The November 2016 Victorian epidemic thunderstorm asthma event: an assessment of the health impacts

Gerry Murphy Award,

Clare Looker
Background

• 21st November 2016 - largest epidemic thunderstorm asthma event on record
• Unprecedented in size, acuity and impact
• Unexpected, widespread
• Presented a large challenge for emergency health services and the Victorian community more generally
Objectives:
- Describe the current understanding of epidemic thunderstorm asthma
- Describe the environmental and meteorological conditions before and during the event
- Analyse the health impact of the event
Methods – Health Outcome Data

Primary Care
• NURSE-ON-CALL
• National Home Doctor Service
• Supercare Pharmacies

Ambulance
• Ambulance Victoria

Hospitals
• Victorian Emergency Minimum Dataset
• Private hospital emergency dataset
• Victorian Admitted Episodes Dataset

Deaths
• Coroner’s Court of Victoria
• Victorian Registry of Birth, Deaths and Marriages
Results
Ambulance Victoria

Emergency Services Telecommunications Authority call volume 21 November 2016

Source: Emergency Services Telecommunications Authority
Presentations to public hospital EDs, 21 - 22 Nov 2016 (Melbourne and Geelong)
### Victorian public hospital emergency department presentations, 21-22 November 2016

<table>
<thead>
<tr>
<th>Number of presentations</th>
<th>3 year average</th>
<th>Excess cases (% increase on 3 year average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total presentations (including respiratory and 'nil diagnosis')</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne &amp; Geelong</td>
<td>9909</td>
<td>6266</td>
</tr>
<tr>
<td>Other hospitals</td>
<td>2814</td>
<td>2590</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12723</strong></td>
<td><strong>8856</strong></td>
</tr>
<tr>
<td>Respiratory presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne &amp; Geelong</td>
<td>2973</td>
<td>453</td>
</tr>
<tr>
<td>Other hospitals</td>
<td>239</td>
<td>151</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3212</strong></td>
<td><strong>604</strong></td>
</tr>
<tr>
<td>‘Nil Diagnosis’ presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne &amp; Geelong</td>
<td>1253</td>
<td>313</td>
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<tr>
<td>Other hospitals</td>
<td>175</td>
<td>125</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1428</strong></td>
<td><strong>438</strong></td>
</tr>
<tr>
<td>All other presentations (excluding respiratory and ‘nil diagnosis’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne &amp; Geelong</td>
<td>5683</td>
<td>5500</td>
</tr>
<tr>
<td>Other hospitals</td>
<td>2400</td>
<td>2314</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8083</strong></td>
<td><strong>7814</strong></td>
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</table>
Departure status of respiratory and nil diagnosis presentations

Of the 4,226 presentations to Melbourne and Geelong public hospital emergency departments on 21 and 22 Nov

- 21% were admitted
- 49% patients were not admitted
- 30% ‘did not wait’
Victorian hospital asthma-related admissions

- 30 hr from 6pm 21 November: 548 excess admissions (1034% increase)
- 30 excess ICU admissions (3000% increase).
- Prior to 21 November, asthma admissions already 14.8% greater than expected for month
- Admissions remained high for rest of the month
Age and sex distribution of asthma-related hospital admissions

**Ethnicity** - Increased proportion of admitted patients born overseas (38% vs 26%)

- Indian and Sri Lankan (8.4% vs 1.3%); South East Asian (6.7% vs 1.3%)
Deaths

- Data from 21-30 November 2016:
  9 excess deaths with asthma as primary cause

- 2 additional deaths associated with event occurred outside this timeframe and are being considered in Coronial investigation
Conclusions

- Large numbers of Victorians affected. Need for broad, sustained knowledge in community and health services.

- Increased risk for young adults, South and South East Asian populations

- Analysis has informed 2017 forecast development, community education, clinical guidelines
References

The November 2016 Victorian epidemic thunderstorm asthma event: an assessment of the health impacts
www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/response

Literature review on thunderstorm asthma and its implications for public health advice
www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/response

www2.health.vic.gov.au/emergencies/thunderstorm-asthma-event/review

Better Health Channel
Thank you