



A Survey of Former Uranium Workers

August 2009

Post '71 Uranium Workers Committee:

Linda Evers, Cipriano Lucero, Liz Lucero,
Yvonne Martinez, Gilbert Sparkman

P.O. Box 1591
Grants, NM 87020

www.post71exposure.org

Post '71 Uranium Workers Committee

We are a voluntary committee dedicated to uranium miners, millers, and transporters who worked after 1971 and are suffering adverse effects of uranium exposure.

The Post '71 workers survey was created and administered by the very people who worked in uranium mining and milling —
the workers and their family members.



Thank You

Post '71 Research Project Financial Contributors

- Post '71 Worker Cash Contributions
- Andrew Norman Foundation
- Bread for the Journey
- Southwest Studies Department/ The Colorado College



Thank You

In Kind Contributors

- Post '71 Volunteers: Cipriano & Liz Lucero, Linda Evers & Kacee Bahl, Gilbert & Rose Sparkman, Abe Medina, Israel Martinez
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Technical Support: Christen Lara

Goals of Post '71 Uranium Workers Survey

To Assess the need for:

- Further research on Post '71 workers uranium-related health conditions
- Compensation for uranium-related health conditions of Post '71 workers
- Expansion of RECA compensable diseases



Voluntary Post 1971 Survey/Questionnaire For:
Uranium Miners, Millers, Transporters

**YOUR INPUT IS IMPORTANT! PLEASE PRINT, IN A LEDGIBLE MANNER
TO ENSURE YOUR INFORMATION IS COUNTED!**

Miner, Miller, Transporter Name: _____
Last First Middle

Mailing Address _____
City State Zip Code

Date of Birth _____

Name of Uranium Company/Corporation and/or Associated Contractor (UC or AC):
(Please check all that apply)

| UC or AC | Date(s) Employed | Your Age at Time of Employment | Estimated Height/Weight at time of Employment |
|--|---------------------|--------------------------------------|--|
| United Nuclear/Homestake N53 Mill | | Height | Weight |
| United Nuclear/Homestake Churchrock Mill | | | |
| United Nuclear/Homestake Churchrock Mine | | | |
| United Nuclear/Homestake Ambrosia Lake Mine Section | | | |
| Kerr McGee (Quivera) Mill Section | | | |
| Kerr McGee (Quivera Mine Section | | | |
| Kerr McGee (Quivera) Haystack Mine | | | |
| Gulf (Chevron) Mine | | | |
| Anaconda (ARCO) Old 66 Mill Paguate | | | |
| Anaconda (ARCO) Open Pit Mine Paguate | | | |
| Anaconda (ARCO) P10 Mine Paguate | | | |
| Sohio Western L Bar Mill | | | |
| Sohio Western L Bar Mine | | | |
| Ranchers | | | |
| Anna Lee | | | |
| Other: | | | |

The Survey

The Post '71 survey was for any uranium worker employed in New Mexico after 1971.

Between 1971-1982, New Mexico's uranium workers were about one third to one half of all uranium workers in the United States.

Second Supplemental Survey

The first 2007 survey did not have clear directions about medical conditions.

About half of the workers responding did not provide health information.

Post '71 mailed out a second or supplemental survey in 2009 to all who took the first survey.

Post '71 Survey Respondents

1302 workers responded to the surveys as follows:

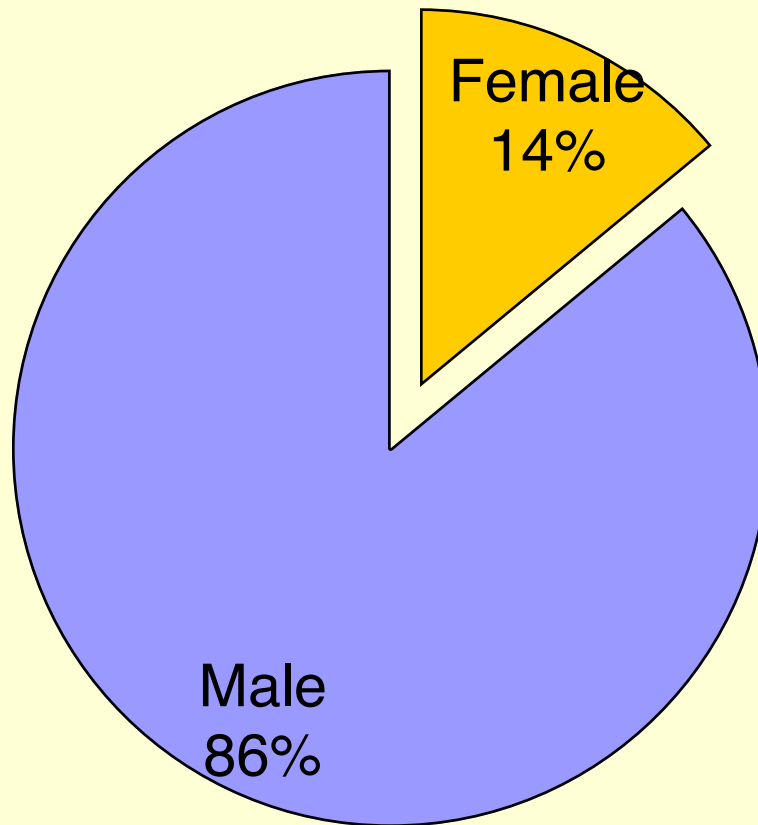
| | |
|---|-------------|
| Provided medical information in first survey but didn't return second survey | 351 |
| Provided new or updated medical information on second survey | 695 |
| Total who provided medical information on self and/or family between both surveys. | 1046 |
| Did not provide medical information on either survey | 184 |
| Were not eligible because they didn't work in NM | 72 |



Post '71 Workers

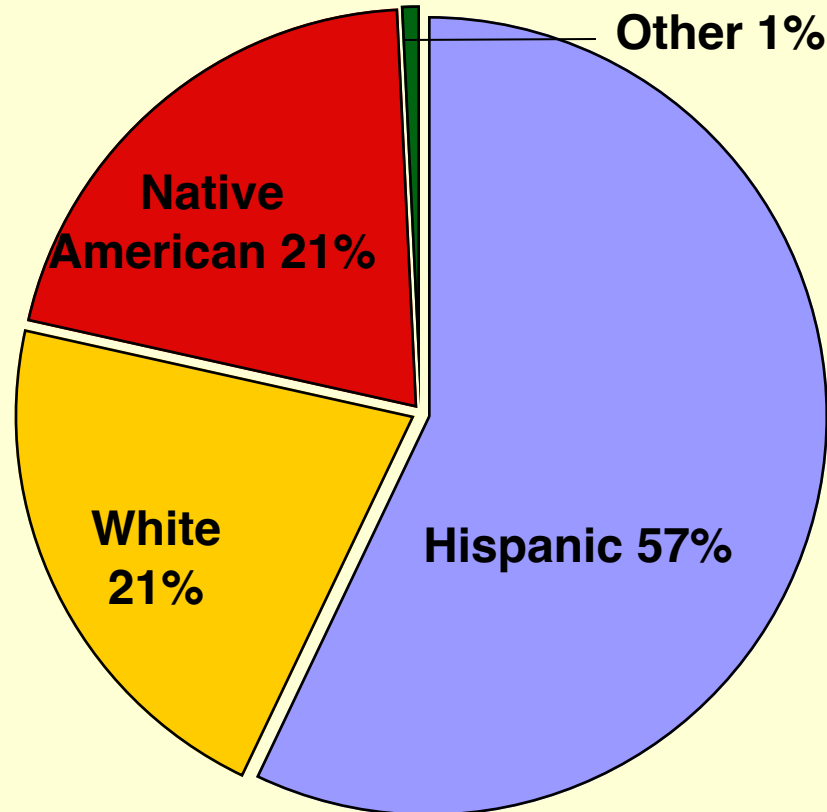
Who are the survey participants?

Workers: Gender



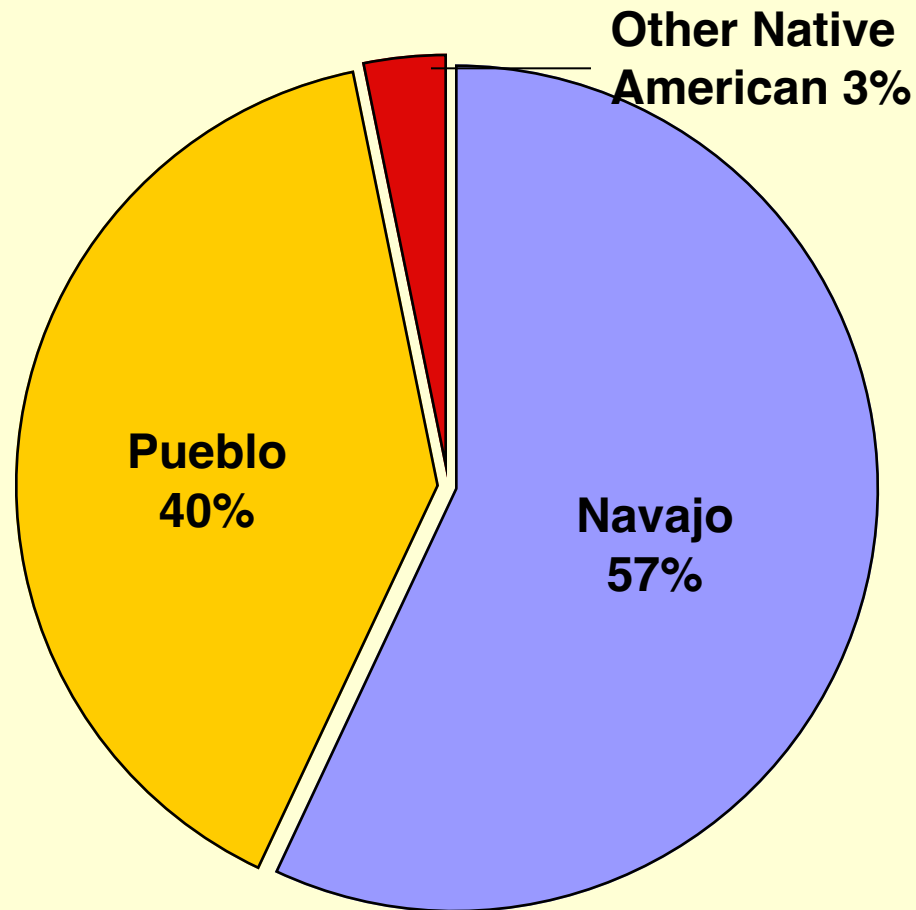
Workers reporting health conditions for self and/or family:
904 male and **142** female.

Workers: Ethnicity



*Workers reporting health conditions for self and/ or family:
597 Hispanic, **224** White, **217** Native American, and **8** other ethnicities.*

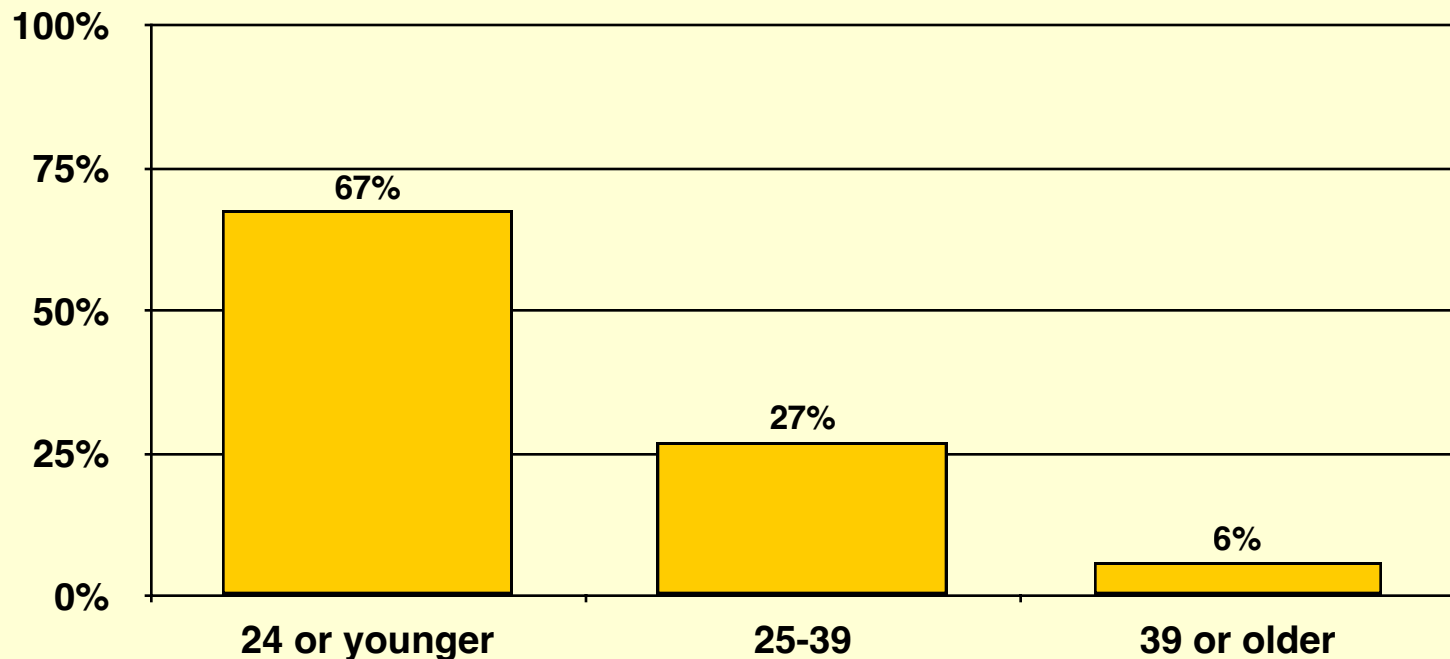
Workers: Native Americans



*Native American workers reporting health conditions for self and/ or family:
123 Navajo, **86** Pueblo, and **7** Other Native American.*

Workers: Age

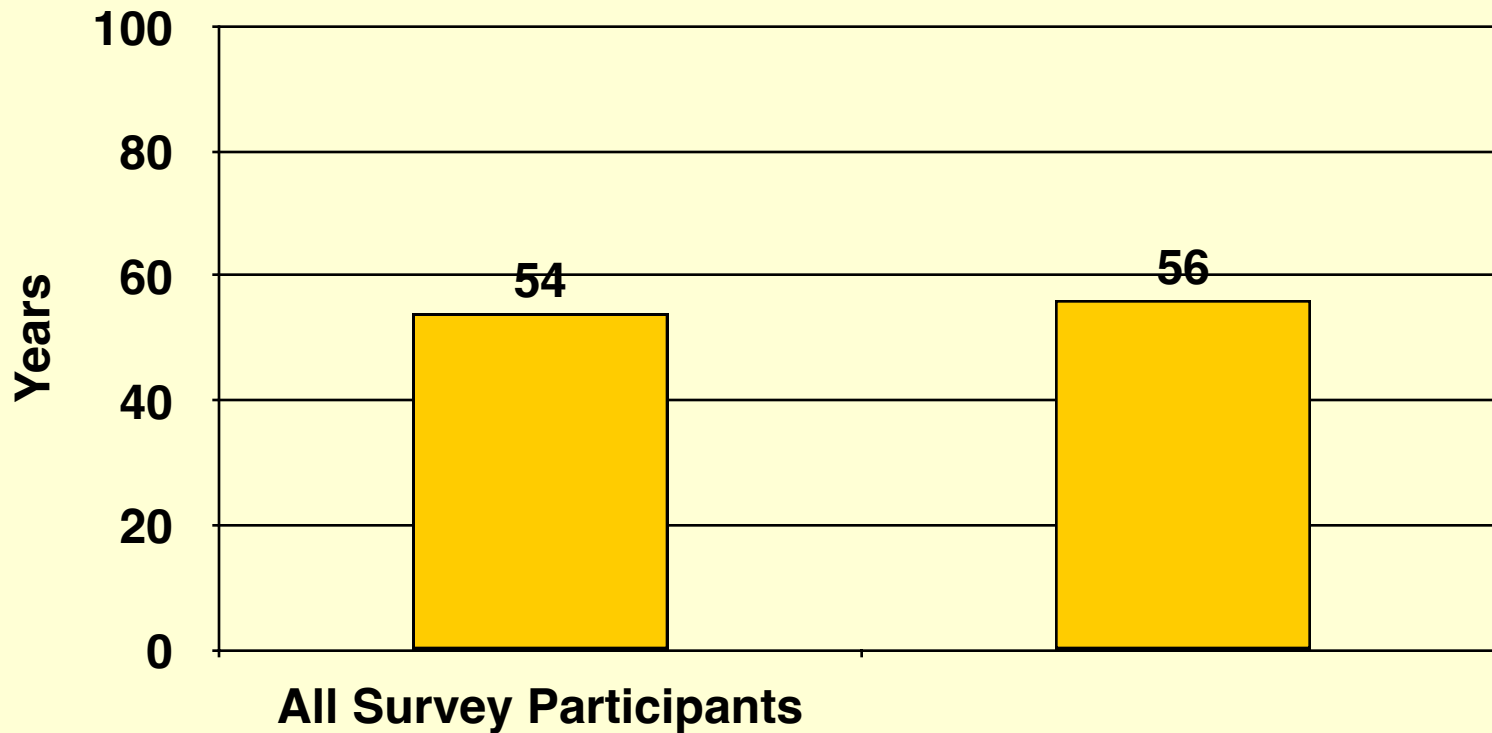
Age of Workers When First Employed



Workers reporting health conditions for self and/or family:
686 began work at 24 or younger, **274** began between 25 and 39, **58** began at 39 or older.

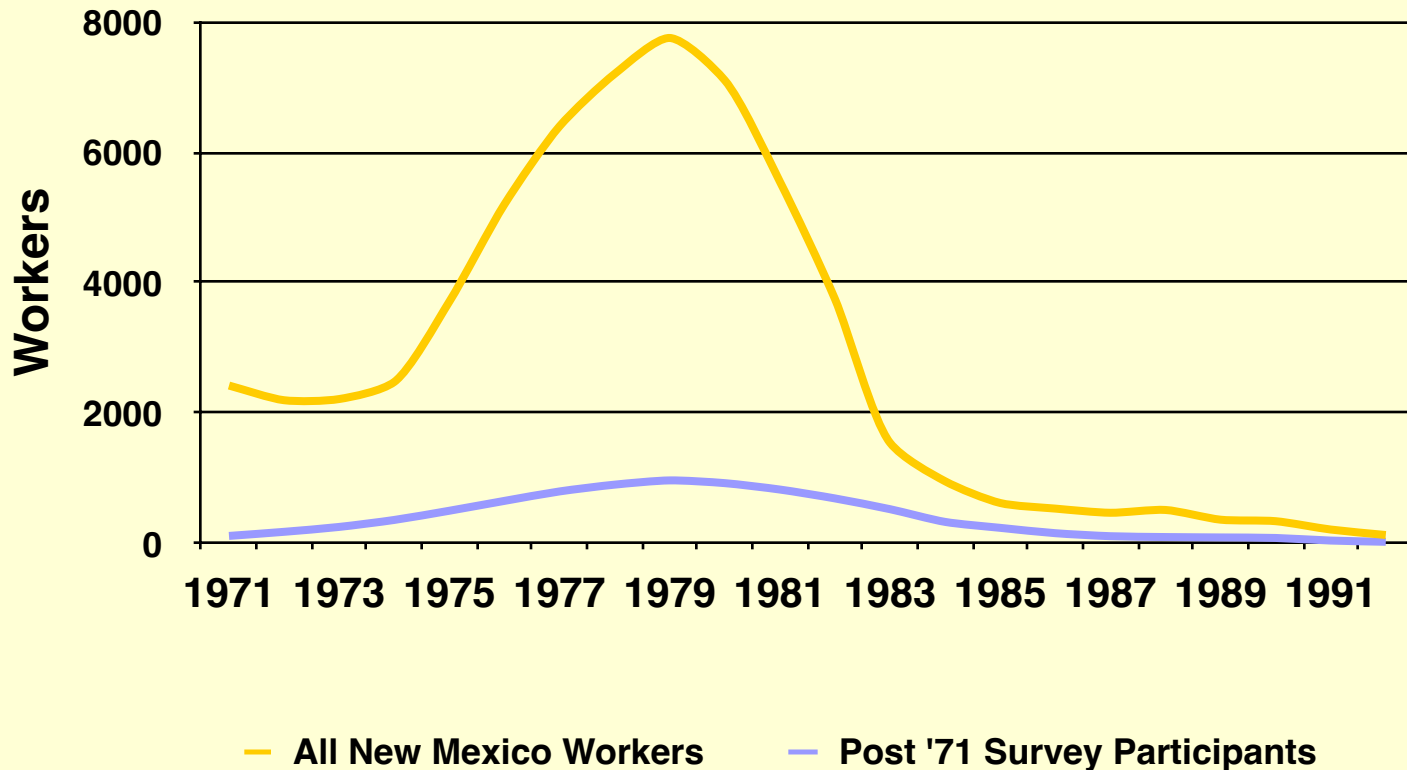
Workers: Current Median Age

Is this an elderly population?



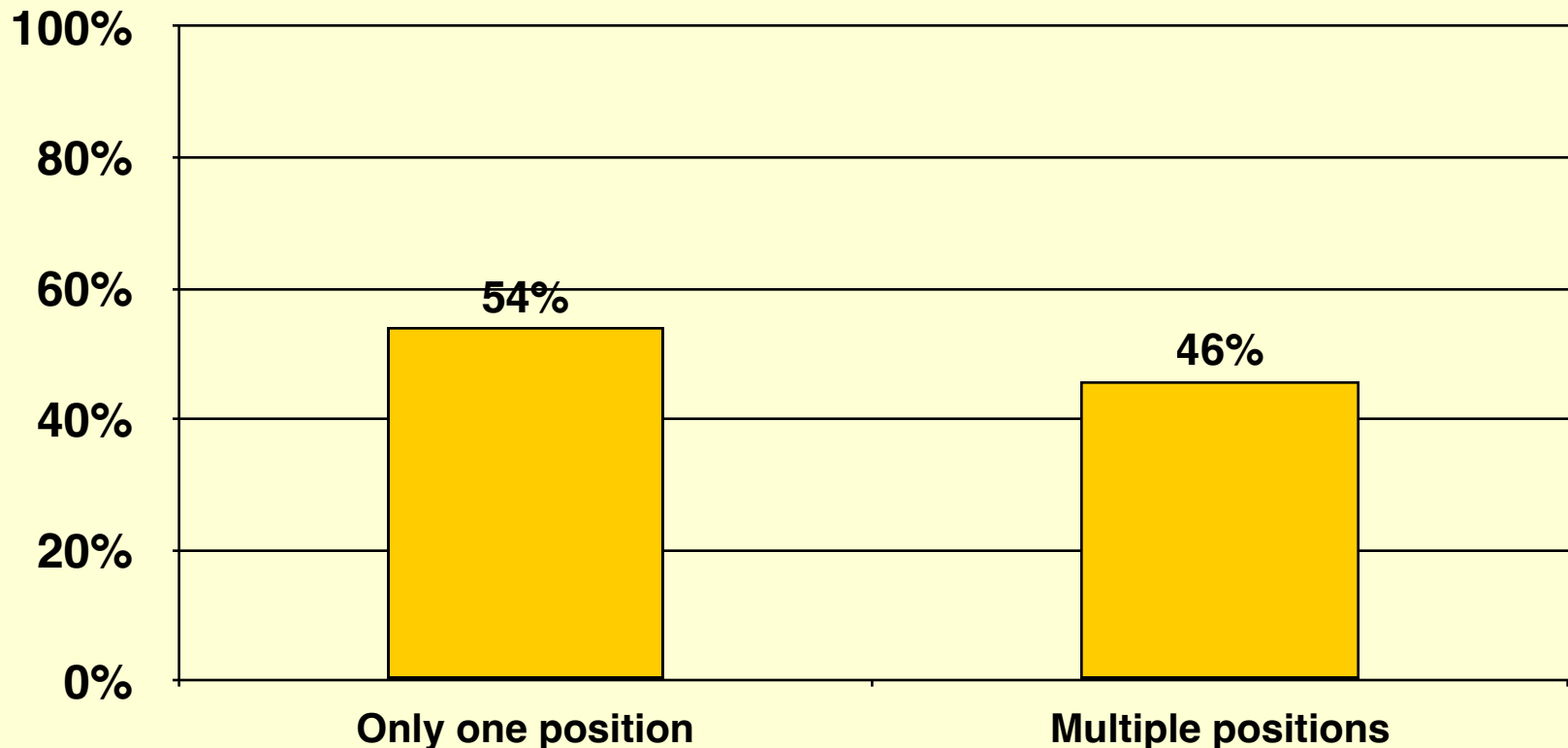
Uranium Workforce: 1971-1992

Post 71 Survey Participants are representative of the NM Uranium Workforce



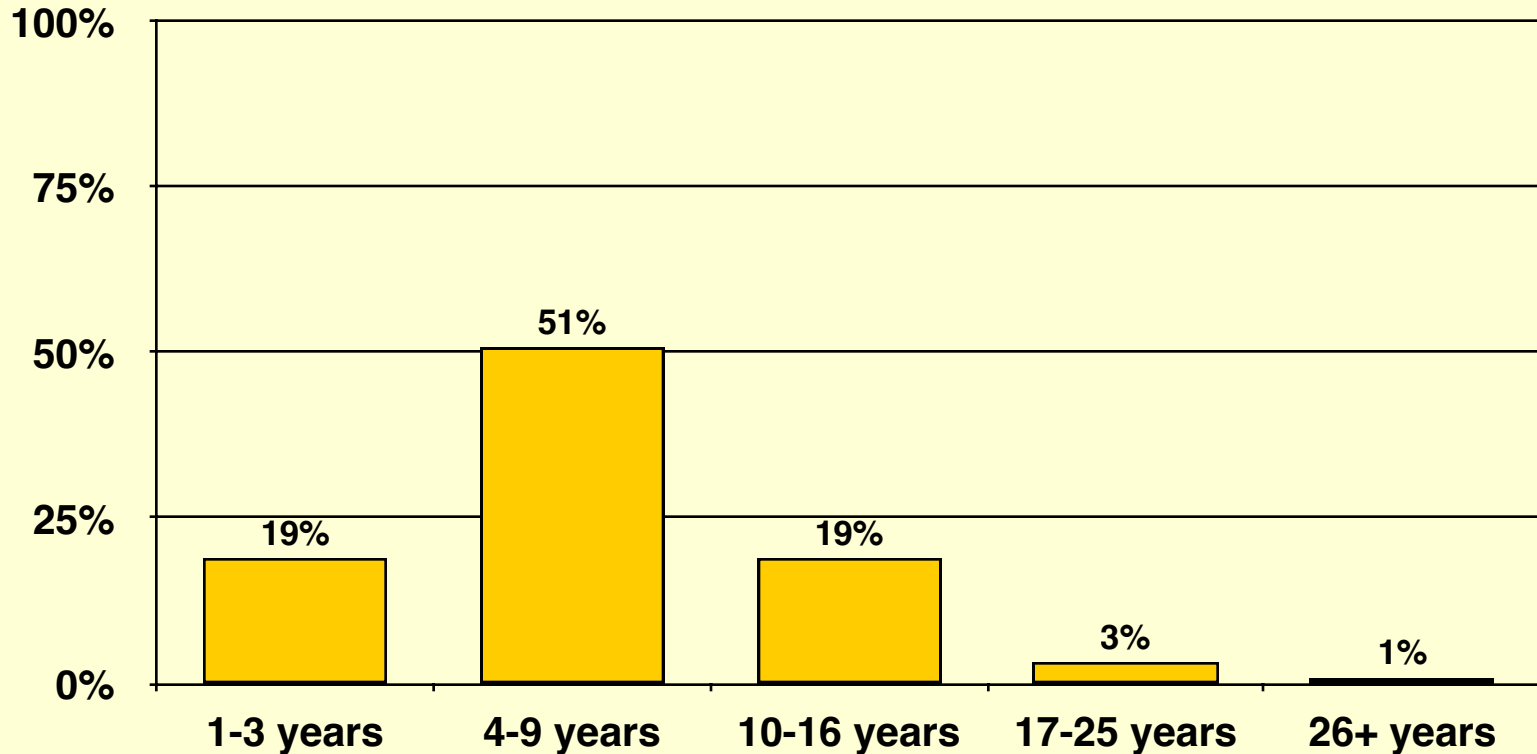
Yellow line shows number of survey participants who worked each year.
Blue line shows total number of NM uranium workers each year.

Workers: Job Categories



*Of all workers: **666** had only one occupation (**11** are ore transporters, **53** are laborers, **55** are millers, **185** are tech support, **362** are miners), and **566** had multiple occupations.*

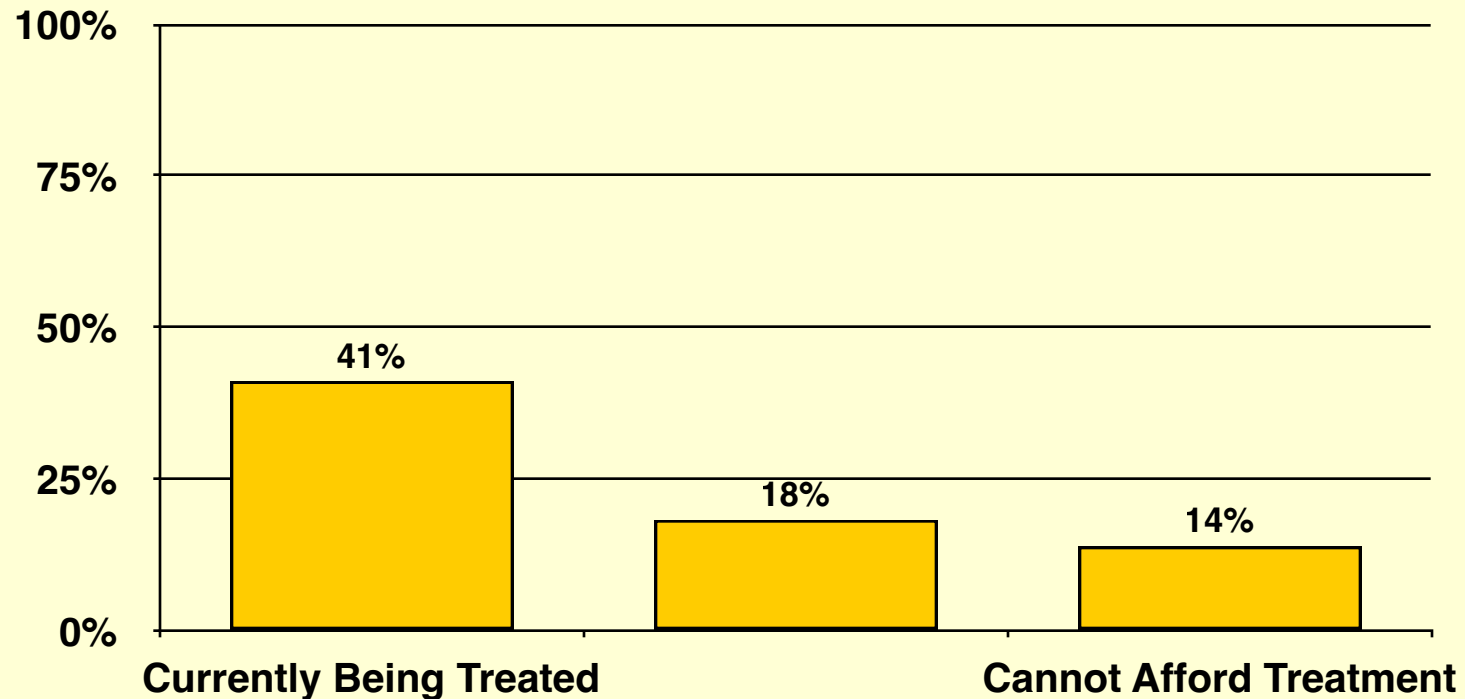
Workers: Length of Employment



Of **1208** workers who provided information on years worked:
317 worked 1-3 years, **613** worked 4-9 years, **228** worked 10-16 years,
39 worked 17-25 years, and **11** worked 26 or more years.

Workers: Medical Treatment

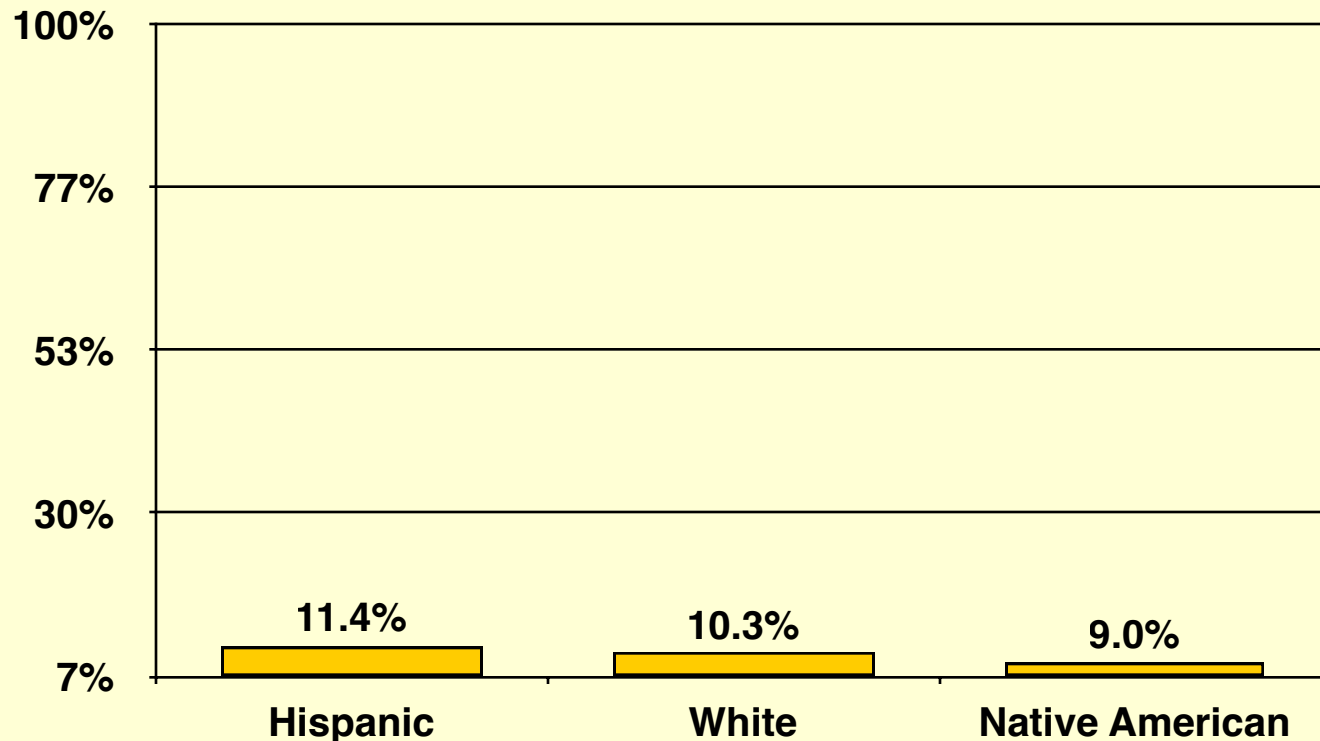
Are you receiving medical treatment?



For **695** workers who provided supplemental survey data:
286 currently being treated, 128 treated in the past, 98 can't afford treatment.

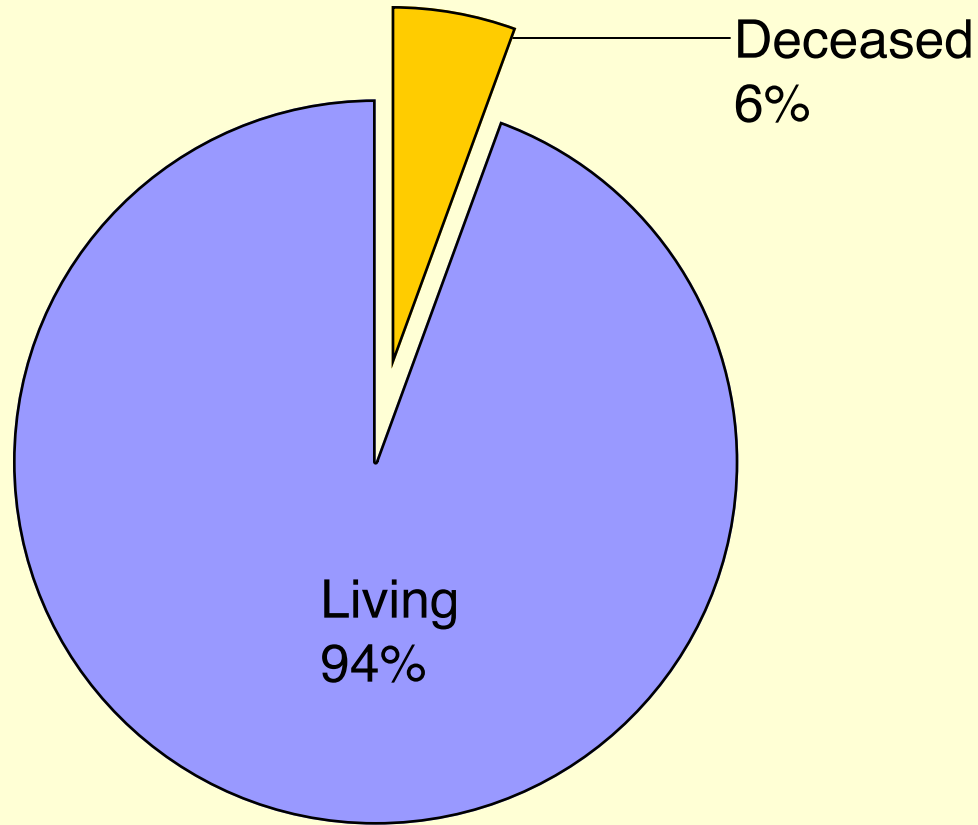
Workers: Access to Care

Ethnicity of workers who cannot afford treatment



*Of 537 Hispanics, 195 Whites, and 189 Native Americans reporting medical conditions: **61** Hispanics, **20** Whites, and **17** Native Americans can't afford treatment.*

Workers: Living or Deceased



1167 living workers & **69** deceased workers

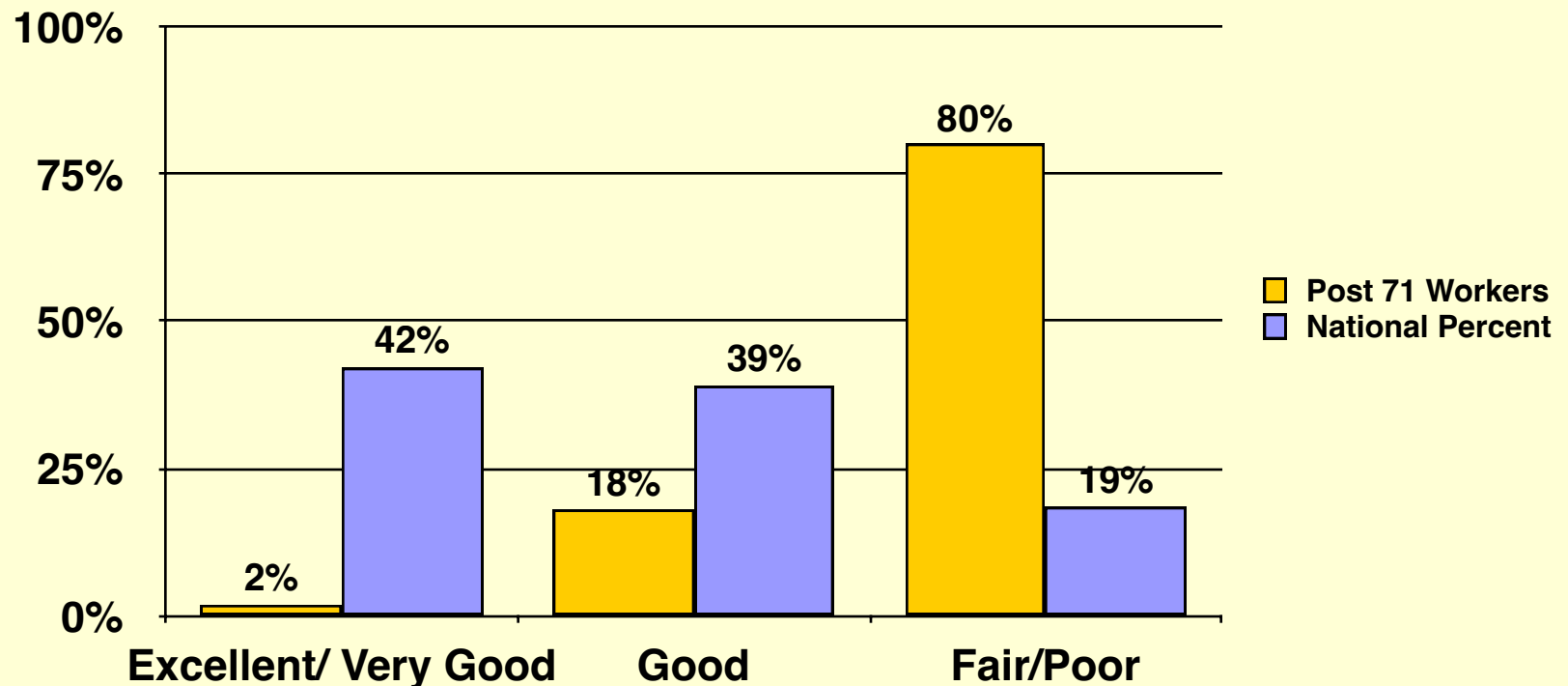


Health

Medical Conditions of
Post '71 Survey Participants

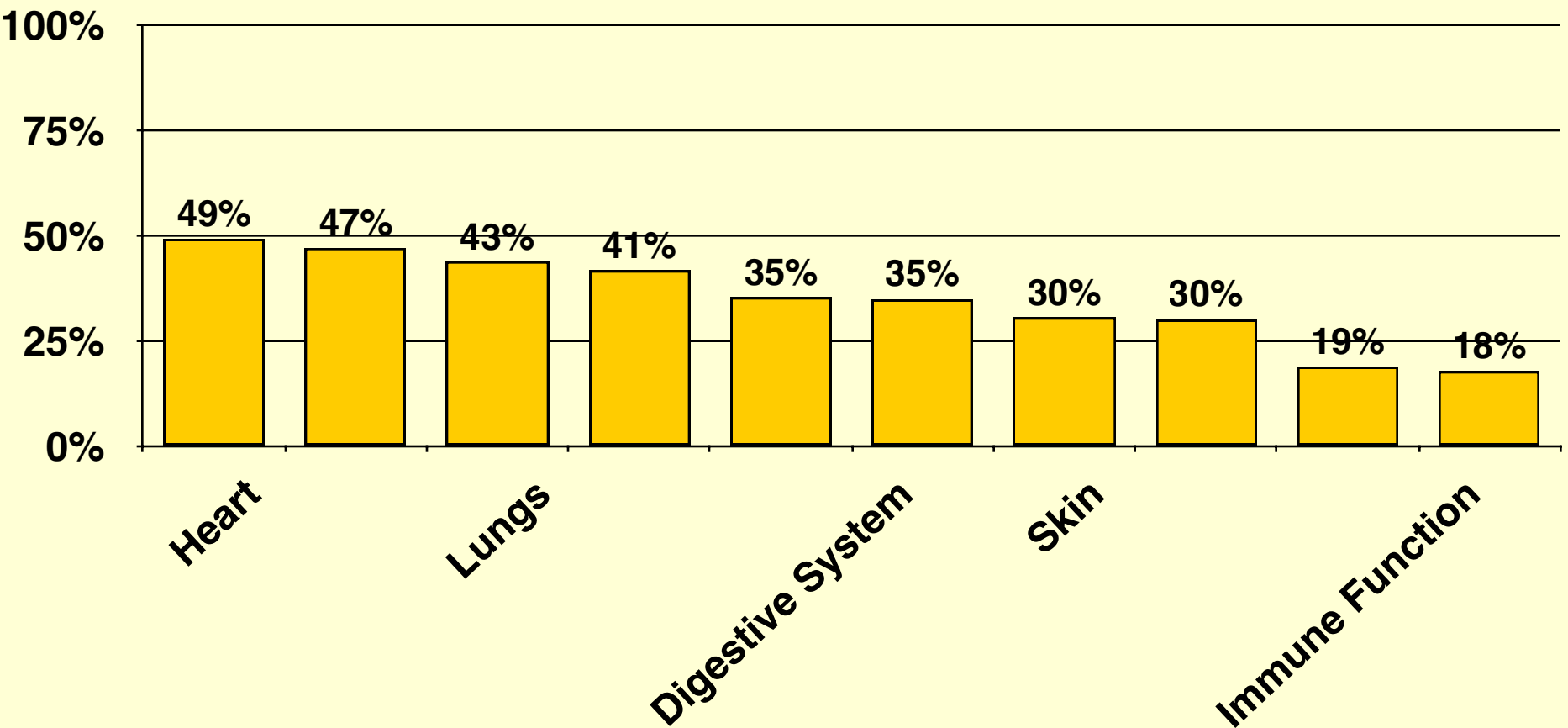
Health: National Comparison

How Would You Describe Your Health?



Of 635 survey participants: **0** had excellent health, **12** very good, **116** good, **292** fair, and **215** poor.

Health: Worker Medical Conditions



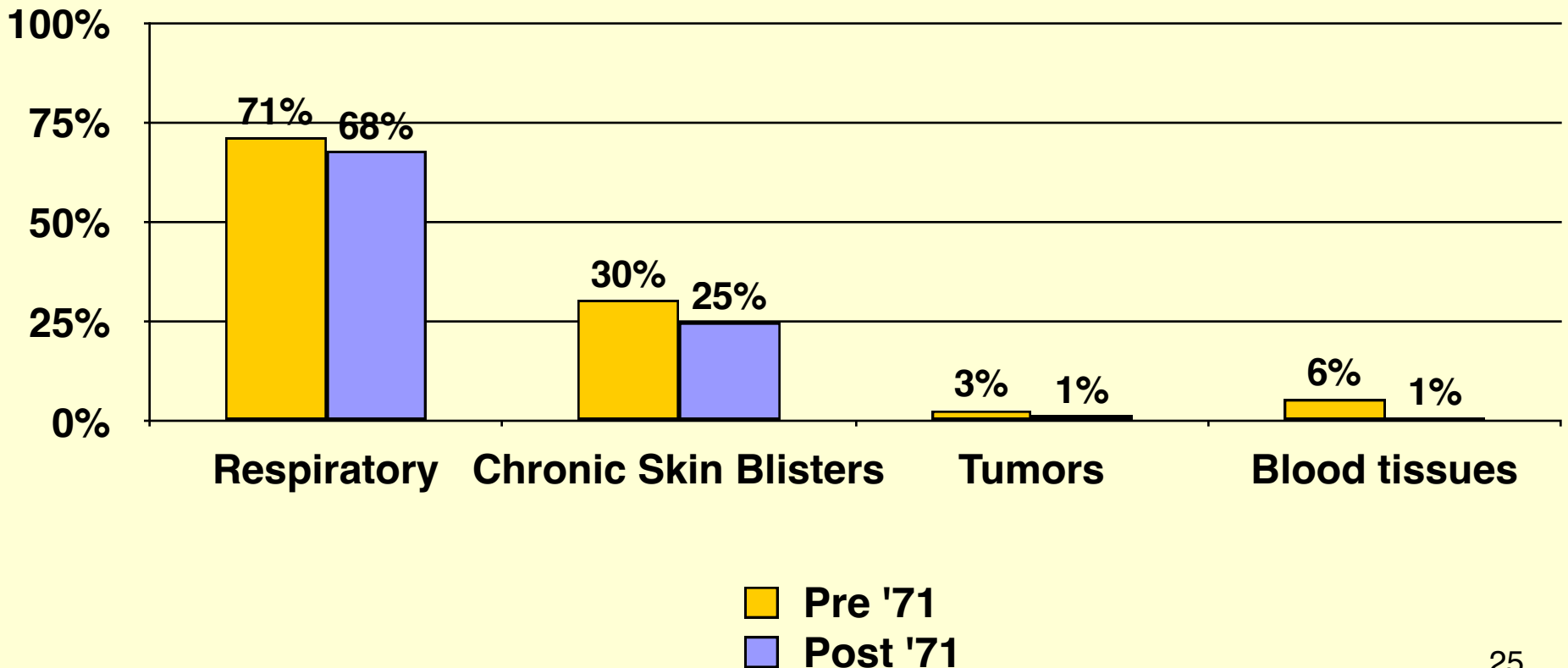
Health: Pre & Post '71 Workers Exposure

Pre-1971 survey respondents worked an average of
11.1 years

Post '71 survey respondents worked an average of
6.6 years

Health: Comparing Pre & Post '71 Workers

Why the difference? Pre '71 worked almost twice as long as Post '71



For **69** Pre '71 workers and **853** Post '71 workers who provided supplemental survey data.



Uranium-Related Diseases Recognized by US Federal Agencies. (FED)

Introduction

Four federal agencies have identified medical conditions related to working with uranium

Combined, these four agencies recognize **25** uranium-related conditions

RECA only compensates **8** of these conditions

Medical Conditions Recognized by RECA

Respiratory Conditions

- Lung Cancer
- Pulmonary Fibrosis
- Silicosis
- Cor Pulmonale
- Pneumoconiosis

Kidney Conditions

- Renal Cancer
- Nephritis
- Kidney Tubal



Medical Conditions Recognized by OSHA & CDC



Blood Tissue Conditions

- Leukemia
- Lymphoma
- Multiple Myeloma

Skin Conditions

- Chronic Skin Blisters
- Hyperpigmentation

Respiratory Conditions

- Tuberculosis

Medical Conditions Recognized by EPA

Respiratory Conditions

- Asthma
- Chronic Bronchitis
- Chronic Hacking
Cough
- COPD
- Emphysema
- Shortness of Breath

Blood Tissue Conditions

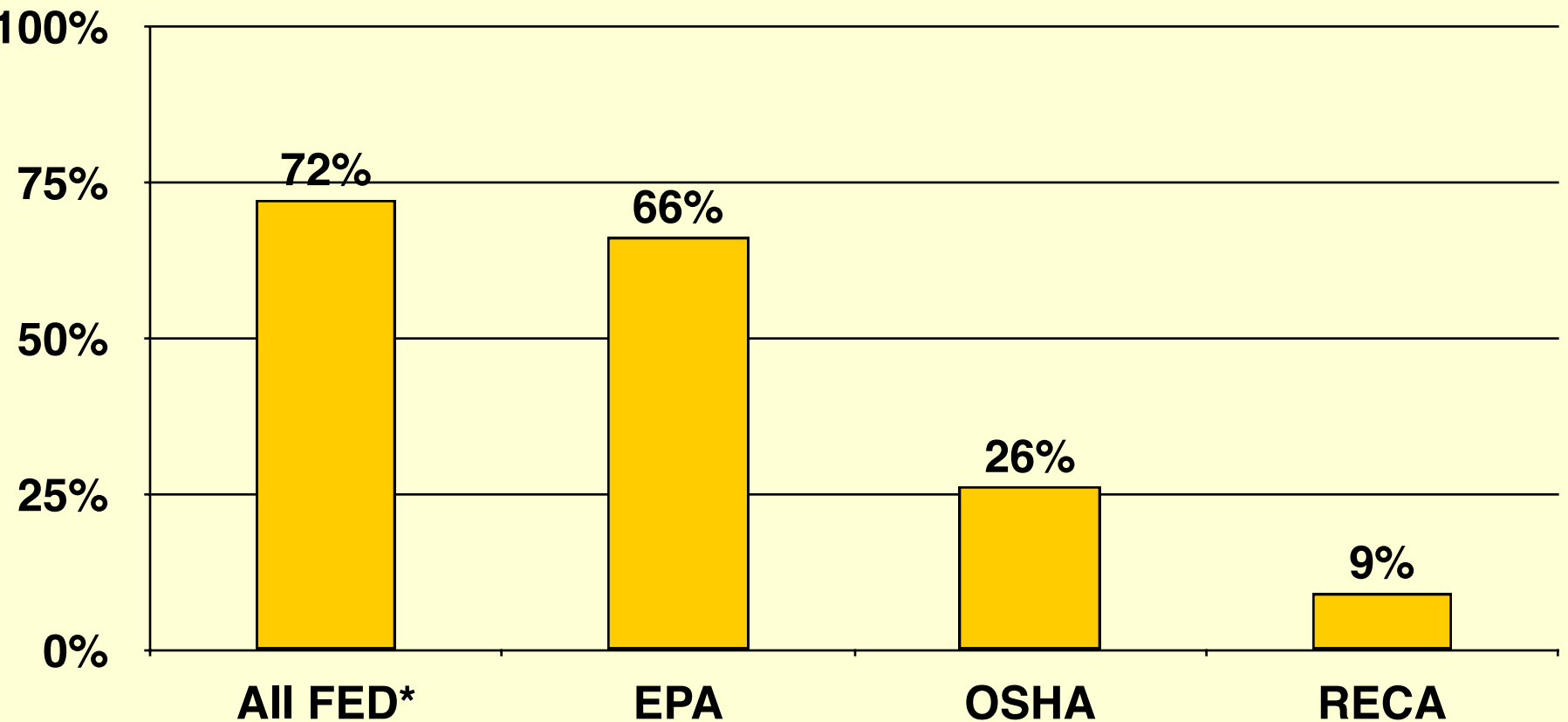
- Leukopenia

Tumors

- Bone
- Head
- Nasal Passages

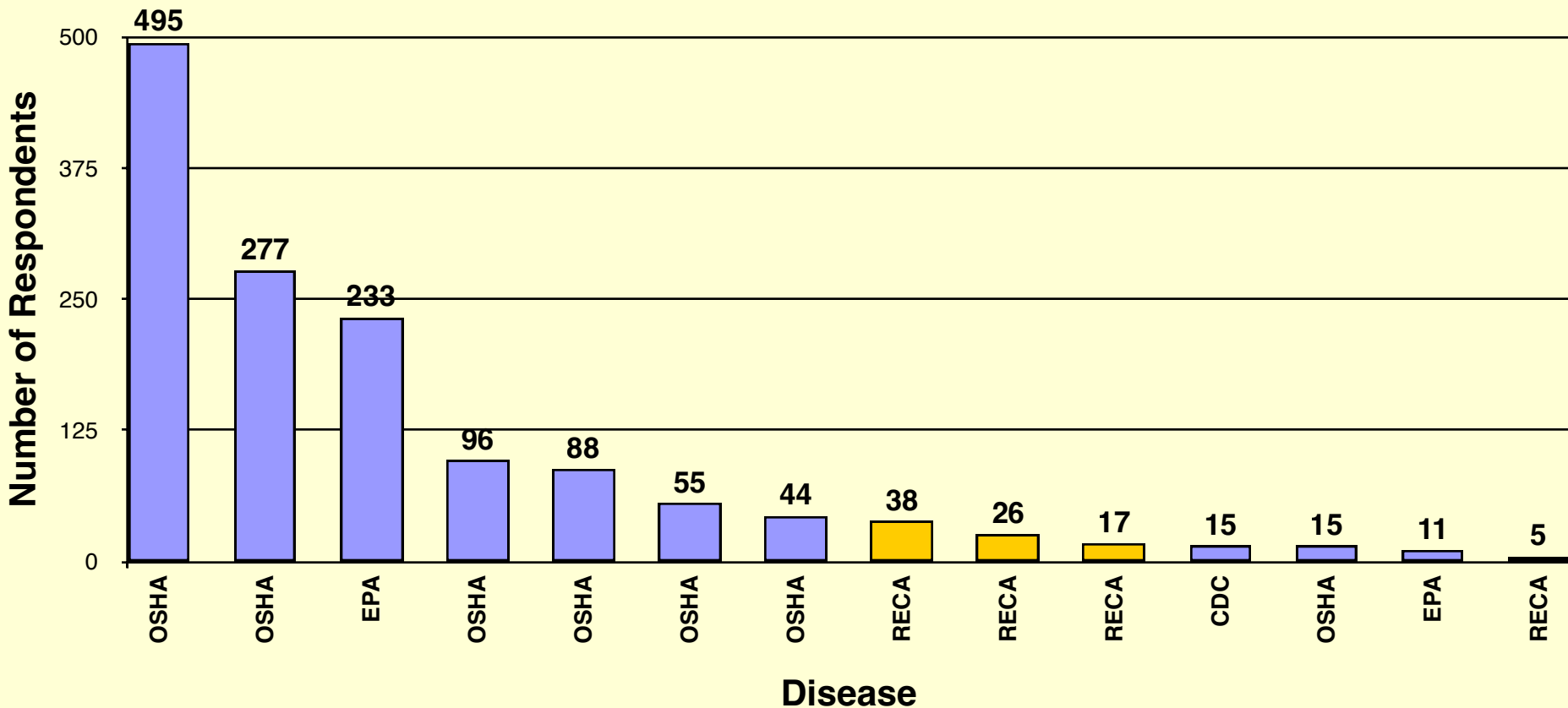


Percent of Post '71 Survey Participants with Uranium-Related Medical Conditions



* All FED = Uranium-Related Conditions Recognized by Federal Agencies

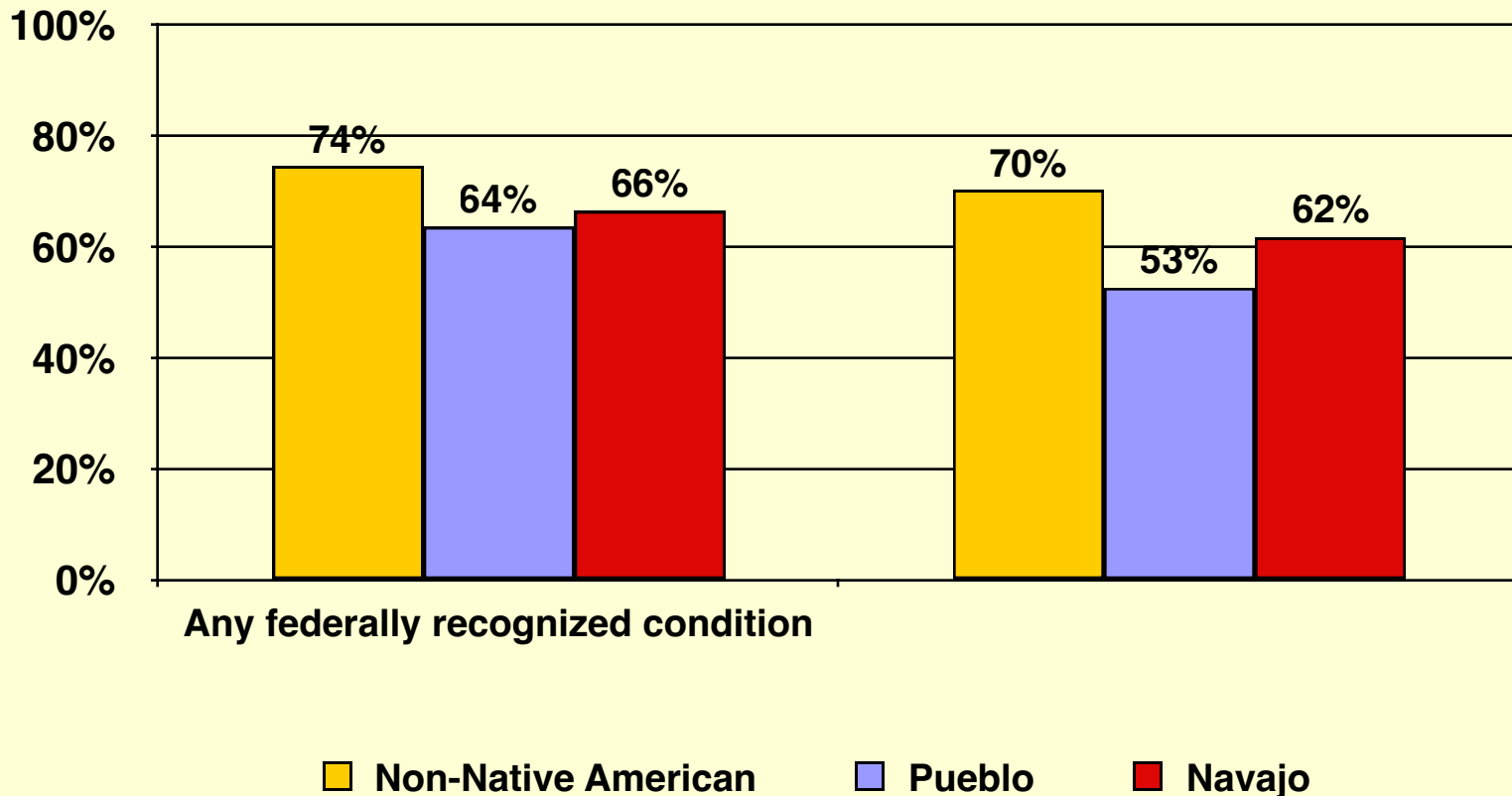
Number of FED Medical Conditions Reported by Workers



For **929** workers reporting medical conditions.

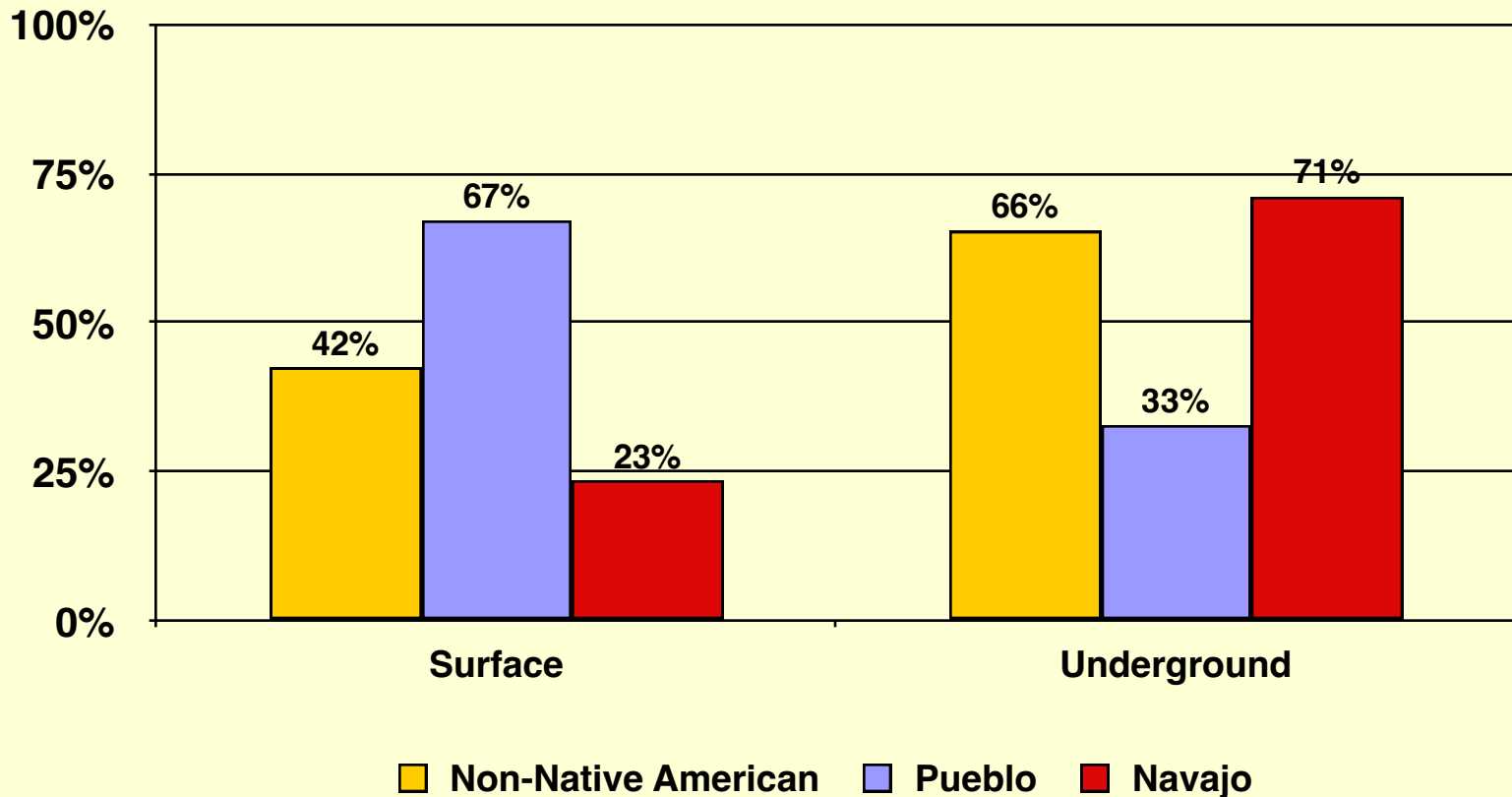
FED Conditions Reported by Native American Workers

Comparison of federally recognized conditions for Native American (light or non-smokers) and Non-Native workers



Surface vs. Underground Workplace Comparisons

Native & Non-Native Workers with Medical Conditions





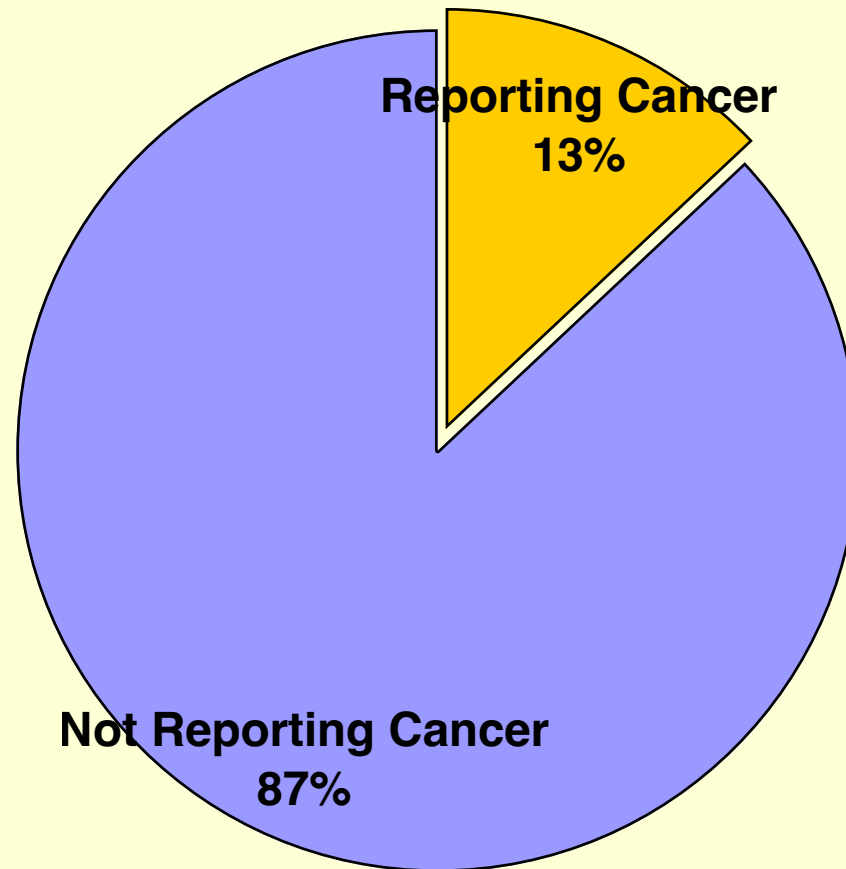
Cancer

“The air quality wasn’t very good. ...Never sent me to a doctor when I was over-exposed... Said fresh air would clean me out.

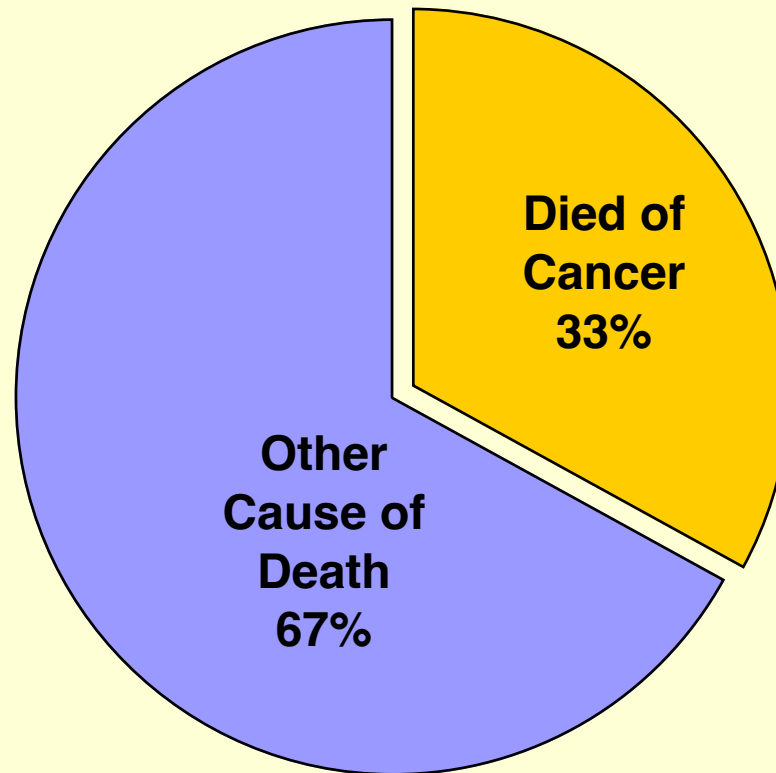
Sounds foolish now when all us miners are getting lung and other cancers.”

--Post '71 Worker

Cancer Reported by Workers

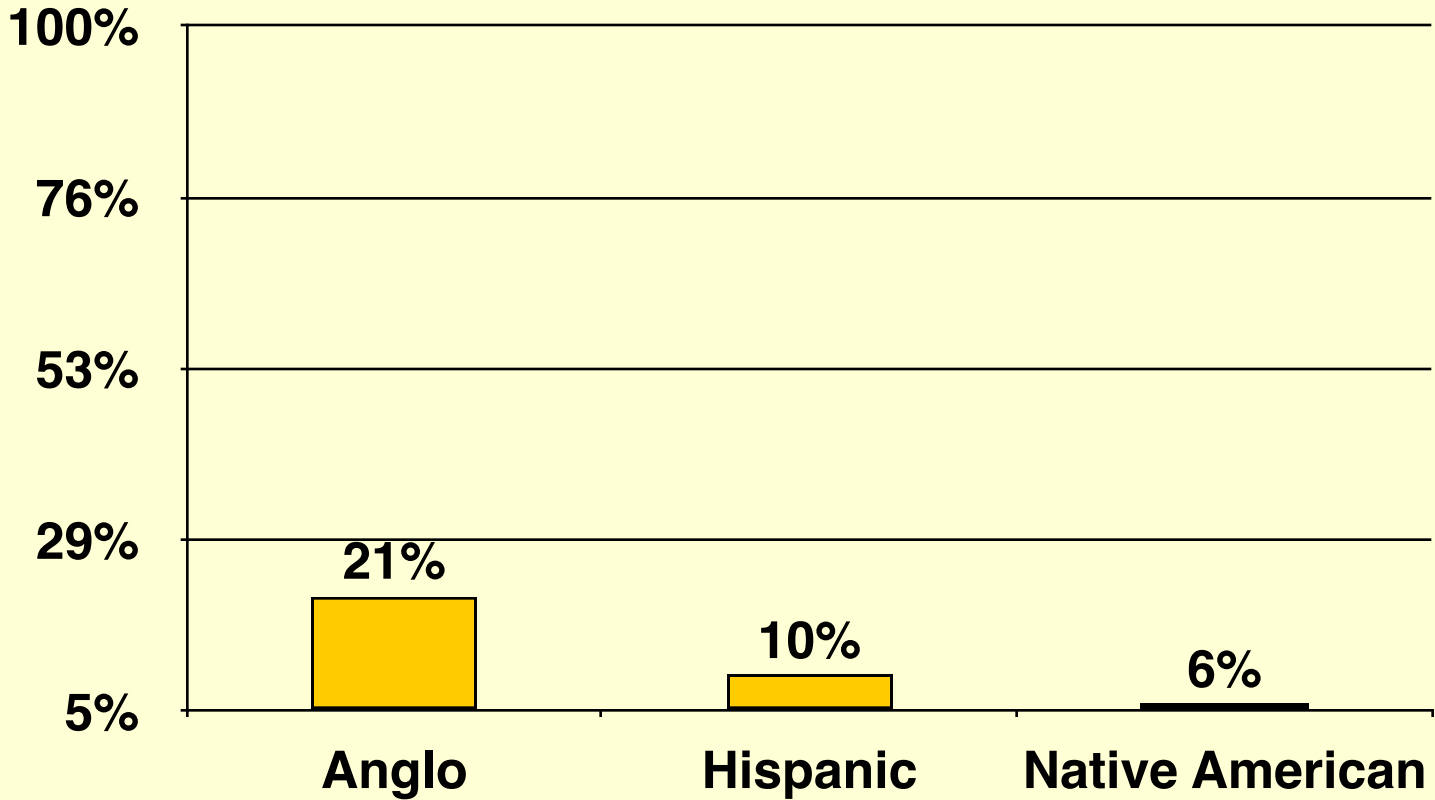


Cancer Deceased Workers



51 deceased workers who reported cause of death: **17** died from cancer.

Cancer: Prevalence by Ethnicity



*187 Whites, 510 Hispanics and 173 Native Americans with health conditions:
40 Whites, 49 Hispanics, 10 Native Americans have cancer.*



Reproductive Disorders

Workers and Spouses

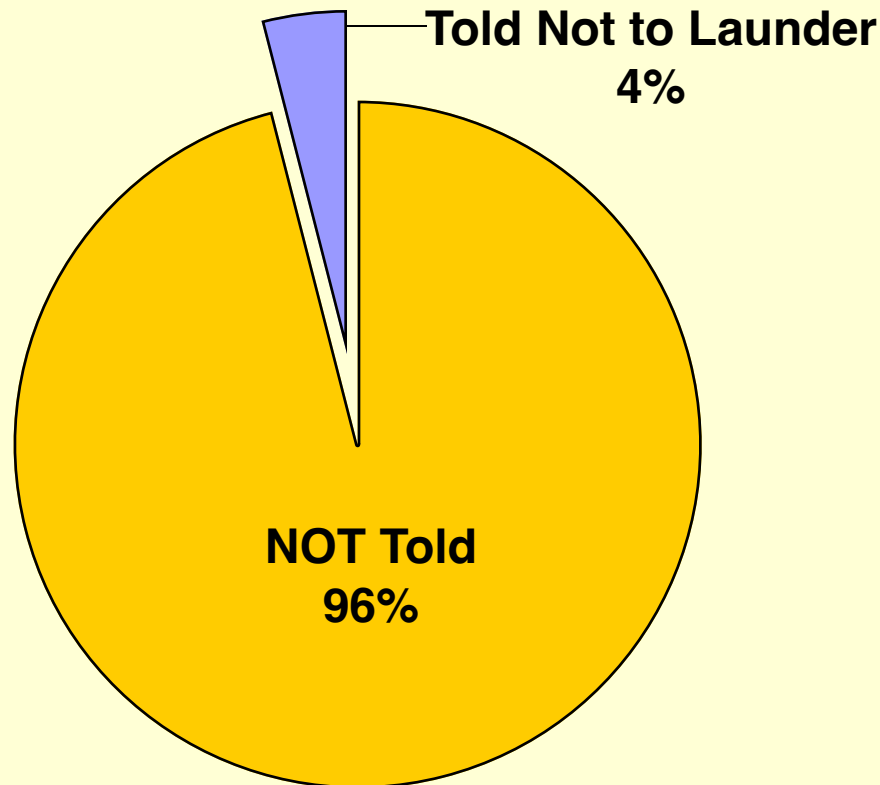
“I didn’t know that I was harming my family’s lives by coming home in dirty unsafe clothes and even washing our clothes together.

The company’s mistakes (have and) will cause family tragedy.”

--Post '71 Worker

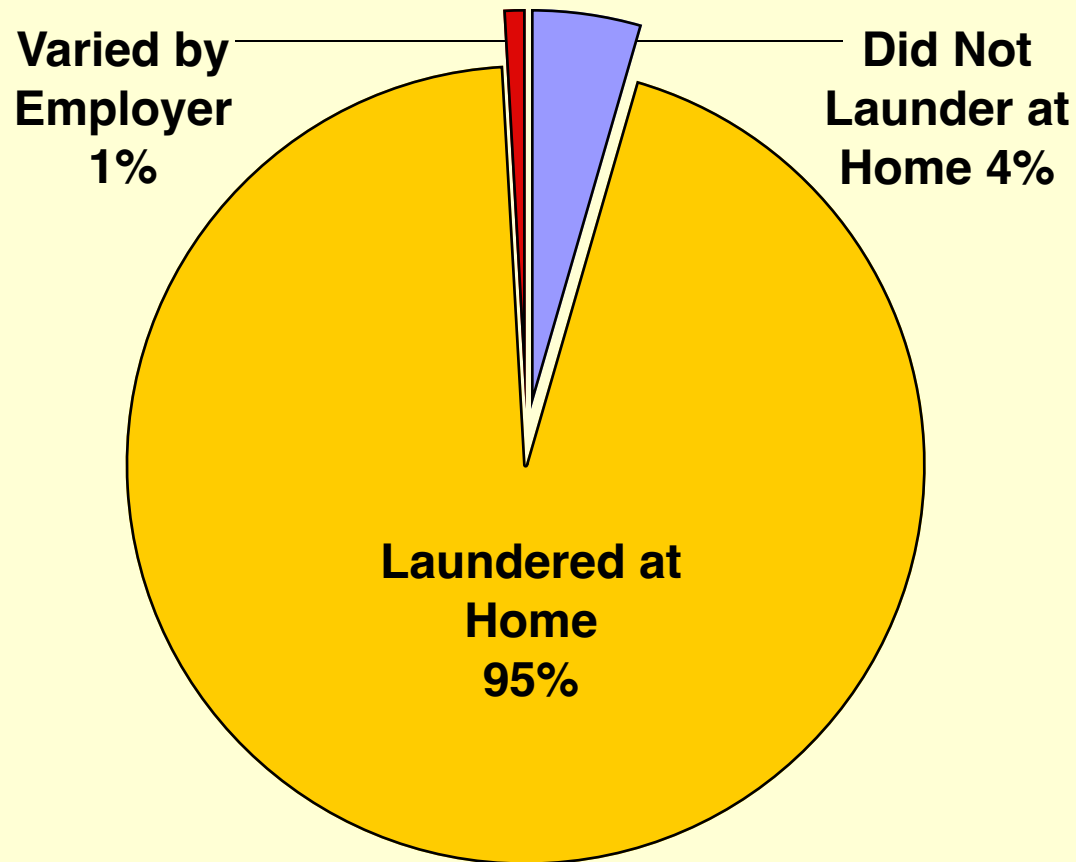
Reproductive: Laundering Contaminated Work Clothes

Were you instructed NOT to launder your work clothes at home?



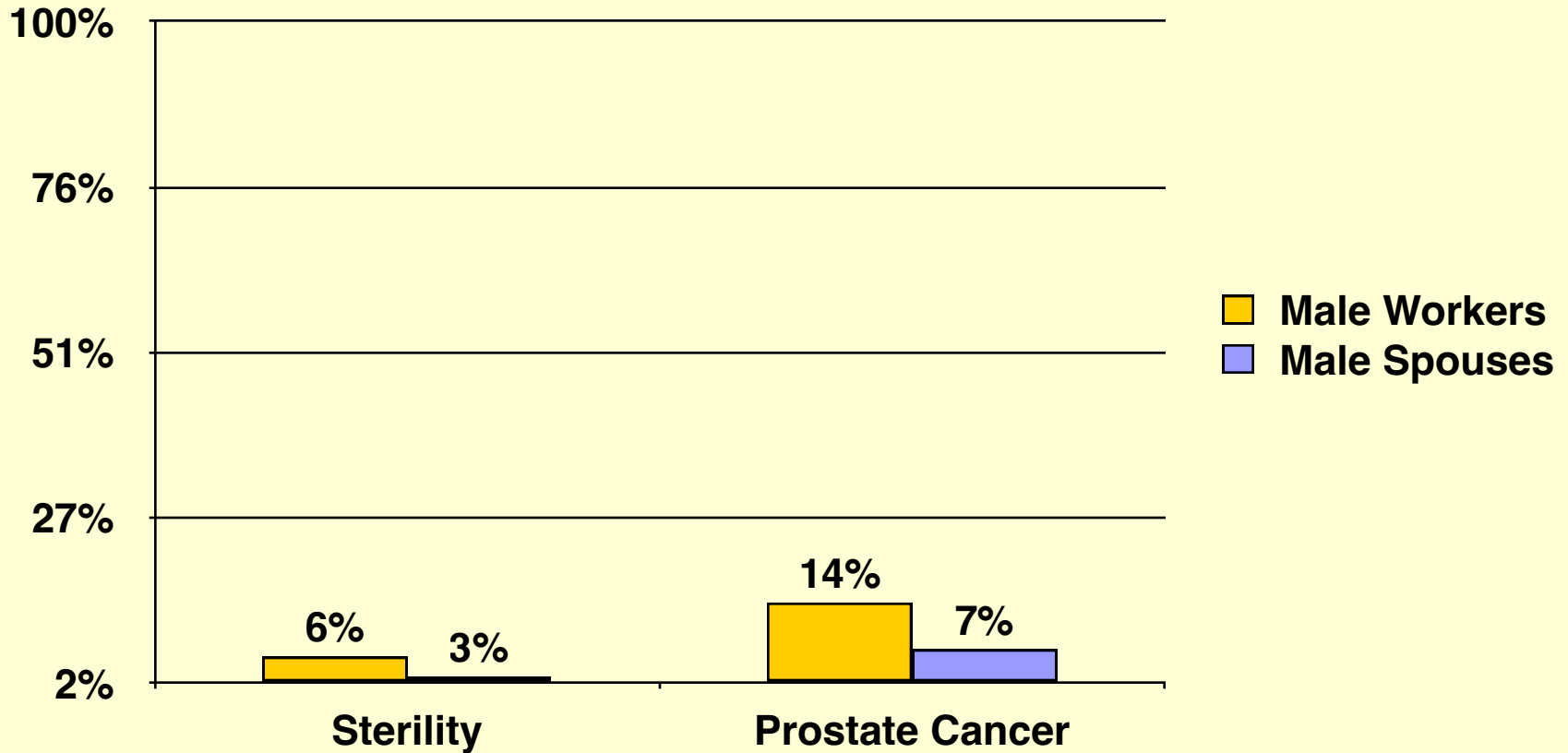
For **1190** workers who responded to this question.

Reproductive: Laundering



For **1227** workers who responded to this question.

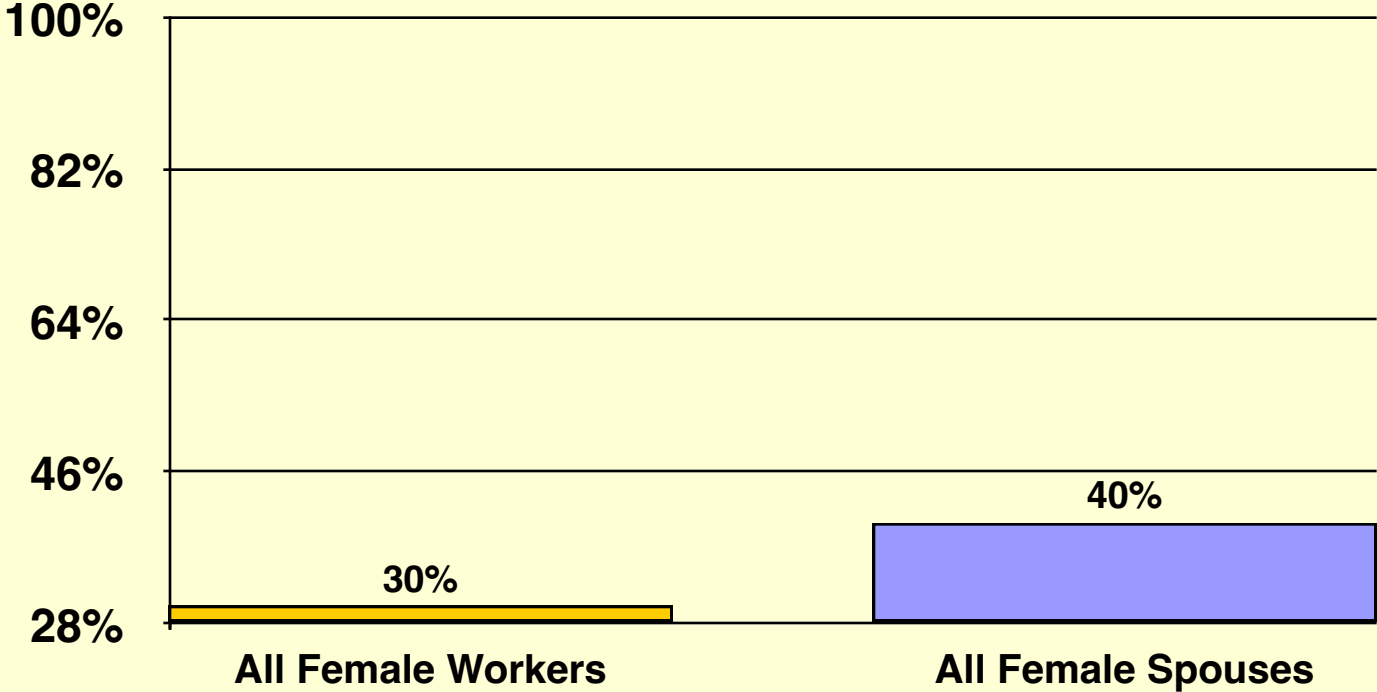
Reproductive: Male Disorders



For **796** male workers reporting medical conditions: **43** sterile, **25** prostate cancer.
For **43** male spouses with medical conditions: **6** sterile, **3** prostate cancer.

Reproductive: Female Disorders

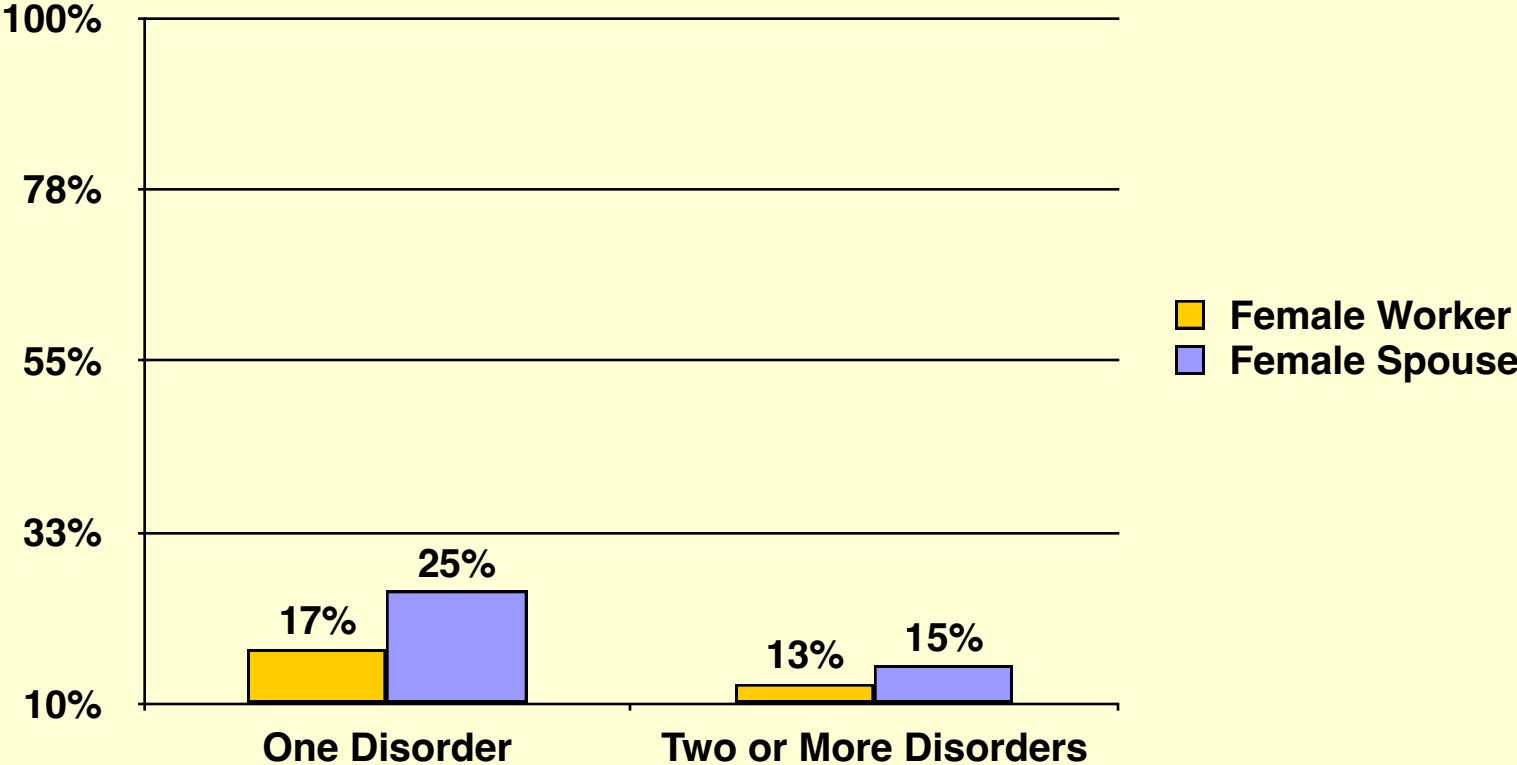
**Women Reporting Miscarriages, Stillbirths,
and/or Children with Birth Defects**



*For **132** female workers with health conditions: **40** with reproductive disorders.
For **421** spouses with health conditions: **169** with reproductive disorders.*

Reproductive: Female Disorders

Number of Miscarriages, Still Births, and/or Birth Defects per Respondent



For **133** female workers and **423** female spouses who provided supplemental survey data.

Reproductive: Female Disorders

40% of spouses have **at least one** miscarriage, still birth, or child with a birth defect.

Of these women, **15%** of spouses have **more than one** disorder.

“In 1980 I lost a child, it was born, then died... In 1984 the same thing. I delivered the baby and that same day he baby passed away in my arms. With both, I was 5 months pregnant and worked underground.

They knew I was pregnant.”

-Post '71 Female Worker

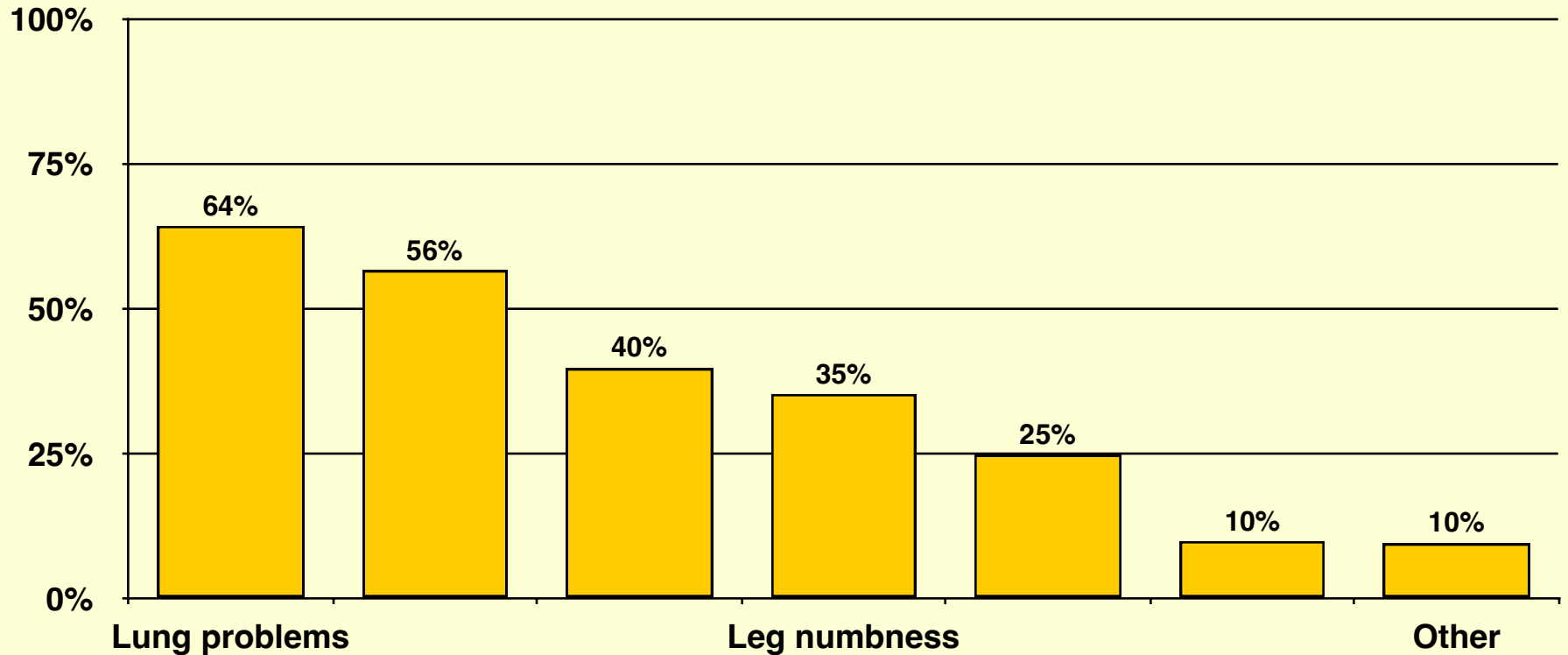


Symptoms

Many uranium-related medical conditions take 20-30 years to emerge.

Symptoms may indicate future conditions.

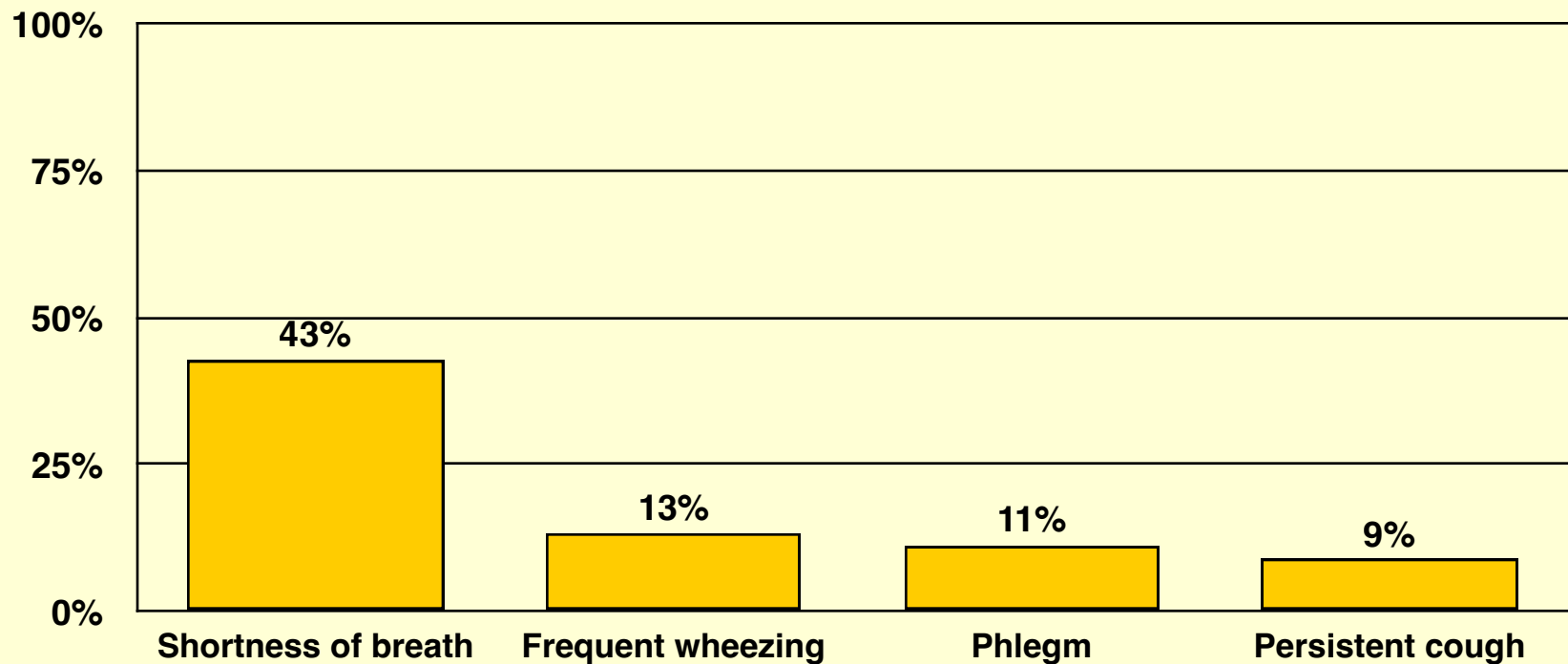
Symptoms: All Workers



For **929** workers who provided supplemental survey data.

Symptoms: Respiratory

Workers with Respiratory Symptoms but with NO Respiratory Illnesses



For **525** workers with medical conditions but no diagnosed respiratory illness:
225 shortness of breath, **70** wheezing, **59** phlegm, **49** persistent cough.

Summary: Medical Conditions

72%

of survey participants
have uranium-related medical
conditions.

Summary: Deaths Since First Survey

50 workers were deceased in the first survey (2007)

21 additional workers had died in the second survey (2009)

10 Post '71 workers have died each year since the first survey was released



Workplace Safety

“No information was given to me on exposure to dangerous chemicals or health safety. I am afraid of all the dangerous risks I took when I worked for a uranium mine.

I feel that my life and my family’s lives are cut short due to (the mines) not practicing safety”

--Post '71 Worker

Claims of Industry Safety

“Present health and safety standards have definitely improved in the mines. They have better ventilation systems, respirators and face masks and efficient control of the interior of the mines...” (1979)

--Dr. Leon Gottlieb, Navajo Health Authority

“(In the very early years of uranium mining)...the combination of radon gas, silica dust and smoking led to abnormally high incidences of lung cancers and related ailments.

All of these factors have been eliminated or are strictly regulated. All underground mines have extensive ventilation systems...to supply fresh air into the mines.”

--Uranium Producers of

America

Laws and Regulations to Safeguard Uranium Workers

Uranium Workers are protected by:

- Mine Safety & Health Agency (MSHA) Training Requirements
- MSHA Miner's Rights Guide (Act of 1977)
- New Mexico occupational safety laws for mining (Adopted from Federal Mining Laws in 1978)



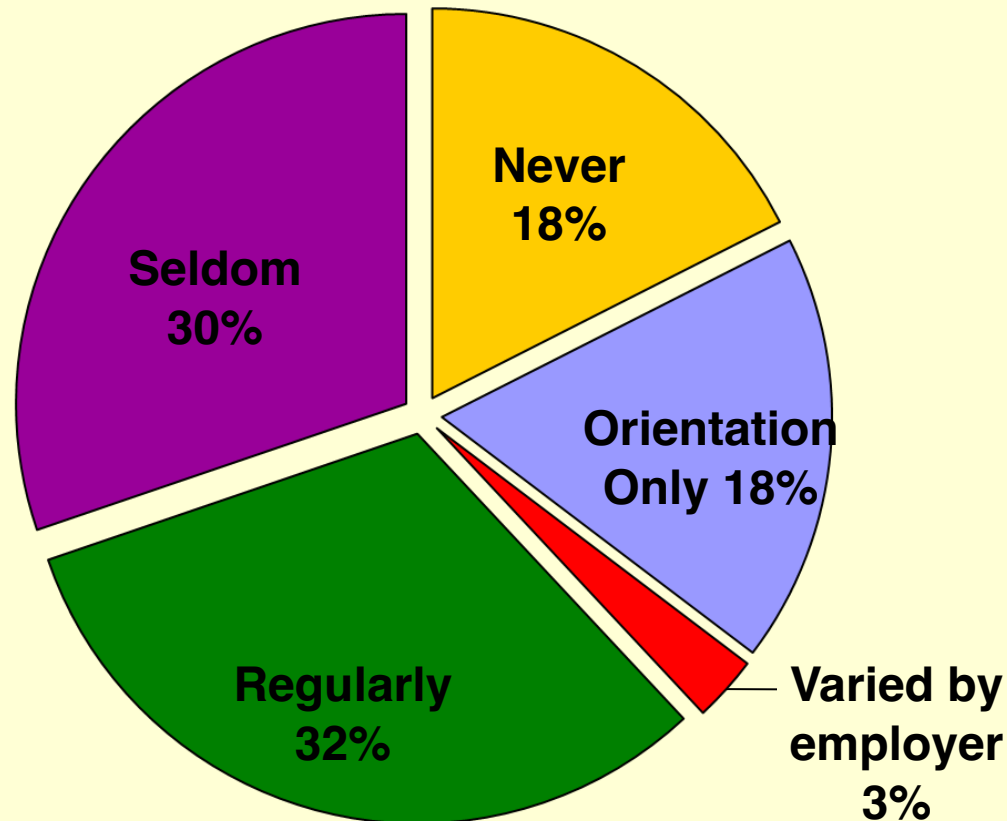
Title 30 Code of Federal Regulations Training Requirements

(13) *Health and safety aspects of the tasks to which the new miner will be trained.* The course shall include instruction in the health and safety aspects of the tasks to be assigned,.. the mandatory health and safety standards pertinent to such tasks, information about the physical and health hazards of chemicals in the miner's work area, the protective measures a miner can take against these hazards, and the contents of the mine's HazCom program.

LAWS: New Mexico State Statute 69-35-4

“Every new miner should be instructed in safety practices.”

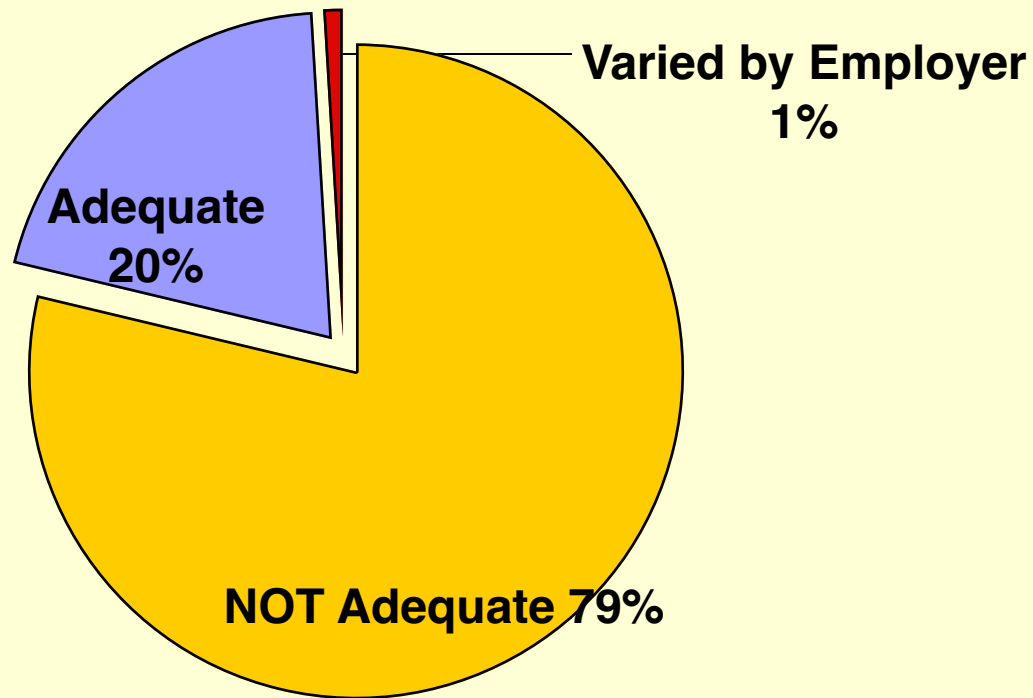
How often were safety meetings conducted?



141 workers responded to this question.

Safety Measures

Were safety measures (example: meetings, literature, and/or equipment) adequate?



Worker Safety Measures

“We never had formal safety meetings describing all the potential dangers we were being exposed to: Inhalation dangers, daily exposure to hi-grade uranium, inadequate ventilation, contaminated water and dangerous fumes.”

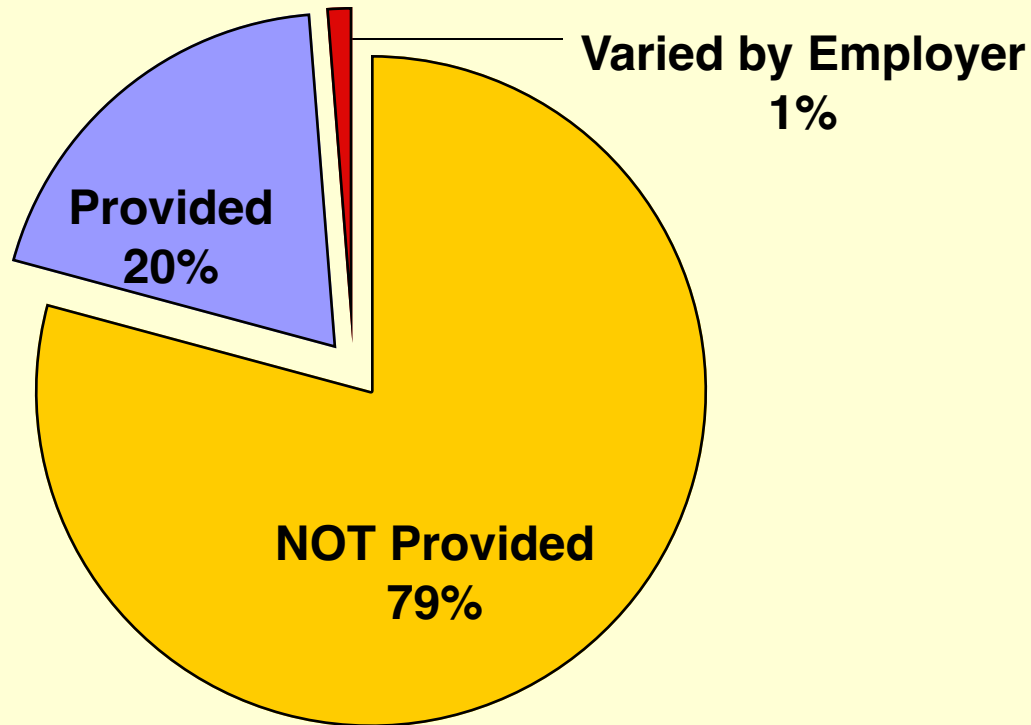
--Post '71 Worker

OSHA: OCCUPATIONAL SAFETY AND HEALTH GUIDELINES FOR URANIUM

A worker who handles uranium or an insoluble uranium compound should thoroughly wash hands, forearms, and face with soap and water before eating, using tobacco products, or using toilet facilities.

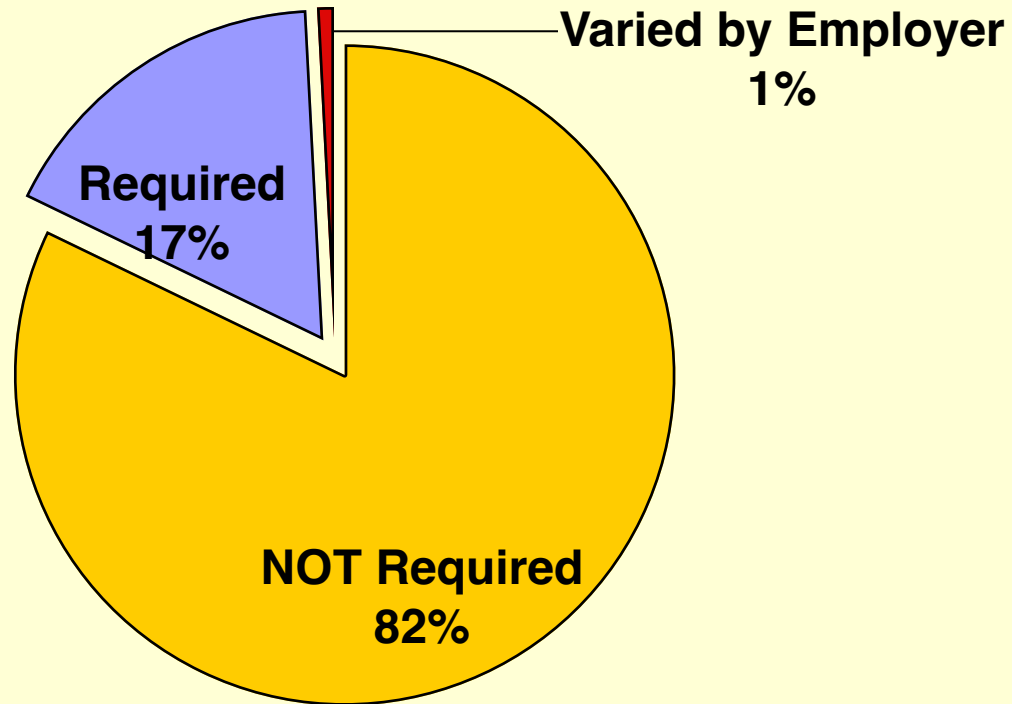
Safety: Wash Basins

Were you provided wash basins to use before eating/drinking?



Safety: On-Site Showers

Were you required to shower before leaving work to avoid bringing contamination home?



1217 workers responded to this question.



Occupational Illness and Injury Prevention Program

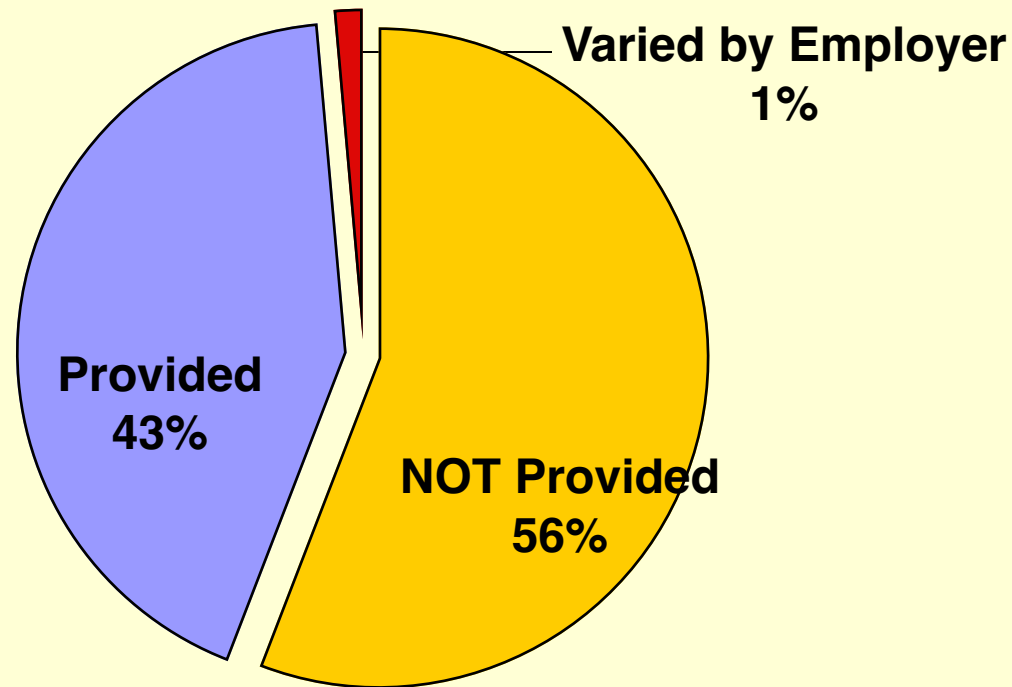
The use of personal respiratory protection against radon daughters must be limited to temporary situations where. (proper ventilation has not occurred).

For (high) exposures proper filter-type respirators are to be available.

Where (excessive) concentrations of radon daughters (exist) air respirators or other devices for protection against radon gas as well as radon daughters are required.

Safety: Equipment

Was inspected and approved safety equipment provided on a regular basis?



1067 workers who responded to this question.



Occupational Illness and Injury Prevention Program

The most effective control measure for radon gas and radon daughters is.... ventilation.

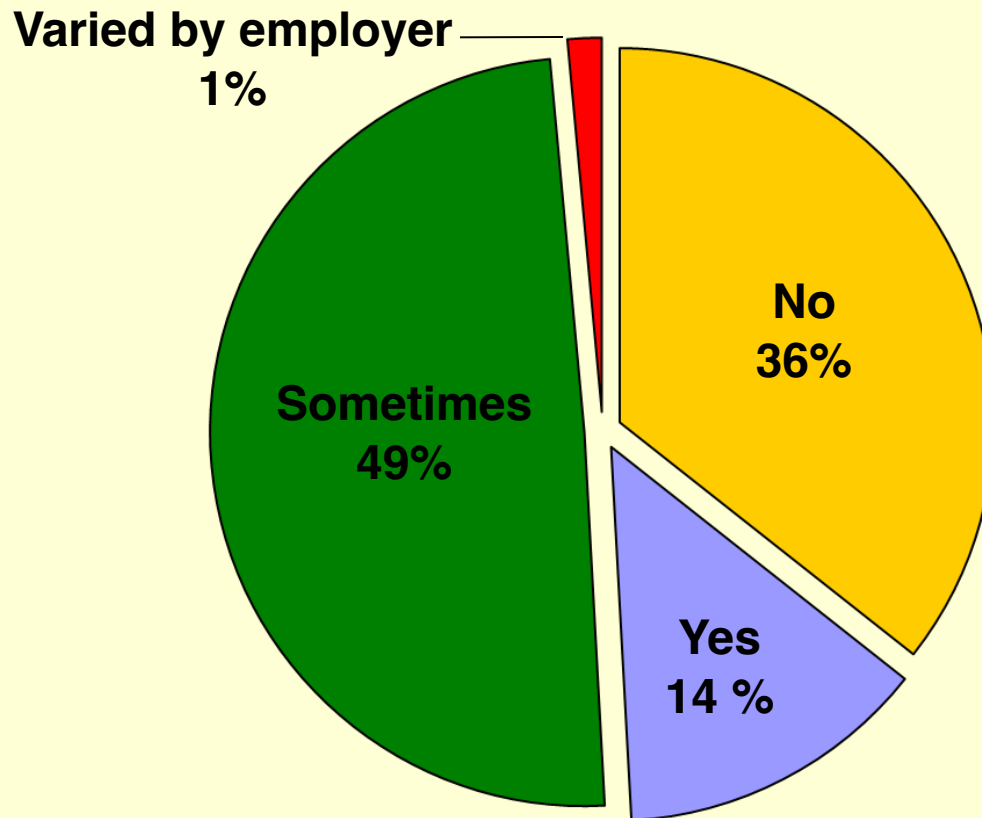
By quickly removing radon gas from work areas by ventilation, there will be less generation of radon daughters in the workplace.

Primary air used for such ventilation should be as contaminant-free as possible of radon daughters.

LAWS: New Mexico State Statute 69-33-4

“Mines should be ventilated to provide air that meets the needs of humans and animals.”

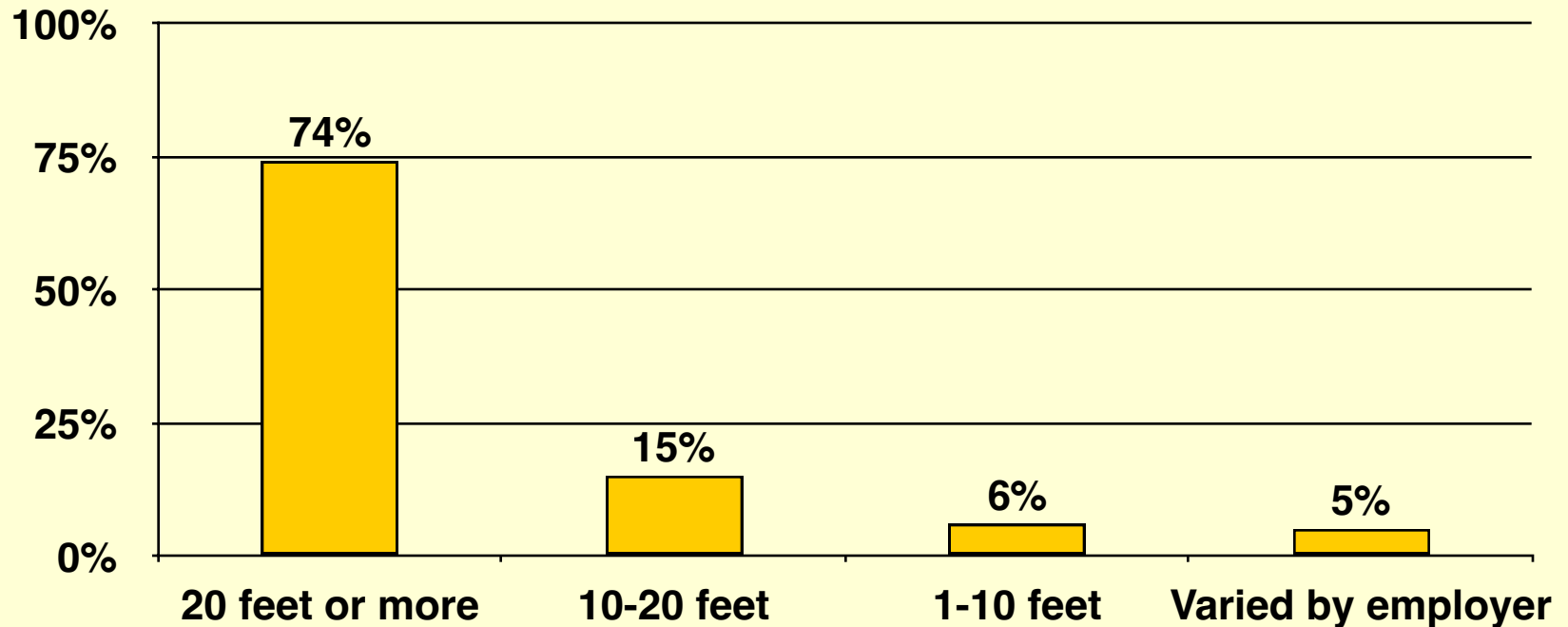
Was adequate ventilation provided in your work area?



1156 workers responded to this question.

Safety: Ventilation

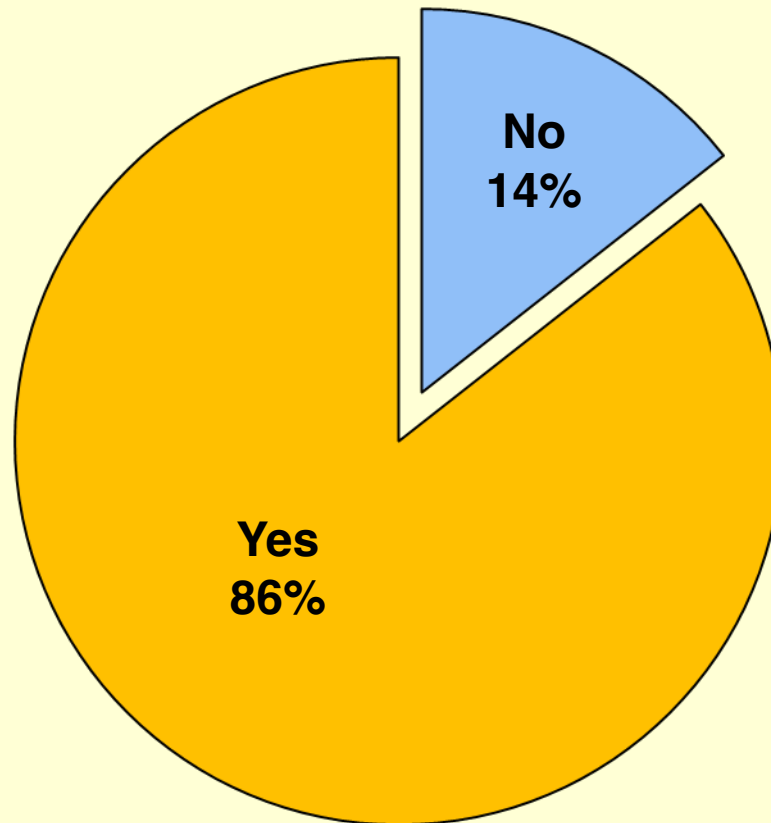
How far were fans located from your work area?



LAWS: New Mexico Rule 6

“Ventilation should be arranged to prevent diesel smoke from traveling through working areas.”

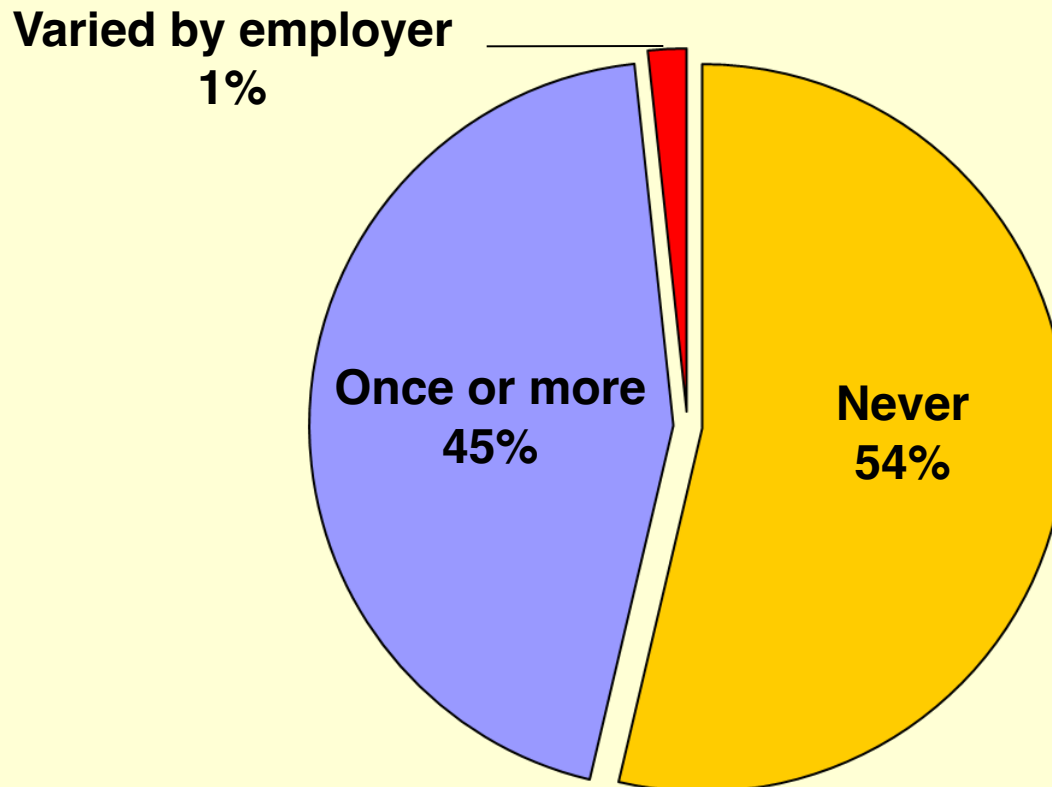
Were you exposed to diesel fumes while working?



1296 workers responded to this question.

LAWS: NM Adopted Federal Rule No. 71-2 (57.5-40)
“Individual exposure records should be kept for employees that enter areas of 0.3 WL or more.”

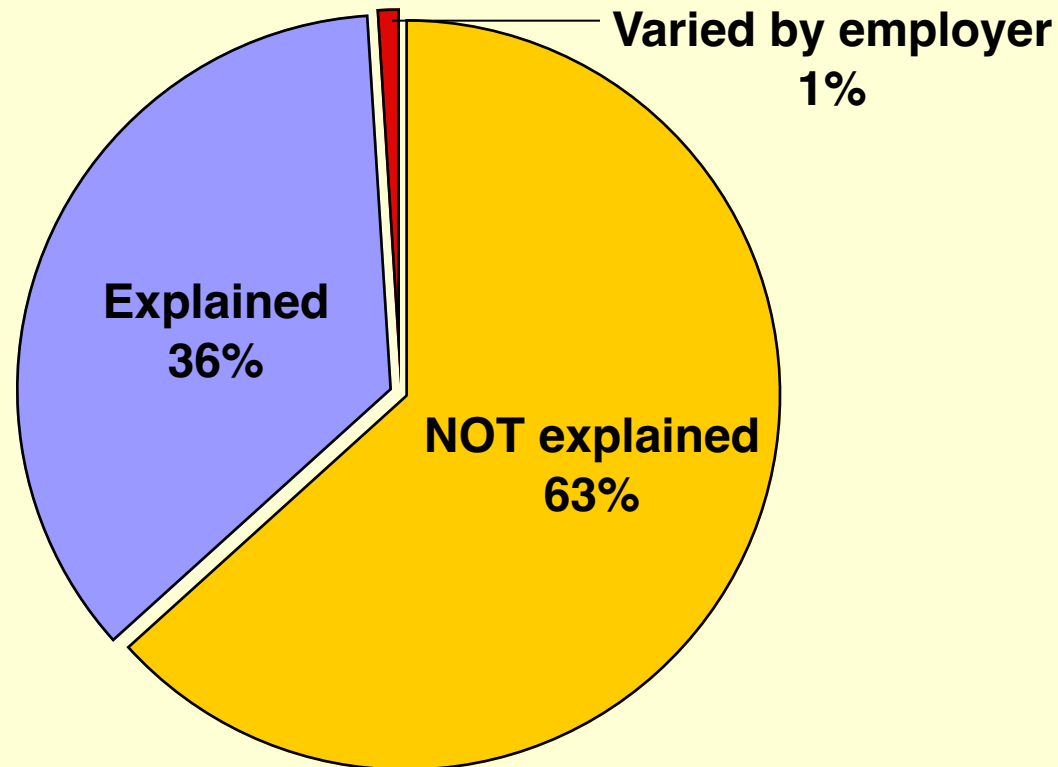
How often were you provided with a radon monitor?



1110 workers responded to this question.

Safety: Radon Monitors

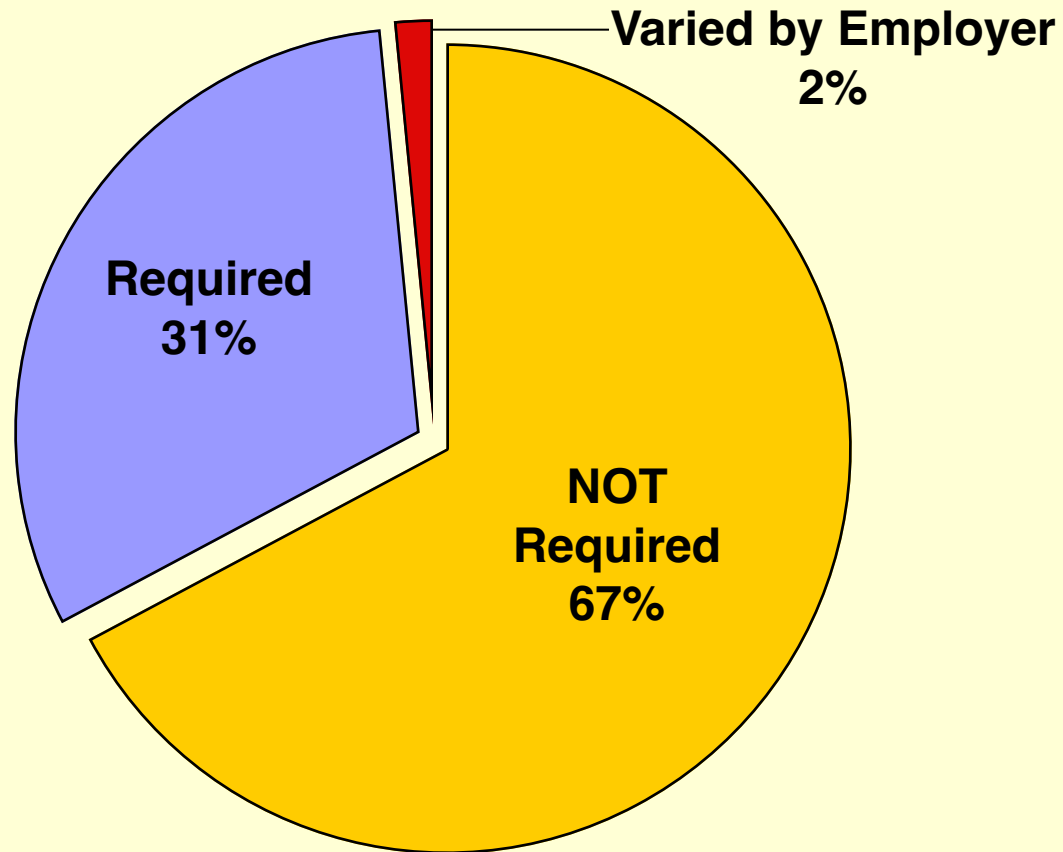
Did your employer explain why there was a need for radon monitors (gamma badges)?



1162 workers responded to this question.

Safety: Radon Monitors

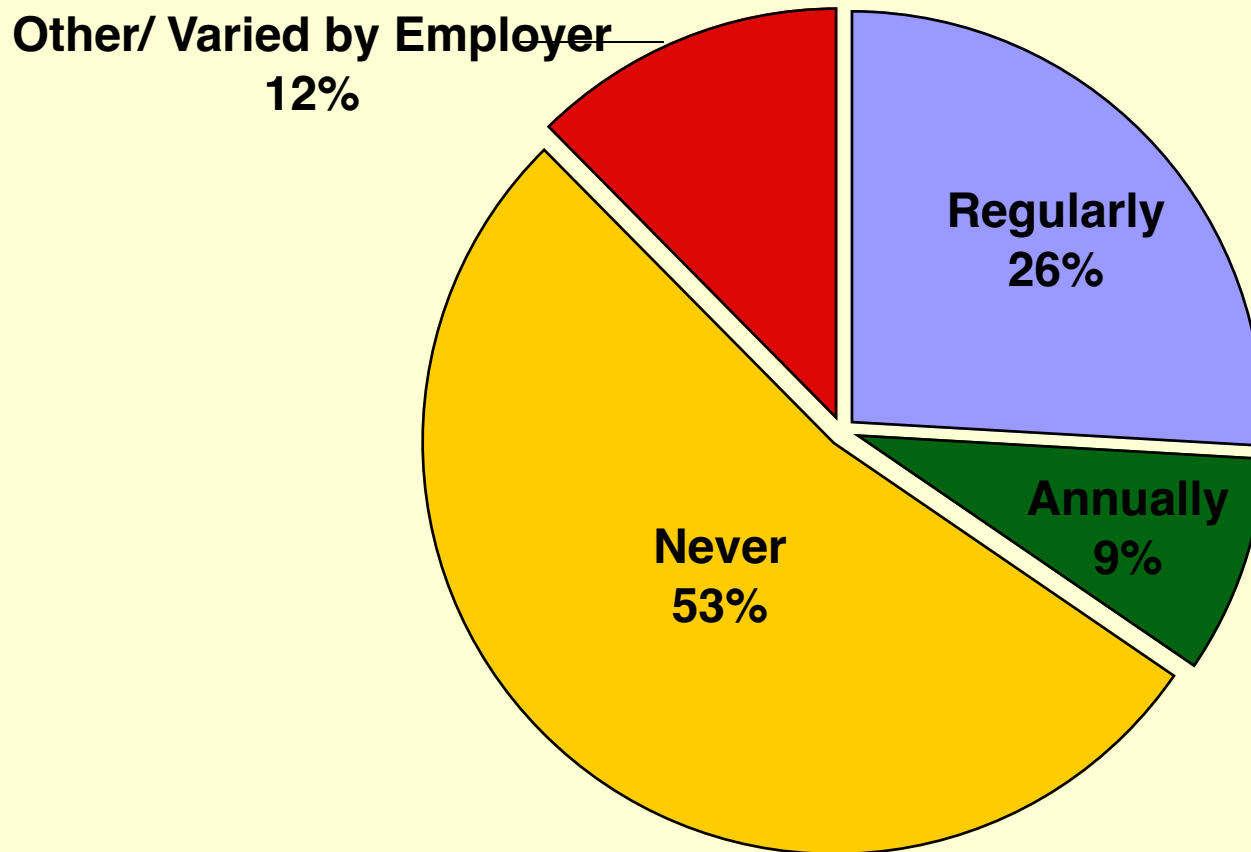
Were radon monitors required by your employer?



1168 workers responded to this question.

Safety: Radon Monitors

How often were radon monitors inspected?

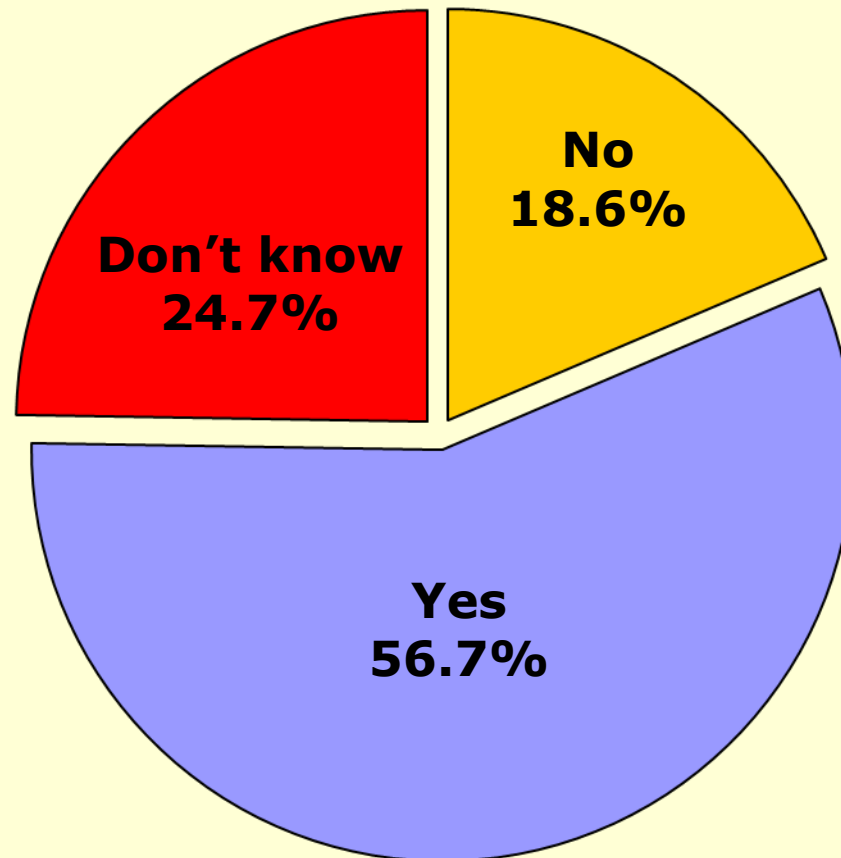


903 workers responded to this question.

LAWS: NM Adopted Federal Rule No. 76-1 (57.5-38)

“No employee should receive more than 4 WLM per year.”

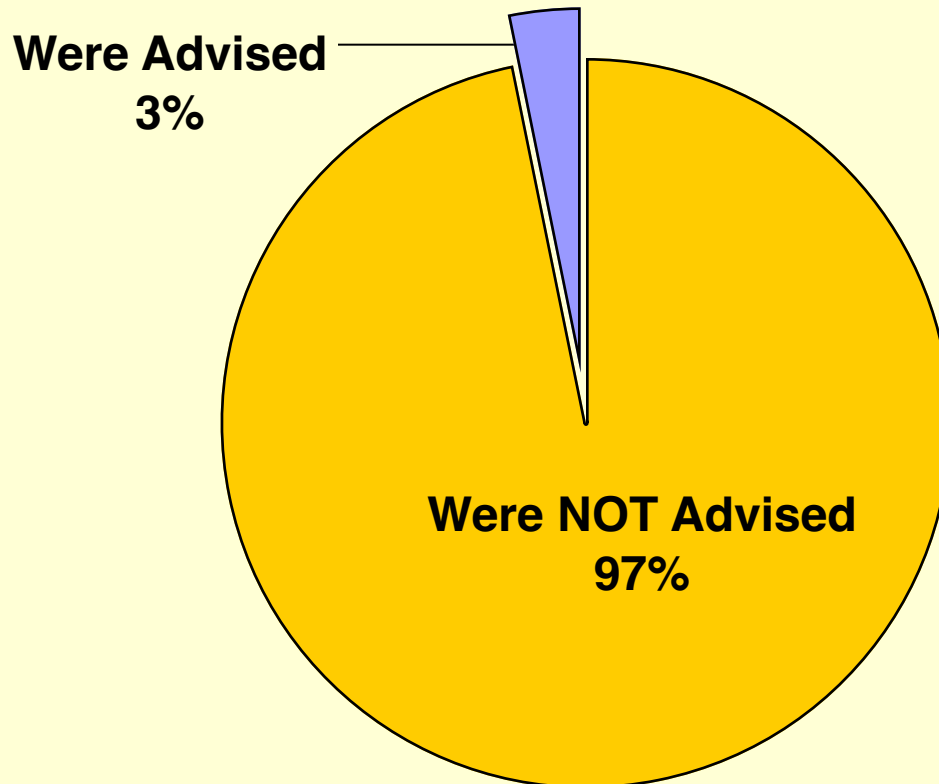
Were you ever over exposed to radon during your employment?



1152 workers responded to this question.

Safety: Over-Exposure Warnings

Were you advised that your over exposure might affect your household?



1036 workers responded to this question.

Enforcement of Workplace Safety Laws and Regulations: Worker Quotes

“We were told two to three weeks prior to the (inspectors) coming: We were instructed to clean everything”

--Post '71 Worker

“I worked under the mine safety manager. (Neither he) nor the state inspector rarely left the haulage. They never ventured into the more difficult workplace”

--Post '71 Worker



Recommendations

What We Learned From Survey

Lessons Learned from Survey

The Federal Government is **responsible** for uranium workers' poor health

RECA compensation should be **expanded** to federally recognized uranium-related medical conditions

Researching the full impact of uranium on the health of workers and their families will take a minimum of **45 million dollars**

Reasons for Post '71 Worker Compensation

High exposure rates to radon daughters

- 4 WLM during the 1970s and 1980s is and was then considered by many scientists as too high an exposure rate.

Lax enforcement of regulations

- Workers provided many examples of collusion between inspectors and mine supervisors as well as supervisors falsifying mine conditions before an inspection.

Mine Safety Laws enacted in the late 1970's were too late for most Post '71 workers

- The majority of Post '71 workers were employed before the late 1970's

US Mine Safety Laws are Substandard to Canada and Australia

Reasons for Expanding Coverage

RECA compensable illnesses represent **only a fraction** of those recognized by other federal agencies.

OSHA and the EPA recognize **17** more conditions related to uranium exposure.

Congress should expand the RECA list of compensable conditions to include those recognized by OSHA, CDC, and EPA

Reasons for More Health Studies

What is the impact of uranium and other contaminants on workers, families, and future generations?

What is the relationship between uranium and high incidence of **arthritis and degenerative joint disease or cardiovascular and gastrointestinal illnesses** found among uranium workers?

Congress should authorize a minimum of **45 million dollars** to research the full impacts of uranium and related contaminants of workers and families.

“Our Work Speaks for Itself

We should not have to qualify for compensation”

“Men and women who worked in the uranium industry, have untiringly and with much vigor, supplied to the world its needs, wants, and power. This supply has cost the health and death of many persons. The loss of innocent men, women, and children has gone unappreciated.

Billions of dollars have been enjoyed by our national government and its magnates. While these our leaders have attained to high posh lifestyles, due to engineering unmatched power, we, grateful for earning a living, are left to fend for ourselves.

The government has taken our lands, women and children: freedom and now our health. Is it wrong to be properly compensated as bonafide American Citizens?”

--Post '71 worker