



# **2022 Monkeypox Virus (mpox) AFTER ACTION REPORT**



A rendering of the monkeypox virus. Source: iStock/BlackJack3D

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## FOREWORD

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Per the Emergency Services Act, Article 9.5, Government Code Section 8607, subdivision (f), the California Governor's Office of Emergency Services (Cal OES), in cooperation with involved state and local agencies, shall complete an After Action Report (AAR) each gubernatorial-proclaimed disaster. This report shall provide a review of public safety response and disaster recovery activities and conclusions and recommendations based on the findings. Cal OES shall make the report available to all interested public safety and emergency management organizations.

An After Action Report serves the following essential functions:

- Provides a source for documenting response and early recovery activities
- Identifies successes and areas needing improvement during emergencies
- Analyzes the effectiveness of the different components of the Standardized Emergency Management System (SEMS)
- Describes and defines a plan of corrective action for implementing recommended improvements to existing emergency response efforts

Representatives of public safety or emergency management organizations can obtain a copy of this report by submitting a request to:

[SharedMail.CalAAR@CalOES.ca.gov](mailto:SharedMail.CalAAR@CalOES.ca.gov).

## EXECUTIVE SUMMARY

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This report highlights the state's response to the public health emergency related to California's Monkeypox virus (mpox). On May 20, 2022, a Massachusetts resident was the first confirmed case of mpox in the United States (U.S.). Immediately after, the California Department of Public Health (CDPH) began working with the Sacramento County Public Health and the Center for Disease Control and Prevention (CDC) to investigate its first suspected case of mpox infection in a California resident who had recently traveled abroad. On May 24, 2022, CDPH activated the Medical Health Coordination Center (MHCC) at level 3 (lowest) in response to the mpox public health emergency. On May 25, 2022, California reported the first confirmed positive case of mpox.

On July 18, 2022, the MHCC increased its activation to level 2 after a surge in mpox-positive cases in California. With California experiencing nearly 800 confirmed cases in 27 local health jurisdictions (LHJs), Governor Newsom declared a State of Emergency on August 1, 2022, to bolster the state's vaccination efforts and coordinate a whole community response to mpox. This declaration expanded vaccine delivery, outreach, and education on accessing vaccines and treatment.

The state leveraged local health departments, community-based organizations (CBOs), and other healthcare providers for its outreach and education efforts. The state facilitated webinars, listening sessions, ad campaigns, and town halls to help inform the community about the high risk of contracting mpox.

The state also expanded its testing capacity to process more than one thousand weekly tests. CDPH expanded its treatment options by providing access to medical countermeasures (MCM), such as JYNNEOS, ACAM2000, and the antiviral prescription drug Tecovirimat (TPOXX) to treat mpox across the state. However, limited doses were available at the time.

The State of Emergency for California terminated on January 31, 2023. The MHCC remained activated until March 31, 2023, to support the transition of mpox from response to CDPH's Sexually Transmitted Diseases (STD) Control Branch.

## **SUMMARY OF SUCCESSES**

- Effective coordination and communication occurred between CDPH, response partners, and stakeholders.
- The COVID-19 response had established a successful model for data surveillance, automated dashboards, and warehouse operations and was utilized for mpox response.
- CDPH was able to advance its testing and investigative capabilities across the state and expedite test results to support the local public health laboratories.
- In September 2022, the governor's office signed a special mpox emergency response funding appropriation to support state, local, and CBO response efforts.

## **SUMMARY OF AREAS NEEDING IMPROVEMENT**

- Transitioning from state and local inventory management and ordering systems to the federal ordering portal was complicated and not fully accomplished until a year after the public health emergency had ended.
- The extended nature of the COVID-19 response had depleted the depth of available staffing resources.
- Incident Command System (ICS) training and processes should be documented and saved as standard operating procedures for a more streamlined approach to future public health responses.

## DESCRIPTION OF EVENTS

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### **INCIDENT PERIOD**

May 24, 2022 – March 31, 2023

### **DECLARATIONS AND PROCLAMATIONS**

#### **LOCAL**

Los Angeles County	August 1, 2022
San Diego County	August 2, 2022
Sacramento County	August 9, 2022

#### **STATE**

State of Emergency	August 1, 2022
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### **STATISTICAL SUMMARY (REPORTED AS OF MARCH 26, 2023)**

Confirmed cases reported in California	5,754
Hospitalization	249
Fatalities	2

## INCIDENT BACKGROUND

On May 21, 2022, CDPH worked with Sacramento County Public Health and the CDC to investigate California's first suspected Monkeypox infection case. Monkeypox is a zoonotic viral illness caused by the monkeypox virus and can be transmitted to humans through physical contact with someone infectious, contaminated materials, or infected animals.

CDPH activated the MHCC on May 24, 2022, and confirmed their first Monkeypox infection case the next day. On July 23, 2022, the World Health Organization (WHO) determined that the multi-country outbreak of Monkeypox constituted a Public Health Emergency of International Concern. On August 4, 2022, the U.S. Department of Health and Human Services (HHS) declared the ongoing spread of the Monkeypox virus in the U.S. a public health emergency. The WHO later began using the new preferred term of "mpox" to replace "monkeypox" when referring to the disease; the CDC and CDPH aligned with this change in terminology.

On December 2, 2022, and as conditions improved, HHS released a statement saying it would not renew the public health emergency declaration upon its expiration on January 31, 2023. California subsequently terminated the State of Emergency on January 31, 2023, with 5,754 positive cases, 249 hospitalizations, and two fatalities as a result of the mpox virus.

### WHAT IS MPOX?

Mpox is a viral illness that has been circulating in California and the U.S. since Spring 2022. Though current risk to the general public is low, anyone can get mpox. It's good to be aware of signs and symptoms to keep you and others safe. The mpox vaccine is available and prevents infection and serious illness. Talk to your health care provider today.

#### HOW DOES IT SPREAD?

- TOUCHING**  
Skin-to-skin contact (hugging, kissing, sexual activity...) with someone who may or may not have active symptoms.
- SHARING ITEMS**  
Sharing items (clothing, bedding, towels) used by someone with mpox.
- CLOSE INTERACTION**  
Talking, coughing and breathing near someone for a long period of time - mainly when living or caring for someone with mpox.  
*In some cases, people can spread mpox even before they develop visible symptoms.*

#### WHAT ARE THE SYMPTOMS?

A rash that can look like pimples or blisters that appears on the face, inside the mouth, and on other parts of the body, like the hands, feet, chest, genitals, and anus. Other symptoms include fever, chills, muscle aches, headache, sore throat, stuffy nose and cough.

RESPIRATORY

FEVER & CHILLS

BODY ACHES

SWOLLEN LYMPH NODES

HEADACHE

EXHAUSTION

Mpox factsheet. Source: [Go.CDPH.ca.gov](https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/MPX/Factsheet.aspx)

## RESPONSE ACTIVITIES

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### OVERVIEW OF MHCC RESPONSE AND COORDINATION

MHCC was initially activated for mpox at level 3 on May 24, 2022, but as mpox cases surged and spread across California, the activation increased to level 2 on July 18, 2022. The increased activation level provided immediate access to the Strategic National Stockpile (SNS) to distribute vaccines and therapeutics. MHCC maintained overall monitoring and support of response priorities, including the implementation of disease control and prevention strategies to mitigate mpox spread in California; managing surveillance and tracking; following CDC and WHO/global investigations and evolving evidence and data for new and emerging information; sharing information with health care partners and high-risk communities; engaging communities at risk to inform the response; providing resources and support to minimize morbidity and mortality among cases and identified contacts; and promoting an equitable response, while addressing disparities.

MHCC teams already activated for the COVID-19 response were utilized to

facilitated decision-making and communication



CDPH activated the following teams and programs in support of the mpox response efforts:

### **EPIDEMIOLOGY AND SURVEILLANCE**

At the onset of the outbreak in the U.S., CDPH's Epidemiology and Surveillance Team was activated and started meeting internally with clinical, laboratory, and contact tracing teams to coordinate internal resources and begin surveillance for mpox in California. The Epidemiology and Surveillance Team was responsible for tracking and monitoring mpox infections and analyzing the characteristics of these infections to identify outbreaks and communicate risk factors for infection to stakeholders. In coordination with the mpox Vaccination Team, they also produced a comprehensive list of every mpox case in California. The list generated data visualizations, describing characteristics of the outbreak in California, the U.S., and worldwide.

### **CLINICAL (INCLUDING THERAPEUTICS)**

Throughout the response, the Clinical Team, serving as subject matter experts, collaborated with the CDPH Office of Guidance and Policy to oversee the development and publication of several guidance documents and protocols, including Dear Colleague Letters, health advisories, and guidance for clinical recognition, treatment, and supportive care. The Mpox Scientific Advisory Committee convened to solicit input from subject matter experts across California to guide vaccination and other evidence-based policies.

### **LABORATORY**

The CDPH Viral and Rickettsial Disease Laboratory (VRDL) developed specimen collection and submission guidance for LHJs and providers, provided technical assistance to local public health labs, mapped VRDL test results to enable California Reportable Disease Information Exchange reporting, shipped specimens to CDC for confirmatory mpox testing, developed an mpox-specific diagnostic test, and worked with CDC to expand the California Laboratory Response Network for Biological Threats of local public health labs.

### **VACCINATION**

The mpox Vaccination Team was responsible for developing policy and providing guidance on prioritizing and allocating scarce vaccines. The mpox Vaccination Team offered technical assistance, oversight, tracking, and distribution of the JYNNEOS vaccine, provided by the Administration for Strategic Preparedness and Response, to mitigate the spread of mpox.

### **CASE/OUTBREAK INVESTIGATION AND CONTACT TRACING**

CDPH provided mutual aid resources to LHJs to support case investigation and contact tracing efforts, including developing guidance for schools and other congregate settings (*i.e.*, homeless shelters and correctional facilities). Contact tracing teams worked with the disease intervention teams and the MHCC Logistics Section to create an intake process for LHJs to request resources.

### **COMMUNICATIONS**

The COVID-19 Public Communications Response Team was leveraged for mpox response activities. This group was initially tasked with the distribution of public media messaging. CDPH developed a coordination strategy with LHJs that helped build and solidify their partnerships. An mpox-specific website was created and updated with up-to-date policies, guidance, and epidemiologic and vaccine distribution data.



*Mpox vaccine clinic in LA County. Source: LAist*

### **EQUITY AND STAKEHOLDER ENGAGEMENT**

The Stakeholder Engagement Team conducted outreach and engaged with communities impacted by mpox. This team, made up of representatives from the Office of AIDS, had existing and trusted relationships with stakeholders and CBOs that represented and served the communities most disproportionately impacted by mpox.

### **OVERVIEW OF MEDICAL COUNTERMEASURES EFFORTS**

The Receiving, Storing, and Staging (RSS) Warehouse oversaw MCM distribution. The CDPH RSS Warehouse had been activated for over two years, supporting the COVID-19 response, and the staff's extensive experience with MCM requiring cold chain management positioned the RSS well for the mpox response efforts. On May 23, 2022, CDPH placed a verbal request for the JYNNEOS vaccine (200 doses, or 20% of the nation's stockpile), ACAM2000 vaccine (200 doses), and 200 bottles of oral TPOXX. On May 25, 2022, CDPH received the order from the SNS. By June, CDPH received an additional 2,400 vials of the JYNNEOS vaccine from a pilot program. Intravenous TPOXX also

became available for ordering from the SNS, with CDPH receiving its first order of 70 vials on June 13, 2022.

The federal allocations of the scarce JYNNEOS vaccine were initially much lower than the estimated population at risk and demand. As a result, CDPH developed a prioritized allocation formula and process, with input from local health departments, to distribute scarce resources equitably. CDPH also developed eligibility criteria and guidance for vaccine administration for local health departments and clinicians with input from subject matter experts and the Scientific Advisory Committee.

### **VACCINE ORDERING AND REPORTING**

MyCAvax is an inventory management system that provides vaccination inventory data, including doses administered, on-hand, and wasted. CDPH modified its myCAvax COVID-19 vaccine ordering and inventory system to receive and process JYNNEOS vaccine orders from providers. Providers were familiar with myCAvax from the COVID-19 vaccination campaign and could adopt the ordering system quickly.



*Mpox Vaccine. Source: CNN*

### **VACCINE COORDINATION AND SPECIAL EVENTS**

The mpox Vaccination Team supported the coordination, technical assistance, oversight, tracking, and distribution of the JYNNEOS vaccine to mitigate mpox transmission. CDPH rapidly shipped JYNNEOS doses to locations across the state in anticipation of future needs.

The ACAM2000 vaccine, however, went through extensive internal review and deliberation with the Mpox Scientific Advisory Committee. This committee concluded that the ACAM2000 vaccine would not be used due to administration logistics and the known risk of the vaccine's serious side effects.

Throughout the mpox response, the mpox Vaccination Team maintained flexibility in securing and distributing doses of JYNNEOS, creating algorithms for equitable distribution across counties, developing guidance for administration, and providing technical assistance to LHJs.

The mpox Vaccination Team coordinated with LHJs to provide information and guidance on vaccine planning and outreach efforts. LHJs initially coordinated vaccination events for identified close contacts of confirmed cases, but expanded access as vaccine supply increased.

On August 18, 2022, HHS announced a vaccine pilot program that provides additional doses of JYNNEOS to support significant events of 50,000+ participants, focusing on individuals at elevated risk for mpox exposure. CDPH worked with LHJs to submit a joint proposal for this pilot program, with the CDC approving 2,400 doses of JYNNEOS for a pilot project between Alameda County and CDPH for Oakland events in September 2022. CDPH also received 10,000 doses for the Folsom Street Fair and Castro Street Fair in San Francisco. Multiple vaccination events associated with the Folsom Street Fair were hosted in coordination with local partners and CBOs, and more than 10,000 doses of this special federal allotment were administered. The White House highlighted this pilot project in their August 30, 2022 announcements.

California was ranked by the CDC as one of the top states in mpox vaccine administration across the nation and later transitioned operations to the CDPH STD Control Branch in early 2023, where the mpox program now resides.

### **VACCINE EQUITY**

The initial response to the mpox outbreak was guided by the dissemination of vaccines to reach populations at the highest risk of mpox disease or those potentially exposed.

CDPH worked to improve vaccine access in populations disproportionately affected by mpox and consistently encouraged LHJ and CBO partners to focus vaccine outreach efforts on high-risk populations. As the outbreak declined and vaccination rates decreased, vaccination efforts transitioned to primarily focus on improving these disparities through engagement of local partners and hosting of events and clinics in areas of higher need.

## **SUCCESSSES**

1. CDPH reported effective coordination and collaboration with response partners and stakeholders through coordination calls and leveraging community and partner relationships and resources.
2. The COVID-19 response had established a successful model for data surveillance, automated dashboards, and warehousing operations for the mpox response.
3. CDPH worked with numerous local health jurisdictions to provide critical support for diagnostic decision-making at the outbreak's start.
4. CDPH advanced its testing capabilities across the state and expedited the test results to support the local public health laboratories. CDPH also provided investigators to assist local health jurisdictions with contact tracing.
5. In September 2022, the Governor's Office granted a special mpox emergency response funding appropriation of \$41M to support state, local, and CBO response efforts.
6. An mpox-specific website was created and updated with up-to-date policies, guidance, and epidemiologic and vaccine distribution data.

## **AREAS NEEDING IMPROVEMENT**

1. Transitioning from state and local inventory management and ordering systems to the federal ordering portal was complex and not fully accomplished until a year after the public health emergencies had ended.
2. Due to the extended nature of the COVID-19 response, the pool of CDPH staff and contractors was already exhausted. Thus, the depth of staffing resources was not available.
3. ICS training and processes should be documented and saved as standard operating procedures for a more streamlined approach to future responses.
4. Conducting the Investigational New Drug protocol during the mpox response was difficult as the providers were not familiar with the process and defaulted to dispensing oral and intravenous TPOXX without completing the paperwork.

## **CORRECTIVE ACTION RECOMMENDATIONS**

1. Federal, state, and local health jurisdictions should develop a transition plan and test the ordering system before future public health emergencies.
2. CDPH should work on an emergency hiring plan for public health emergencies and develop a pool of contractors to source during public health emergencies.
3. As of this report, CDPH is coordinating to provide all of its responders with ICS training, developing a standardized structure, and documenting processes for future responses to infectious diseases and epidemiologic outbreaks.
4. As of this report, the RSS Warehouse regularly meets with vendors and health partners to develop and share processes for dispensing vaccines.

## INITIAL RECOVERY ACTIVITIES

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The unique nature of infectious disease response does not have traditional recovery activities. After the deactivation of the MHCC, remaining and ongoing mpox activities transitioned to the CDPH STD Control Branch in partnership with the Office of AIDS, Immunization Branch, other programs within the Center of Infectious Disease, and the Center for Laboratory Science Viral and Rickettsial Disease Laboratory Branch.

## CONTRIBUTING AGENCIES

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### **STATE AGENCIES**

California Governor's Office of Emergency Services (Cal OES)

California Department of Public Health (CDPH)



## LIST OF ACRONYMS

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Cal OES	California Governor's Office of Emergency Services
CBO	Community-Based Organizations
CDC	Center for Disease Control and Prevention
CDPH	California Department of Public Health
HHS	Health and Human Services
ICS	Incident Command System
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer
LHJ	Local Health Jurisdictions
MCM	Medical Countermeasures
MHCC	Medical Health Coordination Center
MPOX	Monkeypox Virus
RSS	Receiving, Storing, and Staging (Warehouse)
SEMS	Standardized Emergency Management System
SNS	Strategic National Stockpile
STD	Sexually Transmitted Disease
TPOXX	Tecovirimat
U.S.	United States
VRDL	Viral and Rickettsial Disease Laboratory
WHO	World Health Organization