Health Equity:

Addressing Health Equity During a Public Health Emergency Response

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EXECUTIVE SUMMARY

Introduction

Social determinants of health, such as gender, race, and income, can influence an individual's equitable access to healthcare and resources during a public health emergency, ultimately contributing to health inequities. Healthcare inequity during major emergencies has always been a challenge across the U.S. Although disasters may affect everyone, they often shine a spotlight on longstanding disparities and inequities experienced by individuals from minoritized and marginalized communities. The purpose of this white paper, titled "*Health Equity: Addressing Health Equity During a Public Health Emergency Response,*" is to review current County of San Diego Medical Operations Center (MOC) response activities and outcomes, specifically focusing on health equity measures.

Methods

To develop this health equity white paper, staff from the Public Health Preparedness and Response Branch MOC reviewed the outcomes of recent MOC activations, such as Severe Acute Respiratory Syndrome (SARS-CoV-2), the strain of coronavirus that causes COVID-19, Shigellosis in persons experiencing homelessness, and mpox. Statistics are based on response data gathered throughout February 2020 to February 2023 MOC activation response timeframe. Methodologies and robust response activities, such as providing healthcare entities with opportunities for community collaboration through the San Diego Healthcare Disaster Coalition (SDHDC), response planning, information sharing, training and exercise planning, and addressing cultural humility were captured and outlined. Furthermore, health equity activities listed within the County of San Diego COVID-19 Health Equity Strategy publication and Health Equity Policy (HHSA-PHS-ADMIN-HECC-001) were examined as part of the literature review process.

Results

Data from recent health emergencies amplified existing health disparities. For instance, due to COVID-19, the death rate for Latinos was 8% higher than the rate for all Californians. Similar statistics were observed within the Black population, where the death rate for Blacks were 19% higher than the rate for all Californians. Additionally, while public health emergencies exacerbate homelessness itself, they can also intensify chronic and acute consequences for individuals experiencing homelessness. In 2021, an outbreak of shigellosis impacted 53 homeless individuals. Various partnerships within the county were utilized to connect ill individuals to treatment and housing resources. The third large scale MOC activation responded to the mpox outbreak. Though anyone who has been in close contact with someone who has mpox can contract the illness, many of those affected are gay, bisexual, or other men who have sex with men. Important activities during this outbreak included vaccination events and public health education, outreach, and communications.

Discussion

Data from these activations demonstrated the need to mobilize resources and secure essential services in collaboration with community and healthcare stakeholders to ensure inclusive communications and engagement efforts which were collected and acted upon. Placing an emphasis on components of disaster preparedness was also introduced. PHPR will continue to identify and explore opportunities to address health disparities through prioritizing these communities during response planning.

Call to Action

The populations whose health was impacted by the numerous PHPR MOC responses exposed longstanding inequities that have systematically undermined the physical, social, and economic well-being of ethnic minority populations and other population groups which faced a disproportionate burden of COVID-19, shigellosis, and mpox outbreaks. Federal, state, healthcare systems, HHCs, and local health officials must maintain an understanding of key policy issues so that they are poised to protect these populations before, during, and after public health emergencies.

Federal Agencies, State and Local Public Health Departments, and HealthCare Coalitions

- Enhance federal agencies' analysis, collection, and sharing of response data to support equitable response and recovery efforts.
- Accelerate equitable access to vaccines, diagnostics, and therapeutics in future public health responses.
- Promote effective emergency preparedness planning, response, and recovery in tribal communities, including consideration of the unique cultural and traditional needs of those communities.

- Develop emergency preparedness plans centering on health equity practice per the County of San Diego's Ten Essential Public Health Services. Specifically, focusing on addressing the diverse needs of our communities, including the disabled, the elderly, and minority populations.
- Expand these efforts to other vulnerable groups, such as those living in LTCs and SNFs.
- Announce future partnership opportunities within clinics, hospitals, and other facility types (networking within regions)
- Equitable distribution of resources, managing, and tracking limited resources by partnering with neighboring healthcare entities (pull and leverage resources to underserved populations).
- Augment data collection systems.
- Formation of Regionalization Workgroups (e.g., County of San Diego Healthcare Disaster Coalition Regionalization Workgroup) with objectives to develop plans that strengthens relationships through the sharing of ideas and resources, also assure that similar issues within regions or entities are addressed to find solutions to common problems.
- Enhancement of HCC's regional plans to provide general guidance for preparation, response, and recovery to all-hazards events that threaten the healthcare system.

- Collaborate with Centers for Medicare and Medicaid Services (CMS) 17 provider types and over 2000 provider entities within County of San Diego to help facilities adequately plan for both natural and man-made disasters per requirements noted within the Emergency Preparedness Act.
- Strengthen public health workforce and address diversity within that workforce.
- Embed an Equity Officer and related best practices in the Medical Operation Center – ICS emergency response structure.

Healthcare System

Additionally, PHPR is positioned to enable health care providers and facilities to serve their communities with a health equity lens:
- Maintain regional workgroups to share best practices and resources.
- Ensure regional workgroups have good working knowledge in the basis of health equity and are able to discern where health disparities lie in their catchment areas.
- Support healthcare coalition initiatives that specifically aim to benefit vulnerable populations, including social and pre-hospital/pre-medical care needs, through staff support and facilitating movement of resources within a region.

Conclusion

Health equity is when everyone has the opportunity to be as healthy as possible. These opportunities include equitable access to and distribution of resources during all phases of a public health emergency response. When policies, programs, and systems that support health are equitable, poor health outcomes can be significantly reduced, health disparities can be prevented, and the whole of society benefits. Emergency preparedness plans must ensure health equity is included in the planning, response, and recovery decision making phases. It is imperative that local public health departments be prepared and ensure a rapid response that reduces, rather than exacerbates, social and health inequities.

The MOC continues to commit to be at the forefront in responding to County of San Diego public health emergency events. Public Health Preparedness and Response strives to provide much-needed resources through an equitable lens, as well as equitably expand programs for testing, tracing, treatment, isolation/quarantine options, healthcare, and recovery, as evidenced in the past three MOC activations.

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Health Equity: Addressing Health Equity During a Public Health Emergency Response

The United States Department of Health and Human Services (HHS) defines health equity as the attainment of the highest level of health for all people. However, recent public health emergencies within the County of San Diego have placed considerable stress on local public health systems and health care infrastructure, while shedding light on inequities within emergency preparedness processes that serve marginalized populations. As a result, the County of San Diego has established equitable considerations and solutions, which are essential to reducing disproportionate impacts on populations, while creating a more sustainable and equitable approach to all phases of emergency disaster management.

To address health equity during a local public health emergency, the Public Health and Preparedness (PHPR) branch in the Public Health Services (PHS) department, of the County of San Diego Health and Human Services Agency (HHSA), has identified several strategic goals which are specified in the Public Health Services Strategic Plan for fiscal years 2023-2024 and 2024-2025.[1] One goal includes strengthening community resilience and health equity by engaging healthcare entities to safeguard timely assessment and sharing of essential information as a measure to increase emergency preparedness and reduce harm due to disasters and public health threats. Another strategic goal is to facilitate countermeasures and mitigation to ensure continuity of emergency operations management during emergency response and recovery. Specifically, the branch is working to build capacity within the community to respond to emergencies by providing tools and training opportunities to partners, providers, and other identified internal and external stakeholders. Furthermore, PHPR conducts a variety of activities with the San Diego Healthcare Disaster Coalition (SDHDC) to help prepare those in the healthcare community that service individuals with access and functional needs, or other special needs, for emergencies.

The purpose of this white paper, titled *"Addressing Health Equity During Public Health Emergency Response,"* is to demonstrate the health equity mitigation, preparedness, response, and recovery activities put forth by the County of San Diego Medical Operations Center (MOC) and calls to action warranted by federal, state, and local emergency disaster personnel to address prioritization of resources in communities with less access, during an emergency moving forward.

Public Health Emergency Preparedness and Hospital Preparedness Program

All these activities are made possible through the U.S. Centers for Disease Control and Prevention (CDC) Division of State and Local Readiness (DSLR) and its Hospital Preparedness Program (HPP), consisting of Public Health Emergency Preparedness (PHEP) cooperative agreements, which are critical sources of funding for state, local, tribal, and territorial public health departments. PHPR response activities are partially funded through the HPP-PHEP cooperative agreements. These agreements also strengthen and enhance the capabilities of other local, state, and territorial public health departments and health care systems to respond effectively to evolving threats and other emergencies. These efforts help to mitigate

loss of life and reduce threats to community health and safety. Cooperative agreement with CDC provides clear expectations and priorities for awardees and healthcare coalitions (HCCs) to strengthen and enhance the readiness and response of the public health and the healthcare delivery system to save lives during emergencies. These efforts exceed the day-to-day capacity and capability of the public health and medical emergency response systems.

State Legislation/Requirements

The purpose of HPP-PHEP Funding Opportunity Announcements (FOA) is to strengthen and enhance the acute care medical surge capacity through the maintenance and growth of strong HCCs within each HPP-funded state, territory, Freely Associated State, and locality. The FOA provides funds to build acute care medical surge[2] capacity by ensuring that HPP recipients focus on goals, objectives and activities that advance progress toward meeting the goals of the four capabilities, detailed in the 2017-2022 Health Care Preparedness and Response Capabilities. Essential to these efforts is documentation of progress in establishing or maintaining response-ready health care systems through strong healthcare coalitions.

Statutory Authorities for HPP and PHEP programs include:

- HPP - Section 319C-2 of the Public Health Service Act (Title 42 United States Code (USC) § 247d-3b), as amended.
- Contingent Emergency Response Funding (HPP only): section 311 of the PHS Act (42 USC §243), subject to available funding and other requirements and limitations.
- PHPE - Section 311 of the Public Health Service Act (Title 42 USC § 243), subject to available funding and other requirements and limitations.

Other emergency preparedness legislation authorities that are of importance during a public health response includes the Public Readiness and Emergency Preparedness (PREP Act), enacted in 2005, by Congress. The PREP Act authorizes the Secretary of the U.S. Department of Health and Human Services to issue a PREP Act declaration in response to a public health emergency. During a declared public health emergency, the Public Readiness and Emergency Preparedness Act (PREP Act) gives immunity from lawsuits to manufacturers, administrators, and distributors of vaccines, as well as other qualified persons (e.g., healthcare, and other providers) who prescribe, administer, or dispense countermeasures, unless they were acting with willful misconduct.

By adhering to these measures, the County of San Diego local public health department is adequately prepared to protect vulnerable communities in future public health emergencies within a health equity lens.

Overview of Public Health Preparedness and Response Branch

The primary role of the Public Health and Preparedness (PHPR) branch in the Public Health Services (PHS) department, of the County of San Diego Health and Human Services Agency (HHSA), is to improve public health and health care system response capabilities. This is accomplished by building and maintaining partnerships and establishing systems to prevent or reduce morbidity and mortality from incidents that

have a public health impact, achieving the earliest possible recovery and return of the public health and health care systems to pre-incident levels or improved functioning. This includes those incidents whose scale, rapid onset, or unpredictability may stress San Diego County health care entities.

PHPR fosters preparedness within communities by supporting health and medical system response through readiness activities. PHPR also supports County efforts to respond to public health threats through collaborative activities in monitoring and planning of responses, promoting preparedness through drills, and operating exercises to ensure that County staff can effectively respond to emergencies.

These outcomes are attained through application of evidence-based strategies and capabilities, toward the achievement of timely assessment and sharing of essential information; early identification of an incident; implementation of interventions and control measures; situational awareness/distribution of risk information; and continuity of emergency operations management, throughout the surge of an emergency or incident. In addition, good outcomes are enhanced by coordination and support of response activities with stakeholders, as well as equitable distribution of resources and therapeutics. These include personal protection equipment (PPE), vaccines, and medical countermeasures to defend against chemical, biological, radiological, or nuclear (CBRN) threats.

In coordination with emergency response partners, internal and external stakeholders, and community partnerships, PHPR is assigned to represent HHSA and PHS in the management of numerous grant projects, funded by California Department of Public Health (CDPH), including Public Health Emergency Preparedness (PHEP), Hospital Preparedness Program (HPP), Cities Readiness Initiative Program (CRI), the State General Fund for Pandemic Influenza (PanFlu), State Homeland Security Grant Program (SHSG), and Urban Area Security Initiative (UASI) grants. PHPR is the lead entity in administering the County HPP and serves as staff to the county Coordinator of Emergency Services, as well as to the Unified Disaster Council (UDC) and its members.

PHPR also serves in an advisory capacity to the County Health Officer by providing recommendations on County policies and procedures, as well as aligning with the National Response Framework Annex process: Emergency Support Function 8 (Public Health and Medical Services), the State of California Emergency Plan: Emergency Function 8 Public Health and Medical Annex, and the California Department of Public Health Emergency Operations Manual process at the local level, in accordance with National Incident Management System (NIMS) and Standardized Emergency Management Systems (SEMS). Finally, PHPR secures necessary medical supplies such as personal protection equipment (PPE) so that supplies are readily available to address future public health disasters.

Public Health Preparedness and Response Operational Units

The PHPR Medical Operation Center (MOC) serves as a support and procurement entity for health and medical supplies in San Diego County. It is the primary coordinator for hospital and clinic information exchange, logistics, and tactical operations. While generally open and staffed whenever the Emergency Operations Center (EOC) is activated, the MOC may also be activated independently for health and medical emergencies and disasters that are localized, low-level emergencies, or for events primarily public

health related. All of this is possible with input from each of the PHPR operational units, such as Contracts and Grants, Epidemiology and Bioterrorism, Exercises and Response, and Program and Planning. A PHPR organizational chart is illustrated in *Figure 1*.

Figure 1. Public Health Preparedness and Response (PHPR) Organizational Chart.
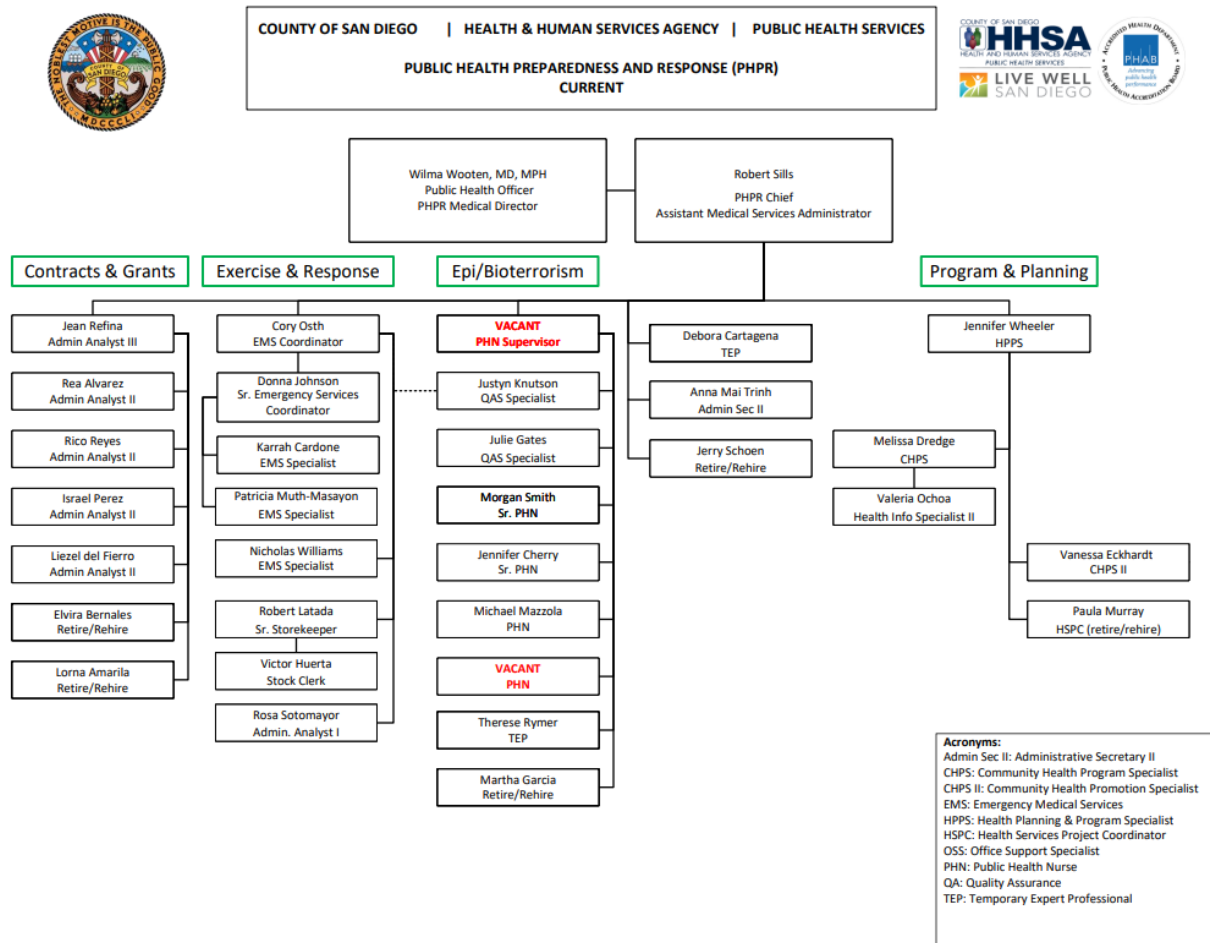
Source: Public Health Services, Public Health Preparedness and Response (PHPR) October 2023.

The Contracts and Grants Unit is responsible for oversight of all contracting, procurement, and fiscal/budget activities for the branch, submitting grant applications, reports, and budget revisions. Some of the applications and projects that this section manages include UKG/Kronos timekeeper, iTrack, Service

Now Requests and approval, personnel functions (reclassifications, requisitions, hiring documents, etc.), and ordering medical warehouse supplies.

The Exercise and Response Unit is responsible for reviewing, enhancing, and socializing disaster operational plans and managing disaster training exercises for all San Diego County healthcare entities, as well as coordinating the specialty education needs of the SDHDC. It also serves as the lead for multiple coalition workgroups due to expertise level. The Exercise and Response Unit identifies, develops, coordinates, and implements key public health and medical emergency preparedness and response training and exercise activities for internal and external stakeholders to better prepare San Diego County for a public health threat or emergency. In addition, it facilitates health and medical system readiness to manage and respond effectively to a disaster or large-scale public health event or emergency, including overseeing the Medical Health Operational Area Coordination (MHOAC) Program.

Responding to an event or emergency may include, but is not limited to:

- Coordinating activities for all healthcare entities within the county's 22 hospitals, 83 skilled nursing facilities (SNF), multiple clinics, and almost 1,200 long-term care facilities (LTCF).
- Supporting the Health and Medical system at all levels including locally, regionally, and statewide.
- Planning and preparing for chemical, biological, radiological, nuclear, and explosive threats to public health, including administering mass dispensing of medical countermeasures.
- Facilitating yearly tabletop and full-scale exercises to test plans, identify gaps, and provide training for staff in incident response and EOC activation.
- Conducting mandatory training and exercises in conjunction with Public Health Emergency Program, Hospital Preparedness Program, and Pan Flu grants.
- Overseeing the Pediatric and Burn Surge programs that include training, exercise, and system management.

The Epidemiology and Bioterrorism Unit (Epi/BT) is responsible for ensuring the County's public health infrastructure is prepared to prevent illness and injury that would result from biological and chemical terrorism, especially a covert terrorist attack. As with emerging infectious diseases, early detection, and control of biological or chemical attacks depends on a strong and flexible public health system at the local level. As a result, the County Epi/BT team coordinates with multiple agencies, such as community organizations, medical providers, prehospital provider agencies (fire/emergency medical services), hospitals, community clinics, skilled nursing facilities, and businesses, in developing public health and disaster preparedness awareness and trainings. The Epi/BT team is the county's first line of defense in a mass public health event.

Some additional applications and projects that this section manages include, but are not limited to:

- Assisting and participating in disaster preparedness activities and public health emergency related planning, training, exercises (drill, tabletop, field and full-scale), evaluation, response, and recovery activities.
- Supporting the Regional Public Health Centers by providing leadership and direction in managing response to disasters and other public health emergencies.

- Providing training and fit testing support to all participants in respiratory protection plan participants. They also develop and conducts continuing education to maintain up-to-date best evidence-based practice knowledge.
- Assuming a field leadership or oversite role, in cases of wildfires, POD (Points of Dispensing) sites or other major disasters, by the Epi/BT team. In cases or larger public health emergencies, the team may assist with short-term investigations, mass prophylaxis or other surge needs in the field, remotely, or from a MOC/DOC assignment.

The Program and Planning Unit oversees the coordination and integration of the diverse program and planning components of PHPR. In collaboration with the Contract and Grants Units, Epi/BT, and Exercise and Response, this Unit aims to ensure plans and activities reflect required deliverables, best practices, and revisions based on lessons learned to support continual improvement in preparedness and response. The Program and Planning Unit manages the Hospital Preparedness Program (HPP), the San Diego Healthcare Disaster Coalition (SDHDC), the Long-Term Care (LTC) Sector, the Healthcare Provider Status (HCPS) team, PHS performance improvements, and the Medical Reserve Corps (MRC) program.

The Medical Reserve Corps is a community-based group of local medical and health workers who can serve as volunteers during a local health emergency. The mission of the San Diego County MRC is to enhance the County's ability to respond to public health emergencies or disasters with a team of trained health professionals. The MRC has specialty teams for Medical Countermeasures (MCM) and Disaster Shelter Health Services (DSHS). MCM volunteers are provided with training opportunities and involvement with drills and exercises that can prepare them to assist with local health emergencies. The MCM team can be deployed from naturally occurring or man-made disasters that include bioterrorism, environmental incidents, emergent disease, mass casualties, and more. On the other hand, DSHD volunteers join the effort to protect the public's health by identifying and preventing the spread of communicable diseases, conducting health screening assessments in shelter settings, and assisting guests in finding the appropriate care and treatment for their health concerns. Volunteers may be used to supplement staff during emergencies; they are alerted when a need is identified, and they may choose to response based on their availability. Altogether, the MRC volunteers form part of a network dedicated to ensuring the safety, security, and health of the community.

The Program and Planning unit also assists the Exercise and Response unit in activities and duties when the MOC activates. In addition, Program and Planning is responsible for coordinating and maintaining 22 plans concerning medical and health emergencies or disasters. These plans include cross-cutting operations of both County and external partners.

Health Equity Priority

The County of San Diego has had a long commitment of making health equity a priority and putting health equity at the center of public health response efforts. From July to October 2020, assigned PHS staff members developed an inventory of health equity activities conducted since the beginning of the COVID-19 pandemic response. Staff created this inventory log and solicited health equity activities from all

aspects of the Incident Command System (ICS) and MOC section branches ranging from HHSA departmental leads, MOC Section Chiefs, staff from the T3 Strategy, and Policy Group Executives. The health equity activities listed in the *Health Equity Plan* submitted to the California Department of Public Health (CDPH), on October 16, 2020, were developed in collaboration and coordination with community partners, by the community and for the community, under the *Live Well San Diego* vision of a region that is Building Better Health, Living Safely, and Thriving. Therefore, striving for health equity is crucial in improving public health emergency preparedness post-COVID-19 MOC responses.

In recent years, PHPR MOC public health activations, such as the COVID-19 Pandemic (February 2020 through February 2023), the Shigellosis outbreak in persons experiencing homelessness (October 2021 to December 2021), and the mpox outbreak (May 2022 to December 2022) have illustrated that underserved and underrepresented communities continue to be the most vulnerable to communicable disease and its negative impacts. Underserved communities with less power and access to resources also experience inequities during disaster response and recovery. Reviewing, updating, and creating response plans that engage and include vulnerable populations helps to ensure County of San Diego preparedness plans serve the diverse needs of our communities. Fully integrating equity planning principles into all phases of emergency management (e.g., prevention, mitigation, preparedness, response, and recovery)[3] will aid the County of San Diego emergency managers in better understanding the needs of the whole community.

METHODS

PHPR is addressing this health equity priority by providing healthcare entities with opportunities for community collaboration through data sharing, response planning, communications, robust training and exercise planning, and addressing cultural humility.

SAN DIEGO HEALTHCARE DISASTER COALITION AND OTHER PARTNERS

The San Diego HealthCare Disaster Coalition (SDHDC) has continued its primary mission of building a regional organization to promote engagement, coordination, communication and situational awareness between community partners and private and public sectors prior to, during, and after an incident or disaster. The SDHDC is a multidisciplinary partnership that consists of a collaborative network of healthcare organizations, and their respective public and private sectors. The coalition meets State and Federal guidelines as it relates to healthcare coalitions.

PHPR collaborates with the SDHDC and external partners, including municipalities such as the City of San Diego, to engage the entire healthcare and disaster community to work together toward emergency and disaster preparedness, response, and recovery. This is accomplished through efforts such as adopting a health equity lens within emergency management efforts, as well as promoting quality in the delivery of disaster patient/victim care services by assessing the level of healthcare preparedness, identifying gaps and disparities, and making recommendations on activities to address them. This is enhanced by supporting the needs of healthcare organizations so that they can better meet the on-going needs of the community. Furthermore, PHPR collaborates with SDHDC and external partners in the development and

implementation of effective evidence-based practices and their planning, education, and evaluation as they relate to emergency preparedness.

Data Reporting Requirements

To demonstrate PHPR's commitment to data reporting requirements and protocols during a response, PHPR often collaborates with the County of San Diego EISB, OES, and EMS data management teams to ensure data is appropriately gathered, analyzed, and reported to communicate status updates and progress related to a given public health event or emergency.

Other key activities related to data health equity include:

- Development of internal and external reporting systems to include at-risk populations (e.g., Incident Action Plans and SITREPS).
- Implementation of continuous improvements for major aspects of outbreak response efforts, including surveillance, communication, data management, and laboratory capacity (when warranted).
- Facilitation of federal, state, and public requests for data as they arise.

Striving for data health equity across local, state, and national levels is crucial in improving public health emergency preparedness. Local health departments can be better prepared and more equitable if systems are strengthened by building on core competencies and following the recommendations made for emergency managers, stakeholder involvement, accreditation, funding resources, and enhanced and robust data reporting mechanisms.

County of San Diego COVID-19 Health Equity Strategy Document

During the height of the COVID-19 response, Public Health Services leadership meet the County's regional COVID-19 Data Monitoring Coordinator staff. As a result of this meeting, it was determined that HHSA had mobilized resources to secure essential services and addressed social determinants of health collaboration with community partners and recommended these efforts should be documented. Consequently, assigned staff throughout Public Health Services began development of the County's COVID-19 Health Equity Strategy document which included efforts and activities implemented during the response. The purpose of the publication was to guide activities related to the COVID-19 response and address threats posed to local community, particularly those impacted by the Healthy Places Index (HPI) as being in the lowest HPI quartiles.

Communications

PHPR serves the community at large by collaborating with healthcare providers and long-term care facilities within the region to promote coordination. Monthly newsletters are sent out to all participants with the latest public health information and updates. In addition, a variety of telebriefings are facilitated

bi-weekly or monthly with subject matter experts providing response updates or sharing any imperative news.

Other examples of communication tools utilized by PHPR in collaboration with the Epidemiology and Immunization Services Branch (EISB) for critical information sharing include:

- WebEOC - An electronic data management and data collaboration system used to help coordinate and document an emergency response.
- California Health Alert Network (CAHAN) – This is an Operational Area (OA) electronic health communications network. A total of 4,253 County of San Diego employees, private physicians, hospital employees, other health professionals, first responders, and other entities have registered into this network. EISB can communicate directly, in real time if needed for health or medical surveillance, to receive and send alerts. Public Health Emergency Response Manuals are posted on the site with restricted access so all registrants can be contacted if needed during an emergency for an alert or activation.
- Satellite Telephone – The Public Health Officer, Deputy PHO, PHPR Leadership and the PHPR/MHOAC Duty Officer maintain satellite telephones.
- Blackboard – This is a notification system to alert, activate, and communicate with OA first responders and Duty Officers in public health, Emergency Medical Services (EMS), PHPR, Public Safety, and local jurisdiction Department of Homeland Security.
- Healthcare Provider Sector/Long-Term Care Telebriefing and e-blasts – Health communication information provided by PHPR and sent to over 1,000 long-term care and skilled nursing facilities.

Training and Exercise Program

The PHPR branch strives to develop public health and disaster preparedness by disseminating risk assessments, trainings, and public health guidance all through a health equity lens. Tabletop and Full-Scale Exercises (FSE) are ways PHPR promotes education and preparedness among healthcare providers and emergency preparedness managers and professionals while addressing healthcare inequities. A variety of outreach and training efforts are set in place to ensure all San Diego County residents, including vulnerable populations and those with access and functional needs, are prepared for emergencies. Understanding the complex relationships that affect fair access to health care during emergencies continues to be a focus for PHPR.

To address equitable distribution of resources during a public health emergency, it is essential to develop a comprehensive training and exercise program to inform and educate decision makers and key stakeholders. The training and exercise requirements to build and maintain the County of San Diego emergency preparedness response capability are considered and included in HHSA's multiyear training and exercise plan.

To maintain the necessary skills and knowledge to appropriately respond to an emergency, HHSA, PHS, PHPR, EISB, and/or EMS provides ongoing training opportunities for HHSA staff and community stakeholders. These may include, but are not limited to, monthly communications drills, ongoing ICS and

NIMS training, and Infectious Disease plan trainings, drills, and exercises. Workshops, drills, and exercises are provided by the Office of Emergency Services (OES) within PHS and other partners. During a response, just-in-time training may be provided at designated staging areas and within modules, as appropriate.

Cultural Competency

In a local emergency, providing critical public health risk information in multiple languages to serve diverse communities is paramount to saving lives. To address the County's diverse language needs, OES and PHS has partnered with a broad network of trusted community organizations in an initiative called The Partner Relay Network whose mission is to disseminate emergency messages in multiple languages during local public health emergencies. *Project Relay* aims to ensure that bilingual and bicultural staff are available where appropriate and if not, provides translation and interpretation services. In addition, all communication materials, such as POD signages and general vaccination information, can be translated in eight of the threshold languages, including Arabic, Chinese, Karen, Korean, Somali, Spanish, Tagalog, and Vietnamese if warranted.

Risk communication messages are also disseminated in multiple languages and formats to inform diverse populations and persons with access and functional needs, and to address other specific communities and sectors. This is one of many County efforts to reach vulnerable communities where language is a barrier to getting critical and potentially lifesaving information.

PHPR also recognizes *Tribal Nations* and their sovereign status. Communication with *Tribal Nations* may be organized with a collaborative partnership, such as the Indian Health Council, Inc. and/or other entities, or directly with a specific Tribe. Furthermore, the County Equity Strategic Plan acknowledges the sovereignty of *Tribal Nations* and its authority over public health matters and issues, allowing for open communication relating to public health risks, pandemics, epidemics, outbreaks, and other communicable diseases. The management for command and control within federally recognized *Tribal Nation(s)* remains under their own internal authority.

Response Activities

In collaboration with the PHS Epidemiology and Immunization Services Branch (EISB), PHPR has developed several response plans to provide a comprehensive framework and response measures taken by the County of San Diego to protect at-risk populations, while focusing on health equity distribution of resources and therapeutics. One such plan is titled "COVID-19 Response Plan – Consumer Version." This Plan provides information to the public about the status of the global coronavirus (COVID-19) pandemic and threat to the public's health. It also recognizes the impact of these challenges directly affecting the residents of San Diego County that are most at risk. In addition, the Plan contains background information about the novel coronavirus, the efforts conducted by the County of San Diego to respond to this pandemic, what the public can do, and resources and references related to COVID-19. Other response plans written because of MOC response efforts include Shigellosis in Persons Experiencing Homelessness (December 2021), Mpox Outbreak (August 2022), and Respiratory Response Plan in Skill Nursing Facilities (January 2023).

Other PHPR workplans developed and workgroups established to address hospital preparedness and support medical surge readiness through a health equity lens include Pediatric Surge coalition workgroup (January 2020), First Responder Prophylaxis Plan (July 2022), and the Healthcare Provider Status Taskforce, which was formed in April 2020 during the COVID-19 MOC response.

RESULTS

Vulnerable Populations

In San Diego County, in 2021, there were an estimated 3,296,317 residents, of which 14.1% were aged 65 years and older. Among the population, 317,384 residents, or 10% of the population, had one or more disabilities. As major barriers to care, 7.5% of residents did not have health insurance and 10.7% lived below 100% of the federal poverty level. Additionally, 5.4% of occupied housing units did not have a vehicle and 6.9% did not have internet (including dial-up, broadband, or any cellular data plan).[4] These population characteristics contribute to vulnerabilities in the population, preventing residents from being able to seek or access care during a public health emergency, and reducing their ability to protect themselves from the impacts of such emergencies.
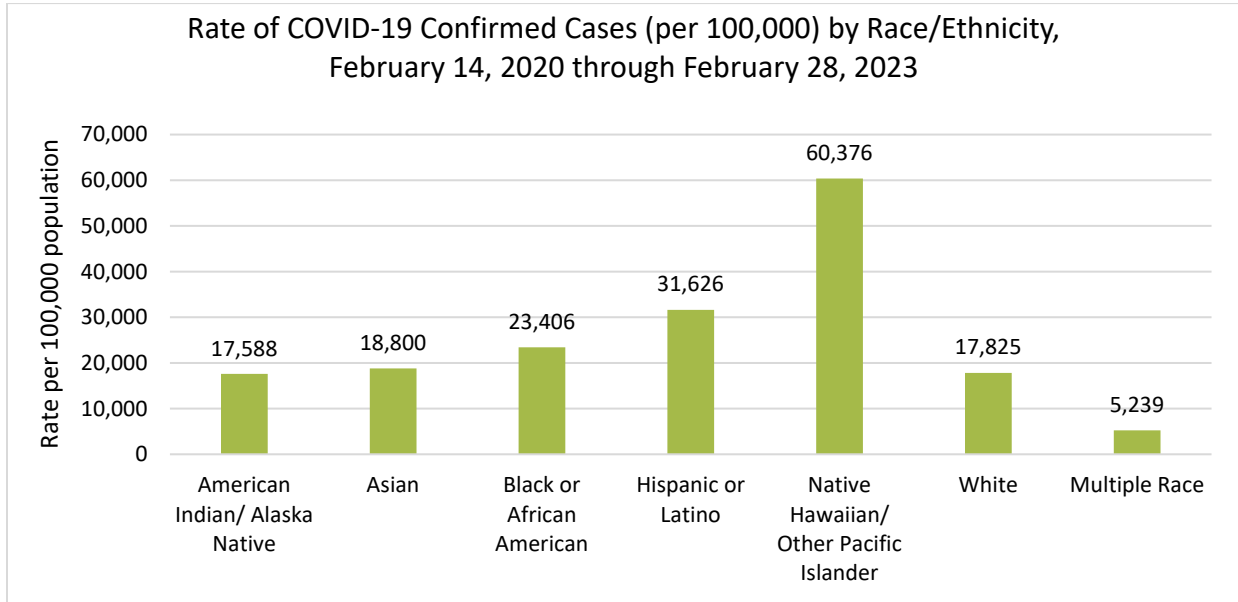
COVID-19 Response

On February 1, 2020, the MOC was activated to address the emerging COVID-19 situation. Initially, the focus of this activation was to support the civilian repatriation mission by the Federal Government at Marine Corps Air Station (MCAS) Miramar. The MOC coordinated support for this mission through the civilian medical system. On March 9, 2020, the MOC activation focus changed as the COVID-19 pandemic escalated. The focus of the MOC shifted to lead the public health response in the county, which included expanding medical system capacity to ensure resilience, facilitating systemwide clinical resource coordination to ensure guidance documents and infection control plans were available, and supporting regional mass vaccination events and the T3 ("Test, Trace, Treat") logistical coordination campaign.

From the outset, the MOC COVID-19 response exposed discrepancies in health equity across San Diego County. As of February 28, 2023, 345,790 Hispanic or Latinos tested positive for COVID-19, resulting in a total of 2,449 COVID-19 related deaths. While Hispanic or Latino residents experienced the highest counts of cases and deaths, examining the rates of COVID-19 revealed the Native Hawaiian and Other Pacific Islander (NHPI) population was disproportionately affected (*Figure 2*). Over the course of the MOC response, NHPI residents had a rate of confirmed COVID-19 cases of 60,376 cases per 100,000 population. In comparison, Hispanic or Latino residents had a rate of cases nearly half that (31,626 per 100,000). NHPI residents also had the highest rate of death due to COVID-19, with a rate of 322.5 per 100,000 (*Figure 3*). Hispanic or Latino residents had the second highest rate of death due to COVID-19 (224.0 per 100,000).[5]

To improve COVID-19 prevention among vulnerable, hard-to-reach populations, PHPR in collaboration with EISB implemented strategies to address the disproportionate negative impact by engaging trusted local partners and stakeholders to provide robust vaccine resources, education, and outreach services in various languages.
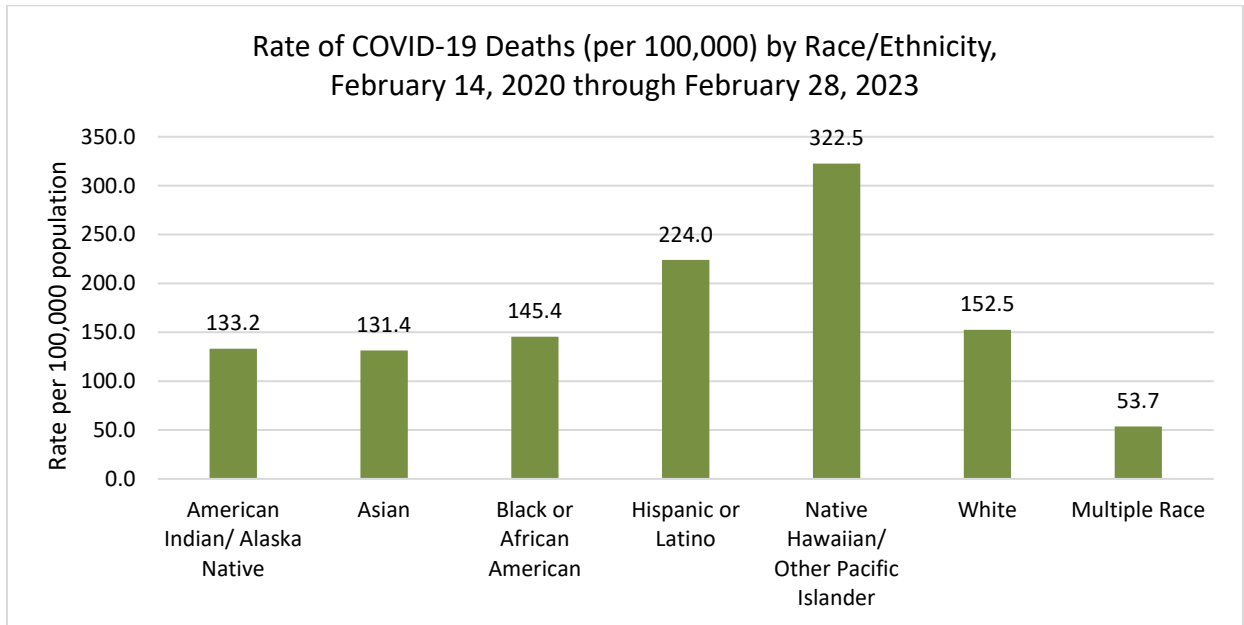
Figure 2. COVID-19 Cases by Race/Ethnicity.

Rate of COVID-19 Confirmed Cases (per 100,000) by Race/Ethnicity, February 14, 2020 through February 28, 2023

Race/Ethnicity	Rate per 100,000
American Indian/ Alaska Native	17,588
Asian	18,800
Black or African American	23,406
Hispanic or Latino	31,626
Native Hawaiian/ Other Pacific Islander	60,376
White	17,825
Multiple Race	5,239

Notes: Persons of Hispanic/Latino ethnicity may belong to any race group. All categories except Hispanic/Latino include persons for whom race is known but ethnicity is non-Hispanic or unknown.
Data source: San Diego County Communicable Disease Registry, SANDAG 2019 Population Estimates (Prepared June 2020). Total population = 3,351,784.

Figure 3. COVID-19 Deaths by Race/Ethnicity.

Rate of COVID-19 Deaths (per 100,000) by Race/Ethnicity, February 14, 2020 through February 28, 2023

Race/Ethnicity	Rate per 100,000
American Indian/ Alaska Native	133.2
Asian	131.4
Black or African American	145.4
Hispanic or Latino	224.0
Native Hawaiian/ Other Pacific Islander	322.5
White	152.5
Multiple Race	53.7

Notes: Persons of Hispanic/Latino ethnicity may belong to any race group. All categories except Hispanic/Latino include persons for whom race is known but ethnicity is non-Hispanic or unknown.
Data source: San Diego County Communicable Disease Registry, SANDAG 2019 Population Estimates (Prepared June 2020). Total population = 3,351,784.

Vaccination

Once the first COVID-19 vaccine became readily available in December 2020, the County of San Diego worked tirelessly to provide vaccine information and services to communities with low vaccination rates. Efforts were focused on reaching individuals unable to access vaccine resources due to supply-related barriers (e.g., appointment deficits and vaccine stock-outs), demand-related barriers (e.g., mistrust and misinformation), or socioeconomic factors.

To ensure equitable distribution of COVID-19 vaccinations, the County of San Diego created a robust multi-agency structure to guide the COVID-19 vaccine planning, which was led by the HHSA Agency Director.[6] Internally, a planning structure was developed that built off the HHSA integrated model and merged the work of EISB and the MOC under the direction of the COVID-19 T3 Strategy, in consultation with the Public Health Officer. In addition, the County of San Diego also built and leveraged strategic partnerships throughout the region to ensure equitable access and delivery of the COVID-19 vaccines. These included community mobile COVID-19 vaccination sites, vaccination super stations (e.g., at Petco Park in collaboration with University of California San Diego Health), vaccination of homebound San Diegans, collaboration with fire agencies for vaccination administration, and scheduling assistance for vaccine equity (Project SAVE). As of February 23, 2023, more than 2.69 million or 80.7% of San Diegans have received the primary series of one of the approved COVID-19 vaccines. In addition, a total of 576,531 or 22.9% of 2,514,949 eligible San Diegans have received their bivalent boosters.

Public Health Hotel Rooms

Throughout the numerous emergency responses, several key successes were noted in the mitigation efforts against COVID-19, and to date this includes the use of public health hotel rooms. Public health hotel rooms are temporary lodging rooms made available to support isolation, quarantine, recovery, and prevention of COVID-19 cases. Also, this response method has been utilized during the shigellosis and mpox outbreaks. The eligibility criteria were based on the Federal Emergency Management Agency (FEMA) reimbursement guidelines for non-congregate sheltering and guidance from public health officials.[7] These guidelines included the type of non-congregate sheltering (i.e., hotels/motels, dormitories) and the target populations who can be placed in the non-congregate sheltering. The target population includes:

- Those who tested positive for COVID-19, shigellosis, or mpox, and do not require hospitalization but need isolation;
- Those who were exposed to COVID-19, shigellosis, or mpox, and are pending test results; and
- Those who were asymptomatic high-risk individuals needing social distancing as a precautionary measure, such as people over 65 or with certain underlying health conditions (respiratory, compromised immunities, chronic disease).

Project Roomkey was established in March 2020 as part of the State's response to the COVID-19 pandemic. As mitigation efforts of the pandemic evolved, Project Roomkey evolved as well. In November 2020, a new phase of Project Roomkey began. This new phase built on existing emergency shelter efforts

while supporting permanent transition to safe and stable housing. Under this framework, the County of San Diego isolated and quarantined a total of 16,338 guests (*Table 1*). Lessons learned from the implementation of public health hotel rooms were immediately employed in other County MOC responses, with this specific process generally overseen by the OES and MOC Logistics Sections.

Upon the conclusion of the COVID-19 pandemic, the County Epidemiology Unit returned to its PHS Infectious Disease Temporary Lodging Model. This framework is intended to temporarily house eligible individuals with a confirmed diagnosis of an infectious disease (including, but not limited to COVID-19), have been discharged from a hospital or referred by the healthcare system, and who require a safe place to isolate during their infectious period. Other client eligibility criteria include must be 18 years of age or older, be completely independent/does not need assistance with tasks such as eating, bathing, grooming, and does not require a higher level of medical care. The County's Infectious Disease Temporary Lodging Program is conducted in partnership with local hotels. Health services provided include daily wellness checks performed by a registered public health nurse, transport to and from the hotel/motel if needed, and guest are provided three meals per day.

Table 1. Public Health Room Data.

Isolation and Quarantine Room Availability				
	Rooms Available*	Rooms Filled	Guests	Cumulative Guests
Public Health Rooms **	0	0	0	14,517
Public Health – Project Roomkey ***	0	0	0	252
Other Project Roomkey	160	160	196	1,569
TOTAL	**160**	**160**	**196**	**16,338**

*Numbers will fluctuate as contracts are negotiated. **Program Ended on 31March2022. ***Program Ended on 30Jun2022.*

Data Source: County of San Diego, COVID-19 Emergency Operations Center Situation Report – Incident name: COVID-19 Mitigation and Response, Report Date: 2/17/2023.

## Shigellosis Outbreak in Persons Experiencing Homelessness Response

In San Diego County, the shigellosis outbreak in persons experiencing homelessness (PEH) was officially identified and reported on October 7, 2021, with the last case connected to the outbreak identified on December 11, 2021. Routine enteric investigation originally identified five cases of shigellosis among PEH. Four cases were culture-confirmed for *Shigella sonnei* resistant to trimethoprim/sulfamethoxazole, and one case was positive for *Shigella* spp*.* via culture independent diagnostic testing. An outbreak investigation was initiated and the MOC was activated, on 10/15/2021, due to the rapid increase of identified cases within a high-risk group with the same species and antibiotic resistance pattern.

People experiencing homelessness are often negatively impacted during public health emergencies. Not only can public health emergencies exacerbate homelessness itself, but they can also intensify chronic and acute consequences for individuals experiencing homelessness. People experiencing homelessness

tend to have a higher prevalence of preexisting conditions that increase the risk of experiencing poorer outcomes once sick. Additionally, overcrowding, and unsanitary conditions in encampments and shelters may increase viral transmission among people experiencing homelessness.

Several actions were taken as part of a collective shigellosis outbreak response effort to ensure equitable distribution of resources. County of San Diego partnerships, such as with the City of San Diego and the Office of Homeless Solutions, were examined and expanded using a health equity lens. Homeless Outreach Teams (e.g., Foot Teams) distributed shigellosis disease public health information as part of hygiene kits given to the at-risk population. There was increased cleaning of portable and fixed public bathrooms. A collaboration with City of San Diego regarded the relocation of currently deployed handwashing stations and portable restrooms to areas frequented by homeless individuals and evaluated the need for additional stations (***Figure 4***). Additionally, ill individuals were connected to treatment and housing resources.

Figure 4. Shigellosis Cases and Encampment Site Map, October 2021.
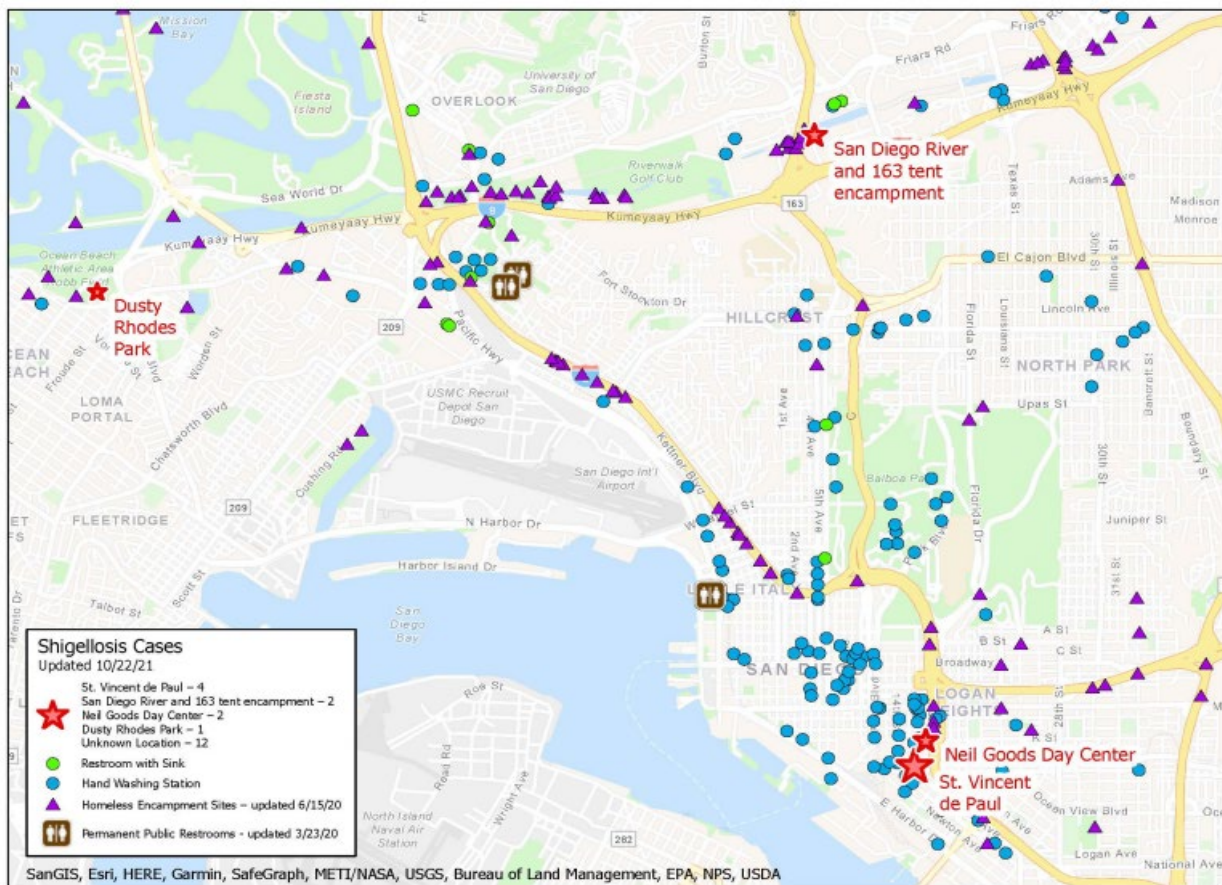
Data Source: County of San Diego, 2021 Shigellosis PEH Outbreak - ShigellosisCaseMap_20211022.pdf.

In total, 53 shigellosis cases were connected to the outbreak, 47 confirmed and 6 probable infections (*Figure 5*). The response was conducted in collaboration with other County of San Diego departments, such as the Department of Environmental Health and Quality (DEQH); City governments, local healthcare systems, businesses; restaurant and food and beverage associations; faith-based organizations; substance abuse treatment facilities; and other organizations that serve the at-risk populations. The official MOC shigellosis outbreak response ended on December 22, 2021. No deaths were reported during this outbreak.

Figure 5. Shigellosis Cases in Persons Experiencing Homelessness by Date of Illness Onset.
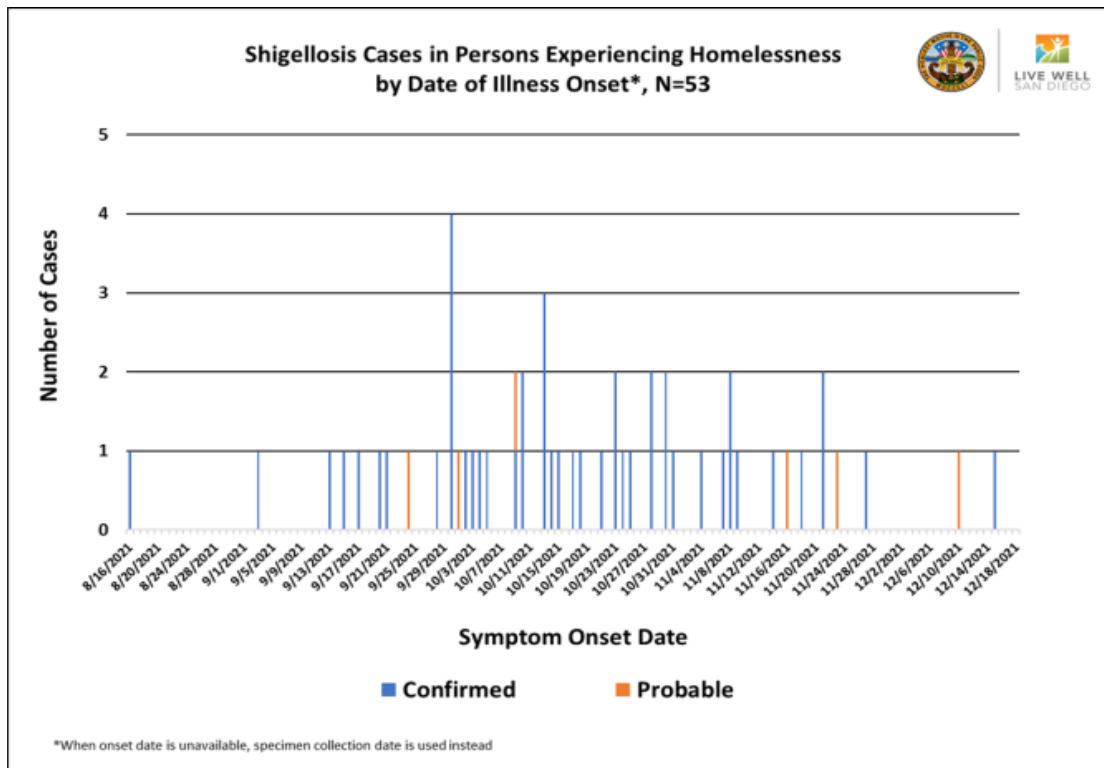
Data Source: Shigella-Shigellosis (sandiegocounty.gov)

MPOX Outbreak Response

The County's MOC response to the mpox outbreak was officially identified and reported, on June 15, 2022, and ended on December 13, 2022. As of March 1, 2023, there were a total of 86,231 confirmed cases globally, 30,225 cases in the United States, 5,733 cases in California, and 472 cumulative cases with no deaths reported in San Diego County (*Figure 6*). While many of those affected in the current global outbreaks are gay, bisexual, or other men who have sex with men, anyone who has been in close contact with someone who has mpox can contract the illness. The MOC activation, on 05/20/2022, and response was conducted in collaboration with other County of San Diego departments, city governments, local healthcare systems, and organizations that serve the identified at-risk populations.
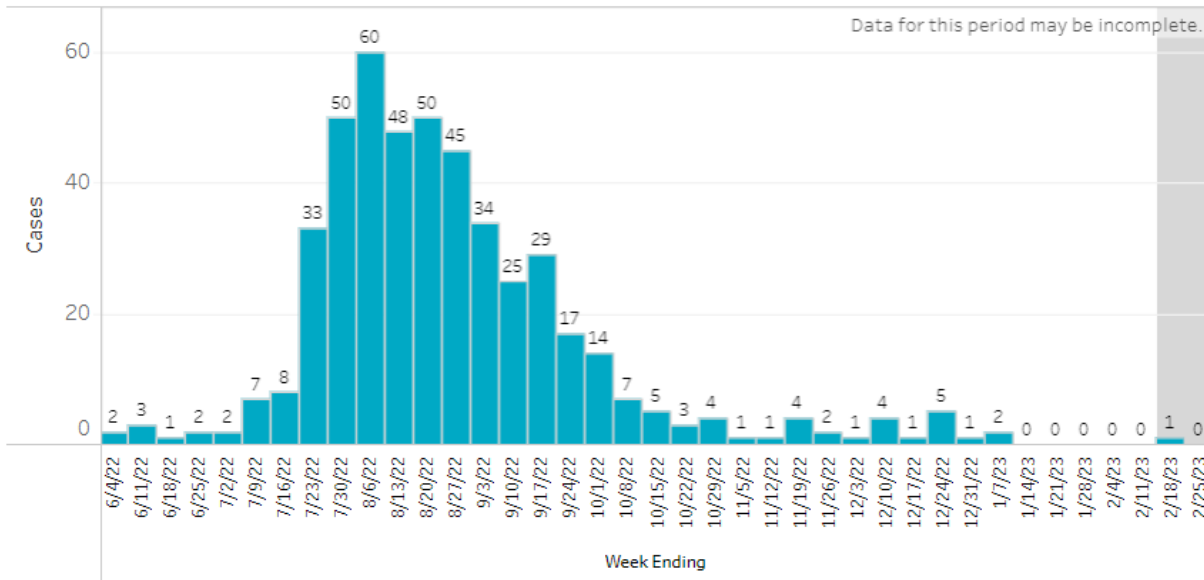
Figure 6. MPOX Case Summary.

San Diego County MPOX Weekly Case Summary

Effective 1/17/2023, data are updated every other Tuesday. Data through 2/25/2023. Last updated 2/28/2023.

Cumulative Cases*	Cases Since Last Report	Cumulative Hospitalizations	Cumulative Deaths
472	1	18	0

MPOX Confirmed and Probable Cases* by Episode Date^, San Diego County

Data Source: Local Cases (sandiegocounty.gov).

The MOC mpox response plan provided a comprehensive framework to and prevent the continued spread of the mpox infection in at-risk populations and the general public. The mpox response was built upon and implemented guidance issued by the CDC, CDPH, and other federal and state agencies. It is further rooted in the fundamental strategies which have been proven effective in the context of infection control and public health practice. Key features of the mpox response included 1) incident command; 2) public health surveillance and epidemiological investigation; 3) strategic approaches to educate, vaccinate, treatment, and therapeutics; 4) outreach; 5) partnerships; 6) communication; 7) data management; and 8) public health and commercial laboratory testing.

In addition, the MOC and EISB collaborated with local LGBTQ community leaders to enhance community collaboration. Leadership meetings launched in early July 2022 with representation from key stakeholders

from the LGBTQ community such as the HIV Planning Group, North County LGBTQ Resource Center, San Diego LGBT Center and San Diego Pride, with a goal of providing updates and obtaining input about County response activities including vaccine events and public health communications and guidance. As a result, a total of 14,190 individuals obtained at least one dose of the JYNNEOS® vaccine as of February 6, 2023. Residents who received at least one dose of the vaccine spanned all ages and were primarily male. Just over half (52.1%) of residents vaccinated were from Central region. Data show 47.9% of vaccinated residents were White, followed by 29.3% who reported Hispanic or Latino ethnicity. *Figure 7* shows the proportions of those vaccinated by age group, gender, region, and race/ethnicity.

**Figure 7. MPOX Vaccination by Demographics (data through 02/06/2023).**

Data Source: Vaccine (sandiegocounty.gov).

Additional vaccination outreach activities were implemented to ensure equitable distribution of mpox vaccines. POD vaccinations events (either appointment based or walk-in) were held at the LGBTQ Community Center in Hillcrest, County of San Diego public health/STD clinics, Family Health Centers in Hillcrest, Live Well Centers, and at the Golden Hill Community Center from September 20 to October 29, 2022, as shown in *Figure 8*. At these POD events, mpox health communication was also distributed in threshold languages. A total of 75 flyers were disseminated which provided information on Equality California and Uber's partner program to mitigate the lack of reliable transportation to vaccination sites by the LGBTQ community.

Figure 8. Golden Hill MPOX Vaccination POD Data (accessed 02/16/2023).
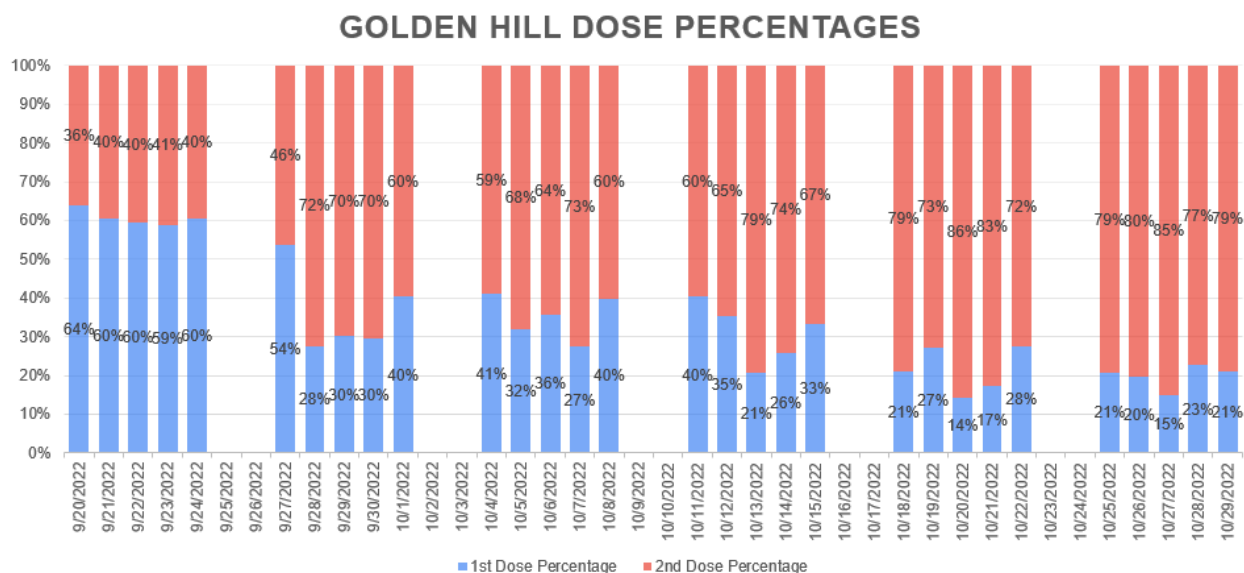
Data Source: County of San Diego, Public Health Preparedness and Response Monkeypox Vaccination POD Site Totals, October 10, 2023.

DISCUSSION

Public health emergencies, by definition, may occur suddenly and without warning. Whether the situation involves an infectious disease like the current global COVID-19 pandemic, or a natural disaster such as recent wildfires, hurricanes, and flooding, these events can result in public health crises and disproportionately affect groups at higher risk of adverse outcomes or populations that have been marginalized, such as communities of color, LGBTQ, lower income populations, and those experiencing homelessness or in prisons. Additionally, achieving health equity within any given public health emergency response requires valuing everyone equally with focused and ongoing efforts to address avoidable inequities and the elimination of health and healthcare disparities.

In order to respond to the COVID-19 outbreak, the U.S. Department of Health and Human Services (HHS), declared the COVID-19 outbreak a public health emergency pursuant to Section 319 of the PHS Act, 42 U.S.C. 247d, effective January 27, 2020. Emergency declarations have been issued many times in the past, including for the H1N1 pandemic in 2009. Emergency declarations such as the Emergency Preparedness Act (PREP Act) allow emergency officials to act quickly in response to public health emergencies like the novel coronavirus.

At the federal level, a public health emergency declaration provides the Department of HHS flexibility to assist states with responding to a local threat or emergency. It also permits HHS to suspend or modify certain public health laws deemed necessary. At the County level, our County of San Diego Public Health Officer (PHO) determined the severity of the situation and potential of the public's health and safety. The

PHO worked with the County Policy Group in determining the need for proclaiming a local emergency, declaring a local health emergency, or both. On February 14, 2020, the County did execute both options. These proactive measures were taken to increase the County's capacity for reimbursement, administrative flexibility with contracts and vendors, and support the enhanced response efforts for additional needed resources such as access to vaccines, testing kits, and PPE.

Another critical element to address any large-scale public health emergency is the role of Healthcare coalitions (HCC's) in emergency response. HCC's are identified as a group of individual healthcare entities and response organizations in a defined geographic location. HCC's may assist public health departments with the distribution and/or dispensing of medical countermeasures. The San Diego Healthcare Coalition (SDHDC) engagement during COVID-19 was instrumental. For instance, County partnerships with Rady Children's Hospital helped facilitate the initial testing of first responders. This partnership later led to the establishment of the COVID-19 Collaboration for Children to focus testing on youth. In addition, the County opened its first COVID-19 Vaccination Super Station at Petco Park on January 11, 2021, in partnership with the University California San Diego Health to expand vaccinations through the County. Years of planning and collaboration prior to the pandemic has allowed the SDHDC to cultivate a strong relationship among its members and other response partners that were vital to the COVID-19 response.

CALL TO ACTION

The populations whose health was impacted by the numerous PHPR MOC responses exposed longstanding inequities that have systematically undermined the physical, social, and economic well-being of ethnic minority populations and other population groups which faced a disproportionate burden of COVID-19, shigellosis, and mpox outbreaks. Federal, state, healthcare systems, HHCs, and local health officials must maintain an understanding of key policy issues so that they are poised to protect these populations before, during, and after public health emergencies.

Federal Agencies, State and Local Public Health Departments, and HealthCare Coalitions

- Enhance federal agencies' analysis, collection, and sharing of response data to support equitable response and recovery efforts.
- Accelerate equitable access to vaccines, diagnostics, and therapeutics in future public health responses.
- Promote effective emergency preparedness planning, response, and recovery in tribal communities, including consideration of the unique cultural and traditional needs of those communities.

- Develop emergency preparedness plans centering on health equity practice per the County of San Diego's Ten Essential Public Health Services. Specifically, focusing on addressing the diverse needs of our communities, including the disabled, the elderly, and minority populations.
- Expand these efforts to other vulnerable groups, such as those living in LTCs and SNFs.
- Announce future partnership opportunities within clinics, hospitals, and other facility types (networking within regions)

- Equitable distribution of resources, managing, and tracking limited resources by partnering with neighboring healthcare entities (pull and leverage resources to underserved populations).
- Augment data collection systems.
- Formation of Regionalization Workgroups (e.g., County of San Diego Healthcare Disaster Coalition Regionalization Workgroup) with objectives to develop plans that strengthens relationships through the sharing of ideas and resources, also assure that similar issues within regions or entities are addressed to find solutions to common problems.
- Enhancement of HCC's regional plans to provide general guidance for preparation, response, and recovery to all-hazards events that threaten the healthcare system.
- Collaborate with Centers for Medicare and Medicaid Services (CMS) 17 provider types and over 2000 provider entities within County of San Diego to help facilities adequately plan for both natural and man-made disasters per requirements noted within the Emergency Preparedness Act.
- Strengthen public health workforce and address diversity within that workforce.
- Embed an Equity Officer and related best practices in the Medical Operation Center – ICS emergency response structure.

Healthcare System

Additionally, PHPR is positioned to enable health care providers and facilities to serve their communities with a health equity lens:
- Maintain regional workgroups to share best practices and resources.
- Ensure regional workgroups have good working knowledge in the basis of health equity and are able to discern where health disparities lie in their catchment areas.
- Support healthcare coalition initiatives that specifically aim to benefit vulnerable populations, including social and pre-hospital/pre-medical care needs, through staff support and facilitating movement of resources within a region.

CONCLUSION

Health equity is when everyone has the opportunity to be as healthy as possible. These opportunities include equitable access to and distribution of resources during all phases of a public health emergency response. When policies, programs, and systems that support health are equitable, poor health outcomes can be significantly reduced, health disparities can be prevented, and the whole of society benefits. Emergency preparedness plans must ensure health equity is included in the planning, response, and recovery decision making phases. It is imperative that local public health departments be prepared and ensure a rapid response that reduces, rather than exacerbates, social and health inequities.

The MOC continues to commit to be at the forefront in responding to County of San Diego public health emergency events. Public Health Preparedness and Response strives to provide much-needed resources through an equitable lens, as well as equitably expand programs for testing, tracing, treatment, isolation/quarantine options, healthcare, and recovery, as evidenced in the past three MOC activations for COVID-19, Shigellosis, and mpox.

REFERENCES

1. Health and Human Services Agency, Public Health Services Strategic Plan FY 2023-2024 and 2024-25. https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/documents/PHS%20Strat%20Plan%2023-24%20and%2024-25.pdf.

2. United States Government Accountability Office. Public Health Preparedness: COVID-19 Medical Surge Experiences and Related HHS Efforts. https://www.gao.gov/products/gao-22-105461. August 17, 2022.

3. Federal Emergency Management Agency. National Preparedness Goal. https://www.fema.gov/emergency-managers/national-preparedness/goal. Retrieved on January 13, 2023.

4. U.S. Census Bureau; 2017-2021 American Community Survey 5-Year Estimates. Tables B01001, S1810, B27001, B17024, DP04, S2801.

5. Health and Human Services Agency, County of San Diego, COVID-19 Cases, Hospitalizations, and Deaths by Demographics. (sandiegocounty.gov). Retrieved May 2023.

6. Health and Human Services Agency, County of San Diego, COVID-19 Vaccination Plan (sandiegocounty.gov). December 8, 2020.

7. Federal Emergency Management Agency. Emergency Management: Equity. https://www.fema.gov/emergency-managers/national-preparedness/equity. Retrieved on September 11, 2023.