The exposure of emergency service personnel to asbestos

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Why study asbestos and emergency services?

- Asbestos can be found in around 1 in 3 Australian homes
- Asbestos dumping is increasing
- Minimal Australian research on asbestos in the emergency service context
- Asbestos exposure not immediate thought of emergency services
- Asbestos products not readily identifiable - can not be seen, felt or tasted
- Asbestos is a known cause of cancer
- Asbestos related illnesses: 20 - 40 years after first exposure
- Asbestos fibers No safe level of exposure
- No current ‘field’ test available for asbestos
- Recent incidents and disasters have raised asbestos risk
- Risk for emergency services, victims, bystanders and media
Research aims

Compare current Australian emergency services training, policies and procedures when the likelihood of exposure to asbestos is suspected or confirmed, ensuring they comply with Australian Standards and current Australian best practice policies.
What is asbestos?

Asbestos is a commercial and generic term for six fibrous silicate minerals, classed into two groups:

- **Serpentine** group - chrysotile, commonly known as white asbestos
- **Amphibole** group - amosite (brown asbestos) and crocidolite (blue asbestos), tremolite, actinolite and anthophyllite.

Asbestos = Inextinguishable / Unquenchable
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Size of asbestos fibres

A comparison of asbestos fibers and a hair fiber at 50 micrometers using a scanning electron microscope (SEM)
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Why is asbestos dangerous?
Asbestos is a level one carcinogen, proven to illnesses including asbestosis, lung cancer and mesothelioma.

Easily inhaled and lodged deep into the alveoli of lungs due to the sharp ‘barb’ characteristic and microscopic size.
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Case Study - WTC 2001

World Trade Center - 2001
The exposure of emergency service personnel to asbestos
Case Study - WTC 2001

In Sydney Context

Ground Zero = Centrepoint

North= Circular Quay
East= Elizabeth Bay
South = Hyde Park
West = Darling Harbour
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Asbestos in Australia

- Wittenoom
- Andersons Creek
- Baryulgil
- Robertstown
- Woodsreef
- Jones Creek
- Andersons Creek
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Asbestos in Australia
Production and imports of asbestos in Australia, 1930 - 1983

<table>
<thead>
<tr>
<th>Years</th>
<th>Chrysotile Production</th>
<th>Chrysotile Imports</th>
<th>Crocidolite Production</th>
<th>Crocidolite Imports</th>
<th>Amosite Production</th>
<th>Amosite Imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-1939</td>
<td>1200</td>
<td>0</td>
<td>400</td>
<td>0</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>1940-1949</td>
<td>3000</td>
<td>0</td>
<td>5600</td>
<td>0</td>
<td>750</td>
<td>0</td>
</tr>
<tr>
<td>1950-1959</td>
<td>11,500</td>
<td>314,100</td>
<td>63,250</td>
<td>2800</td>
<td>1</td>
<td>107,500</td>
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<tr>
<td>1960-1969</td>
<td>8850</td>
<td>329,000</td>
<td>86,550</td>
<td>0</td>
<td>1</td>
<td>81,450</td>
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<tr>
<td>1970-1979</td>
<td>394,350</td>
<td>388,000</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>87,900</td>
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<tr>
<td>1980-1983</td>
<td>160,400</td>
<td>64,650</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8500</td>
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</tbody>
</table>

Note: Data have been rounded off to the nearest 50 tonnes.

Production, imports, exports and apparent consumption in tonnes of asbestos for Australia, 1930 - 1985

<table>
<thead>
<tr>
<th>Years</th>
<th>Production</th>
<th>Imports</th>
<th>Exports</th>
<th>Apparent Consumption</th>
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<tbody>
<tr>
<td>1930-1939</td>
<td>1600</td>
<td>51,550</td>
<td>1200</td>
<td>52,000</td>
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<tr>
<td>1940-1949</td>
<td>9350</td>
<td>140,000</td>
<td>2400</td>
<td>146,900</td>
</tr>
<tr>
<td>1950-1959</td>
<td>74,750</td>
<td>314,100</td>
<td>51,400</td>
<td>337,400</td>
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<tr>
<td>1960-1969</td>
<td>95,400</td>
<td>434,700</td>
<td>44,700</td>
<td>485,400</td>
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<tr>
<td>1970-1979</td>
<td>394,350</td>
<td>555,600</td>
<td>45,500</td>
<td>704,450</td>
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<tr>
<td>1980-1985</td>
<td>160,400</td>
<td>104,300</td>
<td>109,800</td>
<td>154,950</td>
</tr>
<tr>
<td>Total</td>
<td>740,300</td>
<td>1,602,800</td>
<td>450,000</td>
<td>1,888,000</td>
</tr>
</tbody>
</table>

Note: Values have been rounded off to the nearest 50 tonnes and therefore may not add up exactly.
Asbestos containing material

Asbestos was used as a result of the durability, fire resistance, insulation properties and low production cost.

Can be located in over 3,000 products including automotive, housing, boating and household items.
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Location of asbestos
The exposure of emergency service personnel to asbestos

Location of asbestos
The exposure of emergency service personnel to asbestos

Location of asbestos
The exposure of emergency service personnel to asbestos

How was ‘best practice’ determined?
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Who participated
All Australian emergency services were invited to submit policies and procedures when the likelihood of exposure to asbestos is suspected or confirmed whilst attending and incident or operational duties.

Emergency services defined as:
Police (State, Territory and Federal)
Ambulance (State and Territory)
Fire Services (State and Territory) [Metropolitan and Rural]
State Emergency Services (State and Territory)
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Method / Results

Each agency’s policy was analysed and scored against the model asbestos policy which identified 16 factors including:

Explaining asbestos
Risk assessment
Cease work
Minimise any exposure
Keep asbestos damp
Avoid disturbing asbestos
Safe exposure standard
Decontamination
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Who had asbestos policies

- 18, 58% Covered under another Policy
- 9, 29% Specific Asbestos Policy
- 4, 13% No Policy

Specific Asbestos Policy | No Policy | Covered under another Policy
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Who had asbestos policies

- Metro Fire / Fire Rescue: 7
- Rural Fire / Volunteer: 6
- Police: 5
- SES: 4
- Ambulance: 0
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The use of respiration devices

- None Mentioned: 11, 35%
- P2: 4, 13%
- Self Contained Breathing Apparatus: 5, 16%
- P2 & SCBA: 3, 10%
- Respirator not for use with asbestos: 8, 26%
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P1 versus P2

Whilst the Australian Standard recommends a P1 for chrysotile asbestos particulates, it is not rated for other conditions that emergency service personnel are subjected to such as bushfire smoke, industrial fumes and micro organisms.
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Use of ‘Hot Zones / Exclusion Zones’

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Use of ‘Hot Zones / Exclusion Zones’

- None Mentioned: 20, 65%
- Hot Zone / Exclusion Zone: 11, 35%
The exposure of emergency service personnel to asbestos

Use of ‘Hot Zones / Exclusion Zones’

- Metro Fire / Fire: 7
- Rural Fire / Volunteer: 3
- Police: 1
- SES: 0
- Ambulance: 0

Distance:
- 1 km
- 100 m
- 50 m
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Case Study
Lennox Head

Photographer: Brendan Radke
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Case Study
Exercise Explorer
The exposure of emergency service personnel to asbestos

Research recommendations

1. National asbestos policies for each emergency service to ensure standardisation of procedures.
2. Awareness workshops for emergency services - especially police, ambulance and volunteer agencies.
3. The need to expand ‘Hot Zones / Exclusion Zones’
4. The use of P2 masks over a P1
5. Training in use and fitting of P2 masks
6. The need to carry sufficient P2 masks in vehicles
7. Media to be made aware of asbestos danger - need to have adequate protection at incident scene
8. Decontamination of all persons at incident scene
9. Potential identification of structures and facilities with asbestos in pre incident planning and agency databases
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Research recommendations

10. Acknowledgment that asbestos is a Hazardous Material (HAZMAT) and treated accordingly given the lengthy latency period for illness and inability to see / taste / smell/ touch fibres.

11. Local / State Government to assist in recovery phase of asbestos structures in a timely manner to prevent secondary exposures

12. Consideration of asbestos sub plan of disaster plans (DisPlan) to ensure all agencies are aware of duties to avoid confusion

13. Emergency service personnel to be proactive in reporting asbestos incidents
Phase two of research

• Creation of ‘Asbestos Awareness Workshop’ for use by all emergency services - adaptable to specific policies and procedures
• Creation of asbestos exposure hotspot database - determine areas of concern and the incidence of asbestos exposures for emergency services to assist in risk management
• Several peer reviewed journal articles on asbestos and emergency services based on research results
In conclusion

- Asbestos is still prevalent in metropolitan and rural areas.
- The current generation have little knowledge of asbestos products.
- Where is the approx. 2 million tonnes of asbestos?
- A rethink is required on how emergency services operate during incidents where asbestos may be present.
- Does your emergency service have an adequate asbestos policy?
- Would you be confident in declaring an asbestos incident?
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Thank you kindly for attending!

Questions?

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