
# Silicosis has not gone away

# Silicosis in Spain: a 2016 point prevalence overview in employed workers

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# Background

- Silicosis is an occupational lung disease caused by inhalation of crystalline silica dust.
- Despite the advances in both diagnosis and prevention the prevalence of silicosis is still high, specially in non developed and developing countries, but also in developed/industrialised countries
- In Spain, several outbreak studies have been published[1-3] in the last years, but no systematic epidemiological studies have been performed up to date.

1.- Martinez C, Prieto A, García L, Quero A, Gonzalez S, Casan P. Silicosis: una enfermedad con presente activo. Arch Bronconeumol. 2010; 46:97-100.

2.- Pascual S, Urrutia I, Ballaz A, Arrizubieta I, Altube L, Salinas C. Prevalence of silicosis in a marble factory after exposure to quartz conglomerates. Arch Bronconeumol. 2011;47(1):50-1

3.- Pérez-Alonso A, Córdoba-Doña JA, Millares-Lorenzo JL, Figueroa-Murillo E,García-Vadillo C, Romero-Morillos J. Outbreak of silicosis in Spanish quartz conglomerate workers. Int J Occup Environ Health. 2014;20(1):26-32

# Background

- 4 Laboral Advanced Radiology is a company that provides on-site x-ray imaging and silicosis monitoring to spanish companies with silica-dust exposed workers


# Objectives

The aim of the present study is to explore the point prevalence of silicosis in Spanish industries and activities with a specific occupational risk.

# Methods

- We performed an **observational, cross-sectional, descriptive study**

- 2987 employed workers were explored according the specific silicosis Spanish protocols .
  - Different industries and activities with silica-dust exposure were included.
  - Ages ranging 18-65 years.

- Two chest radiography (posteroanterior and lateral) were taken for each individual **in the place of work using a mobile x-ray** unit mounted on a truck. Data gathered during 2015

# Methods – Image evaluation

- X-ray images were evaluated by three different readers, as stated by ILO
- Profusions 0/- and 0/0 were considered as normal.
- Profusions 0/1 and 1/0 were considered as abnormal non-silicotic.
- **Silicosis was defined (according to international protocols) by profusions of at least 1/1.**

# Results

| Table 1. Number of explorations by type of industry | | | | |
|---|---|---|---|---|
| **Industries** | | **N. employees** | | |
| **Extractive** | Surface mining | | 814 | |
| | Deep mining | | 192 | |
| | | Subtotal | | 1006 |
| **Applied** | Foundry | | 500 | |
| | Tile | | 440 | |
| | Quartz agglomerates, Marble works and Construction | | 473 | |
| | Other industries | | 376 | |
| | Cement and concrete | | 192 | |
| | | Subtotal | | 1981 |
| | | TOTAL | | 2987 |

# Results

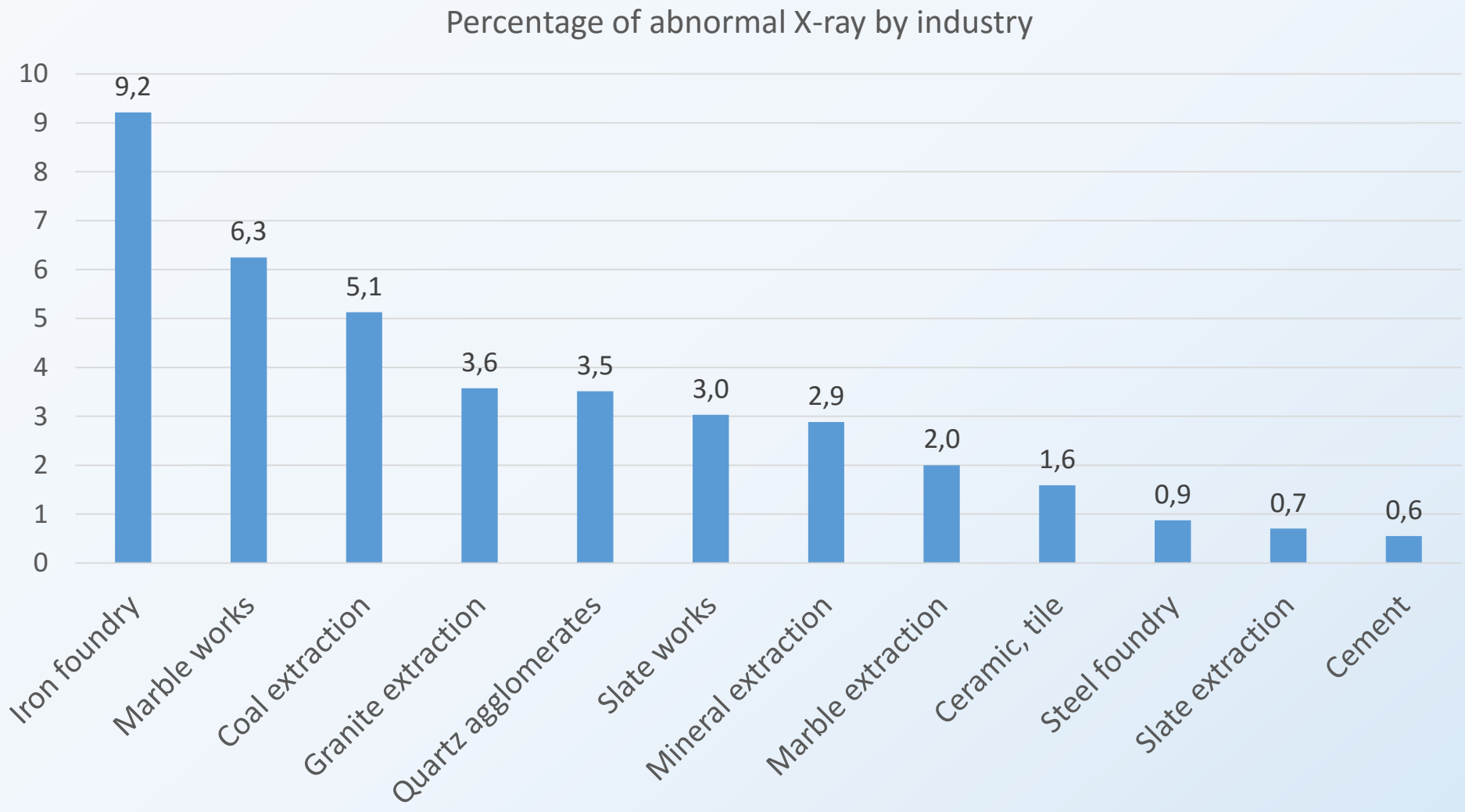
| Table 2.- Abnormal cases by profusion | | | |
|---|---|---|---|
| Category (ILO) | | N. cases | Classification |
| Small opacities | Large opacities | | |
| 0/1 | | 13 | Abnormal non-silicotic |
| 1/0 | | 25 | Abnormal non-silicotic |
| 1/1 | | 10 | Silicosis positive |
| 1/2 | | 4 | Silicosis positive |
| 2/1 | | 0 | Silicosis positive |
| 2/2 | | 4 | Silicosis positive |
| 2/3 | | 0 | Silicosis positive |
| 3/2 | | 0 | Silicosis positive |
| 3/3 | | 3 | Silicosis positive |
| | A | 0 | Silicosis positive |
| | B | 1 | Silicosis positive |
| | C | 0 | Silicosis positive |
| | | 38 | Non-silicotic |
| | | 22 | SILICOTIC |
| | | 60 | TOTAL |

It is worth noting that we found 3 individuals with high profusion (3/3) and even a new case of large type B opacity

# Results

| Punctual prevalence of abnormal images and silicosis | | |
|---|---|---|
| | Number | Percentage |
| X-ray explorations | 2987 | 100% |
| Abnormal non-silicotic | 38 | 1,27% |
| Silicotic | 22 | 0,74% |

# Results


Percentage of abnormal X-ray by industry
10
9
8
7
6
5
4
3
2
1
0
9,2
6,3
5,1
3,6
3,5
3,0
2,9
2,0
1,6
0,9
0,7
0,6
Iron foundry
Marble works
Coal extraction
Granite extraction
Quartz agglomerates
Slate works
Mineral extraction
Marble extraction
Ceramic, tile
Steel foundry
Slate extraction
Cement

# Conclusions

- Abnormal x-ray in 60 cases out of 2987 (2,01%)
- 22 cases of silicosis (0,74 %)
- We found several cases of advanced silicosis
- Despite the introduction of preventive measures in exposed workers, silicosis prevalence is still high. What are we missing?

# Conclusions

- The fact that we still find silicosis in classical activities emphasize the need for the adoption of preventive measures and active monitoring of employees in risk activities.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For how long?

Thank you