



Beryllium disease among construction workers at U.S. DOE nuclear sites

Beryllium disease among construction trade workers at Department of Energy nuclear sites: A follow-up

Marianne Cloeren, John Dement, Joanna Gaitens, Stella Hines, Liliana Diaz, Yazmeen Tembunde, Kim Cranford, Janet Shorter, Terry Mosier, Knut Ringen, American Journal of Industrial Medicine, 2022.

Overview

In the 1990s, the U.S. Department of Energy (DOE) recognized that workers at its nuclear facilities were at risk for occupational diseases related to beryllium exposure. The Building Trades National Medical Screening Program (BTMed), which provides free, periodic screening exams to former DOE construction workers, offers participants a blood test called the beryllium lymphocyte test that can identify beryllium sensitization (BeS). In this study, researchers used the records of 21,854 BTMed participants to estimate beryllium disease risks and claims-to-acceptance rate for chronic beryllium disease in a federal compensation program administered by the U.S. Department of Labor. Stratified analyses were used to explore trends in disease frequency by age, race, sex, DOE employment duration, site, trade group, and cigarette smoking history.

Key Findings

- Among workers found to be sensitized to beryllium, most had no understanding of how they were exposed.
- The study found that 202 of the workers tested—1.2% of the total—had beryllium sensitization (BeS).
- Of the 177 workers with BeS interviewed, 35 (19.8%) accepted a chronic beryllium disease (CBD) compensation claim.
- The claims acceptance rate among BeS workers increased with years of DOE employment, from 8.4% for those with fewer than 5 years to 33.3% for 25 or more years.
- Prevalence of BeS was highest for workers who worked at Brookhaven National Laboratory, followed by the Kansas City Plant.
- The risk of those with BeS then developing CBD relates to the number of years working on a DOE site.
- Construction workers are being exposed to beryllium in complex ways, which may require different control measures. The findings suggest that OSHA should reevaluate its guidelines on skin exposures given that these may be contributors to the cause of BeS.
- The study's data suggest the need for improved ways to identify routes of exposure in construction work, improved worker education about beryllium exposure risk and health hazards, and continued screening for BeS.

For more information, contact:

Marianne Cloeren: mcloeren@som.umaryland.edu

Read the abstract:

<https://bit.ly/46tZY2>





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Marianne Cloeren MD, MPH¹  | John Dement PhD² |
Joanna Gaitens PhD, MSN, MPH¹  | Stella Hines MD, MSPH¹  | Liliana Diaz BA¹ |
Yazmeen Tembunde BS¹ | Kim Cranford RN³ | Janet Shorter RN³ |
Terry Mosier RN, BSN³ | Knut Ringen PhD⁴  | Beryllium in Construction

¹Division of Occupational and Environmental Medicine, University of Maryland School of Medicine, Baltimore, Maryland, USA

²Division of Occupational and Environmental Medicine, Duke University Medical Center, Durham, North Carolina, USA

³Zenith American Solutions, Covina, California, USA

⁴Center for Construction Research and Training, Silver Spring, Maryland, USA

Correspondence

Marianne Cloeren, MD, MPH, Division of Occupational and Environmental Medicine, University of Maryland School of Medicine, 11 S Paca St, Suite 200, Baltimore, MD 21201, USA.

Email: mcloeren@som.umaryland.edu

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Abstract

Background: Construction workers at U.S. Department of Energy (DOE) nuclear weapons facilities are screened to identify DOE-related occupational illnesses, including beryllium sensitization (BeS) and chronic beryllium disease (CBD). The study objectives were to estimate beryllium disease risks and the CBD claims acceptance rate in the energy workers' benefits program.

Methods: Workers diagnosed with BeS via beryllium lymphocyte proliferation test (BeLPT) included in screening examinations were interviewed about subsequent diagnosis of CBD. We estimated the proportion who developed CBD based on the ratio of CBD cases, based on self-reported compensation claim status, to all workers with BeS interviewed. We used stratified analyses to explore trends in disease frequency by age, race, sex, DOE employment duration, site, trade group, and cigarette smoking history.

Results: Between 1998 and 2020, 21,854 workers received a BeLPT; 262 (1.20%) had BeS (two abnormal or one abnormal plus one borderline test); 212 (0.97%) had a single abnormal BeLPT. Of 177 BeS workers interviewed, 35 (19.8%) reported an accepted CBD compensation claim. The claims acceptance rate among BeS workers increased with years of DOE employment, from 8.4% with <5 years to 33.3% for >25 or more years. Five of 68 interviewed workers with a single positive BeLPT reported CBD claim acceptance; an additional CBD case was confirmed by chart review (8.8%).

Conclusions: Years of DOE work predict the risk of developing CBD among those sensitized and getting a claim for CBD accepted. Ongoing surveillance and increased awareness of the risk of beryllium exposure and CBD as an occupational disease among construction workers are needed.

KEYWORDS

beryllium, construction, medical surveillance