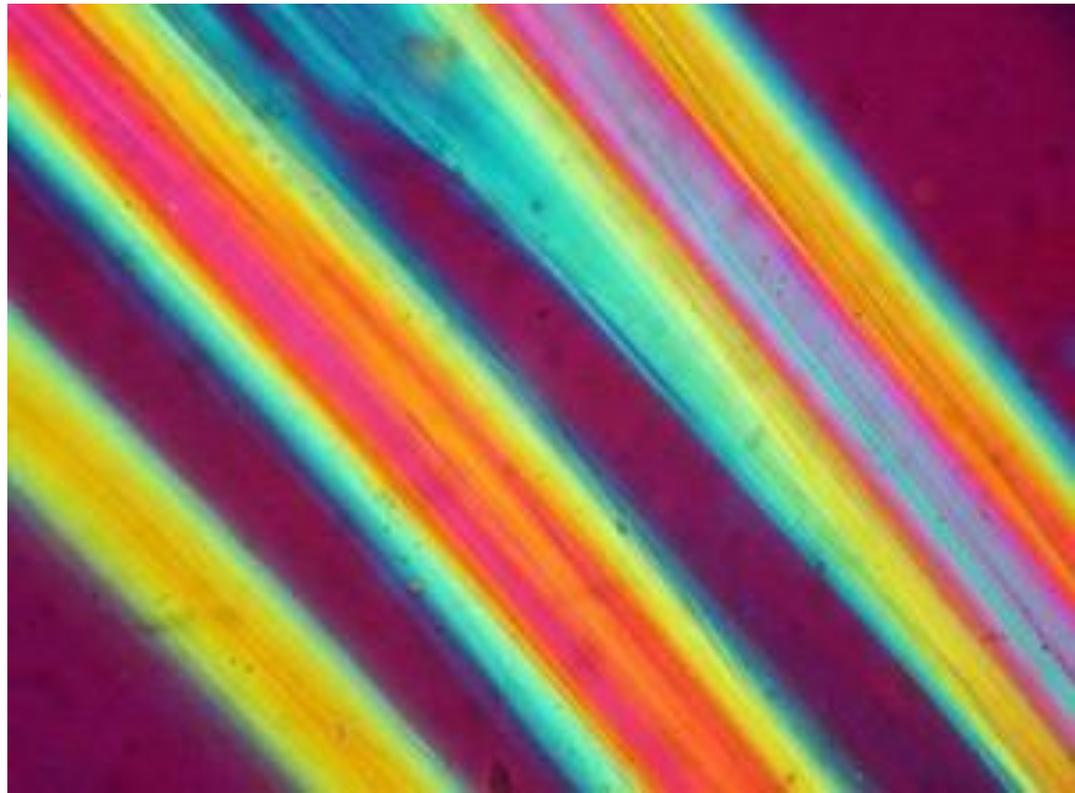


Asbestos – Health Risks

Dr Andrew Pengilley
Acting Chief Health Officer



Asbestos

- Asbestos is a name given to several different fibrous minerals
- Three main commercial types are
 - Chrysotile (white asbestos)
 - Amosite (brown asbestos)
 - Crocidolite (blue asbestos)
- Because it is insulating, doesn't burn or degrade it was widely used in construction, textiles and engineering
- Complete ban on use in 2003



Mr Fluffy asbestos

- In the 1960's and 1970's loose amosite asbestos sold as insulation or installed in some houses in the ACT
- In 1988 the Loose Fill Asbestos Program removed visible and accessible asbestos from most homes
- Residual asbestos could remain in wall cavities, underfloor spaces and under cornices



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Sir,
Please arrange an obligation free quotation for insulating my home.

Name _____
Address _____

From Canberra Times

Health risks of asbestos

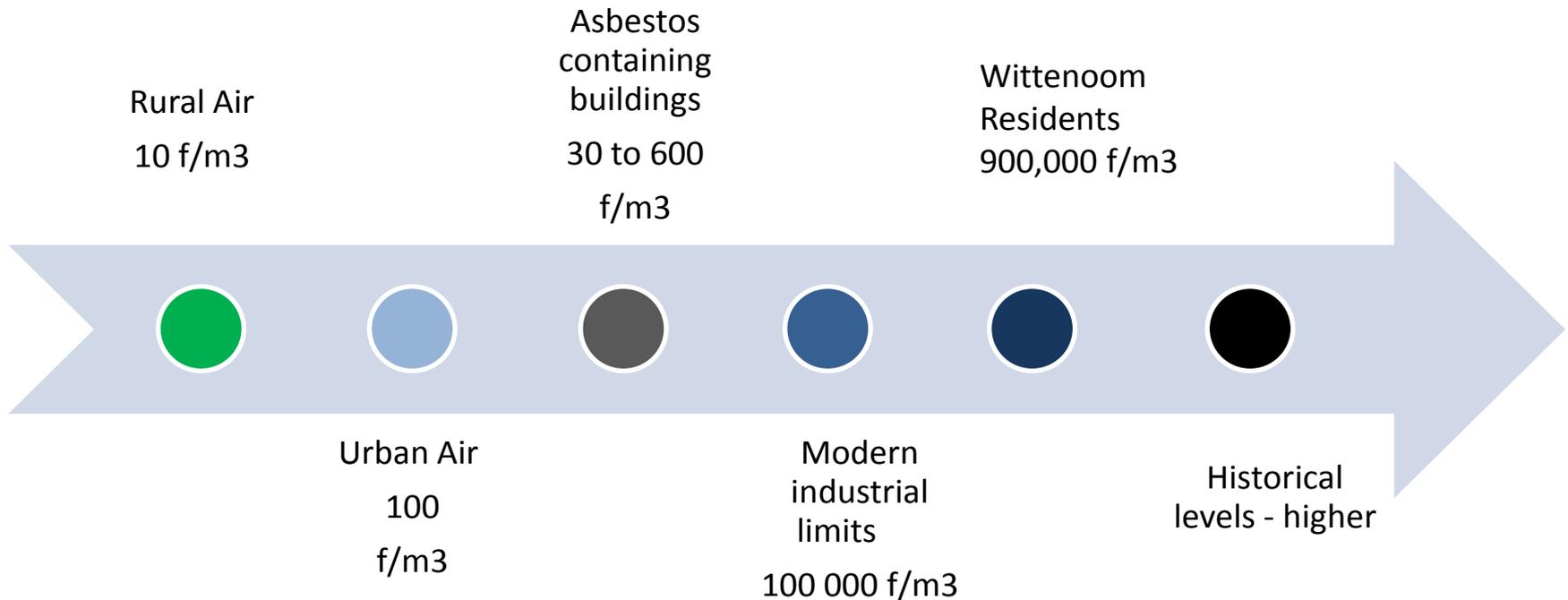
- Asbestos is a danger because fibres are small enough to become airborne and be inhaled, causing injury to the lungs
- There are low levels of asbestos in the ambient air. 10-200 fibres in every cubic metre (1000L) = 0.01-0.2 f/L
- A cubic metre is the amount of air typically breathed by a person every hour
- A study of lung samples of urban dwellers showed asbestos fibres at a concentration of about 0.3 million fibres/gram of lung tissue

Health risks of asbestos

- Most of what is known about the health risks of asbestos comes from studying large groups of people exposed to asbestos in their jobs, or living near asbestos industries like mining.
- These are generally exposures to high levels of asbestos over long periods of time
- Harm from asbestos increases with cumulative exposure to inhaled fibres over time, and with the time since a person is first exposed
- We can look at the levels of exposure which are known to cause problems in groups which have been studied to draw some conclusions about the risk to people living in Mr Fluffy homes

Range of asbestos exposures

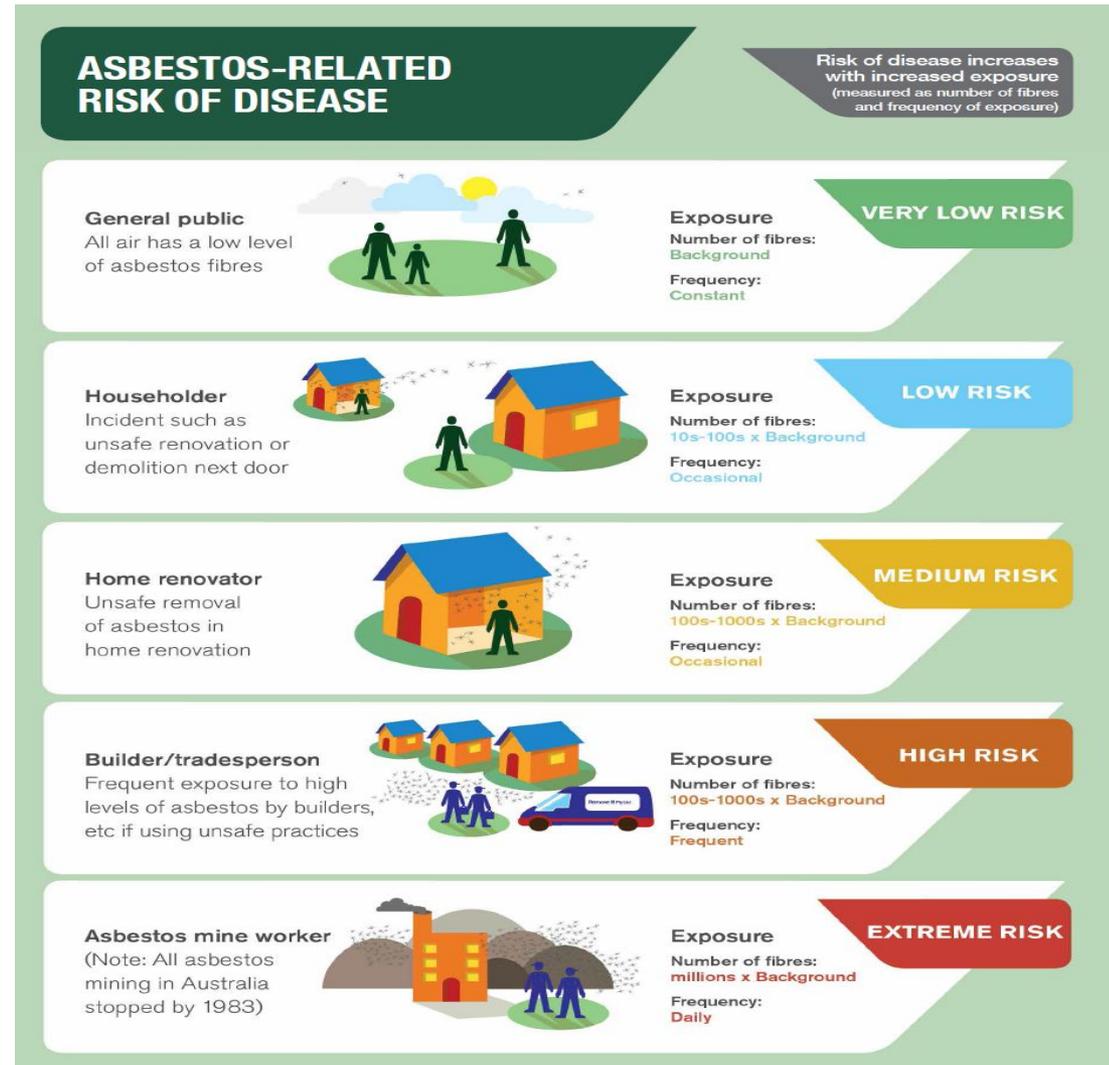
- Airborne asbestos levels are generally expressed in fibres per millilitre (or cubic metre) of air
- This gives a comparison of levels in different settings



What is important is cumulative asbestos exposure and time since exposure

Cumulative exposure

- level of asbestos a person is exposed to
- the time over which they are exposed to asbestos
- generally very low risk of disease for several decades



Occupational exposure to asbestos

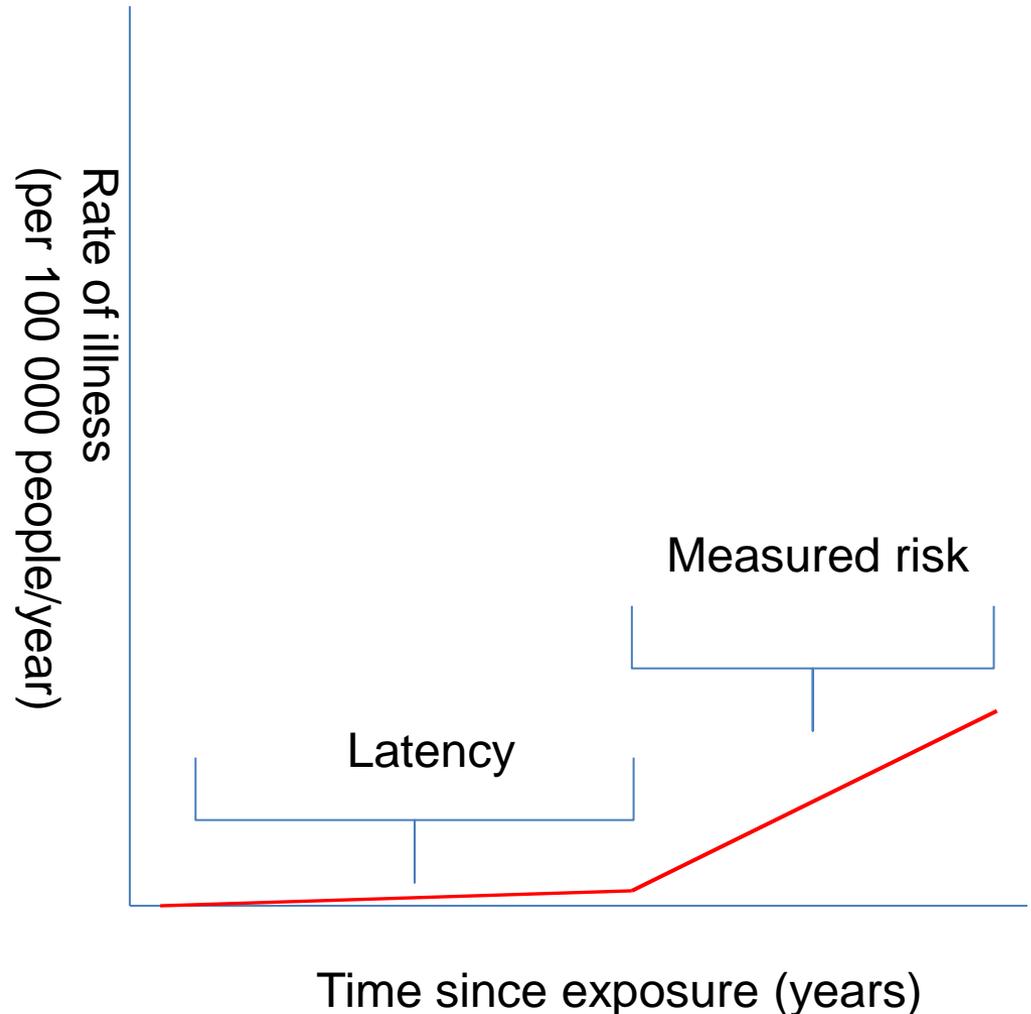
- Originally mining towns e.g. Wittenoom
- Also workers with asbestos products e.g. boiler workers, mechanics, textile mill workers, shipyard workers etc
- Wittenoom was a Crocidolite mine, which is one of the more toxic types of asbestos



From “**Study links cancer to WA mining town of Wittenoom**”
September 12 2012, News.com

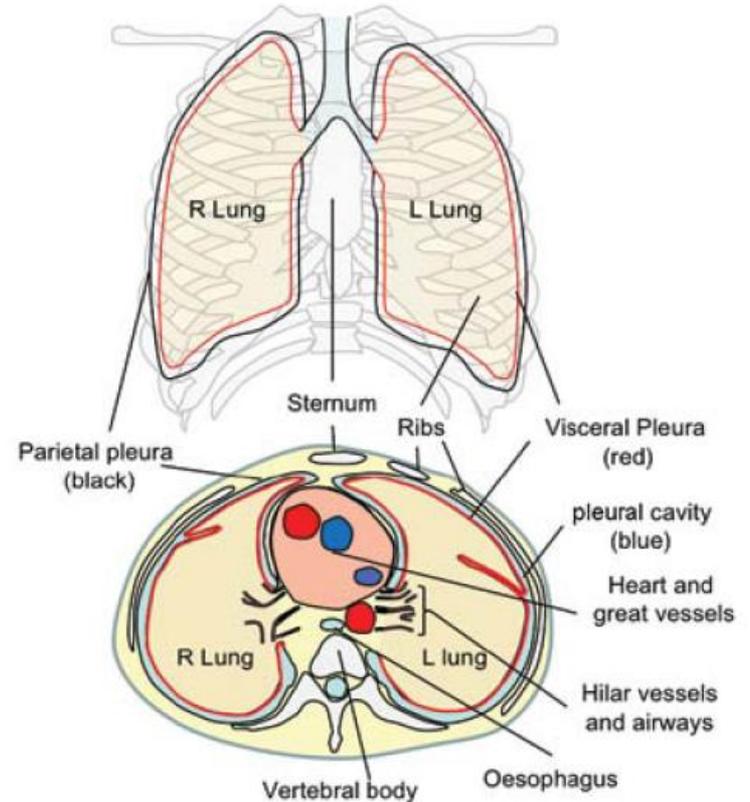
Asbestos related diseases

- Benign pleural plaques
- Asbestosis
- Mesothelioma
- Lung cancer
- All are rare even in highly exposed populations
- If they do occur, they develop several decades after a person is exposed to asbestos



Benign Pleural Plaques

- Localised areas of scarring on the lining of the chest wall
- Commonest manifestation of past exposure to asbestos and generally appear 20- 40 years after exposure
- Only indicate that there has been exposure to asbestos not the level of asbestos
- Pleural plaques are nearly always asymptomatic



Asbestosis

- Scarring of the lung
- Usually seen at prolonged exposure high levels e.g 5-20 million f/m³
- Usually long latency 20-40 years
- After 35 years 1-2 of 1000 workers at Wittenoom exposed to levels up to 50 million fibres/m³/per year had died of asbestosis



Mesothelioma

- Rare cancer
- Risk related to cumulative exposure
- Rates in Wittenoom residents were 26 per 100 000 people per year with a latency of 20-40 years
- Rates in Western Australian home renovators were 4-6 per 100 000 people per year
- Exposure in Mr Fluffy homes is likely to be much lower than exposure to asbestos in these groups

Jamrosik, E, de Klerk, N, Musk, AW, Asbestos-related disease, Internal Medicine Journal, 2011

Olsen, N, Franklin, P, Reid, A et al, Increasing Incidence of Malignant Mesothelioma after exposure to asbestos during home maintenance and renovation, MJA (195) 5 Sept 2011

Lung Cancer

- Asbestos exposure increases the risk but still almost all cases occur in smokers.
- Exposure to low levels of 100 fibres per cubic meter would cause 2 cases per 100 000 smokers per year, or 2 cases per 1 000 000 non-smokers per year
- This compares to an underlying rate of 30 lung cancers per 100 000 people per year in the ACT

Comparison of risks

Event	Risk
Chance of an Australian being diagnosed with a cancer before the age of 75	1 in 3 people (men) 1 in 4 people (women)
Additional lifetime risk of solid tumour or leukaemia from the radiation dose received during a CAT scan of the chest	1 in 1000 patients
Risk of mortality from asbestosis at occupational exposure limits for 45 years	1-2 per 1000 people
Chance of residents of Wittenoom mining town with residential exposure to asbestos developing Mesothelioma	26 in 100 000 residents per year
Chance of dying in a traffic accident in the ACT (2010 data)	5 in 100 000 people per year
Rate of Mesothelioma in people exposed to asbestos through home renovation/handyman/DIY work in Western Australia	6 in 100 000 renovators (men) per year 4 in 100 000 renovators (women) per year
Yearly number of lung cancer diagnoses in the ACT	30 per 100 000 residents per year
Estimated additional lung cancer risk from low level exposure to asbestos over a lifetime in smokers	2 per 100 000 people per year
Rate of deaths from drowning in Australia	0.7 per 100 000 people per year
Estimated additional lung cancer risk from low level exposure to asbestos over a lifetime in non-smokers	0.2 per 100 000 people per year

More Information

- EnHealth: Management of asbestos in the non-occupational environment – 2005
- EnHealth: Asbestos - A guide for householders and the general public. 2013
- ATSDR: Toxicological profile - Asbestos