Hazard Reduction Burning

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1. Context

2. Health impacts of smoke

3. Strategies for managing smoke
Australia’s biota is shaped by fire
Individual health impacts of smoke

Small changes in:

- Lungs - inflammation
- Blood - inflammation and clotting
- Heart – electrical rhythms
- Blood vessels - function
Population health impacts of smoke

- Deaths
- Hospital admissions
- Doctor visits
- Symptoms of illness
- Physiological changes
- Pollution exposure
Landscape fire smoke episodes in Sydney

PM$_{2.5}$ Sydney 1997-2014

The graph shows the concentration of PM$_{2.5}$ (μg/m$^3$) over time from 1997 to 2014 in Sydney. The data points indicate higher concentrations of PM$_{2.5}$ during certain years, particularly in 2002 and 2003, which might be due to landscape fire events.
What might we expect in a moderate one day smoke event affecting one million people? (ave increase in PM$_{2.5}$ ~30)

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Likely order of magnitude of impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>none/units</td>
</tr>
<tr>
<td>Admissions to hospital</td>
<td>tens</td>
</tr>
<tr>
<td>ED presentations</td>
<td>tens</td>
</tr>
<tr>
<td>Ambulance call outs</td>
<td>tens</td>
</tr>
<tr>
<td>GP visits</td>
<td>hundreds</td>
</tr>
<tr>
<td>Puffer sales (salbutamol)</td>
<td>hundreds</td>
</tr>
<tr>
<td>Symptoms</td>
<td>thousands</td>
</tr>
</tbody>
</table>

Data from studies in Sydney and BC Canada
Strategies for harm minimisation
Specific actions

- **Prevention** – before the event
  - Sealing a house
  - Taking preventive medication
  - Planning activities
    - Seeking clean air environments for higher risk people

- **Mitigating an established smoke event**
  - **Portable air cleaners**, clean air shelters,
  - Follow a health management plan
  - **Pause ignitions**
    - especially if AQ exceedance present or likely
    - especially in highly populated areas
• **With each burn**: around 24 hours prior to ignition and real-time updates
  – Reducing health impacts requires preventive action

• **Ongoing**: community
  – education, developing health management plans with GP

• **Ongoing**: between agencies and disciplinary experts
  – Keep adverse impacts at the bottom of the pyramid
To find the balance we need to genuinely engage with every facet of the problem.
Factors contributing to the health impacts of smoke

Clean Air Summit

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