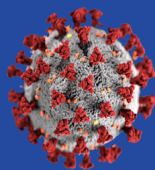# Chapter 17
Resource Requesting and the Public Health Ordering System (PHOS)

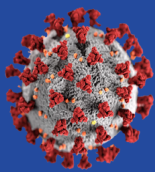# Version History

Version #	Date	Notes
0.1	5/10/2023	First Draft submitted to CPR team for review
0.2	5/26/2023	Final Draft submitted incorporating CPR team edits
0.3	7/6/2023	Final Draft submitted incorporating CPR leadership edits
0.4	8/2/2023	Final Draft submitted incorporating CPR leadership edits
1.0	5/1/2024	Final revised per CDPH Directorate review
1.1	3/12/2025	Final rebranded

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17. Resource Requesting and the Public Health Ordering System

Related Public Health Emergency Preparedness and Response Capabilities: Medical Material Management and Distribution

Related CDPH AAR chapters: MAC Group and Scarce Resource Allocation; Logistics, Distribution, and Warehousing; Operational Organization.

In this chapter, some abbreviations may be used interchangeably with their respective full spellings for ease of reading.
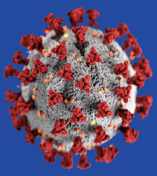
Chapter Summary

Overview

This section provides a high-level overview of milestones and activities related to this chapter.

CDPH maintains a formalized resource requesting process for California entities or jurisdictions who need State assistance in obtaining medical and health resources, such as personal protective equipment (PPE), durable medical equipment, staffing resources, or other supplies. The process, as outlined in California's Standardized Emergency Management System (SEMS), requires that field-level entities (e.g., hospitals and other facilities) follow a chain of approval in order for costs to be eligible for reimbursement. The process also ensures that, in accordance with mutual aid principles, local resources are exhausted first before requests are submitted to the State. SEMS consists of five organizational levels to make a request. At each level of the chain (e.g., county level, regional level), attempts are made to locate resources; if they cannot be located, the request is forwarded to the next level until it reaches the State.

Once public health and medical resource requests make it to the State level, they are addressed by the Operations Team in CDPH's Medical and Health Coordination Center (MHCC), who process them for fulfillment. In past emergency responses, the team received 20-30 resource requests over an activation period that lasted several weeks. However, in March 2020, amidst the acceleration of the COVID-19 pandemic and the global shortage of PPE, the MHCC quickly became inundated with resource requests and it became clear that the volumes would soon overwhelm its manual, paper-based process.

When the State determined that certain resources were so scarce that it could impact lives, these requests were diverted to the MAC Group, which is described in a separate chapter in this AAR.

The California Governor's Office of Emergency Services (Cal OES) provided staff to help process the requests, as well as a contracted software development team who rapidly built a new technology system to manage and track the requests. The new Public Health Ordering System (PHOS), which was implemented in early April 2020, helped streamline processes, improved data reporting, and freed up State resources to work on other critical COVID-19 response activities. This system was an unequivocal success and enabled CDPH and its partners to successfully process the large volume of requests.

The MHCC Operations Team faced many new challenges associated with resource requesting during the pandemic. As a result of the "whole of government" response, many new response partners and stakeholders became involved, not all of whom were familiar with SEMS or the existence of an established resource requesting process. This sometimes resulted in bypassing or circumventing of the established chain, which led to frustration, confusion, and miscommunication. It also exposed the process to external pressures. Additionally, with the proliferation of new response teams and task forces, and the scarcity of resources, the MHCC found itself with little decision-making authority on how to fill requests. Many resources, such as test kits, were controlled by these response teams and task forces, and the MHCC had to wait for approvals and decisions from them before processing requests for fulfillment.

Despite these challenges, the MHCC team forged strong relationships with its local, county, and regional partners to successfully process an unprecedented volume of requests. During peak months (January and February 2022), the team received over 5,000 unique orders per month. Ultimately, from 2020 through 2022, CDPH and its partners filled over 1.9 billion individual units, including surgical masks, gloves, therapeutics, ventilators, staffing, and test kits. **Figure 1** depicts the total number of unique orders submitted from March 2020 through June 2023.

Figure 1 – Total Number of Orders Submitted, March 2020 – June 2023
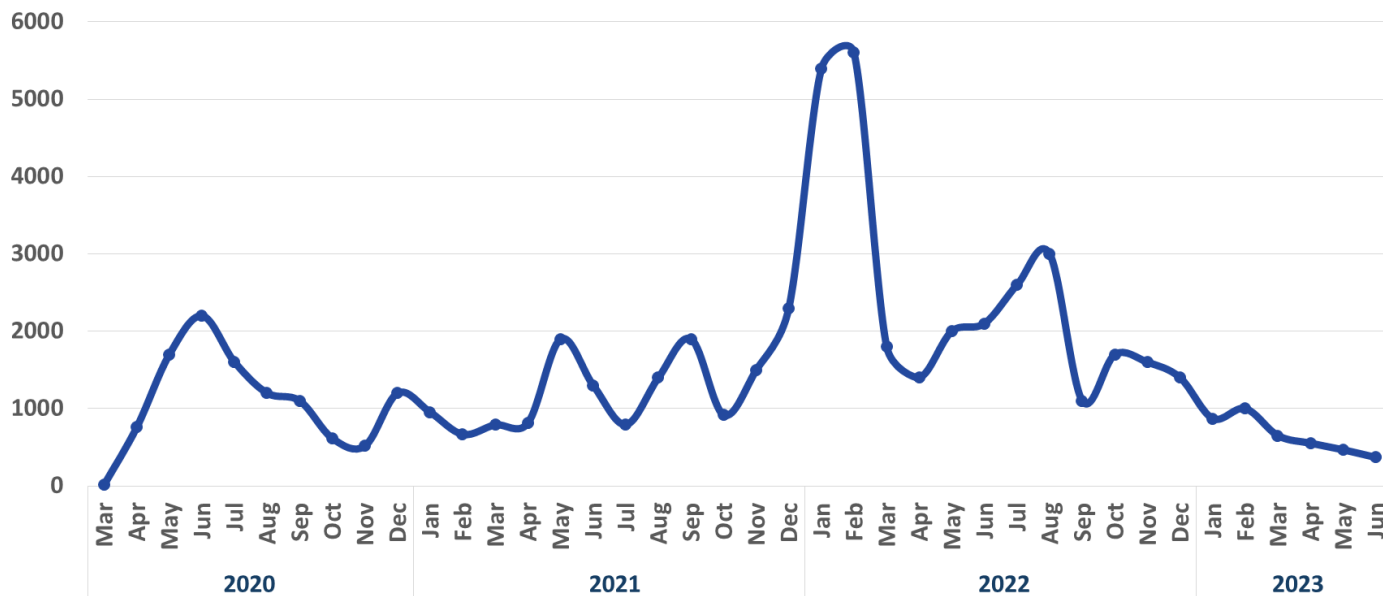
Main Strengths and Successes

This section describes the Main Strengths and Successes, including findings and corrective actions, related to this chapter. Further elaboration and a more detailed discussion of these strengths and successes can be found in the Analysis of Activities section.

1. **The State quickly implemented a new technology solution to manage resource requests. This improved data reporting, increased efficiency, and helped process the large volumes of requests.**

   In early spring 2020, increasing numbers of resource requests threatened to overwhelm existing manual processes and create bottlenecks and delays. In response, CDPH worked with Cal OES and other response partners to rapidly implement the Public Health Ordering System. The development team worked with the MHCC Operations Team to engage the MHOACs and RDMHSs in the development process, creating buy-in and a valuable feedback loop with these partners. The teams also collaborated intensively with the other State partners on-site at the State Operations Center (SOC), with the in-person environment facilitating fast decision-making and decisive action. The first iteration of the system was released after just three days and continued to be improved with daily releases. Ultimately, PHOS offered improved data accuracy and reporting, flexible integrations, and increased efficiencies, which freed up staff to work on other urgent response activities. State staff and local partners agreed that the implementation of the system was an unequivocal success that enabled it to effectively respond to the large volume of resource requests associated with COVID-19. Lastly, the ability to collect and report on granular data prompted State leadership and stakeholders to ask CDPH for information that it had historically not been asked to track, such as what facilities or congressional districts resources had been sent to. In the past, CDPH had not needed to capture this information since it would distribute resources to LHJs. However, faced with the need to report on where PPE and other resources were being sent, CDPH worked with the development team to build this functionality into the system.

Finding/Corrective Action: For future responses, the State should use the Public Health Ordering system (or its equivalent) to facilitate the resource requesting process. (*ID: Resource Requesting – 1*)

Finding/Corrective Action: For future responses, the State should plan for the need to report on where resources are being sent and make sure this functionality is maintained. (*ID: Resource Requesting – 2*)

See the related finding *MAC Group – 2* in the MAC Group and Scarce Resource Allocation chapter in this AAR.

2. CDPH's resource requesting team processed unprecedented numbers of requests, fostered a strong relationship with local and regional partners, and helped the State provide almost 2 billion individual resources throughout the COVID-19 pandemic.

Despite many challenges, the MHCC Operations Team expanded and successfully processed unprecedented volumes of resource requests during the COVID-19 pandemic. The enlarged team set up new, efficient workflows and structures, including triaging requests and assigning analysts to specific regions to expedite requests. From 2020 through 2022, the team processed almost 56,000 unique orders, which consisted of over 131,000 total line items. Ultimately, during this time period the team and its partners filled over 1.9 billion individual units, including surgical masks, gloves, therapeutics, ventilators, staffing, and test kits. The team developed independence, efficient processing cadences, and a strong sense of teamwork, which helped it navigate obstacles. The team also strengthened its relationship with its local and regional partners as it worked to meet their needs and fill their requests.

Finding/Corrective Action: CDPH's MHCC Operations Team should strive to maintain its structure and its local relationships for future pandemic responses. (*ID: Resource Requesting – 3*)

Main Challenges and Lessons Learned

This section describes the Main Challenges and Lessons Learned, including findings and corrective actions, related to this chapter. Further elaboration and a more detailed discussion of these challenges and lessons learned can be found in the Analysis of Activities section.

3. **The MHCC depended heavily on task forces and programs to make decisions, even for resources that were not scarce. This sometimes created delays that frustrated stakeholders.**

   While CDPH's MHCC Operations Team handled public health and medical resource requests, due to the unprecedented size and complexity of the response, it often had to wait for other groups to make decisions, even for resources that were not scarce. Unlike in previous activations, when there were just a few commodities that were controlled by the MHCC, during the COVID-19 response, different task forces, departments, and programs needed to contribute to the decision making for different resource types. Consequently, the MHCC team, as the central team responsible for receiving and processing the request, depended heavily on the task forces and other programs for pre-approvals or determinations about how to fill requests. Staffing requests were always sent outside of the Operations Team, either to the MAC Group, the contact tracing team, healthcare surge, vaccination, or other teams. Concern over public and media perception delayed further decision-making on some resource requests, and some staff were reluctant to make controversial decisions. MHOACs and RDMHSs were frustrated by the delays. In the future, the team identified a need for a better understanding and clarification of authorities among response partners, and the assignment of a designated representative with delegated authority to the team to assist with decision-making.

   Finding/Corrective Action: In situations where public health and medical resources are controlled by multiple entities, the State should clarify and articulate decision-making authorities to avoid delays. *(ID: Resource Requesting – 4)*

   Finding/Corrective Action: CDPH should consider designating a representative with appropriate delegated authority to assist the MHCC in filling resource requests. *(ID: Resource Requesting – 5)*
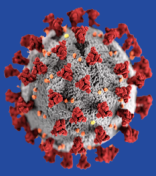
4. **The relocation of the MHCC Operations Team and CDPH leadership contributed to miscommunication regarding resource availability and timing which frustrated local and regional partners.**

Very early in the response, CDPH activated the MHCC at its traditional locations. However, in March 2020 Cal OES requested that the MHCC physically relocate to the SOC, which was functioning as the central hub of the California's COVID-19 response. Once the MHCC Operations Team moved to the SOC, it was disconnected from regular contact with CDPH leadership, who were pulled into other COVID-19 response activities. The fact that CDPH leadership was on-site at the SOC greatly helped the development of the new resource requesting technology solution. However, without access to its leadership, the MHCC Operations Team turned more often to Cal OES management, as they became involved in the team's daily work. Ultimately, the separation from CDPH leadership led to miscommunications regarding resource availability and timing, as leadership would occasionally announce availability of resources that were in fact not immediately available. The MHCC Operations Team would then have to manage the high expectations for resource availability status, which frustrated MHOACs and RDMHSs. If the team had been more connected to the CDPH leadership, miscommunications could have been avoided and resolved sooner.

Finding/Corrective Action: In future responses, the MHCC should not be relocated; in the event this does occur, CDPH should have plans in place to maintain frequent communication between MHCC teams and leadership. *(ID: Resource Requesting – 6)*

For further discussion see the Operational Organization chapter in this AAR.

5. **Non-traditional response partners involved in the resource requesting process created new requesting channels and increased external influence.**

In past responses, the MHCC dealt primarily with LHJs. However the "whole-of-government" response required by the COVID-19 pandemic introduced many new partners to the response, including other departments, multiple task forces, and other programs. The MHCC had to change its operating models to accommodate requests from new

partners, many of whom were unaware of SEMS and existing resource requesting protocols, which led to confusion and miscommunication. When new official and unofficial channels emerged to request resources, the MHCC, MHOACs, and RDMHSs were sometimes bypassed and lacked visibility into incoming requests. As a result, the MHCC devoted considerable time to deconflicting requests and working to align all partners. Sometimes, the MHCC Operations Team would be directed to elevate certain requests above others in response to inquiries and pressure from elected officials and outside stakeholders. This led to the perception that some counties "skipped the line" and bypassed the SEMS process when making resource requests.

Finding/Corrective Action: CDPH should offer education and training to non-traditional response partners on SEMS and resource requesting. *(ID: Resource Requesting – 7)*

Finding/Corrective Action: CDPH should establish procedures to promote equity regarding non-scarce resource requests. *(ID: Resource Requesting – 8)*

See the related finding *MAC Group – 5* in the MAC Group and Scarce Resource Allocation chapter in this AAR.

Finding/Corrective Action: CDPH should consider requiring all response partners, including non-traditional ones, to use PHOS. *(ID: Resource Requesting – 9)*

6. CDPH lacked documented triggers and thresholds to identify when resources qualified as scarce and would need to be adjudicated.
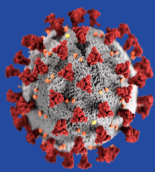
In general, the MHCC Operations Team monitored resource inventory levels and alerted leadership when resources were running low. However, there were no established thresholds or metrics that helped delineate when a resource became scarce enough to be adjudicated by a MAC Group. Identifying when a resource became scarce was an informal process, and the line between scarce and non-scarce resources was sometimes blurry and in flux. Subsequently, the team relied on their institutional knowledge and frequent communications with partners to know when a request needed to be sent for adjudication.

<u>Finding/Corrective Action</u>: CDPH and its response partners should establish thresholds and metrics to differentiate between scarce and non-scarce resources. *(ID: Resource Requesting – 10)*

Analysis of Activities

This section elaborates and provides more detail on the findings, corrective actions, and lessons learned that are presented in the Main Strengths and Successes and the Main Challenges and Lessons Learned sections.

Typical Resource Requesting Process Quickly Overwhelmed by Volume of Requests Associated with COVID-19

- CDPH maintains a defined, standardized resource requesting process for California entities or jurisdictions who need State assistance in obtaining medical and health resources, which can include PPE, testing supplies, durable medical equipment, and staffing. Medical and health resources requests submitted to the State are managed by CDPH's MHCC Operations Section, and they can be submitted at any time (e.g., they are not limited to times of emergency). The MHCC Operations section is responsible for reviewing resource requests, assigning them to the appropriate department depending on resource type (e.g., CDPH or EMSA), approving and denying resources, and sending approved requests to CDPH's warehousing and logistics distribution teams for fulfillment. While CDPH and EMSA historically handle all public health and medical resource requests, Cal OES also maintains its own law enforcement mutual aid system through which local authorities can request assistance and resources (e.g., fire engines, fire engine strike teams, helicopters, flood teams, etc.).

- During emergencies, resource requesting follows a specific process as defined by the Standardized Emergency Management System. SEMS consists of five consecutive organizational levels (Field, Local, Operational Area, Region, State), and it unifies all elements of California's emergency management community into a single integrated system. State agencies are required to utilize SEMS, while local government entities must utilize SEMS in order to be eligible for reimbursement of response-related costs under the state's disaster assistance programs.

- In accordance with this process, which is depicted in **Figure 2**, the field-level facilities first contact their local authorities to request medical and health resources they are unable to obtain. The local authorities validate this request and attempt to fill it within their locality; if they cannot, they send the request to the next level. The MHOAC is responsible for reviewing and validating all requests within their jurisdiction, and will then attempt to locate the requested resource within their Operational Area (OA), which is usually the county level. If the resource is not available within their OA, the
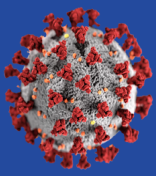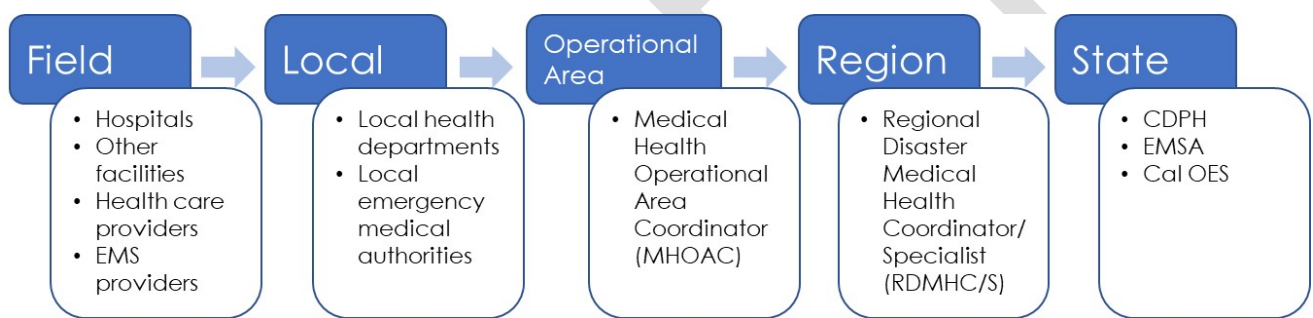
MHOAC will send the resource request to the applicable RDMHS, which represents the regional level. SEMs stipulates that field-level providers should not contact the RDMHS directly for resource requests, as these need to be vetted by the applicable MHOAC Program first, as it may be available within the operational area. Finally, the RDMHS will attempt to locate the requested resource from other operational areas within their mutual aid region. If the resource is not available, the RDMHS will escalate the resource request to the State for fulfillment, and the State will attempt to locate the resource.

Figure 2 – SEMS Resource Requesting Process

Field	Local	Operational Area	Region	State
• Hospitals • Other facilities • Health care providers • EMS providers	• Local health departments • Local emergency medical authorities	• Medical Health Operational Area Coordinator (MHOAC)	• Regional Disaster Medical Health Coordinator/ Specialist (RDMHC/S)	• CDPH • EMSA • Cal OES

- Prior to the COVID-19 pandemic, resource requesting was a manual, paper-based process that relied on emails, excel spreadsheets, and Google Sheets. This manual system had worked smoothly given that during previous emergencies the volume of requests had been relatively low. For instance, during prior emergencies, the MHCC Operations Team had processed approximately 30 resource requests over a period of several weeks. However, in early March 2020, it quickly became clear that the volume of resource requests would soon overwhelm the existing manual process and that new solutions would be required. While traditionally public health and medical requests had come up through CDPH's channels, during the COVID-19 pandemic, local authorities also began using Cal OES's law enforcement mutual aid system to resource public health and medical resources. Cal OES began receiving requests for resources traditionally handled by CDPH, which required both departments to establish processes to continually de-conflict and align requests.

- CDPH initially attempted to handle and process the incoming public health and medical resource requests alone. However, according to one SME, CDPH was challenged in "trying to meet a demand that was way bigger than our capacity." According to SMEs, in hindsight, CDPH should

have asked for resource requesting assistance at the beginning of the pandemic. To address this Cal OES proactively requested that the California Department of Forestry and Fire Protection (CAL FIRE) provide consultation and best practices to CDPH and EMSA on resource requesting and inventory management.

▪ Cal OES then assigned three staff to the team to help process requests. Additionally, Cal OES used its existing technology contractors to create a new system to expedite the resource requesting process. This contractor team worked with the Operations Team to automate its processes, and built the initial version of the Public Health Ordering System in just three days. For more information on PHOS, see this chapter's Data and Technology section later in this chapter.

▪ With the new system in place and an expanded team, the MHCC Operations Team focused on processing requests as quickly as possible. In early 2020, most of these requests were for PPE, which was extremely limited due to the worldwide global shortage. When the State began receiving more requests for PPE than it was able to supply, it activated the Multi-Agency Coordination (MAC) Group, a structure designed to equitably allocate scarce resources. The MHCC Operations Team passed along requests for scarce resources to the MAC Group team, who would adjudicate and allocate resources based on an objective scoring criteria. Over the course of the pandemic, different resource types (from PPE to staffing to test kits) cycled in and out of scarcity depending on certain variables, such as existing supply, manufacturing capabilities, and demand. For instance, early in the pandemic PPE was scarce, but once manufacturers' production caught up to demand, this resource was no longer adjudicated by the MAC Group. For more information, see the MAC Group and Scarce Resource Allocation chapter in this AAR.

▪ The MHCC Operations Team soon established a processing cadence. The team was generally busier during surges, especially when those surges coincided with a lack of available resources—for instance, the Winter Surge of late 2021 and early 2022, when test kits were in short supply. At its largest, there were 12 people processing resource requests. These included a MHCC Operations Section Coordinator, a MHCC Deputy Section Coordinator, a MHCC State Resource Group Coordinator, two Cal OES analysts, one CDPH analyst focused on requests from other State agencies, and six CDPH analysts. Each analyst was assigned to one California region, which was a new staffing arrangement that helped accommodate the volume of requests. Having analysts assigned to
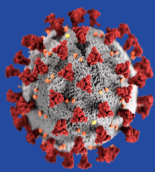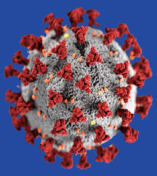
specific regions enabled them to build relationships with the LHJs, who often called to check on their order status.

▪ Additionally, the MHCC established a new triage system that was overseen by the State Resource Group Supervisor. This position was responsible for receiving, sorting, analyzing, and tracking the requests, which included triaging them by resource type and urgency. For instance, if one of the requests was acute, it would be processed right away instead of being assigned to an analyst. If it was healthcare staffing-related, it would be triaged and sent a CDPH Center for Health Care Quality (CHCQ) analyst, who was responsible for assessing what staffing deployment team the request should be forwarded to. Since staffing was a unique and complex resource, it would not simply be processed for fulfillment, but required additional validation by the respective program or task force overseeing the type of staff requested.

▪ The MHCC Operations Team was responsible for monitoring inventory levels and alerting leadership when resource types were running low and needed to be sent to a MAC Group for adjudication. When the team noticed that a resource type was low, they would email CDPH leadership. The team also relied on a liaison who participated in the Logistics and Commodities Task Force (by Cal OES) and communicated to this Task Force when certain resources were dwindling and inquire into the status of any expected shipments.

▪ However, the line between a resource being scarce and abundant was blurry, and sometimes a resource type would fluctuate in and out of scarcity. There was no established threshold or metric that triggered when a resource became scarce enough that it needed to be adjudicated by a MAC Group. "We just knew what was scarce and not scarce," a team member noted.

▪ Once the MHCC Operations Team had processed a request, the request was sent to CDPH's warehouse team for fulfillment (or directed to EMSA for EMSA-provided resources). While typically CDPH's warehouse would ship resources and supplies to the counties, who would in turn provide them to entities within their jurisdictions, in mid-2020 CDPH began shipping directly to hospitals and health care facilities in order to help overburdened LHJs. LHJS could not keep up with the need to supply so many entities in their jurisdictions, so the State stepped in to help. These increased shipping needs overwhelmed CDPH's existing logistics and distribution warehouses, and prompted CDPH to contract with external shipping partners to help. For more information on this topic, see the Logistics, Distribution, and Warehousing Chapter in this AAR.

Different Resources were Managed by Different Groups, whom CDPH Relied on for Decisions and Approvals

▪ Typically, the MHCC Operations Team processes all public health and medical resource requests, with the exception of scarce public health and medical resources which are adjudicated by a MAC Group. In typical responses, the MHCC works primarily with LHJs, MHOACs, and RDMHSs. However, the size and complexity of the COVID-19 pandemic introduced many new and non-traditional partners into the response, including various task forces, schools, community-based organizations, and departments such as the Department of Social Services, which CDPH worked with regarding assisted living facilities. In order to work effectively with these new response partners, the MHCC made adjustments to its operating models. When it came to resource requesting, it now needed to seek input from various other entities, response partners, and task forces prior to fulfilling a resource request. This placed the MHCC team in a challenging position during the pandemic.

▪ Instead of the MHCC controlling all resources and commodities, distinct response teams managed different resource types. Typically, the Operations Team would either need to obtain pre-approvals to fill requests, seek individual approval from the team who controlled the resource type, or send the request to a MAC Group. For instance, the Testing Task Force (TTF) managed test kit supplies even when inventory was abundant. The TTF would usually allocate test kits by county and direct the MHCC Operations Team to fill requests as they came in according to the pre-determined allocations. However, if a county sent in a request that was over their allocation, the team would need to forward the request to the TTF for approval.

▪ Similar scenarios unfolded regarding surgical masks and gloves, which were managed by the Logistics and Commodities Task Force. Requests for staffing were always adjudicated outside of the MHCC Operations Team, and were sent either to the MAC Group or the contact tracing team. Eventually, the State had enough PPE and the MHCC Operations Team could simply fill requests as they were received. However, for almost every other resource type, "we needed an allocation from the approving body, or we needed a point of contact to send the request to," one SME noted. (Note: Vaccines were allocated and distributed through a separate process and not through the resource requesting system. For more information, see the Vaccines chapter in this AAR.)

▪ Without allocation and distribution authority, the team spent considerable time waiting for other groups to make decisions. At certain times during

the pandemic that were especially intense, large or high-profile resource decisions were vetted with executive leadership. Especially during surges or times of resource scarcity when public and media scrutiny peaked, "Everything had to come from higher up, and it made people frustrated with us," one SME noted.

▪ For addition discussion of the MHCC, see the Operational Organization chapter in this AAR.

Local Agencies Requested Resources through Newly Formed Official and Unofficial Channels

▪ As the COVID-19 response expanded in 2020 to include staff and contractors from multiple State departments, programs, and agencies, it became clear that many involved were not familiar with SEMS or the standard resource requesting process. Traditionally, only those working within emergency management functions knew the process and its intricacies well due to either training and/or experience in prior disasters. As a result, numerous back channels formed to make resource requests. CDPH created and shared many educational materials with public health and medical response partners to inform them of the MHOAC/RDMHS process. Many partners had to learn who their MHOAC was and how to submit a resource request appropriately.

▪ Facilities scrambling to locate resources began reaching out directly to their respective governing programs and centers, bypassing their MHOACs and RDMHSs. For instance, a hospital unfamiliar with SEMS would contact their CHCQ district office or their local EMSA representative, who would offer to help. In such cases, if the MHCC Operations Team was made aware of the request, it would follow up with the facility's respective region to confirm the request and route it through the proper channels.

▪ However, during medical surges and outbreaks, the State established additional resource requesting channels that allowed distressed facilities to get help more quickly. The best example of this was CDPH's Outbreak Response Team (ORT), an independent, multi-disciplinary team that could rapidly deploy resources to facilities in crisis without having to go through the SEMS approval chain. The ORT had its own Google intake form that facilities could use to request resources, which included mobile testing and vaccination services. Schools and local health departments (LHDs) could request these resources via two channels, either through the ORT Google form or through the MHCC's Public Health Ordering System.

- The MHCC Operations Team was generally "out of the loop" when it came to the outbreak response teams, according to SMEs. The MHCC received calls from confused RDMHSs who had heard that CDPH resources were being deployed to its county, but since this request had not come through the MHCC, the team would be unaware of it. Such situations were in many ways inevitable. CDPH intentionally maintained a "no wrong door policy," as described by one SME—e.g., it would not turn away requests for help that arrive via non-traditional routes. Especially during surges or busier periods of the response, CDPH focused on providing State resources as quickly as possible, however the request came in.

- For those requests it was aware of, the MHCC operations would try to follow up, reconcile, and ensure they were reflected in PHOS. According to MHCC team members, while they spent considerable time trying to identify whether an ORT request had been filled or not, requests (especially for staffing resources) were rarely filled twice. Still, there is a need for greater training and education on SEMS for all response partners, to minimize confusion and duplication. Plans are currently underway for CDPH's Center for Preparedness and Response (CPR) (formerly the Emergency Preparedness Office [EPO]) to develop and provide training to the rest of CDPH on these topics. Additionally, requiring all response partners to use PHOS for resource requesting would help ensure a single "source of truth."

- For a discussion of resource requesting from a medical surge perspective, see the Medical Surge chapter in this AAR.

- For discussion of the MHOAC and RDMHS perspective on resource requesting, see the MHOAC and RDMHS chapter in this AAR.

- For further discussion of outbreak response teams, see the Epidemiology and Surveillance chapter in this AAR.

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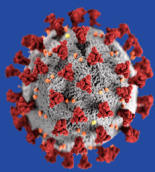
Equity

This section describes equity considerations specific to this chapter.

- CDPH went to great lengths to make sure all local jurisdictions could equitably request and receive resources. When resources become scarce and diverted to the MAC Group for adjudication, equity was embedded in the objective standardized scoring criteria. However, it was not explicitly embedded in the non-scarce resource requesting process, which left this process vulnerable to outside influences.

- However, during surges and other pressurized moments during the pandemic, some local entities attempted to get their requests filled sooner. Local and county representatives would call elected officials, who in turn would reach out to Task Force leadership, CDPH leadership, and CDPH's legislative affairs office to inquire into the status of their requests, criticize delays, and request additional or expedited resources.

- This vulnerability of the resource requesting process to external pressures was due in part to the involvement of non-traditional partners in the response, who were unaware of the standard SEMS processes and procedures. While MHOACs, RDMHSs, and other responses partners well-versed in emergency management followed the process and waited their turn, others did not. "There were many people involved who didn't know the SEMS process, thought it didn't work, and then decided they could do whatever they wanted," one team member noted. SMEs agreed that one of the biggest lessons learned was educating all response partners at all levels and departments on the SEMS process, including providing refresher training and reminders of the different roles of local, regional, and State partners.

Data and Technology

This section describes data and technology specific to this chapter.

Large Volume of Resource Requests Prompted the Rapid Implementation of a New Technology System

- In early 2020, as the pandemic accelerated, CDPH quickly became overwhelmed with resource requests from regional and local jurisdictions. During this early period, most requests were for PPE, which was extremely limited due to a global shortage. Beginning in January 2020, MHCC operations staff followed their usual resource requesting process, which was manual and relied on Excel, PDFs, and emails. For prior emergency activations, this process had sufficed, since during activations the team had typically received 20-40 resources request orders over a 2-4 week activation period.

- However, the team quickly became inundated with requests. In February 2020, the team received just 15 requests; this number jumped to approximately 500 in March 2020, and climbed to 1,700 in April 2020. These volumes were incompatible with the existing manual processes, and soon led to bottlenecks and delays. In addition to processing delays, the team also struggled to accurately track resources requests and to respond to status inquiries from State leadership in a timely manner. According to one SME, "the amount of requests coming in just broke the process." This team also coordinated requests between the CDPH and OES warehouses, which was unprecedented. For further discussion, including inventory management challenges, see the Logistics, Distribution, and Warehousing chapter in this AAR.

- As a temporary solution, the team received authorization to use Google Sheets to help track requests. At the end of March 2020, Cal OES offered to build a new technology solution to replace the manual resource requesting process. Cal OES already had an existing software solution and IT developers in place, and was quickly able to redirect the development team to begin work on the new cloud-based Public Health Ordering System (PHOS). The development team began shadowing the MHCC Operations Team to learn their processes and workflows, and identify opportunities to reduce manual steps. After only three days of development and configuration, the team released the internal application of PHOS on April 1, 2020. This first minimum viable product was followed by daily releases and iterations that offered expanded functionality, and within three weeks the external application was made

available for local and regional jurisdictions. The environment during which the PHOS system was developed was very unique and fast-paced.

- This rapid implementation of PHOS was due in large part to extensive, intense collaboration across departments and agencies. The Cal OES development team coordinated with the Department of General Services (DGS), CDPH MHCC teams, California Department of Technology (CDT) teams, and other state stakeholders. During the intense early weeks of the system's development, these groups were all located on site at the SOC, which enabled a rapid, continuous feedback loop between the development team and the system's future users. Team members agreed that one of the key reasons for the system's success was having everybody on-site at the SOC. With the right people in the right places, decisions could be made and implemented quickly. "There's no way it would have been as successful if we didn't have everybody in person," one SME commented.

- The State also collaborated with the RDMHS and MHOAC programs during development of PHOS. To obtain input and buy-in from the MHOACs and RDMHSs CDPH conducted virtual meetings with them to communicate the vision of the system and obtain their feedback. The needs of these local and regional users were kept at the forefront as new iterations were released, with the development team making sure that the SEMS approval processes were configured into PHOS. PHOS was also customized in response to local needs. Traditionally, MHOACs originate resource requests on behalf of the facilities in their operational area. However, some MHOACs wanted to give individual facilities (e.g., hospitals and fire departments) the ability to create resource requests themselves. Subsequently, the system was configured to allow facilities to log into the system and create a resource request for approval by the MHOACs.

- During the first few months following go-live, the development team worked continuously on PHOS, releasing daily updates. In the fall of 2020, with the system built, the pace of updates and iterations became less frenetic. Currently, PHOS remains in place for resource requesting. Cal OES maintains and funds the system. The MHCC team still uses Google Sheets as a shared working document to share notes, SKU numbers, and allocation information.

New Technology System Enabled Flexibility and Sophisticated Data Reporting
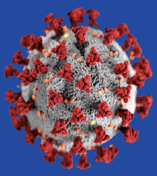
- In addition to helping CDPH and its partners process the volumes of resource requests more efficiently, PHOS also offered flexibility and integration capabilities with other systems. PHOS is integrated with myCAvax, California's vaccine management system, and Snowflake, CDPH's data warehouse. The system and its integrations helped the MHCC team to report on resource data with more ease, granularity, and accuracy. Previously, data reporting had been cumbersome and inaccurate, but following the implementation of PHOS, the system became an accurate "source of truth," in the words of one SME.

- CDPH and its partners reported resource requesting metrics daily to State leadership and response partners. For resource requesting, the key metrics were the number of resources requested and the number of requests filled, especially in early and mid-2020. "Everybody wanted to know where the PPE was going," one SME noted. Stakeholders and leadership were also interested in counts of key product categories; for instance, requests for PPE were broken down into more granular PPE types, such as surgical masks, exam gowns, and N-95 respirators. By standardizing these "product families" and aligning them with the categories used by CDPH and EMSA's warehouse, it was possible for State teams to track order fulfillment. The team also reported data to DGS, whose requests for information focused on the number of requests and product burn rates, which helped it determine when to purchase more supplies.

- PHOS also enabled more sophisticated data reporting of a request's history or "lineage," such as request origination, approval, and fulfillment metrics. CDPH and Cal OES teams soon began fielding more detailed, ad-hoc requests for data. According to one SME, "once everyone knew the amount of data you could collect from PHOS, they wanted more data." State leadership and Cal OES began asking for a variety of different datapoints and metrics, such as how much PPE had been sent to a certain county. But as time went on, leadership asked for increasingly granular information, for instance, how much PPE had been sent to a specific congressional district, health care facility type, or industry.

- Historically, CDPH had not needed to capture this information since it would distribute resources to LHJs. LHJs would further distribute it to the receiving facilities without reporting this information back to CDPH. However, faced with the need to report on where PPE and other resources were being sent, CDPH worked with the development team to build this functionality into the system. Once implemented, CDPH had to work with LHJs to obtain a historical accounting of where PPE had been sent. This was difficult to quantify since counties each had their own way

of recording information. Eventually, this historical accounting was accomplished, first in Excel and then in PHOS.

- Additional new requests and data requirements required the team to reconfigure PHOS, as well as update training materials. For reimbursement purposes, in the Fall 2020 FEMA began requiring that the State specify the facility type (e.g., long-term care facility, general acute care hospital, skill nursing facility, etc.). The development team created these fields to accommodate facility types. Additionally, the State began asking MHOACs and RDMHSs to populate these fields, which increased local and regional workloads. Some declined to do so, noting that populating these fields was not legally required.

- Over time, CDPH and Cal OES learned to navigate the incoming requests to configure PHOS to meet specific stakeholder needs. Some changes, such as those to support FEMA reimbursements, were made. Other changes that were unique to certain stakeholder groups or task forces were not implemented. The team learned to educate stakeholders on the system's primary purpose and push back on unreasonable requests to avoid creating an overly complex system.

- Ultimately, SMEs agreed that the implementation of PHOS was "a game changer" and "hands-down one of the biggest successes to come out of COVID." It helped streamline processes, improved data reporting, and freed up State resources to work on other critical COVID-19 response activities. Using PHOS, CDPH and its partners processed almost 56,000 unique orders, which consisted of over 131,000 total line items, from 2020 through 2022. During peak months (in January and February 2022), the team received over 5,000 unique orders per month. Ultimately, from 2020 through 2022, CDPH and its partners filled over 1.9 billion individual units, including surgical masks, gloves, therapeutics, ventilators, staffing, and test kits.

- For publicly available resource requesting data, see the Open Data Portal.

Communications

This section describes communications specific to this chapter.

Communications with MHOACs and RDMHSs

- CDPH's MHCC Operations Team communicated very closely with their local and regional partners regarding resource requesting. While the team already had established working relationships with MHOACs and RDMHSs, this relationship grew stronger during the COVID-19 pandemic response. When the MHCC would learn of resource requests that were coming in via unconventional channels, they would notify the regional entity and try to route the request back through the proper channels. As the State implemented the new Public Health Ordering System, CDPH deliberately sought out feedback and input from MHOACs and RDMHSs on the system design. "We got very close with our regional partners, and they knew we were trying to do right by them," one SME noted.

Communications within CDPH

- Early in the response, in early spring 2020, the MHCC Operations Team, other CDPH staff, and CDPH teams and leadership were physically relocated to the SOC at Cal OES. The SOC served as the central hub of the State's COVID-19 response. With many different departments and agencies physically represented at the SOC, the intent was to better coordinate the "whole of government" response that COVID-19 necessitated. However, being physically located at the SOC presented many challenges to the MHCC Operations Team as they carried out their resource requesting work.

- Working at the SOC, the MHCC Operations Team was separated from CDPH leadership, who were being pulled in many directions. Communication from CDPH leadership was infrequent. This was difficult for the team and resulted in the MHCC Operations Team relying more on Cal OES leadership and managers. With the MHCC Operations Team disconnected from its leadership, the team developed a close relationship with Cal OES, who better understood its day-to-day work.

- A consequence of the distance between the MHHC Operations Team and CDPH leadership was the frequent miscommunication about resource availability. "In general, we've constantly struggled with saying something is available before defining what that thing is," one SME noted. Leadership often announced that certain resources were available without consulting or alerting the MHCC Operations Team. The team

found itself scrambling to assess its inventory and identify and define the resources. It would often need to qualify the original high expectations set regarding resource status and availability, frustrating MHOACs and RDMHSs. If the team had been less separated from its leadership, miscommunications regarding the availability and timing of certain resources could have been avoided and resolved sooner.

- At the same time, the team acknowledged that CDPH leadership who were leading the COVID-19 response "couldn't be everywhere" and that the team developed independence, self-sufficiency, and a strong sense of teamwork. Once the team transitioned to remote work, it established regular virtual calls in addition to morning and afternoon check-ins. "We had really good communication and a mentality of looking out for each other, and we're really proud of that," one SME noted.
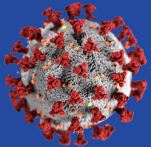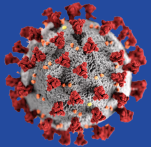
Workplan

This section is designed to be used as a workplan for future pandemics.

Definitions:

- **Phase**: The phase of the response in which the major tasks should be conducted (Planning; Initial start-up, Ongoing operations, or Close-out).

- **Major Tasks:** The tasks and activities that have to be conducted as part of the public health emergency response to a respiratory pandemic.

- **Success Criteria:** Criteria used to assess whether a task has been achieved successfully.

- **Considerations Based on COVID-19 Response:** Things to consider, including pitfalls, risks, and lessons learned, based on the COVID-19 response.

- **Finding ID:** The ID(s) from the related Finding/Corrective Action (where applicable).

- **Lead:** The lead person(s) responsible for task completion.

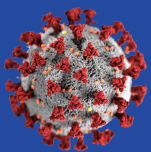| Phase	Major Tasks	Success Criteria	Considerations	Finding ID	Lead
Planning; Initial start-up; Ongoing operations	Expand and staff resource requesting team	• Resource requesting team can expand and contract to meet changing volumes • Team is enabled to make timely decisions	• Increase team staffing earlier rather than later • Clarify and articulate decision-making authorities to avoid delays • Consider designating a representative with delegated authority to assist the team	• Resource Requesting 3, 4, 6	

Phase	Major Tasks	Success Criteria	Considerations	Finding ID	Lead
Planning; Initial start-up; Ongoing operations	Maintain an agile technology system with the ability to ramp up quickly	• System can scale up and down to accommodate changing volumes • Data reporting is accurate and timely • System is flexible and can integrate with other tools	• Cal OES currently owns, operates, and maintains the Public Health Ordering System • CDPH, MHOACs, RDMHSs, and others are users of the system • Consider requiring all responses partners to use PHOS	• Resource Requesting 1, 2, 9, MAC Group 2	

Planning; Initial start-up; Ongoing operations	Offer training on SEMS and resource requesting to response partners	• All response partners have necessary understanding and respect for existing emergency management processes
		• Duplication, miscommunication, and confusion is mitigated
			• Note that different response partners have different training/education needs:
			  – CDPH programs and centers who do not regularly work with SEMS
			  – Local, county, and regional partners who do not regularly work with SEMS
			  – State leadership
			  – CDPH executive leadership and
				• Resource Requesting 7, MAC Group 5	

Phase	Major Tasks	Success Criteria	Considerations	Finding ID	Lead
			legislative affairs – Other State departments and agencies		
Planning; Initial start-up; Ongoing operations	Maintain close communications between MHCC and CDPH leadership	• Communications regarding resource availability and status is accurate	• Avoid relocating the MHCC to the SOC • Have a plan to ensure consistent communications between the MHCC and CDPH leadership team in the event that they are physically separated	• Resource Requesting 6	
Planning; Initial start-up	Implement thresholds and procedures to ensure equity	• Resources requests are filled equitably	• Institute a framework to ensure equity when filling non-scarce resource requests • Develop and implement formal triggers and thresholds to identify when a resource qualifies as scarce and needs to be adjudicated by a MAC Group	• Resource Requesting 8, 10	

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