

Coccidioidomycosis (Valley Fever) in Southern Arizona: Building Capacity for Rural Health Management

Foley, R.¹, McLafferty, A.², Chavez, O.¹, and Tarrango, A.² (AIH-AHEC Scholars 2023- 2025)

1. University of Arizona; 2. Northern Arizona University

PURPOSE

To provide recommendations for successful Valley fever (VF) care in rural settings.

BACKGROUND

- Fungal infection caused by inhaling spores found in dust of endemic areas^{7, 22}
- 95% of cases in Arizona occur in 3 counties: **Pinal, Pima, and Maricopa**, all of which have **significant rural territories**⁸
- Currently, all Valley Fever specialty services are located in urban centers^{11,22}
- Nearly 60% of Valley fever cases are mild, however 30% will require medical care and 10% will experience serious complications^{8, 22}
- Geographic disparities place **rural patients at higher risk**
- **Dearth of information/research on VF management in rural settings**

Figure 1 Right: Coccidioides left lung cavity pneumonia²²

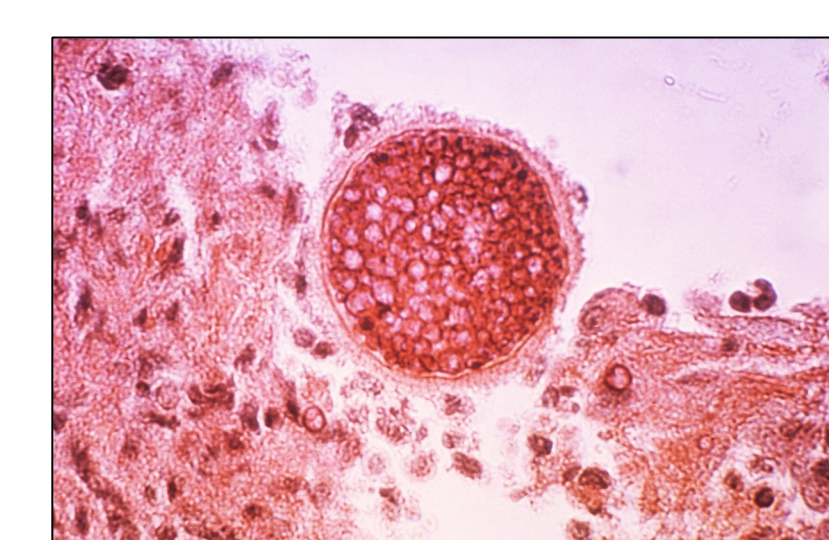
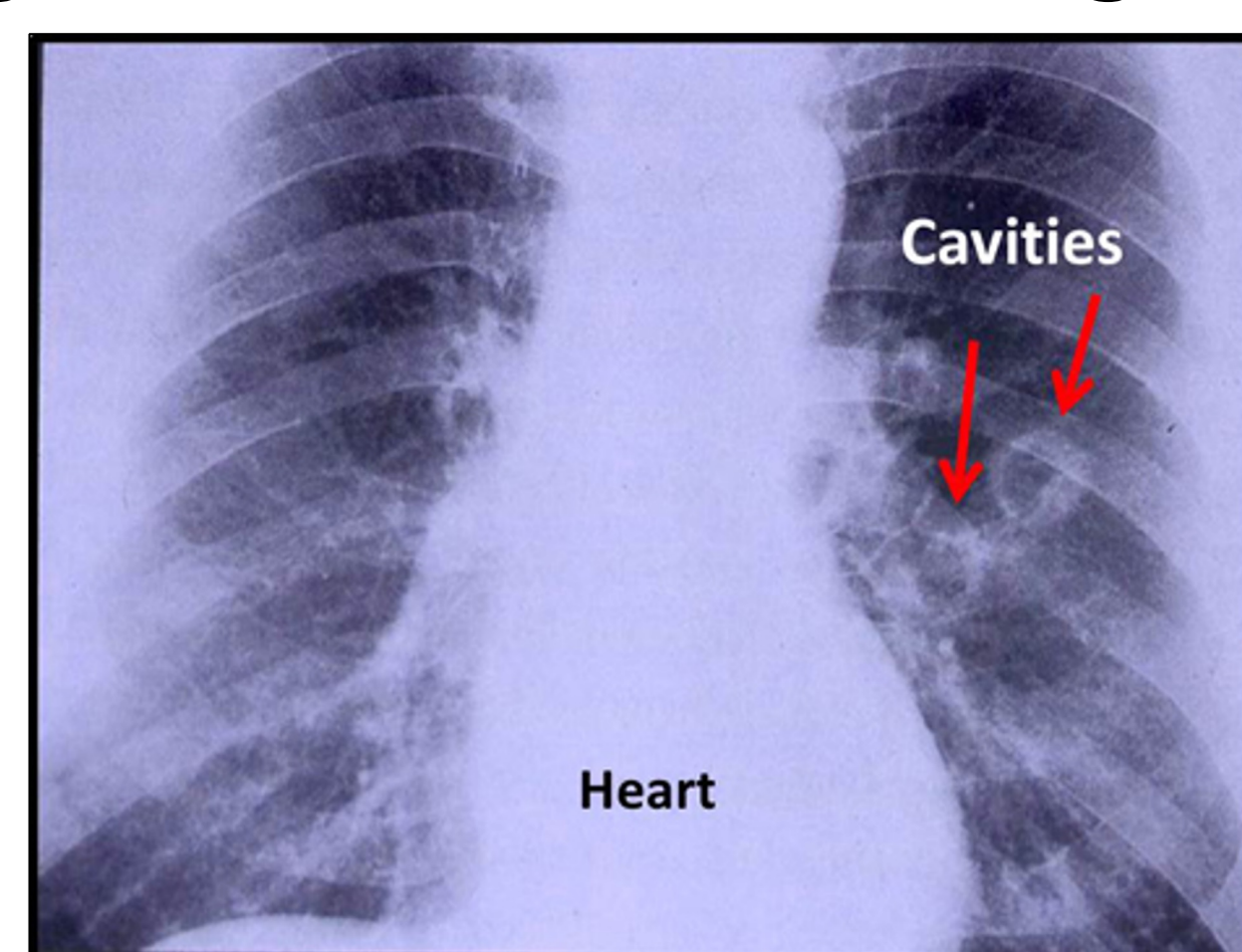
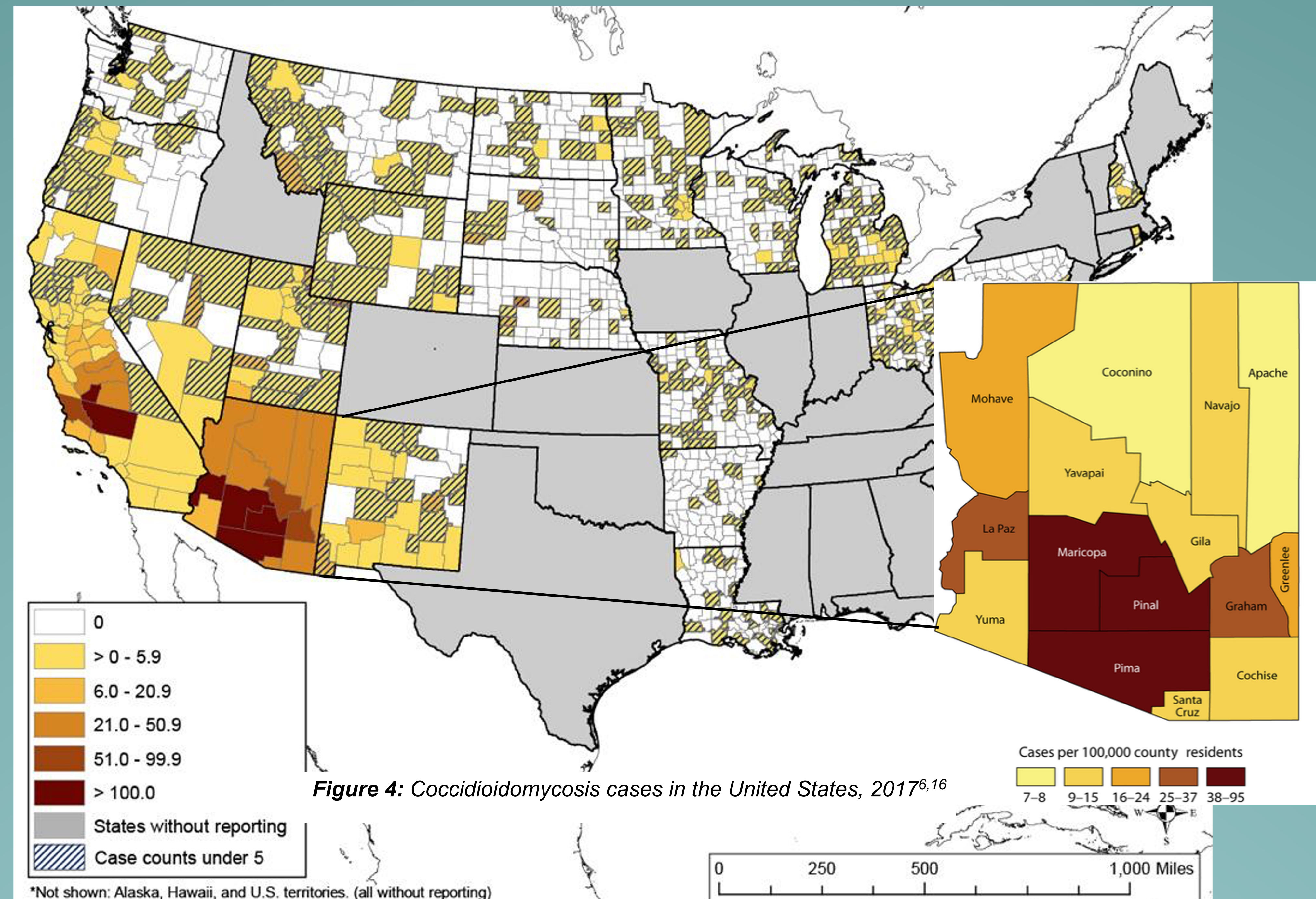


Figure 2. Left: Coccidioides spherule in granuloma²²

Figure 3 Right: Erythema nodosum: Large, tender nodules on Valley fever patient²²



RURAL RISK FACTORS

- **Occupations that disrupt soil**⁸
 - Agricultural or construction
- **Lack of paved roads**⁸
- **Poor access to specialty services**
- **High risk population demographics**
 - Ethnic minorities, those living with diabetes mellitus, high pregnancy rates^{7, 8, 14}

METHODS

- **Key Stakeholder Interviews:**
 - Valley Fever Center for Excellence¹²
 - Valley Fever Patients⁹
 - Tribal Public Health Officials^{17, 18, 21}
 - Lab Testing Facilities^{13, 20}
 - Rural Health PCPs¹⁵
- **Comprehensive literature review**
 - MeSH criteria: "Valley Fever," "Coccidioidomycosis," "Primary Care," "Rural Health."

FINDINGS

Testing:

- Only **3 out of 10 providers** in AZ correctly test for VF when indicated²
- Lack of lab infrastructure in remote areas causes delay of results²¹

Diagnosis:

- **>80% patients get misdiagnosed**¹
- Varied knowledge of VF per rural health professional interviews: from minimal to moderate; all indicated value of further education/resources

Treatment:

- Supportive care only for uncomplicated cases^{11, 22}
- **Refer those with complicated VF or risk factors to a specialist.**^{11, 22}
 - Specialists in urban centers only
- **Physical therapy-** useful for Residual Fatigue Syndrome^{4, 5, 8, 11, 12,19}

SUMMARY/ Recommendations:

- Building infrastructure, rural provider education, and increasing access to experts can all improve rural VF care.
- **Infrastructure**
 - Improve lab testing capability
 - Self-ordered VF testing option²⁰
 - Address rural dust exposure^{7, 8}
- **Rural Provider Education**
 - Primary Care management from CDC and VFCE Guidelines²²:

1 Consider the diagnosis

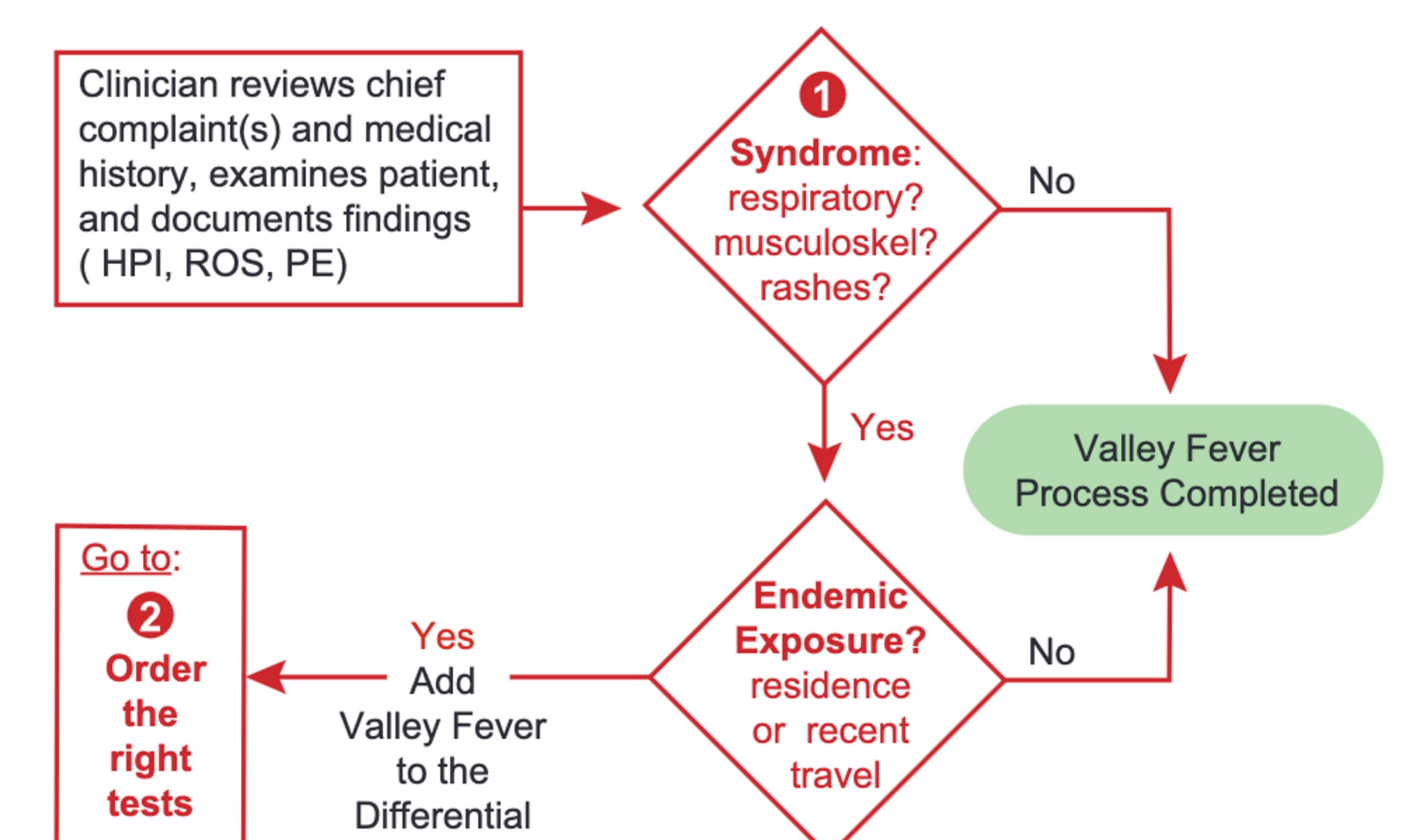


Figure 5. Excerpt from the "Valley Fever (coccidiomycosis): A training manual for primary care providers"²²

Improve Physical Therapy options^{4,5,11,19,22}

- Provider education on PT benefits
- Increase availability of rural PT
- **Expert Consultation**
 - Support rural Telehealth capability¹²
 - Connect rural health professionals with experts such as VFCE²²
 - Offer translators in Tribal nations^{17,18}

ACKNOWLEDGEMENTS



References

