



CDPH Health Advisory

Substantial Rise in Coccidioidomycosis in California: Recommendations for California Healthcare Providers

January 19, 2024

The California Department of Health (CDPH) is warning healthcare providers about an increased number of reported cases of coccidioidomycosis. A total of 9280 cases of coccidioidomycosis with illness onset dates in 2023 have been reported in California to date, which is higher than any other year on record, and is an increase that is likely to continue this winter due to heavy rainfall last winter after years of drought.

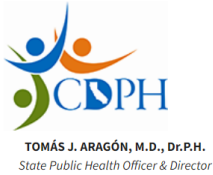
Providers should strongly suspect pulmonary coccidioidomycosis in a patient with community acquired pneumonia who does not respond to an initial course of antibiotics, who has significant exposure to dust or dirt, or whose symptoms last more than 1-2 weeks. Negative serology in a patient with compatible symptoms may not rule out the diagnosis, and culture and polymerase chain reaction (PCR) test, if available, should be considered in patients with severe disease.

Please see the CDPH communication for detailed background and clinical recommendations.

Read the CDPH communication [online](#) or below.

Related reading: [Anticipating a Rise in Coccidioidomycosis \("Valley Fever"\) Cases in Los Angeles County](#), LAC DPH Rx for Prevention, 9/8/23.

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Health Advisory

To: Healthcare Providers

Substantial Rise in Coccidioidomycosis in California: Recommendations for California Healthcare Providers

1/18/2024

Key Messages

- A total of 9280 [cases of coccidioidomycosis with onset dates in 2023 have been reported in California to date](#), which is higher than any other year on record.
 - The increase in reported coccidioidomycosis cases is likely to continue throughout this winter due to heavy rainfall in the winter of 2022-2023 after years of drought.
 - Although the Central Valley continues to have the highest rates of coccidioidomycosis, the geographic distribution of coccidioidomycosis in California appears to be shifting, with notable [increases in the Northern San Joaquin Valley, Central Coast, and Southern California](#).
- Given these increases, the California Department of Public Health (CDPH) reminds healthcare providers to consider coccidioidomycosis in the differential diagnosis of [community acquired pneumonia](#) (CAP) or other respiratory illnesses in endemic or emerging areas. When evaluating a patient, ask about travel history or occupation to determine potential risk factors (e.g., exposure to [high incidence area](#) or exposure to outdoor dirt/dust).
- Providers should maintain strong suspicion for pulmonary coccidioidomycosis in a patient with CAP who does not respond to an initial course of antibiotics, who has significant exposure to dust or dirt, or whose symptoms last more than 1-2 weeks.
 - Diagnosis can be challenging and relies primarily on serologic tests, which vary in sensitivity and specificity. A patient with a positive *Coccidioides* IgM OR IgG could have acute coccidioidomycosis.
 - A negative serology in a patient with a consistent clinical presentation does not rule out the diagnosis, and in patients with severe disease, a culture and polymerase chain reaction (PCR) test, if available, should be considered.
- Please refer to the [CDC website](#) and the [IDSA guidelines](#) for more information on testing protocols and treatment practices.

Background

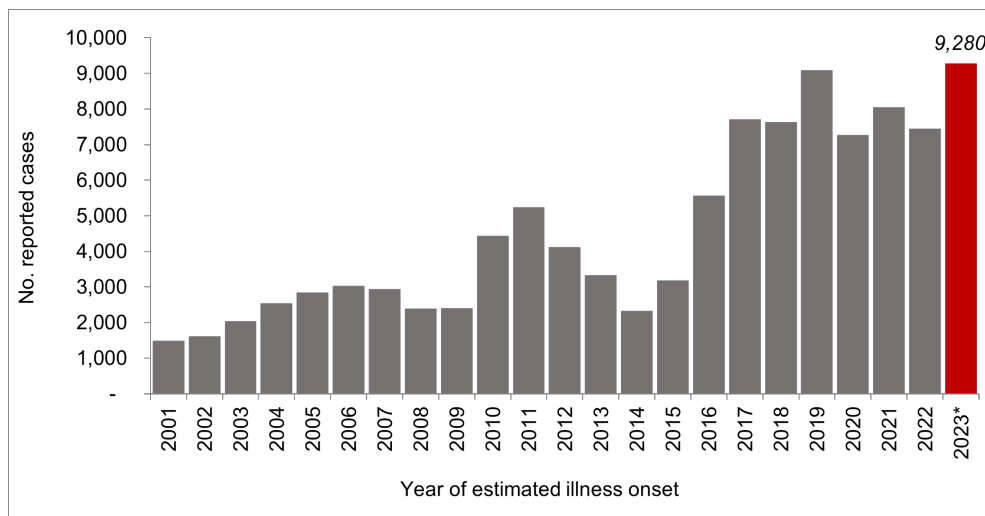
The California Department of Public Health (CDPH) warns healthcare providers about an increased number of reported cases of coccidioidomycosis with onset dates in 2023. Healthcare providers should consider testing for coccidioidomycosis in patients who present with compatible symptoms and risk factors.

Situation

A total of 9280 cases of coccidioidomycosis with onset dates in 2023 have been reported in California to date ([Figure 1](#)). This case count is higher than the final case count in any other year since coccidioidomycosis cases became individually reportable in California in 1995.

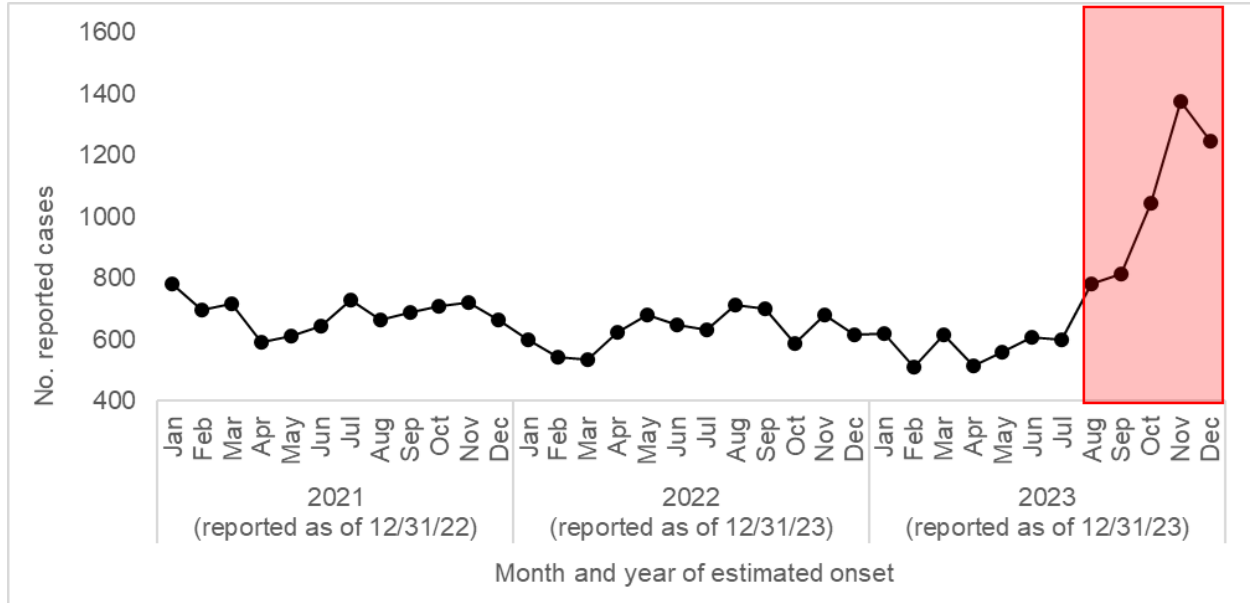
Furthermore, unlike the prior two years, most 2023 cases (5,185, 57%) were reported from August–December 2023, with sharp increases in October through December ([Figure 2](#)). As noted in an earlier [CDPH press release](#), heavy rainfall in the winter of 2022-2023 following years of drought was predicted to lead to increases in coccidioidomycosis cases across California in 2023, particularly in the late summer and fall. We expect to continue to receive a higher number of case reports than usual throughout the winter months of 2024. While the recent rains should decrease the risk of new infections, persons who have been infected in prior weeks and months will continue to present for care.

Figure 1: Reported coccidioidomycosis by year of estimated onset, California, 2001-2023 (Preliminary data for 2023 in red, reported as of December 31, 2023)



**Data from 2023 is provisional, and is likely an underestimate due to lags in data reporting and lack of complete data for December.*

Figure 2: Reported suspect, probable, and confirmed cases of coccidioidomycosis by month and year of estimated onset, California 2021-2023



Coccidioidomycosis Overview

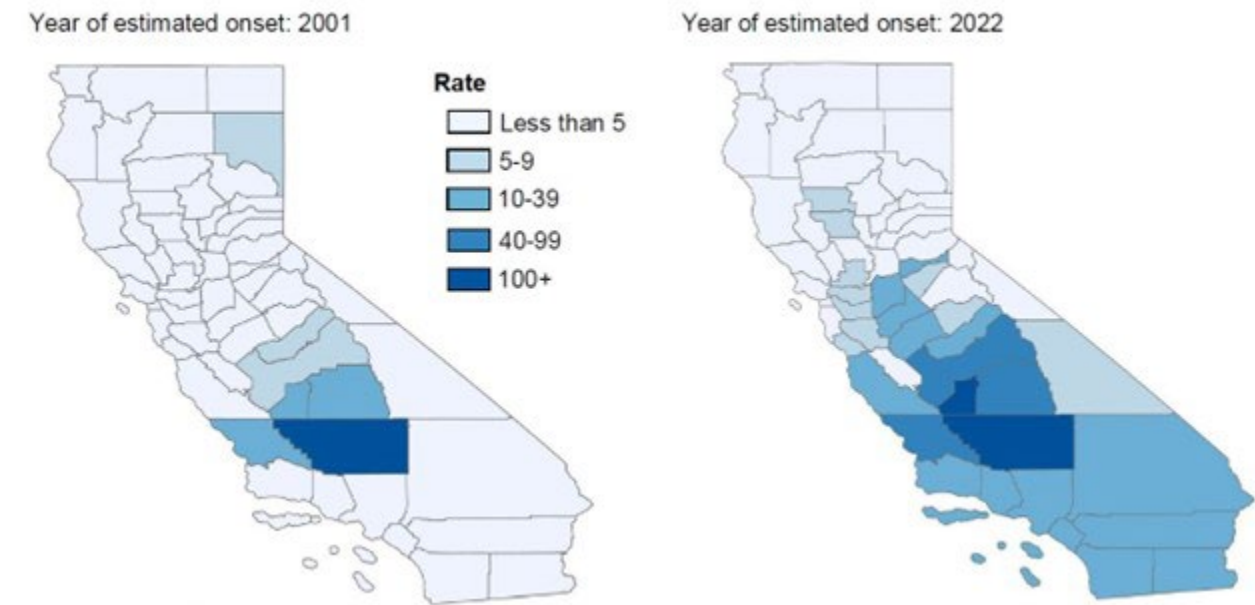
Coccidioidomycosis (also called Valley fever or “cocci”) is a disease caused by inhalation of the spores of the *Coccidioides* fungus that grows in the soil and dirt in some areas of the southwestern United States, with 97% of cases reported in Arizona and California. Anyone who lives, works, or travels in areas where *Coccidioides* is present can become infected, particularly people exposed to dirt and dust outdoors. Coccidioidomycosis may be asymptomatic but typically presents as a self-limited respiratory illness or pneumonia. Patients may also present with [erythema nodosum](#). However, infection can also lead to progressive pulmonary disease or severe disseminated disease including meningitis and can be fatal.

Pulmonary coccidioidomycosis is commonly misdiagnosed because it is difficult to differentiate from other respiratory diseases through symptoms alone, and patients are often treated with antibiotics ([up to 70% of patients with coccidioidomycosis receive antibiotics within the 3 months prior to diagnosis](#)). Antibacterial agents are not effective against coccidioidomycosis, and coccidioidomycosis should be considered in patients with respiratory symptoms, especially pneumonia, who fail to improve on antibiotics.

Changes in Geographic Distribution

Climate change may be impacting the distribution and burden of *Coccidioides* within California, given the substantial increase in cases in recent years. Historically, coccidioidomycosis rates in California are consistently highest in the Central Valley and Central Coast regions. However, rates have recently increased most in the Northern San Joaquin Valley and in Southern California, suggesting expansion of *Coccidioides* into new emerging regions ([Figure 3](#)).

Figure 3: Coccidioidomycosis incidence rates by county, California, 2001—2022*



* Map for 2023 is unavailable as 2023 case counts are preliminary and subject to change

Recommendations

Recommendations for Healthcare Providers

Consider Cocci!

Winter is respiratory virus season, and many patients will be presenting with respiratory symptoms that could be attributable to a variety of pathogens. However, given the increase in coccidioidomycosis cases state-wide, clinicians should consider coccidioidomycosis as a potential diagnosis when evaluating a patient with community acquired pneumonia or respiratory illness living in or returning from endemic or emerging regions. Ask about travel history and occupation to determine potential risk factors (e.g., exposure to [high incidence area](#), exposure to outdoor dirt/dust).

- Consider coccidioidomycosis in patients who:
 - Live, work, or travel in [areas with coccidioidomycosis](#).
 - Are exposed to outdoor dust or dirt.
 - Are symptomatic for a week or longer.
 - Are not responding to standard treatment for CAP.

Early diagnosis for coccidioidomycosis can reduce unnecessary antibiotic use, lower the risk of progression of untreated disease, and improve the likelihood of patients receiving appropriate treatment and management.

Disseminated coccidioidomycosis and coccidioidal meningitis comprise [<1% of diagnosed cases](#). However, with the increased number of cases in California, healthcare providers should be alert for these more severe presentations of coccidioidomycosis.

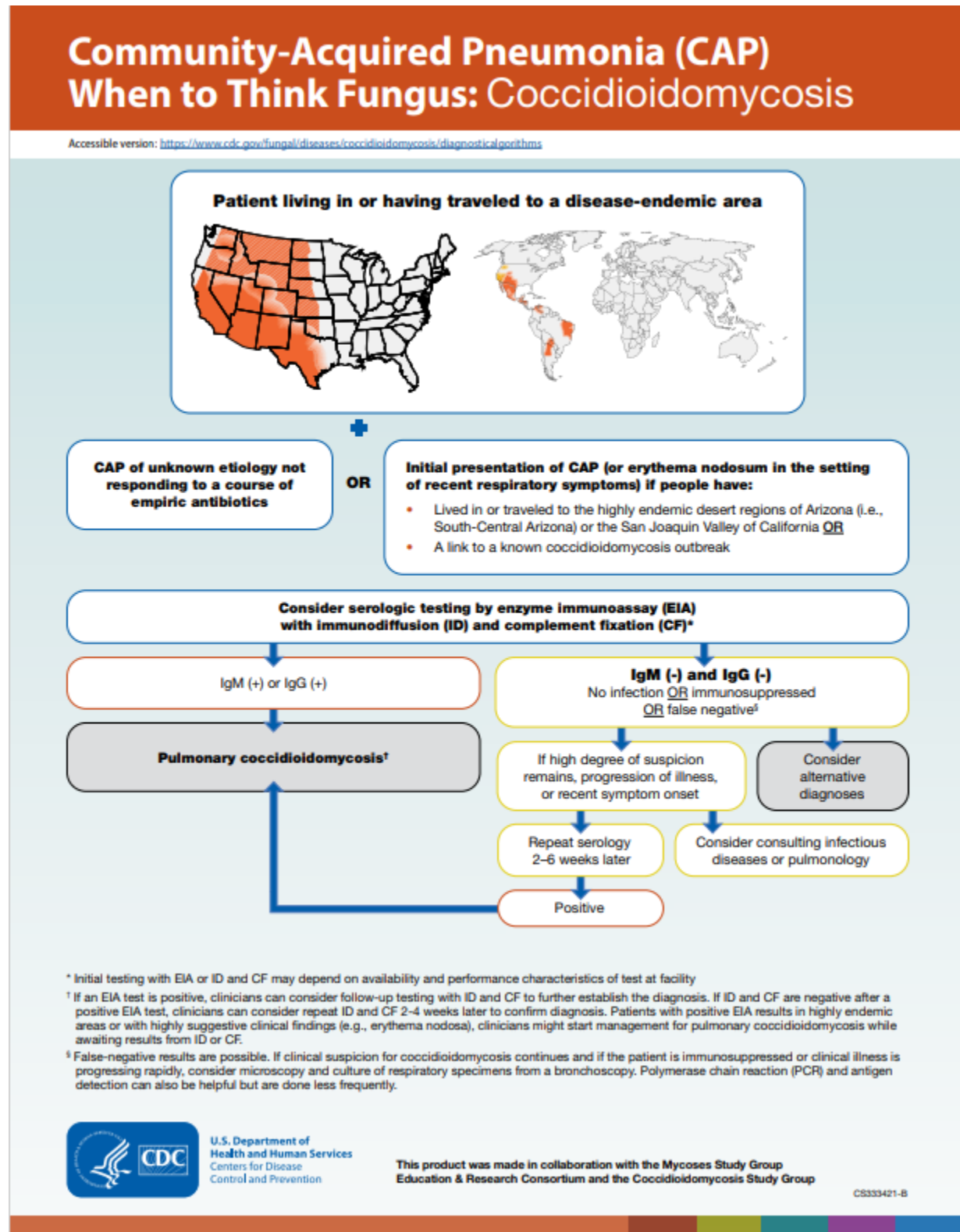
Testing and Management

Diagnosing coccidioidomycosis is challenging, but important as a delayed or missed diagnosis can delay proper management and may result in poor outcome. The diagnosis of coccidioidomycosis relies primarily on serology, which can be difficult to interpret. If you order serologic tests to detect *Coccidioides* IgM and IgG antibodies, please consider the following:

- Enzyme immunoassay (EIA), immunodiffusion (ID), and complement fixation (CF) tests are the most used coccidioidomycosis serologic tests and have variable sensitivities and specificities.
 - A negative result from one test type does not necessarily invalidate a positive result from another test type.
 - Not all patients with coccidioidomycosis will have a detectable CF titer.
 - A patient with a positive *Coccidioides* IgM OR IgG (or both) could have acute coccidioidomycosis.
 - Depending on factors such as the timing and level of exposure and patient immune status, antibody development may lag illness onset by several weeks.
- If there is high clinical suspicion of coccidioidomycosis, clinicians can consider repeating serologies 2-4 weeks later or utilizing histopathology, polymerase chain reaction (PCR) testing, or culture.
- Recent cases of severe coccidioidomycosis have been identified with positive cultures but negative serologies. For patients hospitalized with suspected severe coccidioidomycosis, PCR and culture of tissue or respiratory specimens should be considered, particularly if serologies are negative.
- PCR tests may detect *Coccidioides* in respiratory or cerebral spinal fluid specimens earlier in the course of illness, and with a faster turnaround time than culture, but may not be widely available.
- Culture growth may take up to a week, and processing and manipulation of cultures should be done in a biosafety level 3 laboratory.

The CDC algorithm for coccidioidomycosis evaluation is included below ([Figure 4](#)).

Figure 4: CDC algorithm for consideration of coccidioidomycosis as an etiology of community acquired pneumonia.



* Initial testing with EIA or ID and CF may depend on availability and performance characteristics of test at facility

[†] If an EIA test is positive, clinicians can consider follow-up testing with ID and CF to further establish the diagnosis. If ID and CF are negative after a positive EIA test, clinicians can consider repeat ID and CF 2-4 weeks later to confirm diagnosis. Patients with positive EIA results in highly endemic areas or with highly suggestive clinical findings (e.g., erythema nodosum), clinicians might start management for pulmonary coccidioidomycosis while awaiting results from ID or CF.

[‡] False-negative results are possible. If clinical suspicion for coccidioidomycosis continues and if the patient is immunosuppressed or clinical illness is progressing rapidly, consider microscopy and culture of respiratory specimens from a bronchoscopy. Polymerase chain reaction (PCR) and antigen detection can also be helpful but are done less frequently.



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Centers for Disease Control and Prevention

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Treatment

Treatment decisions can be complex, and range from supportive care to antifungal agents, depending on the presence of symptoms, severity of disease, and medical comorbidities of the patient. Consider consultation with an infectious diseases physician or pulmonologist.

For additional guidance on testing and management, refer to the [CDC website](#) and [IDSA guidelines](#) for coccidioidomycosis.

Resources

Health care providers can reference the latest guidance on diagnosing and managing Valley fever at the resources below:

- [CDPH Valley Fever Information for Health Professionals webpage](#)
- [CDC CAP Coccidioidomycosis Diagnostic Algorithm](#) (PDF NEW)
- [CDC Information for Healthcare Professionals about Valley Fever \(Coccidioidomycosis\)](#)
- [MSGERC Grand Rounds Webinar Series, Episode 8—Q&A Session on Community-Acquired Pneumonia: Think Fungus, Take Action – Fungus Education Hub](#)
- [IDSA Guidelines on Management of Coccidioidomycosis](#)

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