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PUBLIC HEALTH RESPONSE
TO THE COVID-19 PANDEMIC IN OREGON

Report 2 of 3

Version 1.0

Produced by Rede Group in March 2023

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), an education serving Labor Union, Health Care Associations, Local Public Health Authorities (LPHAs), OHA Staff, Managers, and Directors, School District (SD) and Education Service District (ESD) Superintendents, School Nurses, School Principals, other State Agencies, 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 system response to the COVID-19 pandemic. This is the second of three legislatively mandated reports. Primarily focused on the government-led and government-funded public health system's response to the COVID-19 pandemic and the response in Oregon schools, this report is based on a narrow definition of the term "public health system's 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 time constraints (four months). Other limitations are 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 participant groups, documents lacking dates and other context, and reliance on self-reported data for online surveys are also limitations.

Public health response in schools

Key findings:

1. The majority of School District Superintendents (SDs) and Education Service District Superintendents (ESDs) reported their district was highly or moderately prepared to respond to the COVID-19

pandemic; 31.0% of SDs reported their district was minimally or not at all prepared to respond. Prior experience in emergency response was cited as a strength in response, largely at the district-level. There was, however, a disconnect between preparedness at the district and school levels, as most Principals (53.2%) felt their school was unprepared for COVID-19 response. Outdated or non-existent Emergency Operations Plans (EOPs) at the school level, lack of prior training and experience in emergency preparedness, and inexperience as an administrator (i.e., COVID-19 hit during their first year as a school administrator) were all cited as reasons for unpreparedness.

2. Education sector study participants reported using state and non-state COVID-19 funding for an array of pandemic response activities at the district and school levels. SDs and ESDs were aligned in much of their utilization of COVID-19 funds; SDs and ESDs most frequently reported using funding to procure personal protective equipment (PPE) (94.0% and 100%, respectively). Similarly, Principals and School Nurses most frequently reported using COVID-19 funding to secure PPE (83.7% and 58.7%, respectively).
3. School districts and schools experienced a few challenges with funding during COVID-19 pandemic response:
   - Education sector study informants reported they were worried about having continued funding to support COVID-19 response in their school community.
   - Lack of clarity around allowable use of funds, short timeframe to spend funds, frequent changes to funding structure(s), inflexibility of funds, and administrative requirements associated with COVID-19 funding were all cited as barriers to efficient use of funds.
4. Strong collaborations and partnerships were a strength of Oregon's response to the COVID-19 pandemic in schools. This included partnerships between the education and public health sectors, as well as partnerships within the education sector. Unclear roles in pandemic response hindered response in schools. Some education study participants reported that collaboration with LPHAs specifically was, at times, a challenge due to low capacity for collaboration or not having a pre-existing relationship with their LPHA.

5. Lack of clarity around responsibility of implementing public health mandates and guidelines was problematic for schools, particularly relating to contact tracing. Role uncertainty and associated changes to roles during the COVID-19 pandemic response hindered schools' response effectiveness. This was particularly seen in the onerous task of contact tracing, which became overly burdensome and unmanageable to schools during COVID-19 infection spikes.
6. Supply chain issues for PPE challenged schools. Although most study participants reported they had enough PPE to respond, a lack of clarity around the ordering process, the length of time it took to receive PPE, and receiving PPE that was not usable for children (e.g., adult-sized masks), hindered their response.
7. Study participants reported considerable success around vaccination uptake in their school community, though a lack of vaccine confidence was noted as a barrier that hindered the pandemic response in their schools. Many schools collaborated with their LPHA or other community organizations (e.g., local hospital or health care clinic) to coordinate vaccine clinics on or near school grounds. Many educational informants reported confusion around the prioritization of educators for the COVID-19 vaccination without the associated return to schools.
8. The vast majority of study informants reported using resources and frameworks developed by the Oregon Department of Education (ODE) and OHA to inform COVID-19 response in their district or school. Unfamiliarity with public health jargon, however, often made interpretation of these resources confusing. Further, unique challenges for serving populations with specific needs (e.g., students with learning or physical disabilities) added a layer of complexity to interpretation and implementation of guidance.
9. Access to local epidemiologic data to guide COVID-19 response in Stage 1 was a substantial barrier reported by most education sector study participants. As the pandemic progressed (in Stages 2 and 3), epidemiological data access at the local level increased. In Stage 4, however, local data access started to decline. Technical assistance (TA) to access, understand, or use local epidemiologic data varied across educational study participant groups and many SDs, ESDs, and School Principals reported never receiving TA at any time during the COVID-19 pandemic.

10. SDs, ESDs, Principals, and School Nurses reported they tried their best to adhere to Executive Orders and health mandates and used an array of enforcement methods, including behavior modeling, clear messaging, and punitive consequences. Overarching enforcement challenges included the politicization of mandates, the frequency with which public health mandates and associated guidance changed, and lag times between when a complaint Occupational Safety and Health Administration (OR-OSHA) was filed and follow-up. Additionally, there were many enforcement-related challenges specific to the school setting, including confusion about how public health mandates applied to schools, inconsistent enforcement across districts, and inability to implement specific measures with school-aged children. Enforcement was not consistently applied across all Oregon schools.
11. Education sector study participants reported numerous successes with COVID-19 public health messaging and communication, including creating clear messaging (e.g., meetings, signage, exposure letters) and translation of materials across multiple languages. Nevertheless, the frequency at which public health guidance and communication changed from state level agencies and LPHAs, as well as conflicting guidance across different agencies, posed substantial challenges.

Recommendations:

Improve public health emergency response effectiveness in schools by:

1. Building out and investing in comprehensive emergency preparedness for schools at the district- and school-level to incorporate pandemic-level events, and include training for school administrators and frequent EOP updates.
2. Continuing to invest in partnerships between the education (e.g., SDs, ESDs, schools) and public health sectors (e.g., LPHAs, OHA), as this will enable a more timely and collaborative response to future public health emergencies in Oregon's schools.
3. Investing in sustained emergency operations funding for schools; with sustained effort, EOPs and communicable disease management plans in schools will be implemented with more efficiency and timeliness. Specific recommendations regarding funding for schools include:

- Invest in necessary school building infrastructure improvements (i.e., heating, ventilation, and air conditioning (HVAC), desks, filtration systems, outdoor access) to align with best practices to prevent or slow transmission of communicable diseases;
- Streamline funding to reduce administrative burden for schools; and
- Improve communication about emergency operations funding, including communication specific to allowable use of funds, timeline for spending funds, and duration of funding.

4. Clearly defining roles and expectations for all involved in public health response in schools in advance of emergency response.
5. Supporting disease investigation training and resources in schools to effectively respond in future communicable disease related emergencies.
6. Supporting both districts and schools to conduct an after-action review (AAR) of their response and to define areas of improvement to inform future public health emergency response.
7. Involving schools when making decisions about public health mandates and other emergency response decisions that impact schools; it is imperative that the education sector is brought to the table to inform development of guidelines and recommendations for the school setting. School Nurses, in particular, are a valuable resource that should be utilized when planning emergency response at both the district and school levels.
8. Ensuring data availability at district and local levels that includes sub-population data and corresponding TA; a designated liaison at LPHAs to coordinate data availability and provide TA for each district would ensure greater availability and accessibility of TA to inform response for future public health emergencies. This recommendation may require additional resources for LPHAs.
9. Public health protection mandate enforcement-related recommendations for schools are summarized as follows:
    - Comprehensively examining the benefits and risks of specific public health mandates in varied schools and population settings, including the long-term impact of using specific mandates in Oregon preschool and school settings on child health and educational outcomes.

- Re-examining the enforcement structure for public health mandates in schools to ensure schools are adequately equipped with the necessary resources to support enforcement.
- Clearly articulating compliance roles and responsibilities; all parties involved in this structure should receive the necessary training to ensure successful follow-through in future public health emergencies.
- Ensuring that enforcement-related messaging is clear, consistent, and takes into consideration the individualized needs of the populations(s) the district or school serves.

10. Coordinating messaging across public health and education organizations before information is communicated to the public. This step is imperative to build trust and allow schools time to digest guidance. Further, schools need support (via additional funding, staffing, or otherwise) with translating and communicating information to be culturally-specific and tailored for the population served.
11. Addressing the substantial challenges Oregon schools faced when transitioning to and maintaining distance learning, by:
    - Sustaining investments in technology infrastructure to ensure that all Oregon students are able to access distance learning, should it ever be required in the future to respond to a public health emergency;
    - Regularly providing professional development for Oregon educators on best practices in distance learning; and
    - Maintaining clear distance learning protocols for districts and schools to enable a smoother, less interrupted transition to distance learning.
12. Considering public health mandates and guidance for future public health emergencies that are flexible to allow for local school authority and decision-making regarding school closures.
13. Continuing investment and support for Oregon schools to specifically address learning loss and socioemotional issues resulting from school closures and distance learning during the COVID-19 pandemic.

Nongovernmental + community partners

Key findings:

1. CBOs made pivotal contributions to Oregon's COVID-19 pandemic response and played four primary roles:
   - Providing essential resources to community members;
   - Educating community members about COVID-19 and pandemic control measures;
   - Implementing or partnering to support emergency response activities; and
   - Elevating community needs with state and local partners through advocacy.
2. Most CBOs reported they were highly or moderately prepared for the pandemic and significantly grew their capacity throughout the pandemic. CBOs cited their capacity strengths as trust with the community, experience supporting community members to navigate services, strong communication channels, extensive partner networks, and flexibility. The top CBO capacity limitations were financial and staffing-related.
3. OHA and LPHAs provided significant support to CBOs, including funding via grants and contracts, resource allocation, training and technical assistance, and information and data-sharing.
4. CBOs identified several gaps in the support they received, including:
   - Lag in the prioritization of funding for and services to support vulnerable populations in the pandemic response;
   - Limited understanding of how to operationalize equity in response activities;
   - Need for more funding support
   - Limited buy-in from some local leaders for pandemic control measures; and
   - Lack of role clarity between LPHAs and CBOs which hindered partnerships.

Recommendations:

Improve support to CBOs by:

1. Improving communication about funding opportunities;
2. Simplifying funding application and documentation processes, including tracking and invoicing systems, processes,and requirements;
3. Increasing flexibility of funding;
4. Prioritizing learning and capacity building around equity practices in a public health emergency response;
5. Designating OHA and LPHA staff contacts for CBOs, creating a clear and consistent chain of communication for support and efficiency; and
6. Fostering and maintaining relationships and collaboration between CBOs and OHA and LPHAs.

Tribal Nations + Tribal Organizations

Key findings:

1. Tribal Nations performed key public health functions for their Tribal and non-Tribal communities throughout the pandemic.
2. Tribal Nations implemented and enforced similar public health measures as state and local governments, such as mask mandates, stay-at-home orders, and remote work.
3. Tribal Organizations filled a critical supportive role for American Indians/Alaska Natives (AI/ANs) during stay-at-home orders and isolation/quarantine by providing food, traditional medicines, activities, and cultural connection.
4. Partnerships were an important way to coordinate COVID-19 testing and vaccination clinics; acquisition of PPE, testing, and vaccination supplies; and care for community members.
5. Funding provided to Tribal Nations and Tribal Organizations was often too specific in requirements for what it could be spent on and inconsistent with current needs of the community.

6. Both Tribal Nations and Tribal Organizations struggled with having enough staff/staff capacity to efficiently support their communities during the pandemic.
7. Tribal Nations reported a lack of accessible Tribal-specific data to support their decision-making related to COVID-19 response in their communities.

Recommendations:

Improve support to Tribal nations and Tribal organizations by:

1. Implementing flexible funding streams for Tribal nations and Tribal organizations so they can identify and support their communities specific needs;
2. Developing data collection and reporting methods for Tribal-specific data;
3. Increasing communications between Tribal nations and Tribal organizations with LPHAs, OHA, Northwest Portland Area Indian Health Board (NPAIHB), and Indian Health Services (IHS) to better coordinate disease investigation and reporting processes; and
4. Maintaining new and strengthened partnerships that were built by Tribal nations and organizations during COVID-19 response to actively work together to eliminate health inequities in order to reduce the disproportionate impact of public health emergencies on Tribal communities in the future.

Local epidemiological capacity + data

Key findings:

1. Not surprisingly, the COVID-19 pandemic stretched Oregon's epidemiological capacity. Many LPHA participants reported great difficulty hiring staff with the necessary skills and knowledge to perform critical data collection, interpretation, and dissemination functions.
2. OHA supported local epidemiological capacity in various ways, including:
   - Providing direct technical assistance;

- Conducting statewide and regional meetings that provided an opportunity to share epidemiological data and get additional technical assistance;
- Routing funding to LPHAs to increase staffing for local epidemiological capacity;
- Sharing epidemiological data communication and messaging resources that aided LPHAs in addressing misinformation efforts in their communities; and
- Setting up and streamlining systems for LPHAs to order and receive tests, vaccines, and other supplies.

3. Existing epidemiological data systems were severely strained by the surge of users trying to access the system at the same time. LPHA participants described these systems as all but unusable during peak stages of the pandemic, and OHA reported that modules had to be built and separated from the original system to improve useability.
4. When Oregon's pandemic response officially began in March 2020, OHA was in the process of putting plans in place to improve collection and reporting of race, ethnicity, language, and disability data (REALD) and adding sexual orientation and gender identity (SOGI) as optional data, which meant that there were not strong practices in place or sufficient capacity to build and adapt standards 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.

Recommendations:

OHA can better support local epidemiological capacity by:

1. Investing in epidemiological data systems improvements; and
2. Continuing to prioritize the development of standards for the collection of and access to REALD and SOGI data.

Hospitals, long-term care facilities and local public health programs

Key findings:

1. Long-term care facilities (LTCFs) required special attention in Oregon's public health system response to COVID-19.
2. Previously established relationships and lines of communication were essential for successful role coordination between hospitals, LTCFs, and LPHAs.
3. Working together throughout the pandemic also strengthened previous relationships between LPHAs, hospitals, and LTCFs.
4. Role confusion occurred around enforcement of public health measures in LTCFs. Participants from several groups reported a lack of clarity around who had jurisdiction over LTCFs, which was a significant issue for public health protective measure enforcement.
5. Due to complexities with licensing and response authority, jurisdiction over LTCFs, was called into question, which, at times, created communication and compliance challenges.

Recommendations:

Improve effectiveness of response efforts by:

1. Developing and maintaining relationships among LPHAs, LTCFs, and hospitals to improve communication in future public health emergencies; and,
2. Developing clear guidance for LTCFs around public health and infection control regulations outlining the roles of OHA and Oregon Department of Human Services (ODHS). Ideally, dissemination of this information would be co-created with LTCFs and LTCF advocacy groups.

Public health workforce challenges

Key findings:

1. Staffing challenges hindered pandemic response for governmental public health. Difficulty recruiting, onboarding, and retaining staff was a strong theme across individual interviews, group interviews, and surveys with LPHA administrators and staff. In the LPHA survey, 87.2% (n=34) of respondents reported that staffing shortages hindered the effectiveness of their pandemic response.
2. A majority of OHA Director interviewees ranked staffing capacity at OHA as a significant challenge that negatively affected OHA's ability to respond to COVID-19. At the beginning of the pandemic, OHA needed to hire numerous new staff to mount and coordinate an effective response; in addition, OHA reassigned many existing staff to new COVID-related work and roles. Small applicant pools for hiring and contracting and limited human resources administrative capacity to meet the hiring demand stalled hiring efforts.
3. Multiple respondent groups routinely reported working 60-70 hour work weeks for many months during 2020- 2022. Several OHA Staff and Manager interviewees indicated that maintaining overall workforce capacity after the Delta variant emergency was especially difficult because the workforce was already stretched thin.
4. Analysis of individual interviews, group interviews, and LPHA survey responses surfaced two themes within challenges to recruiting public health staff during the pandemic:
   - County-level administrative burden for hiring; and,
   - Overall public health workforce shortages, especially for nurses and epidemiologists.
5. LPHAs were able to relieve some of the burden on staff by turning to volunteers to assist with the work. Medical Reserve Corps were specifically named by several LPHAs as a helpful resource during the pandemic response. However, a few LPHAs noted that because individuals in Medical Reserve Corps were older, they were at higher risk for COVID-19 serious illness and therefore were not able to

be as involved. Other LPHAs were able to draw on community volunteers, including retired nurses, through the county government volunteer management department or through partnerships with CBOs.

6. Other solutions LPHAs used to augment staff capacity included:
   - Contracts with CBOs to facilitate major work areas such as contact tracing;
   - "Loaned" staff from other departments within county government;
   - Mobilizing graduating nurses directly to the LPHA's pandemic response or working with university to intern PhD students for epidemiology support; and
   - Hiring temporary staff.
7. OHA also relied on reassignment of staff from other non-communicable disease programs and hiring temporary staff.
8. LPHAs and OHA demonstrated tenacity, creativity, and accountability in staffing up for the pandemic.

Recommendations:

Mitigate workforce challenges by:

1. Planning for surge capacity within a large-scale, longer-term public health emergency using lessons learned from the COVID-19 experience. Mutual aid agreements, whereby jurisdictions establish the legal basis for sharing resources in the event of an emergency, are critical tools for preparedness planning, but may be of limited value in a geographically dispersed event; thus planning for hiring, reassigning, and limiting non-emergency response functions should be established.
2. Creating plans and protocols at every jurisdiction in the entire public health system that can be activated in a large-scale event, such as the COVID-19 pandemic, for streamlining hiring and worker reassignment processes.
3. Cooperatively, between LPHAs and city and county emergency management programs, create, review, and simulate surge capacity models and plans to outline the most efficient use of available human resources in a public health and medical services emergency.

- Models and plans should clarify roles and responsibilities for primary, supporting, and coordinating agencies to avoid duplication of efforts and provide a baseline for expanding workforce capacity in areas where it is most needed.
- Planning should include additional partners such as CBOs, neighborhood associations, and other government agencies (e.g., housing, human services, volunteerism, and natural resources departments).

4. Emphasizing and creating local public health emergency preparedness relationships, especially as the public health leadership workforce rebounds from the strain of the COVID-19 pandemic and experiences an influx of new leadership.
5. Improving local epidemiological capacity while recognizing that local capacity may come in the form of regional epidemiological services or other shared services models. Recognize that funding, in addition to Public Health Modernization funding, may be necessary to create the requisite capacity.

Terminology

Frequently used acronyms

Acronym	Meaning
CARES	The Coronavirus Aid, Relief, and Economic Security Act
CBO	Community-based organization
CDC	Centers for Disease Control and Prevention
CDL	Comprehensive distance learning
COSA	Coalition of School Administrators
COVID-19	Novel coronavirus disease
EMS	Emergency medical services
ESD	Education Service District
ESSER	Elementary and Secondary School Emergency Relief
EO	Executive Order
EOP	Emergency Operations Plan
Epi	Epidemiology/epidemiologist
FEMA	Federal Emergency Management Agency
FTE	Full-time equivalent
IHS	Indian Health Services
LPHA	Local public health authority
LTCF	Long-term care facility
NARA	Native American Rehabilitation Association
NPAIHB	Northwest Portland Area Indian Health Board
NPI	Non-pharmaceutical intervention

Acronym	Meaning
OASSA	Oregon Association of Secondary School Administrators
ODE	Oregon Department of Education
OEA	Oregon Education Association
OEM	Oregon Department of Emergency Management
OHA	Oregon Health Authority
OSHA	Occupational Safety and Health Administration
PH	Public health
PHAB	Public Health Advisory Board
PPE	Personal protective equipment
REALD	Race, Ethnicity, Language, and Disability data
SB 1554	Senate bill 1554
SD	School district
SOGI	Sexual Orientation and Gender Identity data

Key terms

Community Partner Outreach Program: CPOP is a training, outreach, and grant program run by the Oregon Health Authority. CPOP works to build and strengthen community and agency partnerships to better serve vulnerable and hard-to-reach populations.

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.

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.

Opera, Orpheus, ARIAS: Opera, Orpheus, and ARIAS are commonly used databases for COVID-19 data in Oregon. Local and state public health epidemiologists used Oregon Public Health Epidemiology User System (Orpheus) to collect and report local case data. Oregon Pandemic Emergency Response Application (Opera) is a COVID-19 specific module within Orpheus. ARIAS is a platform used by OHA, counties, and some Tribes to record contact tracing-related data.

Protecting Oregon Farmworkers Program (POF): Protecting Oregon Farmworkers is a program created to support migrant and seasonal farmworkers in Oregon during the COVID-19 pandemic. POF supports community partner organizations by providing COVID-19-related outreach and education.

Secondary data: Data collected by someone other than the study team, including administrative datasets, surveillance data, public records, etc.

Study team: For Report 2, this includes Rede Group staff, Dr. Kara Skelton, and Vashti Boyce.

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

Tribal Nations: For the purposes of this study, refers to study participants from Oregon's Federally Recognized Tribes.

Tribal Organization: For the purposes of this study, refers to study participants from community-based organizations that serve American Indian/Alaska Native communities. This does not include study participants from Oregon's Federally Recognized Tribes.

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 (SB) 1554 (2022), which calls for a comprehensive study of Oregon's public health system COVID-19 pandemic response. The study aims to 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 the results of this study to the Oregon Health Authority (OHA) in three mandated reports. Reports 1 and 2 were submitted in November 2022 and March 2023, respectively, and Report 3 will be submitted in 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 (Centers for Disease Control and Prevention [CDC] Foundation, n.d.). Therefore, public health work includes promoting healthy lifestyles, researching disease and injury prevention, and detecting, preventing, and responding to infectious diseases.

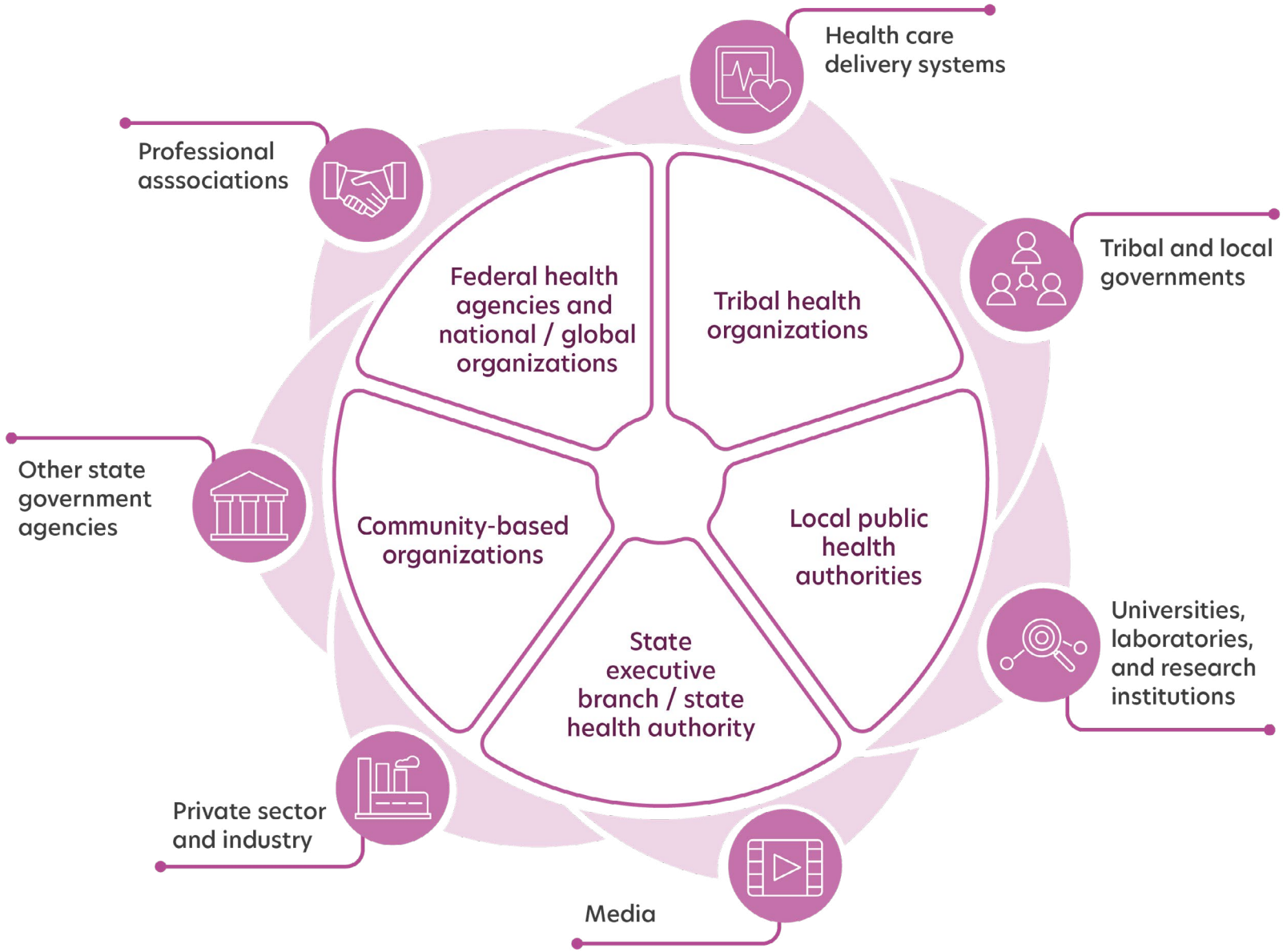
A public health system, typically defined as "all public, private, and voluntary entities that contribute to the delivery of essential public health services within a jurisdiction," is formed by a network of actors, including government agencies, laboratories, hospitals, nongovernmental public and private agencies, and community members (CDC, 2023). 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, 2023). 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 governmental 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 SB 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 the 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. Additionally, Oregon pre-kindergarten through grade 12 schools partnered with local and state agencies to implement public health mandates that impacted schools throughout the COVID-19 pandemic. 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 three years (2020- 2023), 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 6,859,093 total COVID-19 deaths and 758,390,564 confirmed cases as of February 28, 2023 (WHO, n.d.). Since the initial outbreak, the public health and emergency response communities have mobilized to research, report, and track the disease, implemented 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 system 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 9,361 total deaths and 961,523 confirmed cases as of March 1, 2023 (OHA [Oregon Health Authority], 2023).

One critical aspect of studying Oregon's public health system 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 system 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

MAR 2020 - NOV 2020:

- Outbreak
- Disease investigation
- Implementing required public health protections (masking, distancing, closures)
- Preparing for vaccination

DEC 2020 - AUG 2021:

- Vaccination
- Disease investigation
- Enforcing public health protections
- Partial re-opening

SEP 2021 - FEB 2022:

- Vaccination
- Re-opening
- Dealing with variants

MAR 2022 - JUL 2022:

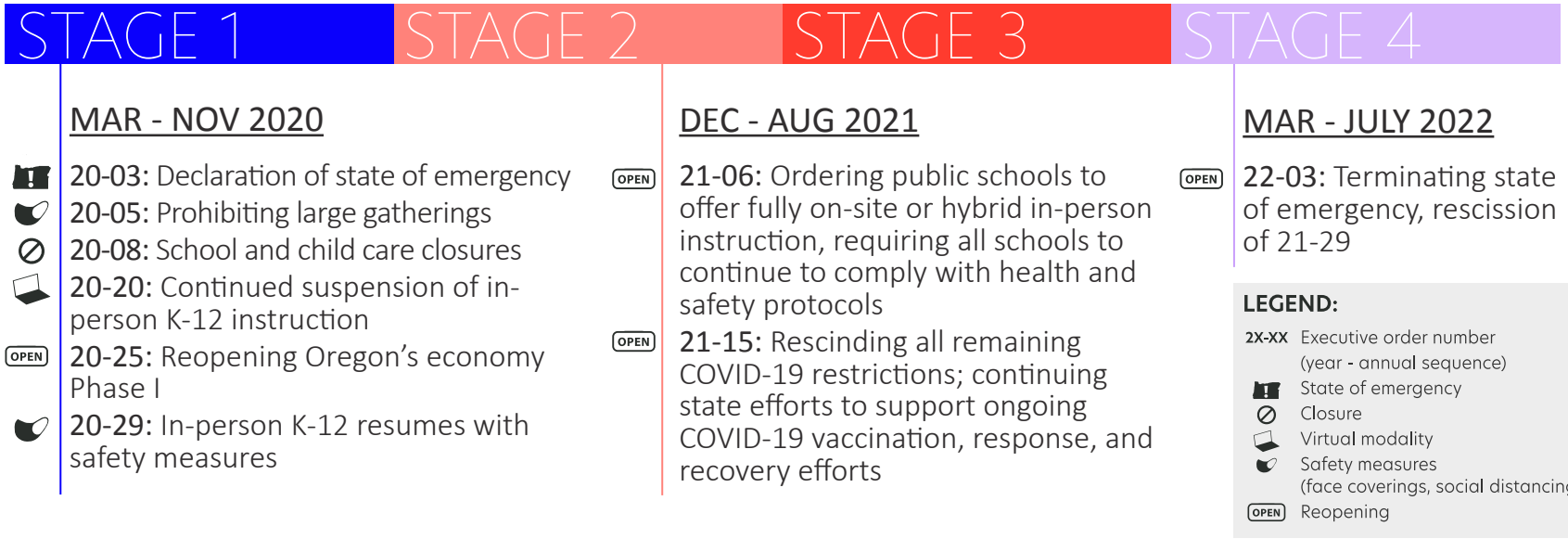
- Total reopening
- No required public health protections (except in health care settings)
- Changes in investigative guidelines

Executive orders

Figure 3 below details the school-related public health system response EOs enacted from March 2020 through July 2022. These EOs provide context for findings found on page 109.

A full list of EOs is included in Appendix B. EOs in Figure 3 and Appendix B 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 purpose of this study, public health is defined as the science of protecting and improving the health of people and their communities.

Figure 3: School-related executive orders



Study design, methods + analysis, limitations

Scope of study

The scope of this study was set forth by the 81st Oregon Legislative Assembly through Oregon SB 1554 (2022 Regular Session; see Appendix C). This study primarily focuses on the government-led and government-funded public health system response to the COVID-19 pandemic. **For this report, Rede Group applied a narrow definition of the term "public health system response to COVID-19" 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. SB 1554 calls for an analysis comparing health and health system data, including COVID-19 positivity rates, rates of COVID-19 infection, hospital capacity, and other core metrics with the efficacy of statewide public health mandate enforcement. There is no way to objectively determine the effectiveness of statewide public health mandate enforcement in Oregon. As discussed in Report 1, enforcement of statewide public health mandates in Oregon had many challenges, including being a complaint-driven system, multiple agencies working to support enforcement, inconsistent enforcement across the state, a lack of staff and capacity to conduct enforcement activities, lag times between complaints being made and follow-up, issues in statutory authority to enforce laws and regulations, and rapidly changing mandates. Thus an analysis of the effectiveness of enforcement, including a comparison of regions within Oregon, is not possible. In lieu of that, the study team conducted a literature review to inform the topic of the comparative effect of public health restrictions (such as mask mandates, stay-at-home orders, and business and government closures) on COVID-19 outcomes.
2. Support provided to Oregon's migrant and seasonal farmworker populations during the COVID-19 pandemic will be included in Report 3. Data has been gathered from those who provided support through Oregon's Protecting Oregon Farmworker Program, however, additional time was needed to receive reports from this program and information from other organizations' work with the migrant and seasonal farmworker population during COVID-19.
3. For some state and local governmental officials, pandemic response activities 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. Additionally, this report includes findings from Tribal nations' and Tribal organizations' contributions to the public health system response to COVID-19. 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. The study was designed so that the majority of the data collection covering Report 1 and Report 2 study questions were gathered prior to completing Report 1 (see Report 1 Appendix G for additional details on data collection). Some additional data was gathered for Report 2 (see Appendix G for additional data gathered for Report 2). An overview of data collected and analyzed for this report is shown on page 37 (this excluded data solely gathered and analyzed for Report 1).

Report 2 study questions:

1. Identify efficiencies and deficiencies in the public health system's response coordination with schools.
2. Analyze the enforcement of public health requirements by schools and examine the effectiveness of enforcement of pandemic control evidence-based practices in schools, including implementation of statewide public health measures.
3. Provide an in-depth report of nongovernmental and community partner contributions to the COVID-19 response.
4. Report Tribal nations and Tribal organization contributions to the COVID-19 response
5. Identify local epidemiological data and capacity issues, including those that affected reporting to statewide data systems.
6. Clarify the roles of hospitals, long-term care facilities, and local public health programs in response coordination.
7. Compare health and health system data, including COVID-19 positivity rates, rates of COVID-19 infection, hospital capacity, and other core metrics with the efficacy of statewide public health mandate enforcement.
8. How did the allocation of federal funds support local and Tribal COVID-19 response activities? How could federal funds allocated and used at the local and Tribal level go more smoothly in the future?
9. Investigate specific public health workforce challenges; provide recommendations for improving specific workforce challenges.

Informants	Study Questions								
	1	2	3	4	5	6	7	8	9
CBOs			X					X	
Educator serving Labor Union	X	X							
Health Care Assoc.						X			
OHA Directors			X						
OHA OEI			X						
OHA Staff + Managers			X			X			
Principals	X	X							
School Nurses	X	X							
SDs/ESDs	X	X							
State Agencies						X			
LPHAs			X		X	X		X	X
Tribal Nations				X	X			X	
Tribal Orgs.				X					

REPORT 2: PRIMARY DATA COLLECTION				LITERATURE REVIEW
Informants	Qualitative Interviews (response rate)	Surveys (response rate)	Focus Groups (participants)	Peer reviewed literature
CBOs	23 (96%)	63 (36%)	4 (27)	Over 30 journal articles reviewed
OHA OEI	1	n/a	n/a	
Health Care Associations	4 (100%)	n/a	n/a	
LPHAs	16 individual, 2 groups (100%)	39 (33%)	n/a	
OHA Directors	12 (100%)	n/a	n/a	
OHA Staff + Managers	20 (100%)	n/a	n/a	
State Agencies	7 (63%)	n/a	n/a	
Tribal Orgs.	4 (67%)	n/a	1 (7)	
Tribal Nations	7 (78%)	1 (11%)	n/a	
School SDs	9 (60%)	84		
School ESDs	5 (100%)	8		
School Principals		220	4 (19)	
School Nurses		90	2 (8)	
Labor Unions	1 (50%)			
Total	**97 (89%)**	**132 (29%)**	**11 (44)**	

Study sampling

Qualitative phase sampling

Given the time and resource-intensive nature of qualitative data collection, it was not possible to interview each individual involved in Oregon's public health system response to the COVID-19 pandemic. Given this evaluation constraint, the study team used both probability and non-probability (i.e., purposeful) sampling strategies to create the evaluation sample. 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 the evaluation sample to the larger target population and thus, generalizability of findings. Stratified sampling was used for school district (SD) and education service district (ESD) interview data gathered for Report 2. 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. Where comprehensive lists of participant groups were provided by OHA and partners (LPHAs, CBOs, Tribal Nations, School District (SD) SDs), surveys were distributed to each informant. Where comprehensive lists of participant groups were provided by OHA and partners (LPHAs, CBOs, Tribal Nations, SDs), surveys were distributed to each informant. Where comprehensive lists of participant groups were unavailable (ESDs, Principals, and School Nurses), Rede used web searches to identify informant contact information or worked with OHA partners to distribute the survey through email lists to the partcipant groups. More details about the specific recruitment methods for each informant group can be found in Appendix G.

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. Once transcripts were coded, we examined findings by many different variables, codes, and descriptors to identify the strongest themes.

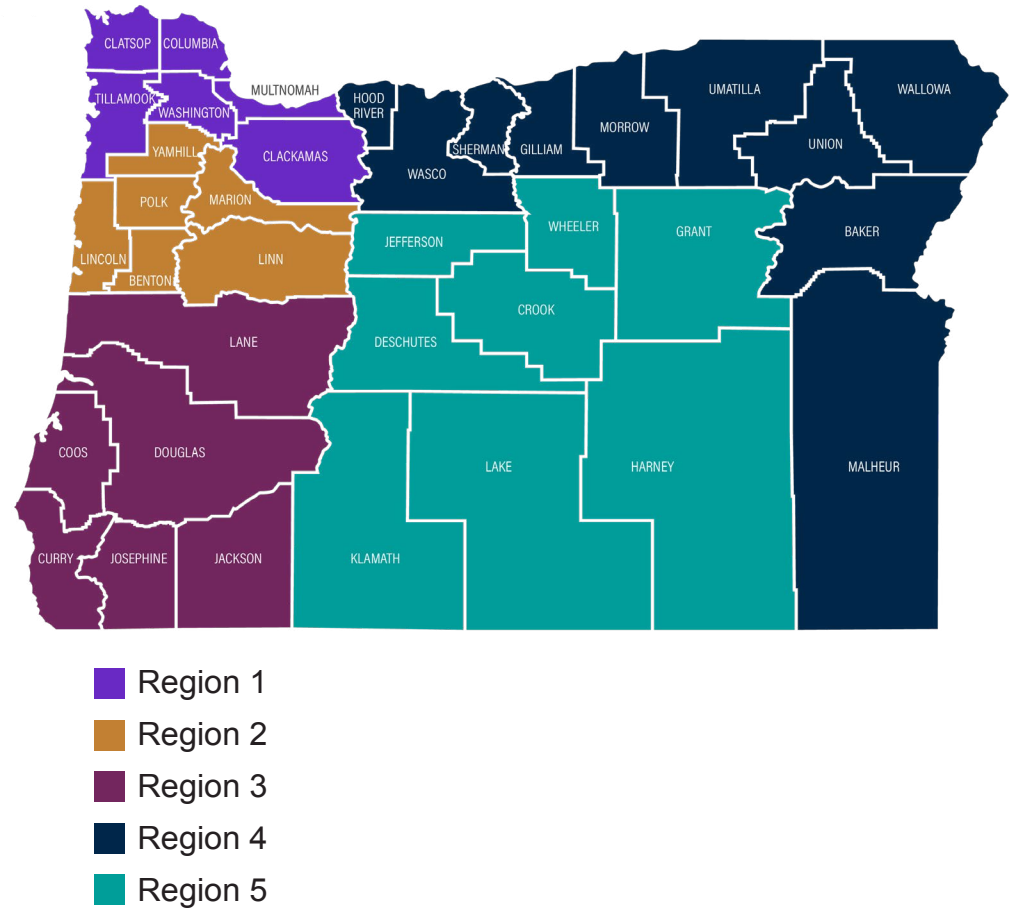
Quantitative Phase Analysis

Quantitative data, including surveys, were analyzed using standard descriptive statistics. See Appendix H for the preliminary survey analysis.

Regional sampling + analysis

For this study, counties were divided into five regions. Oregon's Emergency Management regions were modified to include at least five counties in

Figure 4: Public health regions



adapted from: Oregon's Emergency Management. https://www.oregon.gov/oha/PH/PREPAREDNESS/PARTNERS/Documents/AllState.pdf

each region to support the confidentiality of study informants. These regions were used to inform regional representation in data collection and as an analytic framework for the survey.

Limitations overview

Strengths of this study include the mixed-methods, equity-centered approach, and robust sampling strategy. Community study partners were integral to this study, as they reviewed data collection instruments and aided in the recruitment of study participants. Community study partners also assisted with 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 (when most of the data for the entire study was gathered), hindered the study team's ability to be exhaustive of all of Oregon's public health system response. In an effort to address this limitation, an array of study design features were used, including probability sampling, when possible. To also ensure adequate data collection for those involved in Oregon's response in schools, the study team pushed findings relating to this study question to Report 2 (instead of Report 1). The study's sampling methodology leaves out the perspectives of community-based organizations (CBOs) who did not receive Oregon Health Authority (OHA) funding but who still made important contributions to the public health pandemic response. 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, incomplete documents included in document reviews (e.g., missing dates and/or other context), and reliance on self-reported data for online surveys. See Appendix I for detailed description of the study limitations.

Findings

Public health system response in schools

In Report 1, we provided an overview of public health emergency preparedness for the following informants: OHA, LPHAs, Oregon Department of Emergency Management (OEM), and CBOs. A critical actor in the public health system response—the education sector—was omitted due to the data collection timelines of this study. To ensure adequate participation and response from key actors in Oregon's public health response in schools, the decision was made to push findings relating to the response in schools to Report 2. Below, we present a detailed overview of Oregon's public health system response coordination in schools, identifying efficiencies and deficiencies and providing recommendations to elicit a better response in schools. Additionally, we analyze the enforcement of statewide public health requirements in schools, including challenges schools face and areas of improvement for future public health emergencies.

Training + preparation

Although study participants involved in Oregon's public health response to the pandemic in schools reported having some training in emergency preparedness, the magnitude of the COVID-19 pandemic was unprecedented. As a result of the duration and magnitude of COVID-19, school administrators and staff did not feel fully prepared to respond. Additionally, Oregon schools had never been required to transition to distance learning in response to a public health or emergency threat, which added a layer of complexity to school preparedness and overall response.

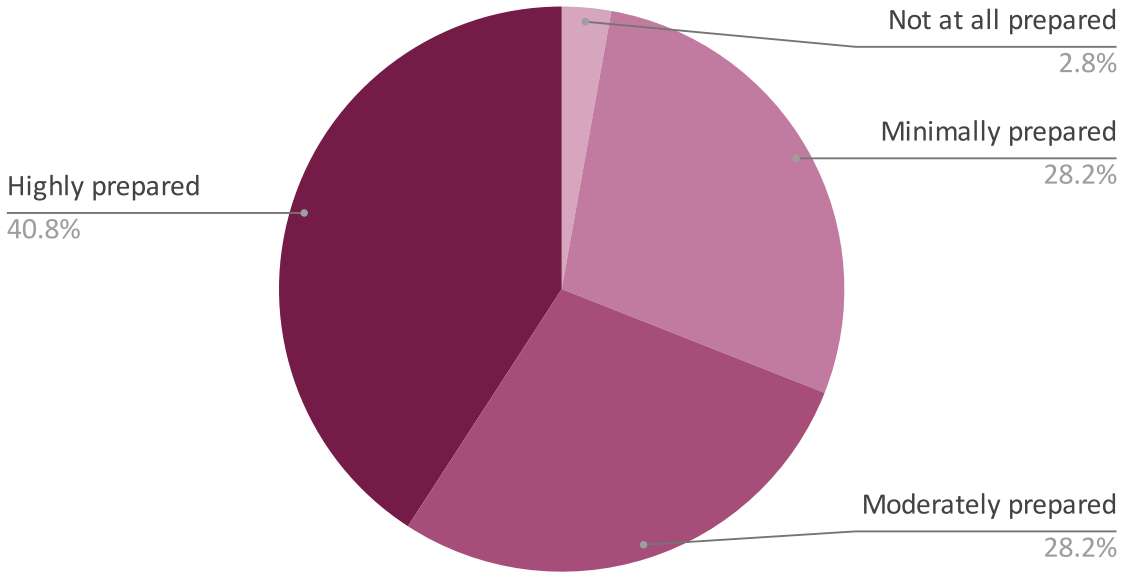
School Districts

The majority of school district (SD) survey respondents (69.0%, n=49) felt their district was either highly prepared (40.8%; n=29) or moderately prepared (28.2%; n=20) to respond to the COVID-19 pandemic (Figure 5).

The remaining third of SD survey respondents felt their district was minimally or not at all prepared (31.0%; n=22).

SD survey respondents, however, were more varied regarding individual preparedness to respond to the COVID-19 pandemic, with about two-thirds of respondents reporting they felt minimally or not at all prepared for the response (66.2%, n=47). SD respondents who felt they were highly prepared to respond to the pandemic noted extensive training in public health, prior experience in responding to communicable disease outbreaks, and prior experience in developing emergency response plans as reasons for their level of preparedness.

Figure 5: District preparedness for COVID-19 pandemic (SD respondents, N=71)



"I have 30 years of experience with developing emergency response plans and was prepared. I was working with our local public health department for weeks before the shutdown happened."

—SD Survey Respondent

Some SD survey respondents who felt moderately prepared cited prior experience with school closures for communicable diseases as good preparation for the COVID-19 pandemic. Other SD respondents reported that lack of experience in responding to public health emergencies in schools, confusion around emergency response roles, and limited engagement with LPHAs prior to the COVID-19 pandemic diminished their level of preparedness. For many school district administrators, the COVID-19 pandemic was the first emergency event through which they had worked. SD respondents who felt minimally prepared reported that lack of involvement in emergency planning and response, lack of prior emergency response experience at a district level, and lack of preparation to smoothly shift to distance learning contributed to feelings of lack of preparedness. SD respondents who felt minimally prepared to respond stated:

- "The mandates changed our role significantly and nearly overnight. We shifted nearly everything we do and how we do it, with little room for local decision making."-SD Survey Respondent
- "I knew we had a communicable disease plan that I thought would help guide our initial work as the pandemic began. I soon became aware that this was bigger than a communicable disease that in the past may shut down a district for a few days to up to a week. The communicable [disease] plan we had, although good, didn't address what we were undertaking. Plus, the infrastructure for full closure and continued closure of K-12 public schools was not in place." -SD Survey Respondent
- "We were prepared for emergency safety response protocols, but not the rapid pace of the pandemic. We were unprepared with how to educate students virtually."-SD Survey Respondent

Collectively, a lack of experience in responding to public health emergencies at the district level was a contributing factor to the majority of SD survey respondents who reported feeling not at all prepared to respond to the pandemic. Additionally, the long-standing structure of in-person learning in schools, which created large gaps in preparedness to transition to completely virtual learning modalities, was reported by survey respondents as a reason for not feeling prepared for the public health response in schools. One SD survey respondent reported that inadequate staffing played a part in feeling unprepared to respond to the COVID-19 pandemic, "This was the district's first response to a pandemic. We had to move from an in-person model to an online model over spring break. At the time, we only had a .5 FTE [full-time equivalent] district nurse who did not have experience with how to deal with a pandemic."-SD Survey Respondent

Education Service Districts

Most 62.5% (n=5) education service district (ESD) survey respondents felt their district was moderately prepared to respond to the COVID-19 pandemic; 25.0% (n=2) of respondents felt their district was minimally prepared to respond. A single respondent felt their ESD was highly prepared to respond to the pandemic. Regarding individual preparedness to respond to the pandemic, the majority of ESD respondents (62.5%, n=5) reported they were minimally or not at all prepared; three ESD respondents reported they were moderately prepared to respond. One ESD survey respondent who felt their ESD was moderately prepared commented that prior training in emergency preparedness and preexisting protocols and relationships with their local health department were key in why they felt prepared.

"I had no knowledge about health care protocols or best practices. We didn't even have laptops for teachers or Chromebooks for students. We didn't have enough textbooks for everyone to take a book home. Implementation and logistics were really overwhelming."

—SD Survey Respondent

"[I] was well aware of health response and education response during emergency or risk situations. We had internal mechanisms and protocols to immediately implement. Roll out of plans from ODE [Oregon Department of Education] was slow for school reopening documents and protocols. Excellent working relationship, collaboration and communication with local health department."

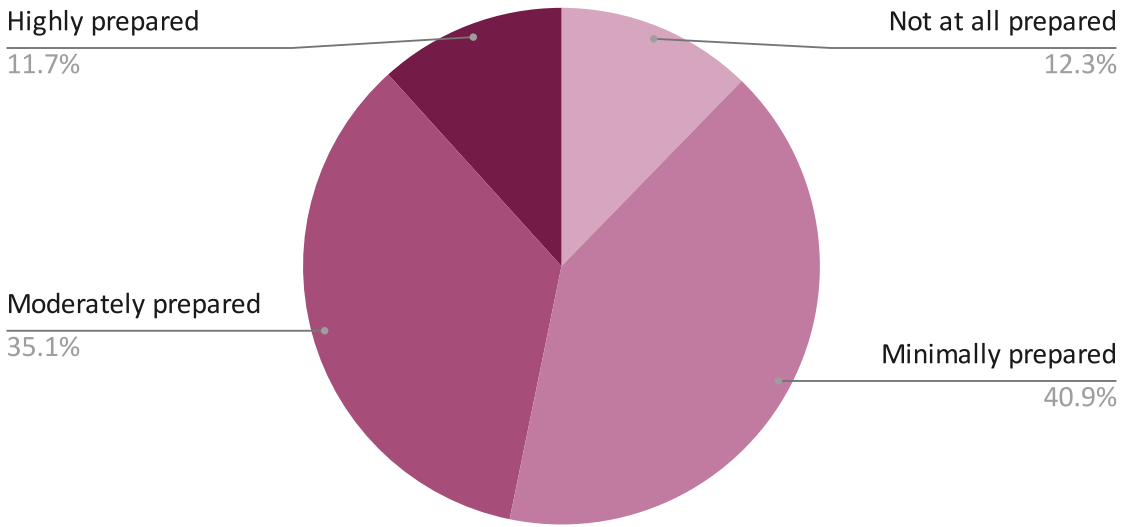
—ESD Interviewee

Principals

In contrast to SD and ESD preparedness, over half (53.2%, n=91) of Principals felt their school was minimally or not at all prepared to respond to the COVID-19 pandemic and approximately 11.7% (n=20) of Principals felt their school was highly prepared to respond to the COVID-19 pandemic.

Principals reported various levels of individual preparedness (e.g., knowledge, training, experience, expertise) to respond to the COVID-19 pandemic, with the vast majority (71.8%, n=121) reporting they felt not at all or minimally prepared to respond to the pandemic.

Figure 6: School preparedness for COVID-19 pandemic (School Principal respondents, N=171)



"Each person on our team would know their specific role in a health emergency, how to prop up the virtual aspects of school and all of the safety protocols."

—Principal Survey Respondent

"It was not something that I had been asked to do prior in my work, short of forwarding the county recommendations and HR notifications regarding the measles vaccine. I don't think the idea of school closing down as a response to a global issue had even occurred to me."

—Principal Survey Respondent

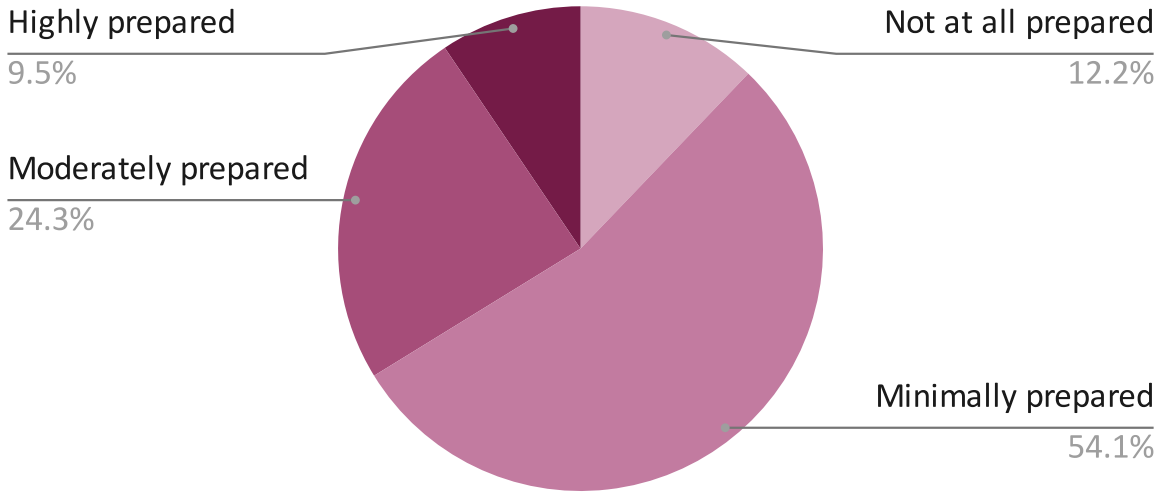
Many Principals reported they did not have prior experience with a public health crisis as large as the COVID-19 pandemic and that emergency preparedness training focused more on “realistic” emergencies. One Principal stated, “Our emergency preparedness focuses more on school shooter, emergency evacs and reunification, earthquakes. Things that in the past were much more likely.” Constant changes to school guidance and policies were noted as a major challenge by Principals, “Information was being provided at an incredibly rapid rate, changing constantly. It made it nearly impossible to be prepared in any way.” Some Principals stated they were proactive in responding to the COVID-19 pandemic—even before school closures, “I had an old binder that referred to response to SARS. Before being advised by the district, I knew to have science teachers give handwashing lessons to students and I canceled evening events before the district started canceling events.” Another considerable challenge to preparedness was the background of Principals, which did not include expanded knowledge or skills in health care or public health. In turn, many Principals reported their degrees “English" and "Education” were not helpful in preparing them to respond. Importantly, challenges associated with distance learning were frequently cited as a reason for feeling minimally or not at all prepared. One Principal reported, “The significant shift from in-person to virtual to hybrid had never been discussed.” Another said, “We were not prepared for distance learning or access to technology for students.”

Only 3.5% (n=6) of Principals felt highly prepared to respond. One Principal who felt they were highly prepared reflected on preparedness for the pandemic, “The biggest problem facing someone in a major crisis is that nobody has experience dealing with it so there is no one to lean on or learn from. After going through [it] I feel highly prepared to be able to use that experience to have better support and outcomes if another major crisis occurred.” Principals who felt moderately prepared cited prior experience and training in emergency preparedness, clear hierarchy of decision making, established policies, and community collaborations as factors influencing their level of preparedness. One Principal who was moderately prepared stated, “I knew that there would be a lot of logistics and I was prepared for the amount of work we would need to do and the decisions that would need to be made, but I didn't have any of the materials or PPE [Personal Protective Equipment] to put an immediate plan into action.”

School Nurses

Most (66.2%, n=49) of School Nurses felt their school was minimally or not at all prepared to respond to the COVID-19 pandemic. About 9.5% (n=7) and 24.3% (n=18) of School Nurses felt their school was highly prepared to respond to the pandemic and moderately prepared to respond to the pandemic, respectively.

Figure 7: School preparedness for COVID-19 pandemic (School Nurse respondents, N=74)



"I have a personal interest in global health, having grown up in the third world, and I keep abreast of outbreaks around the world. I went through the H1N1 outbreak while a school nurse and was familiar with symptom tracking and mass vaccination efforts."

—School Nurse Survey Respondent

Reporting on individual preparedness, approximately 41.9% (n=31) of School Nurses reported they were highly or moderately prepared to respond to the COVID-19 pandemic, citing prior involvement in infectious disease response (e.g., H1N1 response, Norovirus outbreaks) and nursing experience as contributors to their level of preparedness to respond to the COVID-19 pandemic. Prior experience in responding to the COVID-19 pandemic in a clinical or community setting before transitioning to a School Nurse was commonly cited as a reason for moderate or high levels of preparedness.

Most respondents (58.1%, n=43), however, reported they were minimally prepared or not at all prepared. School Nurses reported that a lack of experience in public health emergency response in a community setting, lack of training on school health policy development, limited training on emergency preparedness, and overall inexperience contributed to their level of preparedness. One School Nurse who felt minimally prepared to respond stated, "I knew of the ODE communicable disease guidelines & exclusion & PPE use, but nothing about contact tracing, covid [COVID-19] testing, county guidelines, air filtration requirements, creating health policies for schools & large scale staff trainings on health care issues to non-health care personnel." Another respondent stated, "I was fresh out of nursing school so I was completely new to the workforce. Then I found myself basically in charge of the response at my three schools with minimal training or overhead."

Funding for schools

Funding streams to support COVID-19 response in schools

The vast majority of funding received by SDs and ESDs for COVID-19 response work was from the Elementary and Secondary School Emergency Relief Fund (ESSER). This funding was distributed in three iterations (ESSER I approved in March 2020, ESSER II approved in December 2020, and ESSER III approved in March 2021). ESSER is a federal program administered by the Department of Education in response to the COVID-19 pandemic. The program provides emergency financial assistance to public school districts across the country. Since the start of the pandemic, Oregon has received $1.62 billion in ESSER funds to support Oregon student needs (ODE, n.d).

Fourteen SD survey respondents (20.9%) reported affirmatively that their district received COVID-19 funding from entities other than ODE, 45 (67.2%) reported that they did not, and eight (11.9%) did not know. Other sources of funding reported by SD survey respondents included federal funding, foundation grants, local COVID-19 grants, Chamber of Commerce and Business Oregon funding, and Governor's office funding. In addition to funding, some respondents reported receiving donations of PPE from other local or regional agencies.

Some SD and ESD interviewees mentioned using "state funds" for COVID-19 response, with two interviewees describing using their state school fund money and three receiving state contributions specifically for summer school programs. One SD interviewee noted that the funding their district received to support COVID-19 response came more quickly than typical governmental funding and appreciated the flexibility of some funding sources.

"The lion's share of money that came through the state was federal money through ESSER. And that really was, those are really the funds we've used almost exclusively to address all of the impacts of COVID-19, the disproportionality we saw, and we continue to see, really the ESSER funding has been the main source of funding."

—SD Interviewee

"The funding came, I would say more quickly than I normally see from the federal and state governments. So, things normally move slowly. I thought they did a pretty good job of actually getting the funding out quickly. So, that was helpful. And then there was flexibility in some of the spending, and I appreciated the latitude."

—SD Interviewee

"[Northern Oregon] county health department, during the 21-22 school year, and the prior summer, did contract with us to support two of our communicable disease team positions, because they recognized the amount of public health work we were doing instead of just the education work that we've always done as school nurses.

—ESD Interviewee

One ESD interviewee received funding from their LPHA to pay for two of their communicable disease team positions.

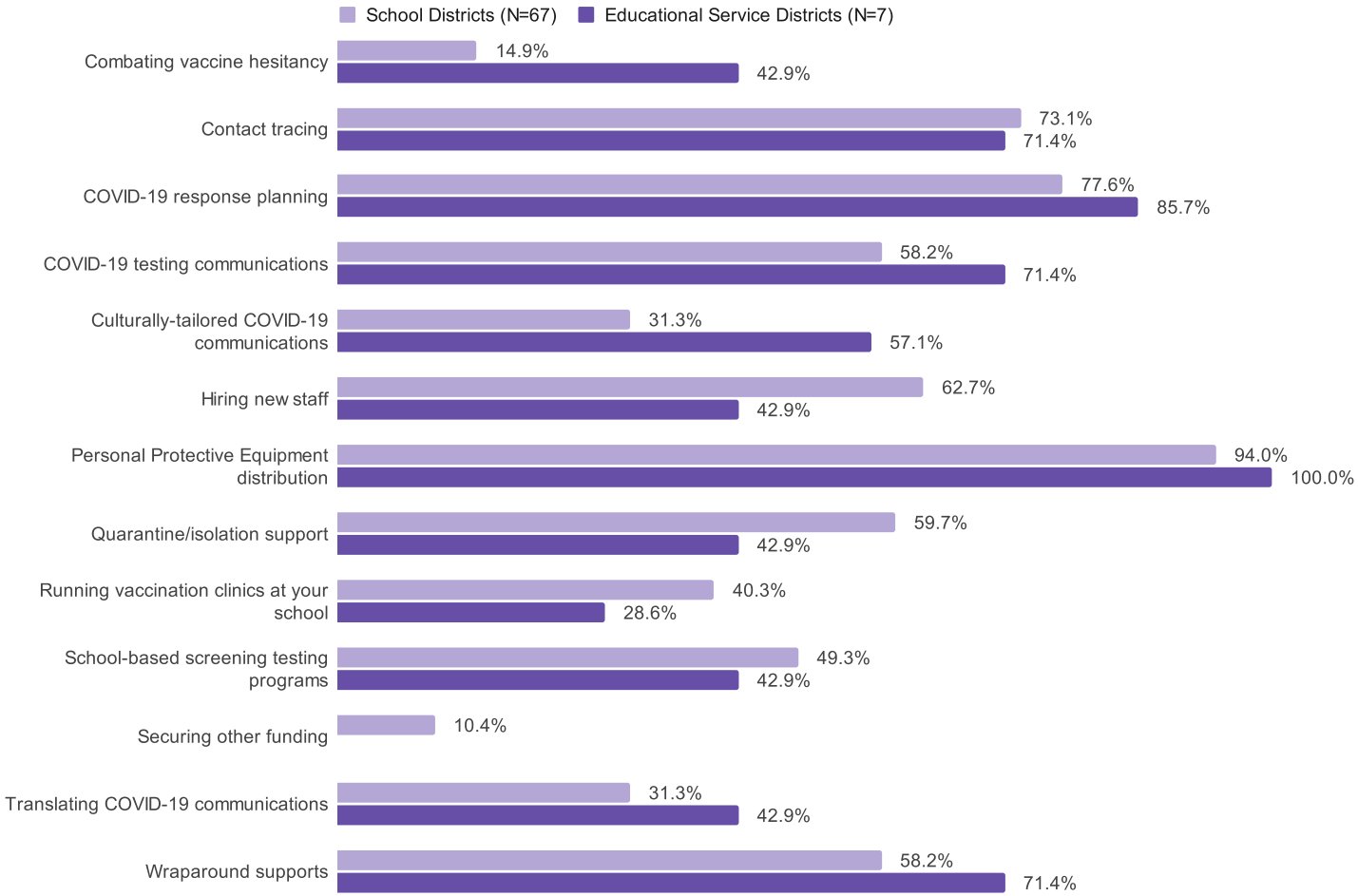
SDs, ESDs, and Principals also reported receiving non-governmental funds to support their COVID-19 response in schools. Non-governmental funds mentioned by study participants included grants from Facebook, Google, and local CBOs.

The majority of Principal survey respondents (61.9%, n=83) were unsure if they received funding from any entities besides ODE, with a few respondents reporting this uncertainty due to a lack of involvement in funding decision-making (e.g., funding handled at the district level). Nearly one-fifth (19.4%, n=26) of Principal survey respondents reported their school received funding to support the COVID-19 response from entities other than ODE and 20.9% (n=28) of Principal survey respondents reported ODE was the only source of funding to support pandemic response in their school. Other sources of funding to support response in schools reported by Principal survey respondents included donations from local churches and organizations, Student Investment Account funds, support from health care partners, and local education foundation funds.

Uses of funding to support COVID-19 response in schools

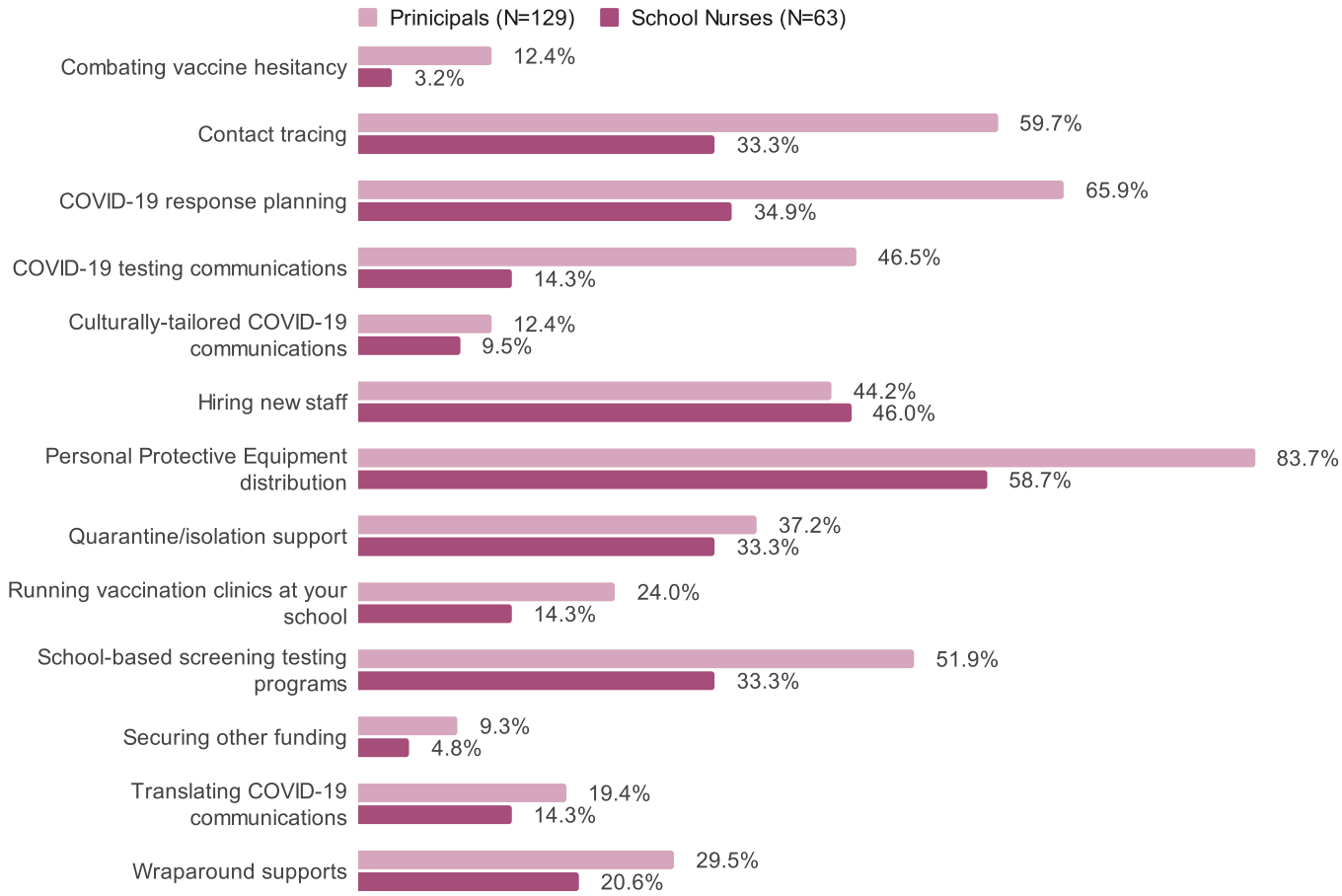
Study participants involved in Oregon's COVID-19 public health response in schools were asked about the use of COVID-19 funding to support district- and school-level pandemic response. Qualitative and quantitative analysis revealed use of funds for an array of pandemic response activities. SD and ESD survey respondents reported utilizing state and other funding to coordinate COVID-19 pandemic response at the district level (Figure 8). SDs and ESDs were aligned in much of their utilization of COVID-19 funds; SDs and ESDs most frequently reported using funding to procure PPE (94.0% and 100%, respectively), followed by COVID-19 response planning (77.6% and 85.7%, respectively).

Figure 8: How SDs and ESDs utilized COVID-19 funding



Principals and School Nurses reported using funding for multiple pandemic response activities at the school-level. Principals and School Nurses most frequently reported using COVID-19 funding to secure PPE (83.7% and 58.7%, respectively). A thorough review of the reported use of COVID-19 funds to support response in schools is provided in the following paragraphs.

Figure 9: How schools utilized COVID-19 funding



Staffing + operations

Use of funds to hire new staff was a primary use of COVID-19 funding to support Oregon's pandemic response in schools. About two-thirds of SD survey respondents (62.7%, n=42) and 42.9% (n=3) of ESD respondents reported using funds to hire new staff. About 44.2% (n=57) of Principals reported using funds to hire new staff, which is similar to the percent of School Nurses (46.0%, n=29) who reported using funds to hire new staff. One School Nurse interviewee specifically mentioned appreciating the ability to use overtime to increase nurses' capacity.

Funding was also frequently utilized to support COVID-19 response planning. At the district-level, 77.6% (n=52) of SD survey respondents and 85.7% (n=6) of ESD respondents reported using funds to support response planning. Two-thirds of Principal survey respondents (65.9%; n=85) and 34.9% of School Nurse survey respondents reported spending on COVID-19 response planning.

Community engagement + health equity

Approximately 31.3% (n=21) of SD respondents and 57.1% (n=4) of ESD respondents reported using funding for culturally-tailored COVID-19 messaging to their school communities. About 31.3% (n=21) of SD survey respondents and 42.9% (n=3) of ESD respondents reported using funding to translate federal, state, or local COVID-19 communications. Approximately 12.4% (n=16) of Principals and 9.5% (n=6) of School Nurses reported they used COVID-19 funding to provide culturally-tailored, population-specific COVID-19 communications, respectively.

"Overtime was a resource that we were allowed to do, which helped ease it a little bit. Also, they were more willing to look at FTEs, realizing that COVID took all the time away from the actual in-school issues that we had so we were able to hire, if I could find a nurse during Covid [COVID-19], didn't really find a lot of nurses, so primarily money"

—School Nurse Focus Group Participant

PPE + other supplies or equipment

Of survey respondents, the vast majority reported spending funding to acquire PPE. About 94.0% of SD (n=63) and 100% of ESD respondents reported using funding to acquire PPE. Approximately 83.7% (n=108) of Principals and 58.7% (n=37) of School Nurses reported using funding for PPE. Some SD and ESD respondents mentioned issues with being told conflicting messages about which PPE to purchase and distribute, costing schools resources. Principals reported using additional COVID-19 relief funds to procure additional PPE and other necessary supplies.

Testing + contract tracing

The majority of SD and ESD survey respondents reported spending COVID-19 funds on contact tracing, 73.1% (n=49) and 71.4% (n=5), respectively. A little over half of Principal survey respondents, 59.7% (n=77%), reported spending COVID-19 funds on contact tracing. Roughly half of Principal survey respondents (51.9%; n=67) reported spending on school-based screening programs. One School Nurse reported they used a CDC grant to help staff with contact tracing.

Vaccination

About 40.3% (n=27) of SD survey respondents and 28.6% (n=2) of ESD survey respondents reported they used COVID-19 funding to support vaccination clinics at schools, respectively. Additionally, 24.0% (n=31) of Principals and 14.3% (n=9) of School Nurses reported using funding to run vaccination clinics at their school. SD respondents more frequently reported using COVID-19 funding to combat vaccine hesitancy, with 14.9% (n=10) of SD respondents and 42.9% (n=3) of ESD respondents reporting use of funds for this reason. Approximately 12.4% (n=16) of Principal and 3.2% (n=2) of School Nurse survey respondents reported using funds to combat vaccine hesitancy.

Wraparound supports

About 58.2% (n=39) of SD and 71.4% (n=5) of ESD survey respondents reported using COVID-19 funding for wraparound supports. Some SD and ESD interviewees reported using COVID-19 funding to ensure students received meals they would typically receive during the school day. For example, some interviewees reported that, in addition to the typical school meals offered (i.e., breakfast and lunch), some provided dinner as well.

Some SD and ESD interviewees reported using COVID-19 funding for mental health and social-emotional learning supports. One ESD reported they received a grant from Google to provide mental health support during the pandemic, "We worked with Google, they gave us a grant for a hundred thousand for mental health support. There were other partners along the way also, of course, that offered funding."- ESD Interviewee

Some SD and ESD interviewees also reported using COVID-19 funding for additional school days or summer learning programs to support students.

About 29.5% (n=38) of Principals and 20.6% (n=13) of School Nurse survey respondents reported using COVID-19 funding for wraparound supports.

Media + communication

About 58.2% (n=39) of SD and 71.4% (n=5) of ESD survey respondents reported using COVID-19 funding for COVID-19 testing communications. As stated above, SD and ESD survey respondents and interviewees reported using funding to translate COVID-19 messaging and to create culturally-tailored messaging. One SD and ESD interviewee reported using COVID-19 funding to purchase communication tools to improve emergency response. Similarly, 46.5% (n=60) of Principals and 14.3% (n=9) of School Nurse respondents reported using funding for COVID-19 testing communications. Although Principal survey respondents reported using funding for media and communication, this was not something that participants brought up during focus groups.

"We were doing three meals a day actually, and running buses all over the county. We were doing a grab and go breakfast. And then, the second one was a lunch and a supper. And I think we did 600,000 meals."

—SD Interviewee

Technology

SDs also reported spending a large amount of funding to improve technology access for their students. Over half of SD and ESD interviewees reported using COVID-19 funding for technology and other distance learning supports, which is unsurprising given the overwhelming number of study participants who reported their district was not fully prepared for a complete transition to distance learning. One Principal reported securing funds from Facebook to ensure students' technological needs were met during the onset of the pandemic.

"We spent quite a bit of money just trying to create a more robust online experience. So, we spent a lot of money on Chromebooks for all the kiddos because we were not a one-to-one school. And so, we needed to make sure that all the kids had devices and then hotspots for people that didn't have very good internet and just that kind of stuff for when we were virtual."

—SD Interviewee

"It was everything from PPE, to devices, to hotspots. I was paying between $20,000-$26,000 a month for hotspots for kids, because we have people that just didn't have Wi-Fi, and it was purchase of devices, and a learning management system, and ESSER I. So, I tried not to spend a lot of money on people knowing the grant would run out."

—SD Interviewee

"Facebook met with us and kind of was like, what are your needs? So, early on we were able to make sure that everyone had computers, people that didn't have internet, we had buses that went out to have kind of places until we were able to get hotspots so that we could give hotspots to people that didn't have internet."

—Principal Focus Group Participant

Modification of school buildings

Education study participants reported using COVID-19 funding to modify school buildings to reduce risk of COVID-19 spread in schools and meet public health mandate requirements in a number of ways. These included:

- improved or new ventilation systems in school buildings;
- single-room ventilation systems (classroom filtration systems);
- signage in school buildings;
- plexiglass dividers for use throughout classrooms and other areas; and
- purchasing single-child desks to enable social distancing.

> "I spent $250,000 on desks so that students are on individual student desks, because they were in tables before. So, there were some challenges to overcome that without the finances, we could not have opened and followed the requirements there."
>
> —SD Interviewee

Necessary improvements to funding processes + mechanisms

Key players in Oregon's public health response to the COVID-19 pandemic in schools, including SDs, ESDs, Principals, and School Nurses, were appreciative of funding received to support COVID-19 response in their communities. Nevertheless, study participants reported experiencing the following funding-related issues:

- lack of clarity around use of funding, including changes to funding;
- inflexible use of funds for specific items that certain schools or districts might not have needed;
- funding amounts were not distributed to communities based on need;
- delays in receiving fundings;
- short duration for spending funds; and
- heavy reporting requirements for funding.

> "We use those dollars for HVAC system improvements, possibly classroom filtration, any kind of furniture things that we had to do, if people wanted to have plexiglass things in the office, or on teacher desks, or things like that. So, some PPE stuff"
>
> —SD Interviewee

The most frequently reported barrier to efficient use of COVID-19 funding to support school response was the same for Principals and ESDs—spending requirements associated with the funding source—with 28.7% (n=37) of Principals, and 57.1% (n=4) of ESD respondents reporting this barrier (Figures 10 and 11). Reporting requirements associated with the funding source was another frequently reported barrier among Principals (24.0%, n=31). About one-fifth (21.7%, n=28) of Principal survey respondents reported the length of time it took to receive funds was a barrier to the efficient use of COVID-19 funding. The most frequently reported barrier by School Nurse survey respondents was hiring new employees (23.8%, n=15), followed by school/district administrative requirements (22.2%, n=14) , and spending requirements (20.6%, n=13).

Figure 10: Barriers to efficient use of COVID-19 funding for SDs and ESDs

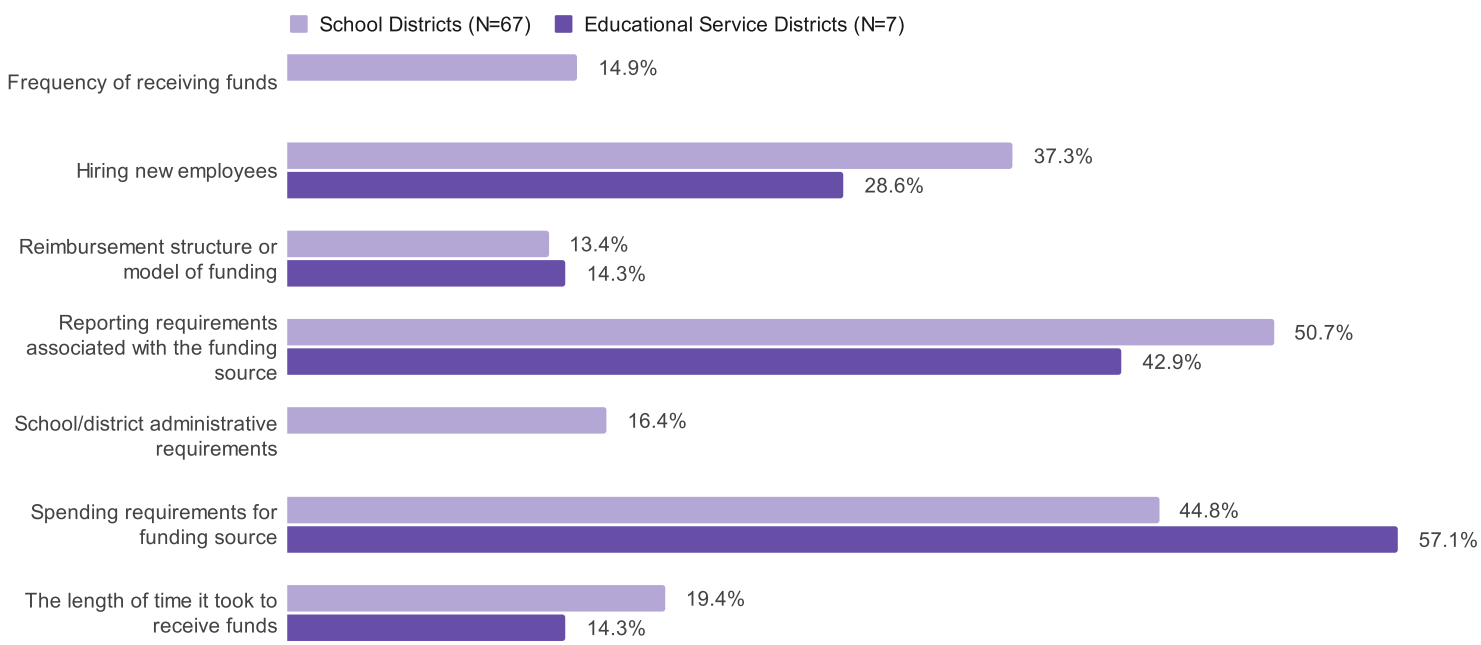
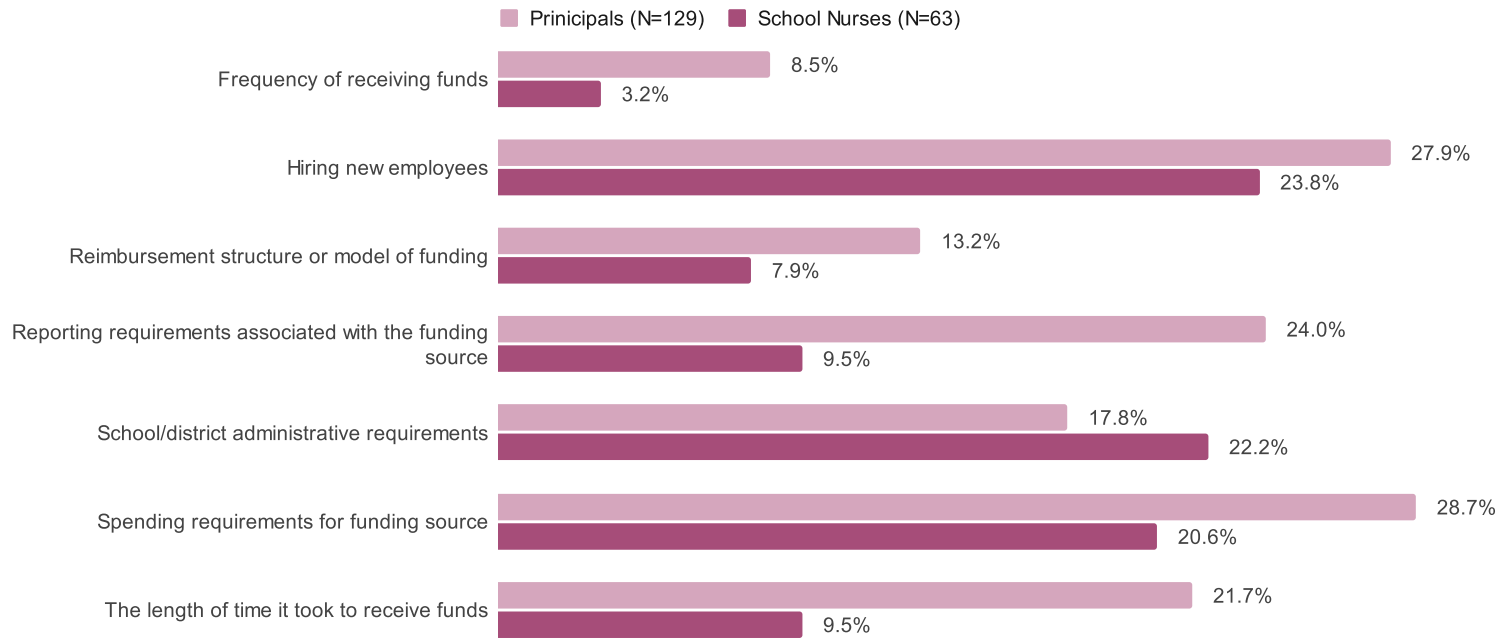
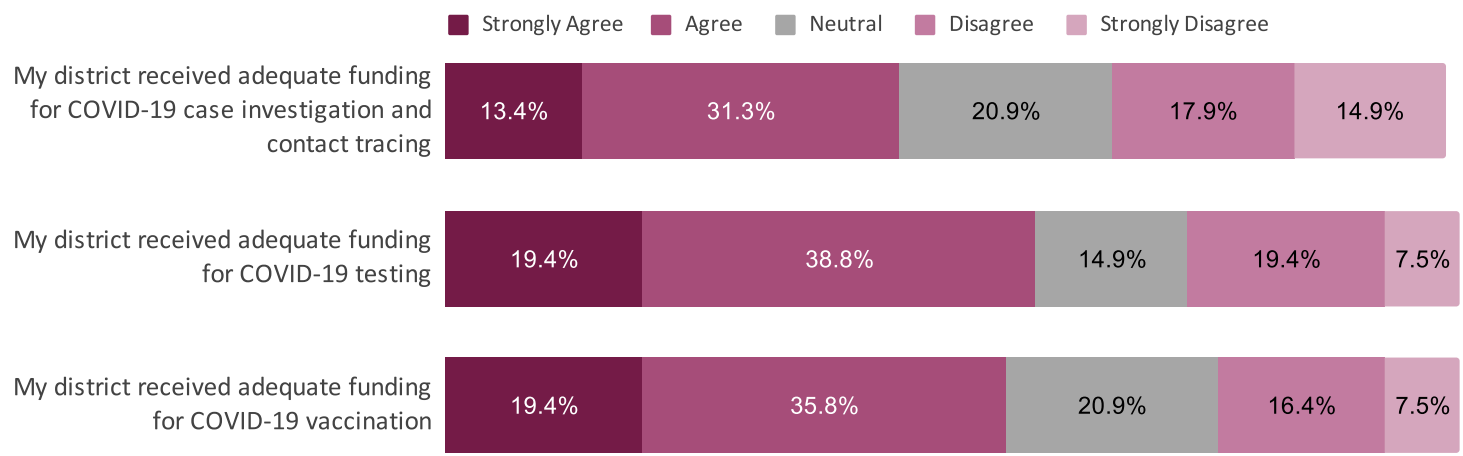


Figure 11: Barriers to efficient use of COVID-19 funding for schools



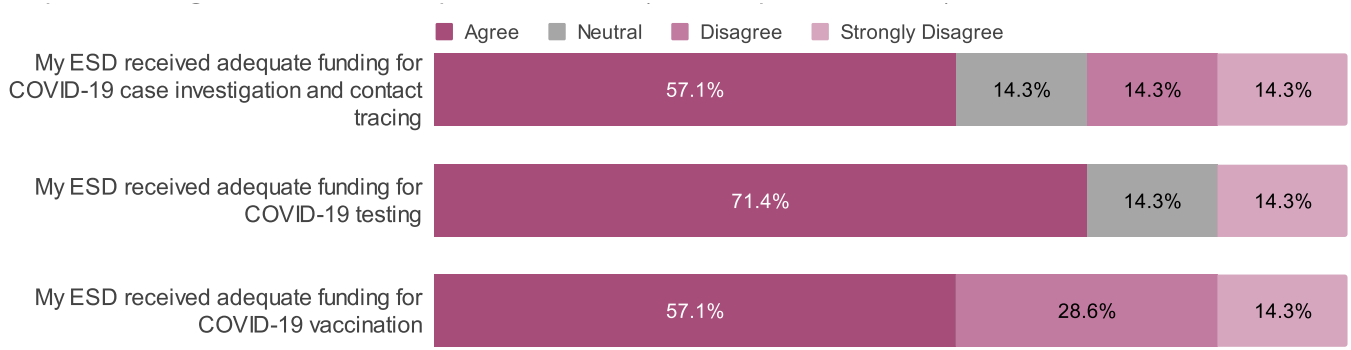
All educational survey respondents were asked whether their district or school received adequate funding for specific COVID-19 response activities. About 44.7% (n=30) of SD survey respondents agreed or strongly agreed that their district received adequate funding for case investigation and contact tracing and about one-third (32.8%, n=22) disagreed or strongly disagreed (Figure 12). Over half of SDs agreed or strongly agreed (58.2%, n=39) that they received adequate funding for testing and 55.2% (n=37) reported they received adequate funding for COVID-19 vaccinations.

Figure 12: Adequate funding for COVID-19 response activities (SD respondents, N=67)



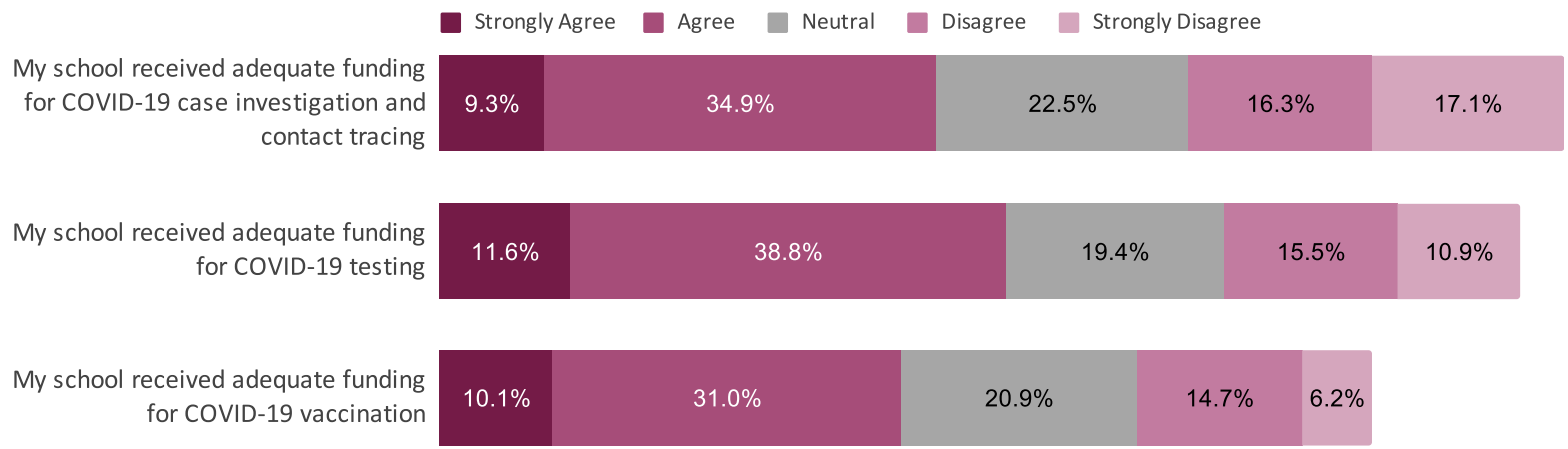
Over half (57.1%, n=4) of ESD survey respondents agreed or strongly agreed that their ESD received adequate funding for COVID-19 case investigation and contact tracing (Figure 13). Almost three-fourths (71.4%, n=5) and over half (57.1%, n=4) of ESD respondents agreed or strongly agreed that they received adequate funding for testing and vaccinations, respectively.

Figure 13: Adequate funding for COVID-19 response activities (ESD respondents, N=7)



Approximately 44.2% (n=57) of Principal respondents agreed or strongly agreed that their school received adequate funding for case investigation and contact tracing and a third (33.3%, n= 43) disagreed or strongly disagreed (Figure 14). Half of Principal respondents (50.4%, n=65) agreed or strongly agreed that their school received adequate funding for testing. Less than half of Principal respondents (41.1%, n=53) agreed or strongly agreed that they had enough funding for vaccinations; 17.1% (n=22) of reported they were not involved in COVID-19 vaccination.

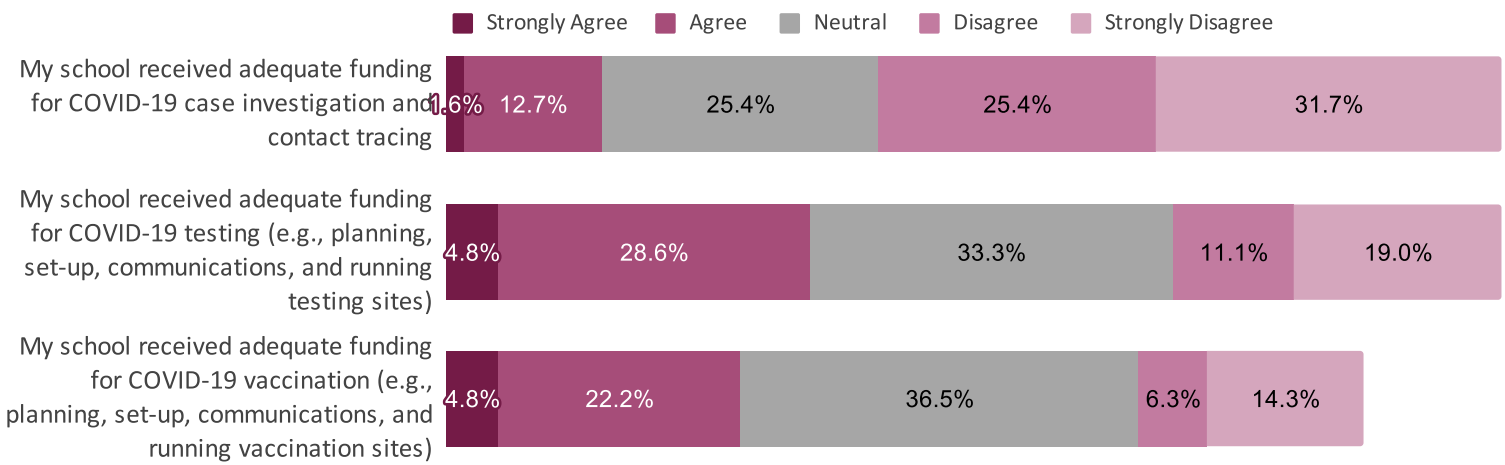
Figure 14: Adequate funding for COVID-19 response activities (School Principal respondents, N=129)



Note: Responses to each activity do not equal 100% because these represent all responses except for "N/A, My school did not engage in these activities"

Among all educational study participants, School Nurse survey respondents most frequently disagreed or strongly disagreed that their school received adequate funding for COVID-19 case investigation and contact tracing (57.1%, n=36); only 14.3% (n=9) of respondents agreed or strongly agreed with this statement (Figure 15). A larger percentage of School Nurses agreed or strongly agreed that they received adequate funding for testing (33.4%, n=21), and vaccinations (27.0%, n=17).

Figure 15: Adequate funding for COVID-19 response activities (School Nurse respondents, N=63)



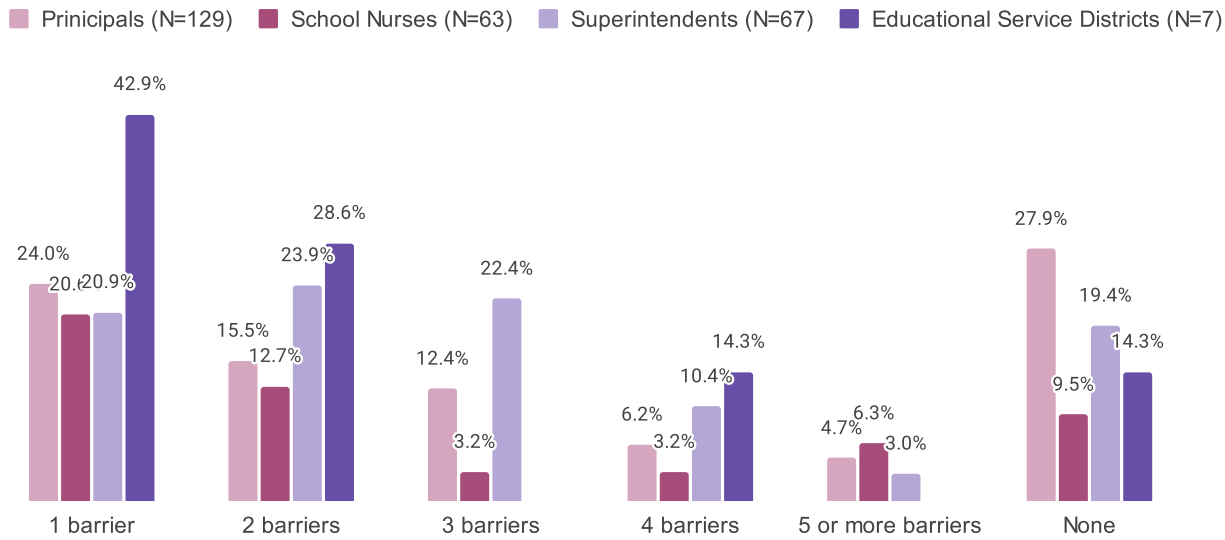
Note: Responses to each category do not equal 100% because these represent all responses except for "N/A, My school did not engage in these activities"

Unrestricted + flexible funding

SD and ESD survey respondents reported their district experienced many barriers to the efficient use of COVID-19 funding (Figure 16). Frequently cited barriers to the efficient use of funds included spending requirements associated with the funding source, hiring new employees, and the length of time it took to receive funds. These barriers were echoed in interviews with SD and ESD interviews.

Figure 16 displays the number of funding-related barriers experienced by each educational informant group for this study. Looking across various informant groups, nearly one-third (27.9%, n=36) of Principal survey respondents reported they did not experience any barriers to efficiently using COVID-19 funds. SD survey respondents reported experiencing the largest number of barriers relating to use of funds, which is unsurprising given that most funds were distributed at the district level.

Figure 16: Numbers of barriers experienced in the efficient use of COVID-19 funds



"A lot of the federal money had certain restrictions on it that just really had to, I think because school districts are not public health agencies, I think it was just trying to navigate what was allowable and what wasn't allowable, would've been the biggest challenge, but they made it work, to be able to utilize those funds to support where they could."

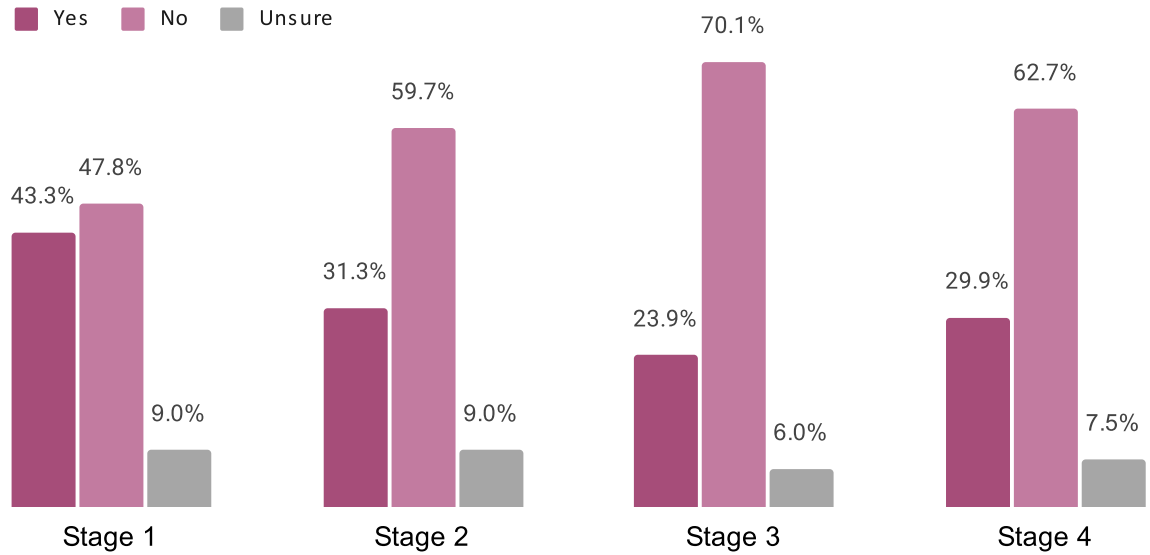
—ESD Interviewee

Predictable funding schedules + timelines

Study participants involved in Oregon's public health response in schools were asked whether they worried about being able to have enough funds to support ongoing COVID-19 response in their district or school during specific stages of the pandemic.

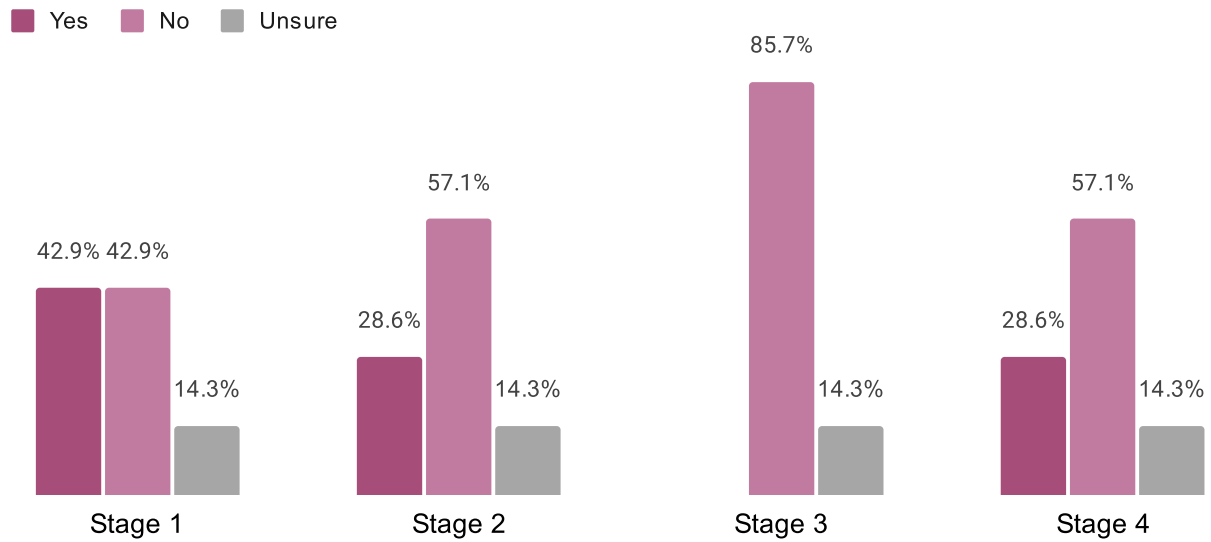
During Stage 1 of the COVID-19 pandemic, 43.3% (n=29) of SD survey respondents reported they were concerned about continued funding to support COVID-19 response (Figure 17). The percent of SDs who reported this response decreased slightly across Stages 2 and 3. In Stage 4, however, there was a 6% increase in the number of respondents who reported they were worried about funding, escalating from 23.9% (n=16) in Stage 3 to 29.9% (n=20) in Stage 4. Across all stages, 13.4% of SD survey respondents (n=9) were worried about continued funding to support COVID-19 response in their district.

Figure 17: Did district worry if they would continue to have enough funds to support community in managing the COVID-19 pandemic (SD respondents, N=67)



With the exception of Stage 1 of the pandemic, the majority of ESD survey respondents reported they were not concerned about having enough funding to support their school community (Figure 18). During Stage 3, not a single ESD respondent was worried about running out of funds. One respondent was unsure about funding predictability across all stages.

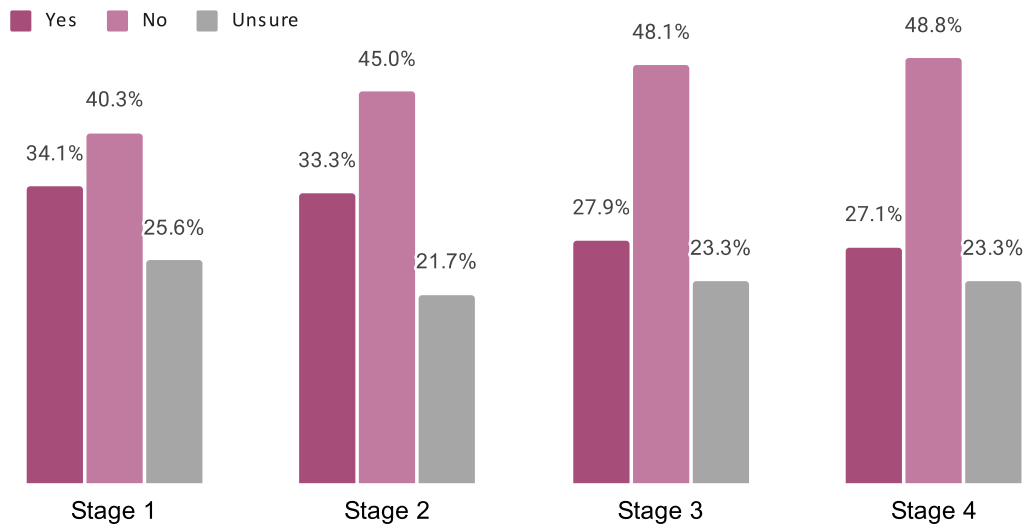
Figure 18: Did ESD worry if they would continue to have enough funds to support community in managing the COVID-19 pandemic (ESD respondents, N=7)



In comparison with SD and ESD respondents, a smaller percentage of Principals were worried about whether they would have enough funds to continue supporting COVID-19 response. About one-third of Principal survey respondents were worried whether they would have enough funds to continue to support their school's COVID-19 response 34.1% (n=44) in Stage 1 and 33.3% (n=43) in Stage 2. Funding worries among Principals diminished over time, with nearly half of survey respondents reporting they were not worried about funding by Stage 4.

Some SD and ESD study participants reported that tight timelines to spend COVID-19 funding was a challenge and they appreciated when timelines for specific funding sources were extended.

Figure 19: Did school worry if they would continue to have enough funds to support community in managing the COVID-19 pandemic (School Principal respondents, N=129)



"We ended up with quite a bit of cash we had to figure out how to spend. I hate to say it out loud, but it was almost like too much money in a short amount of time. So, we were glad that they extended the timelines. It's not over. And so, having an extended timeline, I mean even through 2024 is not totally extended but better than being done now. So, that's how we're going to do some of these construction kind of things that will help us in the future. Again, replacing a rooftop, they're called RTS rooftop units for heating, ventilation, and air conditioning (HVAC) and things like that. So, those projects are still underway."

—SD Interviewee

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

The most frequently reported COVID-19 funding-related challenge encountered by SD survey respondents was reporting requirements associated with the funding source, with 50.7% (n=34) of survey respondents experiencing this barrier. For Principal survey respondents, reporting requirements associated with the funding source was the third most frequently cited barrier to the efficient use of COVID-19 funding. Reporting requirements seemed to be more frequently brought up as a barrier in districts that did not have as many staff members.

Solutions for staffing + sustainability after COVID-19 funding

A large number of educational sector study participants reported staffing-related barriers, including the hiring and training of staff,hindered the efficient use of COVID-19 funding. Approximately 37.3% (n=25) of SD respondents and 28.6% (n=2) of ESD respondents reported hiring new employees was a barrier to efficient use of funds; 27.9% (n=36) of Principal survey respondents also reported that hiring new employees was a barrier to the efficient use of funds. Some schools reported they either did not have a school nurse at all or had to share a nurse during the pandemic, which they felt hindered their response. It is important to invest in additional school nurse support for schools to aid in response to future public health emergencies.

> "When they have to write reports, that's a full-time job for a person. When I have to write those same reports, it can't be a full-time job because it has to be divided amongst all the other hats that I wear. And I'm not the only superintendent in that boat. All of us were in that boat. So we needed the funds as badly as everybody else. We needed the ability to purchase the same resources that everybody else was purchasing. The level of accountability at times made it feel like we shouldn't have accepted the money. It almost felt like we are being punished more than the machines, than the big schools who have staffing for that work."
>
> —SD Interviewee

"The injection of funding into the state and down to the schools has been a little bit confusing. While valuable, it's one time; we knew immediately that we couldn't use it for staffing or anything that required sustainability because of the stimulus nature of the money. It was designed to be a one-off."

—SD Interviewee

"I think areas of improvement honestly could be for funding to be extended beyond the current deadline. Because we're not done with the pandemic, I still have dollars. I still would like to be able to use those to support kids and staff. Just because there might be a June 30th or whatever deadline on funds doesn't mean we're out of the woods yet. Not even asking for more money, but if I could extend the money that I've got further, that would be wonderful."

—ESD Interviewee

"It had to be used as a one-off. So purchasing things one time with no expectation of sustainability or that we would do it again in future years sort of became the expectation. As the rules have changed with ESSER III, most recently, one-off purchases are not as easy as they were. It's sort of feels punitive to have those funds available to us now the way they're being overseen."

—SD Interviewee

Operationalizing the COVID-19 response

Operational coordination

An event the scale of COVID-19 was uncharted territory for Oregon's schools. Although some Oregon schools had emergency response coordination experience with prior events, such as influenza, wildfires, or norovirus, these were localized events where operational coordination and response was handled at the local level. Thus, a formalized response at the state level, where there was structural alignment and coordination between state agencies such as OHA and ODE, had not been necessary.

OHA's support to Oregon's pandemic response in schools focused on relaying timely, accurate information about COVID-19, updating public health mandates, and answering questions on these topics for those directly involved in the response. In addition to providing funding to support COVID-19 pandemic response in schools, ODE's role in Oregon's public health response in schools focused on interpreting public health mandates provided by OHA for schools, providing guidance to school districts, and answering questions about how to adhere to the mandates in schools. As part of ODE's role in response coordination, they reported collaborating with various education partners throughout the duration of the pandemic, including SDs, ESDs, principals, school nurses, school faculty, and staff.

During Stage 1 of the pandemic, ODE worked on creating centralized modes of COVID-19 communication, which resulted in the formation of a COVID-19 ODE email inbox. ODE reported they worked with OHA on any public health-related communication pieces, which was no easy task.

"For those kinds of past activities that haven't been pandemic level in nature, flu maybe cross that line. It was really local action where the interaction happened and there wasn't as much formal structured alignment between the state agencies."

—Educational Sector Interviewee

"I might meet with a group of nurses, hear their concerns, digest it internally, bring it to the OHA/ODE joint meeting, come up with a solution and then figure out how it would make that iterating guidance."

—ODE Interviewee

One ODE interviewee reported it took "hundreds of hours" to coordinate with OHA to centralize COVID-19 messaging and communication. As ODE worked through their response, they were examining how other states and countries were responding to inform Oregon's response in schools; ultimately, this research developed into the Ready Schools, Safe Learners document and subsequent iterations. School districts and ESDs reported they appreciated ODE's lead and guidance on developing guidance and procedures in schools.

ODE was also responsible for managing the COVID-19 response plans required by each SD and served as a reopening advisor for SDs. ESDs provided staffing for Reopening Advisors (now called Communicable Disease Preparedness Liaisons) through a contracts with ODE The state provided documents to guide policies and procedures in schools, which study informants appreciated. As the pandemic progressed from Stage 1 to Stage 2, ODE reported they tried to return to local decision-making.

"So we moved from a hundred plus page body of very detailed, very researched, very specific guidance that had been contextualized through OHA on the public health side and through ODE on the education side to a scaled down resiliency framework is what we called it for Ready Schools, Safe Learners that really put in motion, the concept of returning to local decision making on these things, elevated the things that had existed prior to the pandemic that schools were going to, over time, become increasingly reliant on for managing communicable diseases. And really then starting to construct a framework that centered students and families in how schools were going to be moving forward with that local decision making to manage illness."

—Educational Sector Interviewee

"And so, just all of that kind of guidance I guess, of what to do and when to do it and sample letters and spreadsheets for testing protocols and just sign-in sheets and just all of that kind of stuff was very helpful to not have to produce on our own. In fact, that would've been really, really difficult."

—SD Interviewee

SDs reported some frustration with LPHA coordination, which seemed to come from the large amount of unanticipated public health responsibility that was given to SDs.

Principals felt supported by their SDs and ESDs, particularly relating to the development and implementation of COVID-19 plans at the school level. Development of building- and school-specific COVID-19 response plans varied throughout the state. For some districts, it was a very coordinated effort where multiple informants were brought to the table. In other instances, guidance was sent to Principals and decisions were made at a school level. Some School Nurse interviewees reported they were largely not responsible for decision-making for their schools and instead were responsible for implementing public health mandates in their school.

Many Principal focus group participants reported their LPHA was a large partner who aided them in across multiple areas of COVID-19 response at the school level. Specific areas of operational coordination mentioned by Principal interviewees included PPE procurement and COVID-19 information and guidance changes.

Some study informants, however, noted disconnects in response coordination between the educational and public health sectors. This was most noted at the school-level, as Principals and School Nurses reflected that unclear role delineation caused confusion and in some instances, hindered the school's ability to timely respond. One School Nurse reflected on this disconnection in response coordination: "I was under the impression that LPH would take the leadership role and handle everything with some assistance from us, not the other way around."

"It felt, and still feels like schools shouldered so much of the public health burden of our young people and communities during this time. We became public health departments and that is not our jobs."

—SD Interviewee

"As a nurse in the district we were the last to know of policies and procedures. We had no role in decision making and found it very frustrating."

—School Nurse Survey Respondent

"So, I'm gonna say that our local health department was probably the largest asset for us. They partnered with us obviously by getting some supplies to us initially masks, hand sanitizer, stuff like that. Setting up, you know, opportunities for our staff to get vaccinated and eventually other groups within our school. But we met with them, we actually had a pretty good system within our county and we met with them, I think it was about at least biweekly we met with them. And so, they came and gave us an update of what was going on and things that were coming down the pipe maybe or things that had changed."

—Principal Focus Group Participant

"I was on a leadership team. We made all decisions for our buildings based on the guidance. And so, that there was, I think there was about [15-35] people that sat in a room and came up with all the building level guidance… We had all of our Principals, or all of our district admin Principals. And then we had counselors and we had our deans of students and I think there were some teacher leaders that were also involved. We had some representation from our union on there so we could all collaborate on what this was gonna look like and also to control the messaging."

—Principal Focus Group Participant

"A lot of paperwork and frameworks and guidance and all that. I do feel like for me in [county name], I did feel really supported both from my district level administration and also the county health department. And I felt like there was a contact at the county health that I could call if I had questions and they would get back immediately. I felt like our administrators at the district level were extremely supportive in helping us create our blueprints and follow through and just a lot of support."

—Principal Focus Group Participant

Utilizing existing plans + structures

Emergency Operations Plan (EOP)

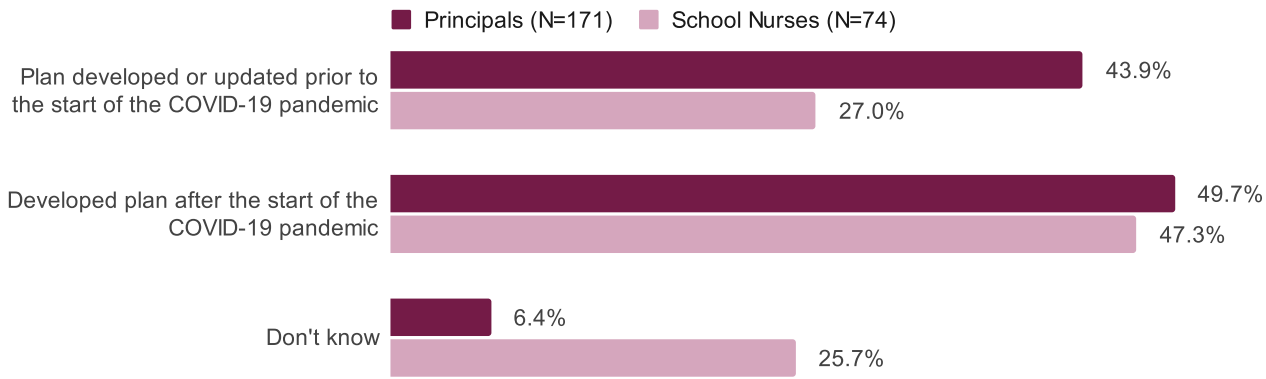
Most Principal survey respondents (49.7%, n=85) stated their school did not have an EOP before the pandemic, but developed one after the start of the pandemic; 43.9% (n=75) stated their school already had an EOP in place prior to the start of the pandemic. A handful of Principal survey respondents (6.4%; n=11) did not know about the existence of an EOP for their school.

Similar to Principal survey respondents, most School Nurse survey respondents (47.3%, n=35) reported their schools did not have an EOP at the start of the pandemic, but developed one after the start of the COVID-19 pandemic. Just over a quarter of School Nurse respondents (27.0%, n=20) reported their school had an EOP in place that was developed prior to the start of the COVID-19 pandemic.

Communicable Disease Management Plan

Less than half of Principal survey respondents (44.4%, n=76) reported their school had a Communicable Disease Management Plan in existence prior to the pandemic and half (49.7%, n=85) created one after the start of the COVID-19 pandemic. Notably, one respondent (0.6%) stated that their school did not have a Communicable Disease Management Plan and 5.3% (n=9) did not know the status of a Communicable Disease Management Plan in their school.

Figure 20: Existence of a School Emergency Operations Plan (EOP) at school



Most School Nurse survey respondents (51.4%, n=38) reported their school had a Communicable Disease Management Plan in existence prior to the pandemic.

Areas of response

Education sector survey participants were asked about the specific ways they responded to the COVID-19 pandemic at the district- or school-level. The following sections will delve into specific activities associated with the COVID-19 response in schools.

> "Helping districts with those plans, supporting technical assistance. And that involved our education staff and our school nurses pulling together to help schools stay open."
>
> —ESD Interviewee

Figure 21: Ways SDs and ESDs responded to COVID-19 pandemic

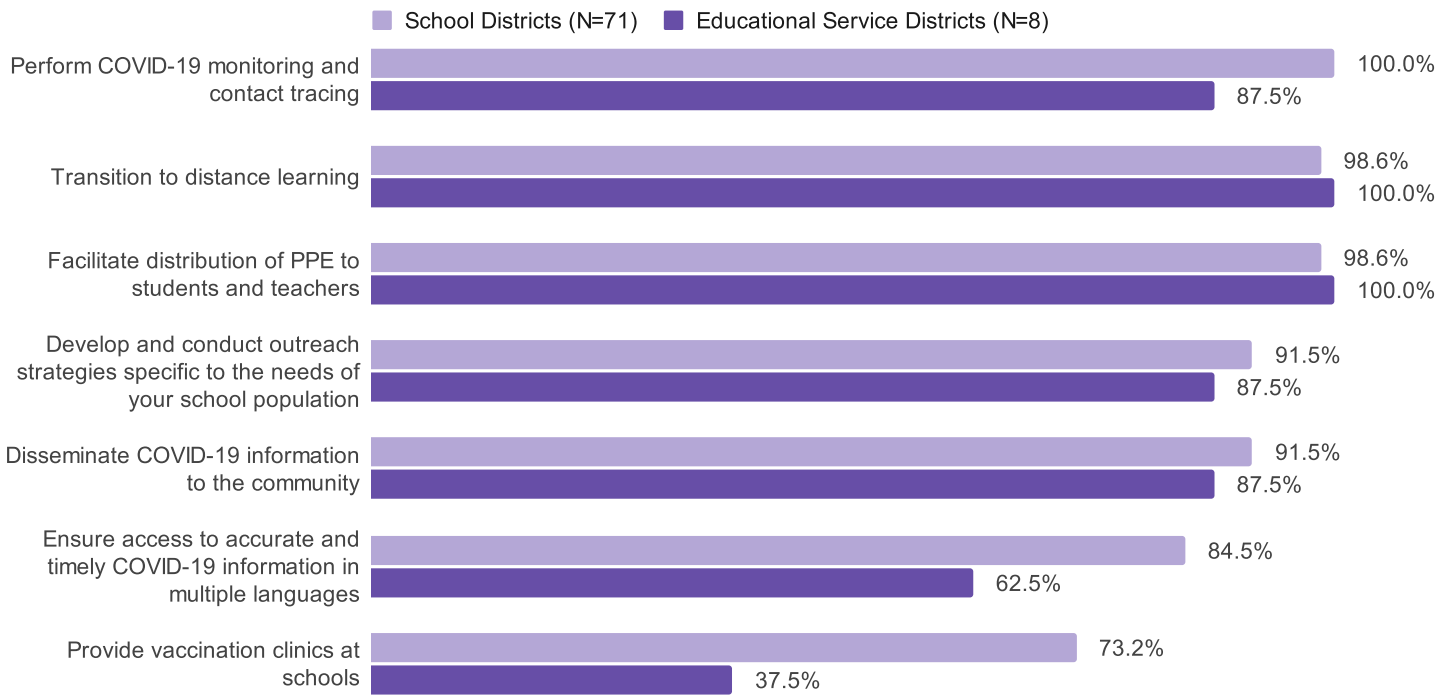
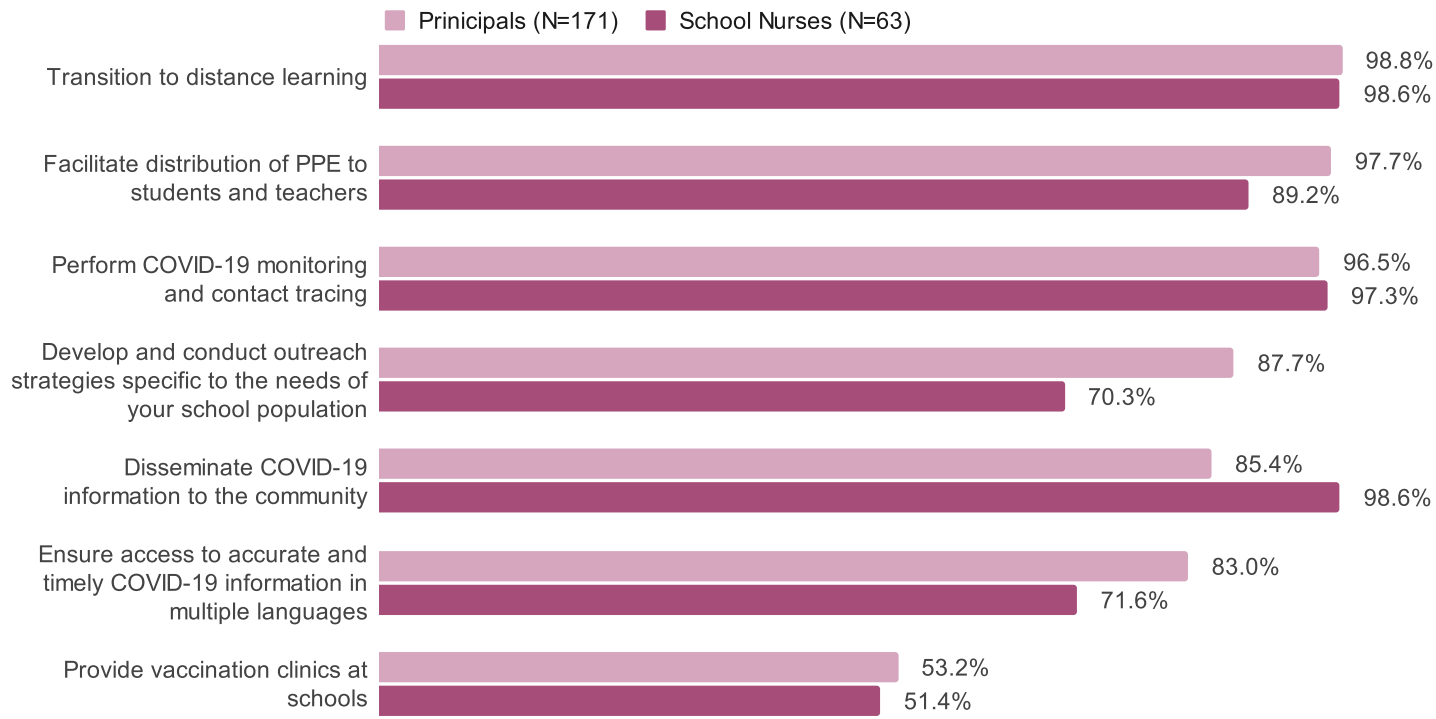


Figure 22: Ways that schools responded to COVID-19 pandemic



"So in Stage 2, when was it? I remember [summer 2021] feeling fairly optimistic and then July not, because we were starting to see the Delta variant coming in. So that included, in that summer period and rapidly into the fall, very quietly, standing up a whole set of resources to support districts that may have to make a decision to close temporarily or shut down in-person learning due to COVID during the Delta surge."

—ODE Interviewee

Contact tracing + testing

All (100%) of SD survey respondents reported performing contact tracing and COVID-19 monitoring as part of the pandemic response at the school level. Nearly all (96.5%, n=165) Principal survey respondents and School Nurses (97.3%, n=72) reported performing COVID-19 contact tracing and monitoring as part of their response at the school level.

OHA and ODE distributed PPE and COVID-19 test kits to SDs. Some test kit distribution from the state was coordinated and supported by ESDs Principals also reported support from LPHAs and district-level staff to acquire COVID-19 tests, and other supplies necessary to the response. Some SDs reported their district supported COVID-19 testing sites, some of which were set up on-site at schools.

One Oregon Education Association (OEA) interviewee mentioned that their organization was not involved in contact tracing, but provided information about contact tracing and its effectiveness to their educators throughout the stages of the pandemic.

Challenges

Of the challenges associated with the COVID-19 pandemic, one of the most onerous and most challenging aspects of the response was COVID-19 tests. SDs reported there was confusion regarding who would be responsible for contact tracing, as initially LPHAs were to be responsible for contact tracing. Further, study participants reported that due to LPHA capacity issues, contact tracing became a responsibility that schools took on. One SD reported that having established relationships with the school community, and specifically, parents, aided with contact tracing.

> "COVID testing sites. They would set up sites for the public to just come to, that kind of thing. They had many of those in schools. We were trained to do COVID testing as well. In hindsight, it just seemed so simple. At the time when [employee at the Department of Education] from the department of Ed came on and they were like, okay, everybody's going to learn to do testing. I was like, you are nuts. They did. Districts did their own testing and got trained to do that, and not with the PCR [polymerase chain reaction test] or whatever, not the deep way up there testing, but with the tests that everybody does at home now without thinking that was new."
>
> —SD Interviewee

Contact tracing requirements were largely viewed as unrealistic for the school setting across multiple education study informants. Contact tracing was reported as a huge challenge (and in some instances, a burden) on school staff, especially given the lack of experience and knowledge about contact tracing. The second most cited barrier in COVID-19 response for Principal survey respondents was creating scripts for contact tracing (32.2%, n=55). A little over one-third (37.8%, n=28) of School Nurse survey respondents identified a lack of locally available PPE as a top barrier in responding to the COVID-19 pandemic. On this note, most SD and ESD interviewees noted the difficulty of learning and executing contract tracing while mitigating COVID-19 in their schools. Large surges of positive COVID-19 cases, such as those associated with the Omicron variant, made it increasingly challenging for school staff to keep up with contact tracing. A few respondents mentioned that in Stage 3 the pandemic was becoming overwhelming and taxing on people, making compliance with contact tracing incredibly difficult. As the pandemic progressed, cooperation with public health requirements for a few respondents was dwindling, which added to the challenges of contact tracing, as it was difficult to get some individuals to cooperate with contact tracing procedures. Some SD and ESD interviewees wondered why they were even asked to keep up with the onerous task of contact tracing.

> "The challenge came from contact tracing, because originally the health authority said they were going to handle the contact tracing, and then they just didn't have the capacity to do it. And we could do it so much quicker and frankly better. When we would call home and tell parents that they needed to keep an eye on their kid, they heard it better from us because we're local and we know their kids rather than OHA or [Northern Oregon County] that there's no relationship built. I'm glad we were able to do that work, but I think it was a misstep at the beginning that OHA say they were going to handle it all. They didn't have the capacity."
>
> —SD Interviewee

"But there was not a good, easy way for them to do contact tracing through that, or even to figure out how to notify a particular cohort. There was no easy button that's like, "Email everybody in this cohort." So it was a time consuming process for the school districts to then have to figure out, okay, here's the cohort we're looking at. Let's find all the emails for every student in that cohort. It was so much put on the schools."

—ESD Interviewee

"I think the most difficult thing, and I think this is just the scope of trying to actually do this and it became a little bit hilarious at times, was the contact tracing. Just looking at the video, we had to assign seats on the bus so we know which kid was sitting how far apart from the other kid. And you don't know if they're getting it in school, or if they're getting it home."

—SD Interviewee

"But they were just totally overwhelmed. I mean, the scope of trying to do contract tracing for that many people, for that many schools across that many areas was probably foolish to even imagine you could do. So, I think the contract tracing was really a little bit of a disaster, just because of the scope, which is crazy."

—SD Interviewee

A few Principal focus group participants reported that part of their role during the COVID-19 response was to support epidemiologic data collection and reporting for the county by assisting with contact tracing, and/or documenting positive cases. Principals reported that due to constantly changing quarantine and isolation guidance, they spent a burdensome amount of time creating new scripts for contact tracing.

"Contact tracing and tracking in schools was a challenge at first. I would be on the phone for hours communicating close contacts and receiving information from families about their exposure. Not until we created a system did I feel we were managing the pandemic."

—Principal Focus Group Participant

"Staff to handle the sheer volume especially when students were involved in activities/athletics/and back in person. Tracing all the potential contacts was time consuming and we needed an added FT staff to do this well."

—Principal Focus Group Participant

"Once we had students back in the building, and the contact tracing and the guidelines, our job was completely different than what a normal school administrator job would look like. So the majority of my day sometimes would be creating contact tracing lists for our public health, our county public health, and calling families and getting work and having them pick things up."

—Principal Focus Group Participant

Some School Nurses felt like OHA employees did not have in-depth knowledge of the school system and were providing guidance that was difficult and sometimes, impossible to adhere to in a school setting. A specific example of this was contact tracing. School Nurses reported that contact tracing felt ineffective when students had contact with so many people both inside and outside of the classroom, making it virtually impossible to find out everyone who had been exposed.

Epidemiological data access + use

Education sector study participants often reported utilizing COVID-19 epidemiological data to inform COVID-19 pandemic response. Epidemiological COVID-19 data were used by schools to track increases in new cases, prepare for return to in-person learning, and examine district and school-specific trends in COVID-19 infection. This largely included using data to determine if additional measures were needed to mitigate the spread of COVID-19 in their school community.

Data access

At the district level, SDs and ESDs received their COVID-19 related data from various state and federal sources, including the OHA, ODE, and CDC. A local health and science university, Oregon Health and Science University, was also cited by SDs and ESDs as a vital source of COVID-19 data. Some ESDs and SDs also received information from local sources, including their LPHA or an internal database created by the ESD. Finally, a few interview participants mentioned using other sources, such as local or national news or online databases.

"When we had enough data to prove that contact tracing was not working in a school setting because kids leave school and do a lot of activities. It took a long time for people to listen to us, and we were about ready to lose, I think most school nurses in Oregon, if we continued that model because it was constant circle work."

—School Nurse Focus Group Participant

"The Oregon Department of Ed and OHA were consistently giving us updates on that data so I felt like I had access to all the data I needed."

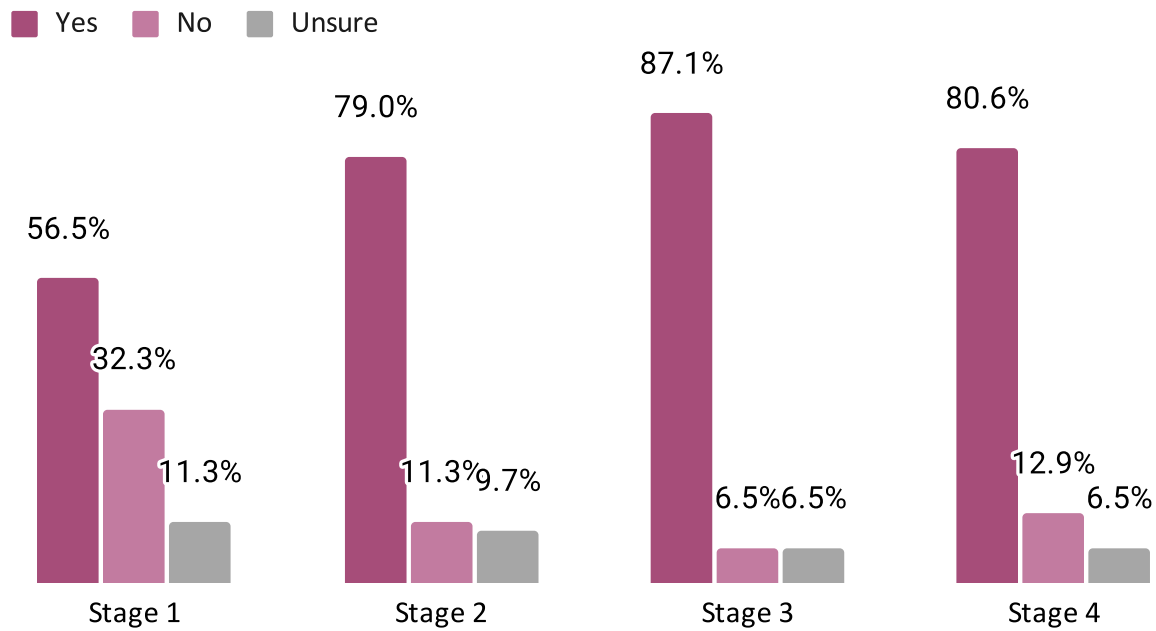
—SD Interviewee

SDs, ESDs, and Principal survey respondents were asked if they had access to local epidemiological data to guide their COVID-19 decision making. Most respondents reported that accessibility to COVID-19 epidemiological data varied across different stages of the pandemic (Figure 23). During Stage 1, a little more than half (56.5%, n=35) of SD respondents reported they had access to local epidemiological data and nearly one-third (32.3%, n=20) reported they did not have access. Access to data increased from Stage 1 to Stage 2, and then again from Stage 2 to Stage 3.

"We used all of the available data sources. So anything we could get our hands on, of course, national news. But we got the weekly release of the numbers."

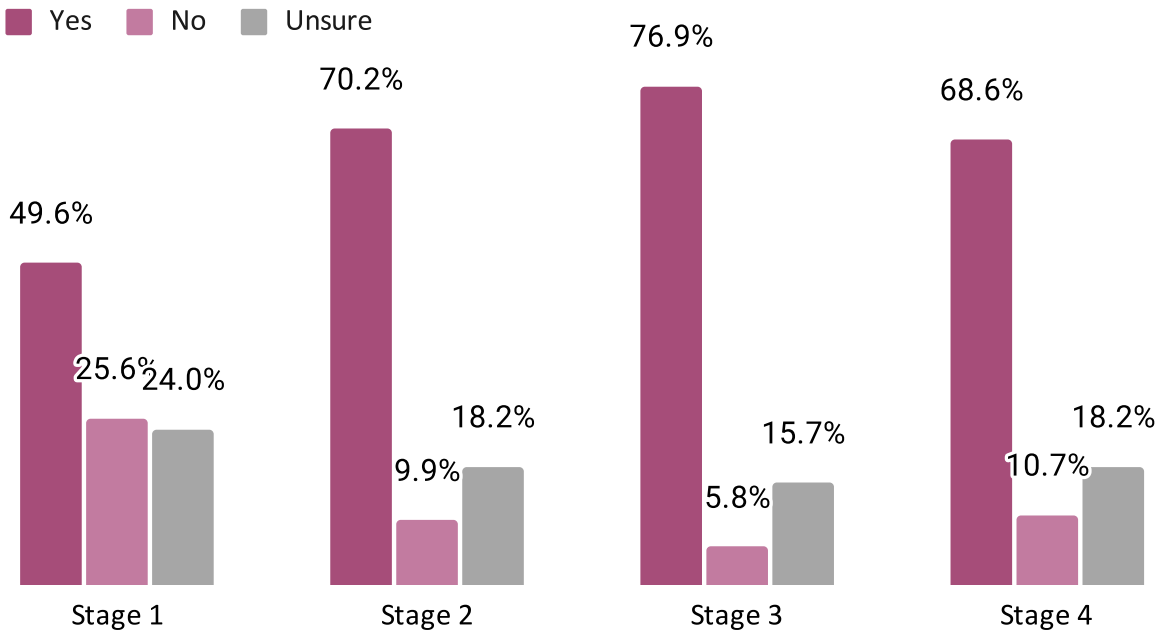
—SD Interviewee

Figure 23: Access to local epidemiological data to guide COVID-19 decision making by stage (SD respondents, N=62)



In comparison to SDs, a smaller percentage of Principals reported having access to local epidemiological data (Figure 24). The highest number of respondents reporting they did not have access to local epidemiological data was in Stage 1 (25.6%, n=31). The highest number of respondents reporting they had access to local data was in Stage 3 (76.9%, n=93).

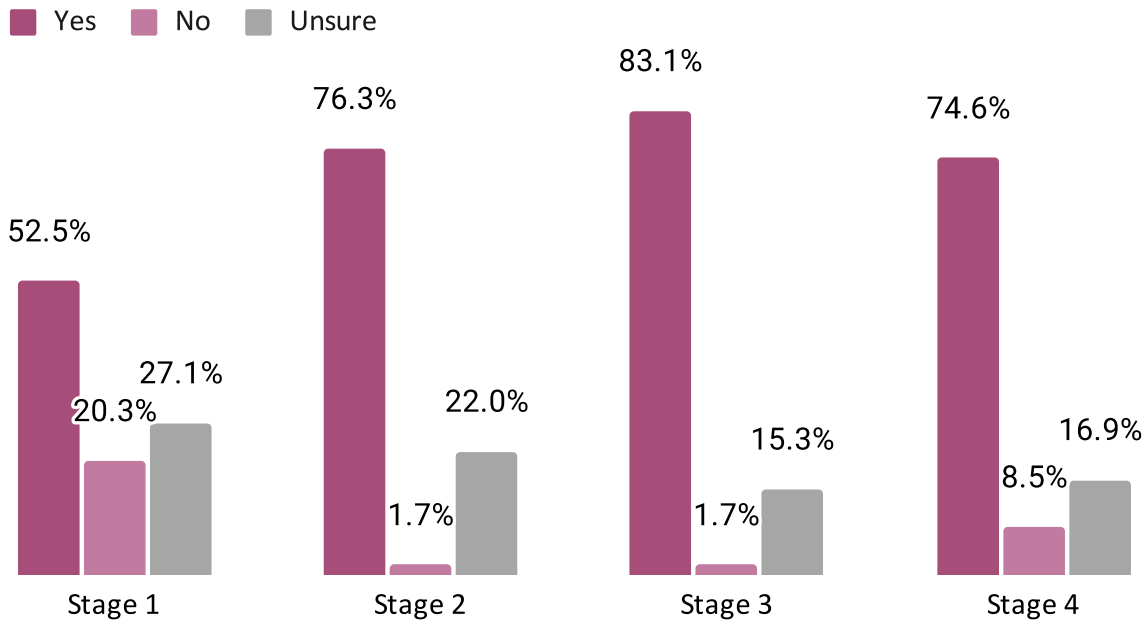
Figure 24: Access to local epidemiological data to guide COVID-19 decision making by stage (School Principal respondents, N=123)



In Stage 1, a little over half (52.5%, n=31) of School Nurse respondents felt that they had access to local COVID-19 data (Figure 25). Data accessibility increased as the pandemic progressed; in Stage 2, 76.3% (n=45) of School Nurse survey respondents reported they had access to local COVID-19 epidemiological data. Similar to other informants, data accessibility at the local level decreased from Stage 3 to Stage 4.

Overall, local epidemiological data accessibility for educational informants increased from Stage 1 through Stage 3 before falling in Stage 4. This may be attributable to increased epidemiological capacity from additional supports brought on to LPHAs during the pandemic response. Declines in local data availability access in Stage 4 may be attributable to reductions in the frequency of COVID-19 communications from public health organizations (e.g., LPHAs, OHA) and reduced COVID-19 reporting requirements.

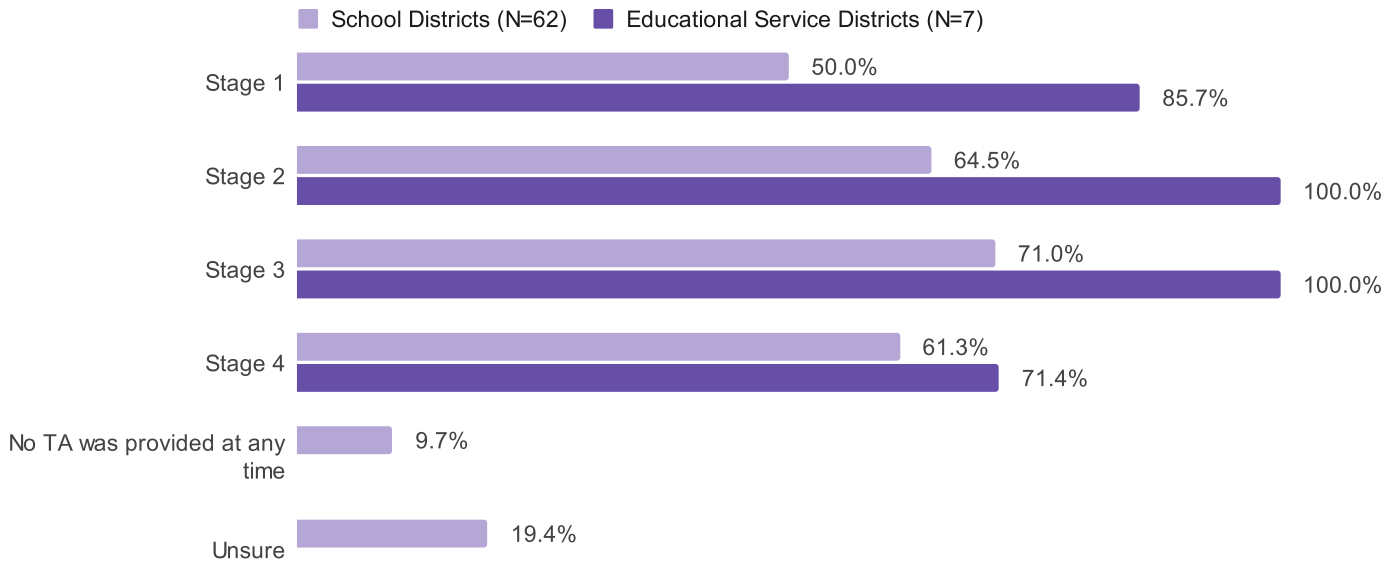
Figure 25: Access to local epidemiological data to guide COVID-19 decision making by stage (School Nurse respondents, N=59)



Technical assistance

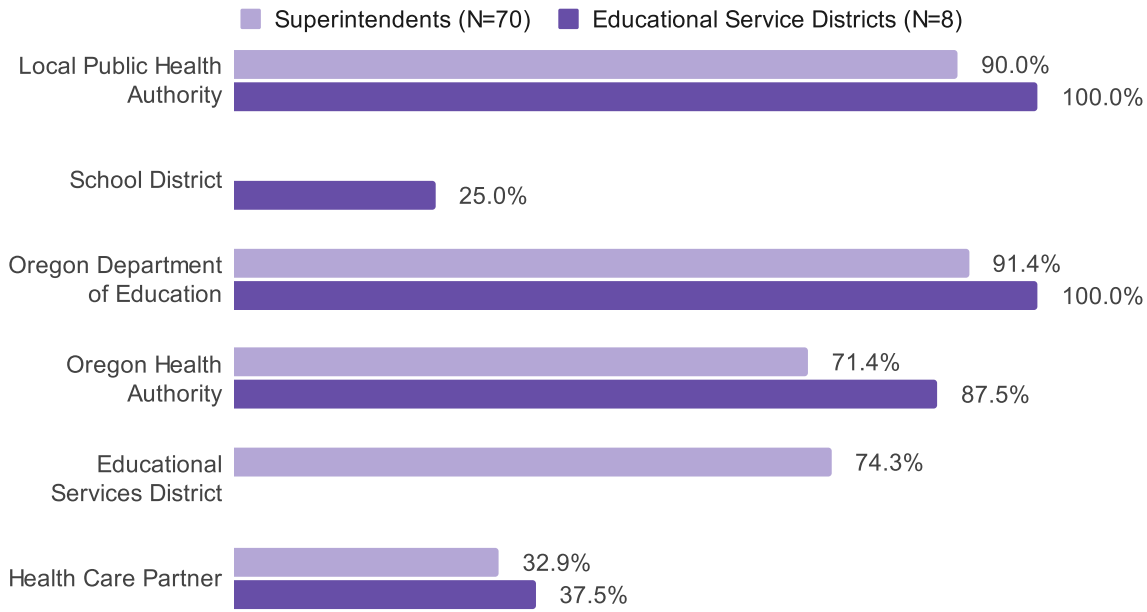
Survey respondents were also asked if they received technical assistance (TA) to access, understand, or use epidemiological data. Only about half of SDs reported their district received TA to access, understand, or use epidemiological data in Stage 1 (Figure 26). Although many SD survey respondents reported receiving TA during one or more stages during the pandemic, nearly 10% (n=6) reported they never received TA during any stage of the pandemic. Forty-five percent (n=28) of SD respondents reported receiving TA during every stage of the pandemic. A higher percentage of ESDs reported receiving TA than SDs.

Figure 26: Stages during which TA was received by SDs and ESDs to access, understand, or use COVID-19 epidemiological data



SDs and ESDs who reported receiving TA were also asked what entities they received support from. SDs reported receiving TA that was provided by LPHAs, ODE, ESDs, and OHA. One SD reflected how much they appreciated the support received from their ESD, "My ESD was invaluable and coordinated all our regional agencies and our responses." One SD reported their LPHA was not very helpful when it came to TA due to staffing shortfalls.

Figure 27: Entities that provided technical assistance (TA) to support COVID-19 response in SDs and ESDs



"I would say that the local health authority was the least helpful during all of the pandemic. They were too understaffed and not able to provide timely assistance."

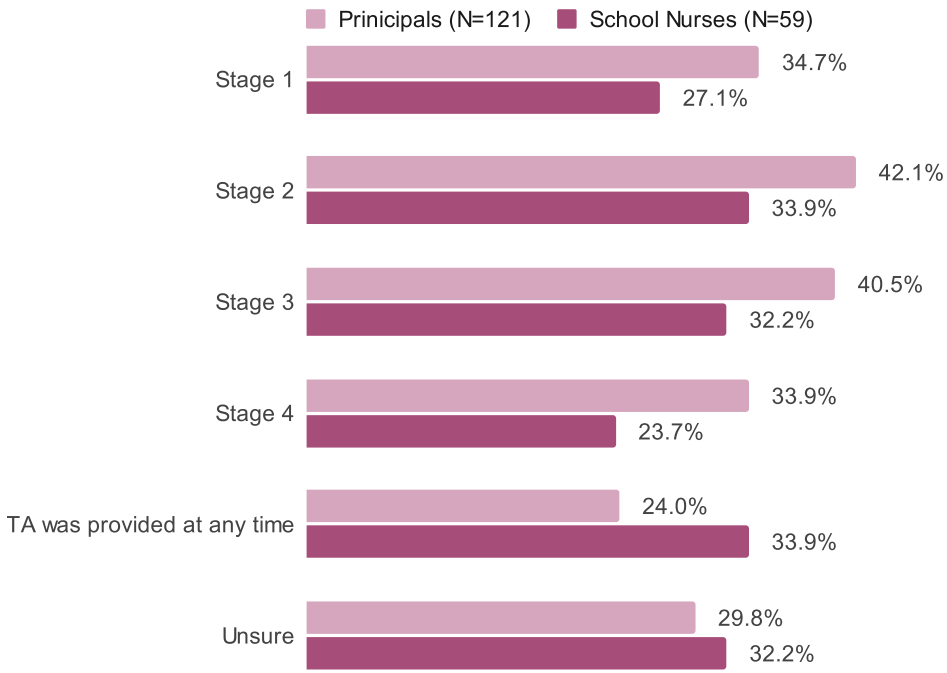
—SD Interviewee

"Support was through [NE Oregon county] and from the Oregon Public Health Authority. [An Oregon University] here locally was really instrumental in sharing projections and the data around that. We used that data to talk with our staff and our board, so they were key players in providing the information."

—SD Interviewee

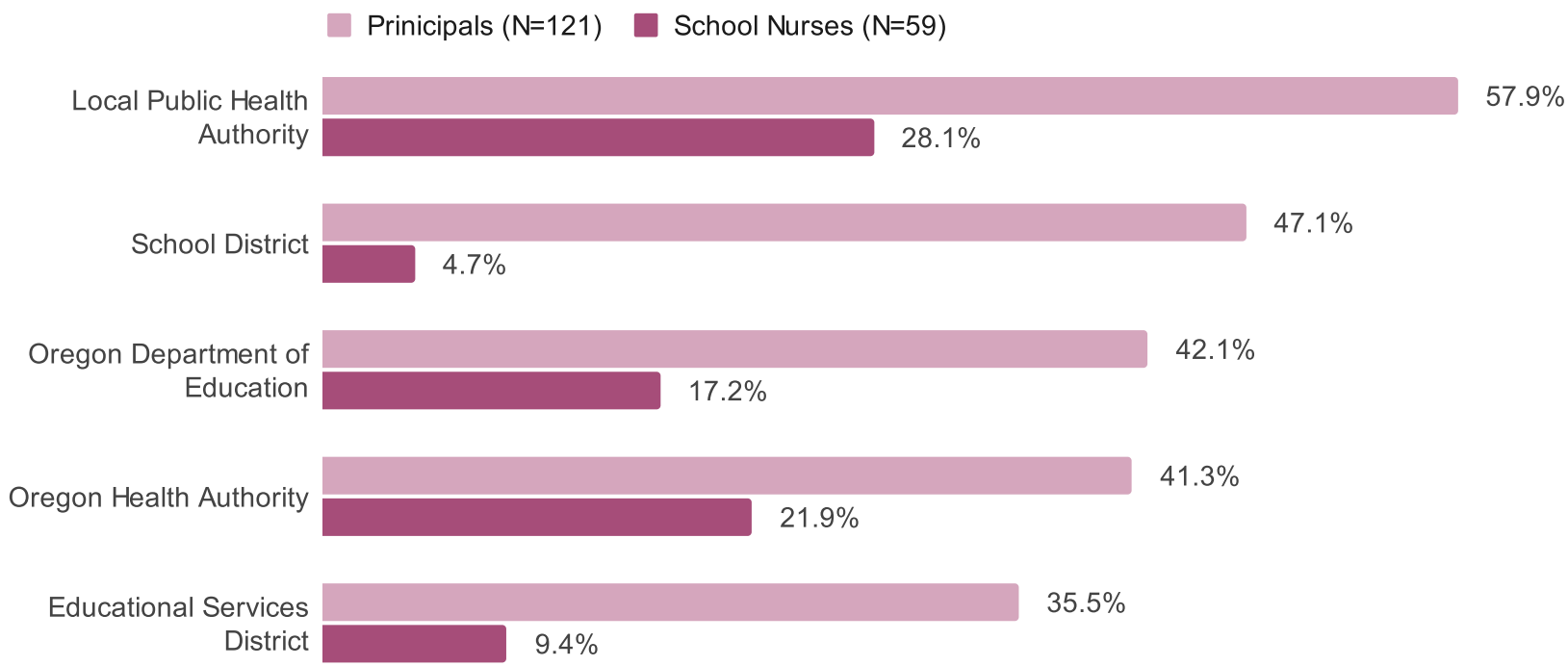
Principals and School Nurses were also asked whether they received TA to aid with epidemiological data access, interpretation, or use (Figure 28). About one-quarter (n=29) of Principals reported not receiving any TA at any time, and about one-third did not know (n=36). About 27.2% (n=33) of Principal survey respondents reported receiving TA during every stage of the pandemic. Approximately 33.9% (n=20) of School Nurse survey respondents reported not receiving any TA at any time, and another third did not know (n=19). About 20.3% (n=12) of School Nurse survey respondents reported receiving TA during every stage of the pandemic.

Figure 28: Stages during which TA was received by schools to access, understand, or use COVID-19 epidemiological data



Principal and School Nurse survey respondents who reported receiving TA were also asked what entities they received support from (Figure 29). Principals most often reported receiving TA from LPHAs or their school district (57.9% and 47.1%, respectively). TA was provided to Principals by ODE, OHA, and ESDs. Similar to Principals, School Nurses most frequently reported they received TA from LPHAs (28.1%, n=18). School Nurses also received support from OHA, ODE, and ESDs, in that order. One Principal respondent included a comment in "other," indicating they received TA from OHSU and one School Nurse reported they received TA from a health care provider.

Figure 29: Entities that provided technical assistance (TA) to schools to access, understand, or use COVID-19 epidemiological data



Successes

One SD interviewee reported having access to epidemiological data at the local level was invaluable to their district-level response.

Two ESD interviewees mentioned creating their own internally developed database, which was created and maintained in partnership with their LPHA, was "the most robust school site COVID data in the state." Another ESD representative mentioned that their school site's COVID-19 database was used by both the ODE and OHA to "to communicate out to all the school districts in the state." One ESD reported, "the county used our spreadsheets to know when to open outbreak investigations and things like that."

Challenges

Educational informant study participants reported some challenges accessing local epidemiological data — a critical piece of information to inform local decision-making. As stated above, 32.3% (n=20) of SDs and 25.6% (n=31) Principals reported not having access to any COVID-19 epidemiological data during Stage 1.

A few SD and ESD interviewees voiced the challenges they had with COVID-19 epidemiological data, which included the following:

- COVID-19 reporting was insufficient and incomplete and, therefore, unable to inform a complete picture;
- data was challenging to relate to school-aged children, and a preference for data that helps kids understand mitigating

> "We would look at it also in comparison to other counties at times, depending on our situation, because there was a time where in the middle of it, we were one of the highest counties for spread rate. And so we tried to keep on top of that, and we tried to work with the health department to implement strategies, which we eventually did, I believe, to slow down that rate of spread so that data was invaluable."
>
> —SD Interviewee

investigation spread is more practical; and
- relating to other counties' data slowed the receiving and analyzing of data.

Principals and School Nurses reiterated some of the same challenges reported by SD and ESD interviewees, but also reported the following:

- TA received was sometimes minimal and not timely;
- uncertainty around availability of TA; and
- inconsistent TA from different organizations.

Vaccine distribution and administration

Roles in vaccine distribution and administration

ODE reported that although there may have been some awareness around possible choices and implications of prioritizing educators for vaccines, the organization did not "have any input or vantage point into that decision". ODE reported they were involved in "operationalizing the decision to prioritize educators." As mentioned previously, a coordinated response of this scale had not been done before, so in the beginning of the pandemic and during the transition to Stage 2, when vaccines became available, ODE reported navigating uncharted territory to create plans to determine who qualified for prioritized vaccine availability and the subsequent structure of prioritization.

The majority of survey respondents reported they were involved in vaccine distribution throughout varying stages of the pandemic.

> "We read through every report from OHA. We actually had asked for and never got the data we needed, rarely got the data we needed. We had asked the state epidemiologist, [name], several times for some updated metrics and data, and that rarely came. And what that did is, it actually, when that didn't come, so there were shifts, as you probably are aware, around cohort sizes, and distancing, and all sorts of things that happened as they were looking at data. And we followed the recommendations on all that. But, in terms of the actual data, we had asked for some updates on data that rarely came, or came late, or was irrelevant.."
>
> —SD Interviewee

For some study participants, this meant coordinating and hosting vaccine clinics at schools. For school districts and schools that did not host vaccine clinics, this looked like giving school staff time off to receive the vaccine.

The process for school-based vaccine clinics varied between schools, with some schools hosting vaccine clinics in their facilities and others not hosting vaccine clinics at all. Approximately 73.2% (n=52) of SD survey respondents and a total of three (37.5%) ESD survey respondents reported providing vaccination clinics at schools.

"And there was a lot of confusion about who was going to get the priority vaccinations, and then there was a log jam. And then there was that first set of breakthroughs where you all figured out. I remember you figured out these all calls, where we changed strategy to get more people and then it resolved itself."

—ODE Interviewee

"I think what was unique and new about the vaccination work was the end product was not dissemination and teaching of a set of guidance. The end product was an arm and a shot finding each other and making magic happen. And that was the new challenge. There was this thing that had to happen after that communication happened, that involved cold chain that wasn't always as just as we might have wanted it to be prior to the pandemic skepticism about the entire thing, concern about the prioritization process, the mechanics of trying to get even a subsection of four and a half million people vaccinated at one time."

—ODE Interviewee

Of Principal and School Nurse survey respondents, 53.2% (n=91) and 51.4% (n=38) reported they provided vaccination clinics at their schools, respectively. Many School Nurses shared that vaccine clinics were managed by their local health department in school facilities and were available to the whole community.

Vaccine Distribution and Administration Partners

SDs coordinated with LPHAs by offering schools as a site for vaccine clinics, which benefitted the schools to allow their employees to get vaccinated. Most interviewees were pleased with the vaccine clinic coordination with LPHAs; in many cases, the LPHA did the coordination and administration of vaccines and the SD provided the location. One SD and one ESD partnered with their local hospital to coordinate vaccine clinics at one of their schools.

Many Principals felt supported by their SD and/or ESD in running vaccine clinics that were open to students, staff, and in some cases, the surrounding community. Many School Nurses also shared similar sentiments regarding vaccine clinics that were managed by their local health department but conducted on school facilities.

One Principal reported that although they did not have a school nurse, they partnered with their ESD to support vaccination access for their school community. Another Principal reported partnering with the fairgrounds to run vaccination clinics.

Vaccine Prioritization

Again, OEA interviewees reported substantial advocacy for the Oregon educator vaccine mandate, based on their belief that this requirement would

"We worked with our local public health department to offer some drive-through vaccination clinics and those pieces. So there were some group efforts without a doubt."

—SD Interviewee

"The ESD, we don't have an onsite nurse, so we worked with, they gave us the school nurse access to them and they did a phenomenal job to help. They also did the vaccination. They were very involved with the health authority to do the vaccination clinics and get that up and running. And then as a district we partnered with the health authority to make the vaccinations available on site."

—Principal Interviewee

mitigate the spread of COVID-19 in schools. In this regard, OEA also advocated for educators to receive paid leave to receive the vaccine. Throughout the pandemic, OEA reported a lack of involvement in the distribution of vaccines- they did not host vaccination clinics.

Lessons Learned and Areas for Improvement

Some Principals noted issues with vaccine supply for school staff.

School Nurse interviewees reported that for some, hosting vaccine clinics on school grounds made some families feel like their children were being forced to vaccinate. Many School Nurse participants shared that demonstrators or protestors came to their vaccine clinics. A couple of School Nurses mentioned that their school's administration would not host vaccine clinics or publicize them, which felt like a miss since the school was a more trusted community location.

Rural school districts and schools reported more vaccine-related challenges than their urban counterparts. A couple of SD interviewees reported that vaccine accessibility was an issue for their district. For one interviewee, the fact that their rural county did not have a single hospital was a challenge. Given that hospitals were a large partner for hosting vaccine clinics, this was a specific challenge that rural communities faced. Another SD interviewee reported their community relied heavily on public transportation, which they believed was a barrier to vaccine uptake in the beginning.

"We came out strongly in favor of the requirement the educators be vaccinated. This caused some angst with our members, but we felt like it was the right thing to do given what we knew about the science and given the other desire to have environments where students could come back together."

—OEA Interviewee

"I would say during our vaccine drives, not one organization had enough vaccines for our staff. So we had like the health department, [health care provider], and then the hospital. So, kind of at our drives we get split up into three just so that we could have enough vaccinations."

—Principal Focus Group Participant

"We did have demonstrators, people here protesting, and that just made it really, really stressful."

School Nurse Focus Group Participant

"There was not administration motivation to have the hospital host vaccine clinics at our school sites, which I think would've really been good in terms of some access issues. Some of our families are really afraid of hospitals, institutions, and schools as a safe place."

—School Nurse Focus Group Participant

"The problem for our community is that a lot of our folks take public transportation, all of those things people were a little more leery to do to go out into public to still get a shot. So I do think that folks who maybe wanted to be vaccinated but struggled to get access to these really large convention center style vaccination clinics, it was hard in the beginning, but then slowly after that we started to see more local clinics that we could actually host in our schools where parents could come and get access. Then obviously once kids were eligible, the same thing happened."

—SD Interviewee

"Vaccinations, I'd say were a little more difficult in our area because we don't have a hospital… we had to set up vaccination clinics. And there were some at the fairgrounds, there were some at the local [hospital] office in town, we had some at the schools for staff. So, that was a little more difficult getting access because we're a small rural county."

—SD Interviewee

Vaccine Distribution and Administration Successes

A few SD and ESD interviewees mentioned success around vaccination for both students and staff. For some SD and ESD interviewees, ensuring access to vaccinations was a large success for their district. One success was allowing staff time off to receive the vaccine. Two SDs said that they were able to set up and support vaccination clinics to help those who may not otherwise have access to vaccines. For schools who hosted vaccine clinics, they reported they partnered with varying organizations, including their LPHAs, hospitals, as well as other health care or community partners.

Some SD and ESD interviewees mentioned setting up increased access to vaccinations and making sure vaccinations were available to their students as successes for their district.

> "We supported vaccination clinics by having them and making them available by being open and following all these detailed guidance that went along with being open. So again, we did those stage as well."
>
> —SD Interviewee

> "I think vaccine distribution was probably the number one. When that thing came out, whether you believed in it or not, there was really no lag in it being accessible for anybody that wanted it."
>
> —SD Interviewee

Personal Protective Equipment (PPE) Distribution

Roles in PPE Distribution

There were varying ways the schools acquired PPE. ODE interviewees reported they coordinated with other state agencies to rapidly acquire PPE for schools, especially schools who were struggling to secure PPE. In many instances, the SD or ESD received PPE and then dispersed PPE to individual schools. Some Principals, however, reported that they were responsible for ordering PPE. When supply chain issues were at a peak, some Principals reported relying on acquisition of PPE from community members. SDs and schools also reported that they largely felt supported from LPHAs and district-level staff to acquire PPE, including masks, hand sanitizer, and other supplies necessary to the response.

"We started actually offering vaccination clinics to our staff. The other piece that we did do on vaccinations, so we allowed staff to take time off of work to go get vaccinated. So if they had an appointment at 11:00 in the morning, they could leave work, drive. We would actually pay their mileage to and from the vaccination clinic and let them just do that on their work time. So we did what we could do to really promote vaccination to make it easy for them to get vaccinated so that we had high vaccination levels in our agency."

—ESD Interviewee

"I was in [elementary school in Central Oregon] , and we hosted [vaccine clinics] in the gymnasium of our building for the whole district and the whole town, really. We worked with [our LPHA] for the dosages, but then our school nurse administered the vaccines along with some other partners. I don't know where exactly they came from, but they were medical professionals. I believe we hosted three vaccine clinics while I was there and hundreds of people, we had a long line out the door waiting to get vaccinated."

—Principal Focus Group Participant

"We certainly gave input to the state about how to supply, how to make PPE readily available to educators and school staff and we advocated for the distribution of PPE."

—OEA Interviewee

OEA interviewees reported that although the organization advocated for swift distribution of PPE to educators and school staff, the organization was not involved in the distribution of PPE to schools. To this end, OEA interviewees discussed how they informed their members about the resources available for personal protection. The respondents also mention how they gave input to the state about how to supply PPE and make it more accessible. The respondents clarified that they advocated for following the science of COVID-19. Therefore, they strongly supported the protection of their educators and being able to have PPE available to them. OEA interviewees also reported they provided feedback on the Ready Schools, Safe Learners Resiliency Framework for re-opening, which conveys messaging about PPE advisory for educators.

"Reopening and giving out masks, all of the stuff, we still have hand sanitizer all over the place, which is good. I feel like we did a pretty good job. I'm sure we could have done better in some areas, but in general, given our size and all the stuff that everybody was dealing with."

—ESD Interviewee

PPE Distribution

Almost all (98.6%, n=70) of SDs and 100% (n=8) of ESD survey respondents reported distributing PPE to staff and students during COVID-19. Similarly, nearly all Principals (97.7%, n=167) reported facilitating distribution of PPE to students and staff. Many SD and ESD interviewees reported success in procuring and distributing PPE. Success in distribution of PPE was also noted by Principal focus group participants, who reported receiving adequate amounts of PPE and other COVID-19 supplies. In some instances, however, Principals reported the process of receiving PPE was chaotic.

"We were given masks, testing kits. It got a little overwhelming 'cause there was times I didn't even know where the stuff was coming from. It would just show up or I was told to go to my district office and pick it up and have it readily available."

—Principal Focus Group Participant

PPE Supply Chain Issues and Shortages

A challenge brought up by some SD and ESD interviewees during Stage 1 of the pandemic was securing PPE. Interviewees faced supply shortages and reported large delays in receiving resources. Due to supply shortages, some SD and ESD interviewees reported inflated costs of PPE and other supplies.

Just over a quarter (28.1%, n=48) of Principal survey respondents identified a lack of locally available PPE as a barrier to COVID-19 response. A Principal survey respondent recalled that although they did receive supplies, they were inadequate or received after they were needed.

Some School Nurse interviewees reported supplies their school received were incorrect. For example, one School Nurse mentioned receiving masks from OHA that were not the proper fit for their students, and therefore, unusable.

"At first, it was nice to realize there was a lot of supportive resources available until you hit the realization that having money to spend on something doesn't do any good when something's not available. So test kits, masks, cleaning supplies, shortages in all those areas that took a long time to fill and people realized that they were not there and they were filling them as quickly as they could. But having money to fix a problem is no good if the things you need for the problem aren't available. So there was resource issues."

—SD Interviewee

"Stage one it is we were looking at, well, procurement of different things like masks, disinfectants, and sanitizers, things like that was a shift for me. We were looking to suddenly get large quantities of all those items, and there was difficult to find at the very beginning because everybody was gobbling up the supplies that were out there."

—ESD Interviewee

"I'll say I believe we got face shields. Our district received quite a few face shields at one point, and we got some mask, but it initially was not nearly enough. And then I think some maybe shipments came in later. We got some covid tests early on, but again, it was a similar thing, like, when the need was really high, the supply was pretty low, and then when the need got lower, the supply was higher. So a little bit after the fact, after when we really needed them."

—Principal Survey Respondent

Public Information Dissemination

Educational sector study informants reported they worked diligently to ensure meaningful dissemination of COVID-19 information to their school community and more broadly, to the public. Importantly, an effective public health response to emergencies is one that has successful and effective communication to all affected communities, while simultaneously recognizing that different information dissemination approaches should be tailored to meet the needs of individual communities. As schools had prior experience with mass-reach communication to their school community, they had existing skills and tools they could utilize to effective reach their target population.

Roles in Public Information Dissemination

A key aspect of COVID-19 pandemic response in schools was public information dissemination. ODE reported they were highly involved in COVID-19 information dissemination to school districts, schools, and supporting entities. Additionally, ODE reported they created specific routes of communication to schools and ESDs for COVID-19 information.

SDs, ESDs, Principals, and School Nurses all reported they were highly involved in public information dissemination at varying levels. SDs and ESDs were involved in district and county-level messaging, whereas Principals and School Nurses were involved in messaging at the local (school) level.

In order to adhere to the public health mandates, SDs and ESDs devoted their time to staying informed on the pandemic and the changing public

> "I would say local messaging, it was more about us taking the information we had and saying, "Okay, parents. These are the rules. This is what we have to do." Because our local community doesn't tune into OHA to say, "Hey, what are the rules right now? And how do they impact me?" They wait for me to say, "This is how it impacts you. This is what has to happen in schools."
>
> —SD Interviewee

> "I would say my main role in supporting the public health response was really just trying to facilitate the most accurate information as quickly as possible with clarity…"
>
> —Principal Focus Group Participant

health mandates that applied in schools. They did this by participating in meetings with public health leaders where information and guidance were disseminated. In this capacity, all SD and ESD interviewees partnered with their LPHAs to ensure they were providing their community with the most up-to-date information and guidance.

Principal focus group participants reported that a main role they assumed during the pandemic was communicating with families about requirements for schools and the impact this would have on student instruction. Within their role as communicators, Principals reported that COVID-19 communications came initially from the county or district level. Once information was received by school administrators, they further adapted and disseminated information to their school community. Approximately 87.7% (n=150) of Principal respondents reported their school developed and conducted outreach strategies specific to the needs of their school community.

School Nurses also played a large role in COVID-19 information dissemination at the school and local levels. School Nurse study participants mentioned communicating COVID-19 information in the following ways:

- sharing the rationale with staff to following public health protective measures;
- hosting virtual parent nights to answer questions;
- translating information written in medical terminology to more digestible jargon;
- creating classroom exposure letters;
- creating or maintaining dashboards; and

"And then also just a lot of the communication was like in teacher speak or in doctor speak, and it wasn't necessarily friendly for our general public to receive that information. So, making it digestible was needed."

—Principal Focus Group Participant

"We created these out of nothing roles in each ESD, which we ended up coining, reopening advisors, but these each ESD staff and intermediary person who was meeting with us on at least a weekly, to get information and context and boil up. It worked really well. High trust, speed. I think they solved a lot of problems that otherwise would've gone unattended to."

—ODE Interviewee

- ensuring other staff members were on the same page with current response protocols.

OEA mentioned they also communicated daily with different members about their concerns and challenges with public health protections or lack thereof. When communications came out from ODE or Oregon Occupational Safety and Health Association (OSHA), OEA interviewees mentioned that the union would encourage those communications to involve the educator's perspective.

Public Information Structures

The structure of bringing together state epidemiologists and other health leaders with SDs and ESDs was cited as a successful approach in both COVID-19 information dissemination and overall support of SD and ESD understanding of COVID-19 data trends to inform decision making in their pandemic response. This partnership, SDs and ESDs reported, enabled many to be able to both disseminate information to their communities and make sense of Covid-19 data trends internally. Interviewees felt like they were getting the needed information on a regular basis (i.e., weekly meetings). The most frequently mentioned successful partnerships (mentioned by nearly all interviewees) were those where COVID-19 updates and communication was provided to them from state and local partners, including OHA and ODE.

ODE held weekly meetings for school districts throughout the pandemic, which were also noted as a successful approach. An ODE interviewee reported establishing a cross-posting system where COVID-19 guidance and structures that were posted on ODE websites would be forwarded to LPHAs and vice-versa.

"It evolved from being a this is our district plan as it relates to the teaching staff and our employees, to this is what the plan is for parents…I kind of felt like I was some sort of publicity public relations (PR) director more than a Principal for a while."

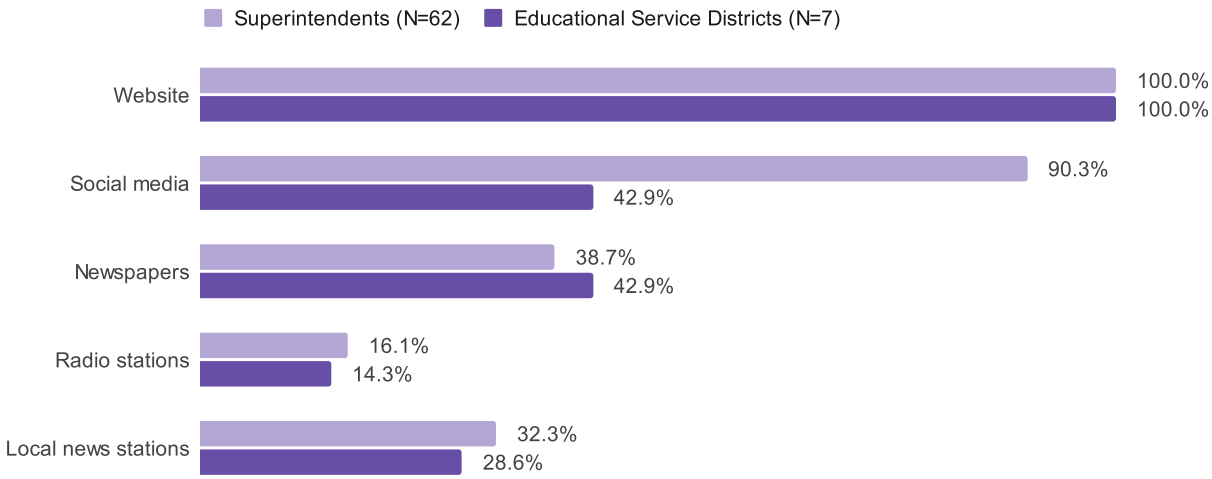
—Principal Focus Group Participant

"Every two weeks, okay, now we know this about COVID so now you need to do this. That deep bone aching exhaustion that was really a brain exhaustion as people were trying to do all these new things really, really impacted educators in a very significant way."

—OEA Interviewee

SDs and ESDs reported using this information to directly inform their response and communication to their school communities. All SD (100%, n=62) and ESD (100%, n=7) survey respondents reported providing public health messaging through mass-reach communication platforms. Both SD and ESD respondents provided information on their websites and nearly all SD respondents utilized social media. Roughly a third of both SDs and ESDs reported utilizing local news stations and newspapers. "Other" mass-reach communication platforms used by SD survey respondents included podcast, direct email, Parent Square, newsletters, Blackboard Notification System, and phone (text, voice).

Figure 30: Mass media communications platforms utilized by SDs and ESDs to communicate COVID-19 information

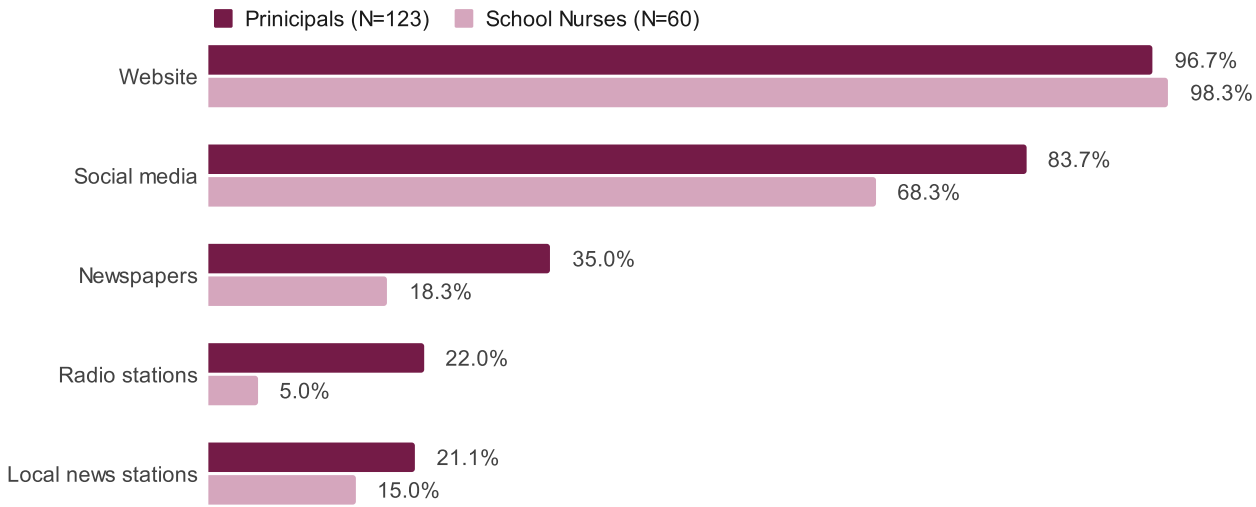


"We finally did work out a really good system early on, relatively speaking, up cross posting information. Everything that went to superintendents was forwarded to local public health. Major local public health announcements, not things about Orpheus or how to enter data, those weren't, but other things on changes in guidance and structures and things were cross posted out to superintendents, rule updates, all of those sorts of things. So just working with the overall local and state system partners to try to create cohesion around the guidance that both agencies were putting out."

—ODE Interviewee

Most (96.7%, n=119) Principal respondents provided information on the school's website and many reported using social media to communicate COVID-19 information (83.7%, n=103). "Other" mass media outlets include email, apps, mail, phone (voice and text), fliers, newsletters, webinars/ zoom, ParentSquare, and Remind. All (100%, n=60) of School Nurse survey respondents reported providing public health messaging through mass media communication methods. Most School Nurse respondents (98.3%, n=59) also reported using the school website and many used social media to communicate COVID-19 information to their school community (68.3%,(n=41). "Other" mass media outlets used included their agency website, mass emails and texts, notes and letters to home, ParentSquare, Youtube videos, district Zooms for families, school and district newsletters, and the Remind App.

Figure 31: Mass media communications platforms utilized by schools to communicate COVID-19 information



"Our coordination with the [Southeastern Oregon County] Health Department was invaluable. We have monthly superintendents meeting for our county. At every one of those meetings we had participation from the [Southeastern Oregon County] Health Department. We would get updates usually from the head of the health department.they did an outstanding job communicating with us."

—SD Interviewee

Public Information Dissemination Successes

At the district level, SD and ESD interviewees discussed working diligently to communicate COVID-19 information to their school community, including students and their families. This included communicating specifically about public health requirements, guidelines, and mandates.

A couple of Principal focus group participants stated they had success with the use of virtual platforms for various communication — including COVID-19 specific communications — with their students and families. Importantly, Principals noted hosting COVID-19 communication Q&As in both English and Spanish.

"We really tried to work through with people each stage to the best we could. Trying to make sense of like, "These are the decisions we've got. This is what it is." So trying to make sure we're getting information out there and providing the updates to our families, and our kids, and our staff, trying to help our staff feel comfortable."

—SD Interviewee

"With stage three vaccinations, just making sure the word got out there to the right groups of people, because of course, at first it was like certain vaccines were open only to certain groups of people. We were communicating with those groups of people and just making sure that people knew where to go and how to get vaccinated, those kinds of things."

—ESD Interviewee

"Virtual assemblies, our parents got to see a little bit more at times for like we did virtual conferences, virtual assemblies. So there were, we videotaped the assembly and then put it on our Facebook page or our website. So parents got to see that we do celebrate successes."

—Principal Focus Group Participant

A significant communication success that School Nurses shared was taking COVID-19 communications and making them more easily digestible for their communities. School Nurses also felt like their communications with staff members about why they were following specific protocols were helpful.

"All of our communication came from the central office and then we were tasked to communicate our individual plans for CDL [comprehensive distance learning] and our cohorting models. That took the form of print materials, emails, but also community parent Zoom for question and answers that we were able to kinda help with their understanding of what it would look like and the reasons behind what we were doing, so."

—Principal Focus Group Participant

"We did a lot of parent, a virtual parent, nights in English and Spanish, with the Assistant superintendent, superintendent and myself, and we would just be there to answer all the parent questions. We'd have a little piece that all 3 of us had something to say for the first, like 15 min, and then we just took rapid fire questions for the next 45."

—School Nurse Focus Group Participant

"ODE, different staff members from ODE, [ODE person] one time even, came on and then Oregon School Activities Association (OSAA), [OSAA member] , joined us. They would do monthly Zoom meetings that they would be willing to come and just, kind of an open forum on asking questions. But I thought that that was a good support even if they didn't have the answer. The fact that they put themselves out there and just listened to the frustration."

—School Nurse Focus Group Participant

"But I would like to add a shout out to the Coalition of School Administrators (COSA). I mean we, Oregon Association of Secondary School Administrators (OASSA), I remember we had our Zoom connections and stuff just to be able to communicate and reach out to other districts and get creative and think how to do things. But you know, same thing, that district took care of a lot of the safety protocols and ensuring we had all that safety place and we did vaccine clinics here at school. But just that collaboration piece, you know, resources to help teachers with professional development was huge as well."

—School Nurse Focus Group Participant

"The other thing that we did with that, that was good was the communication. Anything that went out of the district went through our public relations person, but basically the superintendent and I had to vet it before they sent it. And so that allowed us to team talk about it as we needed to, and it wasn't just the public relations department sending out what they had read on the CDC website, which I had to correct quite a few of those initial and continual announcements because they were just pulling out what they could Google."

—School Nurse Focus Group Participant

Public information dissemination challenges

SDs and ESDs interviewees reported that in addition to LPHAs, they relied on State and National agencies for pandemic-related information. A large challenge SDs and ESDs faced when working with these partners was information dissemination, as the frequency with which guidance and information received from these agencies changed made staying up to date difficult. In addition, there were times where SDs and ESDs reported receiving conflicting guidance from OHA and ODE, CDC and OHA, or Local Emergency Management (EM) and Local Public Health (PH). In turn, this led to ESDs being unable to keep up with information requests from SDs during intense periods in the pandemic. Over time, SDs and ESDs reported improved alignment of information and guidance over time.

"One of the greatest challenges we faced was really, well, the amount of information that was available to the public that they might not understand. And the inconsistency that sometimes came up throughout the pandemic between CDC guidance, which we had always pointed our schools and everybody to previous to COVID, the difference between CDC guidance and OHA investigative guidelines for COVID-19 at particular times during the pandemic. So we would get a lot of pushback from people who did know where to go look at the investigative guidelines, where to go look at CDC recommendations, and would see that they don't match up and would see times that we potentially, as a team were giving guidance that looked different to them than what they had just Googled or found on the CDC website."

—ESD Interviewee

Communication challenges were still reported by some SD and ESD interviewees during Stage 2 of the response. These challenges were similar to those communication challenges reported in Stage 1, as interviewees still reported receiving conflicting information from OHA and their local LPHA. One ESD described wishing they could have done more of the communication support for SDs in getting information to their school communities.

Another SD interviewee reported that uncertainty about reopening dates affected their ability to accurately communicate this information to their school community.

Similar to SDs and ESDs, the greatest challenge reported by Principals and School Nurses relating to COVID-19 public health communications was the frequency of changing guidance from the state. Ultimately, trying to quickly digest, adapt, and disseminate communication that was ever changing was a challenge.

Implementation of new public health guidance at the last minute was the most frequently noted challenge among School Nurse interviewees. School Nurse interviewees also reported that there was a "lack of timely information." For example, many School Nurse interviewees mentioned that new guidance would come out at the end of a weekend or school break, so they had little time to plan and communicate with their staff and families.

Principal survey respondents were asked to select which challenges hindered the effectiveness, scale, or quality of their school's response. The top challenge was the politicization of public health (70.8%, n=121), followed by inconsistent guidance from state government (70.2%, n=120), and inconsistent guidance from local public health authority (59.1%, n=101).

"Sometimes like literally as we're pushing send, we get another thing. So that was a challenge was just how quickly things were changing, and trying to stay on top of it, and some of the frustration of the families saying, 'Well, you just said this.' It's like, "Yeah, that was yesterday but now it's today and it's different.'"

—Principal Focus Group Participant

"I think one of the challenges was really Omicron broke it, broke the communication system pretty quickly, because the State guidance came out over winter break. We came back in [winter 2021], and then we had 100 cases before the end of the day, and so we were in this loop of not knowing how to navigate."

—School Nurse Focus Group Participant

Public health mandates: Compliance + enforcement in schools

Executive Orders for Schools

As noted in Report 1, 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 CDC and the Association of State and Territorial Health Officers. The decision to close Oregon's schools in order to control the spread of COVID-19 was described by OHA Director interviewees as among the most difficult decisions in their careers. Public health leaders agonized over the cost-benefit ratio of closing schools, acknowledging the potential harms to students and families. In the end, the decision was made to suspend in-person learning in schools in order to reduce the onslaught of COVID-19 hospitalizations and deaths; the following timeline outlines major events in COVID-19 school closures and reopening (Ballotpedia, n.d.):

- March 12, 2020: Gov. Brown announced that schools across the state would close from March 16 through March 31.
- March 17, 2020: Gov. Brown announced that the statewide school closure, scheduled to end March 31, was extended to April 28.
- April 2020: Gov. Brown closed schools for the remainder of the academic year.

"There were some very difficult decisions as we thought about schools being a very opportune place for spread of a respiratory disease, public schools being compulsory and knowing that we had responsibility for all students and staff in those settings, including those with underlying conditions, students with special needs who are at higher risk, deserve that same opportunity as everyone else. And so how do you balance those needs? So I think the school decisions are still the ones I go over again and again in my head. But again, I go over those in the context of what we've learned since then."

— OHA Director Interviewee

- June 2020: ODE released guidelines for schools to reopen for the 2020-2021 school year. Under the plan, individual public and private schools would need to submit an Operational Blueprint for Reentry to their local public health authority before they reopened. The Ready Schools Safe Learners Framework: Guidance for School Year 2020-21 outlined requirements for in-person instruction at schools including physical distancing, face coverings, ventilation and air flow, hand washing, and communicable disease management ([OHA], 2022).
- July 2020: Gov. Brown announced the metrics that would guide school reopening decisions. Counties needed to have 10 or fewer coronavirus cases per 100,000 people and a 7-day positivity rate of 5% or less for three consecutive weeks before in-person and hybrid instruction could resume. The state also needed to have a positivity rate of 5% or less for three consecutive weeks before any in-person or hybrid instruction could resume.
- August 2020: ODE released updated school reopening guidelines that allowed schools to reopen to in-person instruction if the school had 250 students or fewer, was in a county with fewer than 30,000 residents, and if the county had reported no more than 30 COVID-19 cases in the past three weeks.
- October 6, 2020: ODE announced the state would disregard positivity rate data from September in determining whether school districts could reopen. The announcement meant school districts could reopen for in-person instruction if their counties met the state's case count criteria until October positivity data was available.
- October 30, 2020: ODE released updated school reopening guidance. Under the rules, schools in counties with less than 50 new coronavirus cases per 100,000 residents over 14 days could resume full-time, in-person learning. Previously, the state only allowed full-time, in-person schedules in counties with 10 or fewer new cases per 100,000 residents each week over a three-week rolling average.
- January 2021: school reopening metrics, which determined when schools could open, became advisory instead of mandatory.
- March 2021: Gov. Brown issued an executive order requiring public elementary schools to reopen no later than March 29 for hybrid or full-time in-person instruction. The order also required public

schools to open for grades 6-12 by April 19. Parents could still keep their children in fully remote instruction.

- July 2021: Gov. Brown announced that masks would be required indoors at K-12 public schools in the state.
- Aug. 2021: Gov. Brown announced that all teachers and staff in K-12 schools would be required to be fully vaccinated against the coronavirus by Oct. 18 or six weeks after full FDA approval of a coronavirus vaccine.
- By September 2021 public schools were open for in-person learning but experienced COVID-19 related disruptions and closures throughout the school year.
- February 24, 2022 OHA announced it would end the statewide school mask requirement on March 19.

Roles in public health mandate development and enforcement

ODE played a substantial role in disseminating COVID-19 information throughout each stage of the pandemic.

An administrative leader for OEA mentioned that the education labor union began monitoring the COVID-19 outbreak during Stage 1, during which they reported having to quickly transition to becoming more of an advocacy group instead of a representative organization. In early Stage 1, OEA's advocacy involved providing OHA and the state leadership (i.e., the governor) with supporting evidence that: 1) the pandemic would last longer than initially predicted; and 2) schools needed to close sooner, rather than later. Out of concern for their members, OEA interviewees mentioned the organization implored the Oregon state government to close schools in order to slow the spread of COVID-19. This advocacy, one OEA interviewee reported, was in collaboration with the Coalition of Oregon School Administrators and the Oregon School Board Association.

During an interview, OEA reiterated challenges the labor union initially faced when advocating for school closures. The respondent implied that advocating for school closure was strenuous and contended by the state of Oregon.

"But I do believe it's at the heart end of stage one, as we were dealing with issues of compliance with the public health aspect of enforcement and what I would call like a crisis of jurisdiction, a lot of management facilitating school district leaders with their education service districts, with their public health, with their nurses with OHA trying to coordinate who has responsibility for what."

—ODE Interviewee

"The first week of March and so I would say we were monitoring, but as a pandemic and especially in the month of March as it progressed, we became more of an advocacy organization."

—OEA Interviewee

"I think the very first thing was that we really advocated for schools to be closed and we pushed hard. And like I said, it felt like we had to push hard to get schools to be closed."

— OEA Interviewee

An OEA interviewee maintained that the labor union's role in public health mandates was providing education and insight on best practices for their members health and safety, which was achieved via advocacy and lobbying on behalf of its members. Although OEA did not specifically implement public health mandates, they advocated for them because the union believed public health mandates best protected their members' safety.

Despite not being directly involved in the development of COVID-19 public health mandates (i.e., EOs), SD and ESD roles changed dramatically at the onset of the pandemic when they were tasked as leaders and decision-makers in implementing COVID-19 public health protections in schools in addition to their previous role as leaders in education services. Their role in implementing public health mandates in schools did not change much throughout the pandemic, however the policies and procedures they were implementing changed based on the stage of the pandemic and the mandates associated with that stage.

A primary role of SDs, ESDs, and Principals in Oregon's public health system response to the COVID-19 pandemic was implementation of public health mandates that applied to schools. As district leaders, superintendents were responsible for decision-making regarding the implementation of public health mandates and recommendations in schools. Many SDs and ESDs partnered with their LPHA to provide technical assistance (TA) on implementing the guidance in schools. To adhere to executive orders and public health mandates implemented by the state, OHA, ODE, SDs, and ESDs played a number of roles including:

- developing and distributing communications on public health

> "It [my role] totally shifted in that my role historically has been to ensure that we're giving kids the best education possible with the tools that we have. And it really changed to me being more of someone who enforces what at that time was perceived to be public health protection."
>
> —SD Interviewee

mandates and associated changes in schools to staff, teachers, and the school community (e.g., students);
- closing schools and transitioning to distance learning;
- coordinating and delivering meals to their students and families while schools were closed;
- providing childcare to essential workers while schools were closed;
- reopening schools;
- distributing PPE;
- COVID-19 testing;
- contract tracing;
- hosting and coordinating vaccine clinics;
- managing school staff vaccine exemptions; and
- enforcing public health mandates in schools.

In addition to following public health mandates within their organizations and programs, ESDs described their role as supporting school districts to comply with public health mandates. ESD support to SDs varied by district. ESD support included:

- providing information on the latest guidelines for schools;
- supporting school districts' transition to online learning, including professional learning for teachers on how to use online meeting platforms and tools;
- acting as a reopening advisor for school districts during the return to in-person learning;
- technical assistance in understanding, implementing, and enforcing public health mandates in schools;
- writing or supporting districts in writing COVID-19 response plans;
- aligning the response in schools within the district; and
- ESD nurses supported contract tracing in schools.

Similar to SDs and ESDs, Principals described that their role in COVID-19 pandemic response in schools revolved around implementing public health requirements, keeping the school in compliance, and providing ongoing communication to families. Principals reported that they worked with their school districts and/or their local public health authorities (LPHAs) to interpret changing guidelines and envision and implement these guidelines in their individual schools.

Principals reported they were removed from the decision-making processes about public health mandates at the state and local levels. Some Principals did, however, report having authority over building-level plans. There were varying levels of decision-making discussed during focus groups with Principals; some reported they were involved in district-level decisions and others reported they just followed the guidelines that were "given" to them to the best of their ability. One Principal felt that being a school administrator for a smaller district gave them more autonomy.

To adhere to public health mandates, education study participants reported adopting numerous public health requirements (Figure 32). The top three public health requirements SD survey respondents reported their school district adopted were isolation and quarantine rules (98.5%, n=66), masking in public spaces/workspaces (97.0%, n=65), and prohibiting in-person attendance in schools (89.6%, n=60). All (100%, n=67) of SD respondents reported at least one public health requirement was adopted, and 43.3% (n=29) respondents indicated their district adopted all requirements listed. Other requirements written in by respondents as "other" included: handwashing, sending staff/students home if they were not feeling well, and temperature checks upon arrival to

> "I think that we were like the intermediary between what the Health Authority guidance was, the governor's guidance. Like it was like we would interpret the guidance. So like … what does distance learning look like? That's one small piece. What does teacher evaluation look like at this time? What does school safety look like at this time? What does transitioning to the end of the school year into summer, into the next year look like? So it was like plans on plans on protocols, on plans on protocols and pivoting constantly."
>
> —Principal Focus Group Participant

class. Nearly all Principal survey respondents reported adopting masking requirements (99.2%, n=127) and isolation and quarantine rules (98.4%, n=126). Many respondents also reported adopting requirements prohibiting in-person school attendance (93.0%, n=119), and prohibiting public gatherings (88.3%, n=113). A single Principal survey respondent reported that their school did not adopt any public health requirements. Other requirements Principals reported their school adopted included dismissal of unvaccinated staff, "cohorting", and limiting both the number of athletic events and the number of attendees at these events. Similar to SDs and Principals, nearly all (96.8%, n=61) School Nurse survey respondents reported adopting masking requirements and isolation and quarantine rules (96.8%, n=61). Many School Nurses also reported adopting requirements prohibiting public gatherings (87.3%, n=55). A single School Nurse survey respondent reported that their school did not adopt any public health requirements.

Principal focus group participants described themselves as being on the "front-lines" of enforcing requirements among staff and students. In this role, Principals reported they took most of the burden for implementation of these requirements and ensuring their school complied with public health mandates.

One Principal mentioned that although they had a committee to help figure out how to implement public health mandates at their school, the responsibility of compliance fell to the principal.

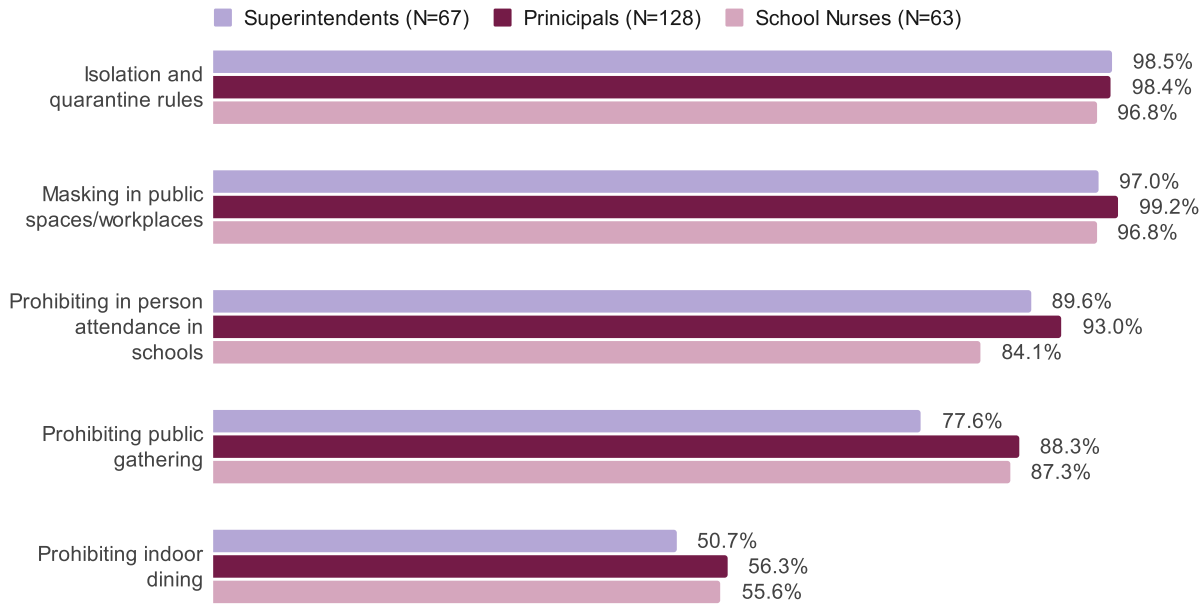
"I felt like my role, as far as making sure the safety protocols were followed, were right on my shoulders. I was the one holding the line and it was my responsibility to make sure we were masked, social distanced, everything was happening."

—Principal Focus Group Participant

"But the bottom line was if something wasn't being followed, then I had to figure out how to get it rolling.""

—Principal Focus Group Participant

Figure 32: Public health requirements adopted by SDs



"And a lot of that was on the Principals. So at least in my experience, it was on me, it was on my team to do that. Even though teachers had their own role, a lot of that came, mask enforcement and the quarantine calls and all that stuff, so lots of pressure on us to do that, I think way more than even the district level, right? They were just telling us. So there's heavy, heavy layers of it. If this is the job forever, I don't know if I can do it 'cause this isn't fun."

—Principal Focus Group Participant

School Nurses reported varying authority in decision-making. While many School Nurses described providing recommendations to their superintendent to implement, others shared that decisions would be communicated with them last-minute, with little opportunity for them to provide input. School Nurses felt like they were expected to communicate and enforce COVID-19 protective measures in their communities, which was difficult if they did not support the measures. School Nurses also felt frustrated with OHA and ODE because they did not feel that the right voices were at the table making decisions about how to respond to COVID-19 in schools. Some Nurses felt that these entities did not have adequate understanding of how schools functioned day-to-day to create appropriate guidance.

ESD and SD interviewees did not provide many details regarding how they enforced public health mandates in schools. Responses included providing education and reminders about masking and social distancing and providing supplies such as masks, sanitizers, and gloves. Some interviewees mentioned enforcing exclusion criteria for students who had tested positive for COVID-19 or been in contact with someone who had tested positive, which involved notifying families of the exclusion and when the student could return to school. A couple interviewees relied on their relationships and trust with students and families to encourage them to follow the public health mandates. One interviewee described enforcing the minimum requirements possible.

"I felt completely supported by my district, and yes, those were hard decisions to make, but I felt heard and I would go off nursing process judgment and the data we had in front of us."

—School Nurse Focus Group Participant

"We were not involved regularly with meetings. Sometimes they would come ask our opinion."

—School Nurse Focus Group Participant

"For my district initially, I really wasn't involved, very frustratingly, on my end."

—School Nurse Focus Group Participant

Although some School Nurse interviewees reported aiding with enforcement of public health mandates, others reported: "We just communicated because we weren't the police and we were getting beat up enough as it was." School Nurses communicated public health protections with students and their families, particularly masking.

"You obviously had the people who didn't want to wear the masks and didn't want to get the vaccines but we followed the protocols that we were supposed to follow. And just again, pretty matter of fact, it was pretty easy. You did it or you didn't participate."

—SD Interviewee

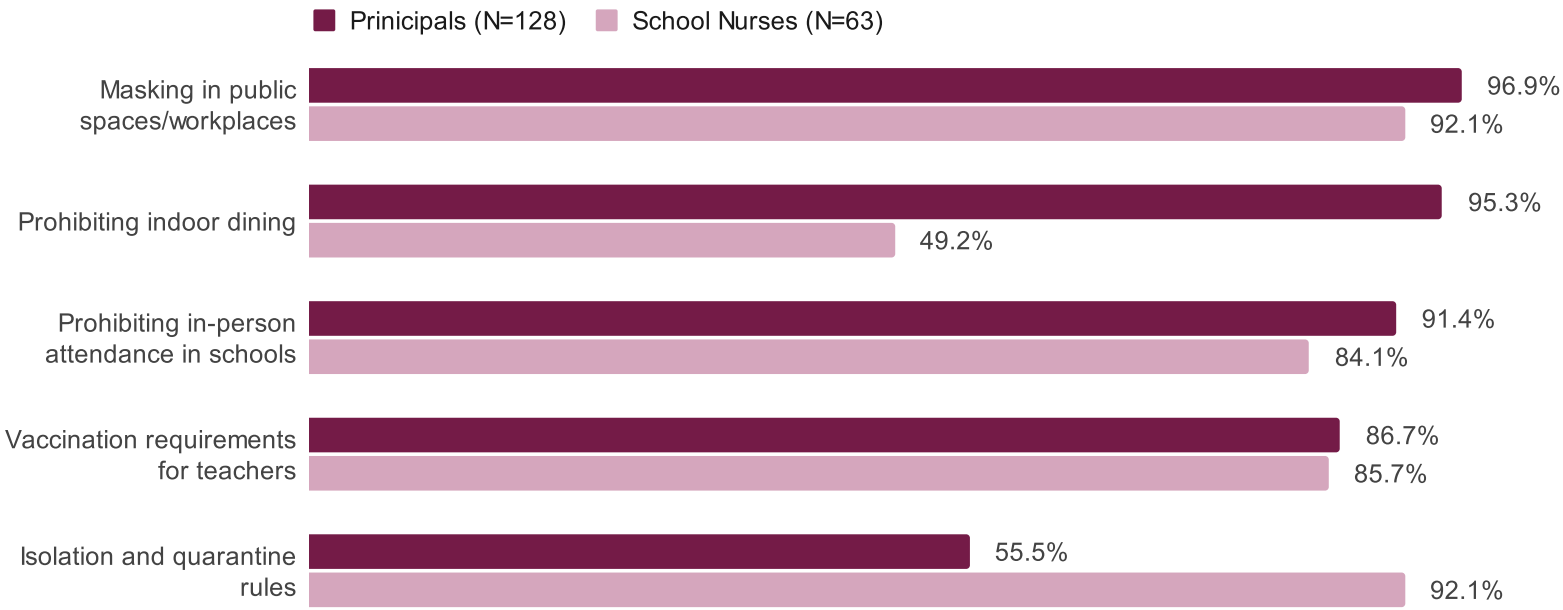
"Our 85 nurses and our School Health Assistants (SHAs) out there were constantly the deliverer of the news to families and parents specifically around what that meant for their students or when they could come back. Early on the pandemic, quarantine was 24 days long. And so our staff was frequently the bearer of bad news in terms of your student can't come back until after Christmas break or can't come back until, they can't go to graduation because they've been quarantined or those type of things. And when I say can't come back, it was never an enforcement, but it was just this is the public health guidance that your district is abiding by."

—ESD Interviewee

Success with enforcement

Efforts to ensure compliance with public health mandates in school were met with varying responses. Although some schools reported substantial challenges with enforcement, there were some successes reported by schools. Figure 33 displays public health requirements that were enforced by schools.

Figure 33: Public health requirements that schools adopted that were enforced



Some SD and ESD interviewees felt a significant success for their district was being able to comply with public health mandates and changing guidelines. In turn, they reported high compliance brought success in mitigating the spread of COVID-19. Collectively, ESD interviewees reported more success with enforcing public health mandates than SD interviewees; only a single SD interviewee reported a success with public health mandate enforcement, compared to all but one ESD interviewees identifying one or more success. Successes were described by both ESD and SD respondents as students and staff complying with the mask mandate and successes communicating mandates and reminders through regular newsletters, signs in the building, and verbal communication. Providing feedback to LPHAs on the application of mandates in schools and making adjustments to guidance where needed was another success.

SD and ESD interviewees reported that sometimes, finding a middle ground was a success. One SD interview reported personal communication with some families about specific public health mandates helped to find "middle ground."

"I think it helped them a lot to hear from the school districts, why that would be a challenge and the reasoning behind that from an education lens and not from a public health lens. So I think having those weekly meetings was just crucial for all of that. So then our health department could make changes or provide guidance based on the feedback that they were getting directly from the component school districts."

—ESD Interviewee

"I think the masking, the distancing, contact tracing. I think all of that. They did a good job in this area."

—ESD Interviewee

A few SD and ESD respondents mentioned that they balanced the divisive nature of Oregon's mandate for school administrators and staff to be vaccinated with success in school staff vaccination rates. However, one respondent mentioned that for school staff vaccinations to succeed in their region (Region three), they had to sign off on every vaccination exception form.

"Most of the time, I could get people... 'Hey, I know you don't agree with the mask mandate, but for the sake of your kid coming to school and us getting down the road, this isn't going to last forever. Will you just work with me on this? We're not going to send your kid home for not wearing their mask, but could you just help us be reasonable about it?' Most of the time, people were okay with that. I had to balance that between staff members that were very much about making sure kids were masked, and then other staff members who were wearing their masks halfway down most of the day. So I think it was an influence versus authority and a reasonableness versus an absolute. There's just that middle ground in there to get through something like this with that many people involved."

—SD Interviewee

"Staff had, of course we gave them time to go get vaccinated during the middle of the day. It was like go. And then of course, we had to monitor that everybody had a vaccination or a waiver or they got fired. I feel like we did that pretty well. We didn't have anybody we had to fire, but we would've if we needed to."

—SD Interviewee

A few school education sector study participants mentioned they appreciated that decisions about the vaccine mandate came from the governor and others in leadership roles at the state level. For some participants, this made following through with enforcement less of a challenge.

Some Principals felt that their role of "communicator" bled into the job of "enforcer"- as they communicated with the school staff, students, and families about new or changing guidance. Although some respondents reported using traditional and well-established methods of communication (e.g., emails, Remind app) to get new or updated guidance to their school community, others reported using social media or other engaging methods to reach their school community.

"To be honest, it helped when the governor would make a declaration, emergency declaration, and just tell us what we had to do. I actually did appreciate her taking the heat on that, because it made it easier in the school district to go, 'Hey, when the governor tells us what to do, we actually have to do it. That is the law.' And so, that actually really helped us."

—SD Interviewee

"And then we had little videos to talk to families and students about what it would look like, and we measured out the desks in the classrooms… We had signs about masking and social distancing. Our district did a great job communicating all those things. And so, once they were here in the building, we were just really holding the line, I guess, to make sure everybody was following the rules, both for students and staff members."

—Principal Focus Group Participant

Principals also shared some successes and high levels of adherence to public health mandates within their schools. Utilization of an array of enforcement models was cited as a success among Principals. Behavior modeling and clear messages, study participants noted, were associated with enforcement success. Nearly all respondents reported adjusting school schedules to have students attend school at different times. Other respondents implemented creative solutions such as QR codes to reduce crowding in the lunchroom, and "restorative talks" to address student push-back.

"We also had a lot of students that were self-monitoring and monitoring their peers and so we would have groups of students that would say, I don't feel comfortable with this student in my class who's not masking. And so, that would open us up to having some restorative conversations and we had community circles in our classrooms about what the impact of our choices are. So, we were able to use a lot of other strategies aside from some punitive pieces to have a clear understanding of why it was important to do that. So, I feel like we didn't have as many of the active defiance. We had a couple of parents that that came in or grandparents that would make us think about it, but for the most part we were able to have pretty civil conversations and have a pretty high compliance rate."

—Principal Focus Group Participant

"We put QR codes [quick response codes] on the tables so that when students had lunch they did their QR codes and the same thing going to the library so that we could contact trace and we had a list of where kids were. So, that was really good. And the other piece was when we came back to, when we had the opportunity to remove our masks, we were worried about like how kids, how people would get into it and things like that. So, we just went around and talked to all the classrooms about the importance of respect."

—Principal Focus Group Participant

Challenges with enforcement

Every educational sector participant—SDs, ESDs, Principals, and School Nurses—reported varied challenges with enforcement that changed throughout the duration of the pandemic. School administration and staff experienced multiple challenges associated with the enforcement of public health mandates in schools. Common challenges faced when enforcing public health mandates in schools included the following:

- confusion about how public health mandates applied to schools;
- inconsistent information about how confusion about how public health mandates applied to schools;
- changing public health guidance was onerous and took an incredibly large amount of staff time to update materials, policies, and plans and then communicate changes to the school community; and
- lag times between when a complaint was filed and follow-up, which caused frustration among those whom the complaint was filed against.

Although there was some overlap in the challenges experienced across education participants, there were different challenges associated with different levels of enforcement (i.e., district- vs. school-level enforcement). Politicization of public health mandates added a layer of complexity to enforcement.

District level challenges

The majority of SD and ESD interviewees described challenges with students, families, teachers, staff, and community members not wanting to follow the guidelines for public health mandates in schools. This included mandates relating to school closures, mask mandates, and vaccine

> "There were a lot of difficulties for superintendents around the state. We had our own issues, because we had certain board members who thought they knew more about the science, who were making up science or politics about breaking the law and things like that. There were a number of districts that had very disruptive meetings, and superintendents who were threatened, death threats, all kinds of stuff. It was pretty gnarly. So, a lot of just the political... And that's just people are weird. So, it was just really hard."
>
> —SD Interviewee

mandates. District administration and staff tried their best to handle non-compliant individuals. In some cases, SDs reported that disagreement with mandates escalated to aggression, threats, or a combination of both towards school administrators, including themselves.

Some ESDs and SD reported difficulty understanding public health mandates or how to apply them in specific school settings. Interviewees also mentioned most of the mandate guidance was given in to them in forms that were hard to follow (e.g., used scientific jargon, did not not make sense for school settings, did not apply to special school settings).

"Masks, the challenge with that was that you just had a couple staff members that really didn't agree with it. So they were loose and sloppy with it in the buildings. But typically those were handled pretty quickly. If it was noticed that somebody was not compliant with wearing a mask in the building was brought to the attention of their supervisor. It was a knock it off or we're going to deal with discipline thing. I think for the most part it went pretty well."

—ESD Interviewee

"We're implementing government initiatives and government responses and just so that puts us in this awkward spot of either following the law or not and losing our funding. There were plenty of school superintendents who lost their job for following the law. I mean so many that they created legislation that a school superintendent can't be fired for following the law."

—ESD Interviewee

"Our biggest one was maintaining distance during lunch for those that were quarantined during lunch. And the health department, honestly had an answer of, well, just separate the students, not realizing what that would've actually impacted the student."

—SD Interviewee

School level challenges

Many Principals and School Nurses reported varying levels of adherence to public health mandates within districts and even the same school. In turn, this produced challenges when it came to enforcement. One School Nurse discussed varied levels of enforcement among school staff that occurred within the same school: "These differed for each school in our district. Some teachers kicked kids out of their class if they didn't wear the mask properly or if they cleared their throat....what message is this sending to children? Some were more relaxed about it. Me as the nurse if I knew of a confirmed case would contact trace and exclude anyone who was exposed."

SDs and ESDs reported a number of challenges related to enforcing public health mandates started in Stage 2, including community frustration building as they waited for schools to reopen. As schools started to reopen in Oregon, SDs and ESDs encountered new challenges in response to the pandemic, which included:

- enforcing vaccine mandates for teachers and school staff;
- COVID fatigue among community members and school staff;
- politicization of COVID-19 and associated mandates;
- enforcing masking and mandates for young children;
- community members refusal to wear masks; and
- navigating the reopening of schools, including entire classes closing down because of cases and teachers not wanting to return in-person for various reasons (e.g. their kids were still at home, they felt unsafe).

> "Our district was one of only a few the adhered to public health protections in our region. This was important but was also overwhelming with the limited resources that we had, which I feel negatively impacted our execution of protocols."
>
> —School Nurse Survey Respondent

> "I was point on one particular pain point with a district that basically opened against the rules and had public complaint and clear documentation. And when the brass tax came to hold them to account, we folded. And that does no one any favors."
>
> —ODE Interviewee

At the district level, study participants reported public health mandates were challenged from a human resources (HR) perspective. This was a particular challenge regarding the vaccination requirement.

"When we started the '21-'22 school year, the mandate around vaccinations was particularly challenged at the human resources level because, again, it's just a whole new layer of ensuring that people are vaccinated, having really difficult conversations with people who didn't want to get vaccinated, people who were looking for... Then having to be the decider of whether an exception is provided to an employee or not, while at the same time knowing we're going through a public health crisis and we're not only liable for the employee and their health."

—SD Interviewee

"When we came back to school in the fall of '20, the 2021 school year, we had our teachers work from their classrooms. And that was a challenge because teachers wanted to work from home for a variety of reasons. Their kids were at home. But we have teachers who live in spaces where we couldn't support their internet. And just being able to provide them the resources that they needed to be able to teach, bringing teachers back was a challenge with our local unions. I'm glad we worked through that when we did because it made it a whole lot easier when we were bringing kids in."

—ESD Interviewee

Adjusting the physical environment of schools to adhere to public health requirements was complex and challenging for Principals. Often, these adjustments put a strain on school staff via reduced or eliminated breaks so that classrooms could be rearranged or class sizes could be smaller. Principal survey respondents also reported not having enough physical space in the classroom to physically distance students. In turn, this led to inconsistent implementation and enforcement of guidance across some school districts. One Principal commented on this: "inconsistent enforcement of current regulations in order to maintain instruction — in a pandemic don't use words like 'to the best of your ability' either we need to do it or not."

"But even just like in the building, like spending time on weekends and evenings, measuring out six feet between desks and taking out the ones that wouldn't fit and storing them, and going through all the hallways, and putting six foot markers, and just like a lot of extra time that may not have been seen at the district or state level."

—Principal Focus Group Participant

"We did breakfast in the classroom and lunch in the classrooms, which I think also helped, although that put a lot of pressure on our staff in terms of breaks and things like that."

—Principal Focus Group Participant

"I know that our building is older and so the age of our facilities caused some issues..but I would say just in general, facilities are a challenge in here in rural Oregon where they're older and we can't pass a bond."

—Principal Focus Group Participant

A couple of school administrators reported receiving OSHA complaints. In one instance, a Principal stated the complaint was received so late that it was no longer relevant to current practices (e.g., outdoor masking guidance had already changed). In another instance, a Superintendent reported they received multiple OSHA complaints that they did not feel were valid.

Some Principals felt that although they tried to enforce public health mandates, they did not have proper authority to enforce specific measures.

"One other thing to add would be enforcing all of those public health protections, and then you would get an OSHA complaint and you wouldn't know where it came from. Or sometimes it would be months later. I got one for the beginning of September but I didn't receive it until January. And it was because the guidance had changed about outdoor masking like that day."

—Principal Focus Group Participant

"But we dealt with... We had staff that didn't want to be at work. So we had OSHA complaint after OSHA complaint after OSHA complaint because we had staff that didn't want to be at work and were looking for reasons not to, right. So that was difficult to be in that spot where we want people here, so we need to do this, but just dealing with the feeling like we're always being negative."

—SD Interviewee

"If we are going to require it from OHA we need to have the power to enforce."

—Principal Focus Group Participant

Making sure staff adhered to isolation requirements caused major staffing issues, one Principal reported.

Some respondents also said that enforcing the vaccine mandate caused some staff to leave the school. Others reported that clear agreements with the union about vaccine requirements seemed to assuage some of the tension around this issue.

"We had to send people home, right? If you had contact or there was this or that. So, we're sending like, we're literally like having substitutes all day every day. One time I had 22 teachers out. So, we're subbing and like kids aren't getting their education even though we were back in a building when they have a sub or two, you know, a different sub every day or you know, and then we're bringing in really young folks that don't have the experience. I don't wanna say young, I say young, old, it doesn't matter, right. That they weren't really qualified to, that was really tough. Real, real tough."

—Principal Focus Group Participant

"But one thing that we also had to do is making sure our staff got vaccinated. So, I'm in a pretty rural area and so that was like, we lost staff because of that. And so, I think that was something that we kind of had to push onto people and maybe they weren't one to receive that."

—Principal Focus Group Participant

One of the most common challenges mentioned by Principals was dealing with the emotions of parents and other community members about public health requirements that the school had to implement and enforce.

Multiple Principal focus group participants reported that a lack of support from law enforcement was a barrier to addressing community push-back to public health requirements.

"And then the second was just, and again, it wasn't every single parent in the district, but we work in a relationship driven field oftentimes. And when those relationships were, you know, felt like they were broken and how hurtful people were towards us on social media over things that were completely out of our control."

—Principal Focus Group Participant

"I think that there was no support from, yeah, law enforcement or other agencies. There was none. And they made public statements stating that they would under no circumstance come in and support us in those efforts unless there was some sort of harassment or unruly type of behavior going on."

—Principal Focus Group Participant

"One thing I wish we had more of is just help on holding that line in the sand, because we got so much push back. And there were just days that I dreaded because I was getting yelled at by staff, by families."

—School Nurse Focus Group Participant

School Nurses reported using an array of strategies to improve adherence to public health measures. This included providing teachers with the tools they needed to successfully implement protective measures and clearly communicating expectations to students and teachers. School Nurse interviewees, at times, thought it was difficult to implement protections that were just "recommended" by the guidelines they received. Additionally, as the pandemic progressed, some School Nurses thought that after a while, it was challenging to enforce policies that they believed were no longer "best practice", but ultimately had no decision-making authority.

"Our county is pretty conservative maybe regarding masking. I literally had my life threatened over asking someone to wear a mask. I had milk thrown at me. I had all kinds of things happening. And once the masks were gone, in all reality, the conflict with the parents went away."

—School Nurse Focus Group Participant

"I think one of my greatest challenges was enforcing the policies. Once the policy is no longer aligned with best practice for lack of a better word, right? Especially after just spending so much time teaching and educating and partnering and building that trust. It felt like a rupture to that relationship that I just worked so hard to cultivate."

—School Nurse Focus Group Participan

"It depends on your school board or your school district, whereas ours was a little bit more conservative, meaning, you need to mask up, you have to wear a mask, whereas other school districts in the state were not, and it just is so frustrating how it was so different. So it was left upon each school district and I felt that wasn't too cool, to leave us high and dry like that."

—School Nurse Focus Group Participant

Ways to improve adherence in schools

School administrators, including SDs and Principals, felt their lack of involvement in public health mandate decision-making hindered COVID-19 pandemic response in schools. Importantly, Principals also felt they could have brought valuable insight to the table if they had been offered a seat. Principals reiterated that although Oregon took a "one size fits all" approach, schools were "not a one size fits all." Principals reported that for future public health emergency responses, there should be leeway and decision-making at the local level, especially given the vast differences in schools (e.g., geography, population served) throughout the state.

"Through the whole process, especially as we returned the Fall of 2020, Winter of 2021, it felt like everything was being done to teachers and being done to staff and they didn't really have a voice, or any way to like provide input on maybe what was working or not working. And just thinking about what was working in our school, we could have done more of is having teachers share some promising practices, maybe more workaround instruction and things like that while they were able to find comply with them but also make sure the kids were learning. And then I think about that as a whole, if there would've been maybe a chance for a little bit more voice and some different levels of communication on what was working and not working in the classroom so that our teachers and our staff had an opportunity to kind of be part of some of the decision making or information gathering."

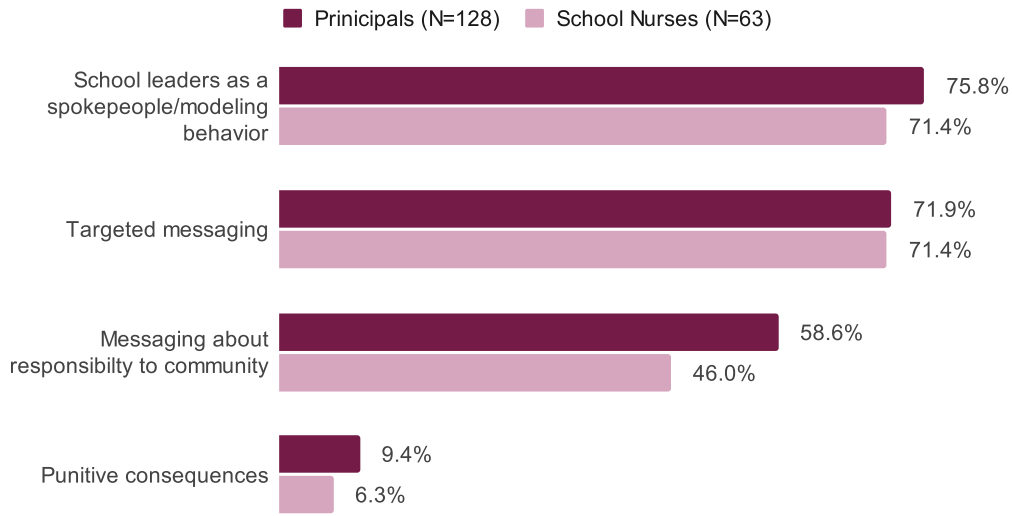
—Principal Focus Group Participant

"School district superintendents were put into a horrible situation, where we were made to look like we had decision making power in our district to write our plans and set our rules, but the mandates were so clear and restrictive that we had little wiggle room to apply local context into our decisions."

—SD Survey Respondent

Figure 34 shows the strategies that Principals and School Nurses found to be most effective for enforcing public health mandates in schools.

Figure 34: Strategies that were most effective for schools for enforcing public health mandates



Among Principals who reported punitive approaches to enforcement of public health mandates, there was consensus that it was ineffective, especially for masking.

"We did, I mean we communicated constantly. Initially we tried to be like, we would give the kids a warning to put their mask back on in class. They didn't do it. They go to the dean's office, you have a conversation and then we would suspend them, which, so that was a very short-lived experience. 'Cause the parents were like, I'm not gonna come and get them. So, I think for two weeks we probably tried to be punitive and then we were just like whatever. So, I think it was just the verbal reminders by the end, which was generally not effective."

—Principal Focus Group Participant

Study participants involved in Oregon's COVID-19 public health response in schools were asked about potential strategies they thought could improve adherence to public health mandates in schools. Some SDs and ESDs reflected on the fact that many people "don't really like mandates" and were unsure about how policy changes could impact this. They did emphasize, however, the importance of community engagement and connections to hold the community together during challenging times. A clear theme identified by many respondents (SDs, Principals, and School Nurses) came back to the importance of clear, consistent communication with the school community.

Other respondents also recommended building upgrades as a way of improving adherence. Principals reported that school building improvements could make school staff more comfortable with their working conditions. Specific building infrastructure investments that were cited as a way to potentially improve adherence to public health mandates included:

- upgrades to outdated HVAC systems;
- renovated classrooms with adequate windows and/or doors to allow airflow throughout each individual classroom; and
- creation of larger classrooms to allow for social distancing.

> "I think when people are confused and they don't feel like they have a whole picture, they might not be adhering to those mandates as much. And so just keeping that communication constant and clear and having all of our staff kind of on the same page, we did a lot of really deliberate communication to keep everybody in the up and up so that there was less kind of going around in the background or not doing things or following through or things like that."
>
> —Principal Focus Group Participant

"We had huge union complaints around like, 'you want me to go in and you give me this little baby air purifier. Like that's not feeling super comfy to me with 38 kids in a class.' So I think that any sort of facilities upgrades, the HVAC stuff is great but that can't always be seen by teachers. And so I think our facilities are old and outdated. They're not meant to like give space and give airflow like in a really genuine way where we could pop a door open or a window open. So I would love some mass facilities upgrades if that is on the table."

—Principal Focus Group Participant

"We have some old school, old facilities in our district that could have had almost the classes of 21, 20 and still meet the six feet. And then we have some new buildings that were built in the last couple years that we were struggling to get 12 and 11 in because of just the way that things were spaced."

—Principal Focus Group Participant

"Right now in the late stage of stage four, we're really looking to how do we build the operational muscle of school districts to be able to manage communicable disease meaningfully with the understanding that community expectation has changed. So that it's something that they are doing, but it's not sucking up every ounce of resource, attention and energy. They're doing it in service of the academic achievement, outcomes, meaning, purpose, belonging, and connection that they're trying to foster in their school communities. And that's a long pathway. So working through that pathway to get to a place where we have done that, where we've built that operational muscle, knowing that this is communicable disease management expectations for all of us are higher than they were in 2019."

—Principal Focus Group Participant

Transitioning to distance learning

As part of Oregon's public health response to the COVID-19 pandemic, all Oregon schools were closed for in-person instruction from March 16, 2020 through June 2020. Based on COVID-19 positivity rates, many schools remained closed for much longer into the pandemic.

Preparedness for distance learning

SD, ESD, and Principal surveys respondents were asked to reflect on how prepared their district was to transition to distance learning (Figure 35). A little under half of SD survey respondents (45.1%, n=32) felt their district was moderately or highly prepared, and a little over half (54.9%, n=39) felt they were minimally or not at all prepared. Not a single ESD survey respondent felt their ESD was highly prepared to transition to distance learning, although most respondents (62.5%, n=5) felt their ESD was moderately prepared to respond. Feelings of unpreparedness to transition to distance learning at the district level were echoed in interviews. In comparison with SDs and ESDs, more Principals (64.9 %.9, n=111) felt their district was minimally or not at all prepared to transition to distance learning. A little over one-third of Principals (35.1%, n=60) felt their district was moderately or highly prepared; SDs and Principals were asked about whether the abrupt transition to distance learning required adoption or adaptation of existing policies. Almost half (47.5%, n=34) of SD survey respondents reported they had to change existing policies (Figure 36). Four SD survey respondents (5.6%) reported they adopted new policies and changed existing policies.

Figure 35: Preparedness to transition to distance learning for educational instruction delivery

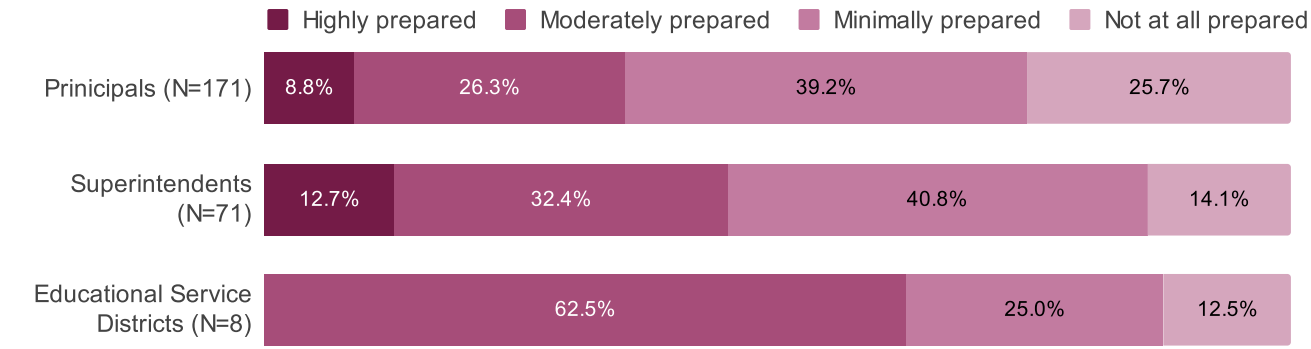


Figure 36: Abrupt closure of schools and resulting transition to distance learning required changes to existing policies (SD respondents, N=71)

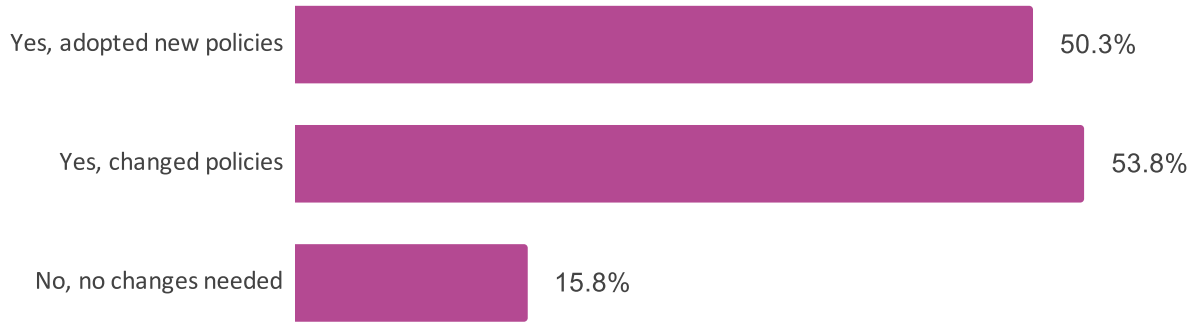
Some respondents selected both options for yes, so the total equals more than 100%

Principal survey respondents reported more policy changes than SDs. Half of the Principals who responded to the survey (n=86) reported adopting new policies for their schools during the transition to distance learning (Figure 37), and slightly more than half (n=92) reported changing existing policies.

Challenges with distance learning

As previously reported, challenges associated with distance learning were frequently cited as a reason for feeling unprepared to respond to the COVID-19 pandemic. A leading challenge in Stage 1 across a majority of SD, ESD, and Principal study participants was the transition to distance learning and remote work for staff. Interviewees reported that the challenges associated with changing the instructional education delivery method in such a short time frame ultimately made the quality of educational instruction suffer.

Figure 37: Abrupt closure of schools and resulting transition to distance learning required changes to existing policies (School Principal respondents, N=171)



"Distance learning was rough on kids and families. I feel that, in hindsight, we would have been much better off if the state had allowed us to continue to hold in-person learning."

—Principal Focus Group Participant

Principal survey respondents were asked to rank aspects of the transition to distance learning from most challenging to least challenging Figure 38). Training and preparedness of teachers in distance learning methods and delivery was ranked as the most challenging aspect, with 38.0% of Principals (n=46) reporting this as their top challenge. This was followed by technology infrastructure, which was identified as the most challenging aspect for 23.9% (n=29) of Principals and then by training preparedness of students in using distance learning technology (21.5%, n=26). Platforms or systems to manage distance learning was cited as the most challenging aspect for 16.5% (n=20) of Principals.

Figure 38: Ranking of most to least challenging aspects of transitioning to distance learning (School Principal respondents N=171)

"I would say that we did not do as well in instruction as we could have done. It's hard to say that, because it was so radical and so fast. It wasn't like, 'Hey, in six months you're going to do this.' It was like, 'We're doing this next week.' So, I think just the compressed timeline on that made... You can do the operational things like tech and food. But when it came to things like learning how to be a good online instructor for kids that you're not going to see for God knows how long, I think that was really hard."

—SD Interviewee

When preparing to transition to distance learning and throughout stages of the pandemic when distance learning was provided, ensuring students had the necessary technology (e.g., computers and internet access) to participate in remote learning was a substantial challenge. Technology-related challenges associated with district learning were more common in low-income communities and communities living in rural areas. For rural areas, a lack of technological infrastructure was something that schools worked with multiple community partners to overcome. One Principal reflected on this, "There seemed to be a lack of awareness around how communities of poverty would be impacted by distance learning--including rural schools with little to no internet access."

Principal survey respondents were also asked to evaluate the effectiveness of their school's delivery of distance learning (Figure 39). Less than 10% of respondents rated their school's delivery of distance learning as "excellent." The majority of respondents (59.5%, n=72) evaluated their school's delivery of distance learning as fair or poor.

Figure 39: Effectiveness of school's delivery of distance learning (School Principal respondents, N= 121)

"We just didn't have systems in place to do remote. And I think we really faltered. We just didn't do a good job with education. I think we've really failed kids in terms of their experience and what they needed was just not met. And so, on the school side of things, we weren't ready to pivot quickly to online school. We had kids that didn't just have the things they needed to be successful. They didn't have devices, they didn't have Wi-Fi, we didn't have a learning management system. We had no way to really deliver this in a way that worked. We weren't ready to do it."

—SD Interviewee

Many Principals also reported substantial community frustration about Oregon's COVID-19 response in schools. More specifically, there was frustration about why Oregon schools continued distance learning when schools in other states were fully open. One SD interviewee described challenges in communicating to their school community why schools in other states were reopening and Oregon schools were not. This was a common theme for schools in rural areas of Oregon. A Principal focus group participant reflected on this, "…community frustration that Oregon took a harder line than neighbors to the East of us. 'How can they be back at school but we cant?', 'How can that state be pretty much open but we still have restriction?,' 'Our numbers are not any better than states with more relaxed rules.'

Those involved in Oregon's COVID-19 pandemic response in schools reiterated that just because students have returned to school does not mean that challenges are over. For some study participants, the return to in-person learning has brought to light many issues facing Oregon students. As Oregon schools look ahead, they are faced with addressing student learning loss and socioemotional issues- a substantial challenge study participants reported they are working diligently to address. SD and ESD interviewees reported that the pandemic will have long-lasting impacts on students, which will impact all students, but particularly younger learners (e.g., Kindergarteners and first-graders prior to the pandemic start). Importantly, study informants attribute these current challenges directly to distance learning. Oregon school administrators also reported they are also still dealing with students who are not

"Stage two was very frustrating in that it seemed that the west side of the state was very slow to reopen, whereas we don't have a very big population in our county as far as people being close to one another. And so stage two was difficult for us in that it took a long time for the partial reopening to actually occur."

—SD Interviewee

"I think Oregon's poor response to the pandemic will be and is currently shown in drop in public education enrollment and increase in private and home school. As a person that has dedicated my life to public education, this is hard to see people lose faith in public ed."

—Principal Focus Group Participant

returning to in-person learning for a variety of reasons (e.g., transitioned to private or home school, dropped out of school).

Study participants also reported seeing substantial socioemotional issues, particularly mental health issues as students returned to in-person learning. As younger learners are still learning how to navigate the socioemotional realm in school settings, this is particularly relevant for these students. Mental health issues, however, study participants noted are more prevalent in older students. For older students, one interviewee mentioned that online learning became a habit so changing back to an in-person setting caused stress and burnout for students.

"There was a huge loss in continuity of education. Our kindergartners this year and our first-graders this year are completely disrupted to what kindergartners and first-graders were prior to the pandemic. Their preschooling, their kindergarten years have been turned on their heads. So we are going to suffer in education for the next 10 years."

—SD Interviewee

"Stage four currently, we're still honestly trying to help the kids get caught up with, there's some huge learning gaps that they have as a result of this. And I'm not sure that we will ever get them caught up based on the length of time that it took, but that's where we're at right now."

—SD Interviewee

"We are feeling the after effects of students being extremely isolated and it is very difficult to get students and families engaged in learning and regular attendance. Socially, emotionally and academically we took many steps back for making progress with our students and it shows."

—Principal Survey Respondent

Successes with distance learning

Across all study participants, the largest success with distance learning was that schools were able to transition to distance learning with little notice and preparation. Interviewees also reported that as school staff adapted to distance learning, the quality of educational instruction improved over time. Despite the numerous challenges related to distance learning, education sector informants reported their schools tried their absolute best to continue to provide Oregon children with the best possible education given the ongoing pandemic.

Many SD and ESD interviewees discussed successes their district had during the initial transition to distance learning. Some respondents mentioned that their biggest success was distributing various technologies, such as sim cards and laptops for students, for online communication and learning accessibility. Lack of technology access and internet capability for students was a considerable challenge for schools. School administration and staff worked diligently to provide technological resources to students, particularly during the initial transition to distance learning. One ESD respondent described their success in their alignment with other districts in their response including cohesive use of tools and processes.

During the pandemic response, a few Principal focus group participants reported that hosting online virtual forums during COVID-19 was a success and aided in community building.

"While our initial response to 'emergency distance learning' was very difficult (Stage 1), given time and resources, we were able to create an adequate distance learning program beginning in the fall (Stage 2) that worked for most students."

—Principal Survey Respondent

"Especially in Stage 1 and Stage 2, [NORTHERN OREGON ESD] did a really good job, like you said, of keeping all the districts aligned and everybody having the same response, using the same tools, having the same processes."

—ESD Interviewee

"Locally working with my team, I have an amazing IT [Information Technology] department that is like, 'Okay, we're going to go get every single Chromebook out of buildings. We're going to go get [more than 5,500] Chromebooks and bring them to the district office.' So that my... The team that I have here in place stepped up."

—SD Interviewee

"First part of Stage one, we shut down and went to remote instruction. So that was the general request. Our ability to do something like that, that we'd never done before was, I mean everybody in the state was doing it, but the fact that we did it is still kind of amazing. Education doesn't change that quickly."

—SD Interviewee

"Those Zoom forums the Principals we're holding were really, really great for building community. They would do sessions, [highschool name] did one, for like a six week, on how to teach your student at home. And so, the parents that Zoomed in on that kind of built a support group for each other 'cause they were all high school parents struggling with getting their kids to do the work. So, I think they, that was a definite success."

—Principal Focus Group Participant

Some Principals reported that distance learning allowed their school to serve as a resource for other aspects of the pandemic response. One example of this is schools serving as a site for childcare providers to ensure healthcare workers and other first responders had access to in-person childcare.

Some Principals reported there is a value in keeping distance learning for some student populations who may have otherwise dropped out of school. "And I think because we went through the pandemic, more students are comfortable with online learning. And so, what I'm seeing this year is students that maybe traditionally would drop out because maybe they have to work to support a family or they have social anxiety so they don't want to come into school and rather than dropping out, we have an option for them that's a virtual academy. And I think it, I mean it didn't exist before and I know I'm not the only district that now has a virtual academy and so I think we're able to have less students dropping out because we have more options for them."

Food services

Throughout the COVID-19 pandemic, Oregon schools continued to provide food services to their students and families despite school closures. SD, ESD, and Principal interviewees, specifically, reported prioritizing access to basic food services students would receive in-school during school closures. It is evident that continual provision of food service throughout the pandemic was a substantial success in Oregon's response to the COVID-19 pandemic in schools. Some schools reported creating a "catering service" of sorts, where school staff (e.g., administrators, teachers, bus

"When we first closed down in March of 2020, our school became, well, we closed, and then we were a childcare provider for first responders in the community at the school that I was Principal of. So, we brought together a group of staff to take shifts and rotations to provide childcare for medical personnel and law enforcement, and just first responders."

—Principal Focus Group Participant

"From a food service standpoint, we were able to convert into a catering service very quickly, and used our buses to deliver meals to homes. We fed kids and we got them connected."

—SD Interviewee

drivers, cafeteria staff) delivered food to students' houses. Others reported their cafeteria served as a central "hub" for pick-up of meals.

Numerous community partners supported school efforts to provide food services to those in need. Some Principal interviewees reported partnering specifically with CBOs and faith-based organizations to ensure student access to food service. Some Principals reported their local grocery store provided brown paper bags to aid in implementation of food service delivery. Schools serving homeless students also reported partnering with specific CBOs to ensure food access for this special student population.

Despite considerable success with Oregon schools' ability to continue food service, there were logistical and resource challenges that schools faced. Principal survey respondents reported that feeding children in rural areas was a major challenge that hindered their school's COVID-19 response.

"When the initial two-week shutdown happened, we, that first week, started delivering food because we know we have a lot of students with food insecurity. So we were out on buses during the first week of the shutdown right away, delivering meals, breakfast, and lunch. Administrators were... I mean, we sent staff home, but administrators were riding bus routes morning and at lunch delivering food because we know that's a need in our community."

—SD Interviewee

"So, initially we might've been sending home packets or making sure that families had access to food through our school lunch program. There was quite a bit of that. And so just kind of making sure that our cafeteria was accessible so that our school bus drivers could pick up the lunches to deliver them to local community centers or parks so that families had access. But it changed in a lot of ways. But I think, you know, information provider, food provider, when necessary, and then of course an educational provider as time morphed on as well."

—Principal Focus Group Participant

"And our local churches, their community partners, they began to bring lots of snacks, snacks and Top Ramen. Just stuff like that that kids would have because we would deliver their lunches. But depending on the family's situation, that didn't cover dinner, or it didn't cover snacks. And growing kids actually need more than just three meals a day, they really do need snacks. And so, we had lots of our church community partners that would provide food for us. And then just the way to get the food to them in the bags and different things."

—Principal Focus Group Participant

"We also have an organization that helps us with students that are homeless or need food. So, they partnered with us to work with them to, we delivered food together or just helping to get things into students hands. They were a really strong partner."

—Principal Focus Group Participant

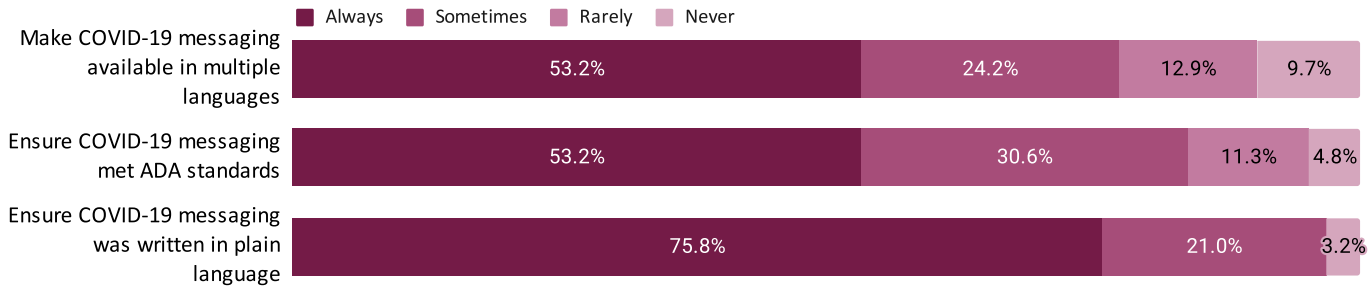
Public health messaging and communication

As mentioned above, public health messaging and communication was integral to the COVID-19 response in schools. Public health information typically flowed from ODE to SDs and then to Principals. Timely information sharing across partner organizations (SDs, ESDs, schools, LPHAs, ODE) was cited as a key success in the response. Simultaneously, however, the frequency with which public health messaging changed for schools hindered response at both the district and school levels.

Use of public health messaging best practices

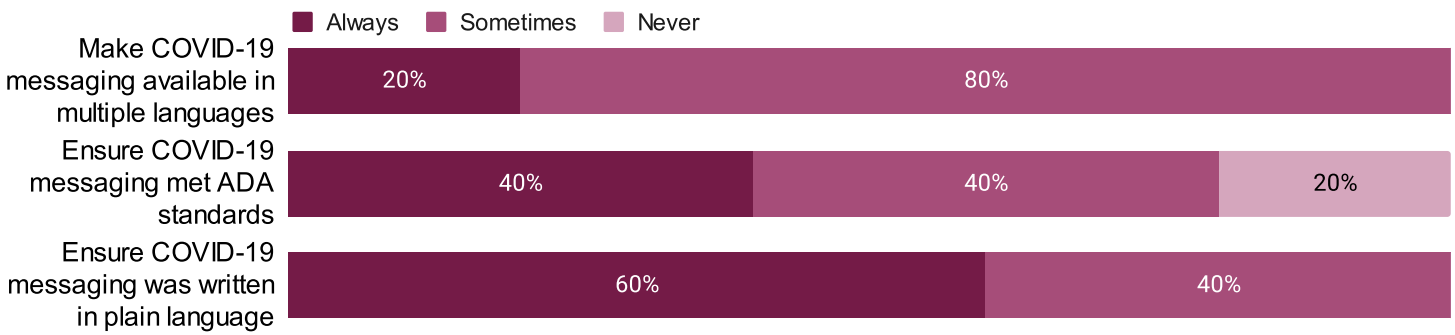
SD survey respondents were also asked to reflect on how their district incorporated accessibility standards into their public health messaging. Nearly all (96.8%, n=60) reported that COVID-19 messaging was always or sometimes written in plain language, most respondents (83.9%, n=52) reported that messaging always or sometimes met Americans with Disabilities Act (ADA) standards, and 77.4% (n=48) reported that messaging was always or sometimes available in multiple languages. About 9.7% (n=6) of SD survey respondents reported never making material available in multiple languages, 4.8% (n=3) reported not meeting ADA standards, and 3.2% (n=2) reported that they never ensured messaging was in plain language (Figure 40).

Figure 40: When developing targeted public health messaging, school districts did the following (SD respondents, N=62)



The 62.5% (n=5) of ESD survey respondents who responded affirmatively that their ESD developed and disseminated COVID-19 public health messaging were asked to reflect on how their district incorporated accessibility standards into their public health messaging. All ESD respondents (100%, n=5) reported that COVID-19 messaging was always or sometimes written in plain language and that messaging was always or sometimes available in multiple languages. The vast majority of ESD respondents (80%, n=4) reported that messaging always or sometimes met ADA standards, and one respondent reported that messaging never met ADA standards (Figure 41).

Figure 41: When developing targeted public health messaging, ESDs did the following (ESD respondents, N=5)

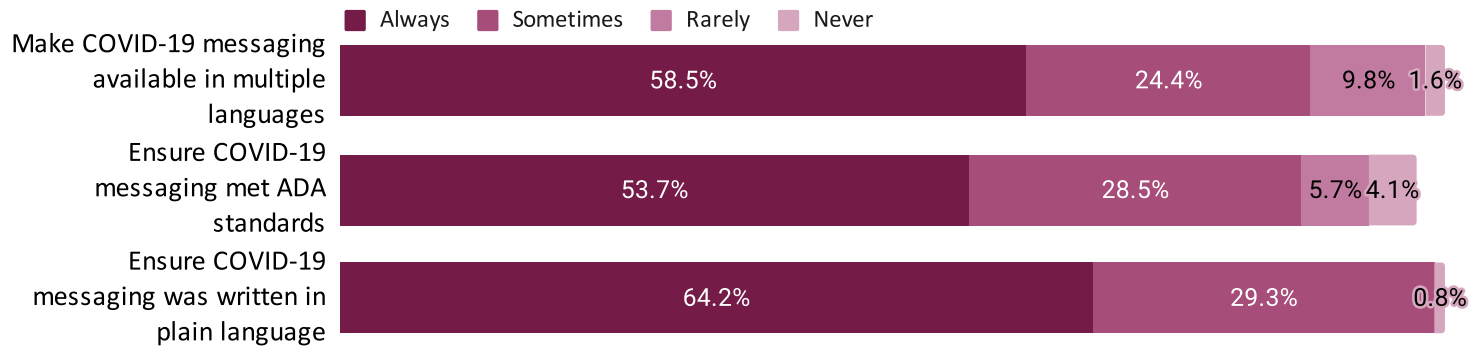


Similar to SDs, nearly all Principal survey respondents reported that COVID-19 messaging was always or sometimes written in plain language (93.5%, n=115), and reported that messaging was always or sometimes available in multiple languages (82.9%, n=102). Most Principal respondents (82.1%, n=101) also reported that messaging always or sometimes met ADA standards. Approximately 4.1% (n=5) of Principal survey respondents reported never ensuring messages met ADA standards, 1.6% (n=2) reported never making messaging available in multiple languages, and 0.8% (n=1) of respondents reported never ensuring messaging was written in plain language (Figure 42).

Overall, schools worked hard to ensure they adhered to public health messaging best practices, which included the development of tailored COVID-19 health messaging. Culturally-responsive communication and language access was brought up by a couple of Principal focus group participants. Some Principal focus group participants reported offering parent meetings, video tutorials, and other COVID-19 communications in both English and Spanish during their response to COVID-19.

> "We did a lot of tutorial videos. And kids did 'em, and we showed what that means and trying to make it as cool with the cool signage and all that stuff, as culturally responsive and appropriate as we can and at least it helped in terms of the visuals, which I mean, we're still peeling stickers off the floor."
>
> —Principal Focus Group Participant

Figure 42: When developing targeted public health messaging, schools did the following (School Principal respondents, N=123):



Messaging about public health mandates

ODE reported they worked with OHA to develop messaging about public health mandates for schools. ODE felt that OHA was a strong partner who helped them articulate the science behind specific mandates.

The majority of SDs rated ODE's communication during the COVID-19 pandemic favorably, with over 70% (n=44) of survey respondents selected good or excellent. A handful of SDs rated ODE's communications as poor (4.8%, n=3) and the remaining respondents rated ODE's communication as fair (24.2%, n=15).

Some SD and ESD interviewees felt there was a benefit in public health mandates for schools coming from state agencies, as they (school districts) could present neutrality on the subject. For example, school administrators and staff could state they were "following the law as a state employee/state-funded school district" as opposed to agreeing or disagreeing with the mandates.

Some respondents mentioned issues with being told conflicting messages about which PPE to purchase and distribute, costing schools resources.

Challenges

ODE reported that although there were many successes with public information dissemination, there were a few instances where inconsistent information was pushed out from varying organizations. One ODE interviewee noted that instances where inconsistent information was coming out from ODE, OHA, and LPHAs were few.

"I think that there was really good, coherent, aligned communication between OHA and ODE throughout about expectations… So I think the messaging was really aligned and that really supported the expectation of the implementation of those protections. And I think throughout OHA has been a strong partner on helping us articulate and keep updated on the evidence base of those public health interventions."

—ODE Interviewee

"We got mandates and we had to take care of that. I think actually it really helped."

—SD Interviewee

One ODE interviewee also noted that the constantly changing messaging- sometimes messaging that was intended to be a bit more nuanced- made people feel more confused and recognized public trust was lost along the way.

"Overall, it made my job easier in one sense that it wasn't on me to make the call. There were a few things I could make a local option call on. And so it was simply getting as much information, trying to explain the why, and even if they didn't understand the why, saying it's still going to be that way, so on we go. And trying to do that with as much communication from lots of different strategies and methods as possible."

—ESD Interviewee

"We bought face shields because ODE, like the guidance, said you could wear face shields. And we bought the ones even that sat on your neck and went up because kids are down below the teacher. So we felt those were safer. And then so we spent how much money on face shields, and then they came out and said, "Yeah, you don't get to... We can't wear those. They're not safe." So we have cases of these expensive face shields sitting in the warehouse that for what?"

—SD Interviewee

"We maybe had a few times where people were feeling like they were getting a different message from OHA/ ODE and their local public health authority. And I feel like those were easily solved and not as frequent as they could have been."

—ODE Interviewee

"A lot of paying attention and reading and keeping updated to CDC recommendations, OHA recommendations, ODE requirements and recommendations. And those things kept changing on us."

—ESD Interviewee

A couple of SD and ESD interviewees discussed challenges associated with the timing of public health information flowing from OHA and ODE. Specifically, school districts mentioned that receiving communication at the same time as the public presented a large communication challenge and further stressed relationships with the school community.

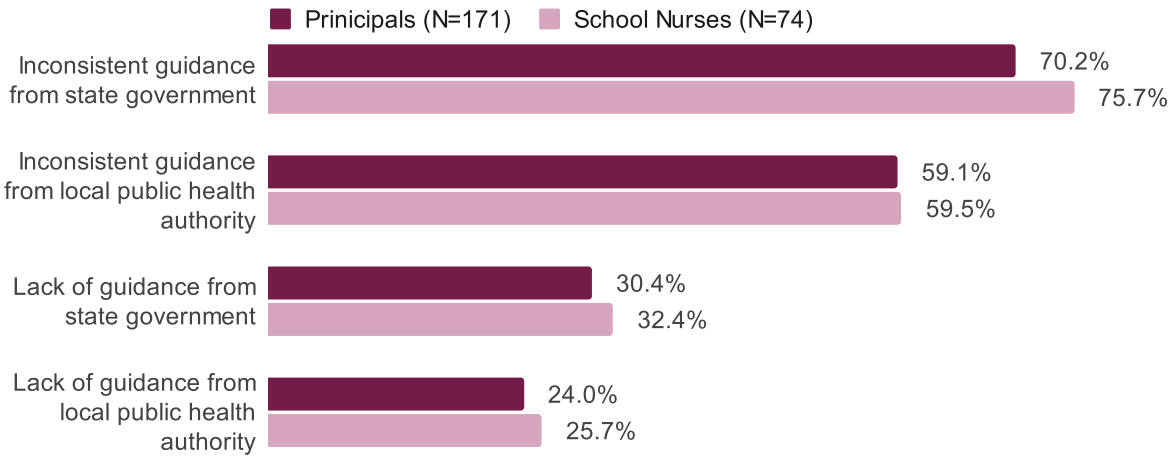
Most SD and ESD interviewees (all but one), mentioned that communication and messaging regarding public health mandates were confusing for a couple of reasons. First, SDs and ESDs received mandates and guidelines flowing from different entities; only sometimes were guidance from these different entities congruent. For instance, many respondents mentioned receiving guidelines or directives from their nearest LPHA that only partially matched guidance from OHA or ODE. Some respondents reported they interacted with more than one LPHA, which also caused confusion and additional inconsistencies with guidelines. Secondly, many respondents noted that changing guidelines and mandates based on new information was challenging and unsustainable. Respondents mentioned that guidelines would change within a week or two after disseminating guidelines to their students and families.

Translation of public health messaging was a challenge that school districts encountered during their COVID-19 response. One ESD also discussed the long turnaround time associated with the translation of materials, which resulted in a lag time between when messaging was ready for dissemination and when the messaging actually got out to the community. Another reported having a hard time reaching some families during the pandemic who spoke languages that the district typically didn't perform translation for (e.g., Farsi and Trukese).

> "The challenges that under this much pressure with this much politics in America, all it does is create very messy messaging and communication and the nuance gets lost and people just feel confused. And so we went from a message to a message, to a message, to a message with different rules, with different processes, and the normal public, much less educators. So at some point we lost people's ability to follow the thread lines. And I think that's an unintended consequence of an effort to be more nuanced, but we need to face the music a little bit about that."
>
> —ODE Interviewee

Challenges associated with the timing of public information were more frequently reported among study participants involved in the pandemic response at the school level (e.g., Principals and School Nurses). At the school level, inconsistent guidance from the state and inconsistent guidance from LPHAs were the most frequent communication challenges reported by Principals and School Nurses (Figure 43).

Figure 43: Guidance challenges that hindered the effectiveness, scale, or quality of COVID-19 response in schools



"That was one of the barriers in general with getting out timely messaging throughout the pandemic for us, was a lot of times the translation services would take five to seven days to be able to actually translate from English. Where we were ready and had messaging ready to go, but couldn't release it until all of the translations were available. So that's always a barrier."

—ESD Interviewee

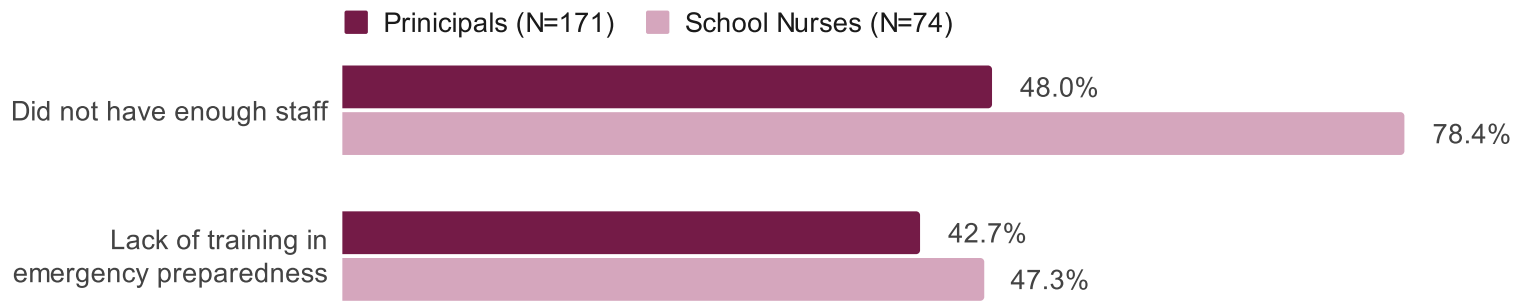
Workforce challenges in schools

Significant challenges to recruiting, on-boarding, + retaining public health staff

The education sector of Oregon's public health system response was not immune to workforce-related issues. Although some school administrators hailed the retention of teachers in their school as a success, other administrators reported substantial workforce loss.

Principals and School Nurse survey respondents both reported that a lack of school staff, as well as a lack of training in emergency preparedness, were challenges that hindered the COVID-19 response in their school (Figure 44). Onboarding new staff, specifically, was cited by Principals as a top barrier to COVID-19 pandemic response (46.2%, n=79). Workforce-related issues were also a point of discussion in interviews and focus groups.

Figure 44: Staffing challenges that hindered the effectiveness, scale, or quality of COVID-19 response in schools



Many Principal focus group participants reported that they had trouble retaining staff. Principal survey respondents reported similar workforce challenges and added further challenges, including securing substitute teachers when staff were sick, receiving time off for vaccination, or needing to isolate due to COVID-19 exposure. One Principal survey respondent reflected that they, "Did not have staff with the correct skill sets [i.e., social workers, public health professionals, nurses, communications managers, data analysts, contact tracers]".

Similar to workforce challenges experienced in other sectors, mental health was a great concern during this time. Principals saw the toll starting to wear on their school staff, including administration and teachers. One Principal reflected on what they perceived was an absence of mental health support available for staff (and students).

Mental health of school administrators was also noted among participants at the district and local levels. One SD interviewee specifically mentioned the multifaceted nature of going through the pandemic while simultaneously trying to maintain a positive environment for students.

School Nurses also mentioned the challenges faced by being a part of the health care workforce, "It's difficult to describe all of the challenges. But another challenge was the resistance and aggression/abuse healthcare staff faced from the public [parents, students] and from other staff."

"The burden of contact tracing fell entirely on extremely limited admin staff. We needed a FT [full-time] contact tracer but did not receive one."

—Principal Survey Respondent

"We are a little bit handcuffed by the fact that the labor force is dwindled since significantly. So the type of instruction, the type of education that goes on, it is not at the quality level that it previously was and it is suffering. But we are supporting the individuals during this time. So that's probably what we're doing the best."

—SD Interviewee

"Also the mental health of our staff, especially in Stage 3, because at the end of Stage 2 and into Stage 3, we really thought we were out of the woods. Then when we weren't, I think there was a huge collective depression and it led to a lot of staff turnover. I feel like that would've been better in hindsight if we were doing a better job of taking care of our staff as they were dealing with the fear that had been happening since 2020."

—Principal Focus Group Participant

"I would say [the] mental health of our staff and our administrators was a really big challenge. There were suddenly a lot of things that we were juggling, like little kids that couldn't go back to school or childcare issues or aging family members. And so, there were a lot of family stressors that were added onto all the regular stresses. And so, just trying to be the cheerleader and staying positive in all of that and trying to meet all of our staffs and communities needs while also having to do all of these technical pieces in addition and staying in compliance was a big challenge."

—SD Interviewee

"It was the worst time as an educator. There were extremely long hours, we did not have local control, and I was asked to enforce rules that my community did not believe in. It divided our staff and community, and the administrators took the brunt of it."

—Principal Focus Group Participant

Best or promising practices employed to recruit, onboard, + retain staff during this period

Although some study participants named staff retention as one of their greatest challenges, others were proud of their ability to keep their staff together. A few Principals reflected on the "bonding" effect of the pandemic, reporting that going through such an onerous event together made their team stronger and more adaptive. Some SDs and Principals reported that balancing the personal beliefs of staff with public health mandates, and more specifically, the vaccine mandate, was challenging. Honoring and respecting people's personal beliefs, however, through approving vaccination exemption forms, participants reported, aided in workforce retention.

Principals reported that in addition to all of the other roles they took on during the pandemic, they also ensured staff received emotional support. The empathy and emotional support provided by Principals ensured staff felt heard and had a safe space for sharing the challenges they experienced during the pandemic.

> "I would say for us it was staff retention…I'd say there's a handful of staff that toyed with leaving the profession and to make it through in two separate buildings and not lose any employees, because of COVID, to me that was a success that I am very appreciative that they hung out and hung in with me and hung in with our kids and not quit on them. And they're still here and I don't know how."
>
> —Principal Focus Group Participant

"The Principal really had to serve a role of an emotionally soft place to land for our teachers, for our educators who were keeping it together in front of the kids, but at the same time having their own personal lives in disarray and feeling a lot of parent guilt of not having enough time with their own kids in distance learning 'cause they're teaching. And so, more than ever before, we had to create space for processing that emotionally and supporting one another."

—Principal Focus Group Participant

"I think we did really well at balancing that personal belief and professional obligation quandary. We lost very few people on the employment side because of the vaccination mandate. The reason for that was that I signed every single exception that came across my desk. I did not question their reasons for not getting the vaccination. We really worked hard to honor and respect people's personal beliefs. So that is something that I think we did well and we retained our workforce."

—Principal Survey Respondent

Health equity

Rede asked education sector informants involved in Oregon's public health system response to the COVID-19 pandemic how health equity and cultural considerations were considered during district and school response.

At the district level, SD and ESDs reported this was done by:

- ensuring students and staff were safe and supported during their time when in-person learning was not allowed;
- prioritizing populations who were at a higher risk of long-term consequences from missing in-person learning, which included students with learning disabilities such as blindness, hard of hearing, Autism, and other developmental disabilities;
- recreating individualized educational plans (IEPs) for students whose prior IEP did not align with distance learning;
- providing technology access and support for students, including the provision of laptops and stronger WiFi connections;
- assisting students with the transition to online learning via individualized meetings and home visits; and
- continuation of food services, including free or reduced breakfast, lunch, and dinner (or a combination of these).

Many education sector study participants reported prioritizing health equity in their COVID-19 response, which occurred via an array of mechanisms. Often, messaging at the district level was not tailored enough to meet the needs of the specific communities schools served. Accordingly, Principals

"Equity became a high priority, especially in Stage 1, [in] rural area[s]. Not everyone has access to internet, let alone high-quality internet. So being creative in how assignments were distributed to kids, making sure that it was both available online and in a paper format, distribution of meals."

—ESD Interviewee

"When we created any kind of communication to families, it was almost always universally translated into different languages. But our component districts worked together to where one would translate it and then share it with the others so that it wasn't a barrier for the others to access those translated versions."

—ESD Interviewee

and School Nurses spent a lot of time creating new, more culturally-tailored messaging for their school community. Although the provision of culturally-specific communication was a success, it simultaneously posed a challenge due to the frequency with which COVID-19 information and guidance was changing.

Regarding helping their students and family comply with public health requirements, some SD and ESD interviewees mentioned coordinating the set-up or implementation of vaccination clinics. Respondents also described translating COVID-related communications (e.g. vaccination and PPE information) into different languages and disseminating to students and families.

Specifically, one SD reported that a strong relationship with a Latino/a/x serving organization in their community enabled them to support Latino/a/x families during the pandemic.

Another interviewee valued their LPHAs role in conducting outreach to communities of color who were vaccine reluctant or unsure what information to trust.

A few Principals brought up that they became a "facilitator of community resources" throughout the pandemic, expanding from food service to things like housing and utility support. Principals reported that school staff tried their best to ensure student needs were met.

"In terms of PPE, we support a migrant education program for most of our districts. And then I know [Northern Oregon City] has their own migrant education program. But programs like that also tried to use some of their resources to have drive-through parent nights. And part of that would be providing food bags and extra masks and gloves, and things like that."

—ESD Interviewee

"We had a very strong relationship with [Latino/a/x serving CBO] and that's our local nonprofit health provider. They were instrumental in making sure that there was access for families throughout the pandemic."

—SD Interviewee

"Another real benefit that I did appreciate about [NE Oregon county]'s public health response, is that they did really try to specifically do outreach to culturally specific families, to our Black African American families, to our Asian families, particularly to families that were vaccine reluctant, concerned about who to trust with the public information. I do think that that partnership really did help some people feel more comfortable with how the district was responding, but more importantly how public health was responding to the crisis."

—SD Interviewee

"As we're evolving the technology and the way in which we're presenting the information, we became delivery drivers as well. So, if students didn't have these resources, then somebody would deliver it. So, it could be me, it could be one of the teachers, it could be one of our aides, it could be a bus driver, it could be our custodian. But I mean, I think all of our roles really changed to meet the needs of families. And so we might be delivering a computer, we might be delivering [a] hotspot, we might be delivering food, you know? It really varied during that time."

—Principal Focus Group Participant

"How to address that when you know that there's been learning loss and those kiddos still aren't able to access an in-person education."

—SD Interviewee

"So [students with disabilities] is what I recall being the biggest issue in trying to meet their needs because online learning was not effective for many of those students."

—SD Interviewee

Challenges

SD and ESD interviewees discussed how the transition to distance learning exacerbated pre-existing educational disparities and postulated that these inequities may present later as educational gaps in students. Similarly, SD and ESD interviewees discussed their belief that inadequate social interactions due to distance learning or public health mandates may cause an increase in developmental delays, which may disproportionately impact specific communities. Specific communities that would be more prone to developmental delays because of a mask mandate would be those younger learners (e.g., preschoolers, K-2), for whom speech is beginning to developing and be fine-tuned. Similarly, children with learning disabilities likely had a harder time with distance learning. Children with IEPs, speech issues, etc.

SDs and ESDs reported that access to different resources throughout the states was not only a challenge in COVID-19 pandemic response, but presented a health equity challenge as well, as some areas of Oregon were more easily able to transition to distance learning or provide resources for students in comparison with other areas.

"The resources in our state are not equally spread around and are not the same. You can drive about an hour in any direction and your resources will change, the personalities will change. You can't just assume that we all think alike or we all have the same needs."

—ESD Interviewee

"We definitely didn't put kids first which is what we should always do in every decision in schools."

—Principal Survey Respondent

"I hope the state will consider how profoundly negative the impact of keeping students home was, and that they will do everything in their power to look for other ways to mitigate pandemics in the future without resorting to measures that so disproportionately harm students on the margins."

—Principal Survey Respondent

Nongovernmental + community partners

About CBOs

The study team collected data from a diverse range of CBOs through three primary data collection methods: surveys, interviews, and focus groups. The study team received completed surveys from 61 CBOs, conducted four CBO focus groups with 25 participants, and conducted 33 CBO interviews. In total, the study team collected data from 85 distinct CBOs across all data collection methods.

CBO study participants served a diverse array of communities across Oregon, including the following specific populations:

- African American/Black communities;
- Asian/Pacific Islander communities;
- American Indian/Alaska Native communities;
- Latino/a/x communities;
- lesbian, gay, bisexual, transgender, queer, intersex, asexual, + (LGBTQIA+) communities;
- people with disabilities;
- people who are houseless/unhoused;
- people with mental health and/or substance use disorders (MH/SUD);
- refugees;
- older adults;
- youth;
- faith-based communities;
- rural and urban communities; and
- migrant and seasonal farmworkers.*

**Note that an in-depth analysis of the contributions of organizations and other entities supporting migrant and seasonal farmworker communities throughout the COVID-19 pandemic is forthcoming in Report 3.*

CBO study participants described and reported their contributions to Oregon's COVID-19 pandemic response. In addition, several other study participant groups described CBO roles in the pandemic response and associated contributions. Specific study informant groups that discussed CBO involvement in the COVID-19 pandemic response in Oregon included OHA Directors, OHA Staff and Managers, and LPHAs. Through conducting 12 OHA Director interviews, 20 OHA Staff and Manager interviews, 39 LPHA surveys, and 16 LPHA interviews, the study team gathered additional firsthand experiences and perspectives on the contributions of CBOs to the public health pandemic response. Insights from each of these study participant groups have been analyzed and are detailed in this section.

CBO contributions

CBO, OHA, and LPHA study participants all noted not only the breadth and depth of contributions that CBOs made to Oregon's public health pandemic response, but also the invaluable expertise they provided when trying to reach specific populations. CBO contributions were seen as critical to Oregon's pandemic response. From day one of the pandemic they mobilized to meet evolving needs on the ground and elevate community needs with state and local partners to ensure access to information, resources, and care.

According to CBO, OHA, and LPHA study participants, the wide array of CBO contributions to pandemic response efforts included:

- interpretation and translation;
- community outreach and public messaging;

> "But funding the CBOs the way we did, now and current and into the future, funding the Tribes the way we did. The people that are on the ground doing the work, they're the experts. It doesn't matter if you're a MPH or a public health authority. It matters if you know your community and their needs. The state's responsibility is to support the community needs. Whatever that Tribe needs or whatever that county needs or whatever that region needs, it's our responsibility to support them because they're on the ground doing the work. They are the experts and they just need to tell us what they need and we need to support that."
>
> —OHA Director Interviewee

- partnership development and networking;
- program management, including adapting programming to virtual or hybrid;
- securing funding;
- procuring resources such as PPE and vaccines;
- quality control and safety;
- supervising and supporting staff, including caring for staff mental health;
- purchasing and delivering goods for community members (e.g., food, masks);
- supporting communities to learn and navigate technology (e.g., email, FaceTime, Zoom);
- individual case management and wraparound support;
- organizing testing and vaccine clinics/sites;
- volunteer coordination;
- elevating community needs to LPHA partners, including advocacy for services and resources to better support communities; and
- elevating community needs to OHA partners, including advocacy for policies, funding, and programming to better support communities.

When asked about their engagement in specific categories of pandemic response activities, the majority of CBO survey respondents reported engaging in an assortment of COVID-19 response activities. The most frequently reported CBO pandemic response activities included PPE distribution (85.2%, n=52), dissemination of COVID-19 information (85.2%, n=52), and outreach and engagement with priority populations (83.6%, n=51) (Figure 45).

Within each of these areas of work, the depth of attention and commitment that CBOs brought to these tasks was astounding.

"Every tidbit of information that was sent to us, we made sure to get that out in the languages of our clients. We created videos, all kinds of materials. In fact, I think we were one of the very few CBOs to attack this head on very early, understanding the need for culturally appropriate and sensitive media for our clients."

—CBO Interviewee

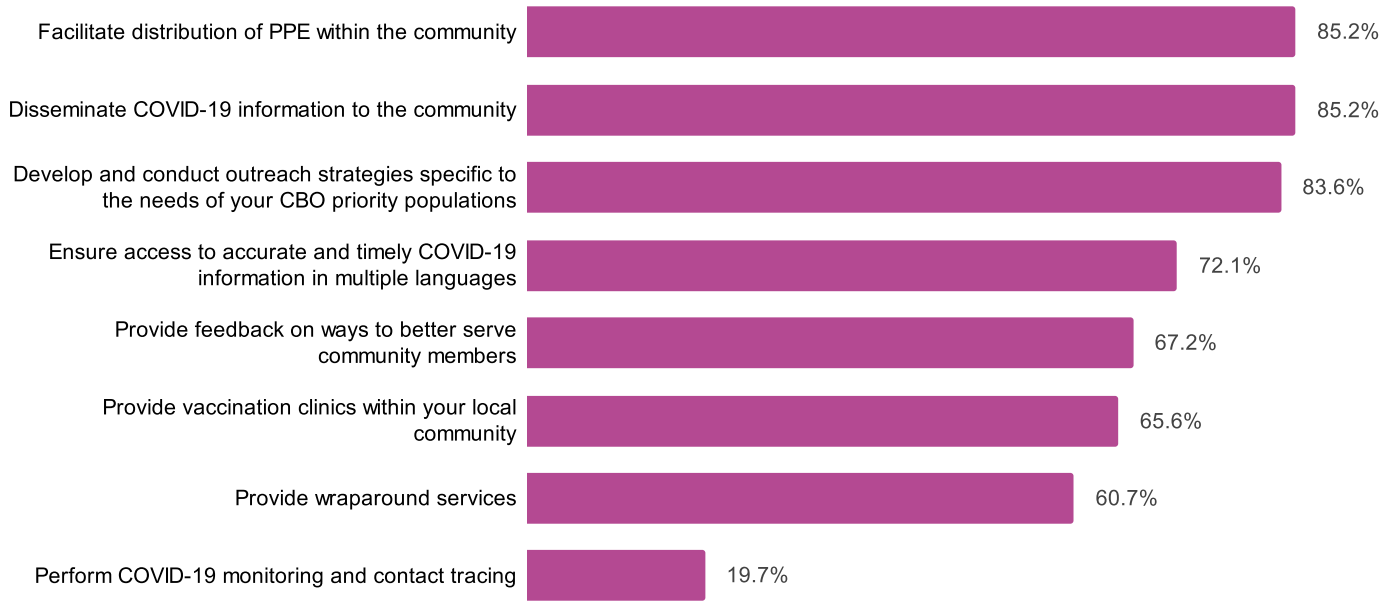
"We were serving as a wraparound services provider. When people would test positive in our clinic, we would make sure they could successfully quarantine by providing them with at least partial rent, grocery delivery that we paid for through state funds eventually, and paid their utilities so they didn't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

—CBO Focus Group Participant

"Our team was ready, willing and able to implement COVID protocols at our events and in daily operations. We are an extraordinarily flexible organization and built our capacity quickly to respond to the emergency."

—CBO Survey Respondent

Figure 45: CBO COVID-19 response activities (CBO respondents, N=61)



When reflecting on the entire pandemic response, CBO interviewees and focus group participants described their greatest contributions as:

- partnerships and communication efforts to increase adherence with public health mandates; and
- informing and improving the rollout of the COVID-19 vaccine, during which CBOS played an integral role in vaccinating community members and providing culturally-tailored education about the vaccine to increase uptake.

OHA and LPHA study participants were closely aligned with CBOs in noting these important contributions and also elevated the messaging and communication work CBOs led as another pivotal contribution. OHA Director, Staff, and Manager interviewees described the critical role that CBOs played in building trust between state and local public health agencies and communities. Specifically, CBOs were often cited as "bridge builders" who fostered new relationships between OHA and LPHAs and an array of communities, including communities that have been historically harmed by systems (e.g., transgender communities, people experiencing disabilities, migrant and seasonal farmworkers, and others). According to OHA and LPHA interviewees, CBOs helped message important information to communities, effectively tailored COVID-19 public health messaging to the specific populations they serve, and added crucial language translation and interpretation capacity to ensure information was linguistically and culturally accessible and accurate.

"We were able to coordinate those vaccine clinics at trusted locations with trusted, comfortable staff there, so people were confident that what they were receiving was safe and that it was okay with their underlying health conditions to be vaccinated."

—CBO Interviewee

"We underestimated the lack of trust that communities of color have in government institutions and healthcare, due to lack of access or discrimination. So better preparing our communities for what was coming, and building trust and being more engaged and intentional with our partners earlier on, I think could have really helped us, by way of inequities"

—OHA Director Interviewee

All study participant groups noted the critical education and advocacy CBOs were engaged in to elevate community voice and priorities to OHA and other groups for decision-making. OHA Directors wished they had leveraged their CBO partnerships even earlier to support an equitable pandemic response.

A vast majority of OHA, LPHA, and CBO study participants considered the contributions made by CBOs to be invaluable, reflecting that no other entity in Oregon's public health system had the reach, community trust, range of skills, and nimbleness to adapt to ever-changing needs that CBOs did.

"I think our greatest contribution was just the footprint that we left in the city in terms of our community building. We were able to really bridge places where people were not able to really express their concerns. We kept really lively conversations up, and many of them heated, but we gave our community a chance to express their concerns."

—CBO Focus Group Participant

"A big piece for us was around what happened with communities of color or disadvantaged communities. That learning about who they trust and making sure we are finding ways to keep those organizations engaged and including them in our funding paths, that was critical."

— OHA Director Interviewee

"We need to have CBOs at the table when it comes to any kind of pandemic response, it can't just be run and led by local public health agencies and OHA without the actual voices of the communities that are being impacted, so there has to be funding available to those communities, because in the past we have been asked to do work for free."

—CBO Interviewee

CBO roles

Synthesizing findings across CBO, LPHA, and OHA study participants, four primary CBO roles emerged:

1. Providing essential resources to community members (including food, housing assistance, PPE, and other basic needs) and helping community members navigate health and social services.
2. Educating community members about COVID-19 and pandemic control measures, including ensuring information was accessible and tailored to various communities and supporting compliance with pandemic control measures.
3. Implementing or partnering to support emergency response activities such as COVID-19 testing, contact tracing, and vaccination.
4. Elevating the needs of the communities they serve at local and state levels through education and advocacy, including in daily conversations with LPHAs, OHA, and elected officials, as well as through formal participation on advisory groups.

"This is because the OHA started distributing supplies and tasks to CBOs, who community members trusted more than a big government entity like the OHA. It was more comfortable for people with historical trauma to get COVID info or vaccines from the people they trusted at CBOs."

—OHA Staff Interviewee

"We started advocating pretty early, especially once we found out that the stimulus was going to exclude even families with citizen children, it was bad enough that they weren't including all families, but the fact that they were excluding citizens who happened to have parents who weren't documented or even one parent that wasn't documented, that is criminal. Our state representative, city counselors, leaders in the community who run organizations, they were as shocked as were we. We were able to raise funds to help families really early. And then our team was able to jump in."

—CBO Interviewee

CBO study participants noted how they rapidly adapted their roles in order to fill gaps in the public health pandemic response. They particularly noted gaps in Oregon's public health pandemic response related to education, engagement, communication, and enforcement that they jumped in to fill. Some CBO study participants noted that the communities they serve were systematically ignored or deprioritized throughout the state's pandemic response, and some perceived that CBO efforts to address gaps and meet needs of historically marginalized communities were under-resourced and under-appreciated by local and state public health partners. Sometimes, CBOs felt isolated in their work within the public health system response. Other CBO study participants reported that they were invited to collaborate meaningfully and effectively with local and state public health agencies and that these partnerships were characterized by mutual respect and appreciation for the unique roles of all partners.

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

—CBO Survey Respondent

"We were familiar with our role, our LPHA's role and what to expect from our separate lanes."

—CBO Survey Respondent

"And there's an entire structure that's supposed to be set up for response. And that structure actually doesn't lend itself to equity, so we're working on some of those pieces. But it's why equity doesn't happen, because the status quo isn't equity. And so, when people are making decisions, they're making decisions the way that they've always made decisions. And so, the people that are going to be most impacted aren't often the ones that we think about first, because we're making statewide decisions, not decisions for priority groups."

—OHA Director Interviewee

CBO roles also shifted and expanded as OHA and LPHAs built their own capacity to partner meaningfully with CBOs. Beyond getting rapid funding to CBOs out the door, OHA and LPHAs needed time to stand up new mechanisms for community partnerships and communication. For example, OHA took several months to engage community partners in various pandemic advisory committees and workgroups.

Evolving CBO roles throughout the pandemic stages

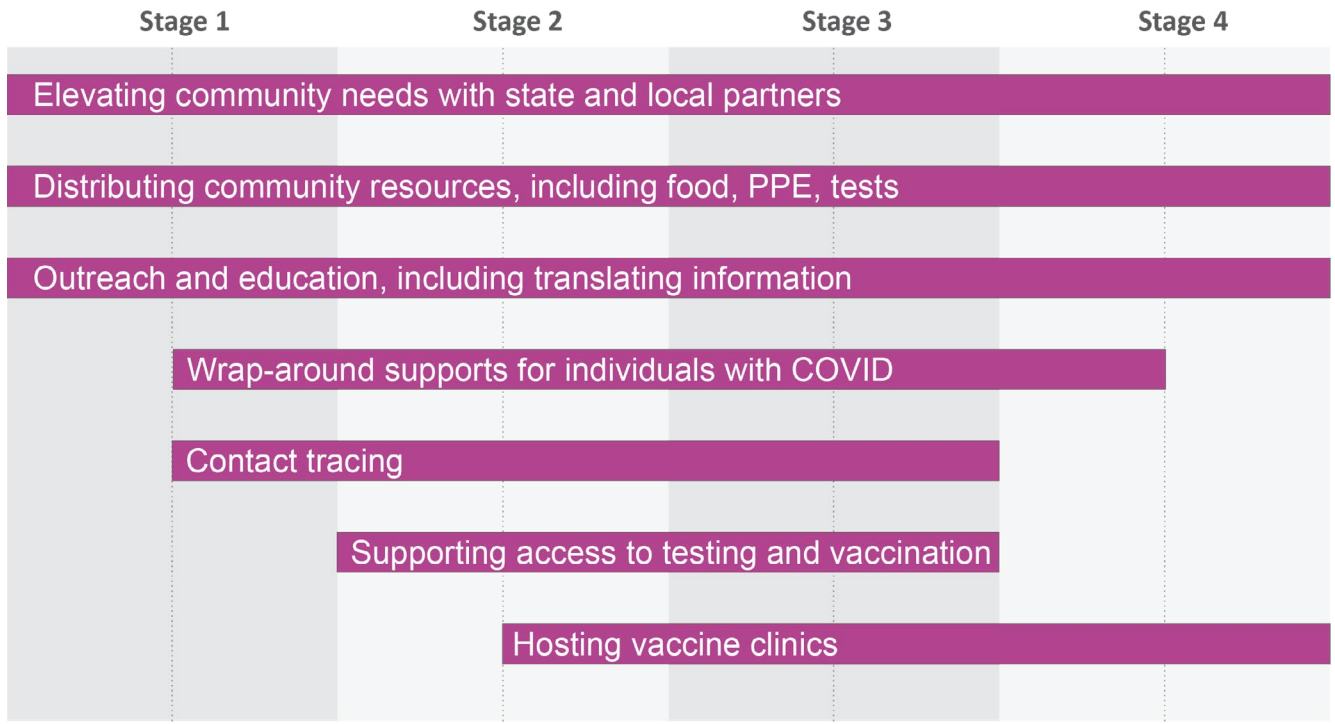
Another major determinant of how CBOs changed their roles was the evolution of the COVID-19 pandemic itself. Each stage of the pandemic presented its own unique challenges and opportunities. During each stage, CBOs found themselves juggling, adapting, and shifting priorities to ensure community needs were met. CBO interviewees and focus group participants described how their roles evolved throughout each stage of the pandemic, detailed and depicted in Figure 46 on the following page.

Stage 1

According to CBO interviewees and focus group participants, early in the pandemic CBOs had to substantially change their ways of working to meet the needs of their communities. The majority of CBOs moved services online, focusing on trying to keep people connected given the importance of social connection and support. Other CBOs continued providing crucial in-person services (such as homeless shelters) while making necessary adaptations to protocols for health and safety.

> "So I think just in the early vaccine rollout, there were some things that did not go well that should have gone better. 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. I think that we saw that as we had a real desire to plan with the community, and it was very difficult to get that equity work group that assisted with vaccine planning off the ground in a timely fashion."
>
> —OHA Staff Interviewee

Figure 46: CBO's pandemic roles and responsibilities over time



CBOs educated themselves about COVID-19 and sought opportunities to support the public health pandemic response. CBOs worked to balance current programming with expanding services, including increasing community engagement, providing wraparound services for clients impacted by COVID-19. CBOs also helped communities access the internet and get connected to needed health care services, sometimes developing brand new tools and networks to facilitate referrals and improve access. The majority of CBOs interviewed reported they distributed goods like PPE, food boxes, and gift cards while increasing community access to COVID-19 testing. They also hired new staff and pursued new training opportunities to support their pandemic response efforts.

Some CBOs began contracting with OHA and LPHAs to support community education and contact tracing. Whether or not they were contracted to do so, all interviewees noted that their CBOs played a role in providing outreach and education to the communities they served about the COVID-19 pandemic, including public health guidelines. They developed videos, webinars, flyers, newsletters, made phone calls, and posted on social media, often translating or interpreting information and working to disseminate information in a culturally appropriate manner.

Stage 2

CBOs supported vaccination efforts throughout Oregon in many ways during this stage. A major role was educating communities they served about the benefits and risks associated with COVID-19 vaccines. They also reported communicating vaccine roll-out and eligibility information as determined by OHA. Prioritization and eligibility for vaccine roll-out was a particularly confusing topic for the public and the majority of CBOs noted that equity was not prioritized in the vaccine roll-out. Some CBOs had to take on an education and advocacy role with OHA and Governor Brown to bring those inequities to light.

Many CBOs noted that vaccine education often needed to happen in one-on-one conversation to ensure individuals understood when they would be eligible to receive the vaccine and have meaningful conversations around vaccines. CBOs also helped community members schedule vaccine appointments and coordinated transportation to and from vaccine appointments. Many CBOs also reported giving input to LPHAs and health system partners on ways to make vaccine clinics accessible,

> "I would just have to say more accessibility to the resources and the information in other languages for the different cultures in the community. I thought there was a really lack of equity. With all the information that was presented, the underrepresented communities did not get that same information, and that could have been handled a lot better."
>
> —CBO Focus Group Participant

> "The [only] way that you could get an appointment was all online. And if people don't speak English or read English or they don't have a cell phone, a smartphone or a computer, it was very difficult to get them scheduled for an appointment."
>
> —CBO Focus Group Participant

helped staff vaccine clinics, and several CBOs hosted their own clinics. As part of their role in vaccination efforts, CBOs advocated with health care providers to reduce barriers to vaccination for community members who were eligible. CBOs also took on the challenging task of addressing vaccine misinformation in their communities, which felt like an uphill battle to most CBOs.

CBOs also helped community members get access to COVID-19 testing. As part of this effort, CBOs hosted COVID-19 testing clinics on-site. Some CBOs reported conducting contact tracing alongside wraparound supports for individuals and families in quarantine or isolation. Simultaneously, CBOs continued providing crucial financial support and tangible resources for families, including PPE, food, rent and utility assistance, etc. For CBOs who continued to provide in-person services, they encouraged, modeled, and enforced social distancing and masking on-site.

During this stage, CBOs noted an influx of funding to support the pandemic response via contracts and grants, which was both an opportunity for better supporting community needs but also a challenge to get processes and programming in place.

Stage 3

In this stage, CBOs continued to host and support vaccine clinics and reported they often focused on undervaccinated areas of the state.

> "And I think that really shifting from these giant sites where early on, it was like getting that vaccine at the Oregon Convention Center. And it was just this huge event and it was really hard for a lot of our community members who have mobility issues. And 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

They also continued to address COVID-19 misinformation and community distrust and continued to provide wraparound support for individuals with COVID-19 and for the broader community. Supports provided by CBOs during this stage included rent assistance, food, help enrolling in public benefits, and job application help, among other support.

As many businesses and employers were re-opening during this stage, CBOs helped community members navigate the complexities surrounding re-opening. For some CBOs, this looked like educating individuals on their rights as they went back to work in person and navigated those risks.

Many CBOs noted they started to gather people in person again to provide services and host community activities, with COVID-19 precautions. CBOs reported they hosted resource fairs alongside vaccine clinics, which presented more opportunities for education about vaccines, connections to resources, and a sense of community and social cohesion. CBOs also had to adapt programming to emergent needs (for example, developing mental health programming for youth and adults). For some CBOs, pandemic response activities scaled back in Stage 3 as more individuals were vaccinated, at-home testing became more widely available, and as the state was doing a better job getting information to the public in multiple languages in a timely manner.

Stage 4

In this stage CBOs supported rolling out vaccine boosters and pediatric vaccines, continuing to educate the communities they serve about the importance of these protections.

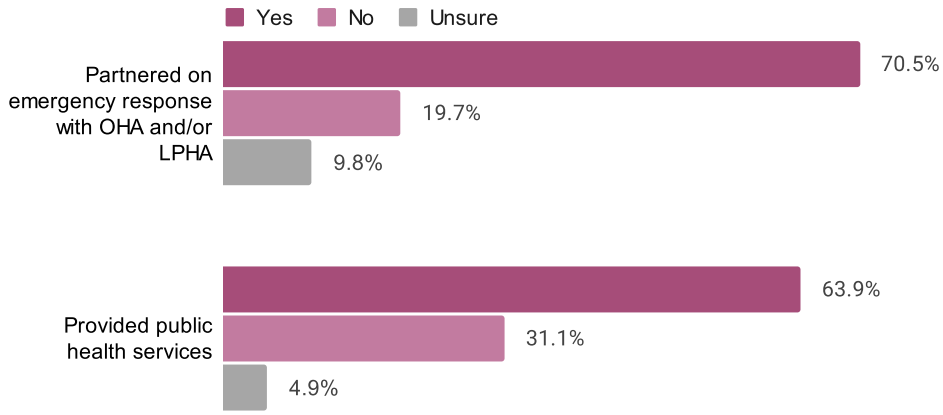
> "So we had a lot of hotels who were shut down, who then were reopening, who employ a lot of Latinx community members. And so helping those community members know what their rights were, what they should be doing, what guidelines were in place for them to continue to protect themselves and stay healthy."
>
> —CBO Interviewee

Many CBOs continued to shift to in-person programming during this stage. CBOs reported they had to scale back some of the wraparound supports as financial resources dwindled, and turned their attention back to other public health work and to planning for organizational sustainability in a post-pandemic world. For a few CBOs interviewed, these shifts have created some anxiety as there were still surges of COVID-19 cases in their communities.

CBO capacity for engaging in the pandemic response

Many CBOs came into the pandemic with previous experience in emergency response and public health activities. Approximately 70.5%, (n=43) of CBO survey respondents reported having previously partnered with OHA and/or LPHAs on emergency response activities and 63.9% (n=39) reported having experience providing public health services (Figure 47). Eighteen percent (n=11) of CBO respondents reported they had experience both partnering on emergency response and providing public health services.

Figure 47: Previous experience with emergency response and public health activities (CBO respondents, N=61)

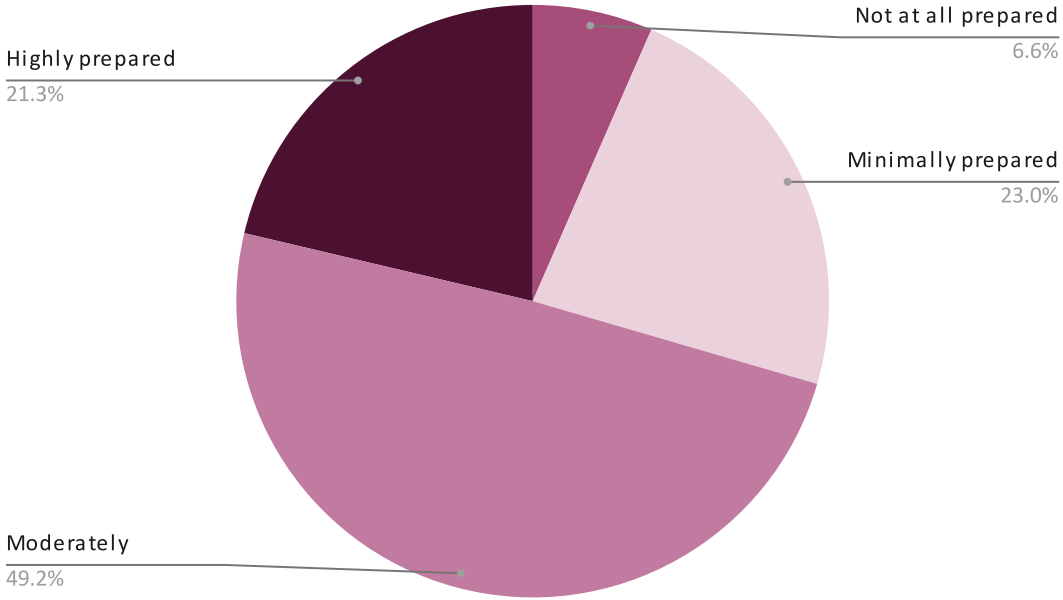


"So at Stage 4, to be honest, we've done less with COVID. We've done far less with COVID since, I would say, maybe January, February. We've not had many wraparound services. We've not had many vaccine campaigns or clinics, we've continued with education, but we've had less to do with COVID. We're thinking, how do we transition our community health workers from COVID response into more broader work to address broader health disparities and social determinants of health?"

—CBO Interviewee

When CBO survey respondents were asked how prepared they were for the public health emergency, most respondents (70.5%, n=43) felt that their CBO was either highly or moderately prepared for the COVID-19 pandemic (Figure 48), citing trust with the community, experience supporting community members to navigate health and social services, strong communications channels, extensive partner networks, and experience operating with flexibility and agility to address community needs.

Figure 48: CBO preparedness (CBO respondents, N=61)



"Two of the most important factors in our ability to respond to the COVID-19 pandemic were established relationships with communities most impacted and community trust. We had both going in, and were able to respond quickly to connect folks to information and resources."

—CBO Survey Respondent

"Being a trans and queer focused organization, we had a lot of practice working with people who were actively in crisis. We were skilled in wraparound supports, providing health education, harm reduction, disability justice, and prevention. All of these skill sets were applied to our work during the pandemic."

—CBO Survey Respondent

Regardless of their experience and capacity at the start of the pandemic, an overwhelming majority of CBO study participants reflected on having significantly grown their capacity throughout the pandemic. They expanded community engagement and outreach to new populations, built new programs, strengthened and expanded partnerships, grew their budgets and teams, and learned new public health skills.

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

—CBO Survey Respondent

Gaps in CBO capacity

The most common limitations noted by CBO informants were related to financial and staff capacity. There was great demand and urgency for CBOs to grow their work and respond to community needs but it was difficult to expand and sustain staffing, build administrative and finance capacity, and acquire adequate resources for growing work. This was especially true for smaller and more developing CBOs.

"So even when we think we're getting a handle on it, we're experiencing new challenges. And I'm sure that you've heard this a hundred times already, but staffing, recruiting new staff, retaining staff, has been certainly the biggest challenge for us."

—CBO Interviewee

CBO survey respondents pointed to workforce capacity as their most significant challenge during the pandemic. Among CBO survey respondents, 54.2% (n=32) reported that insufficient staff numbers hindered the effectiveness, scale, or quality of their COVID-19 response.

In interviews, CBOs discussed hiring barriers that hindered their COVID-19 response. A few interviewees noted that the temporary nature of COVID-19 funding for CBOs made it difficult to recruit and hire, especially for permanent positions. One CBO echoed a theme from LPHA and OHA study participants-- an overall workforce shortage. In this regard, smaller CBOs noted they had difficulty competing for employees alongside larger, more established CBOs. One CBO interviewee shared concerns about the timing

of reimbursement and confusion around funding requirements presented challenges in maintaining workforce capacity. Another CBO interviewee described difficulty in finding individuals with language or cultural skills needed to perform the work. Some CBOs hired community health workers with language capacity and cultural competency to fill staffing gaps.

Support to CBOs

CBOs received a great deal of support from OHA and from LPHAs to bolster their contributions to the public health pandemic response. The support they received falls into four primary categories:

1. Funding: CBOs received funding via grants and contracts from various OHA funding programs and from LPHAs. Funding sources include a wide array of federal, state, and local funding streams and pandemic-specific allocations. All CBO participants for this study reported receiving funding from OHA and many received funding from their LPHA.
2. Resource allocation: OHA and LPHAs provided PPE, COVID-19 tests, and COVID-19 vaccines to CBOs as crucial resources that supported CBOs in their pandemic response work.
3. Training and TA: CBOs accessed an array of training and TA facilitated by OHA and LPHAs in order to build capacity for pandemic-response activities (e.g., contact tracing).
4. Information and data-sharing: Throughout the pandemic, CBOs needed timely access to information and data to inform their work in communities across the state, and they reported receiving it from OHA and LPHAs.

> "FEMA [Federal Emergency Management Agency] was far worse than OHA but the speed meant that retro rules hit efforts and the folks OHA employed kept coming back again and again for more info and changing rules. It was very stressful and contributed to board decision to lay off staff as we could not assure cash flow timelines we needed."
>
> —CBO Interviewee

Funding

Most CBO interviewees reported that funding was the most critical resource in their pandemic response work because it allowed them to sustain and grow their organization in order to address rapidly evolving pandemic-related community needs. CBOs study participants reported spending their funding on a multitude of pandemic response activities:

- staffing, including retaining existing staff, hiring new staff, and bringing on subcontractors for specific pandemic response projects;
- operations, including PPE purchasing and distribution for staff and equipment for staff to transition to remote work (e.g., sit-stand desks, upgrading internet);
- community engagement and outreach, including purchasing laptops, Zoom accounts, and cell phones to stay connected to community members and developing and disseminating educational materials in multiple languages;
- COVID-19 contact tracing;
- quarantine and isolation support for individuals with COVID-19;
- other wraparound supports and services for broader community needs; and
- COVID-19 vaccination support, including staffing and hosting COVID-19 vaccine clinics.

Funding allowed CBOs to strengthen existing programming and to move into new work areas, such as outreach to new communities, providing culturally appropriate programming, and hiring staff representative of the community and with new skill sets. Funding also supported CBOs to partner with health systems, and providing testing and vaccination services.

"Just having the FTE available to really be responsive quickly was really helpful. 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 Focus Group Participant

"We were providing a pretty significant amount of wraparound services and kind of utilizing that, where it was that time when it was almost like an open pot of money with public health. So we were paying utilities and rent and lots of grocery gift cards and just a lot of different stuff."

—CBO Interviewee

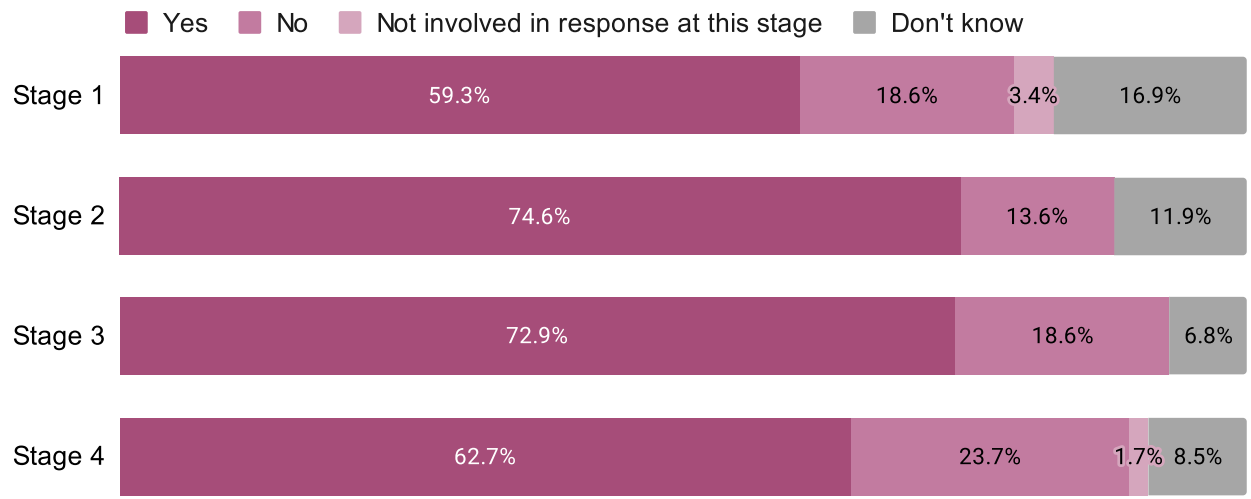
Resource allocation

OHA and LPHAs collaborated to develop streamlined processes for getting state supplies of PPE, tests, and vaccines to CBOs and, subsequently, out into communities. CBO interviewees and focus group participants reported accessing these resources from the very early stages of the pandemic.

Training + technical assistance

CBO survey respondents were asked if they received TA for their COVID-19 response activities during each pandemic stage. About 81% (n=48) of CBO survey respondents reported receiving TA at any stage (Figure 49). CBO survey respondents reported that TA ramped up in Stages 2 and 3 of the pandemic.

Figure 49: Technical assistance received from any organization (CBO respondents, N=59)

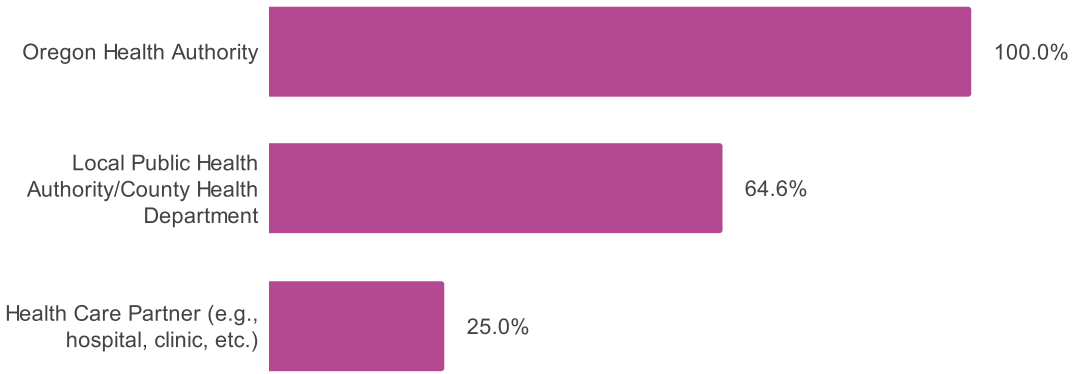


Of CBOs who reported receiving TA,100.0% (n=48) reported receiving TA from OHA, 64.6% (n=31) reported receiving TA from LPHAs, and 25.0% (n=12) reported receiving TA from health care partners (Figure 50).

Information + data-sharing

CBOs relied heavily on OHA and LPHAs to provide timely, accurate, and clear information. CBOs reported they wanted to communicate transparently and responsively with their communities. Timely information from OHA and LPHAs was necessary for CBOs. OHA and LPHAs were viewed by CBOs as being experts in research, epidemiology data and interpretation, and emergency preparedness and response.

Figure 50: Agencies CBOs received TA from (CBO respondents, N=48)



"From a CBO perspective, I believe that we look to our leaders for guidance in situations like these. We look for protocol. That's something very important to us as an organization. We want to be told what are the best practices. We don't have the time, capacity, and resources to do what the government does, which is the research and the implementation. As a CBO, that's what I look to for our public health officials, to guide us and to help us understand what is going on so that we could best serve our communities."

—CBO Interviewee

Partnership with + support from OHA

CBO study participants reported relying heavily on funding from OHA, specifically, to support their pandemic response efforts and found that OHA funding was flexible to meet their needs. Throughout the pandemic OHA allocated $145 million in funding to CBOs for a wide range of pandemic response activities, ranging from vaccination and testing events to providing resources and wraparound support to individuals in isolation or quarantine.

The majority of CBO study participants said they found the application processes to be straightforward for OHA grants. They acknowledged and appreciated that OHA intentionally tried to streamline application processes to get funding into the CBOs and ultimately, into Oregon communities quickly. CBOs especially appreciated when they received grant funding upfront. As opposed to invoicing and waiting for reimbursements, which took a lengthy amount of time and created added burden and stress, up-front funding was easier to use for COVID-19 pandemic response activities.

Although some CBOs reported OHA funds were largely streamlined, others reported accessing OHA funding posed a significant challenge for a couple of reasons. First, some CBOs reported not learning about funding opportunities in a timely manner. Other CBOs reported they lacked administrative and development capacity to respond to funding opportunities. A few CBO interviewees and focus group participants believed gatekeeping occurred with funding, noting that if you did not have a previous relationship with OHA, that it was difficult to access COVID-19 specific funding from the agency. It is important to note that the experiences of CBOs who do not have connections to OHA and who may

> "It's been very easy as a CBO to navigate this funding through OHA. That's not something I was super experienced with before. Since then, I've taken on several different grant projects, and I would say that this project was actually really easy to navigate with the funding."
>
> —CBO Interviewee

> "It was a bit aggravating waiting for the money to settle in our account, but we spent money we didn't have in anticipation that it would come and it worked out. It was harrowing there for a minute. That happened to the other CBO in town too, where they had a cash flow problem as well."
>
> —CBO Interviewee

have faced the greatest barriers to accessing public funding, but who still served their communities with important resources and support throughout the pandemic, are likely underrepresented due to this study's sampling methodology.

CBO study participants also reported that OHA worked closely with CBOs to support them by providing training and technical assistance, though they did not share specifics about what training and TA they received or how it specifically supported them in their pandemic response activities.

In interviews and focus groups CBO participants discussed how OHA's communication and information-sharing was helpful. 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, such as OHA's daily emails with case counts by county. Several CBOs mentioned that OHA's communications capacity and priorities, including having culturally responsive information available in a wide range of languages, improved drastically throughout the pandemic and were grateful for that, though the initial communications gaps were difficult to navigate.

OHA Directors interviewed for this study noted that establishing a community engagement team in the Public Health Division at OHA facilitated the extensive work to build relationships and partner with culturally-specific and other community-based organizations. They also noted utilizing existing meetings and networks to disseminate information rapidly to a wide array of partners, including CBOs.

> "OHA, yes, they provided cash support. They provided a lot of technical assistance. They have been incredible partners and super responsive. They have really, I feel like the CBOs that they worked with, they really got us to be the experts that they needed us to be. And they provided a ton of training. They were just really available."
>
> —CBO Interviewee

Although many CBO study participants mentioned appreciating OHA's responsiveness and desire to listen to community feedback, other CBOs reported they were frustrated by the bureaucracy, staff turnover, and inconsistent communications and messaging received from OHA. A few OHA Staff and Managers echoed the challenge of maintaining consistent and clear messaging, especially as national COVID-19 information and public health guidelines were evolving. CBO interviewees discussed that they often relied on OHA data to determine where to focus their response efforts. Several CBOs were frustrated with the complex and hard-to-navigate OHA websites for tracking pandemic data and the lack of disaggregated data for subpopulations.

"When I build the relationship and then the person splits, I got to start over again. I would have a hard time telling you if I needed a specific thing right now. I don't know. There was a couple of times I got stuck in the bureaucracy, where I felt like I was chasing my tail because I didn't have a clear avenue of where I needed to be, who I needed to be talking to."

—CBO Interviewee

"In the beginning, we weren't sure where to get the most reliable information and how to address the lack of access to information and data. The OHA pages were just a lot to navigate."

—CBO Survey Respondent

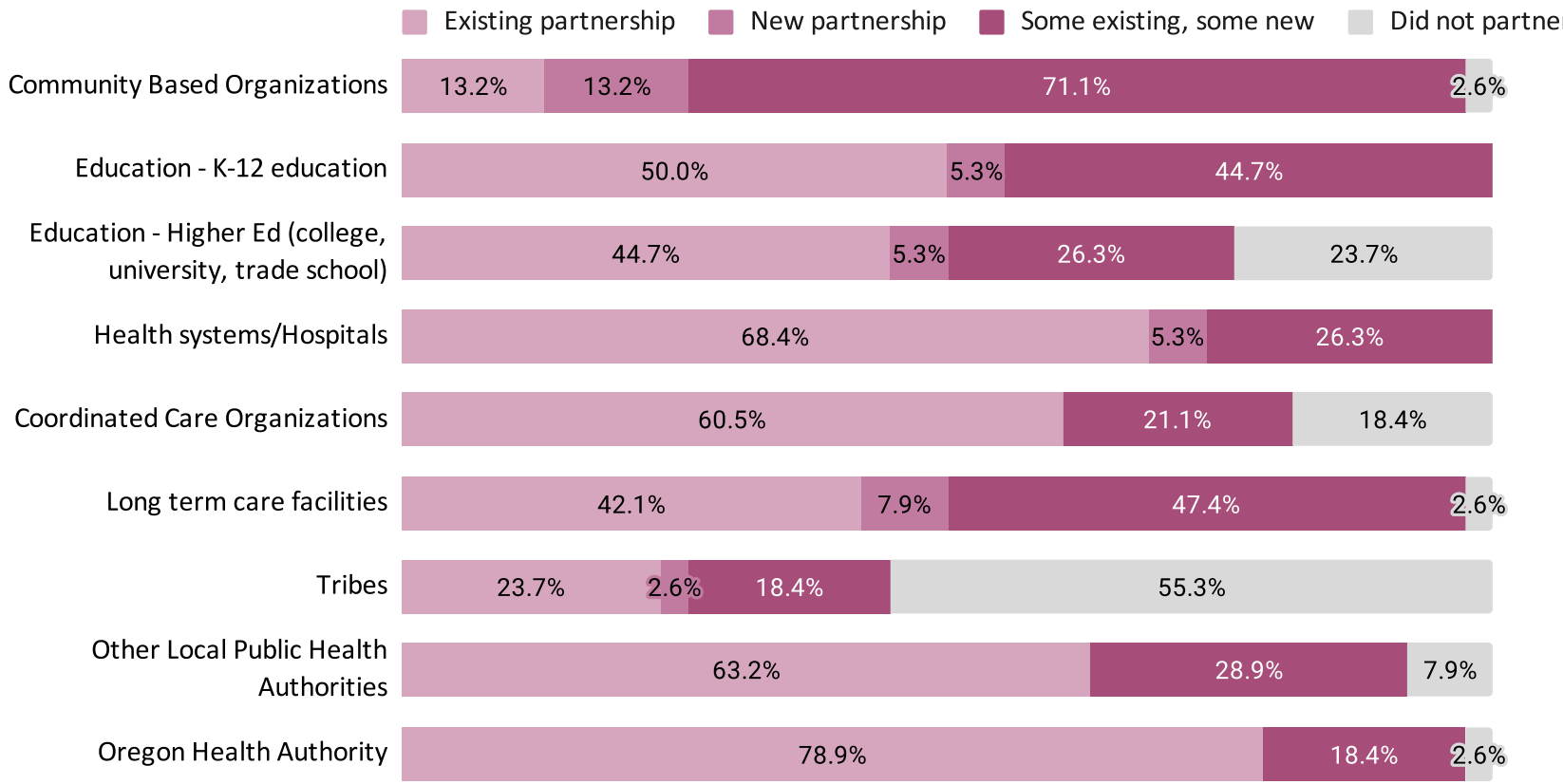
"Through the pandemic, we never asked how many agricultural workers died. We never asked those questions. We don't know. We probably have huge numbers of them, living in the conditions they did. You know what I mean? It was just like a complete lack of... a systemic failure."

—CBO Survey Respondent

Partnership with + support from LPHAs

LPHA survey respondents shared about their relationships with CBOs. A majority (71.1%, n=27) of LPHA survey respondents had a mix of existing and new partnerships with CBOs on COVID-19 response activities (Figure 51).

Figure 51: Types of partnerships for COVID-19 Response (LPHA respondents, N=38)



OHA Directors, Staff, and Managers perceived that the relationships between CBOs and LPHAs grew significantly, including deepened partnership capacity.

Some LPHA informants reflected that they wished they had more formalized relationships with CBOs prior to the pandemic. When discussing this, LPHAs reported they wished there had been mechanisms to set up contracts and get funding to CBO partners quickly to better support CBOs in their pandemic response roles. A few LPHAs reported that OHA sometimes posed a barrier to forming partnerships between LPHAs and CBOs due to the fact that OHA tried to dictate to LPHAs which CBOs to partner with. Further, a few LPHA informants reported the additional barrier of OHA changing guidance for CBO funding, as noted by one LPHA group interviewee stating "We would make an agreement and we're on the verge of making a contract and then the state would announce something different in terms of contractual opportunities, how much they were going to pay for X, Y, Z." Additionally, according to a few LPHAs, some CBOs were funded by OHA to provide outreach and services statewide but in reality did not reach some regions of the state, creating gaps in pandemic response services at a local level.

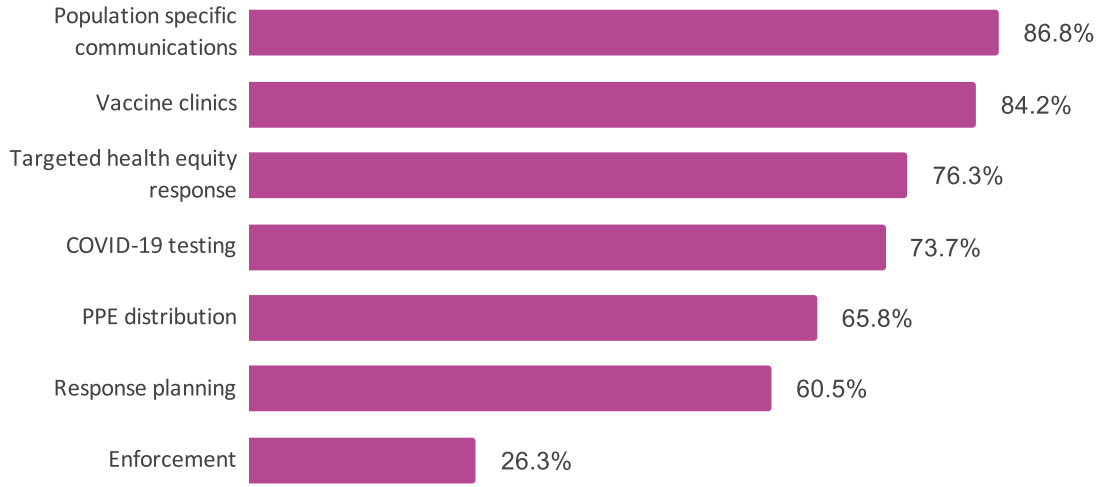
CBO study participants reported mixed experiences partnering with LPHAs. For some, a strong existing relationship with their LPHA served as a strong foundation and facilitated successful COVID-19 pandemic response work together. For other CBOs, partnering with their LPHA was new territory. Some CBOs reported success receiving funding from their LPHAs and working together on contact tracing, disease investigation, and vaccinations.

> "There were just meetings after meetings after meetings that the state was leading, trying to recruit CBOs on our behalf that were already connected to us through a number of different contracts through the health and human services spectrum. The state was trying to reach out directly to the CBOs, superseding whatever relationships we had already, and kind of competing. We were giving money to work with the CBOs, but also the state had money to work with the CBOs. So it was just kind of a nightmare actually for us in that respect."
>
> —LPHA Group Interview Participant

Other CBOs attempted to partner with LPHAs, but reported their LPHA was inflexible, unwelcoming, or lacked timely communication.

LPHA survey respondents also noted the types of activities they partnered on with CBOs. The most frequently indicated partnership activities included population-specific communications (86.8%, n=33), vaccine clinics (84.2%, n=32), targeted health equity response (76.3%, n=29), and COVID-19 testing (73.7%, n=28) (Figure 52).

Figure 52: Types of activities LPHAs partnered on with community based organizations (LPHA respondents, N=38)



"We started supporting mostly our local public health mass vaccination events, which went really well. We were kind of lucky that the public health director was on our board. So we already had a close relationship with her. And so we were able to coordinate with them really easily."

—CBO Interviewee

"The county 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

In interviews, LPHAs shared the types of support they provided to CBOs and reaffirmed that funding to support COVID-19 response was a primary support. Additionally, LPHAs stated they helped CBOs access and manage funding by providing technical and administrative assistance to CBOs for state and local funding opportunities. The funding that CBOs received from LPHAs was most often via contracts for specific work like contact tracing, vaccination, and emergency child care.

LPHAs also provided information on COVID-19 epidemiological data (e.g., case rates, spread, variants) as well as updates about COVID-19 public health mandates to CBOs on a regular basis. In Oregon, each LPHA determines what information to share and how to present it to the public. During the COVID-19 pandemic, this meant that although OHA shared information with LPHAs, there was sometimes a lag between when LPHAs shared information with CBOs.

CBO, LPHA, and OHA study participant groups also shared that LPHAs played a critical role in supporting CBOs to access pandemic response resources, such as PPE and COVID-19 tests. OHA Directors, Staff, and Managers felt it was helpful to have LPHAs serve as liaisons to identify community resource needs and make requests to OHA, then support allocating resources to CBOs once LPHAs received them from OHA. A few CBOs affirmed that this was a successful method for allocating PPE, test kits, and vaccines.

"I think my health department, in particular, we made ourselves available to 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 Interviewee

"Our leadership team is working directly with LPHAs and OHA in getting vaccines and testing to our local communities. We are also able to provide PPE and test kits during our day-to-day work without any hesitation."

—CBO Survey Respondent

Gaps in support to CBOs

Funding gaps

Some CBOs reported they appreciated the access to OHA or LPHA staff during grant application processes. Other CBOs, however, had differing experiences, finding it difficult to communicate with OHA and LPHA staff about funding opportunities, unable to communicate with the same staff at the agencies, and in other cases, having no point-of-contact at all.

According to CBO interviewees and focus group participants, communication from OHA and LPHAs about funding opportunities could be improved, especially for smaller and emerging CBOs, CBOs that don't have existing relationships with OHA or their LPHA, and those CBOs without a history of partnering with state and local governments. Many CBO participants reported that, in the future, they would like for OHA to provide more administrative support to CBOs when aiding in public health response.

Many CBO informants identified a few other areas for improvement that would have made OHA funding even easier to navigate and more supportive of their work including:

- shortening the time it took for OHA to reimburse CBOs for invoices;
- making more funding unrestricted, or adding flexibility within and between the categories of restricted funding when possible; and
- improving grant reporting by clearly communicating reporting requirements and ensuring supports are in place for tracking data and submitting reports.

"It was very bureaucratic, they had very specific areas of like, 'You can use this much for COVID contact tracing, this much for wraparound support.' They were all very set amounts and very evenly distributed, there was no wiggle room. And for me, that is unreasonable. They kept saying, 'We've never been under a pandemic before.' How do you know that we're only going to need to spend [$38,000-$42,000] for COVID contact tracing, and [$38,000- $42,000] for wraparound support? That doesn't account for outbreaks, where we had much higher needs for wraparound support. There was no flexibility."

—CBO Interviewee

Streamlining grant and contract requirements and parameters was another area for improvement noted by the vast majority of CBO interviewees.

Several CBOs stated they would have also appreciated support with planning for sustainability as COVID-19 funding diminishes. While CBOs have grown their teams and expanded their work significantly in recent years, they are now worried about how to financially sustain their size and operations. CBO study participants reported that capacity-building from funders, specifically OHA, would be appreciated as part of their work.

Other gaps

CBO survey respondents were asked to reflect on what supports would have supported their CBO when beginning their COVID-19 response. About half of respondents reported a dedicated staff contact at governmental partner organizations would have been helpful (52.5%, n=31) and almost half (49.2%, n=29) also reported that communication about and support applying for funding opportunities would have been helpful. Other responses from CBOs included more buy-in from local leaders for pandemic control measures, earlier efforts to prioritize vulnerable populations in the pandemic response, and a deeper understanding of equity as a public health practice. In particular, a few CBOs requested that OHA provide diversity, equity, and inclusion training and capacity building for nonprofits to support their new partnerships in communities.

LPHA group interviewees also noted a few partnership challenges, including some confusion when CBOs were first funded about what their roles should be as well as some hesitancy about engaging CBOs in response activities like contact tracing that dealt with personal information of residents.

> "OHA can be and is very bureaucratic. And so it was very easy for them to erase the bureaucracy when it was convenient for them, right? So like, 'Here's a bunch of money. Can you do this work?' 'Cool. Yeah, we can.' But then it was also getting bombarded on a daily basis by emails, by changes, by asking us for different reports, then changing their reports continuously. And so that is all part of bureaucracy, and they were very much inflexible when it came from that. Knowing that we're an organization that they do need to work with, but that may not have all the resources, staff capacity, time, all of that to do that on their timeline."
>
> —CBO Interviewee

Tribal Nations + Tribal Organizations

Background

The study team collected data from Oregon's Federally Recognized Tribes (Tribal Nations), as well as community-based organizations that serve American Indian/Alaska Native communities (Tribal Organizations). Seven Tribal Nation interviews were performed with a total of 12 interviewees (one interview included five actively participating interviewees). One focus group was conducted with six Tribal Organizations, and individual interviews were held with three Tribal Organizations. For purposes of this report, participants in the Tribal Organization interviews and Tribal Organization focus group are referred to as Tribal Organization interviewees, and participants in the Tribal Nation interviews are referred to as Tribal Nation interviewees.

As of February 2023, the Northwest Portland Area Indian Health Board (NPAIHB) was in the process of conducting after-action report studies with all nine Oregon Tribes. These reports will be provided back to the Tribes, and an aggregated report will be submitted to OHA. These reports will contain detailed data about the role of Tribes in responding to the COVID-19 pandemic, and recommendations for future emergency planning.

Tribal nations had a unique role in responding to the COVID-19 pandemic in Oregon as sovereign nations. When asked how being

"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

a sovereign nation impacted public health requirements and the pandemic response, the vast majority of interviewees shared that sovereignty had a positive impact on their responses. Although some resources were limited, such as staffing/staff capacity, access to PPE, and at times, COVID-19 tests, the ability to lead their own response was ultimately positive for Tribes. Some interviewees mentioned that the state prioritized Tribes when it came to allocating resources, and that setting their own vaccine prioritization process allowed Tribes to vaccinate their communities quickly and efficiently.

Some Tribal Organization interviewees reflected on Tribal relationships with the government. Historical relationships between federal, state, and local governments and Tribal organizations impacted their ability to form a solid relationship during the pandemic. Some Tribal Organizations noted that it was frustrating that their organizations had been historically underfunded, and that it took a pandemic for government agencies to finally provide needed funding to support their communities.

"COVID is… or at least the negative aspects of it, are highlighted by capitalism and colonialism… what we have is people fighting for dollars and fighting for land and space, and health, as a direct result."

—Tribal Organization Interviewee

Tribal health in Oregon

Most Tribal nations in Oregon operate their own, independent health clinics with Indian Health Services (IHS) funding, although one Tribe does have an IHS operated and staffed clinic. Each Tribal nation provides different services based on the needs of their Tribal members and funding. Tribal Nations remained committed throughout the pandemic to protecting the health of their Tribal members and non-Tribal members in their communities in the face of many challenges, both historical and pandemic related. The COVID-19 pandemic elevated and exacerbated the existing health inequities that Native American/Alaska Native people face.

Tribal Nations + Tribal Organizations contributions

The roles of Tribal Nations and Tribal Organizations in responding to the COVID-19 pandemic were somewhat different due to their different levels of authority. Tribal Nation interviewees reported having a primary responsibility for COVID-19 response activities for their Tribal members, while Tribal Organization interviewees reported having more of a supportive role for community members, and some Tribal Organization interviewees mentioned having an advisory role with OHA in their Tribal response activities. Tribal Nation interviewees noted that they were not just supporting their own Tribal members, they were also providing services to non-Tribal members in their communities, especially related to providing vaccinations.

> "Although we are a community that's resilient, we have a lot of strengths, we still have a lot of health disparities compared to other communities of color and other races and ethnicities. Because of that, we experienced a lot of morbidity. Our morbidity rates were really high. However, I do also want to cap that and flip that and say we also had really, really one of the highest rates of vaccinations for other communities of color… although we have that, because of systemic racism, because of historical trauma, we do have disproportionate rates of chronic disease, illness, and other things."
>
> —Tribal Organization Interviewee

Tribal Nation interviewees described the types of pandemic response activities they engaged in with their COVID-19 funding, including:

- providing quarantine support for community members; including temporary housing, economic support, grocery delivery, and cleaning supplies;
- hiring temporary or permanent staff to assist with COVID-19 response;
- increasing capacity for testing and contact tracing;
- purchasing supplies to allow for social distancing in clinical settings;
- providing community members with incentives for getting vaccinated; and
- offering financial support for childcare/creating Tribal childcare services.

Tribal Organizations provided many similar services, but as discussed above, their activities reflected a more supportive role and included:

- food and medicine distribution- including food boxes, food deliveries, online cooking classes, and distribution of traditional medicine;
- providing other services to meet the needs of Tribal communities during the pandemic like online virtual support circles, rental assistance, and outdoor fitness opportunities;
- emergency management support like COVID-19 testing kits, vaccine clinics, and PPE distribution;
- information dissemination to the community;
- collaborating with other Tribal representatives, working with OHA to inform Tribal response; and
- expanding community health work.

"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 Nation Interviewee

Implementation of public health mandates

As sovereign nations, Tribal nations had the authority to adopt their own public health mandates and were not required to implement state and federal mandates. Most interviewees shared that their Tribe implemented public health measures that were recommended at the state and local levels. This included stay-at-home orders, remote work, requiring masks, and requiring health care workers to be vaccinated (required for Medicare- and Medicaid-certified providers and suppliers). It seemed that compliance went well for the most part, although it was difficult to maintain community compliance with social distancing mandates for cultural events such as traditional burials.

Interviewees shared some ways that they enforced public health measures, including having COVID-19 screeners at the front door of buildings to take temperatures, reminding people of masking requirements, or citing people for violations. A few interviewees mentioned that it would have been helpful to have someone at the state level available to interpret guidance as public health measure recommendations were made.

Evolving role during pandemic stages

Tribal Nation interviewees were asked to reflect on their role in each stage of the pandemic.

Stage 1

During Stage 1, Tribal Nation interviewees reported moving quickly to stand up an emergency preparedness plan and assess their resources. They took numerous actions, such as closing Tribal services, organizing the distribution of food to Tribal members, and implementing public health protections like masking. When asked what went well during Stage 1, Tribal Nation interviewees said that their Tribe responded quickly and communicated

> "Well, for the vaccine requirement, there were some staff who had to be let go, because they didn't want to comply with that requirement. The masking doesn't really seem to be a problem."
>
> —Tribal Nation Interviewee

> "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

public health protections clearly with Tribal members. Although some Tribes mentioned communication to the Tribe as something that went well in Stage 1, others noted internal communication as a deficiency. Another challenge in Stage 1 was the procurement of PPE and sharing limited resources with other Tribal nations. Interviewees shared that it was difficult to enforce social distancing and quarantining in communities with cultural values of interconnectedness.

Stage 2

During Stage 2, Tribes were particularly focused on COVID-19 testing and vaccination. Tribal Nation interviewees shared that they were able to acquire vaccines quickly and that their clinics were successful. Disease investigation was difficult for Tribes with limited capacity.

Stage 3

Testing and vaccination remained at the forefront of Tribes' priorities during Stage 3. Tribal Nations worked to push out boosters and educate their communities on the importance of getting a booster shot. Tribal Nation interviewees shared some challenges during Stage 3; including being hit hard by COVID-19 variants, experiencing staff burnout, and funding guidelines becoming more stringent.

Stage 4

During Stage 4, Tribal Nation interviewees discussed reopening and changes in guidance. They continued making resources available to Tribal members like PPE and water. A few interviewees shared that they kept strict protective measures through Stage 4, which was not always well received.

> "Keeping up on the disease investigation became harder as case numbers went up, just due to the number of staff we had who could do that. So we did turn contact tracing back over to the county… that process, though with the county and getting our patients back to us, could definitely use some improvement on how the LPHA and the Tribe are going to work together in response, that communication back and forth and how it works in the different software systems."
>
> —Tribal Nation Interviewee

Tribal Nation + Tribal Organization funding

Funding sources differed slightly for Tribal Nations versus Tribal Organizations, although there was overlap. Tribal Nations primarily received funding from the OHA and IHS. Tribal Organizations also received funding from the OHA, and mentioned additional sources such as CDC, FEMA, LPHAs, American Rescue Plan Act (ARPA), The Coronavirus Aid, Relief and Economic Security (CARES) Act funding, and an educational foundation.

Tribal Nation interviewees shared that the amount of funding their Tribe received from the state allowed them to respond to their community's needs more effectively. When asked about the processes for receiving funding, interviewees shared a few main areas for improvement:

- Lack of flexibility in funding streams: Although the amount of funding Tribes received met their needs, there was not always sufficient flexibility in how the funding could be used. Tribal Nation interviewees were concerned that funding would go to waste because the required activities were not the biggest need for their Tribe.
- Unclear guidelines: Tribal Nation interviewees shared that there were not always clear guidelines on how the money could be spent, which led to confusion.
- Time-consuming reporting requirements: the administrative burden for reporting back to funders was a barrier.

"Since we're federally funded, we couldn't go out of that scope. And so once we got OHA and CDC funding, it made it easier for us to be able to go above and beyond."

—Tribal Organization Interviewee

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

—Tribal Nation Interviewee

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

—Tribal Nation Interviewee

Tribal Nation + Tribal Organization partnerships

Tribal Nation interviewees reported having a wide range of partnerships to support their response to the COVID-19 pandemic. The most frequently mentioned partnerships were with other Tribes, local CBOs, their 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 information sharing meetings;
- acquisition of PPE, testing supplies, and vaccination supplies;
- discussing funding processes; and
- coordinating care for community members.

The partner that Tribal Organizations most commonly mentioned was OHA. This relationship was important for Tribal Organizations to receive supplies such as PPE and culturally appropriate food box supplies. Tribal Organizations also partnered with the NPAIHB and other Tribal organizations for the coordination of communications and resource distribution. Community health or medical centers served as crucial partners for testing events. Other partners that Tribal Organization interviewees mentioned included CBOs, the CDC, local colleges, food banks, LPHAs, and philanthropy organizations.

"They were able to, Oregon Health Authority, really keep us abreast and current on things, to provide us testing kits, to get to [community health organization] to provide vaccines when it became vaccines, to be a part of that."

—Tribal Organization Interviewee

"I think that there's opportunity for improvement in terms of community partnerships and really identifying where the gaps are and filling them. That's not a Tribe's role, at least for the general community…"

—Tribal Nation Interviewee

Tribal Nation interviewees highlighted both what went well in partnerships and areas for improvement. Effective communication was noted as a characteristic of strong partnerships, and Tribal Nation interviewees shared that they made connections through the COVID-19 pandemic that will be beneficial in the future. When asked about what improvements could be made for their partnerships, Tribal Nation interviewees mentioned communications getting lost or a lack of follow-up on requests made to OHA.

One Tribal Organization interviewee highlighted the importance of the partnerships that were built during the pandemic and noted that it was important to continue those relationships in the future to communicate Tribal needs and work collaboratively towards supporting them.

Tribal Nations' epidemiological capacity

The ability to access, understand, and utilize epidemiological data was a crucial capability for responding to the COVID-19 pandemic. Tribal Nation interviewees reported that partnerships with LPHAs and local health clinics were beneficial when reporting COVID-19 epidemiological data using their Electronic Health Record (EHR). One interviewee mentioned utilizing a third-party vendor to conduct contract tracing, while another said they were able to provide support to the county to increase their contact tracing capacity.

"I don't feel like we were ever left in the dark."

—Tribal Nation Interviewee

"As our local county public health department became overwhelmed, we realized we needed to do more on our end. So we stepped up our own disease investigation, got access to the state systems to enter data directly. We stood up contact tracers, case investigators, wraparound response. Because they were overwhelmed, we saw the need and tried to fill in for our Tribal members."

—Tribal Nation Interviewee

Tribal Nations access to data

Tribal Nation interviewees reported a lack of accurate COVID-19 data specific to American Indians and Alaska Natives; interviewees attributed the lack of data to many Tribal members not reporting their race/ethnicity during interactions with clinical systems. Additionally, because of the geographical dispersion of some Tribal members, it was difficult or impossible to get clear, accurate data for a specific Tribe's members. When discussing this, one interviewee described that it was challenging to balance the desire to provide community-specific data with the risk of violating confidentiality within a small jurisdiction.

Although Tribal Nation interviewees recalled that EHRs were a resource for identifying and reporting Tribal epidemiological data, it was a challenge to actually extract the data and configure it into usable formats. One interviewee shared the need for a functional database incorporating the EHR in order to more easily manage data.

Another issue that made it difficult for Tribal Nations to use data that were collected was that it was not always reported back to the Tribal Nation by the county health department or local hospital, inhibiting their ability to follow through with support and contract tracing for their Tribal members. Similarly, interviewees told us that race, ethnicity, language, and disability (REALD) data were gathered by the state but not shared back to the Tribe in a useful way.

> "I think that we need a population health tool here at the [Oregon Tribe] that is all-encompassing with our electronic medical record. And we're able to put all of the records into one area, including public health. So if I'm not eligible to receive care, but I get a COVID vaccine here, I can have my data in this public health database within my electronic medical records. So it's all in one location and we're able to manage that data, extract the data, all of that."
>
> —Tribal Nation Interviewee

Tribal Nation interviewees also noted that reporting data to the state and NPAIHB was burdensome and at times overwhelming. One interviewee said that they did not have the capacity to use data to support their COVID-19 response, as they had to use their limited staff to perform basic services.

Tribal Nations' experiences with state + county epidemiology support

Some Tribal Nation interviewees reported that their Tribe relied on county and state epidemiologists to answer questions and provide expertise that was not available internally within the Tribe. However, another Tribal Nation interviewee identified an absence of support from the state to address data and capacity issues.

"We have to report every positive and negative in the state system. We have to send every positive into Opera, and then Northwest Area Indian Health Board wanted a daily test report that's this crazy-long Excel spreadsheet. It's just the reporting became overwhelming. It really interfered with day-to-day operations."

—Tribal Nation Interviewee

"We work a lot with [county in Oregon]. We've been able to utilize their epidemiologist on cases where there were some questions that maybe were just outliers for people that had infection issues. Their [leadership] has been great about taking our phone calls throughout the pandemic, when we've had questions or concerns. They're really a COVID-focused [medical professional] being in that role, and so there have been times where we've called to ask specific information. If it was something we felt our providers were less versed in or something that [they] may have some expertise."

—Tribal Nation Interviewee

Tribal Nations + Tribal Organizations staffing

Tribal Nation interviewees reported difficulties with staff capacity during the pandemic. Respondents identified staff shortages due to burnout-associated resignations within the Tribe and difficulty hiring, especially in rural areas of the state.

Some Tribal Organizations shared that, to respond to COVID-19, they were able to bring on more staff and meet the needs of their communities. However, many Tribal Organizations also mentioned challenges with staff. Some interviewees also mentioned challenges with staffing. Some interviewees mentioned that while they appreciated the COVID-19 funding their organization received, the funding did not come with additional FTE to support the additional work. This, along with high staff burnout at nonprofits and difficulties hiring, Tribal Organizations had difficulties pushing out funding to the community efficiently.

"We were given a lot of money to meet critical needs, but none of that came with FTE. So it was great being able to get money out and get people's rent paid, but it was a huge burden on our staff."

—Tribal Organization Interviewee

"My non-native friends struggled a lot more than my native friends. They were, on the whole, very isolated. I did not feel isolated during COVID. I felt very held by our community."

—Tribal Organization Interviewee

Tribal Nations + Tribal Organizations lessons learned

Tribal Organization interviewees shared the importance of community for American Indian/Alaska Natives, which worked to their advantage during the pandemic. Due to a focus on community and not the individual, Tribal Organization interviews shared they felt cared for by each other.

"The fact is the reason why we're still here - we approach it as a community instead of an individual."

—Tribal Organization Interviewee

The greatest lesson learned, as shared by Tribal Nation interviewees, was having a standard practice in place before a public health emergency, and that responses should be quick. One Tribal Nation interviewee shared that, while there should be a plan in place, it is important that the response can be agile. The emergency response needs to be tailored for unique communities. Tribal Nation interviewees also shared that they have learned that sometimes you need to do the best with the information you have, and that Oregon's communities are incredibly resilient.

"The biggest lesson learned is that there has to be a public health emergency response that is responsive, immediately responsive, there has to be investments in capacity, there has to be investments in infrastructure before that work happens."

—Tribal Nation Interviewee

Local epidemiological capacity + data

Epidemiology practice

As described in Oregon's Public Health Modernization Framework, using "epidemiologic practices and theory to explain the population distribution of disease and death and their biological, environmental and social determinants and deterrents, across time and space," (OHA, 2017) is a foundational capability and a public health core system function. For the purpose of this report, epidemiological data were operationally defined as data gathered, interpreted, and used to make decisions about pandemic response policies and activities.

Local epidemiological data for COVID-19 response

Throughout the pandemic, epidemiological data flowed in many ways among medical clinics/health care providers, hospitals, laboratories, Tribal nations, local and state governments, the federal government (CDC), and the public. Because COVID-19 was a new disease, case surveillance was especially important. Case surveillance systems, such as those used during COVID-19, follow well-established standards and regulations. Within the overall epidemiological surveillance system, a viable data supply chain ensures that communities and individuals have access to timely, accurate information. This section of the report will focus on LPHA's local epidemiological capacity and data. Information about Tribal epidemiological capacity and data is presented on pages 203-205.

Even though the COVID-19 data supply chain starts with information provided through laboratory reports or clinical encounter data, LPHAs served critical functions in the COVID-19 data supply chain. They were required to collect and report local case data into the statewide electronic disease surveillance system, Oregon Public Health Epidemiology User System (Orpheus). This included case-level data such as (CDC, 2022):

- patient demographics such as age, race, and ethnicity;
- signs and symptoms of illness;
- underlying health conditions;

- characteristics of hospitalizations, such as ventilator use;
- clinical outcomes; and
- exposures.

Orpheus is connected with Oregon's immunization database, ALERT IIS. Vaccination information was pulled from ALERT IIS into Orpheus and the Oregon Pandemic Emergency Response Application (Opera), a case investigation tool, to be used by state, local, and some Tribal public health agencies.

Data collection + reporting infrastructure

In Oregon, LPHAs must operate Communicable Disease Programs in accordance with the requirements and standards for the control of communicable diseases set forth in Oregon law. These laws outline reporting and epidemiological investigation requirements for communicable diseases such as COVID-19. Orpheus is the "integrated electronic disease surveillance system intended for local and state public health epidemiologists and disease investigators to efficiently manage communicable disease reports. Orpheus is rooted in health information exchange (HIE), as most case investigations are initiated by the electronic laboratory reports (ELRs), which are automatically imported and accessible to both local and state users, who can work together on cases" (OHA, n.d). From March 2020- June 2020, all COVID-19 data were tracked and stored in the COVID-19 disease module of Orpheus. In the summer of 2020, a separate database known as the At Risk Identification Alerting System (ARIAS) was created to manage COVID-19 contact tracing data. During this time, Orpheus began to experience functional slowdowns due to overloads on processing power caused by increased inputs and exports. At the peak of this strain, some LPHAs reported needing to wait until the early hours of the morning (e.g., midnight or 1:00 AM) to input their data to avoid wasting time with system crashes or to meet their statutory obligations with timely reporting. In July of 2020 (Stage 1 of the pandemic), the Public Health Division at OHA stood up the Oregon Pandemic Emergency Response Application (Opera) and moved the COVID-19 disease module from Orpheus to this new database. Opera served as an integrated electronic disease surveillance system intended for local and state public health epidemiologists and disease investigators to efficiently manage COVID-19 disease

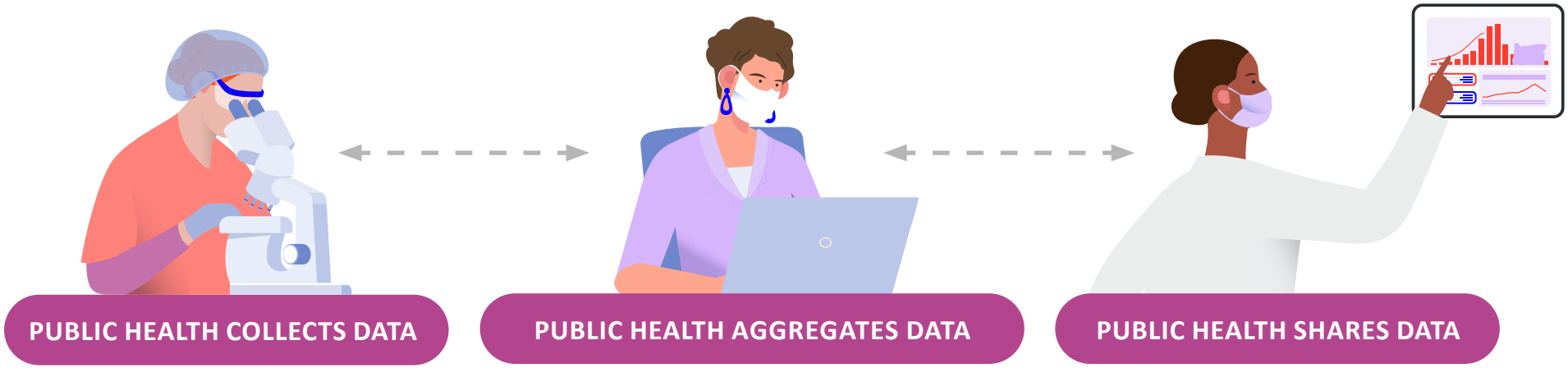
reports. Creating these additional databases were necessary to alleviate the burden of COVID-19 data on Orpheus and ensure that LPHAs could continue to investigate other communicable diseases in addition to COVID-19 (OHA, n.d.).

Information entered into Opera flowed bi-directionally between local, state, and some Tribal public health agencies and, combined with data from laboratories and health care providers, became the data source for statewide public COVID-19 data dissemination. Because these electronic reporting systems transferred information relatively easily, OHA was able to provide near real-time information to policy makers and the public about the spread of COVID-19 and use this information to make decisions about where to prioritize resources to respond to the pandemic. Figure 53 outlines a high-level overview of the COVID-19 data supply chain in Oregon.

Demographic data to identify potential health disparities

In 2020, Oregon developed policy (OAR 333-018-0011) requiring medical providers to collect and report data on race, ethnicity, language, and disability (REALD) to OHA for all "qualifying encounters", such as tests, hospitalizations, and death. When Oregon's pandemic response officially began in March 2020, OHA was in the process of putting plans in place to improve collection and reporting of REALD data and adding sexual orientation and gender identity (SOGI) as optional data, which meant that there were not strong practices in place or sufficient capacity to build and adapt standards 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. In 2021, the legislature passed House Bill 3159 which added SOGI data to the REALD data collection and reporting requirements. In early 2023, OHA began planning for a new, robust REALD and SOGI data collection system. As this report is being written, those conversations are still ongoing, with plans to have the system active by 2024. Despite challenges with REALD and SOGI data, with the data they had available, OHA provided demographic data on publicly available dashboards, including age, sex, race, and ethnicity. Issues relating to the collection of REALD and SOGI information for COVID-19 cases and vaccinations will be discussed more in Report 3 in the presentation of COVID-19 health outcome data.

Figure 53: Oregon COVID-19 Data Supply Chain



PUBLIC HEALTH COLLECTS DATA

Providers, labs, and local public health authorities

Collected COVID-19 encounter, case, and demographic data

PUBLIC HEALTH AGGREGATES DATA

State, Tribal*, and local data system

COVID-19 data included demographic data, encounters, cases, and morbidity, mortality, and hospitalization data. Specific systems were utilized for various surveillance activities.

Orpheus	Overarching communicable disease database
Opera [+ Opera modules]	Case investigation tool, with additional modules to support reporting**
ARIAS	Contact tracing tool
ALERT IIS	Immunization database, accessible via Opera

PUBLIC HEALTH SHARES DATA

State, Tribal, and local public health authorities

Aggregated data are extracted and shared with the public and decision makers through state/local data dashboards, fact sheets, media releases, and briefings.

**There was variation in Tribal access and use of these data systems that is not captured in this graphic*
***Opera was separated out from Orpheus in July 2020 to improve usability*

Local epidemiological capacity

Simply put, organizational epidemiological capacity means having an adequate number of workers with the necessary skills and knowledge to perform critical data collection, interpretation, and dissemination functions. In a modern public health system, local epidemiological capacity is often achieved through public-private partnerships, regionalized epidemiology services, or other shared services models. Not surprisingly, the COVID-19 pandemic stretched Oregon's epidemiological capacity.

LPHA epidemiology capacity

LPHA group interviewees reported meeting local epidemiological capacity needs by hiring an epidemiologist, or supporting an existing one, to lead data collection and interpretation and bring this information to decision-making. Others reported receiving support from epidemiologists at OHA or from neighboring counties.

LPHA survey respondents were asked to report changes in their LPHA's authority (i.e., increase in scope or legal responsibilities), roles, or responsibilities in COVID-19 between March 2020 and June 2022 by pandemic stage. Figure 54 shows a steep increase in LPHA epidemiological roles in surveillance during Stage 1 and Stage 2 of the pandemic. During Stage 3, LPHA survey respondents reported reducing their epidemiological roles and responsibilities and by Stage 4, over 50% (n=20) of respondents reported reduced epidemiological roles and responsibilities. LPHA survey respondents reported similar trends in their authority, roles, and responsibilities related to data presentations (i.e., formal or information delivery of COVID-19 statistical data) as seen in Figure 55.

Figure 54: Changes in **surveillance** authority, roles, and/or responsibilities during COVID-19 response, by stage (LPHA respondents, N=39)

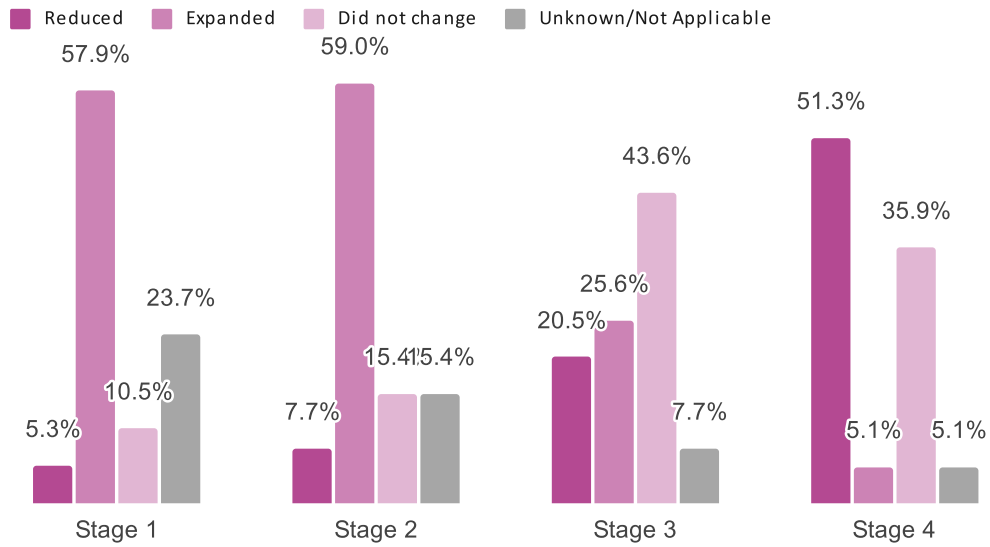
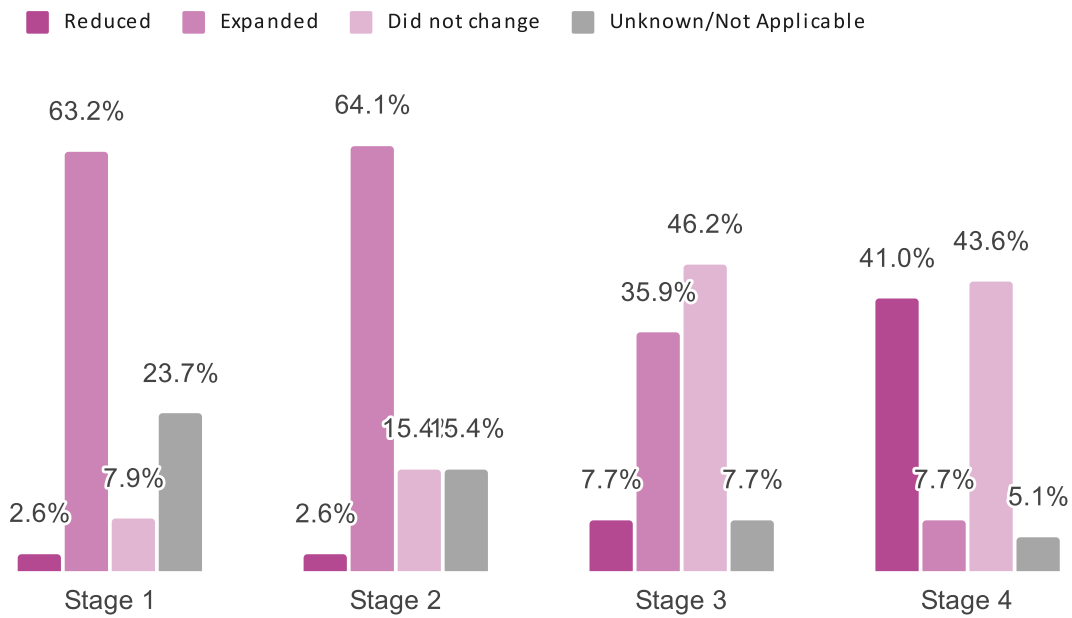


Figure 55: Changes in **data presentations** authority, roles, and/or responsibilities during COVID-19 response, by stage (LPHA respondents, N=39)



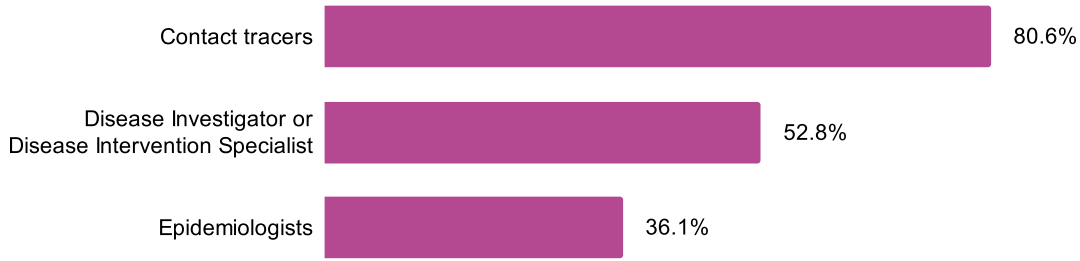
Meeting LPHA epidemiology capacity needs

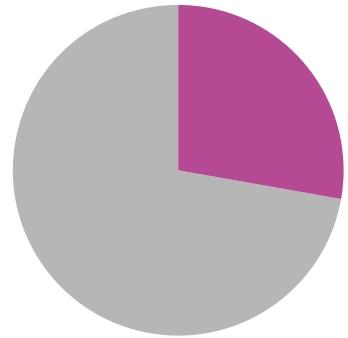
Some LPHA group interviewees reported they were able to quickly ramp up epidemiological capacity; other LPHA group interviewees reported struggling with increasing epidemiological capacity. Many LPHAs reported that at some point during the pandemic, usually Stage 1 or 2, their response efforts were hampered by a lack of staff for epidemiological work. In the LPHA survey, the top skill reported as difficult to recruit for was public health sciences skills (27.8%, n=10), followed by data analytics and assessment skills (19.4%, n=7). In Regions 1 and 2, LPHAs reported more difficulty in hiring epidemiological staff than others.

A few LPHA group interviewees also said they had trouble coordinating with partners or felt a gap in capacity when partner teams were demobilized as the response lessened. Another LPHA group interviewee reported that increased funding for staff was ineffective because there were not enough people in the area with the necessary skills to hire.

Thirty-six percent (n=14) of LPHA survey respondents reported hiring epidemiologists to meet the needs of COVID-19 response. Figure 56 shows that 80.6% (n=29) of LPHA survey respondents hired contact tracers, and 52.8% (n=19) hired disease investigators.

Figure 56: Employee types hired to meet the needs of COVID-19 response (LPHA respondents, N=36)





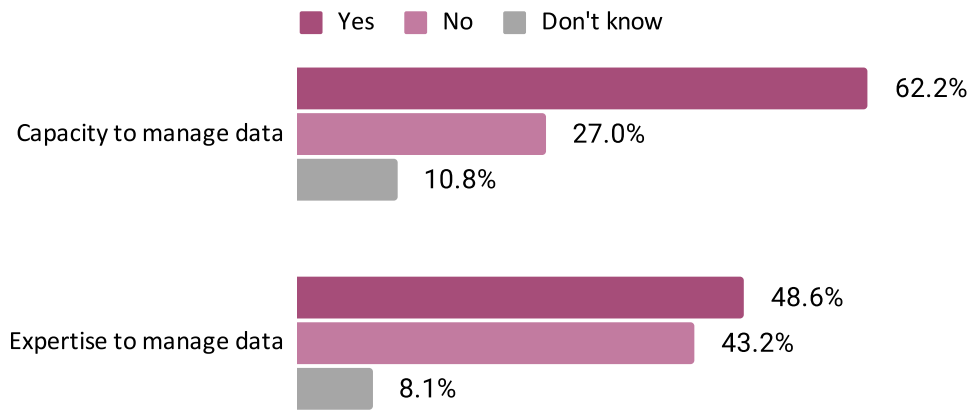
27.8%

In the LPHA survey, the top skill reported as difficult to recruit for was public health sciences skills (27.8%, n=10), followed by data analytics and assessment skills (19.4%, n=7)

Several LPHA group interviewees reported that although they did not have enough staff trained in disease investigation and other response activities to adequately support pandemic response, they were able to work with OHA, hospitals, and/or CBOs to fill critical gaps. For many LPHAs, increased funding was critical to local epidemiological capacity. Looking toward the future, one LPHA group interviewee described wanting to create long-term partnerships to increase capacity outside of an emergency response.

LPHA survey respondents were asked if they felt that they had the organizational capacity and expertise to manage COVID-19 epidemiological data locally. The majority of respondents (62.2%, n=23) reported they had capacity, but a little less than half (48.6%, n=18) reported that they had the organizational expertise (see Figure 57).

Figure 57: Capacity and expertise to manage COVID-19 data (LPHA respondents, N=37)



"Those contracts for the nursing capacity needs that we had, or being able to get epidemiologists and data analysts that live all over the nation, that we can't get locally; having those abilities. The contracts with our community partners. How do we continue to work with them, not just during an emergency, but to work towards our statewide goals of eliminating health inequities. They are valued partners. How do we sustain the relationships and the systems that have been beneficial to this response that still are, in a way that'll be mutually beneficial and meaningful to improve the overall system."

—LPHA Interviewee

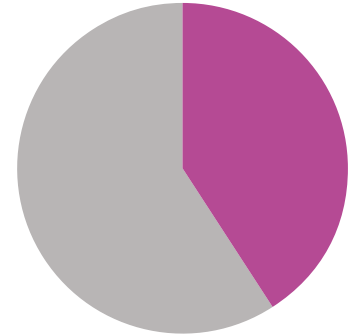
Accessing + using epidemiological data to respond to COVID-19

As noted earlier, public health epidemiologists are responsible for understanding the "population distribution of disease and death" (OHA, 2017). Tribal, local, state, and national decision-makers must have timely access to epidemiological data to aid in decision-making. Public health policy-makers need to know infection, vaccination, disease, hospitalization, and death rates and, importantly, they need to know if any sections of the population are experiencing greater rates than the general population. This information can lead to critical interventions such as those put in place during 2020- 2022.

LPHA access to data

LPHAs reported using epidemiological data to identify vulnerable populations and target response efforts. For instance, LPHAs, CBOs, and other partners came together to collectively increase their capacity to respond to COVID-19 in their communities by testing individuals, holding vaccination events, and distributing supplies, while also communicating about and rapidly adapting these strategies in accordance with changing infection rates.

At the county level, LPHA survey respondents were asked if their LPHA had access to the local epidemiological data necessary to guide decision-making in their COVID-19 response. During Stage 1, less than half of LPHA survey respondents reported they had adequate data, but reports of access to local data jumped up to three-quarters of respondents in Stages 2 through 4 (see Figure 58).

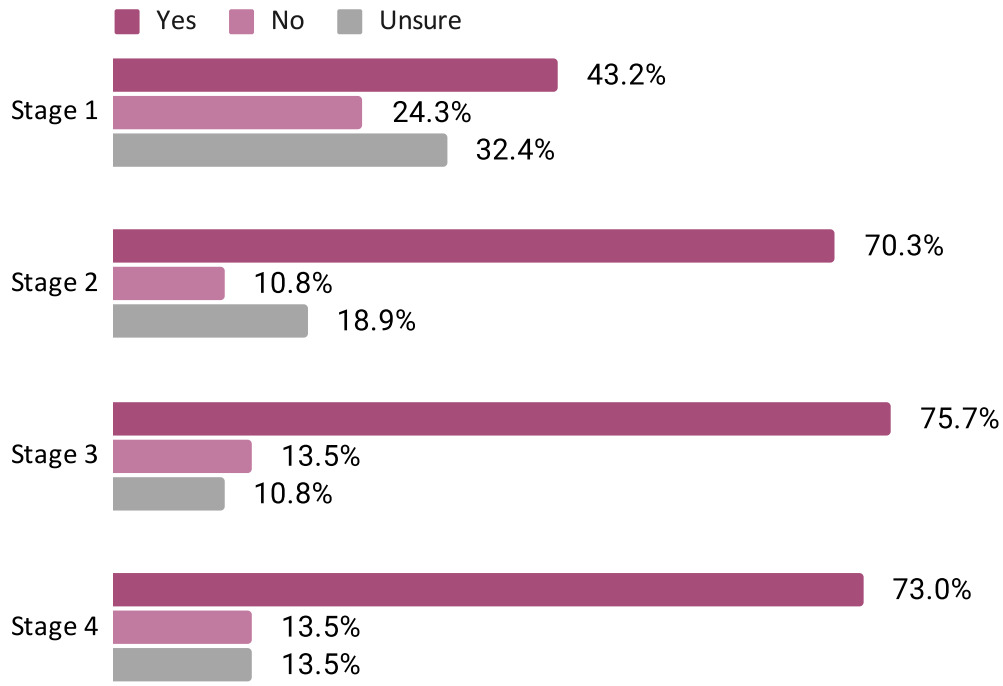


41%

Forty-one percent (n=16) of LPHA survey respondents reported inadequate data, especially sub-population data, as a challenge that negatively impacted their response to the pandemic.

A few LPHA group interviewees also mentioned that the existing data systems (Orpheus, Opera, and ARIAS) were slow and crashed frequently, making epidemiological data difficult to report.

Figure 58: Access to local epidemiological data to guide COVID-19 decision making by stage (LPHA respondents, N=37)

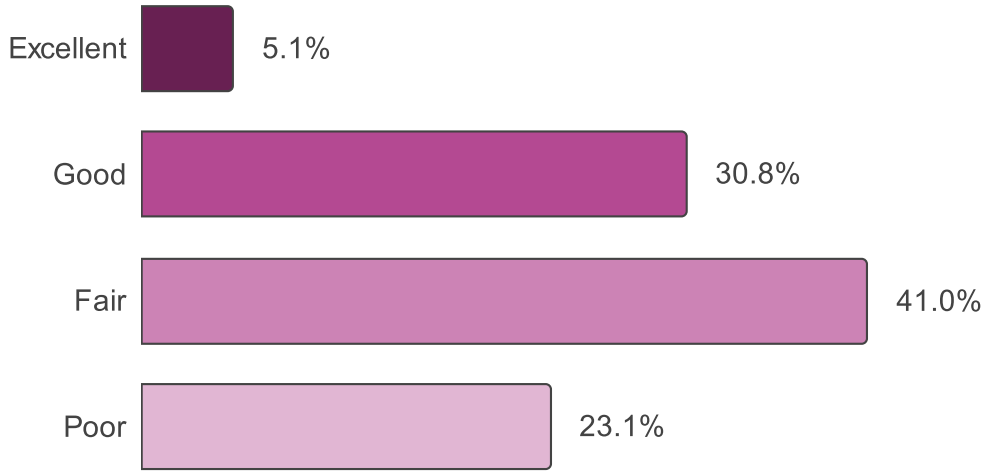


"So during that timeframe [Stage 2], one of the biggest issues we struggled with was data entry. There were so many cases that were coming at us. And I think around that time, we were seeing something like 50, 60 cases a day. And the case investigation, the contact tracing, the data input, and the collection of all that data, and the input into the systems, and the coordination of all of that took a toll. Combine that with a few vaccination events that we started doing in January on a weekly basis, and staff burnout was definitely running at an all time high."

—LPHA Interviewee

When LPHA survey respondents were asked to rate Oregon's public health system's overall response to COVID-19 across a range of activities, data accessibility and availability was rated as fair or poor by 64.1% (n=25) of LPHA survey respondents as shown in Figure 59.

Figure 59: Rating of Oregon's public health system's data accessibility and availability (LPHA respondents, N=39)



"Oh and the data system. They did their best to try and uplift a separate system, but that's national disinvestment. We had to do a lot of our own data analyses before the state could ever do it, to understand what was happening in our community. Our epidemiologist identified the disparities in our Hispanic/Latino/Latina/Latinx community before the state did. But we had to navigate discrepancies and race, ethnicity data, old way of collecting data versus REALD."

—LPHA Interviewee

According to some LPHA group interviewees, community burnout from hearing repeatedly about increasing COVID-19 cases was another barrier to effectively using COVID-19 epidemiological data for the response. By the later stages of the pandemic, LPHAs' ability to use COVID-19 data (e.g. case counts, infection rates) for pandemic response activities may have been negatively impacted by a general sense of fatigue in the community surrounding COVID-19. One LPHA expressed that their surveillance was good, but they felt that their ability to continuously engage populations for vaccines was poor.

State supports for epidemiological activities

LPHA experiences with state supports

LPHA survey respondents were asked if they received any technical assistance from OHA to access, understand, or utilize COVID-19 data. About a quarter of respondents (n=9) did not receive any technical assistance from OHA, and another quarter did not know. Forty percent of respondents (n=15) indicated that they received support from OHA during all four stages (Figure 60). Four LPHA respondents who reported that they did not have the capacity to manage COVID-19 epidemiological data also reported that OHA did not provide any TA, and one respondent who reported not having the expertise to manage COVID-19 epidemiological data also reported that OHA did not provide any TA.

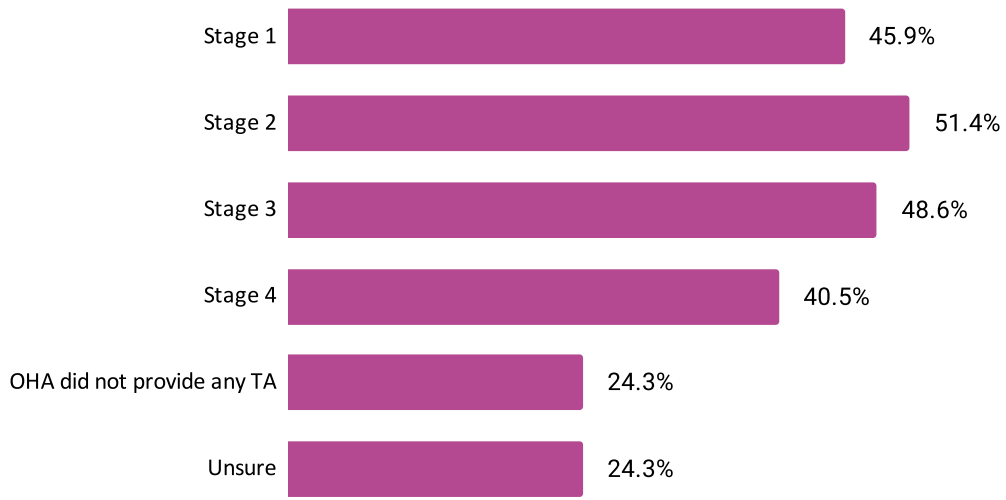
In addition to technical assistance, LPHA group interviewees noted other ways that OHA supported local epidemiological activities, including:

- conducting statewide and regional meetings that provided an opportunity to share epidemiological data and get technical assistance;

> "We're hearing rumblings from our schools, our long-term care facilities, and businesses. I'll go do some radio interviews like 'Hey, our numbers are up right now,' and people are like, 'Okay, I guess you got to say that, but can we talk about something other than COVID?' The fact is, COVID is still putting people in the hospitals. COVID is still killing people. I get it, you don't want to hear about it, but it's our job, as long as it is having that kind of an impact."
>
> —LPHA Interviewee

- routing funding to LPHAs to increase staffing for local epidemiological capacity;
- sharing epidemiological data communication and messaging resources that aided LPHAs in addressing misinformation efforts in their communities; and
- setting up and streamlining systems for LPHAs to order and receive tests, vaccines, and other supplies.

Figure 60: Stages during which OHA provided TA to LPHAs to access, understand, or use epidemiological data (LPHA respondents, N=37)



"Disease investigation started to improve because we leveraged the support of OHA. We didn't have enough staff trained to do that."

—LPHA Interviewee

"I would say our budget increases really helped us do more vaccine events. We did do some gift cards and things with vaccines. We did all of the testing for our community. Our hospital actually wasn't doing any testing outside of the emergency room, and none of the clinics were testing, so that took a lot of extra people and time. We did also, kind of towards the end, buy a mobile clinic. And so, we've been able to use that for more events as well."

—LPHA Interviewee

Response coordination: LPHAs, hospitals, + long-term care facilities

Local public health authorities, hospitals, and long-term care facilities (LTCFs) worked together throughout the pandemic to coordinate a number of response functions, such as implementing, communicating, and enforcing public health protections, testing, and vaccinations. LPHAs, Health Care Associations, State Agencies, and OHA Staff and Managers provided insight into the successes and challenges of this collaboration. Report 1 expands on the role of LPHAs and OHA in the COVID-19 response.

Efficiencies + effective elements of response coordination

Establishing lines of communication

Establishing lines of communication was essential for successful role coordination between hospitals, LTCFs, and local public health partners. Many LPHAs shared that they had regularly-occurring meetings between organizations or that they established regular communication during Stage 1 of the COVID-19 outbreak. Regular communication helped determine organizational capacity to take on aspects of the COVID-19 response and prevented role duplication.

Some entities reported dedicating a point person for communication with counterparts in partnering organizations and noted that this strategy was effective. In some cases, Health Care Associations, State Agencies, or OHA Staff and Manager interviewees stepped in to help facilitate coordination between hospitals, LTCFs, or LPHAs within a county.

"We had a lot of communication with long-term care facilities early on, not only in response to outbreaks, but a lot of prevention materials, guidance sharing, and coordination around vaccination...it's been really fantastic. The long-term care facilities in our area are really receptive to coordinating vaccination."

—LPHA Interviewee

"I think that we had a great relationship with our local hospital before. We have an excellent relationship now."

—LPHA Group Interview Participant

Strengthening relationships

Working together throughout the pandemic also strengthened previous relationships between LPHAs, hospitals, and LTCFs- for example, one State Agency interviewee shared that because of strengthened relationships between entities, data availability became much more robust. Through these strengthened relationships, organizations could more effectively promote health services and programs to better serve their communities.

Delineating roles based on organizational capacity and resources

Interviewees from all participant groups acknowledged that, in emergency response, there was no "one-size-fits-all" for task delegation. Respondents explained that customizing response roles based on assets and strengths of LPHAs, LTCFs, and hospitals created more agility in response coordination. For example, if the local hospital in one county was well-resourced, they could take on the bulk of a particular response role, such as vaccination. In other counties, the local hospital may have been working on other response roles, so a different organization led vaccination efforts.

Cross-agency collaboration

LPHAs, hospitals, and LTCFs were able to reach more community members with resources when they worked together. In some counties, hospitals, LTCFs, and the health department were able to share resources like PPE, vaccines, and testing supplies to support each other in individual response efforts. Ensuring each entity had the resources they needed made the response more efficient. This coordination was, where necessary, facilitated by OHA or health care organization employees.

"This pandemic has brought local public health and hospitals together."

—State Agency Interviewee

"We all worked together. We shared the supply. We made sure that every corner of the county had access to vaccine when the supply was there."

—LPHA Interviewee

"From our regional OHA meetings, we had our tentacles out into the community, into education and hospitals. We had someone directly working with the hospitals, making sure they had what they needed to do their work."

—OHA Manager Interviewee

Inefficiencies in response coordination

Authority, jurisdiction, and role confusion

Role confusion occurred around enforcement of public health measures in LTCFs. Informants from health care associations and OHA staff and managers reported a lack of clarity around who had jurisdiction over LTCFs, which was a significant issue for public health protective measure enforcement. Several informants reported that guidance coming from OHA and ODHS was inconsistent. One Health Care Association interviewee also shared that there was a need for improved communications around providers' roles in LTCFs, stating a need for clarity around "what providers are responsible for and need to do in LTCFs, what they should do versus what they're required to do, versus what they will get penalized for." The interviewee also identified a need for interpretation of regulations specific to LTCFs and noted that regulations were changing frequently, which made clear communication challenging.

Due to complexities with licensing and response authority, jurisdiction over LTCFs was called into question, which, at times, created communication and compliance challenges. Some LTCFs felt unheard by OHA when providing input around masking and social distancing guidelines. A Health Care Association interviewee shared that LTCF providers should have the opportunity not to be regulated so heavily by OHA, as they were familiar with infection control and most knowledgeable about their community.

"Ultimately, when it comes to implementation of COVID-19 recommendations from [OHA], there's a lot of overlap between DHS requirements, and facilities want to know what they're required to do as well as what they're recommended to do"

—OHA Staff Interviewee

"The nursing homes, there were a lot of nursing homes. They were getting conflicting guidance from the state and the feds… We absolutely positively need to figure out who the nursing homes are going to answer to."

—LPHA Interviewee

"I don't think there was confusion on the roles and responsibilities. I think there was confusion on the nuance of the rules, not who should be doing them and where they come from. But I also think that there was some, I don't know if tension's the right word, but I'll just use that. It felt like there was tension between ODHS and Oregon Health Authority because ODHS and APD [Adults with Physical Disabilities] was ultimately responsible for enforcing rules that weren't created by them."

—Health Care Association Interviewee

"We're dealing with the American health care system and the mix of for-profit, nonprofit and the complexities of the workforce and a system that's not designed as a system, it's just the American health care system. And so you've got chains of health care systems, private entities owning multiple long-term care facilities, complex overlapping jurisdictions"

—OHA Manager Interviewee

"Facilities are getting information from CMS. They're getting information from whatever state regulatory authority or licensing body. They're also getting information from public health. They're also getting information from CDC. Are they talking to the DHS person? Are they talking to CDC? Are they talking to CMS? Are they talking to us? So I think there was just a ton of confusion on the part of healthcare facilities who just really, really needed a lot of handholding to be like, what's the most updated guidance?"

—OHA Staff Interviewee

Sharing state and local responsibility

Another area where role confusion occurred was sharing authority and response roles between local and state public health. LPHA and health care association interviewees felt it was important that the pandemic response could be tailored in each county based on organizational capacity and community needs, but scoping out these roles seemed sometimes to occur slowly, and the delineated roles may not have been communicated widely to different organizations.

Among participants, there were conflicting opinions on the role of LPHAs. LPHA interviewees expressed confusion about their role in enforcing public health mandates in LTCFs. If LPHAs were expected to take on a large role in emergency response, LPHA interviewees recommended building capacity and allocating funding to allow LPHAs to carry out the response.

"Local versus state public health role, and where do things fit, and how do we allow for local flexibility, were really highlighted during this COVID response of where the gaps are within the system, how fragmented and underfunded public health is, and how not nimble it can be in some of these regions to stand up."

—Health Care Association Interviewee

"I think the decision making authority was really a struggle throughout the response because it was in different hands at different times. I think it was really a struggle for the community to know where does this decision lie? Does our local health authority have the ability to do the mandates, to make them?"

—LPHA Interviewee

Barriers to response coordination

Communication challenges

Response coordination was at times delayed due to communication lags. OHA staff, OHA manager, LPHA, and health care association interviewees shared that response coordination would have been more effective had organizations without regularly occurring meetings set these up in a more timely manner. One OHA interviewee stated that local public health authorities were siloed in nature, and it took time to break down those silos in order to coordinate the response. Furthermore, once these meetings were set up, necessary partners were not always at the table. For instance, OHA interviewees shared that LPHAs may not have been adequately engaged in conversations when vaccines were rolled out. A health care association interviewee felt that involving LTCFs in coordination conversations may have improved understanding of response roles and requirements.

Other challenges to communication needed to be improved upon as well. According to some OHA interviewees, some LTCFs were more difficult to coordinate with due to lack of communication and pushback on protective measures and reporting requirements. On the other hand, a Health Care Association interviewee shared that LTCFs felt frustrated that they were not given authority to make decisions that they felt were best for their clients.

Several interviewees mentioned that interpersonal dynamics and relationships between LPHAs, LTCFs, and hospitals varied based on individual personalities, which impacted the system's ability to coordinate response roles.

"Those times when facilities were either too scared to report cases or didn't know that they had to report cases, and then we didn't know to help them. When communication fails, there's a cascade of direct impacts on outbreaks."

—OHA Staff Interviewee

"It really felt to us locally that we did not have a hospital system that was supporting our efforts."

—LPHA Interviewee

"In some regions, the relationship was really good; and in others, it depends on personalities."

—Health Care Association Interviewee

Staffing and capacity

Another barrier to successful role coordination between LPHAs, hospitals, and LTCFs was capacity. Some LPHAs felt that the majority of response roles fell on them, and had hoped that health systems and CCOs would take on more active response roles. According to one OHA employee, "The expectation from OHA's side was that the counties would be able to support in ways that they were just not equipped to. And the expectation from the county side was that OHA would be there to support in ways that maybe OHA just had no understanding that they would need support in."

Across informant groups, staffing was noted as a barrier that made role coordination difficult- as there weren't always staff available at any of these entities to take on response roles. Staffing turnover hindered communication, which in turn impacted the coordination of the local pandemic response.

"That's the fear going forward that we don't have the resources for mass vaccination clinics anymore, our pharmacies are already struggling, our provider groups are struggling with staffing, I don't know who's going to give these vaccines or how long-term care facilities are going to get them."

—LPHA Interviewee

"With staffing turnover and transitions, it became really difficult to figure out who I was supposed to contact and for what. It became challenging to navigate that."

—Health Care Association Interviewee

COVID-19 outcomes + enforcement of public health mandates

Senate Bill 1554 calls for an analysis comparing health and health system data, including COVID-19 positivity rates, rates of COVID-19 infection, hospital capacity, and other core metrics with the efficacy of statewide public health mandate enforcement. There is no way to objectively determine the effectiveness of statewide public health mandate enforcement in Oregon. As discussed in Report 1, enforcement of statewide public health mandates in Oregon had many challenges, including being a complaint-driven system, multiple agencies working to support enforcement, inconsistent enforcement across the state, a lack of staff and capacity to conduct enforcement activities, lag times between complaints being made and follow-up, issues in statutory authority to enforce laws and regulations, and rapidly changing mandates. Thus an analysis of the effectiveness of enforcement, including a comparison of regions within Oregon, is not possible.

In lieu of that, the study team conducted a literature review (see Appendix J) to inform the topic of the comparative effect of public health restrictions (such as mask mandates, stay-at-home orders, and business and government closures) on COVID-19 outcomes. The study team identified two study questions for the literature review: Did COVID-19 public health restrictions work to reduce COVID-19 case counts and mortality?; and What effect did public health restrictions that were more consistently enforced have on COVID-19 case counts and mortality?

The literature review was limited to 2020- 2023 and primarily included only US studies. Researchers utilized PubMed with search terms that included COVID, mandates, enforcement, cases, deaths, morbidity, mortality, stay-at-home, masking mandates, and non-pharmaceutical interventions. The study team also utilized citation lists from meta-analysis articles to identify articles to include. Additionally, LitCovid, a repository of COVID-19 related literature hosted by the National Library of Medicine, National Center for Biotechnology Information, was searched for articles for inclusion. Nineteen articles were identified for inclusion in this literature review; some articles included an analysis of multiple public health measures.

Articles included analysis of a variety of non-pharmaceutical interventions (NPIs) to try to reduce COVID-19 transmission. NPIs are mitigation measures, not including vaccinations and individual health care, that are implemented to slow the spread of disease in communities. This literature review included many different NPIs: stay-at-home, mask mandates, indoor gathering bans, restaurant and bar closures, business closures, in-person school closures, and entertainment-related closures. Some studies grouped public health measures to look at the impact of NPIs as a whole. The most common individual NPIs researched in the included studies were mask mandates, stay-at-home orders, school closures, and business closures.

Public health measure	Number of studies reviewed	Number of studies that found an association with **reducing COVID-19 cases**	Number of studies that found an association with **reducing COVID-19 mortality**
Mask mandates	7	5	1
Stay-at-home orders	6	6	3
School closures	3	2	1
Business closures	3	3	0
Ban on public gatherings	3	0	0
Multiple NPIs	5	4	2

In conducting the literature review, the study team did not find articles that analyzed the impact of the enforcement of public health mandates on COVID-19 case counts or mortality. Studies instead focused on the association between the implementation of public health measures and COVID-19 case counts and/or mortality.

Mask mandates

Mask mandates were policies that required wearing of masks when in public spaces. Seven studies were included in this literature review related to mask mandates.

Case counts

All seven of the studies looked at the impact of mask mandates on COVID-19 case counts. Five of the seven studies reported a decrease in COVID-19 cases associated with mask mandates, and two of the studies reported there was no association between mask mandates and cases. Ahlers et al. found that public mask mandates were associated with over twice the likelihood of reduced COVID-19 transmission, even after adjusting for other NPIs that may have been adopted concurrently (Ahlers et al., 2021). In their study, Chu et al. found that face mask use could result in a great reduction in risk of infection, with stronger associations with N95 (respirator masks) or similar respirators compared with disposable surgical masks or similar (Chu et al., 2020). Yet another study found that statewide mask mandates reduced new weekly COVID-19 cases by 54.95 cases per 100,000 inhabitants, but also found that the reductions in COVID-19 cases varied depending on political leaning, with higher reductions in COVID-19 cases in democratic-leaning counties (Hansen & Mano, 2023). One limitation of all of these studies is that they did not examine compliance with the mask mandates, just the association of the implementation of the mandate and COVID-19 case counts.

Of the two studies that did not find an association between mask mandates and reduced case counts, one study did find a reduction in cases among those wearing masks, but it was not statistically significant (Bundgaard et al., 2021). This study was conducted in Denmark where mask wearing was very low in the population as a whole, and only looked at how mask wearing impacted non-infected individuals; research shows that masks are much more likely to prevent transmission if the infected individual wears one. The second study did not find a reduction in case counts with mask mandates compared to 35 western and eastern European countries; researchers found that countries with high levels of mask compliance did not perform better than those with low mask usage in the six-month period that encompassed the second European wave of COVID-19 (Spira, 2022).

Mortality

Three of the seven studies examined the impact of masking mandates on COVID-19 mortality. One of three studies found an association between mask mandates and a reduction in mortality from COVID-19 (Hansen & Mano, 2023), one found a correlation between mask mandates and an increase in mortality (Spira, 2020),

and one found no association (Ahlers et al., 2021). Hansen and Mano (2023) found that mask mandates reduced mortality and estimated that statewide mask mandates prevented 87,000 COVID-19 deaths in the US between January 2020 and December 2020. This indicates a need for further research before drawing any conclusions about the connection between mask mandates and COVID-19 mortality.

Stay-at-home orders

Stay-at-home orders, also called shelter-in-place orders, lockdowns, and restrictions on internal movement, were public health mandates that required people to stay at home except for essential services, such as food, employment, and health care. Six studies that looked at stay-at-home orders are included in this literature review.

Case counts

All six studies examining stay-at-home orders found a positive relationship between stay-at-home orders and a reduction in COVID-19 case counts. One study found that stay-at-home orders were more effective at reducing COVID-19 case transmission than quarantining people who had come into contact with others who were COVID-19 positive (Zhang et al., 2022). Another study found that stay-at-home orders might have reduced confirmed cases by 390,000 within the first three weeks in localities that implemented them (Fowler et al., 2021).

Mortality

Four of the six studies looking at the impact of stay-at-home orders examined the impact of orders on COVID-19 mortality. Three of the four studies found that stay-at-home orders reduced COVID-19 mortality, while one did not find that association. One study found that stay-at-home orders were the only NPI that reduced mortality (Ahlers at al., 2021), and another found that stay-at-home orders and business closures were the NPIs that reduced mortality (Courtemanche et al., 2020). The one study that did not find any association between stay-at-home orders and mortality did not find significant evidence that any NPI reduced mortality in the early stages of the pandemic (Dreher et al., 2021).

School closures

One of the public health measures implemented to try and reduce COVID-19 case counts was the closure of in-person instruction at school, since schools are places where many people gather. Three studies that looked at the impact of school closures on COVID-19 cases and/or mortality were included.

Cases

Two of the three studies that look at the impact of school closures found that this action did reduce COVID-19 cases. One of these studies found that school closures were associated with a -62% relative change per week in COVID-19 cases, and that states that closed schools earlier had a greater reduction per week compared to states that closed schools later (Auger et al., 2020). One study did not find evidence that the closure of schools reduced COVID-19 cases, although the author acknowledged that confidence intervals could not rule out moderate-size effects (Courtemanche, 2020).

Mortality

Two of the studies looking at the school closures examined the impact on COVID-19 mortality. One study found that closing schools reduced COVID-19 deaths, and one did not. The study that found an association, found that school closures were associated with a -58% relative change per week in COVID-19 mortality, and states that closed schools earlier had fewer estimated total deaths, but schools that closed later had the largest absolute reduction in deaths (Auger et al., 2020). The researchers that did not find evidence of school closures reducing mortality reported that their modeling approach was unable to detect significant associations with mortality (Ahlers at al., 2021).

Business closures

The closure of non-essential businesses, including bars and restaurants, was another strategy implemented by jurisdictions to reduce the number of people gathering in a given space. Three articles included in the literature review looked at the impact of business closures.

Cases

All three studies that examined the impact of business closures on COVID-19 cases found a positive association with reducing cases. One study found that closures of restaurants, bars, and entertainment-related businesses substantially slowed the spread of COVID-19 during the first wave of the pandemic (Courtemanche et al, 2020). Another study found that the closure of non-essential businesses was significantly associated with slowing the spread of COVID-19 (Dreher et al, 2021). And the third study found that indoor restaurant dining bans were associated with decreased case velocity (Ahlers et al., 2020).

Mortality

Two of the three studies also researched the impact of business closures on COVID-19 deaths. Neither of them found an association between closing non-essential businesses and a reduction in COVID-19 mortality (Ahlers at al., 2021; Dreher et al, 2021).

Ban on public gatherings

Many states implemented a ban on public gatherings, limited mass gatherings, or banned large social gatherings. Three studies looking at the impact of these gathering bans were included in the literature review.

Cases

None of the studies included in this review found evidence that banning large gatherings reduced COVID-19 cases. One study reported that gathering bans that allowed more than 10 people to gather were insufficient or exacerbated COVID-19 spread (Ahlers at al., 2021). Another study did not find a statistically significant impact, but acknowledged that the confidence intervals could not rule out moderate-size effects (Courtemanche, 2020).

Mortality

Two of the three studies that looked at banning large gatherings examined the impact on mortality, and neither of them found that a ban on public gatherings reduced COVID-19 deaths.

Combined NPIs

Five of the included studies looked at the effect of NPIs grouped together on COVID-19 cases and/or mortality. Each study grouped slightly different numbers and types of NPIs.

Cases

Four of the five studies found that NPIs had a positive effect on reducing COVID-19 cases, and were all based on the US experience. The one study that did not find a positive effect compared countries that had implemented NPIs (England, France, Germany, Iran, Italy, Netherlands, Spain, and the United States) to countries that had not implemented NPIs (South Korea and Sweden), and the study did not control for the fact that countries may have different rules, cultures, and relationships between the government and citizenry that impact the efficacy of public health measures (Bendavid, 2021). Two studies found evidence that a variety of social distancing orders, including the closure of non-essential workplaces and schools, as well as policies on physical spacing when in public, did reduce COVID-19 cases (McGrail, 2020; Siedner, 2020). Neither of these studies identified which NPIs had a stronger effect. One study that looked at an aggregate set of NPIs found that they reduced cases of COVID-19, but that if the NPIs were lifted prematurely, the positive effects on reducing COVID-19 cases were diminished (Singh, 2021).

Mortality

Two studies looked into the effect of NPIs on reducing COVID-19 mortality and both found that NPIs were positively associated with reductions in COVID-19 mortality. One of these studies, however, found that although social distancing requirements had a statistically significant effect on decreasing COVID-19-attributed mortality growth rate beginning seven days after implementation of social distancing, the effect was no longer statistically significant after 10 days (Siedner, 2020). The other study that found a positive effect reported that early implementation of NPIs, longer implementation, and employing multiple NPIs at the same time reduced mortality in the first wave of COVID-19 (Stype, 2023).

Statewide funding + expenditures for public health response

In Report 1, we provided an overview of funding sources and uses for OHA, CBOs and Tribal Organizations, LPHAs, and Tribal Nations with the following 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.

This section clarifies the total funding amounts. For a detailed description of the uses of funding, please see Report 1.

The COVID-19 pandemic response is ongoing in Oregon. As of February 2023, OHA has been granted or received more than $1.7 billion for COVID-19 response activities. This total includes $1.1 billion from the FEMA, which has been claimed by OHA, but not necessarily received at the time of this report as many of these claims are still in process. The rest of the funding received by OHA included $9 million from the state general fund and $600 million from federal or other funds.

As aforementioned, this study was primarily focused on pandemic response activities between March 2020 through July 31, 2022. During this period, the total received or claimed by OHA was approximately $1.264 billion, which was distributed in the following ways:

$145 million to CBOs

CBOs were funded to perform a wide range of pandemic response activities, with many interviewees reporting that they were heavily involved in vaccination and testing events, and providing wraparound supports to individuals in isolation or quarantine. Included in this funding is approximately $13 million that went to support the Community Partner Outreach Program (CPOP), which included the Protecting Oregon

Farmworkers program. It should be noted that LPHAs also had their own programs and ways of supporting farmworkers, and the POF program was just one method of supporting this critically important population.

The study team was unable to procure a list of all the CBOs supported by OHA for the pandemic response.

$185 million to LPHAs and the North Central Public Health District

As described in Report 1, LPHAs used their funding to increase their capacity for the pandemic response by hiring personnel and strengthening partnerships to provide testing and contact tracing services, host vaccination events, provide wraparound supports, coordinate and dispense PPE, educate businesses and the public, provide infection control systems-support to health care providers including long term care facilities, provide additional epidemiology services, disseminate information, and any other activities needed to protect the health of their communities. This funding included dollars for more than COVID-19 pandemic response activities.

$20 million to Tribal Nations and the Native American Rehabilitation Association (NARA)

As described in Report 1, Tribal Nations and NARA used this funding for similar activities as CBOs and LPHAs.

$34 million in grants

The grant funding includes (but is not limited to) universities, city governments, and critical responders.

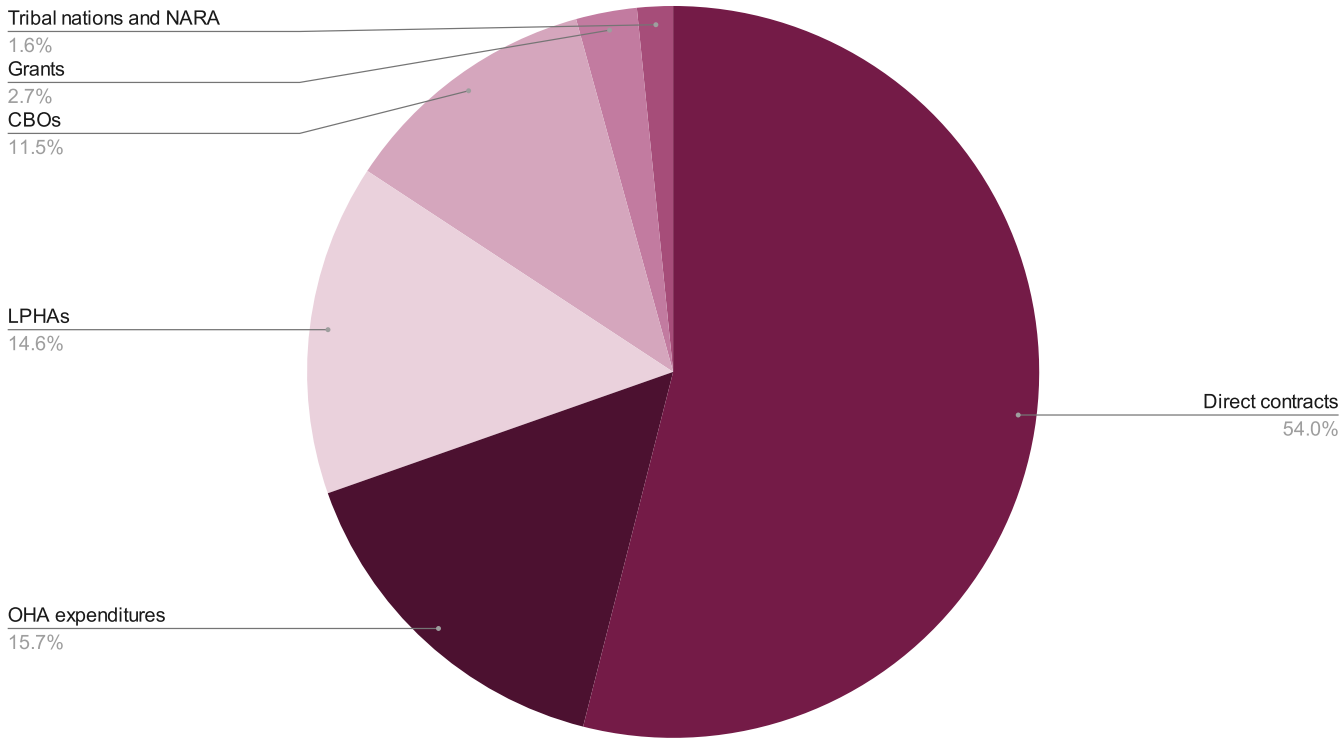
$682 million in direct contracts

Some examples of direct contracts include but are not limited to: Testing and laboratory supplies and services; staffing companies (to assist health systems, vaccine clinics, etc.); emergency medical services (EMS)/medical transport services; contractors to assist with response planning work; communications activities; translation needs; updated information to 211; application and website development; purchasing personal protective equipment (PPE); and security needs.

$198 million for direct OHA expenditures

Direct OHA expenditures included funds for personnel and equipment for the state pandemic response.

Figure 61: Allocation of funding for pandemic response through OHA



Public health workforce challenges

Significant challenges to recruiting, on-boarding, + retaining public health staff

This section covers workforce challenges reported by LPHAs and OHA; workforce challenges reported by Tribal Nations, CBOs, and schools are outlined in pages 206, 179, and 157 respectively.

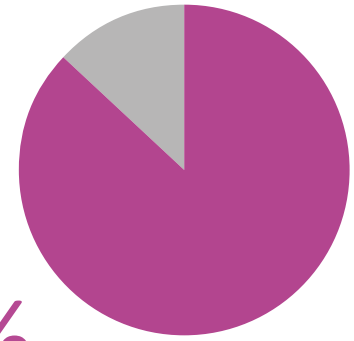
LPHAs

LPHAs overwhelmingly agreed that staffing challenges hindered their pandemic response. Difficulty recruiting, onboarding, and retaining staff was a strong theme across individual interviews, group interviews, and surveys with LPHA administrators and staff.

When asked specifically about vaccine administration, 60.0% (n=21) of LPHA survey respondents reported that staffing challenges were a significant barrier to implementing COVID-19 vaccination programs. Similarly, 71.9% (n=23) of LPHA survey respondents reported that staff capacity to stand-up and maintain COVID-19 response programs was a barrier to the effective utilization of COVID-19 funds.

Analysis of individual interviews, group interviews, and LPHA survey responses surfaced two themes within challenges to recruiting public health staff during the pandemic:

1. County-level administrative burden for hiring
2. Overall public health workforce shortages, especially for nurses, community health workers, and epidemiologists



87%

In the LPHA survey, 87.2% (n=34) of respondents reported that staffing shortages hindered the effectiveness of their pandemic response.

County-level administrative burden + requirements

A majority of LPHAs noted that administrative processes for hiring new employees through county human resource departments were time-consuming and lengthy. This sometimes led to a competitive disadvantage or losing employees to another organization within the county or neighboring counties. A few respondents reported that their counties streamlined the hiring processes for COVID-19 response, but hiring was still taking six to eight weeks, not including recruitment periods.

Some LPHAs reported that operating with the county's employee classification system made it difficult to pivot staffing roles to meet the demands of the pandemic.

Overall public health workforce shortages, especially for nurses, community health workers, + epidemiologists

Several LPHAs reported that the scale of the pandemic led to public health workforce shortages; in some counties, positions that required specific skill sets or credentials often went unfilled for long periods of time. Several LPHAs noted that public health preparedness practices such as having "mutual aid agreements" (formal agreements between or among jurisdictions that establish the legal basis for sharing resources in the event of an emergency) in place were insufficient when faced with a large-scale crisis. They went on to suggest that other public health emergencies, such as fires, present the same challenges and that mutual aid agreements are not the only answer to public health surge capacity.

> "There was NOT an adequate infrastructure prior to the pandemic that could have supported something so long-term and of this magnitude. We did not have a system that could rapidly hire, train, and retain staff at the local level….We have been working with the bare minimums for decades."
>
> —LPHA Interviewee

A sub-theme within overall workforce shortages was staff turnover. Some LPHA respondents also stated that some employees' experiences with physical or emotional exhaustion led to a sense of reduced accomplishment and loss of personal identity. Referred to as "burnout," this condition fed into workforce reductions and destabilization of the workforce for a few LPHAs.

Pay + funding delays

A few LPHA respondents also reported that their recruitment efforts were hampered by the pay scale within their organizations. They reported that during the height of the pandemic, LPHAs with lower pay scales were not able to compete with neighboring employers. Interviewees noted this was specifically difficult when trying to recruit nurses. Additionally, some LPHAs reported that delays in receiving funding for hiring exacerbated workforce capacity and shortages.

OHA

A majority of OHA Director interviewees ranked staffing capacity at OHA as a significant challenge that negatively affected OHA's ability to respond to COVID-19. At the beginning of the pandemic, OHA needed to hire numerous new staff to mount and coordinate an effective response; in addition, OHA reassigned many existing staff to new COVID-19-related work and roles. Small applicant pools for hiring and contracting and limited human resources administrative capacity to meet the hiring demand stalled hiring efforts. Some interviewees noted that OHA overcame some aspects of the typically slow pace of government hiring processes and hired staff quickly, but managing new staff and creating

> "We needed to staff up with 100+ contact tracers, and we didn't have the HR systems in place to do good, quick hiring. I mean, it just felt like we were always one step behind in trying to catch up. It impacted our ability to be responsive to community. It impacted our ability to get ahead of some of the work like contact tracing and vaccine [distribution]."
>
> —OHA Director Interviewee

> "It always felt like we were trying to catch up and it has created a great incredible strain on people and mental health, physical health of us in the agency.
>
> —OHA Director Interviewee

effective teams was labor-intensive. According to several OHA Director interviewees, as the pandemic wore on, staff capacity challenges included public health workforce fatigue and burnout.

OHA Staff and Manager interviewees highlighted how burnout and resignations depleted workforce capacity. They noted that a requirement to continue work in their "regular" (non-COVID-19) positions contributed to extended periods of heavy workloads.

Multiple respondent groups routinely reported working 60-70 hour work weeks for many months during 2020- 2022. Several OHA Staff and Manager interviewees indicated that maintaining overall workforce capacity after the Delta variant emergency was especially difficult because the workforce was already stretched thin.

Skill sets most difficult to recruit for

LPHAs

As documented earlier in this report (see pages 213-220), LPHAs experienced significant difficulty with epidemiological and data workforce capacity. In the LPHA survey, respondents indicated that the most challenging skills to recruit and hire for were first, “public health science skills” and second, “data analytics skills.”

Some LPHAs also struggled to recruit nurses and other staff certified/credentialed to administer vaccines. In addition, several larger LPHAs spoke to the difficulty of finding qualified managers and supervisors. Finally, several LPHAs highlighted the difficulty of finding, hiring, and retaining individuals with dual capacity in emergency management

> “On the epi side, we had a lot of trouble...you just couldn't find them. The epi and data analyst people in the US have never been more popular than they were in the middle of this response and they were not there. We could not get them. And we were, of course, watching our neighbors lose them as well. And so that was a significant issue for us as well.”
>
> —LPHA Interviewee

operations and public health. As noted in Report 1 (pages 48-57, and 78-95) collaboration between city and county emergency management and local public health was critical to an effective COVID-19 response; however, this collaboration was often hampered by a lack of previous experience working together and practicing cooperative response tactics. Added to this was the very exhausting pace, scale, and magnitude of COVID-19 operations. Finally, a few LPHAs reported that hiring Spanish-speaking staff was a challenge due to a shortage of workers with this particular skill.

For LPHAs and OHA, a massive statewide COVID-19 contract tracing effort throughout most of 2020- 2022 led to sizable hiring and onboarding efforts. LPHAs reported that onboarding in the midst of continuously evolving disease investigation guidelines was problematic.

A series of questions were asked on the LPHA survey to gain a better understanding of public health workforce challenges. Respondents reported a range in the number of employees that were hired specifically for COVID-19 response; three respondents indicated they did not hire any additional staff, and the largest number added was eight new employees (reported by seven respondents). Contact tracers were most frequently hired, as reported by 80.6% (n=29) of respondents. A little more than 50% (n=19) of respondents reported hiring disease investigators, and 50% (n=18) reported hiring clinical staff.

> "It was difficult to onboard staff and do training in the midst of dealing with case investigation and contact tracing. It was definitely like building the plane as you were flying it. It was also challenging to keep training [slide] decks up to date as the information and investigative guidelines kept changing weekly. This was also a challenge for retention of contract workers since there wasn't a ton of stability (work hours and job expectations)."
>
> —LPHA Group Interviewee

Best or promising practices employed to recruit, onboard, + retain staff during this period

LPHA Group Interview Participants shared various promising methods for recruiting, onboarding, and retaining staff throughout the pandemic including working with volunteers, CBOs, and established structures for hiring temporary employees.

Many LPHAs endeavored to relieve some of the burden on staff by turning to volunteers to assist with the work. Medical Reserve Corps were specifically named by several LPHAs as a helpful resource during the pandemic response. However, a few LPHAs noted that because individuals in Medical Reserve Corps were older, they were at higher risk for COVID-19 serious illness and therefore were not able to be as involved. Other LPHAs were able to draw on community volunteers, including retired nurses, through the county government volunteer management department or through partnerships with CBOs.

A few counties developed contracts with CBOs to facilitate major work areas such as contact tracing. In one specific case, the CBO, Oregon Public Health Institute, was able to tap into a regional network for hiring. Several LPHAs also noted that other departments within county government "loaned" them staff for pandemic response. One county reported that a previous relationship with a university school of nursing facilitated swift action to mobilize graduating nurses directly to the LPHA's pandemic response. Some LPHAs reported the ability to hire temporary staff was important to swiftly increase workforce capacity.

When asked about on-boarding new staff, a few OHA Staff and Manager interviewees pointed out that regional training and data system training were provided by OHA and utilized by LPHAs and CBOs throughout the state.

Recommendations

Public health response in schools

Improve public health emergency response effectiveness in schools by:

1. Building out and investing in comprehensive emergency preparedness for schools at the district- and school-level to incorporate pandemic-level events, and include training for school administrators and frequent EOP updates.
2. Continuing to invest in partnerships between the education (e.g., SDs, ESDs, schools) and public health sectors (e.g., LPHAs, OHA), as this will enable a more timely and collaborative response to future public health emergencies in Oregon's schools.
3. Investing in sustained emergency operations funding for schools; with sustained effort, EOPs and communicable disease management plans in schools will be implemented with more efficiency and timeliness. Specific recommendations regarding funding for schools include:
   - Invest in necessary school building infrastructure improvements (i.e., HVAC, desks, filtration systems, outdoor access) to align with best practices to prevent or slow transmission of communicable diseases;
   - Streamline funding to reduce administrative burden for schools; and
   - Improve communication about emergency operations funding, including communication specific to allowable use of funds, timeline for spending funds, and duration of funding.
4. Clearly defining roles and expectations for all involved in public health response in schools in advance of emergency response.
5. Supporting disease investigation training and resources in schools to effectively respond in future communicable disease related emergencies.
6. Supporting both districts and schools to conduct an after-action review (AAR) of their response and to define areas of improvement to inform future public health emergency response.

7. Involving schools when making decisions about public health mandates and other emergency response decisions that impact schools; it is imperative that the education sector is brought to the table to inform development of guidelines and recommendations for the school setting. School nurses, in particular, are a valuable resource that should be utilized when planning emergency response at both the district and school levels.
8. Ensuring data availability at district and local levels that includes sub-population data and corresponding TA; a designated liaison at LPHAs to coordinate data availability and provide TA for each district would ensure greater availability and accessibility of TA to inform response for future public health emergencies. This recommendation may require additional resources for LPHAs.
9. Public health protection mandate enforcement-related recommendations for schools are summarized as follows:
   - Comprehensively examining the benefits and risks of specific public health mandates in varied schools and population settings, including the long-term impact of using specific mandates in Oregon preschool and school settings on child health and educational outcomes.
   - Re-examining the enforcement structure for public health mandates in schools to ensure schools are adequately equipped with the necessary resources to support enforcement.
   - Clearly articulating compliance roles and responsibilities; all parties involved in this structure should receive the necessary training to ensure successful follow-through in future public health emergencies.
   - Ensuring that enforcement-related messaging is clear, consistent, and takes into consideration the individualized needs of the populations(s) the district or school serves.
10. Coordinating messaging across public health and education organizations before information is communicated to the public. This step is imperative to build trust and allow schools time to digest guidance. Further, schools need support (via additional funding, staffing, or otherwise) with translating and communicating information to be culturally-specific and tailored for the population served.

11. Addressing the substantial challenges Oregon schools faced when transitioning to and maintaining distance learning, by:
    - Sustaining investments in technology infrastructure to ensure that all Oregon students are able to access distance learning, should it ever be required in the future to respond to a public health emergency;
    - Regularly providing professional development for Oregon educators on best practices in distance learning; and
    - Maintaining clear distance learning protocols for districts and schools to enable a smoother, less interrupted transition to distance learning.
12. Considering public health mandates and guidance for future public health emergencies that are flexible to allow for local school authority and decision-making regarding school closures.
13. Continuing investment and support for Oregon schools to specifically address learning loss and socioemotional issues resulting from school closures and distance learning during the COVID-19 pandemic.

Nongovernmental + community partners

Improve support to CBOs by:

1. Improving communication about funding opportunities;
2. Simplifying funding application and documentation processes, including tracking and invoicing systems, processes, and requirements;
3. Increasing flexibility of funding;
4. Prioritizing learning and capacity building around equity practices in a public health emergency response;
5. Designating OHA and LPHA staff contacts for CBOs, creating a clear and consistent chain of communication for support and efficiency; and
6. Fostering and maintaining relationships and collaboration between CBOs and OHA and LPHAs.

Tribal Nations + Tribal Organizations

Improve support to Tribal nations and Tribal organizations by:

1. Implementing flexible funding streams for Tribal nations and Tribal organizations so they can identify and support their communities specific needs;
2. Developing data collection and reporting methods for Tribal-specific data;
3. Increasing communications between Tribal nations and Tribal organizations with LPHAs, OHA, Northwest Portland Area Indian Health Board (NPAIHB) and Indian Health Services (IHS) to better coordinate disease investigation and reporting processes; and
4. Maintaining new and strengthened partnerships that were built by Tribal nations and organizations during COVID-19 response to actively work together to eliminate health inequities in order to reduce the disproportionate impact of public health emergencies on Tribal communities in the future.

Local epidemiological capacity + data

OHA can better support local epidemiological capacity by:

1. Investing in epidemiological data systems improvements; and
2. Continuing to prioritize the development of standards for the collection of and access to REALD and SOGI data.

Hospitals, long-term care facilities and local public health programs

Improve effectiveness of response efforts by:

1. Developing and maintaining relationships among LPHAs, LTCFs, and hospitals to improve communication in future public health emergencies; and,
2. Developing clear guidance for LTCFs around public health and infection control regulations outlining the roles of OHA and ODHS. Ideally, dissemination of this information would be co-created with LTCFs and LTCF advocacy groups.

Public health workforce challenges

Mitigate workforce challenges by:

1. Planning for surge capacity planning within a large-scale, longer-term public health emergency using lessons learned from the COVID-19 experience. Mutual aid agreements, whereby jurisdictions establish the legal basis for sharing resources in the event of an emergency, are critical tools for preparedness planning, but may be of limited value in a geographically dispersed event; thus planning for hiring, reassigning, and limiting non-emergency response functions should be established.
2. Creating plans and protocols at every jurisdiction in the entire public health system that can be activated in a large-scale event, such as the COVID-19 pandemic, for streamlining hiring and worker reassignment processes.
3. Cooperatively, between LPHAs and city and county emergency management programs, create, review, and simulate surge capacity models and plans to outline the most efficient use of available human resources in a public health and medical services emergency.
   - Models and plans should clarify roles and responsibilities for primary, supporting, and coordinating agencies to avoid duplication of efforts and provide a baseline for expanding workforce capacity in areas where it is most needed.
   - Planning should include additional partners such as CBOs, neighborhood associations, and other government agencies (e.g., housing, human services, volunteerism, and natural resources departments).
4. Emphasizing and creating local public health emergency preparedness relationships, especially as the public health leadership workforce rebounds from the strain of the COVID-19 pandemic and experiences an influx of new leadership.
5. Improving local epidemiological capacity while recognizing that local capacity may come in the form of regional epidemiological services or other shared services models. Recognize that funding, in addition to Public Health Modernization funding, may be necessary to create the requisite capacity.

Rede authors' positionality statement

In the spirit of reflexivity, the primary authors of this report want to acknowledge their standpoints in relation to the topic of public health systems, health equity and the COVID-19 pandemic. Two authors have been employed in local public health authorities in Oregon (large, Region 1) and three have worked in state government health. Four authors have worked in community-based organizations (three in Oregon, one in another state). One author is the parent of a child who attended Oregon K-12 public schools during the pandemic and one author had children attending K-12 public schools (in another state) during one year of the pandemic and transitioning to private school during the second year of the pandemic. Two authors have worked in or for K-12 public schools in Oregon. One author has worked in a health care system in Oregon.

Four authors are BIPOC (one Hispanic, one Black, one multiracial, and one Asian). One author is transgender. One author is bisexual and one is pansexual. Eight identify as white and non-Hispanic and eight identify as heterosexual (six female, two male). All authors live with economic advantage now. Most authors are formally trained with (or currently training for) advanced degrees in public health, and all are proponents of robust public health systems.

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Appendix