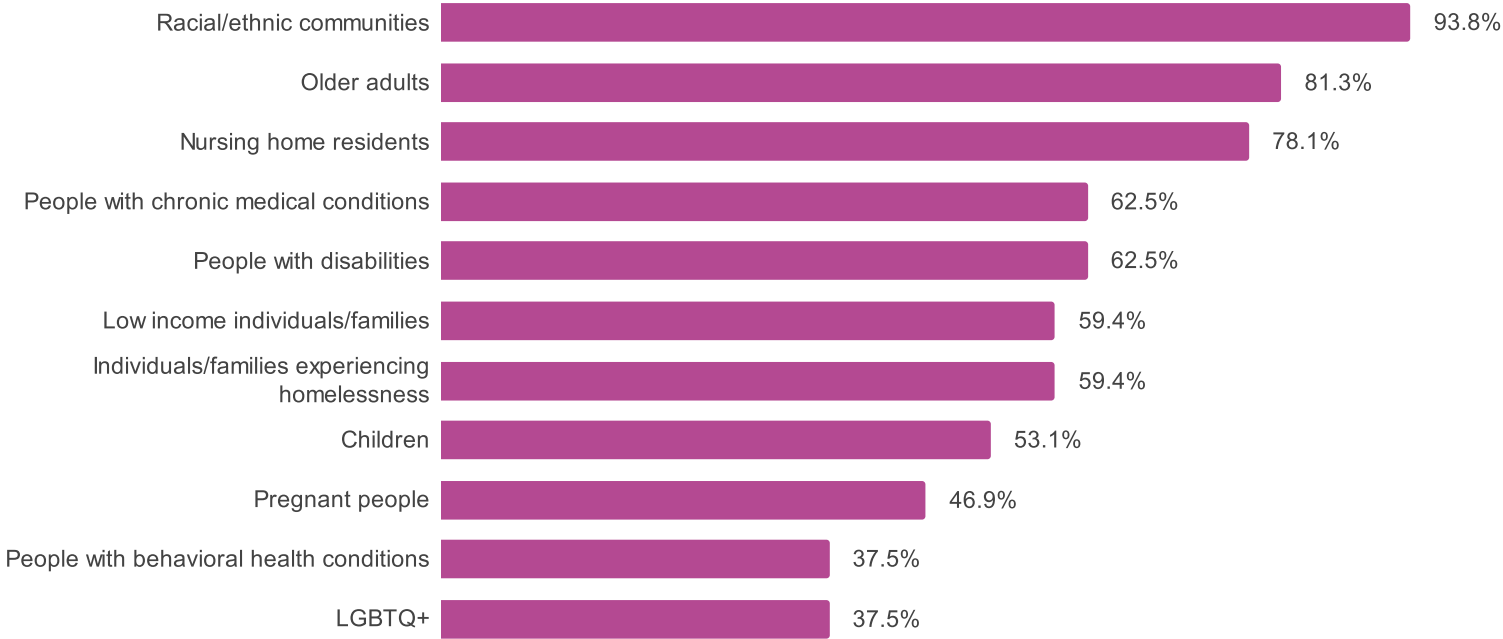
Use of public health messaging best practices

Study participants reported that during a time when accessible, translated, and culturally tailored communication and public messaging were critical, OHA experienced a lag in producing this communication. Information from process and individual interviews with OHA Staff and Managers revealed that OHA did not have the bilingual and other staff necessary to move with the alacrity that was needed from the very start.

After the initial lag, OHA and LPHAs seemed to be successful at creating mass reach messaging in multiple languages and incorporated accessibility standards. In survey responses, 27 LPHAs reported that they created their own public health messages to accompany OHA's. All 27 of those LPHA respondents also indicated that they provided materials in multiple languages. Although not as strident with accessibility

standards, all LPHA survey respondents reported that they “sometimes” or “always” wrote in plain language, while 65% reported that messaging “sometimes” or “always” met ADA standards. It was common for LPHA survey respondents to prioritize community- or population-specific COVID-19 messaging, and nearly all reported prioritizing racial/ethnic communities. Many also reported prioritizing communication with older adults and nursing home residents. Conversely, interviews and focus groups with tribal organizations revealed that participants felt like there was not enough funding to create culturally specific communication for their communities.

Figure 23: Populations that were prioritized by LPHA respondents for community-specific COVID-19 messaging (N=32)



In the survey, CCOs reported providing public health messages that were distributed through their own websites, local news, social media, radio, newspapers, and phone calls or text messages. They also followed best practices in providing information in multiple languages, ensured messaging complied with ADA standards, and utilized plain language. Languages provided included English, Spanish, Simplified and Traditional Chinese, Russian, and Japanese. Additionally, three CCO survey respondents noted that materials could be requested in any other language or format.

CBO interviewees felt that the variety of communication methods offered was effective. Strategies such as including visuals, offering communications in different languages, utilizing mass media (especially local radio and TV), and engaging trusted messengers (like community leaders and doctors) strengthened receptivity of COVID-19 communications. Additionally, having materials with fewer words and larger text improved accessibility. Creating easily shareable, accessible, and culturally tailored messaging materials increased public trust. Many CBO interviewees specifically named OHA's Safe + Strong campaign as an example of effective messaging.

While communication was generally effective with many populations, a theme from CBO interviews shows that there were populations who were not targeted well with communication efforts, including: individuals with disabilities, the LGBTQ+ community, those without access to or frequent use of technology, rural and frontier communities, and communities who speak languages that are less common in Oregon and for whom translation was not prioritized.

"They rolled out from local radio ads, and all over from radio to TV ads, and getting doctors because we know that hearing something like this from a doctor's perspective is a much stronger message than hearing it from someone who doesn't know what they're talking about. The messaging was definitely much stronger."

—CBO Interviewee

"We've heard from a lot of our trans community folks that they felt totally invisible throughout the whole thing"

—CBO Interviewee

Messaging about public health mandates

City, County, and Tribal Emergency Management, CCOs, and CBOs were surveyed and asked about their perception of OHA's communication with the public in each of the four stages identified in this study. Respondents were asked to rate the effectiveness of OHA's communications around areas such as stay-at-home orders, prohibition of public gatherings, prohibition of indoor dining, in-person school closures, isolation and quarantine guidance, and mask mandates for Stage 1. Overall, respondents indicated that they thought OHA's effectiveness was "mostly good" to "excellent." From CBO interviews and focus groups, we found that while CBOs noted many strengths of state public messaging, they wished communication had been stronger from the start. Specifically, CBOs expressed a need for information available in more languages from the very beginning of the pandemic, and lamented the absence of an early focus on local and culturally-tailored messaging. By the end of Stage 1, these initial gaps identified by CBO interviewees had become a regular part of communication efforts.

All survey respondent groups said that communication with the public from Stage 2 through Stage 4 was generally "good" to "excellent." The City, County, and Tribal Emergency Management respondents, along with CBO respondents, were more likely to rate the effectiveness of OHA's communication with the public as "fair" in Stage 4 compared with Stages 1 through 3. Communications in Stage 4 included information about continued isolation and quarantine guidance, mask mandates, vaccine availability, and lifting restrictions.

Some study participants also expressed frustration with inconsistencies in messaging about public health mandates. In some cases, this was due to conflicts between agency information, and in other cases, the rapidly disseminated and continually changing public health requirements created a perception of inconsistent guidance. Many CBO survey respondents (41%) reported inconsistent guidance from the federal and state government. Additionally, a majority of LPHA survey respondents reported inconsistent guidance from the federal government (82%) and the state government (69%); and City, County, and Tribal Emergency Management survey respondents also reported inconsistent guidance from the federal government (70%)

and the state government (65%). PHAB and CBO study participants noted that the changing guidelines and public health mandates were confusing, and CBO study participants specifically said that OHA and the Governor lacked transparency about why decisions were being made, specifically related to masking and reopening of businesses and public spaces, which put communities facing health disparities at greater risk. LPHA and City, County, and Tribal Emergency Management study participants reported that varying guidance from OHA and other state agencies such as OEM and OR-OSHA hindered the effectiveness of their response.

Widespread misinformation

While OHA communication and messaging to the public was generally seen as "good" by survey respondents, widespread disinformation about the pandemic proved to be problematic, according to information gathered through interviews and focus groups with OHA Staff and Managers, LPHAs, and CBOs. A politically divisive climate coinciding with a powerful disinformation campaign created a space where disinformation was often as prevalent or more widespread than the messages coming from public health professionals. To combat this, it was imperative that public health messages were timely and consistent. Unfortunately, our data shows that this was often not the case.

The rate at which information passed from one sector or entity to the next was not consistent, leading to conflicting messaging from one organization to another.

In interviews, a majority of OHA Directors spoke about the challenges of navigating communications and public messaging in the current political environment. Decisions were highly politicized at every level, from school closures, to mask mandates, to public gathering bans, to prioritization of communities for vaccine roll-out. In many cases, OHA Director interviewees felt a sense of helplessness around misinformation and the overall lack of trust and willingness to comply with public health mandates and guidance.

LPHA interviewees reported that local public health departments received information in different ways depending upon who was set up to receive that information in each county. This meant that information

dissemination could happen quickly in some places, but much slower in others, leading to frustration when some LPHAs would hear about new mandates or guidance from OHA or other LPHAs prior to actually receiving the new information themselves.

We often heard from CBO interviewees that the messenger could be as important as the message when it came to trust. With the amount of information being communicated from differing and sometimes conflicting sources, it was difficult for the public to know what information could be trusted. Throughout the state, messenger selection was not often optimal. According to CBO interviewees, using non-elected, professional spokespeople who were seen as non-political were more trusted. This was especially important given the difficult communication landscape created by the politicization and widespread disinformation previously described.

Partnering with community based organizations

CBOs, who were not responsible to enforce mandates but rather to help communities understand and meet the health requirements, often had a different experience than those described by LPHA and City, County, and Emergency Management study participants. A majority of CBO interviewees found two-way communication with OHA to be valuable. In fact, several CBO interviewees noted that they participated in weekly check-ins with OHA, which were opportunities to obtain information and stay up to date, offer feedback, and share concerns that were emerging in their communities. CBOs also appreciated the frequent data sharing from OHA and LPHAs, such as OHA's daily emails with case counts by county.

"Everyone's website updated at different times based on when they receive information. Therefore, the information that got shared with the public varied between CDC, Oregon Health Authority, various counties, etc. So I think you discredit yourself very quickly with the public when you do that."

—City and County EM Focus Group Participant

Interviewees also reported that OHA worked closely with CBOs to support them financially and to provide communications and technical assistance.

OHA set up communication channels for sharing data on COVID-19 in real-time. For example, OHA established the Community Engagement Team in the Public Health Division that led an extensive work effort to build relationships with culturally-specific and other community based organizations. The CBOs were then seen as the trusted voice within their communities and able to reach historically marginalized populations that OHA may not have been able to reach in a meaningful way.

Even with the weekly check-ins and other efforts, communication was difficult. The vast majority of CBO study participants named inconsistent and quickly changing information as a challenge. The time needed to receive, translate and culturally-tailor, and then disseminate the information to the community was a challenge for CBOs.

Joint information centers

The regional Joint Information Centers (JICs) used throughout the pandemic were often mentioned as key to help provide timely, consistent message development, and regional coordination. JICs provided a space where everyone, including LPHAs and Emergency Management teams, could develop, review, and refine regional messaging. This was recognized by both LPHAs and Emergency Management staff as critical to distributing

"They were giving up-to-date information during weekly check-ins. So I felt like there was a lot of clear communication."

—CBO Interviewee

"OHA provided cash support and a lot of technical assistance. They have been incredible partners and super responsive. They provided a ton of training."

—CBO Interviewee

"Information could change dramatically and it was hard to keep up and distribute that information, particularly to a population like ours, which is really low in technology."

—CBO Interviewee

a common message in each region of Oregon. See the Public Information Dissemination section of this report for more information about JICs from the State Agency and City and County Emergency Management participant perspective.

Looking ahead

After an initial lag, OHA was able to rapidly and substantially resource CBOs and provide technical assistance for messaging and communication. According to OHA Staff, Managers, and Directors and CBO study participants, having this relationship in place prior to a public health emergency would have made CBO response efforts more effective in the initial Stages. OHA participants have also expressed a desire to hire more permanent bilingual staff before the next public health emergency to expedite message translation.

Findings in this report suggest that it is imperative for OHA, LPHAs, CBOs, and CCOs to continue to work together to make timely, consistent, accessible, and culturally-tailored information a standard practice during public health emergencies.

As described in other sections of this report, CBOs will likely play a key role in reaching historically marginalized populations. The importance of geographically and culturally tailored communication strategies developed at the state and local level cannot be understated, especially when the traditional approach focusing on elected officials as trusted messengers was ineffective.

According to Emergency Management and LPHA study participants, the Joint Information Centers were a manageable and reliable strategy for consistent message development within regions, and these study participants would support the continuation of this strategy in the future. Overall, study participants highlighted inconsistent guidance from the State and Federal Governments as a deficiency in the public health system's response to the COVID-19 pandemic. It's clear from the data that rapid and transparent dissemination of information from OHA to LPHAs and other partners was difficult to establish but critical to

the effectiveness of pandemic response activities and the maintenance of public trust. Ensuring consistency in public health messaging will improve the response to future emergencies.

Additionally, though it was likely impossible to fully prepare for the disinformation campaign faced by public health during this emergency, politicization of public health that created and exacerbated community mistrust was identified by study participants as an overall deficiency in the public health system's response to COVID-19 pandemic. We now know that a plan to combat this challenge in the future will be a crucial piece of public health emergency response planning. While OHA hired a firm and worked with influencers throughout the state to combat this disinformation, findings in this report suggest that ample funding, planning, and relationship building needs to be bolstered in order to help amplify the voice of public health during an emergency response.

Public health modernization

Since 2013, Oregon has been rebuilding its governmental public health system to ensure essential public health protections for all people in Oregon through equitable, community-centered, and accountable services. Oregon established the framework for achieving a modern public health system in House Bill 3100 (2015). Public health modernization focuses on improving population health within four foundational program areas: communicable disease control, environmental health, prevention and health promotion, and access to clinical preventive services (OHA, 2022). Since 2017, the Oregon State Legislature has invested in public health modernization, allocating funds to local public health authorities (starting in 2017), federally recognized Tribes and the Urban Indian Health Program (starting in 2019), and community-based organizations (starting in 2021). Funding has increased for local public health authorities (LPHAs) in each biennium since 2017 and for federally recognized Tribes since 2019. In 2021, the Oregon Legislature allocated an additional \$45 million in funding. The additional investment brought the total investment in public health modernization to \$60.6 million.

Table 2: Distribution of legislative Public Health Modernization investments since 2017

Year	2017-2019	2019-2021	2021-2023
LPHAs	\$3.9 M	\$10.3 M	\$33.4 M
Federally recognized tribes and NARA		\$1.1 M	\$4.4 M
CBOs			\$10 M
OHA	\$1.10	\$4.2 M	\$12.8 M
Total	\$5 million	\$15.6 M	\$60.6 M

(OHA, 2022, p. 9)

Public health modernization implementation + the public health system's COVID-19 response

Respondents across multiple data sources (CBOs, LPHAs, OHA Directors, and OHA Staff and Managers) provided information about the outcomes of public health modernization, making it clear that efforts to rebuild the public health system had a consequential influence on pandemic operations and outcomes. Notably, public health modernization focused Oregon's public health system on shoring up seven foundational capabilities:

- Health equity and cultural responsiveness
- Assessment and epidemiology
- Community partnership development
- Emergency preparedness and response
- Communications
- Policy and planning
- Leadership and organizational competencies.

Comprehensibly, each of these capabilities were critical to the public health system's response to COVID-19. In particular, study participants pointed to emergency preparedness and response, partnership development, and health equity as core areas strengthened before 2020 through public health modernization.

Public-private partnerships

Public health modernization's emphasis and capacity building in creating and sustaining public-private partnerships set the stage for improved responses to the COVID-19 crisis. The efficacy of public-private partnerships and, specifically, engaging community-based organizations was pronounced and echoed by numerous study participants. OHA Staff, Managers, and Directors reported strong partnerships with CBOs and health systems, and LPHAs reported that during the initial stages of the pandemic, a steady flow of

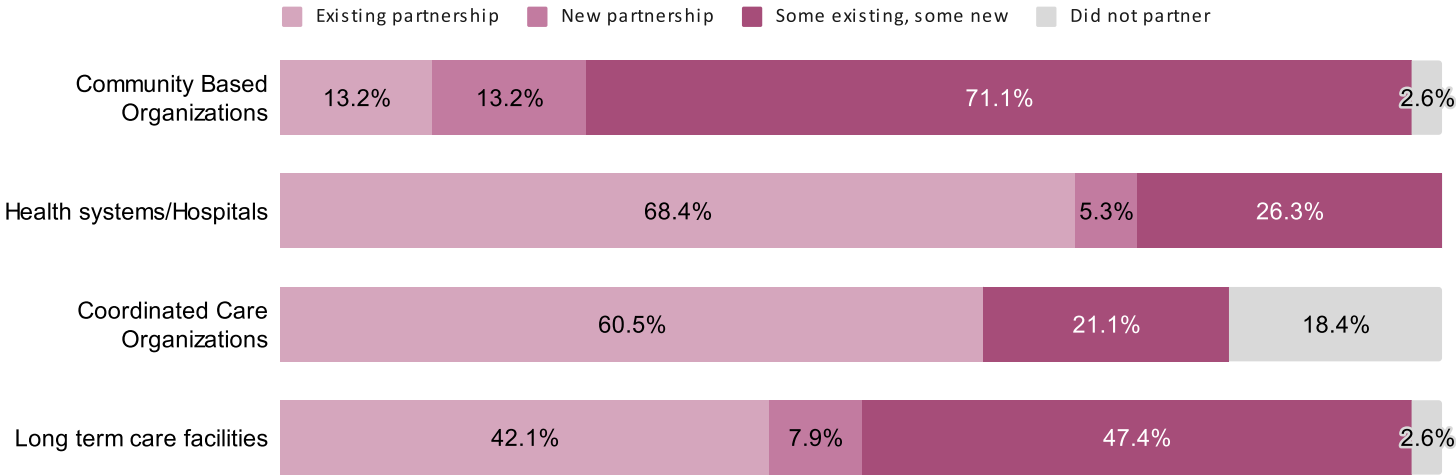
funding, including modernization funding, allowed LPHAs to contract with CBOs for wraparound support services and other pandemic-specific activities. During the second stage of the pandemic, efforts to vaccinate the entire adult population were coordinated by LPHAs and, to a great extent, facilitated through public-private partnerships. Some LPHA study participants had a small number of partners, and others named a long list of CBOs, clinics, schools, and others that helped support their communities throughout the pandemic response. Partners noted by LPHAs included:

- **CBOs** were involved in many aspects of the pandemic as noted throughout this report. CBOs helped communicate with the public in general and targeted ways; reached vulnerable populations like the unhoused and those with MH/SUD; staffed vaccination and testing events; distributed PPE; and provided wraparound supports, such as food box deliveries;
- **Hospitals and health care entities** such as hospitals and health systems partnered with OHA and LPHAs throughout the pandemic; at the local level, however, regional differences occurred with respect to the role of health system partners in supporting public health requirements and requirements and protections including vaccination;
- **Community health workers** aided in getting messaging out, directing people to vaccination resources, and helping them navigate through the changing requirements;
- **Fire and EMS:** while not necessary a public-private partnership, some LPHAs said they partnered with their first responders to provide vaccines in a large county where not everyone could easily access the main hospital; and
- **Churches** were sometimes engaged in vaccine clinics and food drives.

Not surprisingly, all LPHA survey respondents reported partnering with health systems and hospitals on some aspect of the pandemic response, and the vast majority reported partnerships with CBOs and long-term care facilities. LPHAs reported collaborating with hospitals and health systems for COVID-19 testing, PPE distribution, vaccination, to a lesser extent, targeted health equity response, population-specific communication, and supporting the enforcement of public health mandates (see Figure 24).

Long-term care facilities presented specific public health challenges in the pandemic because they were congregate settings that served individuals at greater risk of severe complications from COVID-19. LPHAs leveraged existing partnerships and created new partnerships to activate and maintain appropriate public health responses. Some LPHA and OHA interviewees reported missteps early on in the pandemic related to long-term care facilities, but collaborating with these facilities was reported as a necessity and an opportunity.

Figure 24: Types of LPHA partnerships for COVID-19 response (N=38)

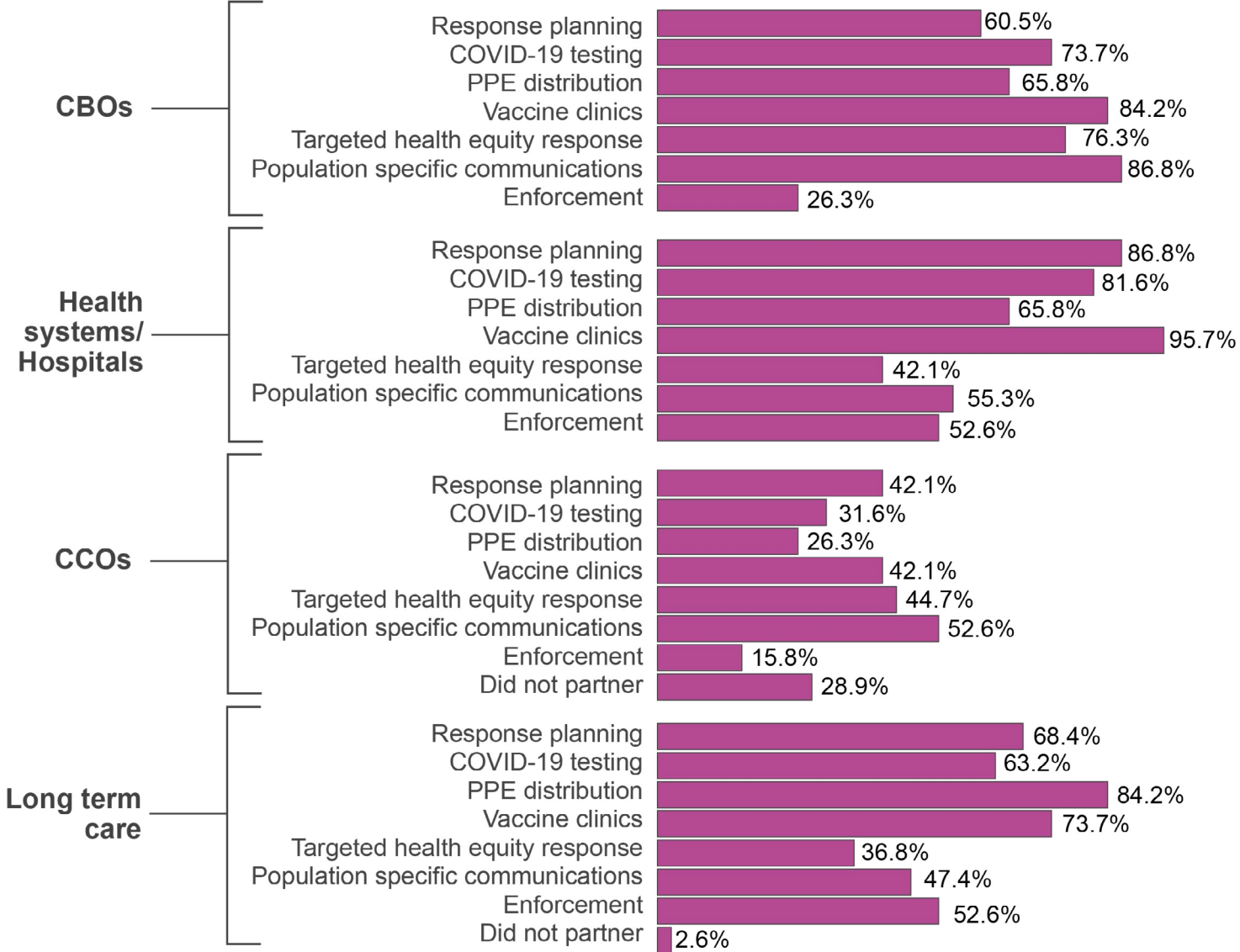


LPHAs reported fewer partnerships with CBOs going into the pandemic, and CBOs' experiences in partnerships with LPHAs varied. Some CBOs encountered pushback when they tried to offer feedback and share ideas for new ways of approaching work in the community. In contrast, others felt that their feedback was welcome, and there was a collaborative energy of all partners being "in the work" together to have a positive impact. It is possible that LPHAs' capacity to partner with CBOs improved over the course of the pandemic as more new partnerships were developed and advanced through the stages of effective collaboration, including trust building.

Tribal Nation interviewees also reported a wide range of partnerships that were important to their response to the COVID-19 pandemic. The most frequently mentioned partnerships were with other Tribal Nations, CBOs, LPHAs, OHA, IHS, long-term care facilities, and schools. Other partnerships that were mentioned were with local public safety, community workers, local hospitals, Oregon DHS, correctional facilities, NPAIHB, the National Guard, the Governor's office, and the CDC. These partnerships served a variety of functions, including:

- Coordinating COVID-19 testing and vaccination;
- Regular meetings to share information;
- Acquiring PPE, testing supplies, and vaccination supplies;
- Discussing funding processes; and
- Coordinating care for community members.

Figure 25: Types of activities LPHAs partnered on (N=38)



Cross-jurisdictional work

Some OHA Staff and Managers and LPHA interviewees noted that regional staffing structures, with shared staff serving several counties (specifically in the domain of epidemiology), were beneficial because they had been put in place prior to the pandemic and led to enhanced capabilities throughout the pandemic.

Immunization capacity

Several OHA Staff and Managers and LPHA interviewees opined that a shift in local health departments' provision of clinical preventive services (prompted by public health modernization) may have led to a lack of public health infrastructure for population-level vaccine events; the study team was not able to gather sufficient evidence about the implications of public health modernization. The question of local-level capacity for vaccinations and the division of labor among LPHAs, health care providers, and CBOs will be examined in Report 2.

Equity and centering community

Pages 34-47 in this report provide details about health equity findings from this study phase. However, it is essential to note that governmental agency study participants often tied increased capability and emphasis on centering community needs to public health modernization efforts. Many study participants reported that the statewide public health system's focus on the equity and cultural responsiveness foundational capability likely improved Oregon's response to the pandemic. Many noted that while there is still much work to be done to address health inequities in Oregon, a focus on health equity and developing partnerships with organizations that work directly with the community was essential.

Community-based organizations were not specifically asked about public health modernization because for most CBO study participants, the terminology was not routinely utilized within their scope; however, CBOs reported actively seeking partnerships with governmental public health organizations (i.e., state and local public health) to support the public health response and serve their communities. As noted above,

experiences of CBOs vary with respect to how deftly they were integrated into the public health response.

As can be seen in Figure 25 on page 157, LPHA's partnered with CBOs in a compendium of public health response activities including: response planning, COVID-19 testing, PPE distribution, vaccination, targeted health equity response, population specific communication and, to a lesser extent, supporting enforcement of public health mandates.

Overall impressions of state health department functionality

Public health modernization outcomes, specifically leadership and organizational competencies, can be evaluated through the lens of the governmental public health agencies' ability to respond to a public health emergency. For this phase of the study, questions rating response effectiveness focused on the Oregon Health Authority, Public Health Division's leadership and response activities. In a survey, CBO and CCO (N=66) respondents generally gave high ratings for OHA's ability to engage in COVID-19 response activities (see Figure(s) 26-27). Expressly, CCO respondents indicated that OHA was most successful at performing the tasks that the public health system was expected to accomplish, making connections with other organizations, and providing information across local health systems.

"Public health modernization is an approach for revolutionizing how we do public health and centering community, centering equity, and sharing power and leadership. Being able to fund community partners is something that OHA hasn't done before. To take dollars and put them into black and brown communities to support pandemic..."

—OHA Staff Interviewee

"Our team really prioritized equity and accessibility. It certainly wasn't perfect, but it was more foundational instead of something to think about on the side."

—OHA Manager Interviewee

Figure 26: CBO respondents rating how well OHA was able to engage in the following activities during COVID-19 response (N=59)

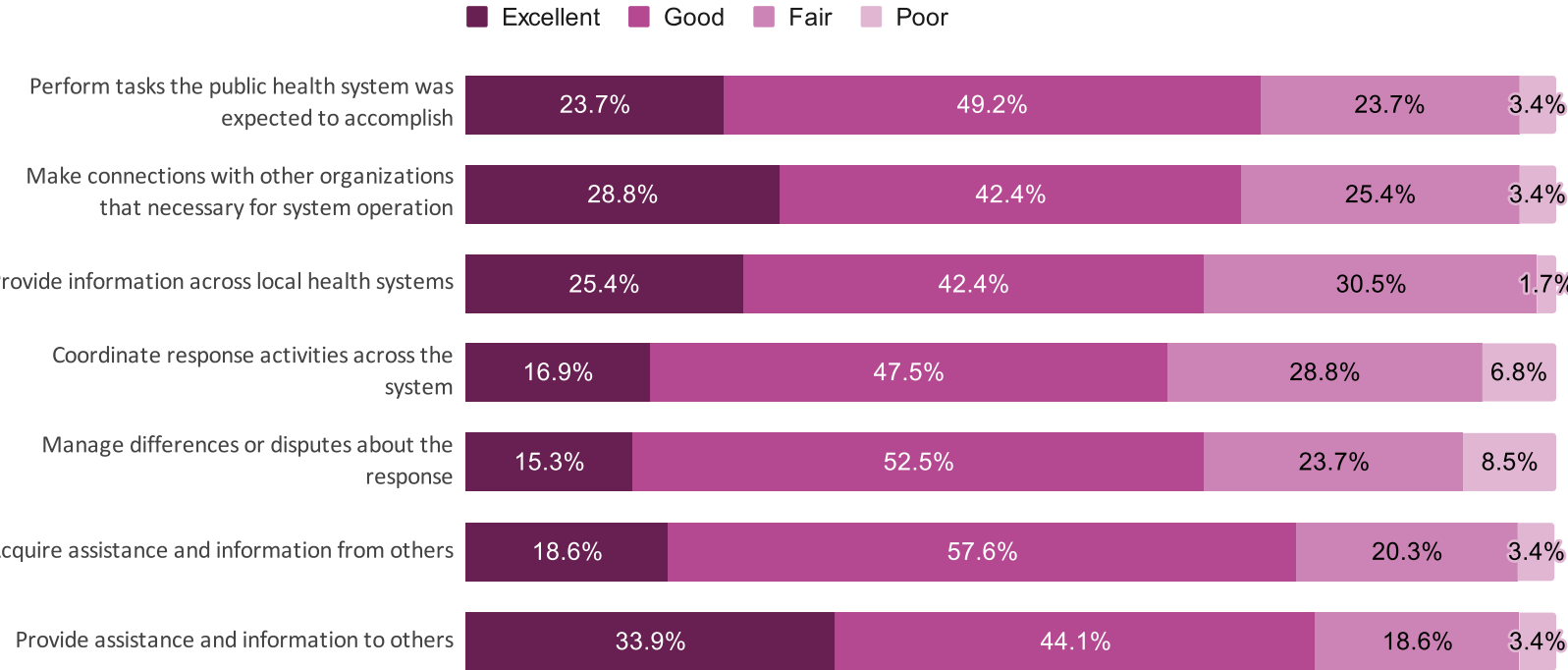
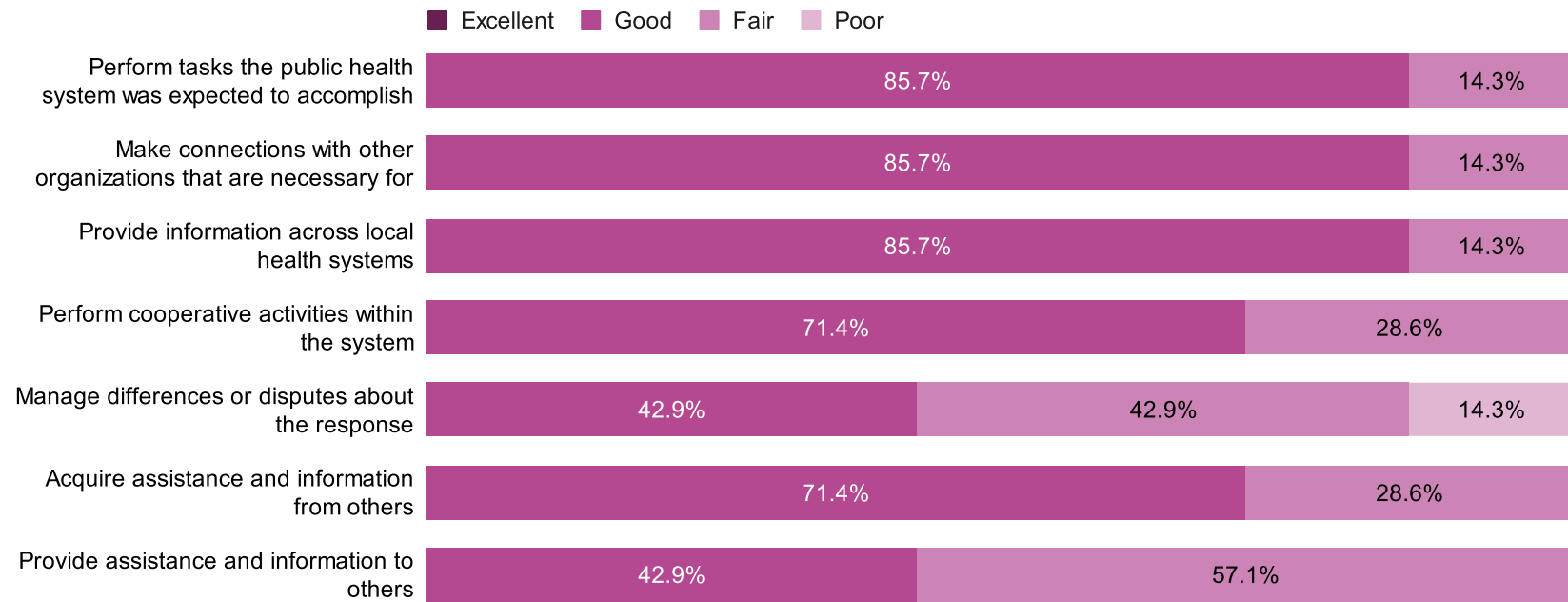
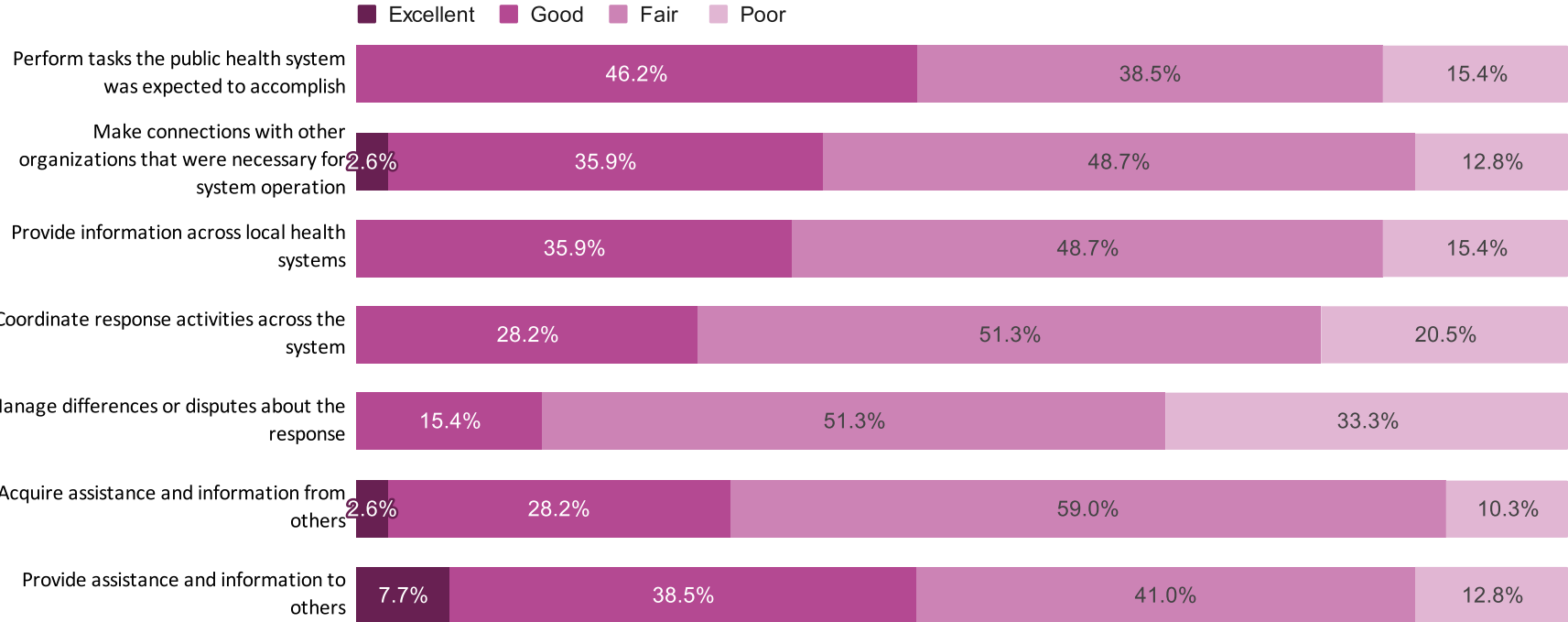


Figure 27: CCO respondents rating how well OHA was able to engage in the following activities during covid-19 response (N=7)



LPHAs were less satisfied with OHA’s ability to conduct public health activities, with over half of LPHAs surveyed rating OHA as poor or fair in all activities (see Figure 28). And over half of CCOs (in agreement with LPHAs) rated OHA as poor or fair at managing differences or disputes about the response (see Figure 27).

Figure 28: LPHA respondents rating how well OHA was able to engage in the following activities during covid-19 response (N=39)



Data accessibility + availability

All CCO survey respondents (n = 7/7) rated data accessibility and availability in the COVID-19 response as "good" (see Appendix H). Many OHA Staff and Manager interviewees described the OHA data team as high functioning, and noted that they had been building their capacity prior to the pandemic. Several study participants agreed that data sharing was timely, responsive, and transparent. One Healthcare Association interviewee also felt that OHA did a great job with data transparency by sharing the sources of the information disseminated and by maintaining and updating excellent data dashboards. In contrast, several LPHA respondents noted that key databases used to track pandemic data in real time were difficult to use or prone to crashing.

Establishing the CRRU

OHA Staff and Managers and State Agency study participants described establishing the COVID-19 Response and Recovery Unit (CRRU) as an important facilitator in the pandemic response. The CRRU was described as a single point of contact where people knew their questions would be answered or their concerns heard. Study participants also reported that staff and leadership across multiple agencies participated in the CRRU, and because of this, the CRRU supported coordination across multiple agencies and levels of leadership. In contrast, some State Agencies reported that CRRU was not as accessible as they would have hoped and questioned whether or not it was effective at the enterprise level. There is little doubt that CRRU performed key functions with success in centering equity and science-based decision making.

"I think them dedicating resources to those data, that data infrastructure, was super important and super helpful for us. I think they did a really good job on the data front."

—Health Care Assoc. Interviewee

Engaging with feedback

Starting in March of 2021, OHA created a COVID-19 feedback system and team for the residents of Oregon to ask questions about public health mandates, compliance with mandates, and offer concerns and recommendations regarding COVID-19. Importantly, this system consolidated and streamlined OHA's work in supporting the public through developing and operating a central repository for questions and a system for tracking OHA's responses. OHA's approach in creating this feedback system was to further their goal of centering equity as a part of the public health system response to COVID-19. The OHA COVID-19 feedback team facilitated the process and collaborated across OHA and other partners to follow-up on and resolve every unique piece of feedback received. Throughout the pandemic the COVID-19 feedback team received and resolved over 4,300 pieces of feedback from Oregonians. Steps that the team took to resolve issues included providing information to clarify public health mandates, aggregating feedback and synthesizing it for the CRRU's awareness and action, elevating questions and concerns to other agencies and partners, and referring compliance-related needs to the appropriate governance and licensing authorities. OHA's primary enforcement partners, Oregon Occupational Safety and Health Administration (OR-OSHA) and OLCC used this feedback system to understand Oregon's key enforcement issues. The following enforcement activities occurred in response to the feedback people provided: tracking complaints, investigating, providing education, issuing fines, revoking licenses, and providing referrals to other enforcement agencies.

COVID-19 health outcomes

COVID-19 health outcomes of interest for Report 1 include the following: measures of community spread, measures of disease severity, strain on the hospital system, and vaccination metrics. State-level findings are reported below. Due to the large number of outcomes analyzed for this study, additional COVID-19 health outcomes, including those by geography (e.g., region, county) and sociodemographic characteristics (e.g., race, ethnicity, sex, age, disability) can be found in Appendix J.

Overall Summary

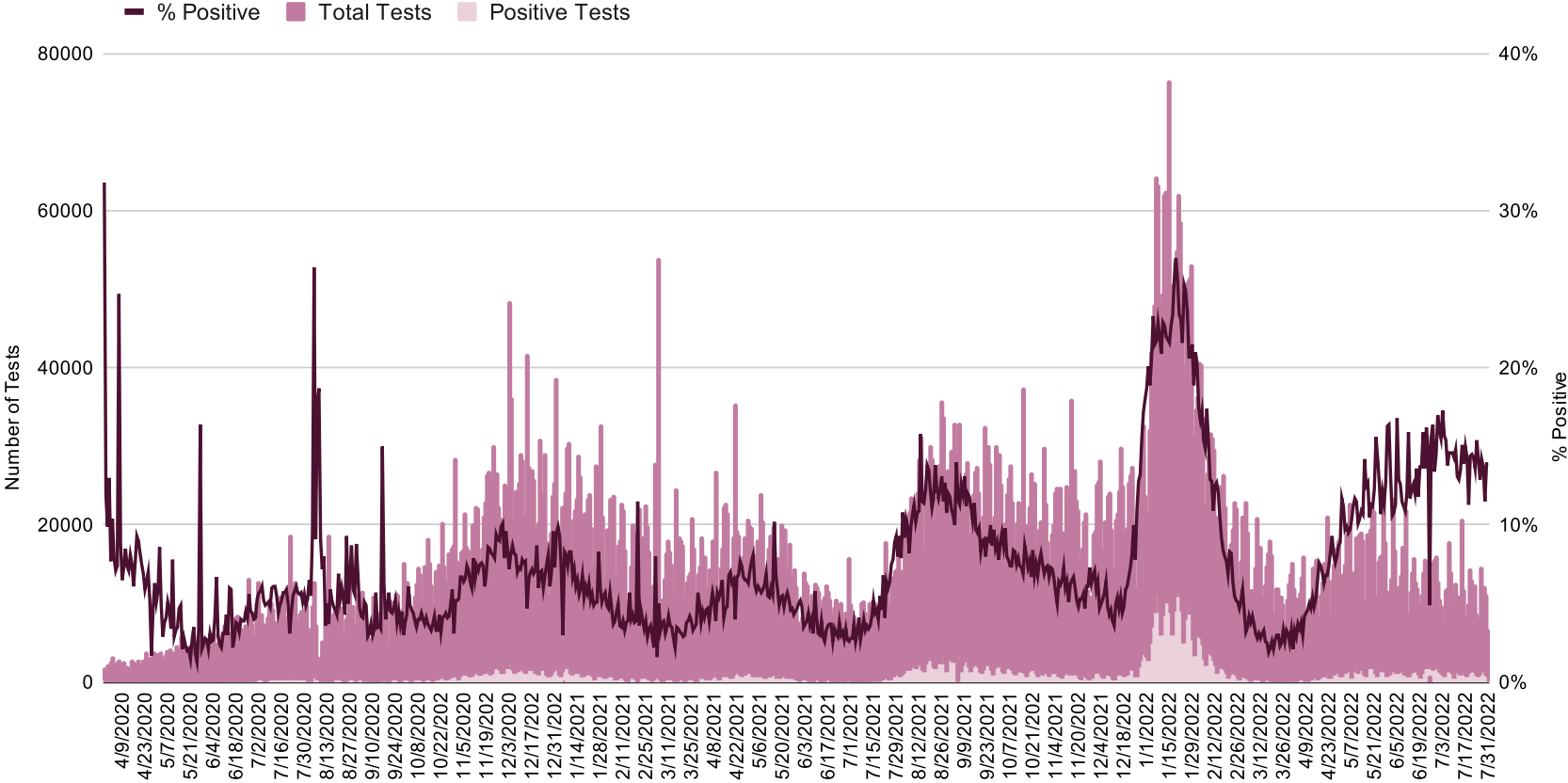
As of the week of July 31, 2022, OHA recorded 860,300 COVID-19 cases in Oregon. There were 34,376 hospitalizations (4%) and 8,291 died. The COVID-19 case rate peaked at 1,332,25 during the week of January 10, 2022.

Testing Metrics

Figure 29 presents the total number of COVID-19 tests administered daily with both positive and negative results, overlaid with the percent of tests that were positive daily. Tests are counted by the date the test report (i.e., electronic laboratory report) was received by public health. Test counts reflect the number of individual tests, not the number of individuals tested. The percent positivity was higher at the beginning of the pandemic when testing was limited to people who most likely had COVID-19.

In Stage 1, a total of 2,035,249 COVID-19 tests were administered. The highest numbers of tests in this stage were reported on November 23, 2020 with 27,723 tests. In this stage, the number of positive tests peaked on August 5, 2020 at 26.4%. In Stage 2, a total of 4,305,984 COVID-19 tests were administered. On March 4, 2021, there were 52,906 tests, which was the highest number of tests administered in this stage. In Stage 3, a total of 4,129,239 COVID-19 tests were administered. On January 14, 2022, 62,799 tests were administered, which was the largest volume of tests administered in a single day during this stage. In Stage 4, 1,772,921 COVID-19 tests were reported. There were 21,943 tests reported on May 26, 2022, which was the largest number of tests reported in a single day during this stage.

Figure 29: Oregon COVID-19 testing over time

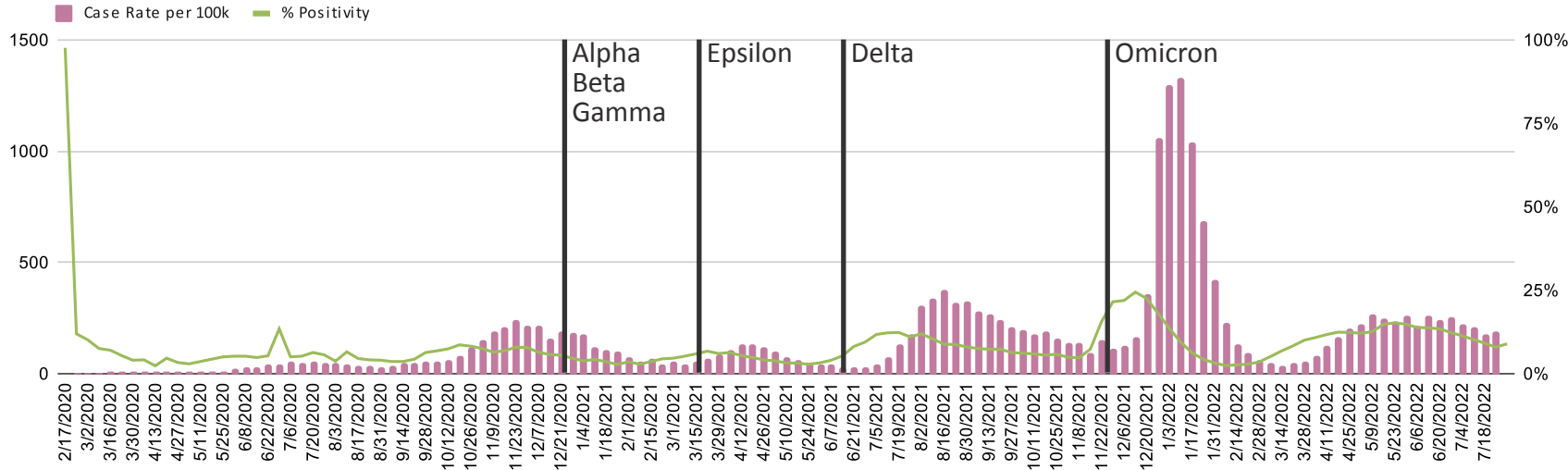


COVID-19 cases

COVID-19 case rate

Figure 30 reports the case rate per 100,000 (the column chart) and percent of COVID-19 tests that were positive over time (the line chart). The state of Oregon saw six distinct waves or surges of COVID-19 cases. The first wave of COVID-19 cases was a smaller wave that occurred June-August 2020 and peaked the week of July 6, 2020 with a case rate of 56.04 per 100,000. The second wave that occurred between September and December 2020 was larger and peaked the week of November 23, 2020 with a case rate of 239.98 per 100,000. In Stage 2, the third wave occurred between April and June 2021, with the highest case rate (132.07 per 100,000) occurring the week of April 19, 2021. The fourth wave was seen between July-November 2021 and occurred during increasing incidence of the Delta variant. In the fourth wave, the highest case rate yet (379.08 per 100,000) was seen, which occurred during the peak of this wave (the week of August 16, 2021). Case rates after this wave never quite reached the low rates after the third wave. During the spread of the Omicron variant, the fifth wave occurred in Oregon between December 2021 and February 2022. This fifth wave peaked the week of January 10, 2022 with a case rate of 1,332.25 per 100,000. After this fifth wave, case rates reached rates similar to those seen in late February and March of 2021 (case rate of 37.41 per 100,000 the week of March 14, 2022). The sixth wave started in March 2022 and appears to be ongoing as of July 2022 data.

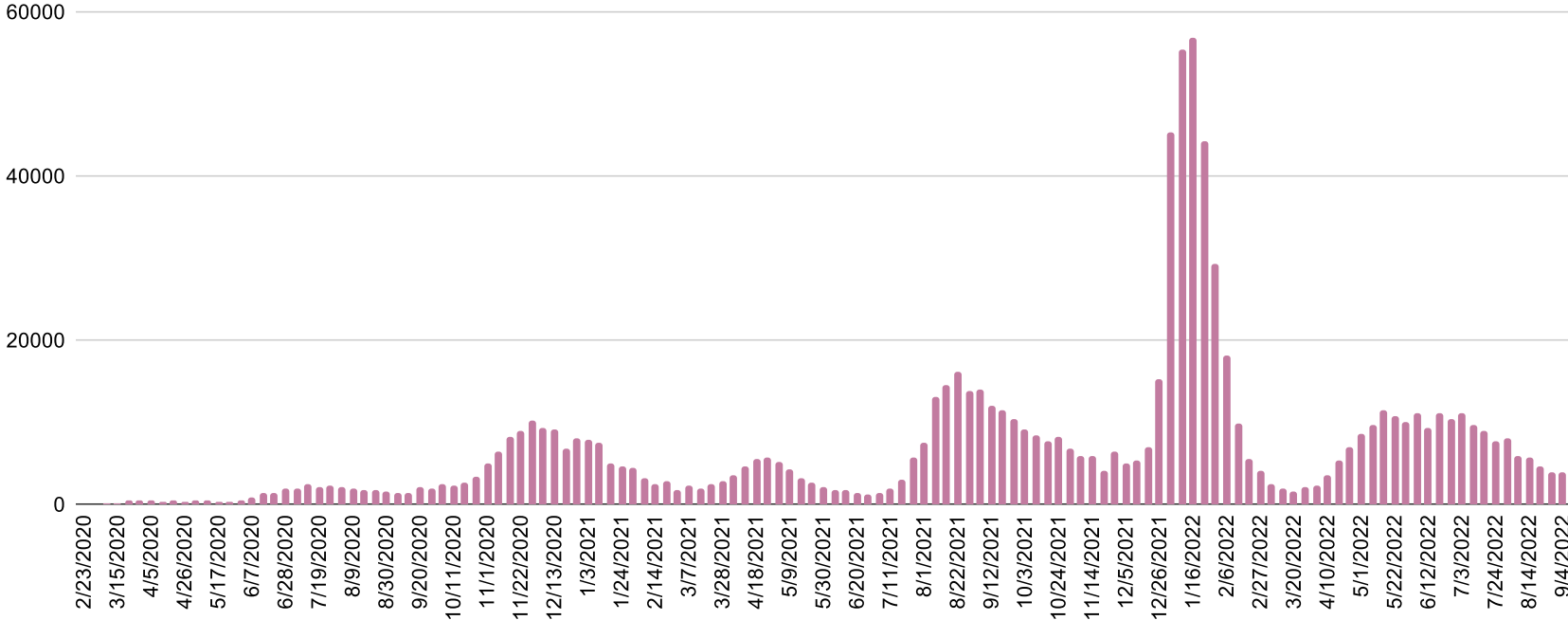
Figure 30: Oregon COVID-19 case rates over time with variants of concern



COVID-19 case counts

Figure 31 displays the weekly number of COVID-19 case counts. As of the week of July 31, 2022, there have been 860,300 recorded cases of COVID-19 in Oregon. There were approximately 73,825 COVID-19 cases in Oregon during Stage 1, 197,913 COVID-19 cases in Stage 2, 420,794 COVID-19 cases in Stage 3, and 167,768 COVID-19 cases in Stage 4. The number of COVID-19 cases more than doubled in Stage 2 and again more than doubled in Stage 3. In Stage 3, the largest COVID-19 case count peaked at 56,842 during the week of January 16, 2022. Similar to case rates, the chart below shows six waves of COVID-19.

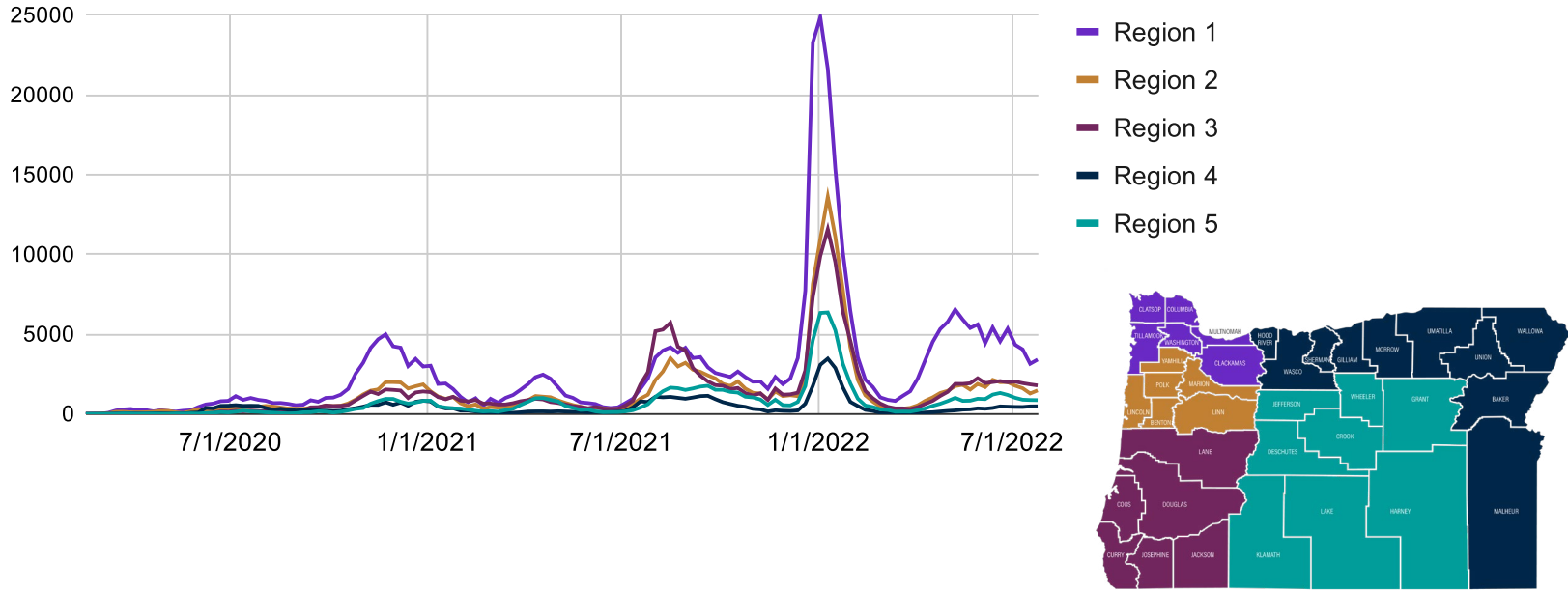
Figure 31: Oregon weekly COVID-19 cases over time



Regional cases over time

Figure 32 is a multi-series line chart that presents weekly COVID-19 cases for each region. Similar to statewide COVID-19 cases, there were 6 distinct waves. Region 1 had the highest frequency of cases across all waves except for the fourth (Delta) wave, where Region 3 had the highest number of cases. All regions experienced the highest number of COVID-19 cases during the fifth (Omicron) wave. Region 1 saw the largest number of COVID-19 cases the week of January 3, 2022, a week prior to other regions experiencing their peak. During the week of January 3, 2022, Region 1 saw 24,871 COVID-19 cases. Regions 2, 3, 4, and 5 experienced the highest number of weekly COVID-19 cases the week of January 10, 2022. During this week, Region 2 had 13,617 cases, Region 3 had 11,580 COVID-19 cases, Region 4 had 3,468 cases, and Region 5 had 6,364 cases.

Figure 32: Weekly COVID-19 cases over time by region



Disease severity

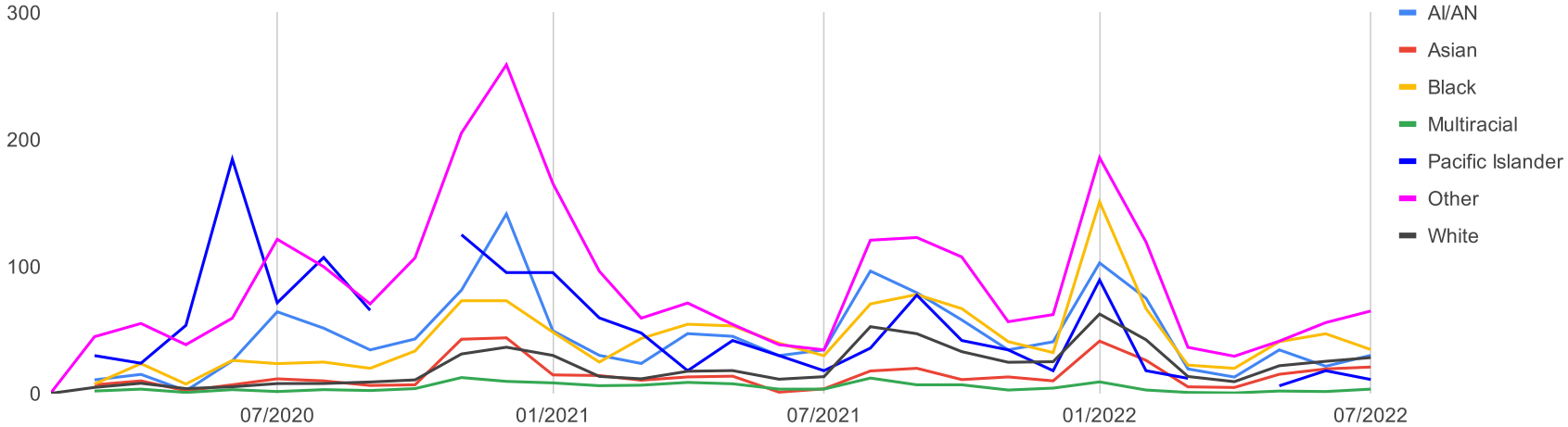
Number of hospitalized COVID-19 patients, by sex

Since the start of the pandemic until August 11, 2022, there were a total of 442,353 COVID-19 cases among females. Of these 442,353 cases, a total of 16,370 females (3.7%) were hospitalized with COVID-19. During this same time frame, there were 389,540 COVID-19 cases among males, of which, 17,665 (4.5%) males were hospitalized with COVID-19. Hospitalization status is unknown for 282,151 COVID-19 cases that were female and 246,957 COVID-19 cases that were male. Current data suggest that males were more frequently hospitalized in comparison to females. Given the large number of COVID-19 cases in which hospitalization status is unknown, however, it cannot be said with certainty that males were more likely to be hospitalized in comparison to females. To date, there have been zero hospitalizations among non-binary individuals with COVID-19 (80 non-binary individual's hospitalization status is unknown and 128 were not hospitalized). A total of 28,244 COVID-19 cases have occurred among individuals who refused to provide their sex or for which sex is unknown. There have been 235 hospitalizations of individuals whose sex was unknown. The hospitalization status is unknown for 21,611 individuals whose sex is unknown or who refused to provide their sex.

Hospitalization rate, by race

Figure 33 displays the COVID-19 hospitalization rate by race. Consistently throughout the COVID-19 pandemic, hospitalization rates have been highest among individuals who identify as American Indian/Alaskan Native, Black, Pacific Islander, and Other in comparison to those individuals who identify as Asian, White, or Multiracial. During Stage 1, Pacific Islanders had the highest hospitalization rate, peaking the month of June 2020, with 184.5 hospitalizations per 100,000. In Stage 2, individuals who identified as Other had the highest hospitalization rate, which peaked during December 2020 at 258.9 per 100,000 (n=371). In Stage 3 individuals who identified as Other had the highest hospitalization rate, which peaked during January 2022 at 185.7 per 100,000 (n=266). In Stage 4, individuals who identified as Other had the highest hospitalization rate, which peaked during July 2022 at 64.9 per 100,000 (n=93).

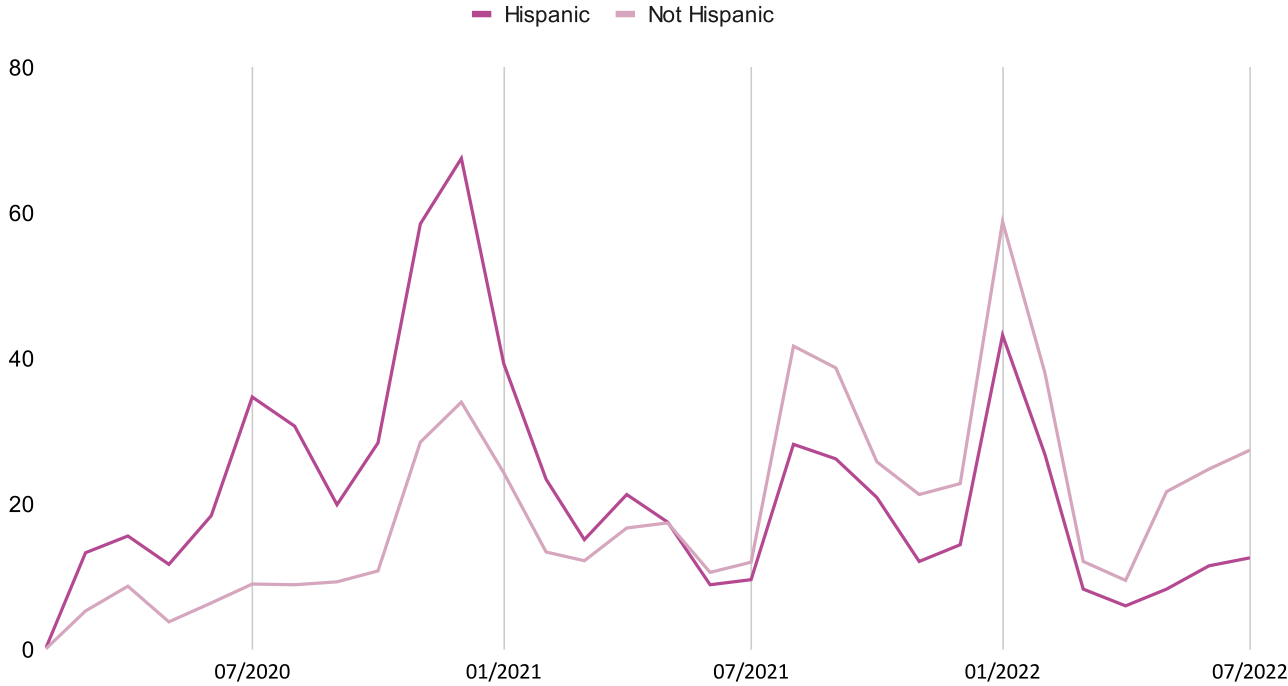
Figure 33: Hospitalization rate per 100,000 by race



Hospitalization rate, by ethnicity

Figure 34 displays the COVID-19 hospitalization rate by ethnicity. During Stage 1 of the pandemic, the hospitalization rate among Hispanic individuals peaked during the month of July 2020, with a rate of 34.7 per 100,000 (n=196). In Stage 2, the hospitalization rate among Hispanic individuals peaked during December 2020, with a rate of 67.5 per 100,000 (n=381). During Stages 1 and 2, hospitalization rates of Hispanic individuals were higher (in some instances more than double than those of non-Hispanic individuals). During Stages 3 and 4, hospitalizations of Hispanic individuals started to align with those non-Hispanic individuals.

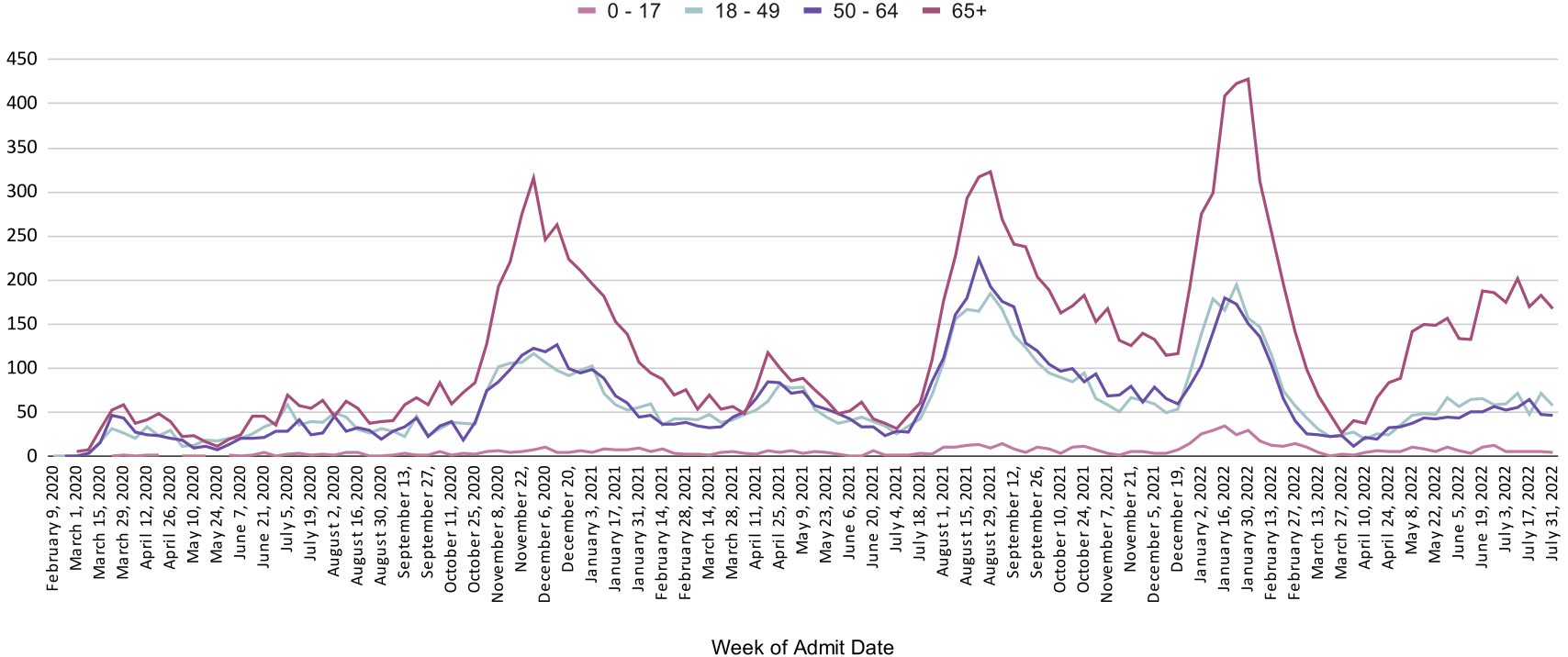
Figure 34: Hospitalization rate per 100,000 by ethnicity



Number of hospitalized COVID-19 positive patients, by age

Figure 35 is a multi-series line chart displaying the total number of weekly hospitalizations by age category since the start of the COVID-19 pandemic until July 2022. Across all stages of the COVID-19 pandemic, adults aged 65 and over had the largest number of hospitalizations in Oregon, with a total of 15,870 individuals aged 65 and over ever being hospitalized. Additionally adults aged 65 and over represent approximately half (48.7%) of all COVID-19 hospitalizations in Oregon. Adults 18-49 years of age represented the second highest percentage of COVID-19 hospitalizations (24.5%). Adults 18-49 years of age had a total of 7,996 hospitalizations, of which most (n=2,697) occurred during Stage 2. Although adults 50-64 years of age experienced the second highest number of hospitalizations in Stage 1 and 2, they accounted for 24.3% of hospitalizations (n=7,909). The highest number of hospitalizations among 50-64 year olds occurred in Stage 2 (n=2,903), peaking the week of August 22, 2021, with 224 hospitalizations. Children aged 0-17 years of age had the lowest number of hospitalizations (n=820), representing 2.5% of all COVID-19 hospitalizations in Oregon. Among 0-17 year olds, there were 820 hospitalizations, with the highest number of hospitalizations occurring in Stage 3 (n=337). The number of hospitalizations among 0-17 year olds peaked the week of January 16, 2022 with 35 hospitalizations.

Figure 35: Hospitalizations by age category over time



Total COVID-19 deaths

Figure 36 is a column chart that displays the number of monthly COVID-19 deaths over time. As of the week of July 31st, 2022, there have been 8,291 COVID-19 deaths in the state of Oregon. Between March 2020 and July 2022, there were 8,261 COVID-19 deaths. September 2021 and February 2022 were the months with the highest number of COVID-19 deaths (646 and 460, respectively).

Figure 36: Monthly COVID-19 deaths over time

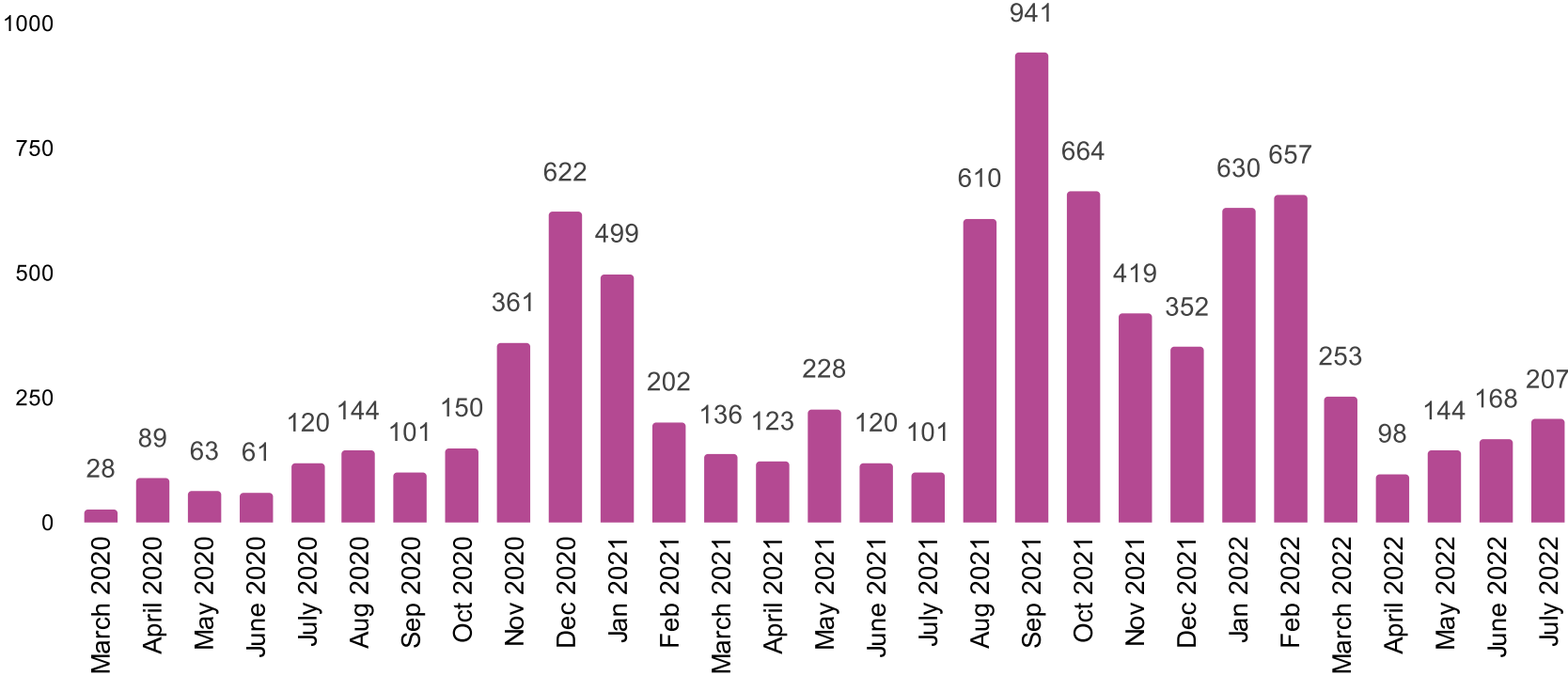
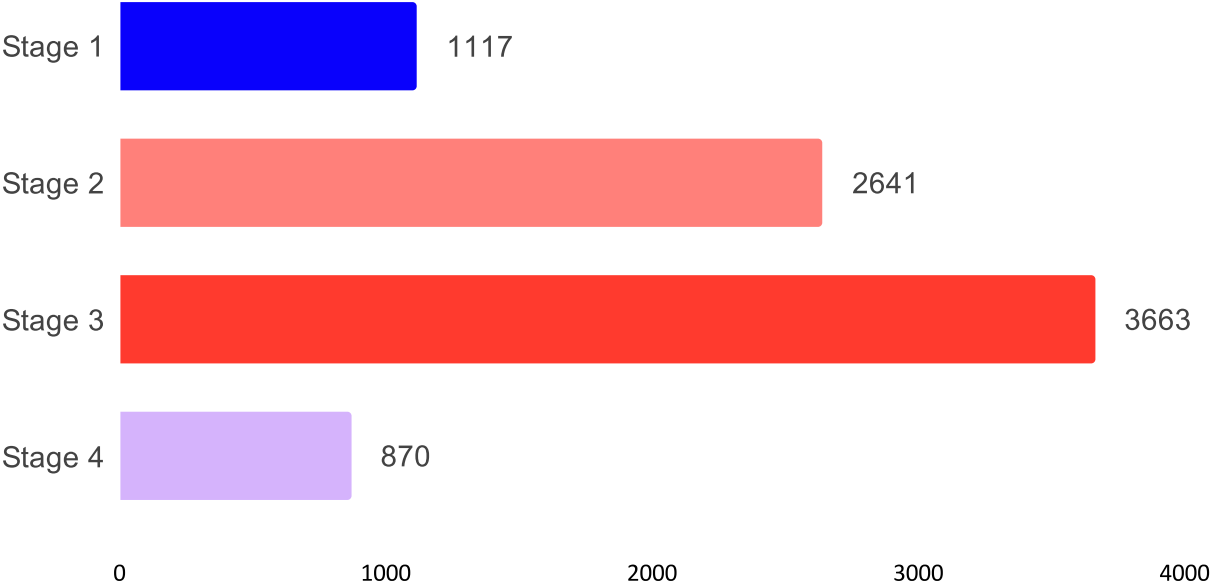


Figure 37 is a column chart that displays the total number of COVID-19 deaths in each stage. Between March 2020 and July 2022, there were a total of 8,291 COVID-19 deaths in the state of Oregon. The most (44.2%, n=3,663) COVID-19 deaths occurred in Stage 3, which was also the stage marked with the highest number of COVID-19 cases. Stage 2 saw the second highest number of COVID-19 deaths, with 31.8% (n=2,641) deaths occurring during this stage.

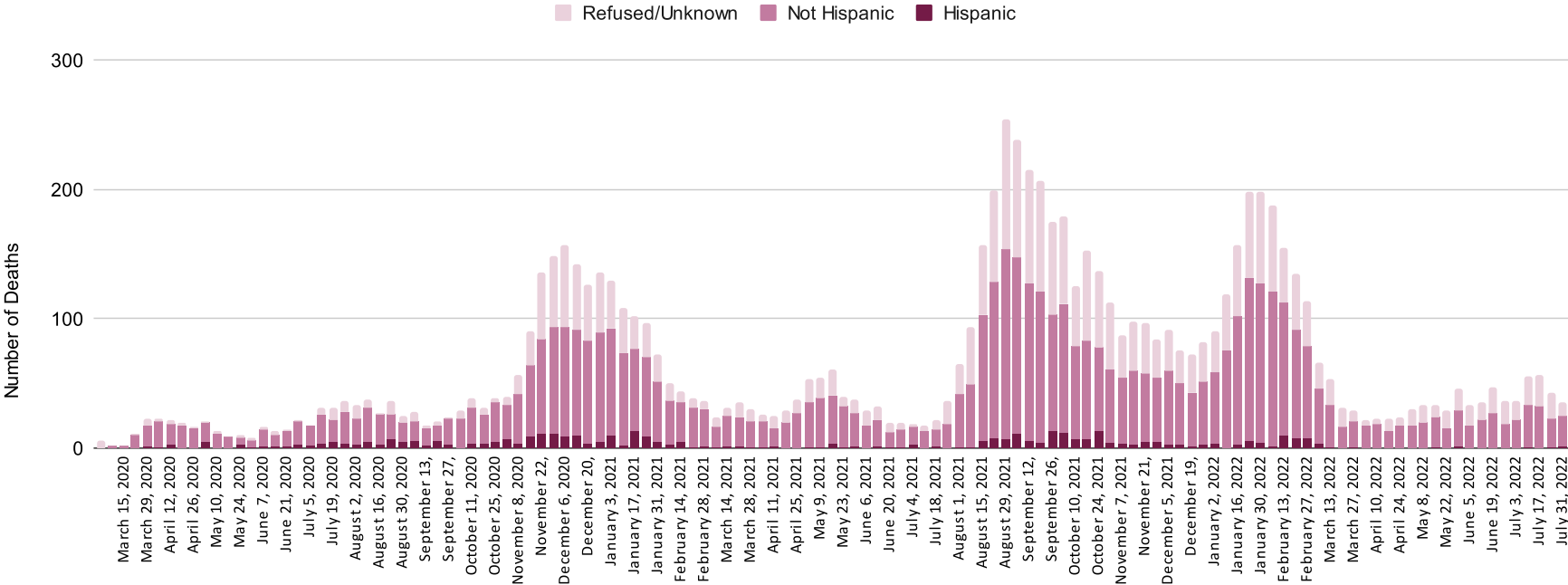
Figure 37: Total COVID-19 deaths in Oregon by stage



Total COVID-19 deaths, by ethnicity

Figure 38 is a stacked column chart that displays the total number of weekly deaths by ethnicity over time. Approximately 13% of Oregonians identify as Hispanic or Latino/a/x ethnicity, but individuals who identify as Hispanic have made up approximately 5.3% of all COVID-19 deaths in Oregon. In Stage 1, there were approximately 139 COVID-19 deaths among Hispanic individuals. In Stage 2, there were approximately 130 deaths among Hispanic individuals. In Stage 3, there were approximately 154 deaths among Hispanic individuals. In Stage 4, COVID-19 deaths among Hispanic individuals started to decline substantially. As of July 2022, there were 16 deaths among Hispanic individuals that occurred during Stage 4. As of the week of July 31, 2022, there have been a total of 439 COVID-19 deaths among Hispanic individuals, giving an overall death rate of 77.81 per 100,000.

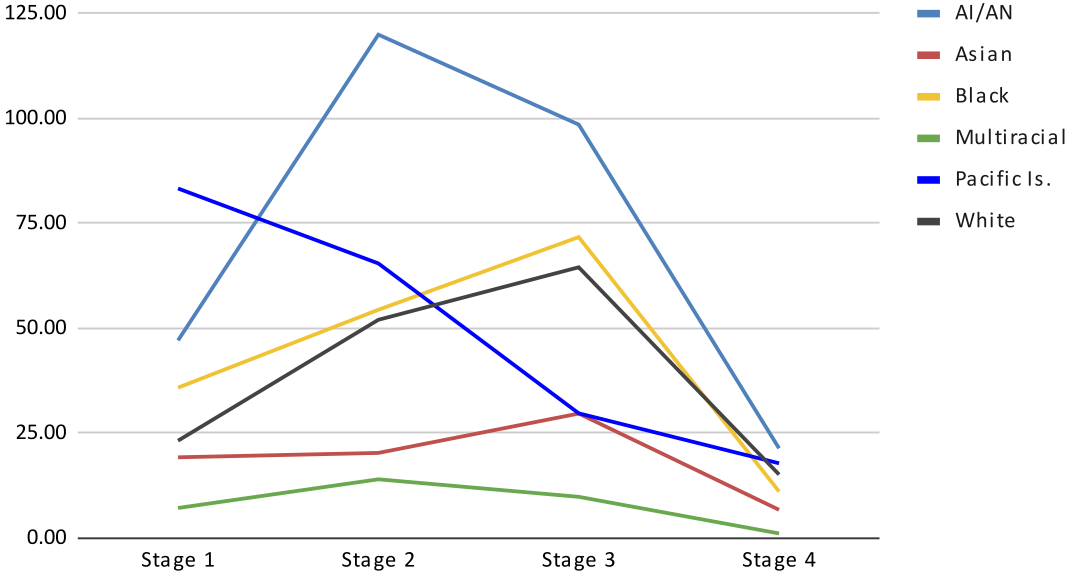
Figure 38: COVID-19 deaths by ethnicity over time



Total COVID-19 death rate, by stage and race

Figure 39 is a multi-series line chart that displays the COVID-19 death rate (per 100,000) for each stage by race. In Stage 1, individuals who identified as Pacific Islander had the highest death rate (83.33 per 100,000), followed by individuals who identified as American Indian or Alaskan Native (47.14 per 100,000). In Stage 2, however, individuals who identify as American Indian or Alaskan Native had the highest death rate (119.99 per 100,000), followed by individuals who identify as Pacific Islander (65.48 per 100,000). In Stage 3, individuals who identify as American Indian or Alaskan Native continued to have the highest death rate (98.56 per 100,000), followed by Black individuals (71.76 per 100,000). In Stage 4, individuals who identified as American Indian or Alaskan Native had the highest death rate (21.43 per 100,000) followed by Pacific Islander (17.86 per 100,000). The death rate for all races except American Indian/Alaskan Native, Pacific Islanders, and Multiracial individuals peaked during Stage 3.

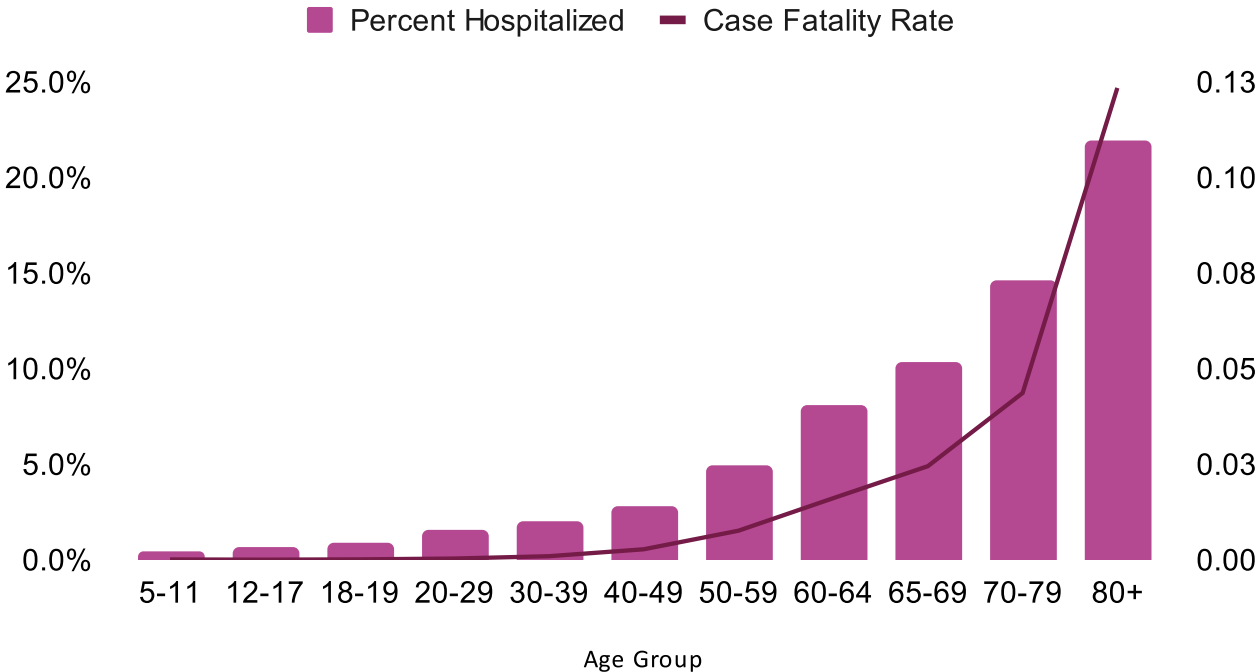
Figure 39: COVID-19 death rate by stage and race



Total COVID-19 deaths and hospitalizations, by age group

Figure 40 is a combination chart displaying the percent of COVID-19 patients that were hospitalized (the column chart) and case fatality (the line chart) by age group. In Figure 40, we see that as age increases, so does COVID-19 case fatality. The highest rate of COVID-19 case fatality was seen among individuals aged 80+, with a rate of 12.3% as of July 2022. As of July 2022, there have been five COVID-19 deaths among children less than 18 years of age. Among individuals 18 years of age and older, there have been 8,270 COVID-19 deaths as of the week of July 31, 2022. Hospitalizations were highest among individuals 80 years of age or older, for which there was a hospitalization rate of 21.8% as of August 2, 2022.

Figure 40: Oregon COVID-19 hospitalizations and case fatality rate by age group (corrected)



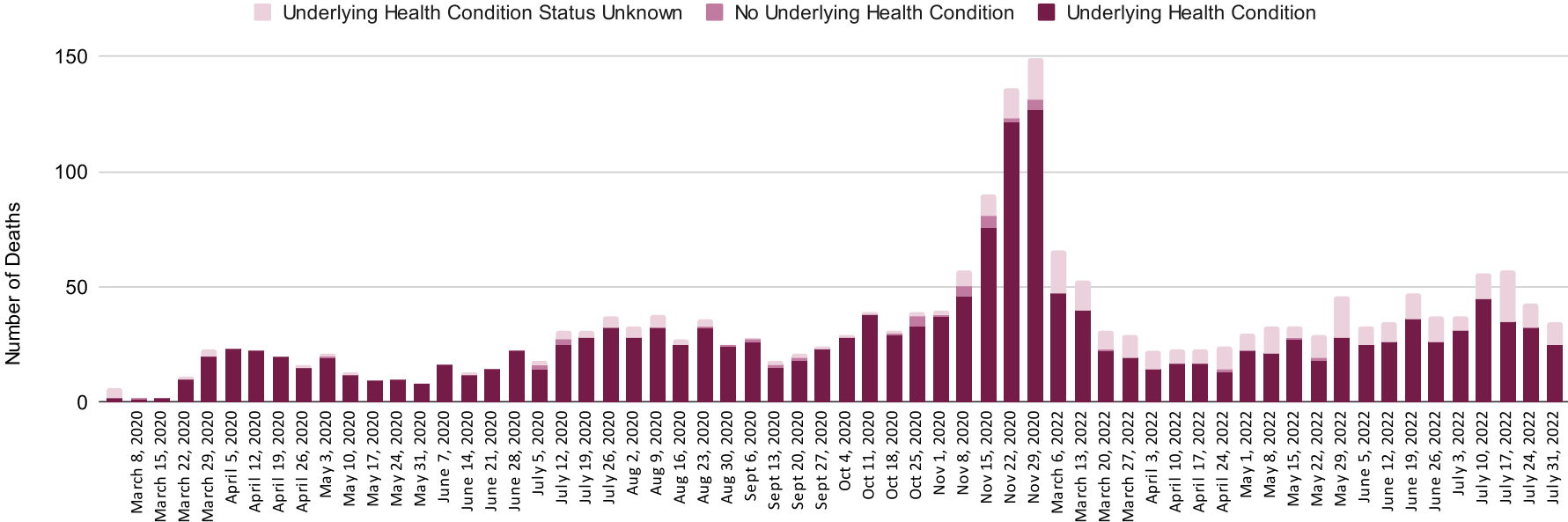
COVID-19 cases and deaths by disability status

COVID-19 data for Oregonians with intellectual or developmental disabilities are updated by OHA on a quarterly basis. As of June 6, 2022, there have been approximately 4,655 COVID-19 cases among people with intellectual or developmental disabilities. This number includes individuals who live in congregate settings and in family or individual homes. Among individuals with intellectual or developmental disabilities, there have been 62 deaths (case fatality rate of 0.13).

Crude mortality rate COVID-19 deaths, by underlying health condition status

Figure 41 is a stacked column chart that presents the number of COVID-19 deaths by underlying health condition status. As of July 2022, approximately 73.18% (n=6,091) of COVID-19 deaths were among individuals with underlying health conditions, 23.6% (n=1,963) of COVID-19 deaths occurred among individuals whose underlying health condition status was unknown, and 3.23% (n=269) of COVID-19 deaths were among individuals who did not have an underlying health condition. Towards the end of Stage 2 and continuing until Stage 4, a larger number of deaths occurred among individuals whose underlying health condition status is unknown.

Figure 41: Deaths by underlying health condition status over time



COVID-19 deaths by hospitalization status

Figure 42 is a stacked area chart displaying the weekly number of COVID-19 deaths by hospitalization status. Between March 2020 and July 2022, the majority (67.1%; n=5,565) of COVID-19 deaths occurred among hospitalized individuals. As the pandemic progressed, a larger percent of COVID-19 deaths were among individuals whose hospitalization status was unknown.

Figure 42: COVID-19 deaths by hospitalization status over time

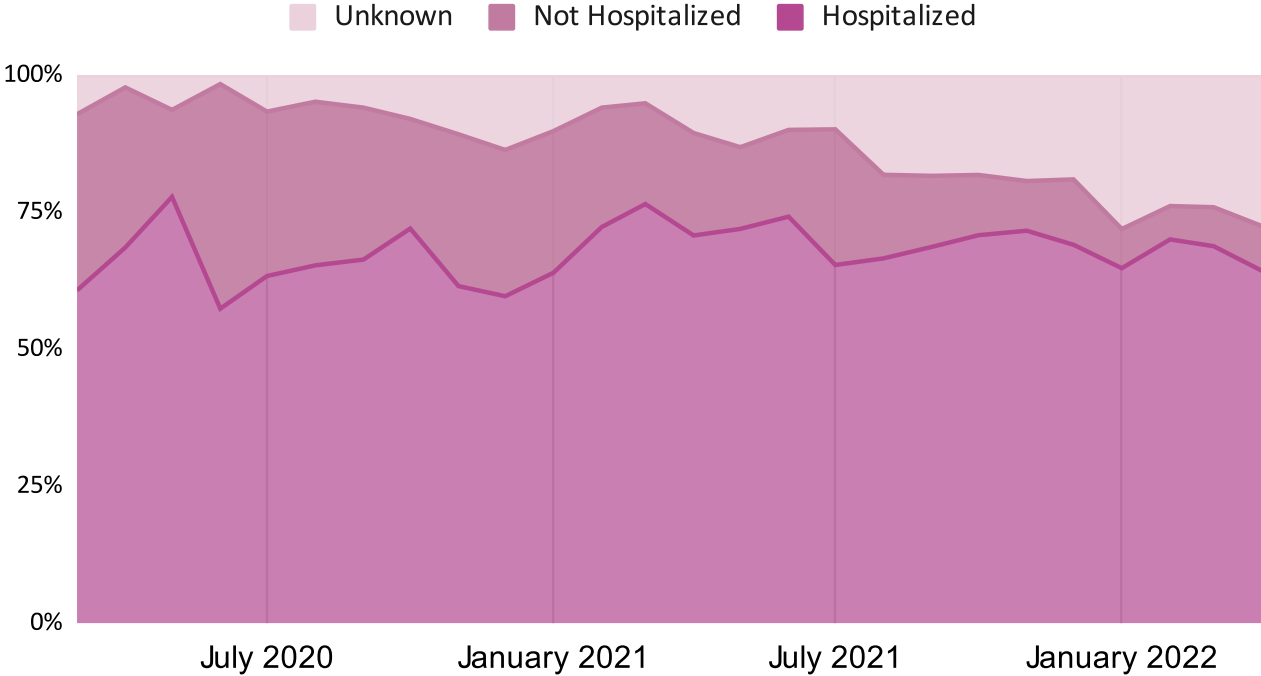
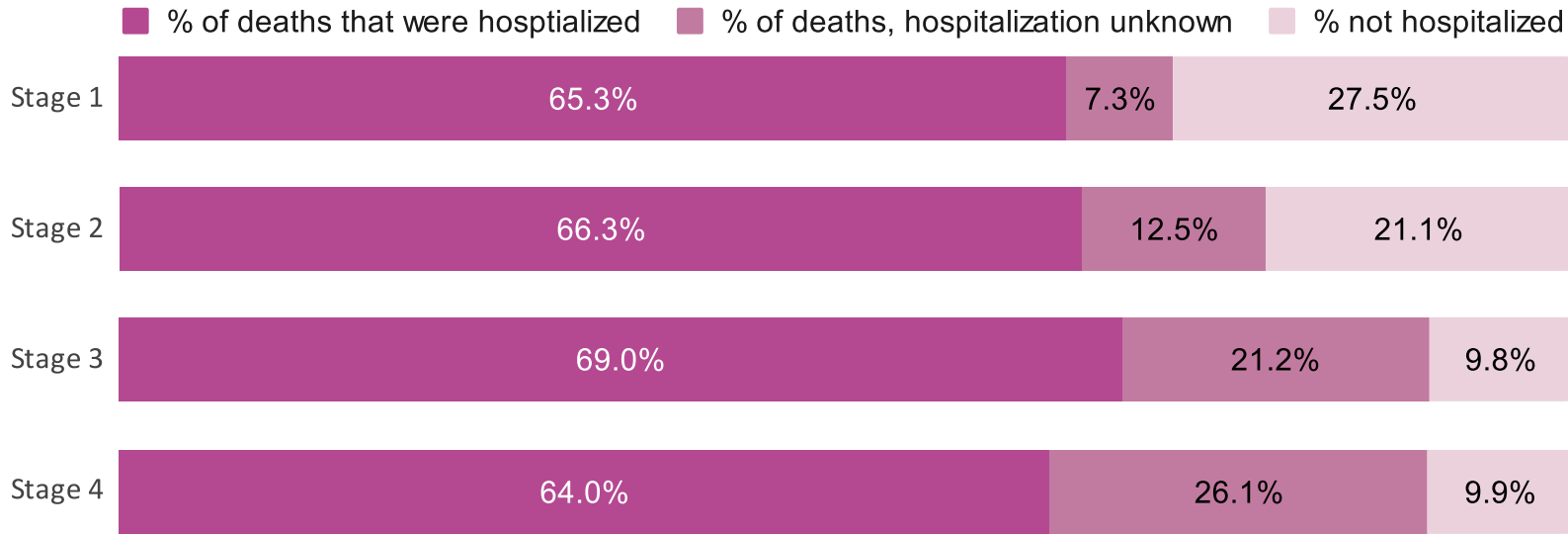


Figure 43 is a stacked bar chart that displays COVID-19 deaths based on hospitalization status in each stage. In Stage 1, there were 1,117 deaths, of which 65.3% (n=729) occurred among hospitalized individuals, 27.5% occurred among individuals who were not hospitalized (n=307), and 7.2% (n=81) occurred among individuals whose hospitalization status was unknown. In Stage 2, there were 2,641 deaths, of which 66.3% (n=1,752) occurred among hospitalized individuals, 21.1% occurred among individuals who were not hospitalized (n=558), and 12.53% (n=331) occurred among individuals whose hospitalization status was unknown. In Stage 3, there were 3,663 deaths, of which 69.0% (n=2,527) occurred among hospitalized individuals, 9.83% occurred among individuals who were not hospitalized (n=360), and 21.2% (n=776) occurred among individuals whose hospitalization status was unknown. In Stage 4, there were 870 deaths, of which 64.0% (n=557) occurred among hospitalized individuals, 9.9% occurred among individuals who were not hospitalized (n=86), and 26.1% (n=227) occurred among individuals whose hospitalization status was unknown. From stage to stage, the percent of deaths among individuals who were not hospitalized, as well as those individuals whose hospitalization status is unknown, decreased (Figure 46).

Figure 43: COVID-19 deaths by hospitalization status, by stage



Multisystem inflammatory syndrome

COVID-19 associated multisystem inflammatory syndrome is a rare, but serious illness that can occur after COVID-19 infection, affecting both adults and children. Importantly, diagnostic criteria are different for adults and children.

Multisystem Inflammatory Syndrome in Adults (MIS-A)

According to OHA, “COVID-19 associated multisystem inflammatory syndrome in adults (MIS-A) is defined by fever, multisystem involvement which must include severe cardiac illness or rash and conjunctivitis, laboratory evidence of inflammation and recent COVID-19 infection” (OHA, 2022). Importantly, MIS-A includes individuals >21 years of age only. Incidences of MIS-A are being monitored by the Acute and Communicable Disease Prevention Program but data have not yet been released.

Multisystem Inflammatory Syndrome in Children (MIS-C)

According to OHA, “COVID-19-associated multisystem inflammatory syndrome in children (MIS-C) is defined by fever, multisystem involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurologic), laboratory evidence of inflammation and recent COVID-19 infection” (OHA, 2022). MIS-C includes young adults and children aged <21 years of age. On May 13, 2020, Oregon identified the first case of MIS-C (OHA, 2020). By May 12th, 2021, there were 35 cases of MIS-C.

Strain on hospital systems in Oregon

Emergency department visits for COVID-like illness in Oregon

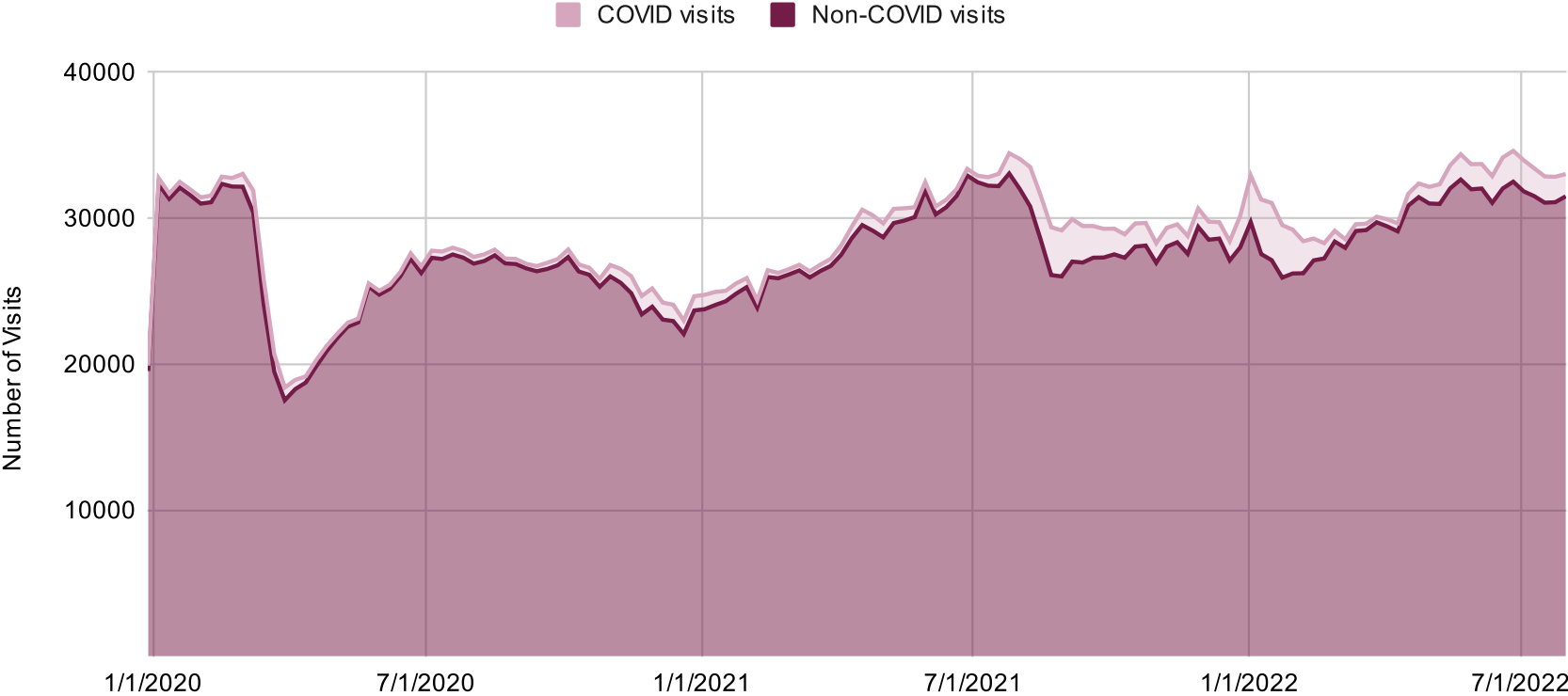
Figure 44 displays the number of emergency department visits for COVID-like illness in Oregon over time. During the Delta and Omicron variants, there were a higher number of emergency department visits for COVID-like illness in Oregon. Increases in emergency department visits for COVID-like illness coincide with a higher number of COVID-19 positive patients that were hospitalized during these variants (Figure 47). In Stage 1, the percent of emergency department visits for COVID-like illness peaked the week of March 15, 2020, with emergency department visits for COVID-like illness representing 6.6% (n=1,710) of all emergency department visits in Oregon. In Stage 2, the percent of emergency department visits for COVID-like illness peaked the week of August 22, 2021 at 11.2% (n=3, 278), corresponding with the peak in COVID-19 cases during the Delta variant. During the Omicron variant in Stage 3, emergency department visits for COVID-like illness peaked the week of January 16, 2022 at 12.6% (n=3,926). In Stage 4, emergency department visits for COVID-like illness peaked the week of July 3, 2020, representing 6.3% (n=2,132) of all emergency department visits in the state.

Table 3 presents the total number of emergency department visits for COVID-like illness by stage. Between March 2020 and July 2022, there were 142,289 emergency department visits for COVID-like illness. Emergency department visits for COVID-like illness were least frequent during Stage 1, with approximately 23,534 emergency department visits. Although Stage 3 lasted roughly six months, the largest number of emergency department visits for COVID-like illness occurred during this stage (n=54,302).

Table 3: Emergency department visits for COVID-like illness

	Total ED Visits	% of ED visits for COVID-like illness
Stage 1	23534	2.3%
Stage 2	35,429	3.2%
Stage 3	54,302	6.8%
Stage 4	29024	4.1%

Figure 44: Oregon emergency department visits over time



COVID-19 vaccinations across racial + ethnic groups

Table 4 displays vaccination metrics across racial and ethnic groups as of August 24, 2022. In the state of Oregon, individuals who identify as Asian, Black, and Native Hawaiian or Pacific Islander have at least 80% of the population vaccinated. Individuals who identify as Hispanic have the highest percentage of people in order to reach 80% COVID-19 completion, with 17.7% of the Hispanic population in Oregon remaining to reach this goal. Next are those who identify as White, with approximately 5.2% remaining to reach 80%, followed by those who identify as American Indian or Alaskan Native (4.9% remaining to reach 80%).

Table 4: COVID-19 vaccinations across racial and ethnic groups

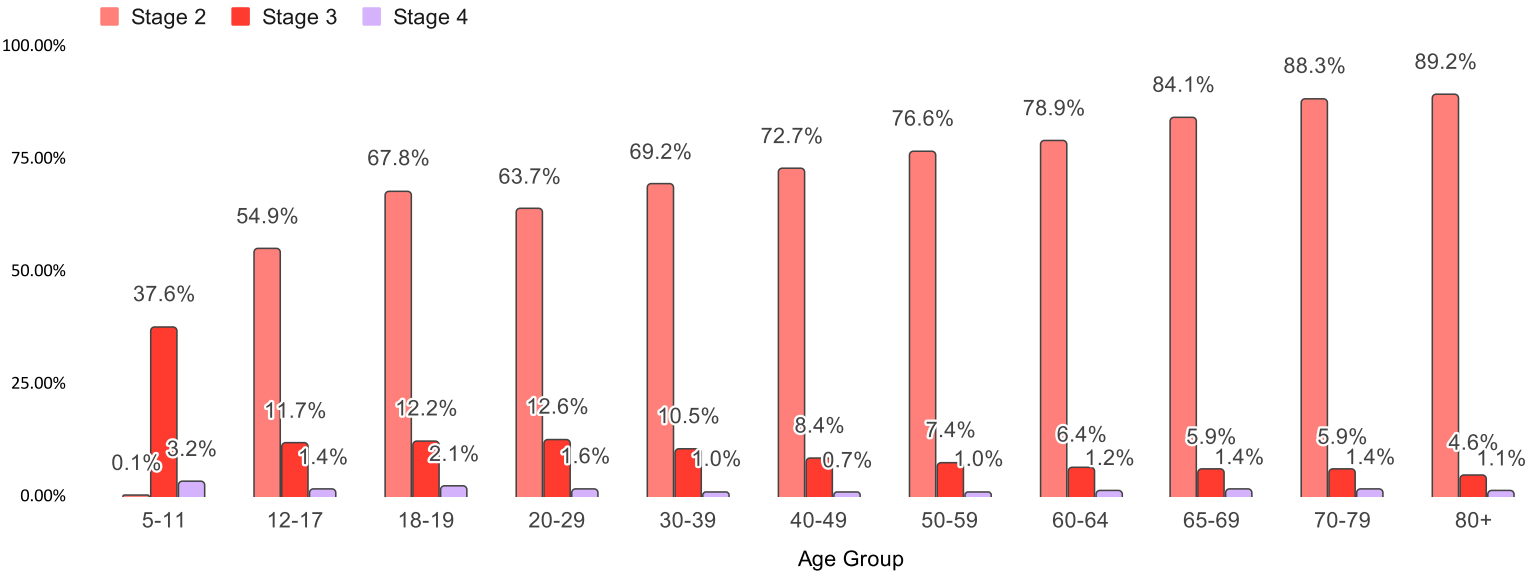
Demographic Category	# One Dose	# Series Complete	#Booster Dose	# Second Booster Dose
AI/AN	98,560	90,553	44,729	8,031
Asian	205,170	183,990	115,907	18,622
Black	93,896	83,250	39,663	6,603
Hispanic	312,312	276,758	127,174	14,832
NH/PI	45,324	41,343	21,441	3,599
White	2,327,138	2,150,292	1,334,286	386,356
Other Race	34,526	24,830	9,221	1,005
Unknown	136,752	102,777	41,821	4,944

Note: 4.2% of vaccinated individuals have an unknown racial or ethnic identity and 1.1% identify as a 'Other Race.' Thus, vaccination rate estimates for race and ethnicity are likely underestimated and may be lower than statewide estimates where people who are grouped as unknown or 'Other Race' are included.

COVID-19 vaccinations across age group

Figure 45 is a bar chart displaying the percentage of individuals with at least one COVID-19 vaccination by age group and stage vaccination was received as of September 30, 2022. As COVID-19 vaccinations were not available until Stage 2, Stage 1 is not displayed. The majority of COVID-19 vaccinations for individuals aged 12+ occurred during Stage 2, when vaccines first became available. For 5-11 year olds, as the COVID-19 vaccine did not become available to this population until October 29, 2021 (Stage 3). Interestingly, there were some vaccinations among 5-11 that occurred prior to authorization of COVID-19 vaccines for this age group.

Figure 45: Percent with at least one dose of vaccine among age groups, by stage



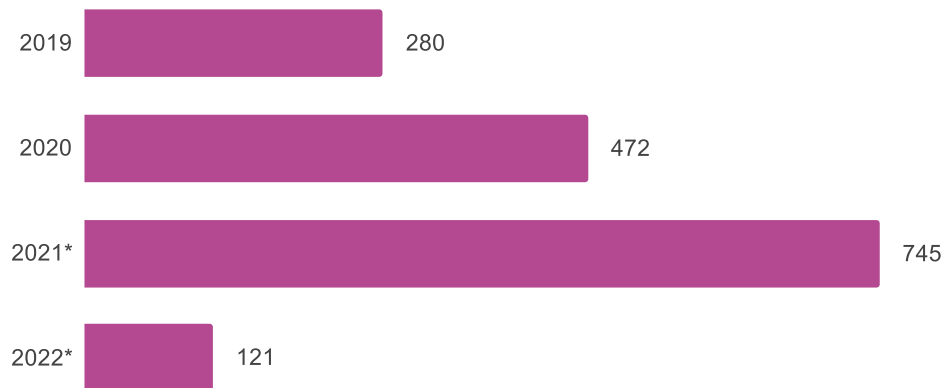
Indirect effects of COVID-19/secondary health outcomes

In addition to the direct effects of COVID-19 on health outcomes, such as morbidity and mortality, there were indirect effects of the COVID-19 pandemic on population health metrics, health indicators, and non-COVID-19 mortality (e.g., drug-related deaths). In this report, we focused on indirect effects of the COVID-19 health pandemic on indicators that aligned with Healthier Together Oregon (HTO) priorities, were prioritized by our community study partners, and had recent data available.

Opioid deaths by year

Figure 46 is a column chart displaying the number of opioid overdose deaths in Oregon between 2019-2022. The number of opioid deaths has nearly doubled every year since 2019. In 2020, opioid overdose deaths increased by approximately 68.6% (n=192). In 2021, opioid overdose deaths continued to increase. By the end of 2021, there were an additional 273 opioid overdose deaths in Oregon- a 57.8% increase from 2020. Opioid overdose deaths in Oregon are much higher than that of the United States, where opioid overdose deaths had increased by approximately 30% each year since 2019.

Figure 46: Unintentional opioid overdose deaths in Oregon by year

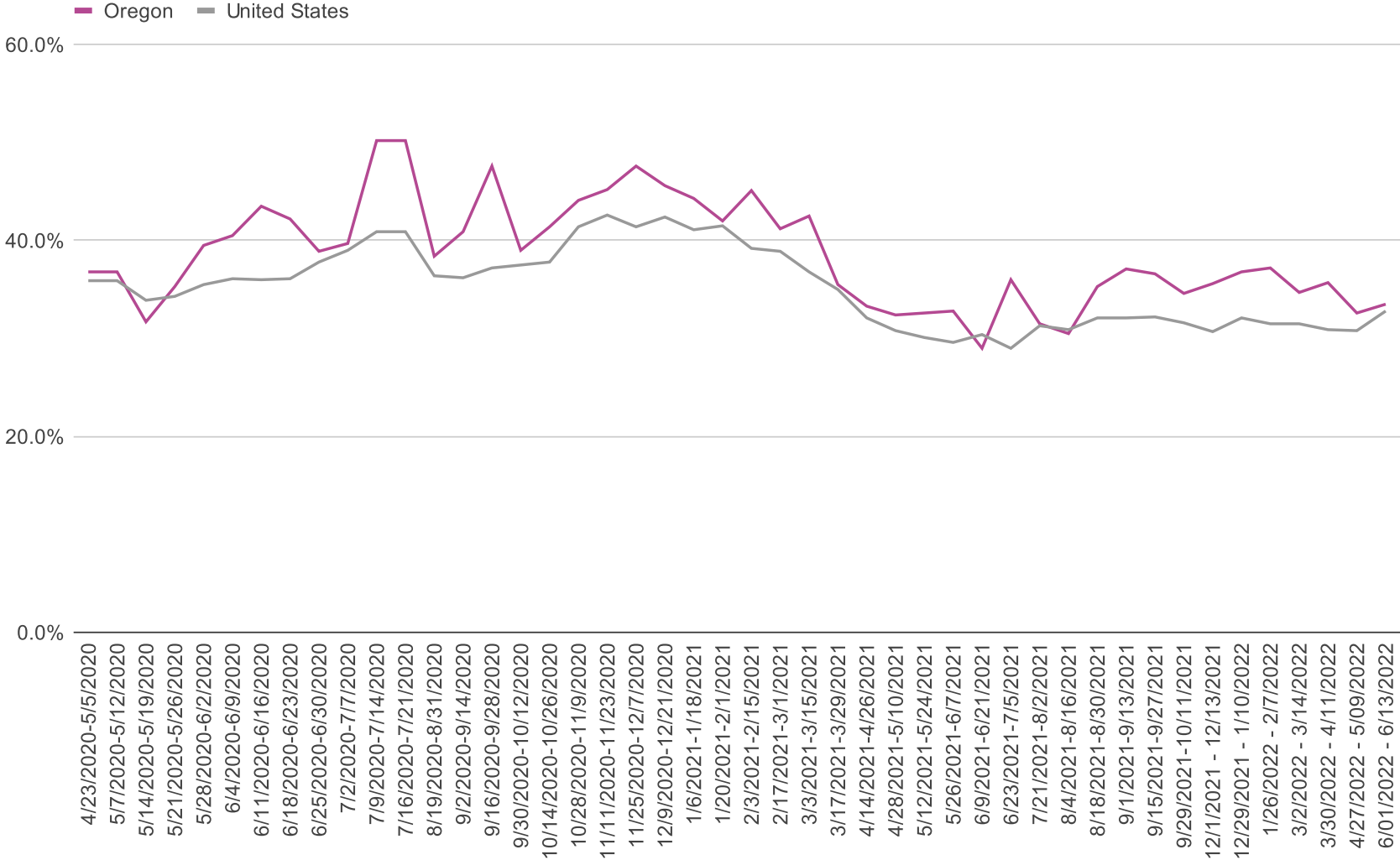


*As opioid deaths are dependent on mortality data, both 2021 and 2022 data were incomplete when this report was written.

Anxiety + depression during COVID-19

Figure 47 displays respondents who reported symptoms of anxiety or depressive disorder on more than half or nearly all of the past seven days during the pandemic. The percent of adults experiencing anxiety or depression in Oregon was slightly higher than the United States, with approximately one-third of respondents reporting symptoms at any point in time between May 2020 and June 2022. The percent of adults experiencing anxiety or depression increased during the Stage 1 of the pandemic, peaking July 9-21, 2020, with approximately 50.2% of Oregonians reporting symptoms of anxiety or depressive disorder. Towards the end of Stage 2, and continuing into the first part of Stage 3, the percent of Oregonians reporting symptoms of anxiety or depressive disorder declined. There was a slight increase at the end of Stage 3 that continued into Stage 4, which coincides with higher rates of COVID-19 cases, hospitalizations, and deaths that were seen with the Omicron variant.

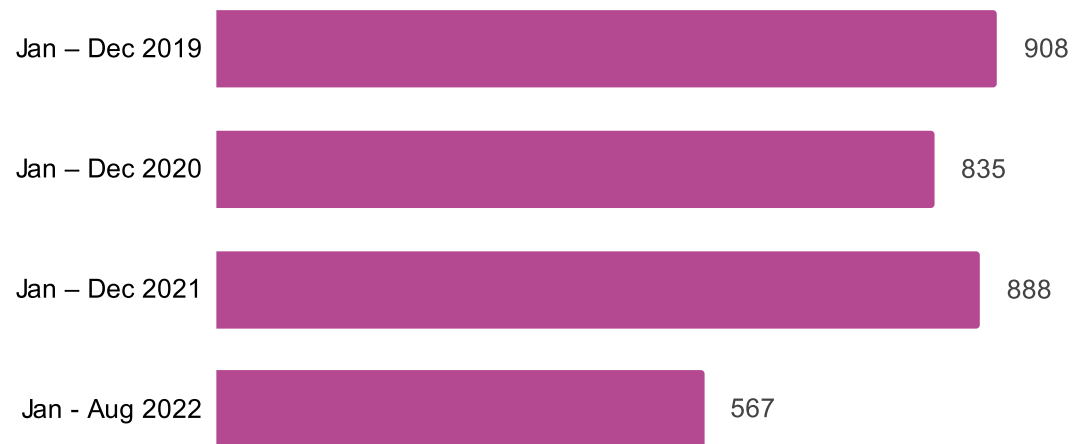
Figure 47: Adults reporting symptoms of anxiety or depressive disorder during the COVID-19 pandemic



Suicide deaths

The yearly number of suicide deaths for the state of Oregon showed no increase since 2019. Instead, there appeared to be a slight decrease in the number of suicides from 2019 to 2021. Nationally, the US had seen modest declines in suicide rates since 2019.

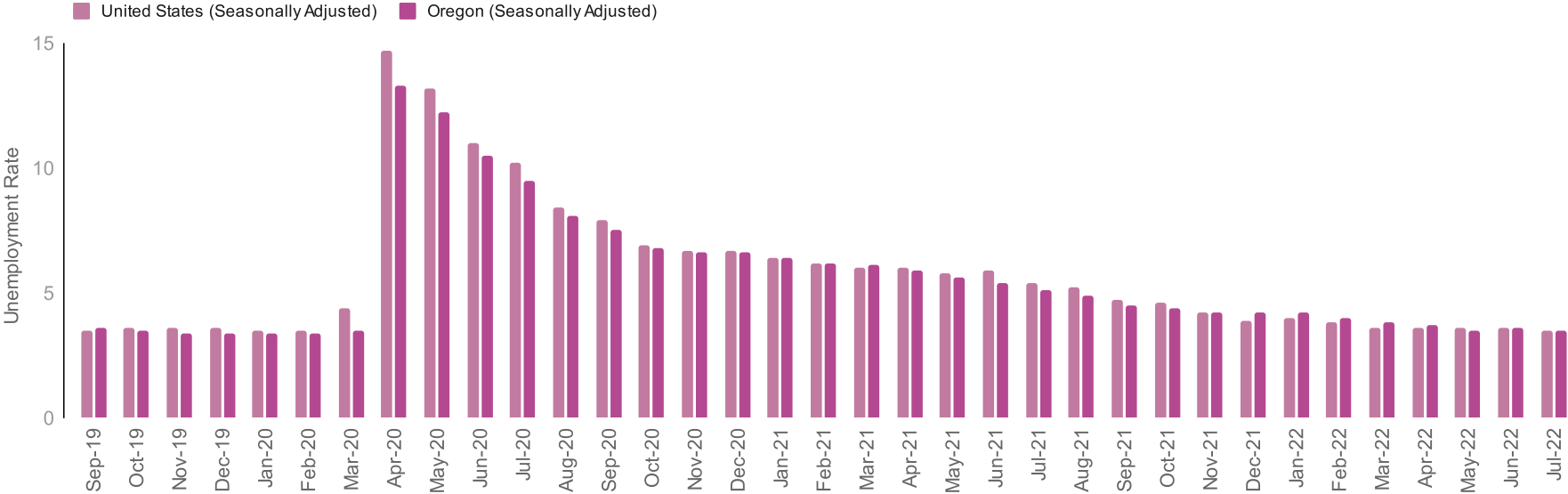
Figure 48: Suicide deaths in Oregon by year



Seasonally adjusted unemployment rate by year

Figure 49 is a clustered column chart comparing the adjusted unemployment rates in Oregon and the United States. Overall, Oregon and the US unemployment trends are comparable. Although Oregon’s unemployment rate had a sharp increase at the beginning of the pandemic (13.3), this rate was lower than the US unemployment rate of 14.7. Since this peak, unemployment rates in Oregon have gradually declined back to pre-pandemic levels, with Oregon’s unemployment rate in July of 2022 at 3.5.

Figure 49: Oregon and United States unemployment rates by month



Recommendations

Preparing for future public health emergencies

The following are high-level recommendations based on the findings in this report.

Public health capacity:

Sustained state funding is necessary to rebuild the public health system and recover from the strains on the systems caused by the COVID-19 pandemic. As the COVID-19 pandemic is ongoing and additional population-level health emergencies have surfaced, the Oregon State Legislature must fund the public health system at the level requested in the OHA's 2023-2025 budget request for \$286,000,000 devoted to public health modernization and \$32,000,000 to develop a pandemic response information system. The Oregon PHAB should continue to guide the OHA in the most effective disbursements of public health modernization funds throughout the system, including continuing to fund public health-focused community-based organizations. With any resources allocated, Oregon's public health systems must continue to modernize to leverage resources most effectively through public-private partnerships, regional approaches, and focus on equity.

Ongoing operational coordination between OEM and OHA:

1. Explore the concept of a fully resourced, flexible, and scalable unified command structure between the OEM and OHA in support of future public health emergencies. This would allow the full weight and power of the authorities outlined in the ORS §401 et seq to be utilized. Additionally, OEM and OHA should commit resources to develop and participate in an integrated Multi-Year Training and Exercise Program (MYTEP) with a specific focus on executive leadership training. MYTEP goals may include achieving a thorough understanding of the agencies' roles and responsibilities and updating the state's Emergency Operations Plan and its associated annexes.

2. OEM and OHA should work together to establish an equity-specialists team that is formally adopted into the response structure, including roles and responsibilities, job actions sheets, inclusion into the MYTEP training and exercises, and integration into the state's emergency plans and procedures.

Health equity

1. Ensure that timely and accurate morbidity, hospitalization, and mortality data about historically marginalized communities (those most likely to experience health inequity) are collected and available to those communities and partnering organizations serving them as well as government public health.
2. OHA should continue to fund public health-focused CBOs serving historically marginalized communities.

Equitable communications:

1. The public health system should adopt standards that reflect an understanding that information isn't ready to be externally communicated until it is accessible for ALL Oregonians. This will require more attention and effort to ensure accessibility, especially for the most marginalized communities.
2. Hiring, recruiting, and retaining bilingual, and preferably bicultural, staff into various public health agencies and departments- as opposed to hiring that is done solely in response to a critical need- is vital. Job descriptions for these positions must include: language translation, culturally adaptive messaging and communications, and liaising with CBOs and directly with the communities represented.
3. Proactive planning must include monitoring American Community Survey data and other data related to languages spoken by Oregonians, tracking internal capacity and coverage across public health agency staff, and building reciprocal relationships with external partners to fill language and cultural gaps.

4. Finally, including CBOs in the top tier of communications and in the first phase of information exchange with OHA, alongside LPHAs and Tribal Nations, during a public health emergency response- as well as during ongoing public health operations- would ensure that as many Oregonians as possible have reliable, relatable, and trustworthy sources of information.

Enforcement of public health mandates:

1. Local and state agency partners should be convened in a formal committee to determine if the enforcement mechanisms used to protect the public's health from COVID-19 in 2020-2022 are the best fit for Oregon, given all the factors described in this report. Minimally, this committee should include OHA, DOJ, LPHAs, CBOs, OR-OSHA, and OLCC.
2. If changes to the enforcement structure for public health mandates are deemed necessary by OHA and partners, work to enact necessary statutory or regulatory changes should be undertaken swiftly so that education and training can follow.
3. Regardless of the structure of enforcement of public health mandates, various compliance roles and responsibilities must be clearly articulated, and all parties in the public health system should educate themselves accordingly.

Messaging

1. OHA, LPHAs, CBOs, and CCOs should continue to work together to make timely, consistent, accessible, and culturally-tailored information a standard practice during public health emergencies. The importance of geographically and culturally tailored communication strategies developed at the state and local level cannot be understated, especially when the traditional approach focusing on elected officials as trusted messengers was ineffective.

2. Joint Information Centers should be supported as a strategy in the future.
3. Ensuring consistency in public health messaging will improve the response to future emergencies and should be a priority. It's clear from the data that rapid and transparent dissemination of information from OHA to LPHAs and other partners was difficult to establish but critical to the effectiveness of pandemic response activities and the maintenance of public trust.
4. Ample funding, planning, and relationship building need to be bolstered in order to help amplify the voice of public health during an emergency response. Although it was likely impossible to fully prepare for the disinformation campaign faced by public health during this emergency, politicization of public health that created and exacerbated community mistrust was an overall deficiency in the public health system's response to COVID-19 pandemic. We now know that a plan to combat this challenge in the future will be a crucial piece of public health emergency response planning.

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Appendix

- A.** Terminology
- B.** COVID-19 Executive Orders Timeline
- C.** Senate Bill 1554
- D.** Qualitative Interview Guides
- E.** Qualitative Focus Group Guides
- F.** Survey Instruments
- G.** Detailed Methods
- H.** Preliminary Survey Analysis
- I.** Detailed Limitations
- J.** COVID-19 Health Outcomes
- K.** Secondary Health Outcomes