Engineered Stone Associated Silicosis

Los Angeles City Health Commission
April 14, 2025

UCLA David Geffen School of Medicine

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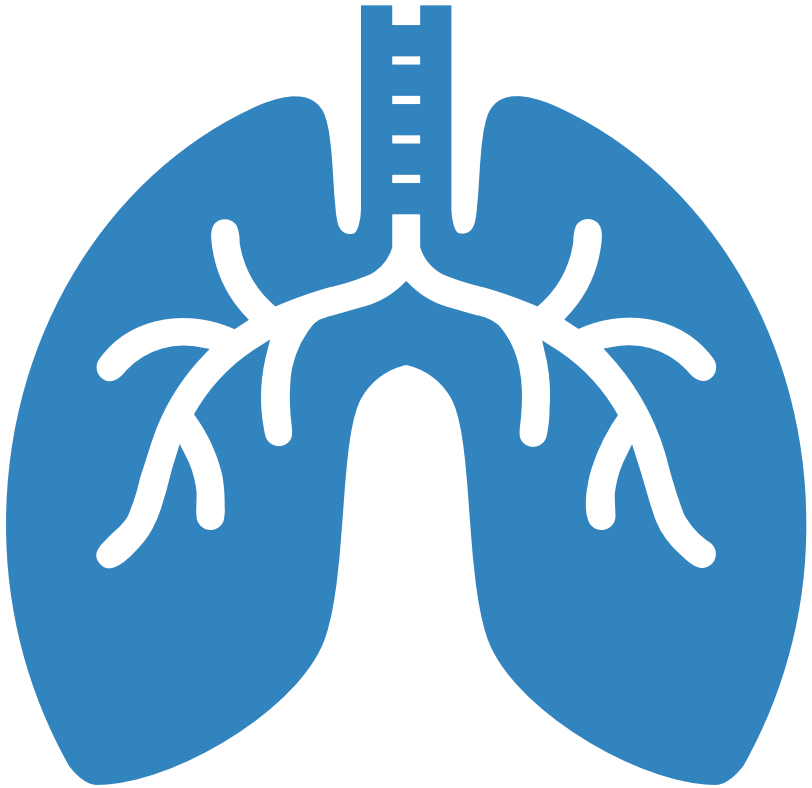
Objectives



1. Describe the emerging epidemic of engineered stone silicosis among stone countertop workers
2. Understand the surge of silicosis patients within Los Angeles
3. Multidisciplinary Ongoing solutions to silicosis prevention and care in LA county

Disclosures

- I have no conflicts of interest to disclose
- This talk represents my own thoughts and opinions and is in now way representative of the view and opinions of my employer UCLA or the LA Department of Health services

Los Angeles Times

Incurable silicosis cost a countertop cutter his lungs. Are these companies at fault?

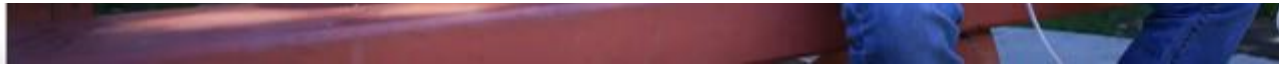
A L.A. County case poses a test of whether companies that make engineered stone can be successfully sued amid the devastating rise of silicosis.

sease Strikes Counterto
ern California

e fabricators in the Los Angeles area have been diagnosed with a

2, 2022

Doctors said cutting countertops destroyed his lungs. He had to fight for workers' comp



Los Angeles Times LOG IN

CALIFORNIA

California workers who cut countertops are dying of an incurable disease

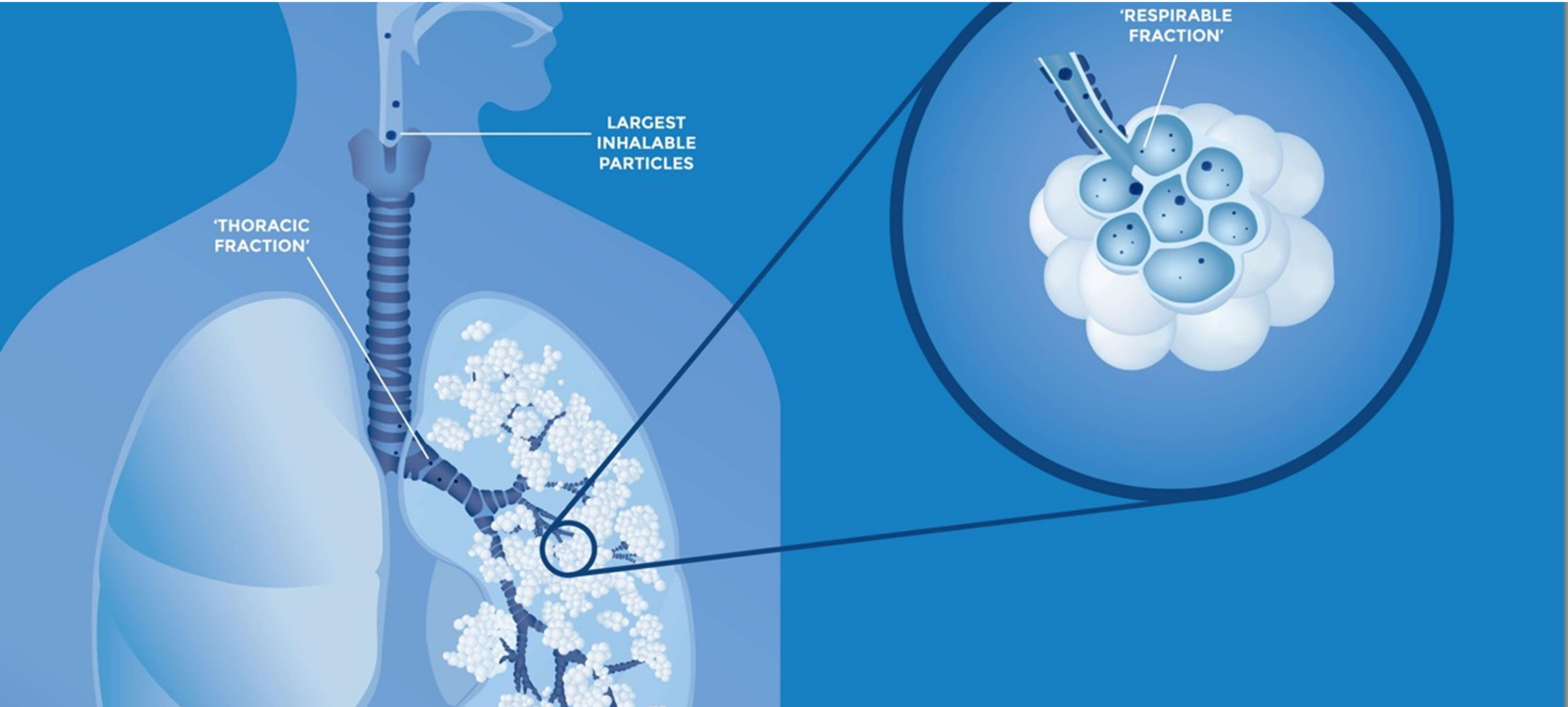
eobardo Segura Meza, 27, of Pacoima suffers from silicosis, an curable lung disease that has been afflicting workers who cut and olish engineered stone high in crystalline silica. (Mel Melcon / Los ngeles Times)

By Emily Alpert Reyes and Cindy Carcamo

Sept. 24, 2023 3 AM PT

https://publichealthwatch.org

Breathing Silica is Deadly



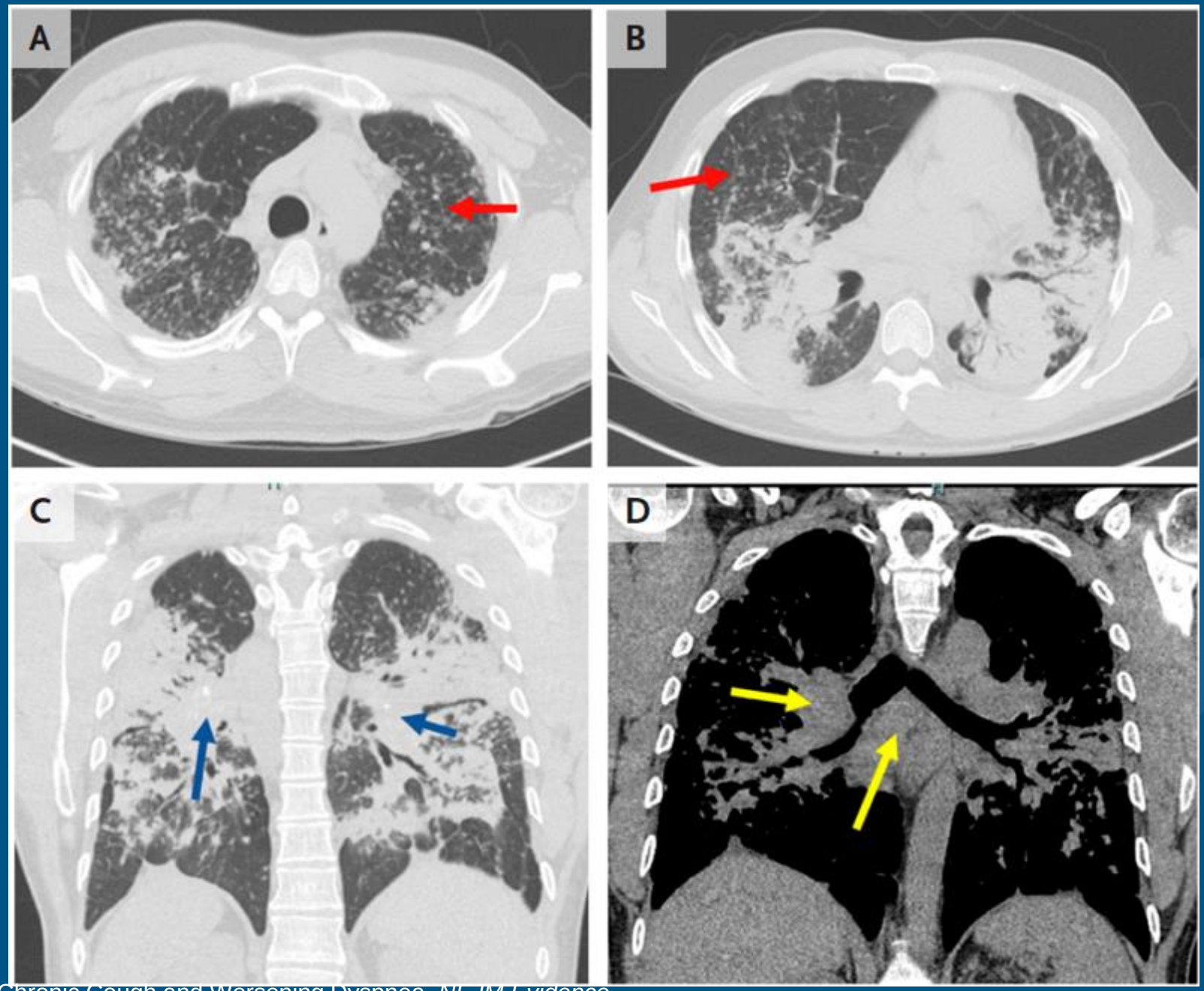
Chest Radiograph

Normal

Advanced Silicosis

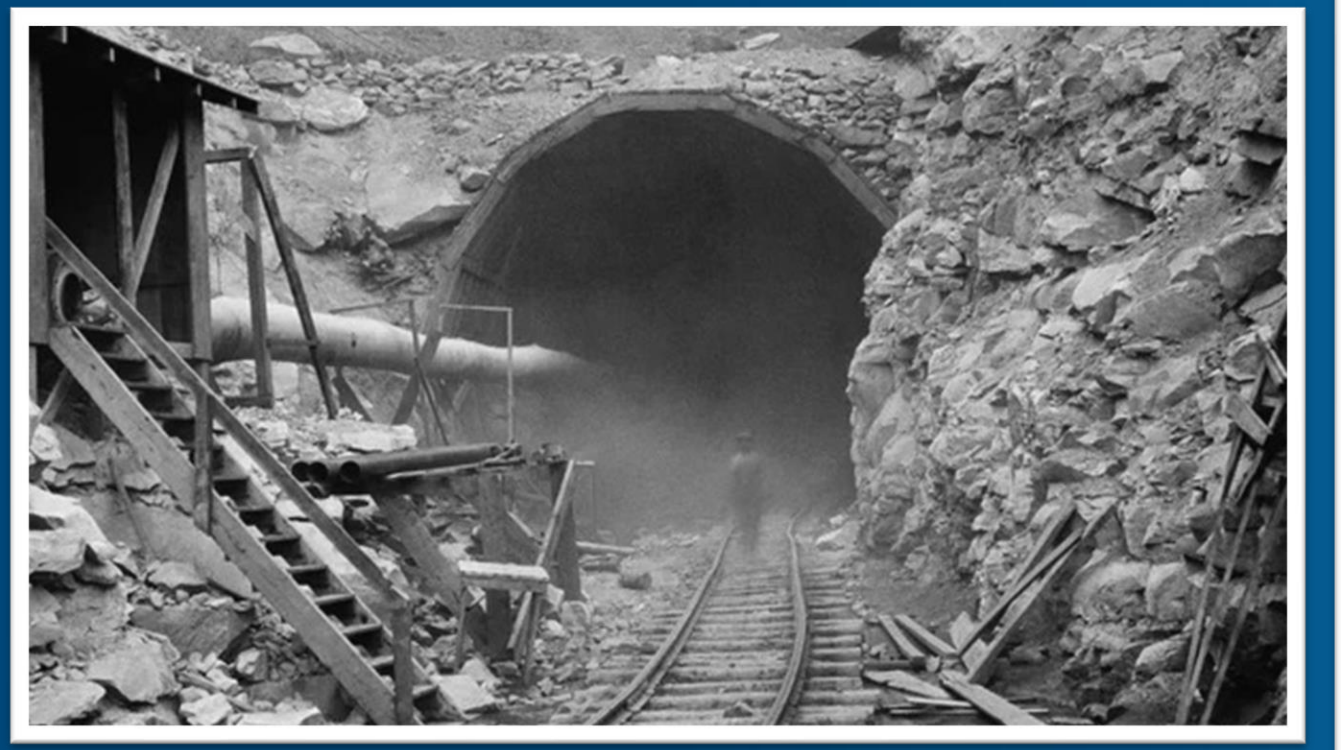
Afif, Fazio et al, A 35-Year-Old Man with Chronic Cough and Worsening Dyspnea, *NEJM Evidence*

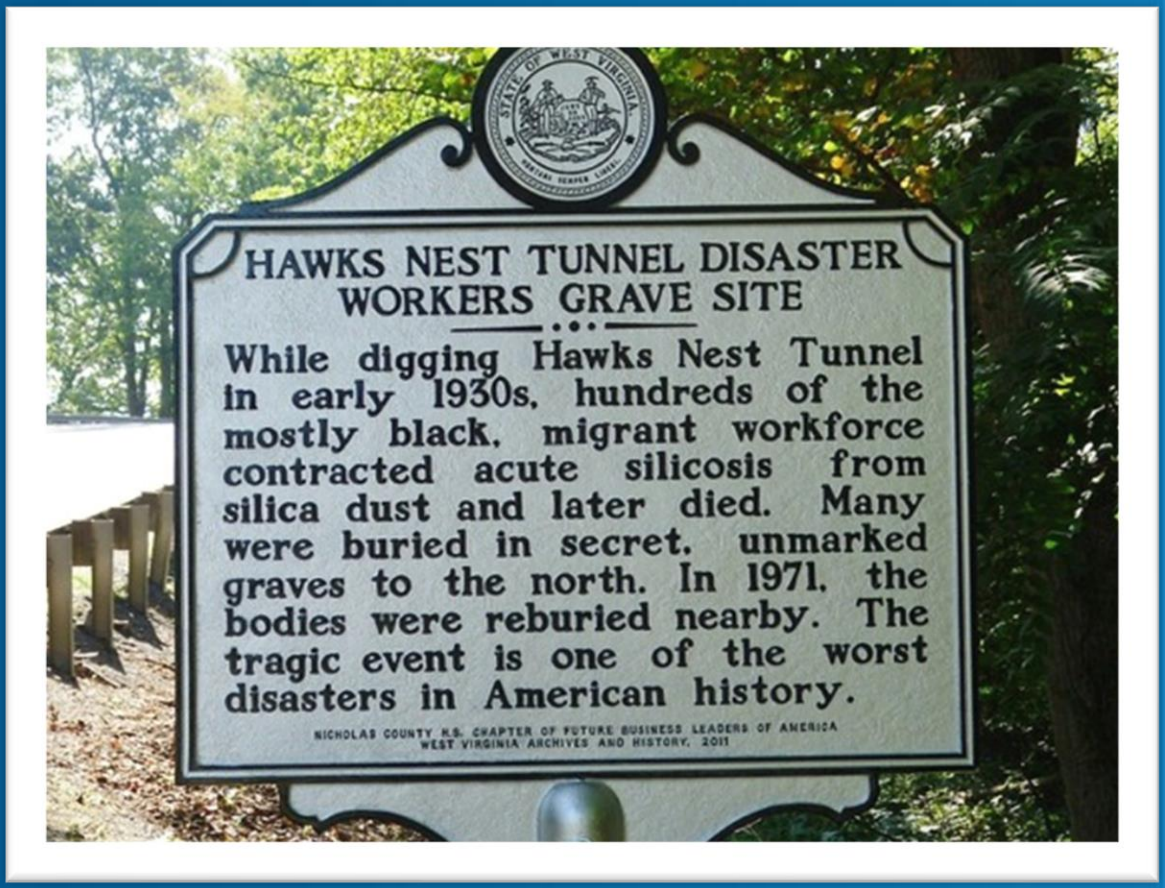
CT Chest



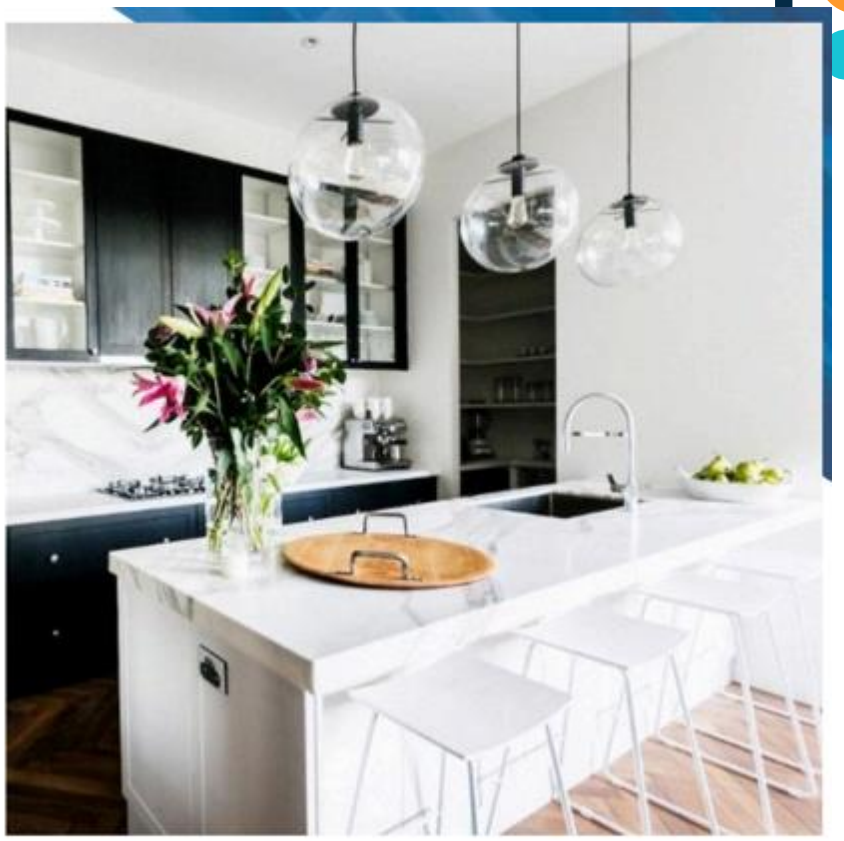
Afif, Fazio et al, A 35-Year-Old Man with Chronic Cough and Worsening Dyspnea, *NEJM Evidence*

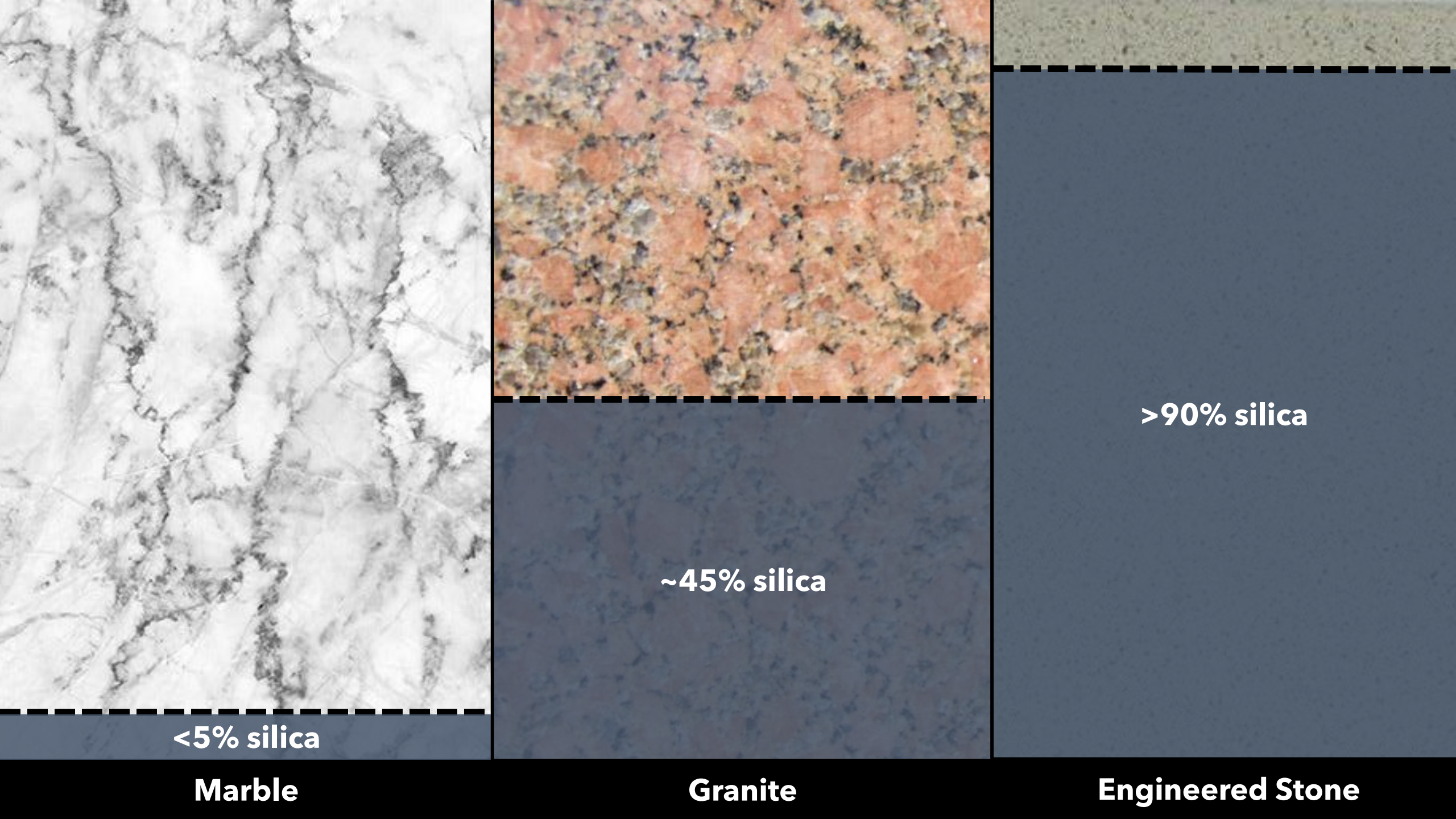
Hawk's Nest Tunnel Disaster 1930s





National OSHA silica standard followed in 1970s

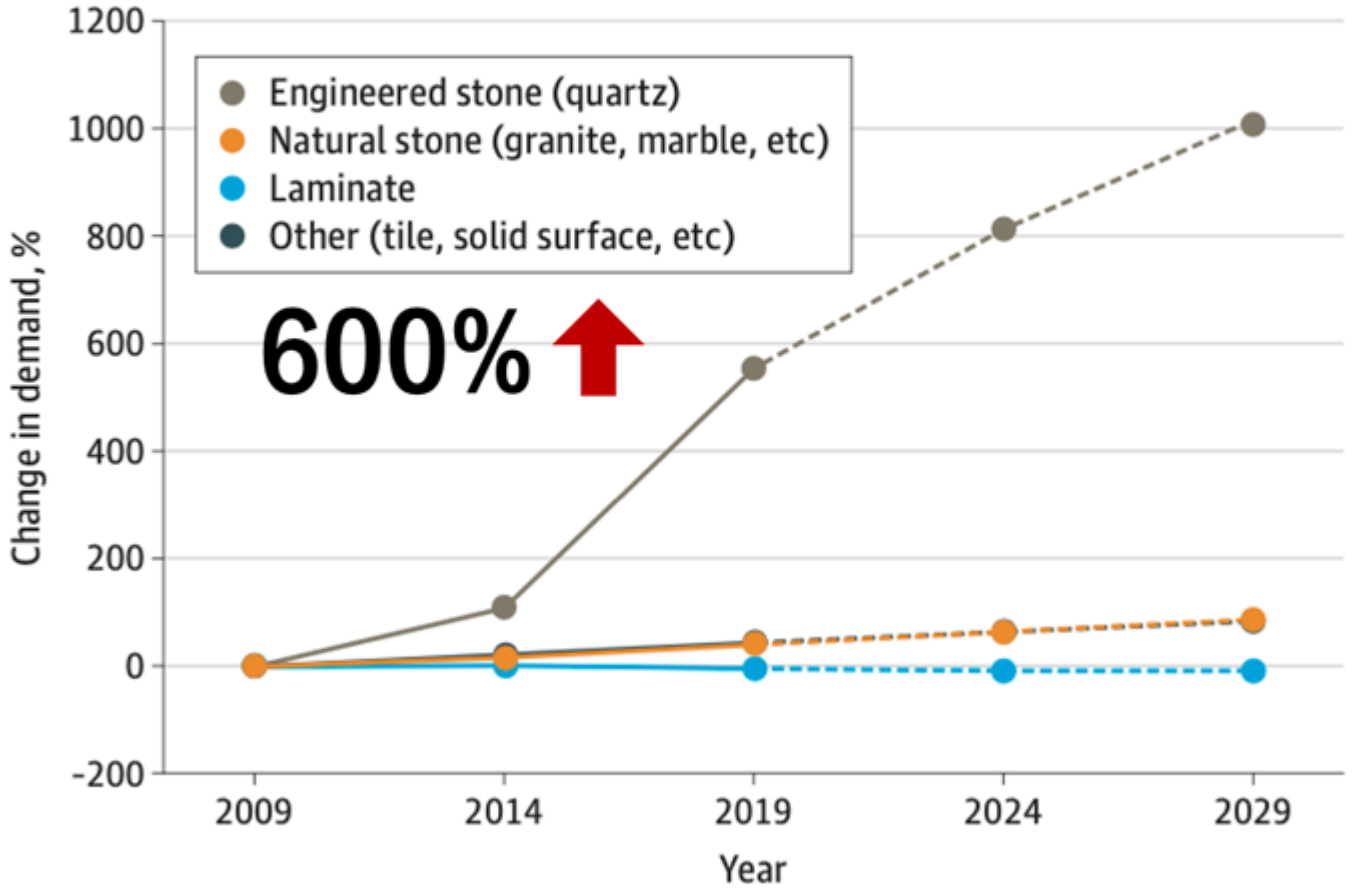



<5% silica
~45% silica
>90% silica
Marble
Granite
Engineered Stone

ENGINEERED STONE

A novel hazard

Figure. Change in US Countertop Demand by Surface Material (Compared With 2009 Demand Levels)



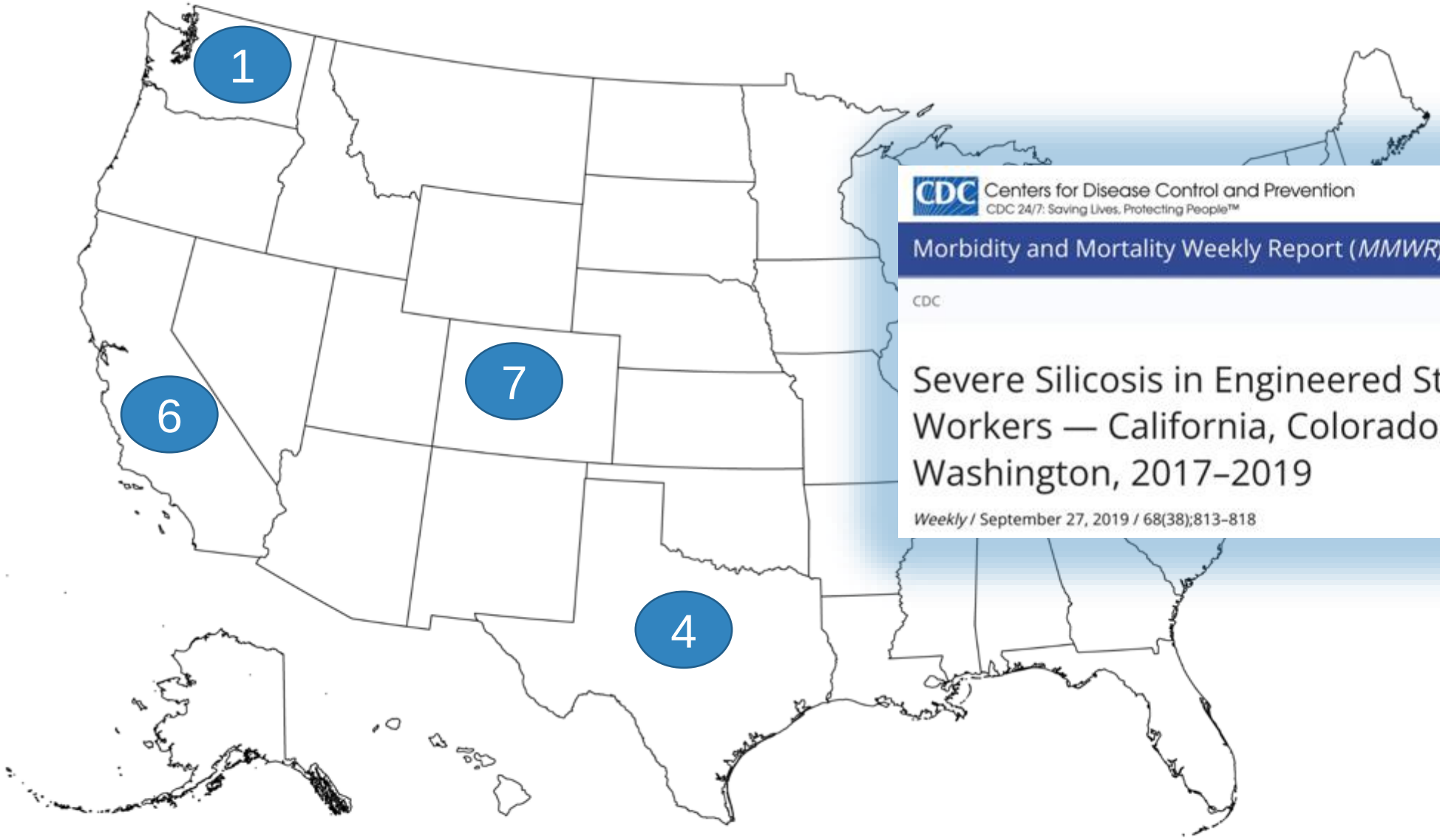
"Engineered stone countertops have skyrocketed in popularity in the US…

by 2024 they will overtake all other options. "

15 years ago they only held 5% of the US market

Hua et al. Engineered Stone Associated Silicosis – A lethal variant of an ancient disease. JAMA IM Editorial July 24, 2023

US Cases (2019)



CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Morbidity and Mortality Weekly Report (*MMWR*)

CDC

Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019

Weekly / September 27, 2019 / 68(38);813–818

Rose C. Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019. MMWR Morb Mortal Wkly Rep. 2019;68. doi:10.15585/mmwr.mm6838a1

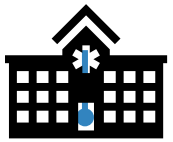
Timeline of Sentinel California California Case

2004-2013

Employed in Stone Countertop Fabrication Shop

2014-2017

Worsening pulmonary symptoms



January, 2019

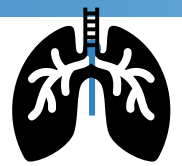
- Died at 37 years old
- CDPH Identifies case

Healthy

Death

2013

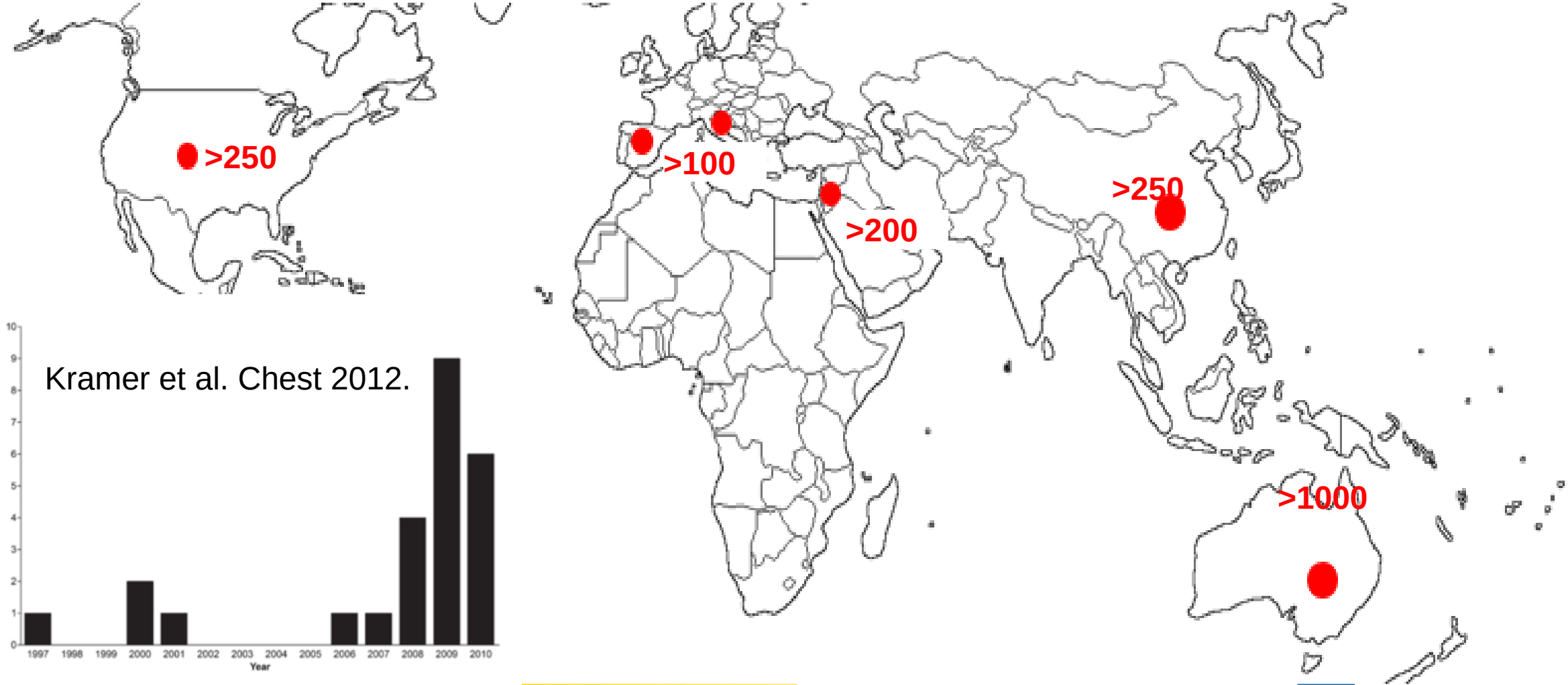
Diagnosed with silicosis



2018

End stage lung disease
Ineligible for transplant

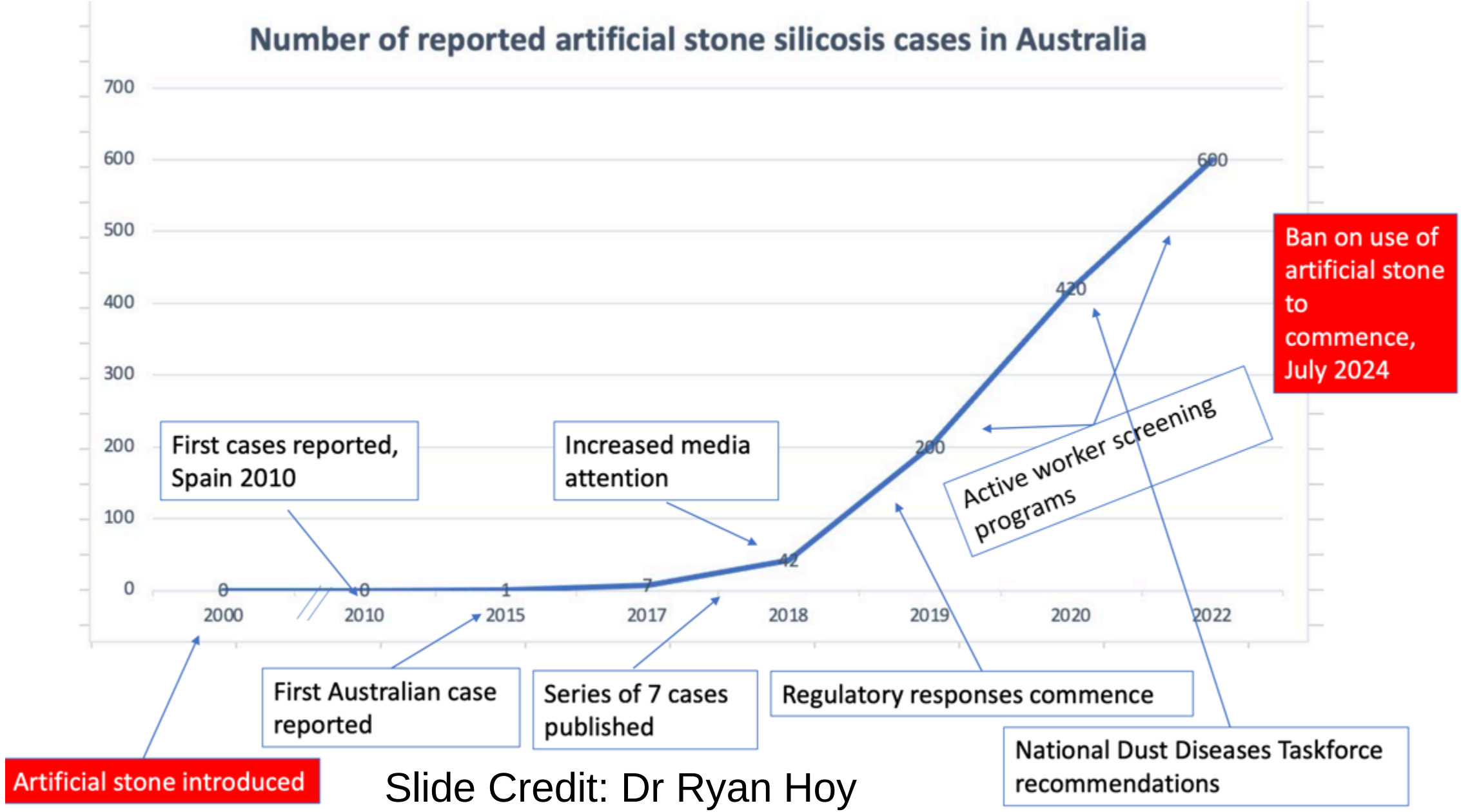
The Global Context of Engineered (quartz) Stone Associated Silicosis



Kramer et al. Chest 2012.

FIGURE 1. Reported cases of silicosis due to engineered stone among lung transplant candidates in Israel.

July 2024: Australia Bans Engineered Stone >1% silica



Slide Credit: Dr Ryan Hoy

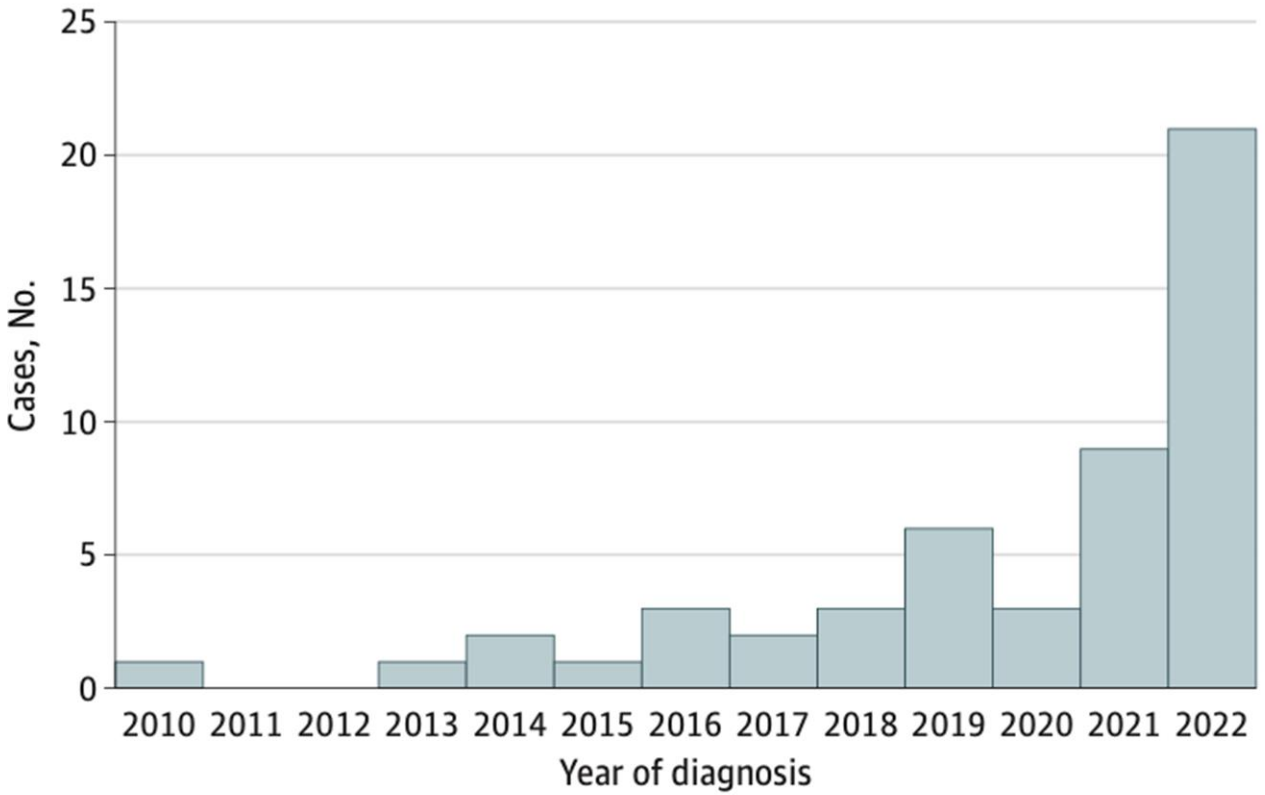
California, 2022

52 Cases

52 Cases identified

- Discharge records, direct clinician reporting, public health follow up
- 71% identified in Los Angeles County

Figure 1. Yearly Case Counts for 52 Patients With Engineered Stone–Associated Silicosis in California, 2010-2022

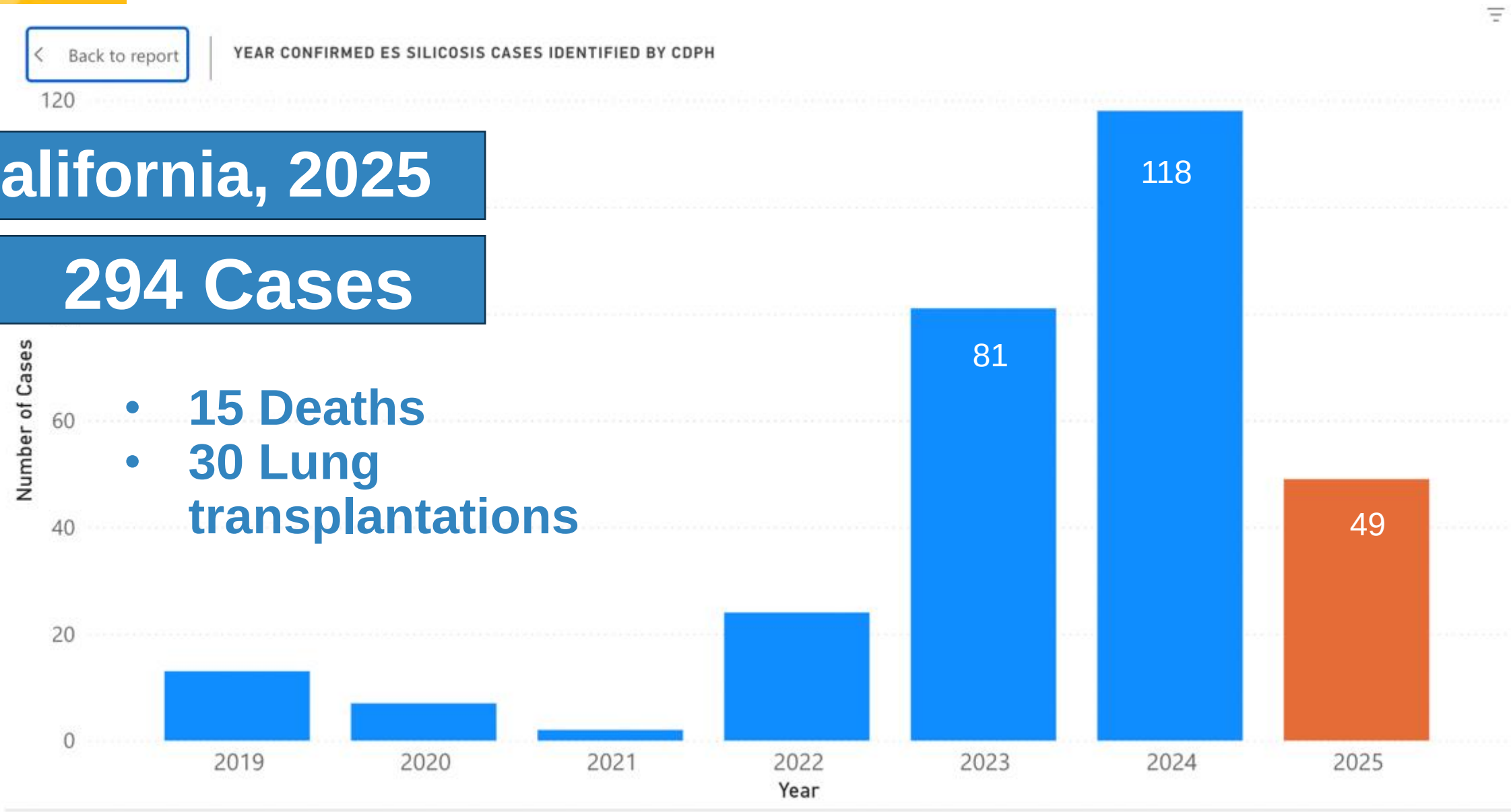


Fazio et al, JAMA Internal Medicine 2023

California, 2025

294 Cases

- **15 Deaths**
- **30 Lung transplantations**

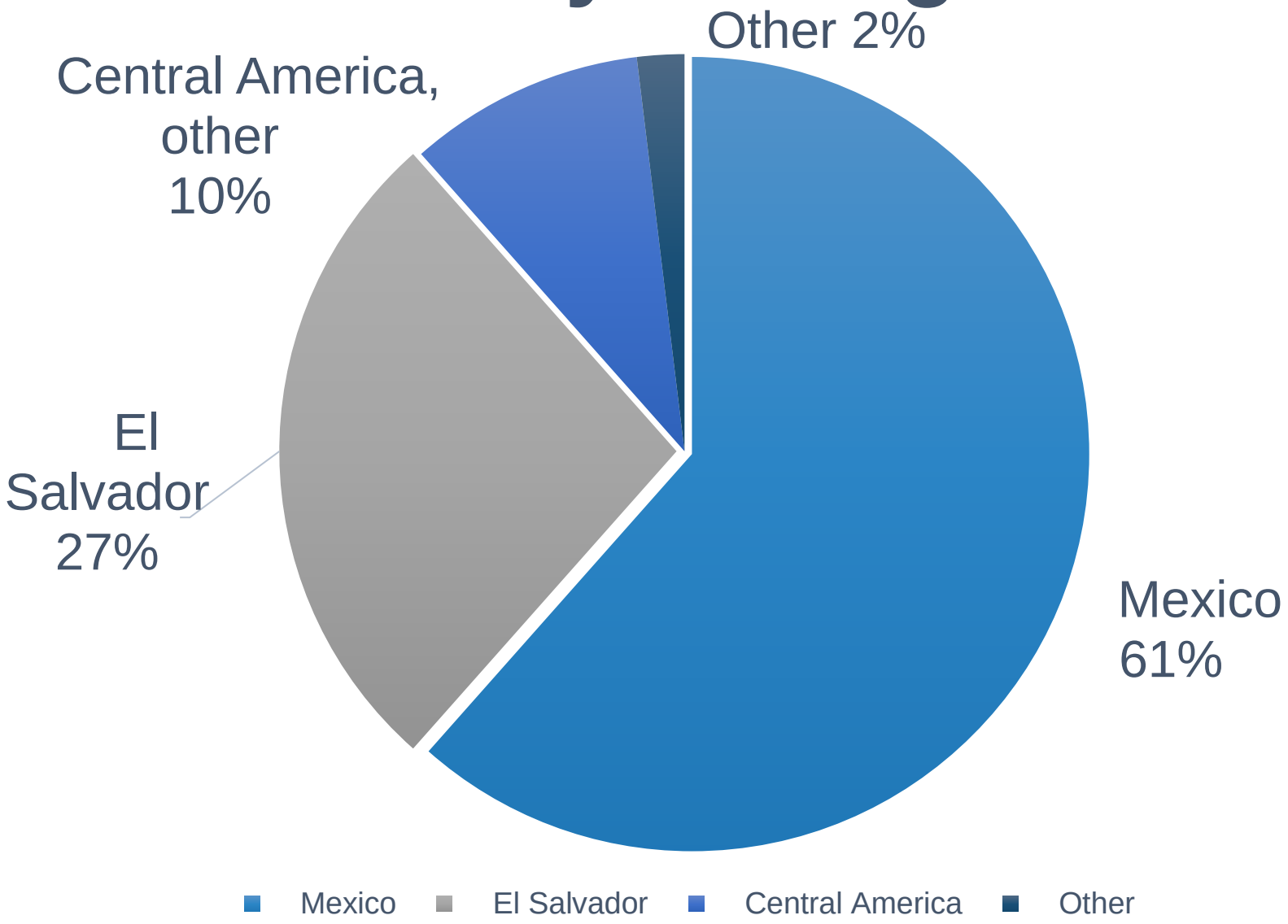


Source: CDPH Engineered Stone Silicosis Surveillance Dashboard: https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/essdashboard.aspx

Who is affected?

- Young Men (99.7 %)
  - 20s-40s
- Latino
- Immigrant
- Los Angeles (57.4%, 169/294)

Country of Origin



Fazio et al, JAMA Intern Med 2023

Underinsured

More than half presumed undocumented

Table 3. Health Care Utilization of Patients With Engineered Stone–Associated Silicosis

Health care utilization characteristic (No. with data available)	Overall (n = 52), No. (%)
Health insurance (52)	
Uninsured or self-pay	10 (19)
Restricted-scope Medi-Cal	20 (38)
Full-scope Medi-Cal	7 (13)
Private insurance	8 (15)
Medicare	0 (0)
Workers' compensation	7 (13)

Fazio et al, JAMA Intern Med 2023

Outcomes

- Progression of disease despite removal of exposure
- High morbidity and mortality
  - Average time from Diagnosis to Death: 3.25 years
    - Misdiagnosis
    - High acuity care (ED/Urgent Care) and lack of follow-up
  - Average Age of death: 46 years

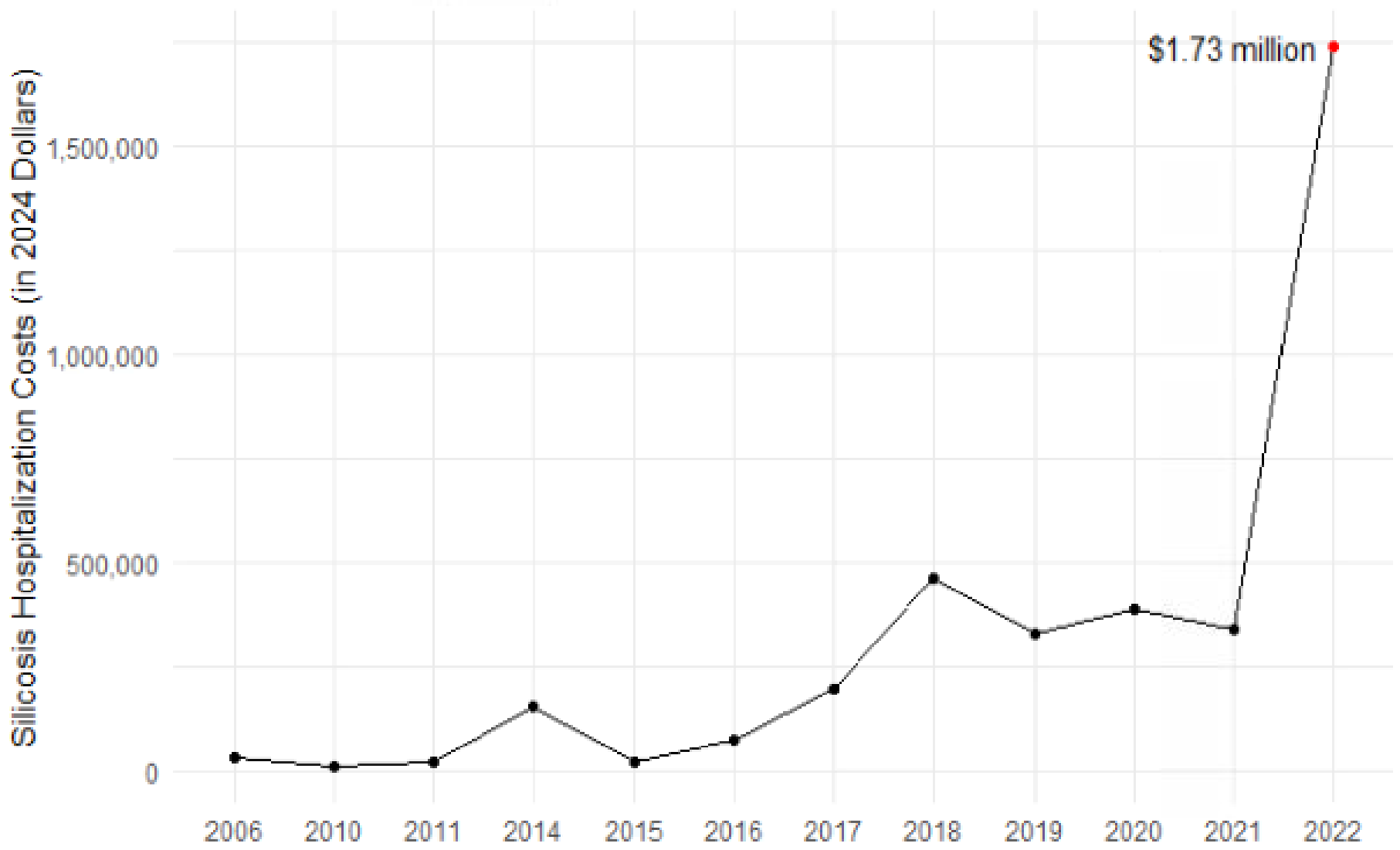
Fazio et al, JAMA Intern Med 2023

Financial Cost of Hospitalizations

Total estimated costs of silicosis-related hospitalizations among confirmed ES silicosis cases by year (2006-2022)

- Total: $4 million
- $27,000 per hospitalization
- Paid by public insurance (65% Medi-Cal)
- Only 2 lung transplants, most costly

- Expect 2023 and 2024 costs to increase substantially

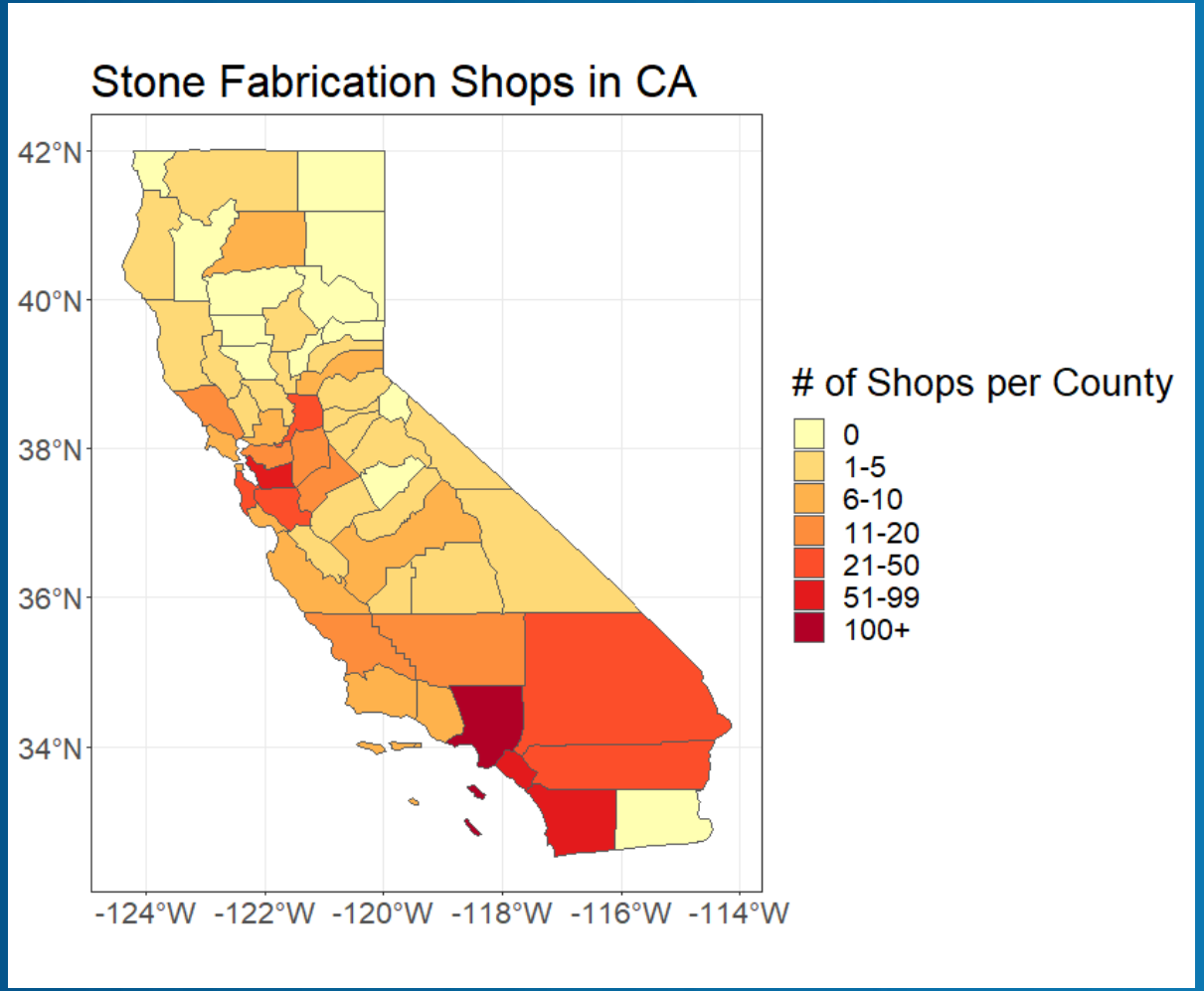


The tip of the iceberg

- At least 20-30% of workers affected

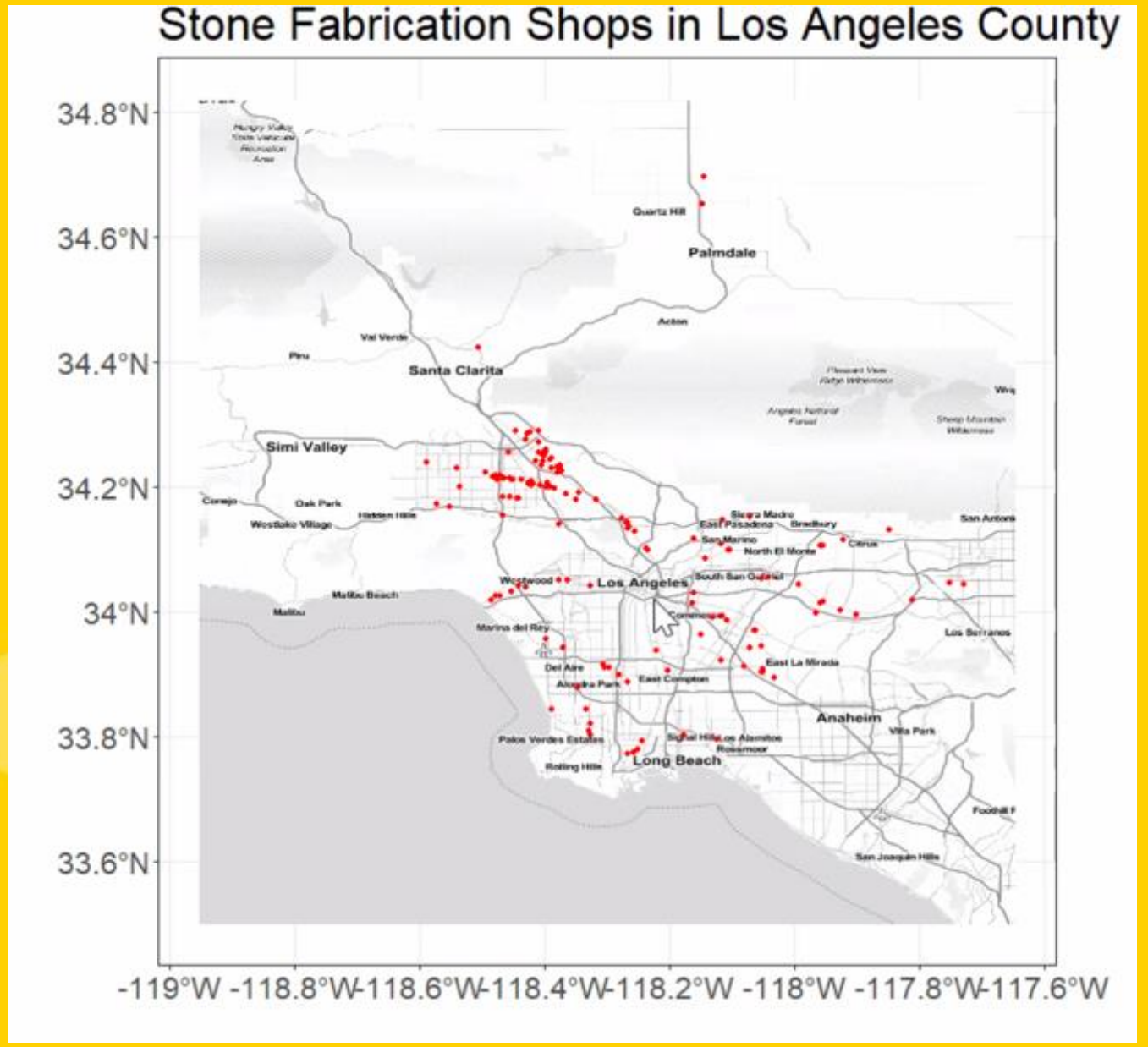
California

- 800 identified shops
- 4000 estimated workers
- **1200+ potential cases**



Hoy et al. Occup, Environ. Med. Aug 2023

Stone countertop shops centered in San Fernando Valley

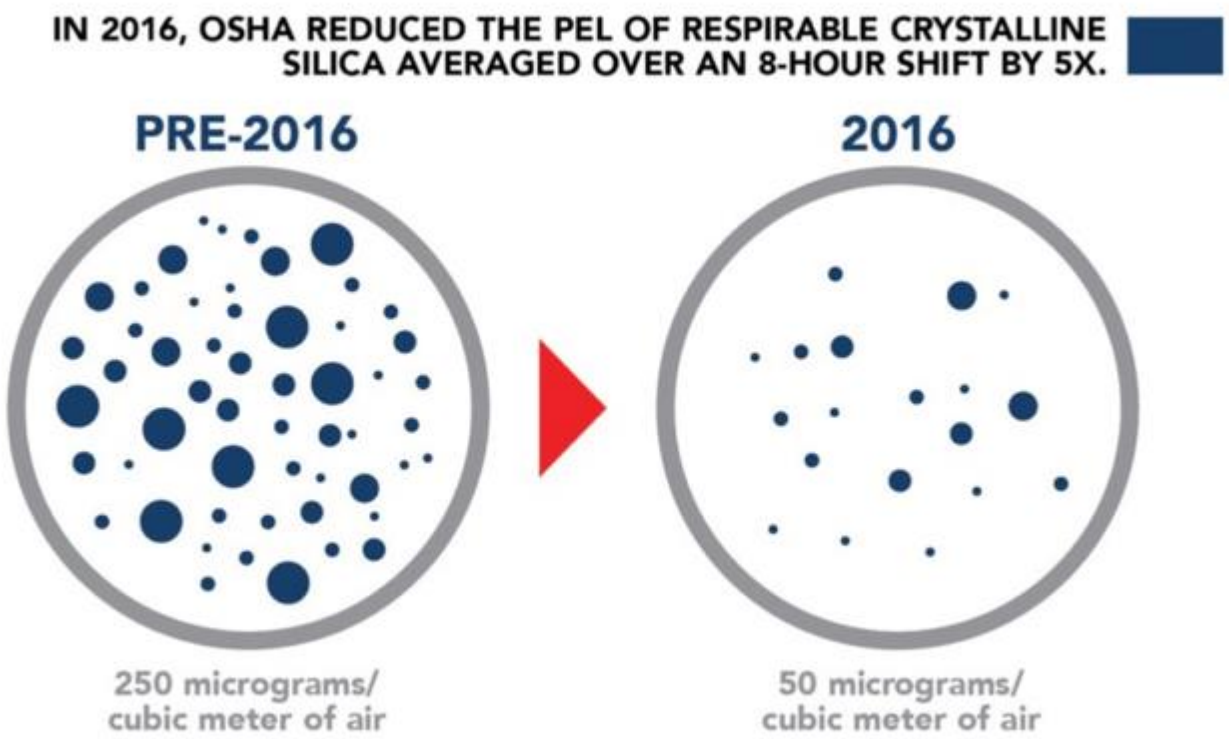


Policy: Silica Standard (2016)

U.S. Department of Labor

OSHA® Occupational Safety and Health Administration

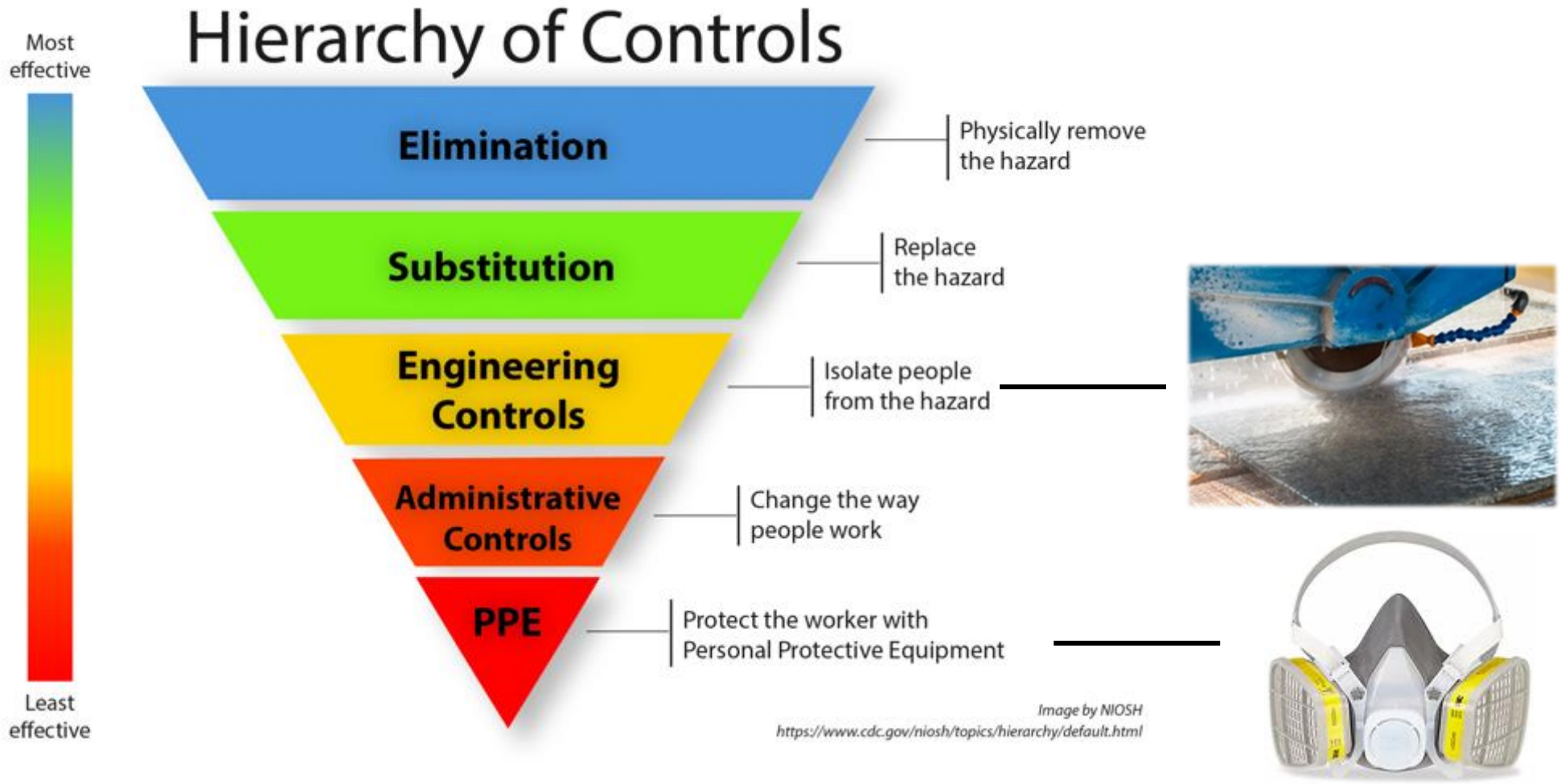
DSG FS-3682 02/2018



- Use **dust controls** (e.g. water saws)
- Written **exposure control plan**
- **Train workers** on health effects
- Offer **medical exams**
- **Keep records** of exposures and medical exams

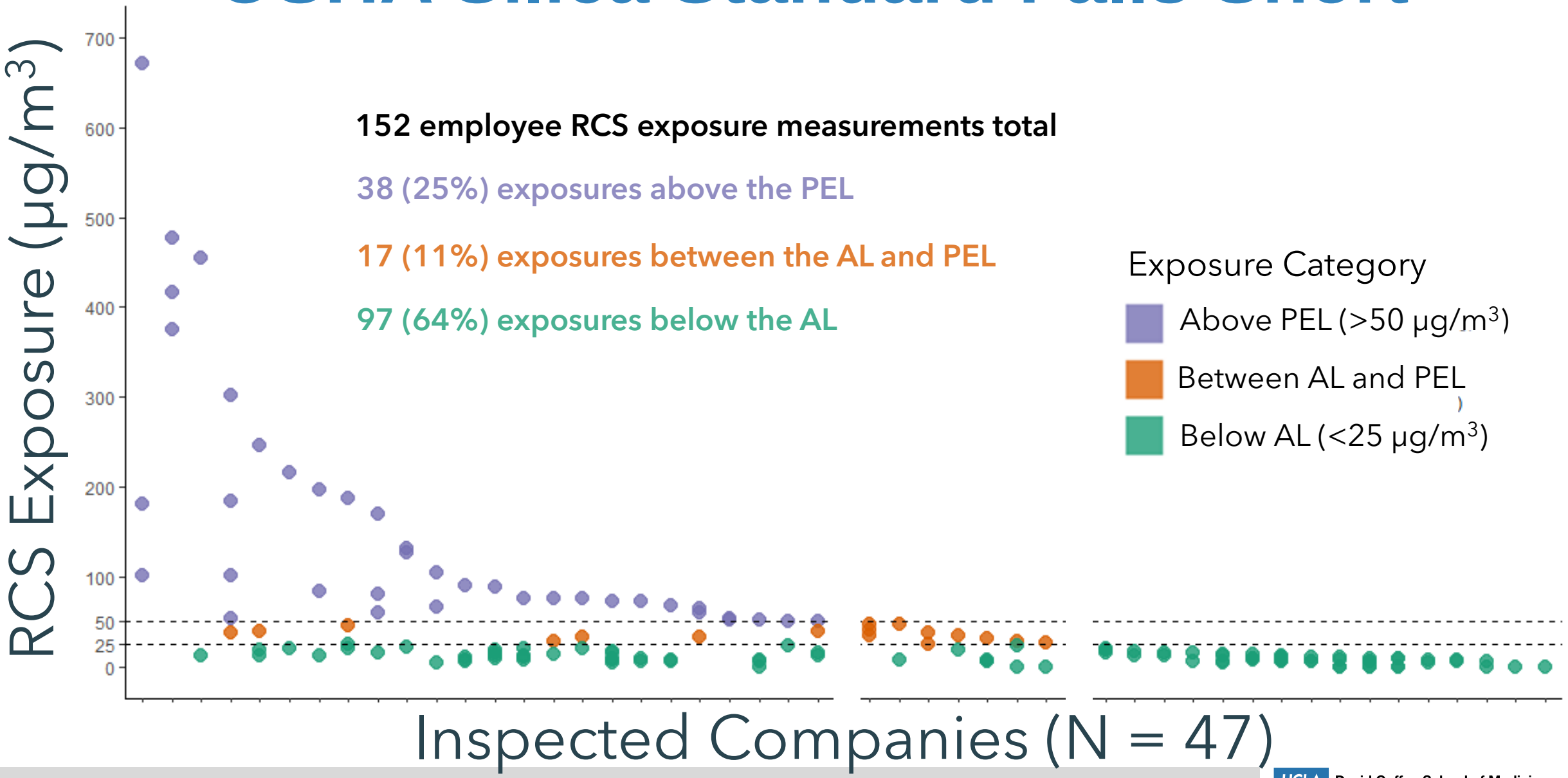
Occupational Safety and Health Administration (OSHA), Department of Labor. Occupational Exposure to Respirable Crystalline Silica. Final rule. *Fed Regist*. 2016;81(58):16285-16890.

Respirators are insufficient and inconsistently used



Hierarchy of Controls | NIOSH | CDC. Published January 17, 2023. Accessed February 10, 2023. https://www.cdc.gov/niosh/topics/hierarchy/default.html

OSHA Silica Standard Falls Short



Surasi et al. *AJIM.* 2022;65(9):701-7

Photo: Jane Fazio

Photo: Jane Fazio

Lack of worker protections

- Exclusive dry-cutting is common
- Inconsistent respirator use

Engineering controls: water suppression methods (51)	23 (45)
Respirator use (47)	
Sometimes	35 (74)
Always	12 (26)
Type of respirator (37)	
N-95	33 (89)
Half-face respirator	17 (46)
Full-face respirator	2 (5)

Computer Numeric Control Machine

Fazio et al, JAMA Intern Med 2023

Spiegel. Am J Ind Med. 2022;65:1022-1024.

Out of Compliance with Medical Screening Exams

Less than 5% of countertop workers have received mandated silicosis screening exam

Fazio et al. NEJM Evidence: Morning Report. Jan 2023

Spiegel et al. Am J Ind Med. 2022;65:1022-1024.

2024 Cal/OSHA- Emergency Temporary Silica Standard, now Permanent

- Called for by Western Occupational and Environmental Medicine Association
- New prohibition on all dry cutting
- Requiring PAPRs

DIR EST. 1927 State of California Department of Industrial Relations

NEWS RELEASE

Release Number: 2024-111

Date: December 19, 2024

▸ español

Standards Board Votes to Adopt Permanent Standard Protecting Workers from Silica Hazards

Sacramento—The Occupational Safety and Health Standards Board voted unanimously today to make emergency regulations permanent, protecting workers from respirable crystalline silica (RCS), especially those who work with artificial, man-made stone.

Legislation: CA House Bill 3043, now SB 20

SENATE COMMITTEE ON LABOR, PUBLIC EMPLOYMENT AND RETIREMENT
Senator Lola Smallwood-Cuevas, Chair
2025 - 2026 Regular

Bill No:	SB 20	**Hearing Date:**	March 26, 2025
Author:	Menjivar		
Version:	March 13, 2025		
Urgency:	No	**Fiscal:**	Yes
Consultant:	Emma Bruce		

SUBJECT: Occupational safety: fabrication activities on stone slab products

KEY ISSUE

This bill addresses worker safety in the stone fabrication industry by, among other things, 1) prohibiting the use of "dry methods" in fabrication; 2) establishing worker training and fabrication shop certification requirements; 3) prohibiting suppliers from providing slabs to unlicensed people and entities; and 4) creating an online database to track violations of health and safety orders.

National Special Emphasis Program

- Fed
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Silica

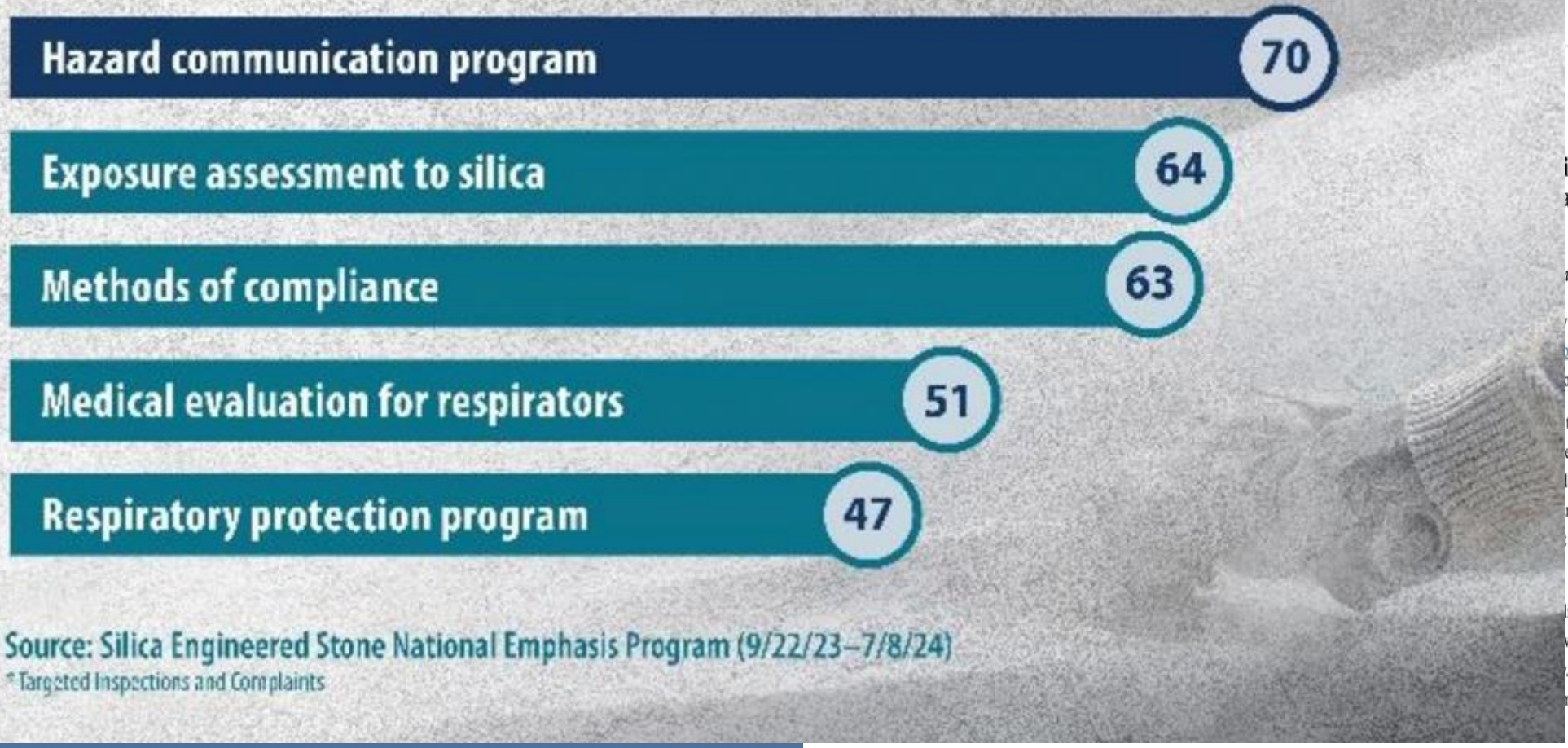
204

Targeted
inspection

ESTABLISH

Source: Silica Enginee

Top Deficiencies Cited at Stone Establishments*



Source: Silica Engineered Stone National Emphasis Program (9/22/23–7/8/24)
* Targeted Inspections and Complaints

initiative to
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and Health
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on industries.

they're unable to
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lica, this
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. It establishes
ment of hazards

LA County Council: Silicosis Motion

Dept. of Public Health and Health Services

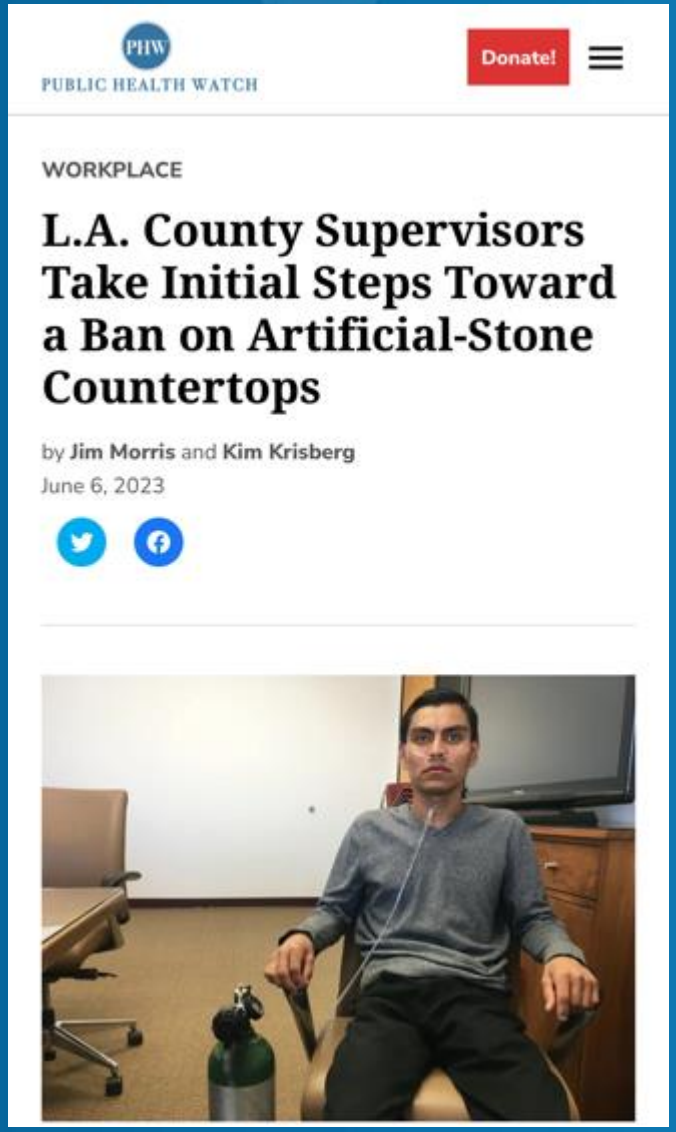
- Outreach and education targeting stone fabricators, employees, and consumers.

Dept. of Public Works

- Recommendations on a County ban on the future use, specification, or purchase of silica engineered stone

CEO of Legislative Affairs:

- Report on legislative and regulatory advocacy options at state and federal levels.



LA County Partnerships

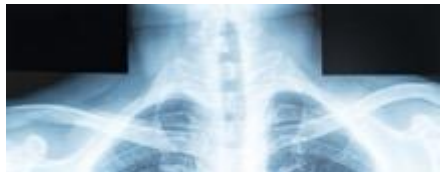
- LA Department of Public Health and Health Services
- Pacoima Beautiful
- IDEPSCA (Institute of Popular Education of Southern California) Home Depot, Van Nuys
- UCLA Labor and Occupational Safety Department
- LADPH Office of Worker Health

California Department of Public Health and Olive View-UCLA Collaboration

California Artificial Stone and Silicosis (CASS) Project: 2021-2026

Workplace: Education

Medical System: Screening and Diagnosis



ACTIVELY ENROLLING WORKERS

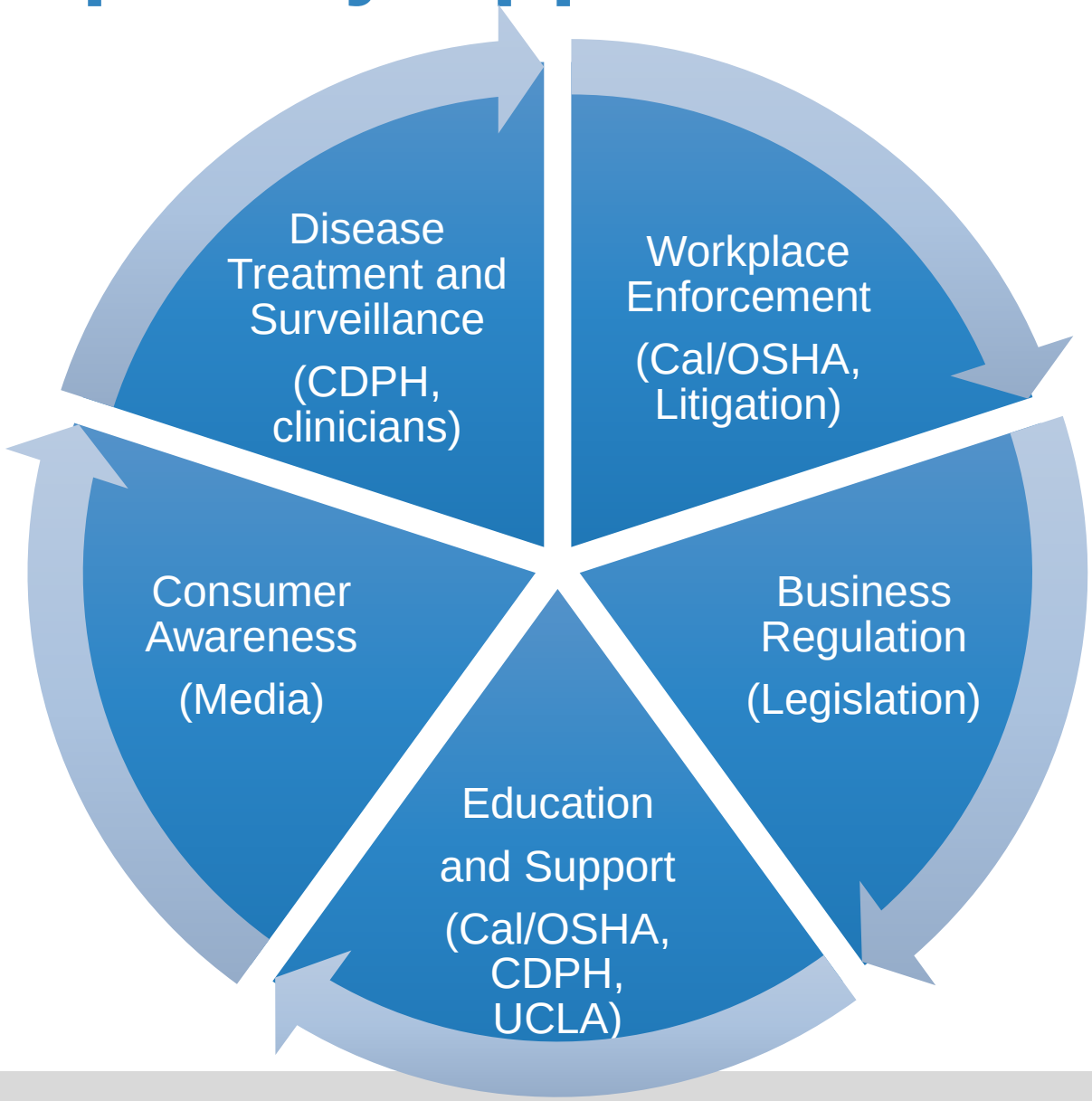
Disease Surveillance and Mandatory Reporting

California Artificial Stone and Silicosis Enhanced Medical Monitoring Study

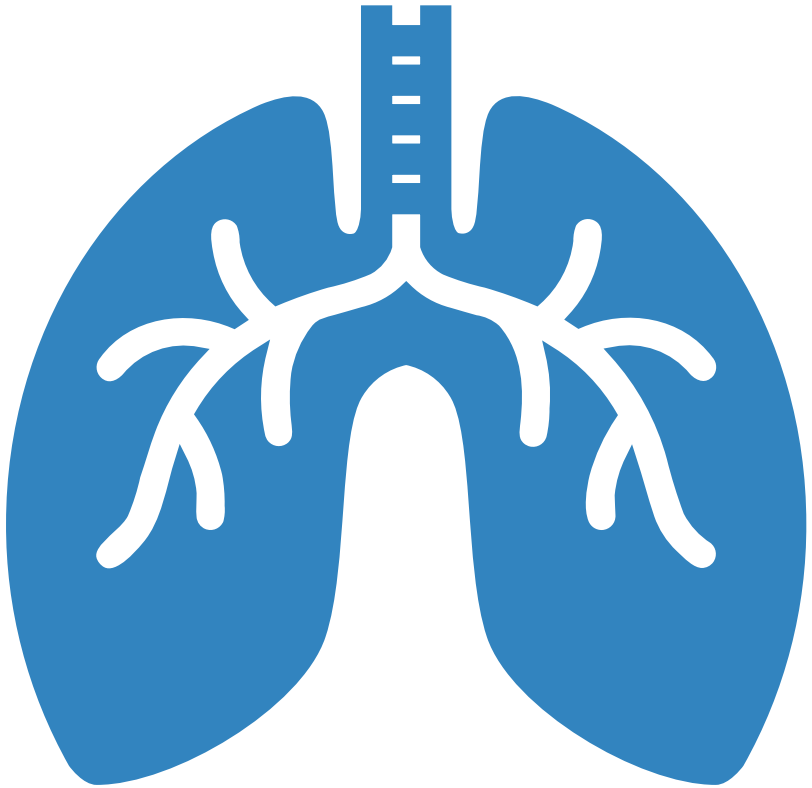
Years 1-2

66 Workers Screened For Eligibility → 62 Enrolled → 50 Completed Screening → 20 (40%) with Silicosis

Multidisciplinary Approach



In Summary



1. Engineered stone silicosis is an epidemic, and Los Angeles is ground zero.

2. Engineered stone's high silica content makes it an inherently hazardous and material to fabricate, despite existing laws and regulations.

3. Development of multidisciplinary collaborations are critical to the effective prevention and treatment of silicosis among countertop workers in LA and CA.

My Patients

Collaborators at CDPH

Colleagues at Olive View Medical Center

Mentors at UCLA Fielding School of Public Health

LADPH

THANK YOU

UCLA David Geffen School of Medicine

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