Objective:
To describe the epidemiology of synthetic cannabinoid exposures reported to the largest Australian Poisons Information Centre, in order to monitor the impact of legislation and enforcement by state and federal governments to restrict the sale of synthetic cannabinoids.

Background:
• Multiple methods have been trialled to halt the rise in use and toxicity from synthetic cannabinoids worldwide.
• First Australian attempts at legislating against cannabinoids in 2011 and 2012 were met with difficulties in enforcement.
• In the first week of the June 2013 NSW ban, Operation Salt I enforced by the Department of Fair Trading targeted 1,044 traders across the state and 65 traders were found still selling or stocking synthetic drugs.5
• Traders targeted in Operation Salt 2 stated the threat of significant penalty was the primary reason they were complying with the ban.5

Methods:
• NSW Poisons takes calls mainly from New South Wales, Tasmania and the Australian Capital Territory, and after-hours calls on a shared roster for the rest of Australia (represents 50% of national call volume with NSWPIC annual calls ~105,000)
• Retrospective review of calls to NSWPIC over 1 January 2010 – 30 April 2014
• Poisons Database search strategy:
  - Substance code of “cannabinoids (synthetic)”, “marijuana (cannabis)”, “street drugs: other/unknown”
  - Free text search for “cannabinoid” or names of all known brands of synthetic cannabinoids

NSW state legislation1 banned specified brand names (or similar representations) of synthetic cannabinoids on 9 June 2013

NSW Drugs and Poisons Legislation (New Psychoactive and Other Substances) Act2 prohibited supply, manufacture or advertisement of any psychoactive substance from 7 October 2013

Federal legislation1 banned 8 specific synthetic cannabinoids on 8 July 2011

Table. Top brand names of synthetic cannabinoid exposures reported to NSWPIC (N=194)
*32 cases where the brand occurred once only

<table>
<thead>
<tr>
<th>Brand name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>67</td>
</tr>
<tr>
<td>Kronic</td>
<td>39</td>
</tr>
<tr>
<td>Ash inferno</td>
<td>13</td>
</tr>
<tr>
<td>Black widow</td>
<td>13</td>
</tr>
<tr>
<td>Northern Lights</td>
<td>9</td>
</tr>
<tr>
<td>Galaxy</td>
<td>8</td>
</tr>
<tr>
<td>Jungle fever</td>
<td>3</td>
</tr>
<tr>
<td>Red venom</td>
<td>2</td>
</tr>
<tr>
<td>Black mamba</td>
<td>2</td>
</tr>
<tr>
<td>Smoking hot</td>
<td>2</td>
</tr>
<tr>
<td>Vortex inferno</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>32</td>
</tr>
</tbody>
</table>

Figure 1. NSW-based synthetic cannabinoid exposures by month reported to NSWPIC, by brand of product, and legislative changes (N=132)

Figure 2. Synthetic cannabinoid exposures by geographical location. Red dots represent a specific location where known, otherwise total numbers by state/territory are indicated (N=194)

NB: 65% of calls to NSWPIC are from NSW

Results summary:
• 194 cases identified
• Three-quarters male
• Median age 19 years, IQR: 17-25 years
• 160 (82%) needed hospitalisation
• Multiple cases of severe toxicity, including:
  • Acute coronary syndrome
  • Seizures
  • Acute kidney injury
  • Agitation/psychosis

Discussion:
• The number of exposures dramatically reduced by 69% in the 9 months following the June 2013 ban and associated enforcement. This contrasts with the previous legislative attempts which actually resulted in an increase in exposures reported to NSWPIC.
• NSW public hospital ED data analysis: Between March and June 2013 there was an average of 75 presentations per month which dropped to 39 in July.4
• The brand-based ban appears to have increased the number of unbranded products (62% of exposures vs. 29% prior to June 2013 ban)
• Cases were distributed across Australia, demonstrating the accessibility of synthetic cannabinoids in urban and regional areas
• PIC exposure data can be used to supplement public health monitoring for new psychoactive substances. As ED data systems lack specificity in capturing substances in poisoning cases for easy retrieval and monitoring.

References:

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