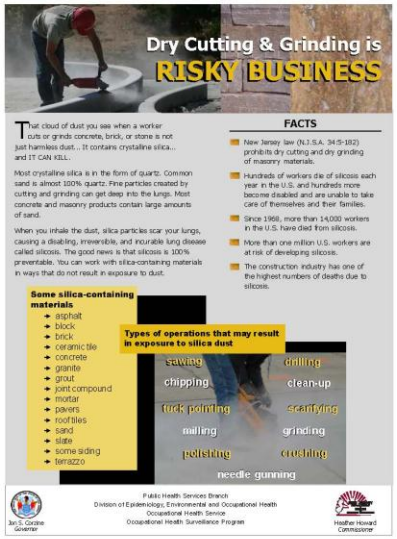
Hazard Prevention and Educational Outreach Efforts

Between 1990 and 2014, the NJDOH conducted four major projects aimed at reducing and eliminating exposure to silica dust:

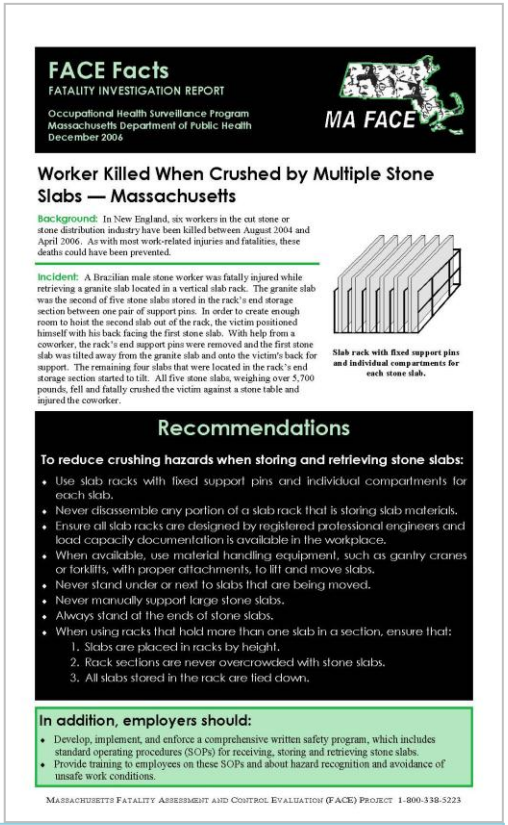
- Preventing silica dust exposure during cutting and grinding of concrete, brick, or stone – **Page 1**
- Controlling exposure to silica dust in dental laboratories – **Page 2**
- Promoting use of the latest dust control technologies in NJ's nonmetal mines – **Page 3**
- Preventing worker exposure to silica during stone countertop manufacturing, finishing and installation – **Page 4**

1. *Silica Exposure from Dry-Cutting and Dry-Grinding*

A hazard surveillance project was conducted to reach workers who cut or grind concrete, brick and stone. The hazard alert, "Dry Cutting and Grinding is Risky Business," and an accompanying survey were mailed to 2,377 NJ companies. The hazard alert, available on the NJDOH website in English and Spanish, details the health hazards of dry cutting and grinding. It also presents recommendations for controlling dust exposure through the use of engineering controls and personal protective equipment. The mailing packet also included a hazard alert developed by the Massachusetts Occupational Health Surveillance Program aimed at preventing injuries and fatalities associated with storing and moving heavy stone slabs.



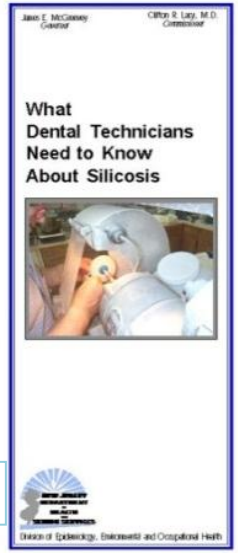
▶ http://nj.gov/health/surv/documents/dry_cutting.pdf



▶ http://www.mass.gov/eohhs/docs/dph/occupational-health/stone-slab-face-facts.pdf

2. *Silicosis in Dental Laboratory Technicians*

This project was prompted by the identification of two cases of silicosis in NJ dental laboratory technicians. When other surveillance states were contacted, additional cases of silicosis were identified among dental technicians. Upon investigation, the materials used to produce dentures and other castings were found to contain large amounts of cristobalite, a toxic form of crystalline silica.Overexposures to silica dust resulted from sandblasting and grinding these materials without adequate local exhaust ventilation or respiratory protection.

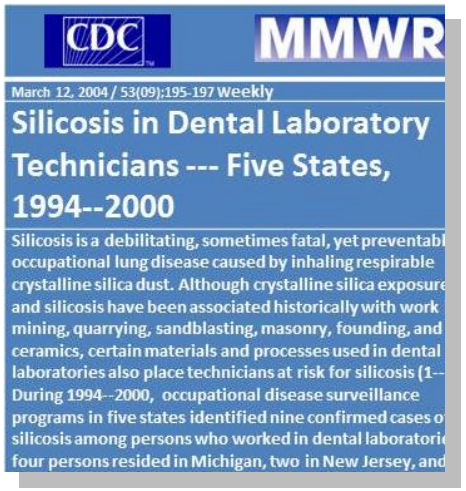


NJDOH developed and distributed an educational brochure, "What Dental Technicians Need to Know About Silicosis," to all dental laboratories in New Jersey. The brochure was also disseminated by the CDC's National Institute for Occuptaional Safety and Health to 15,000 additional labs in the U.S. Recommendations for controlling exposure included: substitution (using materials that do not contain crystalline silica), effective local exhaust ventilation, proper use of personal protective equipment, wet cleanup methods, and use of HEPA vacuums.

▶ http://nj.gov/health/surv/documents/dent_bro.pdf

In order to alert the healthcare community to the hazard, New Jersey and other surveillance states collaborated on publication of a March 12, 2004 article in the Centers for Disease Control and Prevention's Morbidity and Mortality Weekly Report entitled: "Silicosis in Dental Laboratory Technicians – Five States, 1994 – 2000."

▶ http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5309a3.htm


CDC MMWR

March 12, 2004 / 53(09);195-197 Weekly

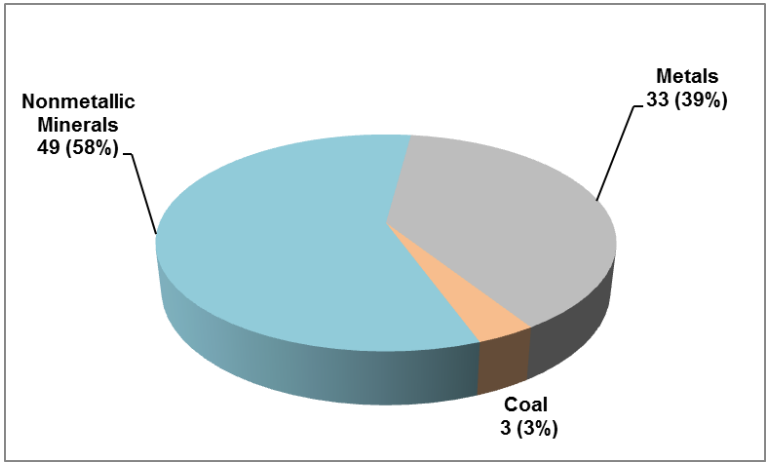
Silicosis in Dental Laboratory Technicians --- Five States, 1994--2000

Silicosis is a debilitating, sometimes fatal, yet preventabl occupational lung disease caused by inhaling respirable crystalline silica dust. Although crystalline silica exposure and silicosis have been associated historically with work mining, quarrying, sandblasting, masonry, founding, and ceramics, certain materials and processes used in dental laboratories also place technicians at risk for silicosis (1-- During 1994--2000, occupational disease surveillance programs in five states identified nine confirmed cases o silicosis among persons who worked in dental laboratori four persons resided in Michigan, two in New Jersey, and

3. *Dust Control in Nonmetal Mining*

Mining is the second leading industry sector associated with silicosis cases in New Jersey. The majority of silicosis cases were related to extraction of nonmetallic minerals like sand, gravel and stone (Figure 1). NJDOH collaborated with NIOSH's Office of Mine Safety and Health Research (OMSHR) and the Mine Safety and Health Administration (MSHA) to identify active mines operating in NJ and better understand the silica hazards identified during MSHA inspections at NJ mines.Using this information, NJDOH developed a fact sheet describing the types of mines and occupations where silicosis cases had been identified and the occupations at risk for overexposures. The fact sheet was mailed to all active nonmetal mines in NJ along with the most recent NIOSH dust control publications for this industry. All materials were posted on a new NJDOH mining industry Web page at: http://www.nj.gov/health/silicosis/mining/index.

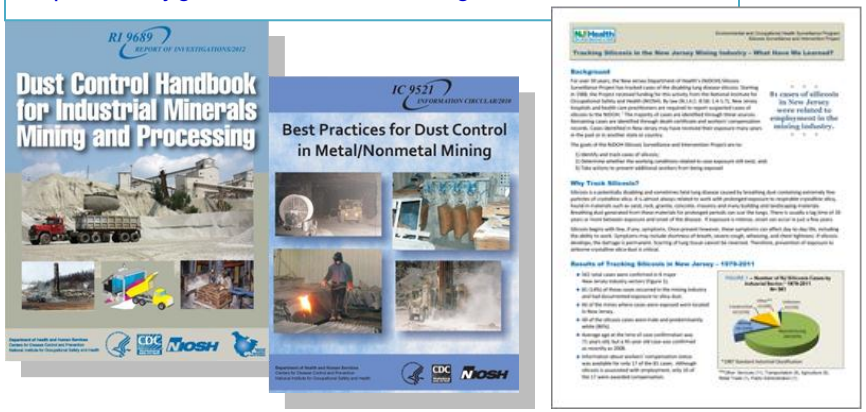
FIGURE 1
Distribution of Silicosis Cases by Mineral Industry Sector
New Jersey, 1979-2013
N=85



Evaluation of the mailing revealed that while most mine operators knew that cases of silicosis continue to be identified in NJ, the mailing provided them with new information about dust control technology in their industry.

A new collaboration with the Rutgers Environmental and Occupational Health Sciences Institute and the New Jersey Department of Labor and Workforce Development is further evaluating risk factors for lung disease and other occupational illnesses among NJ miners.

Educational outreach materials to NJ Mines available at:
http://www.nj.gov/health/silicosis/mining/index



4. *Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation*

Part of silicosis surveillance includes monitoring the latest medical and industrial hygiene literature. A 2012 publication caught the attention of NJDOH staff. It described a cluster of 25 cases of silicosis in Israeli workers who cut, polished and installed a relatively new engineered stone countertop product. Lung impairment in the workers was serious enough to require lung transplantation. Research by NJDOH staff revealed that the products are now made in 15 countries worldwide and that imports to U.S. have risen dramatically (49% in 2014).

Upon closer review of the literature, 46 similar cases were identified in even younger workers in Spain (median age=33yrs) and, most recently, seven more cases were documented in Italy. The three countries were home to the earliest companies producing these engineered stone or quartz surfacing products in the form of slabs. Although there have been no case reports among manufacturing workers, it is the exposure to silica dust during cutting, grinding and polishing that appears to be the risk.

Concern was heightened when review of the manufacturers' MSDS sheets revealed that the silica content of the newer quartz surfacing products can be twice that of natural granite – 90% or more. Other silicosis surveillance states agreed that action was needed to prevent silicosis among U.S. workers who cut, grind, and polish these products. The following actions have been taken:

- NIOSH Science Blog posted: 3/14 – in response, a Texas occupational physician reported 1st known U.S. case. http://blogs.cdc.gov/niosh-science-blog/2014/03/11/countertops/
- Published Case Report in MMWR (2/15) – "Notes from the Field: Silicosis in a Countertop Fabricator-Texas 2014." http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6405a5.htm
- Technical assistance request from Texas resulted in NIOSH Health Hazard Evaluation at fabrication shop of worker (4/15)
- Joint OSHA/NIOSH Hazard Alert issued (2/15) – "Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation" https://www.osha.gov/Publications/OSHA3768.pdf
- NIOSH funded a NORA intramural grant (2/15) – NIOSH Division of Applied Research Technology – "Engineering Control of Silica Dust from Stone Countertop Fabrication and Installation." NIOSH is evaluating a portable, low-cost dust-control booth through field tests in fabrication shops
- NJDOH staff brought together NIOSH engineers and industry reps (Marble Inst. of America, Stone World Magazine Editor/Writers). NJDOH, NIOSH, and BNP Publishers working together to author articles about practical dust control measures for fabrication shops focusing on literature-based tasks/tools posing greatest risk
- NJDOH sent a mailing containing the OSHA/NIOSH Hazard Alert to 220 stone fabrication shops and 160 occupational health practitioners