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Position Statement:

Preventing Occupational Silicosis in Engineered Stone Fabricators

February 24, 2023

Introduction:

The Western Occupational and Environmental Medical Association (WOEMA) is a non-profit association representing over 500 occupational medicine specialists and other health-and-safety professionals in five western states (Arizona, California, Hawaii, Nevada, and Utah). For the past 80 years, WOEMA has championed safe workplaces, healthy workers, and healthful and sustainable environments while honoring the principles of justice, equity, diversity, and inclusion. WOEMA members are experts in workplace disease and in the prevention of occupational injuries and illnesses.

Background:

A recent alarming report found that more than 50 workers in Southern California had developed advanced and irreversible silicosis as a result of their work with "engineered" or "artificial" stone.[1,2] In the past few years, thousands of similar cases have been reported elsewhere in the nation and around the world among workers who cut, grind, or polish engineered stone—produced as a compressed composite of silica powder and adhesive binders and destined for installation in countertops or shelves in kitchens and bathrooms. [3,4] Many of these cases advanced silicosis were severe enough to cause disabling shortness of breath, and some resulted in death or a need for lung transplantation. The prognosis of advanced silicosis is very poor, with an average survival of only 3 to 5 years.

Silicosis is a preventable, progressive, and incurable occupational lung disease, typically caused when workers breathe fine dust that is released during the cutting, grinding, or polishing of materials containing crystalline silica, such as granite, quartz, or engineered stone. Workers exposed over many years to crystalline silica dust will accumulate fine silica particles in their lungs, triggering progressive and irreversible lung scarring that limits the lungs' ability to transport oxygen. These changes are usually evident on chest X-rays, lung CT scans, and routine lung function studies.

These recent California cases are alarming because they show a much faster progression of disease than typically occurs with older forms of silicosis. Many of these new cases have occurred after only a few years of occupational exposure and present not as "simple silicosis" but rather as end-stage lung disease ("progressive massive fibrosis"), often in workers as young as 30 to 40 years of age.[5] In California, these workers are typically immigrant and Latino, employed in smaller shops with fewer than 5 to 10 employees, where awareness of this deadly airborne hazard is low and where employers too often fail to take measures to protect workers from inhaling silica dust. Without better surveillance data, the total number of at-risk workers is difficult to estimate. Still, these cases almost surely represent the tip of an epidemic iceberg. In the coming decade, we will probably see thousands more cases in California, and tens of thousands across the nation.

Advanced occupational silicosis has become more common in the past 10 years due to the rising popularity of engineered slabs for new construction and renovation.[6] Although engineered stone slabs, when undisturbed, appear to pose little danger to the original manufacturers, retailers, or consumers, they pose a tremendous risk to workers who fashion, shape, cut, polish, and install the slabs. The health risks associated with processing engineered stone appear to be significantly higher than those associated with other silica-containing stone, such as granite or marble, because engineered slabs have a higher silica content (often 90 to 95% as respirable crystalline silica, compared to 30 to 50% in granite or quartz) and because the binders themselves may be toxic.

Workplace controls to limit workers' inhalation of silica have been difficult, despite the passage of revised OSHA silica rules in 2016.[7] Dust masks and other filtering respirators often do not effectively prevent inhalation of silica by workers because respirators are easily clogged and can be uncomfortable to wear in the presence of overwhelming clouds of fine airborne dust. Although identifying early disease and preventing the progression of the disease can be accomplished by regular medical testing, currently few workers receive these mandated surveillance exams. Furthermore, employers have little incentive to comply with applicable regulations since fines are relatively small, and the costs of medical treatment for these cases have been shifted from workers' compensation coverage to publicly funded resources such as Medi-Cal.[8]

This emerging epidemic of advanced silicosis cases is a public health problem of great urgency, both because of the magnitude of the health effects and the financial burden, which can run into the millions when lung transplantation and other long-term medical care may be needed.

<u>WOEMA Concerns</u>:

WOEMA is alarmed by these reports of advanced silicosis. We note that several other nations, including Australia, have recently enacted more stringent regulations regarding the sale, fabrication, and installation of artificial stone slabs, with application to retail manufacturers,

distributors, contractors, fabrication shops, and construction inspectors.[9] We believe that the following policy matters deserve urgent attention.

1) *Better clinical and public health research* – Information about the individuals impacted by silicosis is limited by the lack of a reporting structure and limited surveillance resources. Additionally, we urgently need such details as the number and types of workplaces where silica exposures are occurring, the types of exposure associated with more severe cases, the effectiveness of current industrial hygiene practices and worker training, and the efficacy of medical surveillance practices.
2) *Educational outreach to the medical community* - Many physicians, including pulmonologists and other medical specialists, do not know how common silicosis is, and instead, too often attribute workers' lung disease to some other diagnosis, such as "idiopathic pulmonary fibrosis" (unknown cause of lung damage).
3) *Strengthened regulation and oversight of workplaces that process engineered stone* - Current OSHA standards and public health resources appear inadequate to control these hazards.
4) *Improved educational and training resources for workers and managers in fabrication shops with silica exposure* – WOEMA has identified very few training courses or ready-made curricula suitable for educating workers and managers about the hazards and control of respirable crystalline silica in fabrication shops, especially in a language they understand.
5) *Better access to medical care for workers with silicosis* - Recent case reports in California suggest that workers with silicosis often have difficulty accessing medical care and are frequently not covered under workers' compensation, partly because of administrative barriers related to establishing a connection with workplace exposures.

Proposed Action Steps:

WOEMA calls upon our state legislatures, public health agencies, and other regulatory bodies to act urgently to control occupational silica dust exposures, with particular emphasis on engineered stone fabricators, including the following steps:

1) *Declare silicosis to be a reportable disease* – Silicosis should be declared a reportable disease in WOEMA's member states (Arizona, California, Hawaii, Nevada, and Utah), as well as around the nation.[10] If health care workers were required to report silicosis cases, public health officials could compile more accurate case counts, track cases earlier, and prevent future cases more effectively. WOEMA favors requiring all licensed medical providers to report cases of silicosis to state and/or local public health officers when the severity of the disease has reached an early-to-intermediate level.[11]

2) *Enactment of an Emergency Temporary Standard (ETS) by Cal/OSHA and other state OSHA plans for silica exposures arising from the fabrication of engineered stone* – WOEMA believes that the current OSHA silica standards[12] are not sufficiently protective

for workers who fabricate engineered stone. Accordingly, state and federal OSHA silica standards covering the fabrication of artificial stone should be strengthened on an emergency basis, with consideration of the following provisions:

a. These employers should be required to register with, or obtain a permit from, the state OSHA program.[13]
b. Dry cutting and other dry operations which might mobilize crystalline silica dust from engineered stone should be prohibited.
c. Requirements for the deployment of respirators should be strengthened and made similar to the rule in effect for asbestos, requiring "tight-fitting powered, air-purifying respirators" instead of any negative pressure respirator.[14]
d. The penalty structure for violations of the silica standard should be strengthened, so that an employer's failure to implement feasible engineering controls, provide sufficiently protective respirators, or offer medical surveillance examinations could be met with violations classifiable as Serious Violations.

3) *Education of medical providers about silicosis* – WOEMA calls on public health educators and other professional associations to collaborate on alerting the medical community, particularly pulmonologists and primary care providers, about this emerging epidemic and to inform them about steps they can take to intervene when additional cases of silicosis come to light.

4) *New legislation* – WOEMA believes that additional resources will be needed to supplement state agencies' current public health and enforcement activities and to encourage further medical and policy research regarding silicosis arising from the fabrication of engineered stone. To that end, WOEMA encourages legislators in California and in the other four WOEMA states to consider new legislation in order to accomplish the following:
    a. Provide additional funding for the California Department of Public Health for aggressive case-finding and follow-up of reported silicosis cases;
    b. Provide additional funding for the California Department of Industrial Relations for the study of policy changes needed in order to prevent silicosis, expand current enforcement activities, and provide care for workers diagnosed with silicosis;
    c. Provide additional academic grant funding for research into the clinical course of silicosis due to respirable crystalline silica arising from engineered stone and for the treatment of workers with progressive disease ("progressive massive fibrosis");[15]
    d. Fund the development and distribution of effective and practical training modules for workers and employers involved in the fabrication of engineered stone;
    e. Facilitate access by injured workers to pulmonologists and other specialists at hospitals affiliated with the University of California system, and provide

additional incentives for pulmonologists and other specialists to provide medical care for sick and injured workers;[16]

f. Create incentives for workers' compensation carriers to engage in loss-control activities in these fabrication facilities and to promote employer compliance with workplace health and safety regulations;
g. Explore mechanisms to incentivize wholesale vendors and manufacturers to sell engineered stone slabs only to fabricators, contractors, or other facilities that have registered with the Cal/OSHA carcinogen unit and maintain good health and safety practices;
h. Strong consideration should be given to a new fee on the sale of engineered stone slabs to fund public health activities aimed at preventing silicosis and to assist employers and workers in these industries;[17]
i. Consideration should be given to creating a small business assistance fund in California to incentivize smaller fabrication facilities to conduct air sampling, install engineering controls, provide more protective PPE, and offer medical surveillance examinations.

Conclusion

Silicosis among workers who fabricate engineered stone is rapidly becoming an urgent and costly public health problem. WOEMA stands ready to work with legislative and regulatory agencies, public health leaders, and other stakeholders to raise awareness about silicosis, in order to prevent future cases, and assure high-quality medical care for those already affected. The time is long past to stamp out this disabling and entirely preventable disease.

Sincerely,

R. Terrazas, MD MPH
WOEMA President

Acknowledgements: For their helpful suggestions in the preparation of this paper, we are grateful to Drs. Mani Berenji, Robert Blink, Rajiv Das, Rupali Das, Sheiphali Gandhi, Robert Harrison, Steven Levitt, and Paul Papanek.

References:

[1] Morris J and Berenstain-Rojas L (2022). Ancient Lung Disease Strikes Countertop Cutters in Southern California. Public Health Watch, December 2, 2022.

[2] Los Angeles County Department of Public Health (2022). "Vigilant Olive View-UCLA Medical Center Physicians Identify Rare Occupational Lung Disease." Pulse, December 2022. Available at https://dhs.lacounty.gov/olive-view-ucla-silicosis/

[3] Rose C et al (2019). Severe Silicosis in Engineered Stone Fabrication Workers — California, Colorado, Texas, and Washington, 2017–2019. MMWR Weekly / September 27, 2019 / 68(38);813–818. Available at: https://www.cdc.gov/mmwr/volumes/68/wr/mm6838a1.htm

[4] Hoy RF, Glass DC, Dimitriadis C, et al. (2021). Occup Environ Med 78:296–302.

[5] Leso V, Fontana L, Romano R, Gervetti P, Iavicoli I. (2019). Artificial Stone Associated Silicosis: A Systematic Review. Int J Environ Res Public Health. 16(4):568.

[6] León-Jiménez, A., Mánuel, J.M., García-Rojo, M. *et al.* (2021). Compositional and structural analysis of engineered stones and inorganic particles in silicotic nodules of exposed workers. *Part Fibre Toxicol* **18**, 41. See also "Granite is no longer alone in the spotlight," Los Angeles Times, September 17, 2011, at https://www.latimes.com/business/la-xpm-2011-sep-17-la-hm-kitchen-counters-20110917-story.html.

[7] For the Cal/OSHA standard for exposure to silica in General Industry, see 8 CCR 5204.

[8] Surasi K, Ballen B, Weinberg JL, et al. (2022). Elevated exposures to respirable crystalline silica among engineered stone fabrication workers in California, January 2019–February 2020. *Am J Ind Med* 65: 701- 707.

[9] Worksafe Victoria (2022). Compliance Codes – Managing Exposure to Crystalline Silica – Engineered Stone. November, 2022. Available at: https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-risks-respirable-crystalline-silica-engineered-stone-workplace

[10] By way of background, in Caifornia two occupational diseases are already reportable: lead poisoning and pesticide poisoning.

[11] We propose a case definition for silicosis reportabiity as follows: a B-reading score of 1/0 or worse, and/or forced vital capacity / FVC decreased by 30% or more in the setting of silica exposures of approximately 5 years or more, and/or a conclusion by the medical provider that the patient's occupational silicosis has caused significant functional impairment.

[12] See https://www.osha.gov/laws-regs/federalregister/2016-03-25-1

[13] In California, a Cal/OSHA rule (8 CCR 5203) already requires employers to register with the Cal/OSHA carcinogen unit; this provision should be strengthened and more uniformly enforced, with targeted inspections of registered employers.

[14] See Cal/OSHA regulations at 8 CCR 5208(g)(2)).

[15] Three drugs are currently under investigation for the treatment of a related lung disease (idiopathic pulmonary fibrosis) – pirfenidone, nintedanib, and pamreblumab. Whether these drugs might also slow the progression of silicosis, including progressive massive fibrosis,
is unknown.

[16] At present, it is very difficult for injured California workers, covered under workers' compensation, to see medical specialist at UC Hospitals. (Personal communication: members of the WOEMA Legislative Committee 2023.)

[17] A fee of a few dollars per square foot on the sale of engineered stone would marginally raise the sales price (now, typically at $50 to $100 per square foot), and could raise tens of millions of dollars per year for essential public health activities.