



The Australasian Faculty of  
Occupational and Environmental Medicine



The Royal Australasian  
College of Physicians

RACP CONGRESS  
2019

7 May 2019

# Accelerated Silicosis – Part 2

What does it tell us  
about health  
surveillance?

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- Consultant Physician in Occupational and Environmental Medicine
- RACP Media spokesperson
- AFOEM Qld Regional Councillor
- A/Chair AFOEM Qld Regional Committee

# Learning Objectives

Distinguish between

- Health screening
- Health monitoring
- Health surveillance

Respirable Crystalline Silica

- The legislated framework for health monitoring
- What are the options



# Conflicts of Interest?

**No known**

Consulting Physician in solo private practice

My consulting company is based in Brisbane:

“Streamline International Pty Ltd T/A Work & Health Risk Management”

My primary clinic is on the Gold Coast (Parkwood):

a treating specialist practitioner



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# Diseases associated with Respirable Crystalline Silica

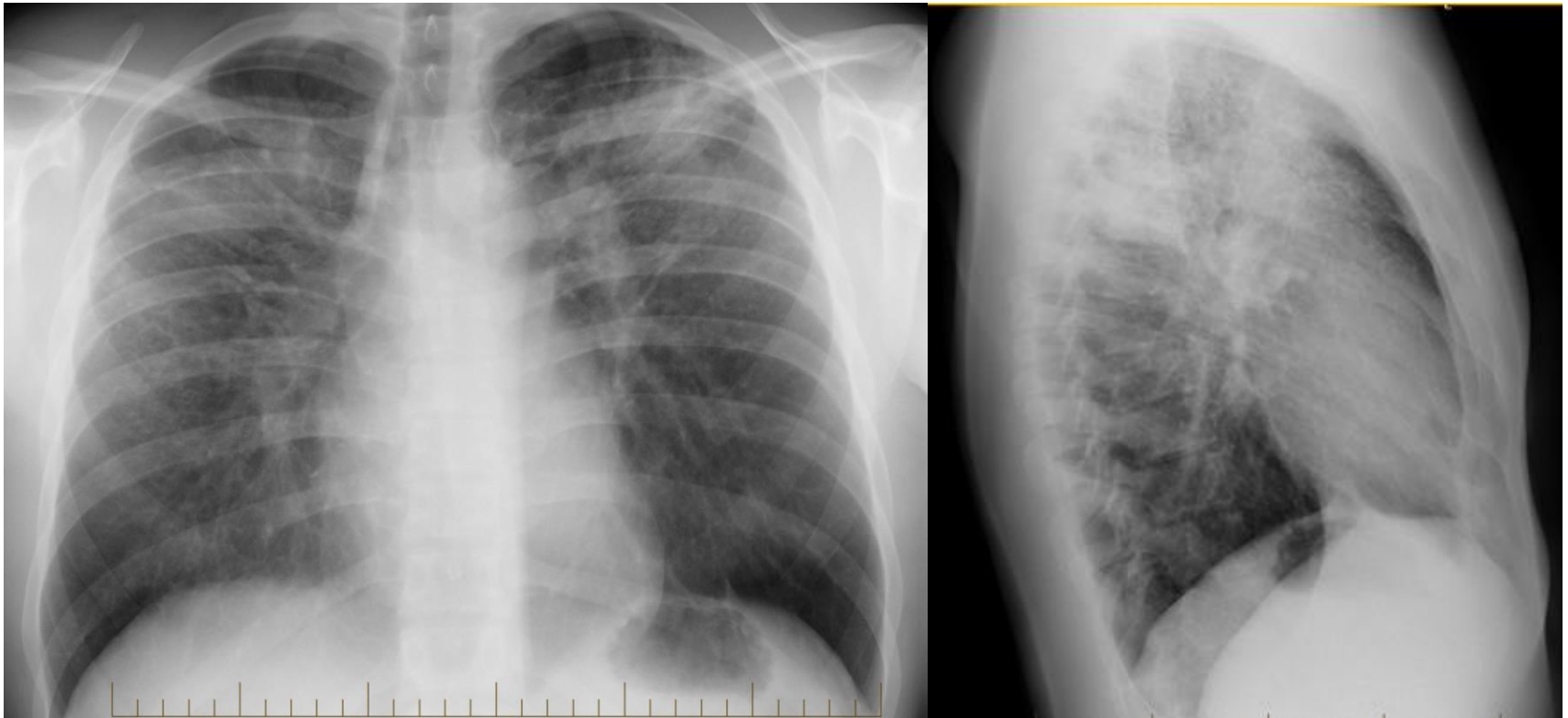
- **Silicosis**
- Lung cancer
- **Chronic obstructive pulmonary disease (COPD)**
- Tuberculosis
- **Scleroderma**
- **Rheumatoid arthritis**
- Chronic kidney disease



## Asymptomatic 27 year old – ILO Grade 2/3 with PMF

Dry processes 2009-2015 – 6 years

Mixed dry and wet processes since 2015 – 2.5 years

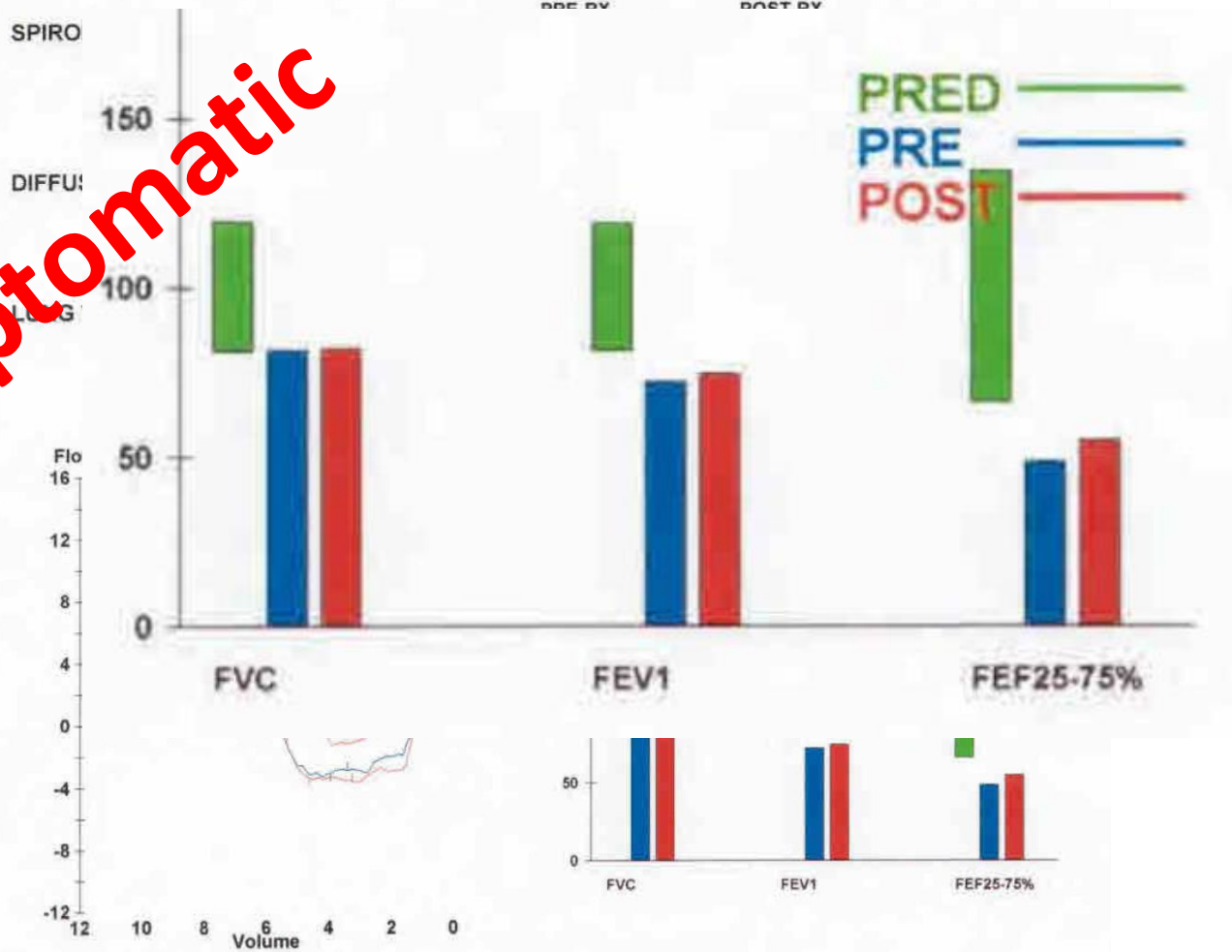


# Complex Lung Function Study

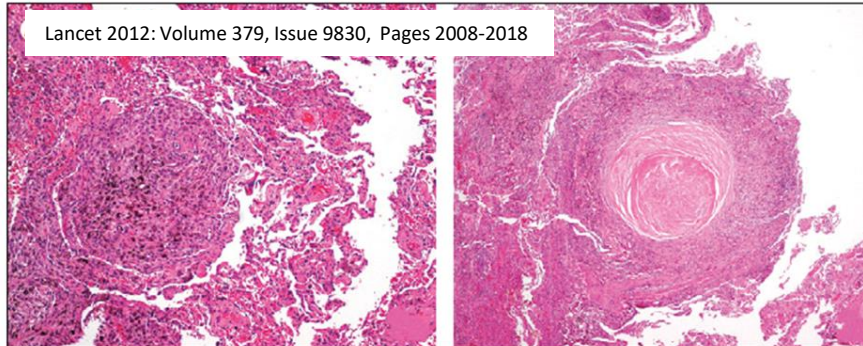
Name:  
 Age: 27 yr Birth Date:  
 Gender: Male Race: Caucasian  
 Height: 178 cm Weight: 74.0 kg  
 Smoking History: Ex 2007-2014 5/0/0  
 Body Mass Index: 23.36

Date: 23/08/18  
 ID:  
 Physician:  
 Temp: 20 Press: 760 Tech:  
 Bronchodilator Used: Salbutamol

Asymptomatic

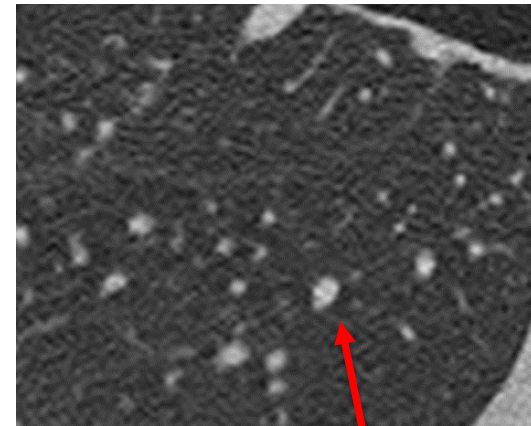


# Silicosis - Pathogenesis

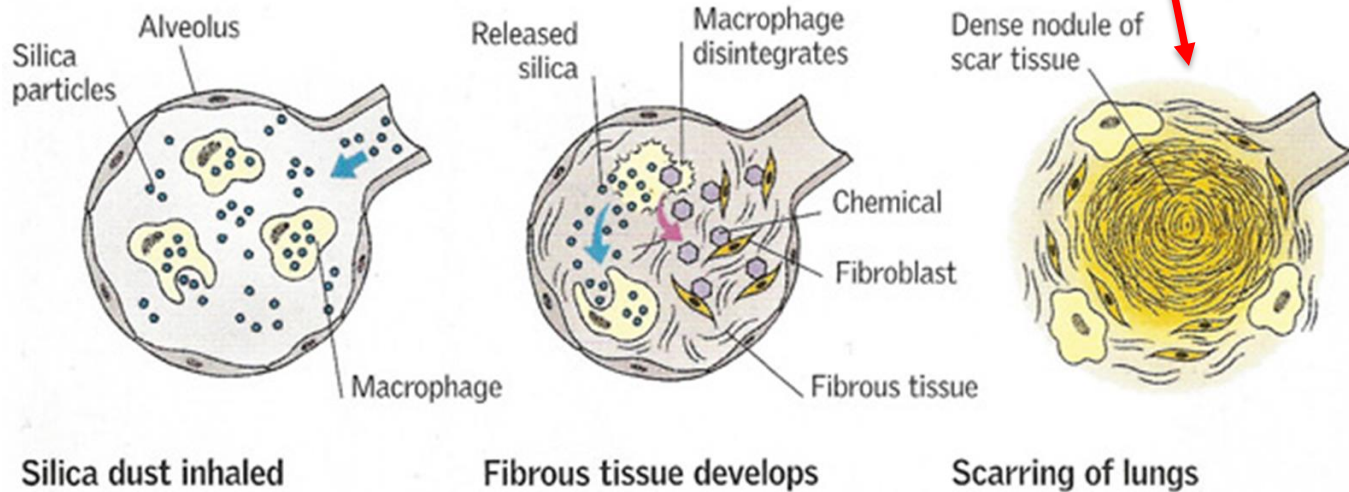


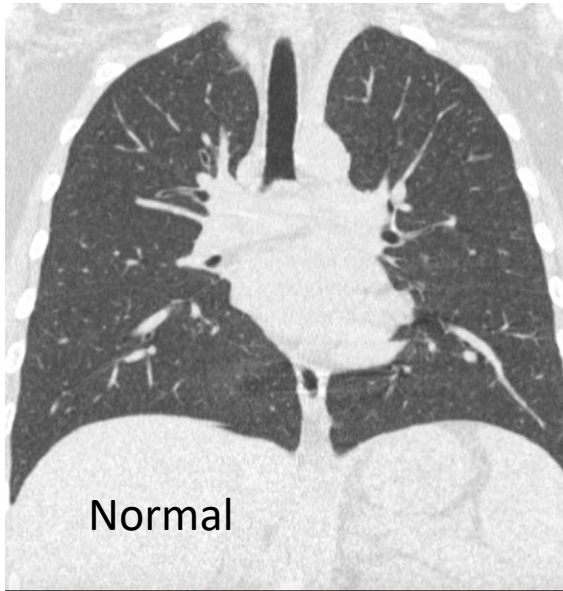
Lancet 2012: Volume 379, Issue 9830, Pages 2008-2018

Figure 1: Histological sections of lung with silicotic lesions  
 Early silicotic lesion as cellular nodule of dust-laden macrophages (A; x100). Chronic silicotic nodule with concentric fibrosis in the centre and peripheral dust-laden macrophages (B; x40).

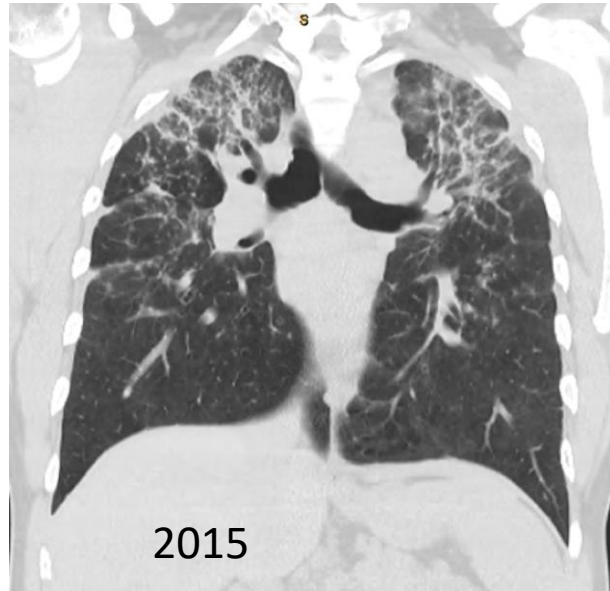


With thanks Dr K Newbigin

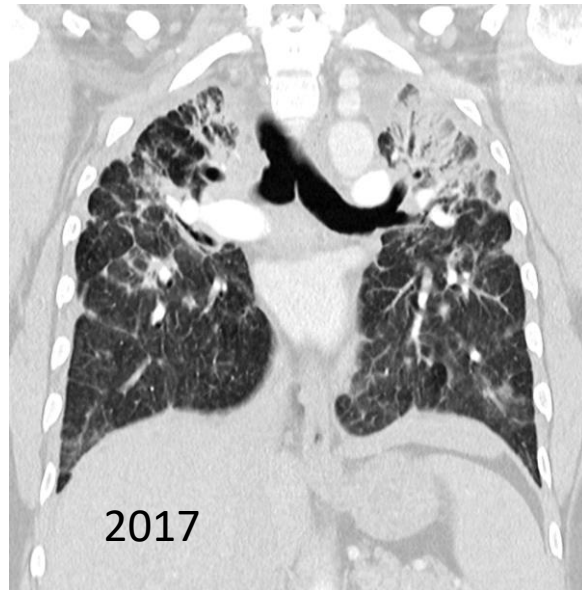




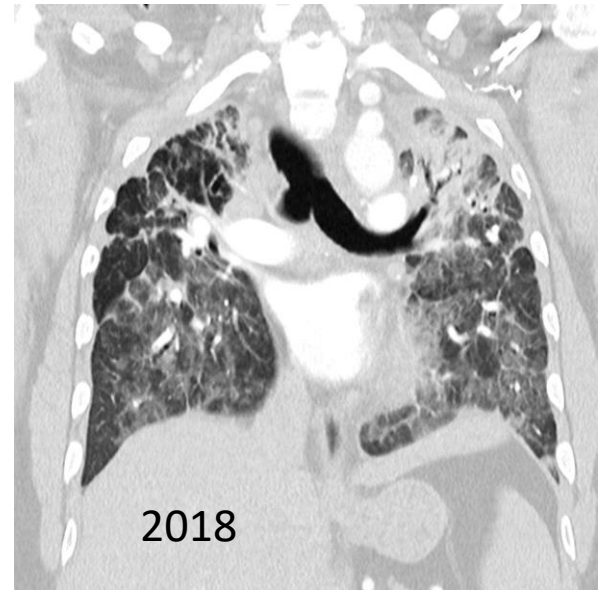
Normal



2015



2017



2018

With thanks to Dr R Hoy





# What's in a name?

## Health Screening

- Case finding activity –in a specific high-risk group

## Health Monitoring

- A statutory activity across all industries with workers who have a significant potential for exposure
- Critically dependent on employment status

## Health surveillance

- The serial medical assessment of people with established exposure or established disease
- Not dependent on employment status



# Health Monitoring

- Health monitoring means monitoring a person's health to identify changes in their health status because of exposure to certain substances.

For RCS:

- Silicosis
- COPD
- Auto-immune connective tissue diseases

- Health monitoring aims to detect adverse health effects at an early stage so action may be taken.

For RCS

- Accelerated silicosis – fails!



# Why Now – Lag and Latency

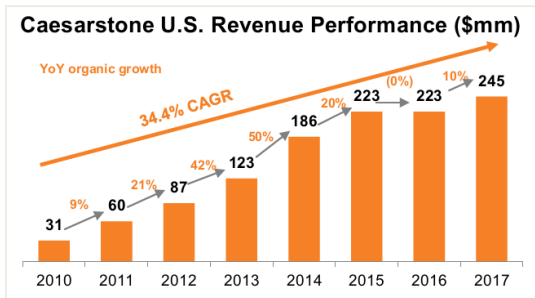


- The lag for the necessary “cumulative lung burden” to trigger  
Compared with chronic silicosis:
  - Shorter due to the intensity of exposure
  - Much younger age group
  - Additional immunological reaction.
- **Accelerated Silicosis** is a previously rare condition – materially different from **chronic silicosis**
  - Once triggered latency of disease itself, indicates progressing over 3-5+ years necessary from first evident disease to clinically significant symptoms.
  - The level of awareness – historically rare disease in both radiological and general medical practices
  - Immunological reaction associated with the composites



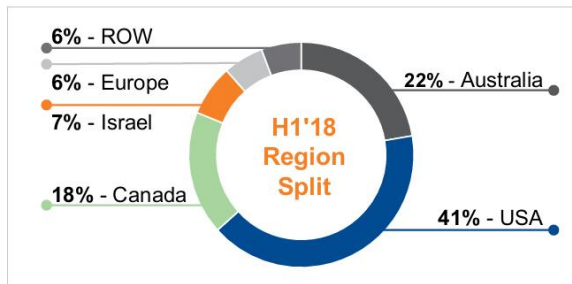
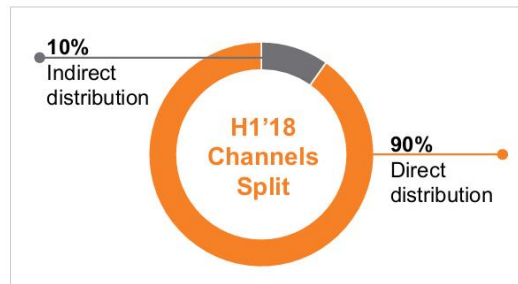
# Why Now – Caesarstone Company Overview - September 2018

## Leading Global Footprint with Diverse Revenue Mix



**31 Caesarstone Direct Sales in 6 countries (DC & offices)**

**48 Caesarstone Distributors**



**CS partners along the value chain**

|                        |        |
|------------------------|--------|
| Architects & Designers | ~240 K |
| Kitchen & Bath         | ~18 K  |
| Fabricators            | ~9 K   |
| Developers/builders    | ~9 K   |

relevant in the direct sales market



# Failed legislative framework (1)

1. No case of silica related disease has ever been reported as arising in a scenario that was compliant with the prevailing regulatory requirements of the day.
  - If you ever find such a case - please let me know.

## ➤ This means:

Changing the changing the Workplace Exposure Standards will not change the potential for adverse health consequences arising from unsafe work practices by naive or unscrupulous persons conducting the business or undertaking (PCBU)



# Failed legislative framework (2)

## 2. Serial Analysis

Fundamental to reliable, timely and cost effective medical assessment of a worker

- no statutory enabled, researchable and accessible repository of
  - exposure history (traditionally recorded as a narrative)
  - the air monitoring data
  - health monitoring data
- Especially if
  - The PCBU stops trading;
  - A worker leaves the employ of the PCBU (at the time of the critical exposure, or
  - The worker leaves the industry

### ➤ This means

There is no regulated process to enable the supervising medical practitioner to access historic health data



# Failed legislative framework (3)

3. Statutory intervention only occurs after a breach is detected:
  - While an inspector may identify non-compliance with the existing regulatory framework, there is no regulated way for the specifically identified exposed worker/s to be identified to the medical practitioner as needing assessment.
  - There is no legislated authority to enable a medical practitioner to directly notify the regulator about a worker who is diagnosed with a RCS related disease

## ➤ This Means

No trigger or system to enable a statutory empowered investigation into the circumstances of the case



# And counting

- **Over 100 workers** in Queensland;
- Crude prevalence rate ~ 25-30%, with just under 1 in 5 of these workers presenting with PMF
- Most were relatively **asymptomatic**
  - DID NOT have hilar or mediastinal calcific lymphadenopathy, suggesting:
    - either very early case detection, or
    - a different pathophysiology (e.g. an effect of the resin used in the manufacturing process).
  - **may be amenable to therapeutic intervention**





# The Call to Action



1. Educate the industry and enforce the Regulations
2. Control the dust and use appropriate respiratory protection
  - Powered Air Purified Respirators
  - No uncontrolled dry processes
3. National surveillance program and disease registry
  - From exposure
  - Notifiable Disease – engaging Public Health
4. Health assessments of all high-risk workers
  - False negative rate of spirometry and ILO CXR – add Diffusion Capacity and HRCT
5. Better our understanding of the disease

# Frequently asked questions



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The screenshot shows a web browser window with the URL <https://www.racp.edu.au/advocacy/division-faculty-and-chapter-priorities/faculty-of-occupational-environmental-medicine/accelerated-silicosis/faqs>. The page features a navigation menu with options like 'HOME', 'ABOUT', 'NEWS AND EVENTS', 'POLICY AND ADVOCACY', 'INNOVATION', and 'CONTACT US'. Below the menu is a search bar and a 'LOG IN' button. The main content area is titled 'Frequently asked questions' and 'Accelerated Silicosis'. A sidebar on the left contains a 'Policy and Advocacy' menu with sub-items: 'Represent your profession', 'Evolve', 'Policy and Advocacy Priorities', and 'Division, Faculty and Chapter Priorities'. The main text includes a breadcrumb trail: 'Home > Policy and Advocacy > Division, Faculty and Chapter Priorities > Faculty of Occupational & Environmental Medicine > Accelerated Silicosis > Frequently asked questions'. Below the title, the text reads 'What is the issue?' and 'New and Victoria since 2016. This means there may be hundreds of similar workers affected across Australia and New Zealand.' The page also shows a 'Medicine' sidebar with 'Chapter of Sexual Health Medicine' and a partially visible question 'Who is affected?'.

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