Online school-based prevention for alcohol and other drugs: A systematic review

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Background
- Alcohol and drug use among adolescents is a major public health concern, and is associated with considerable social costs and harms (Begg et al., 2003).
- Data from the 2010 National Drug Strategy Household Survey indicate that in Australia:
  - 25% of 14-19 year olds have tried an illicit drug
  - Almost 20% have consumed alcohol at a risky level in the past month (AIHW, 2010)
- These results highlight a clear need for prevention. Many school-based prevention programs for alcohol and drugs exist, however the efficacy of these interventions has been limited (Foxcroft & Tsertsvadze, 2011). This is most likely due to implementation and dissemination barriers.
- Interventions delivered via computers or the Internet have the potential to overcome many of these barriers by offering:
  - High implementation fidelity
  - Reduced dissemination costs
  - Increased accessibility and availability

AIM: To identify Internet and computer-based prevention programs for alcohol and other drugs delivered in schools, and to determine the efficacy of these programs.

Method
- Data Sources and Study Selection:
  - The Cochrane Library, PsycINFO and PubMed databases were searched in March 2012.
  - Inclusion Criteria: studies needed to be an Internet- or computer-based prevention program for alcohol or other drugs, delivered in a school setting.
- Figure 1 shows the search strategy and study selection process used.

Study Quality
- Quality was assessed using a validated measure for rating study quality (Jadad, 1996).
- Studies were rated against 3 key criteria, on a scale from 0-5: 1) randomisation, 2) double-blinding, 3) withdrawals and drop-outs.
  - *School-based interventions rarely receive scores above 3 as double-blind conditions and full randomisation are often not possible (Neil & Christensen, 2000).

Outcome Measures
- Primary outcomes: Alcohol and drug use
  - Secondary outcomes:
    - Alcohol and drug-related knowledge
    - Attitudes and expectancies
    - Harms caused by one’s own use
    - Intentions and temptations to use
    - Resistance skills and decisional balance

Results

Table 1: Primary and secondary outcome data for identified trials

<table>
<thead>
<tr>
<th>Program</th>
<th>Tid</th>
<th>Addressee</th>
<th>Sample</th>
<th>Intervention</th>
<th>Intervention type</th>
<th>Post-intervention ES/UI</th>
<th>Post-intervention ES/UI</th>
<th>Post-intervention ES/UI</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease</td>
<td>Butler et al., 2000</td>
<td>Tobacco</td>
<td>Australia</td>
<td>Online, 6 lessons</td>
<td>30-day smoking prevalence (whole cohort), ES 0.13 (INT&lt;CO)</td>
<td>Future smoking intentions (INT&lt;CO)</td>
<td>0.13 (INT&lt;CO)</td>
<td>2</td>
<td></td>
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<tr>
<td>Disease</td>
<td>Lord &amp; Tobacco USA</td>
<td>Tobacco USA</td>
<td>10 lessons, n=1254</td>
<td>Online, 6 lessons</td>
<td>30-day smoking prevalence (whole</td>
<td>Future smoking intentions (INT&lt;CO)</td>
<td>0.13 (INT&lt;CO)</td>
<td>2</td>
<td></td>
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<tr>
<td>Disease</td>
<td>Refuse to Smoke, 2004</td>
<td>Tobacco</td>
<td>Canada</td>
<td>14 lessons, n=1642</td>
<td>Cigarette use, OR 0.27 (INT&lt;CO)</td>
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<tr>
<td>ASPIRE</td>
<td>Prokopoff et al., 2008</td>
<td>Tobacco</td>
<td>USA</td>
<td>15 lessons, 6 lessons</td>
<td>Smoking initiation, OR 0.27 (INT&lt;CO)</td>
<td>Cigarette smoking behavior, ES 0.13 (INT&lt;CO)</td>
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<td>2</td>
<td></td>
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<tr>
<td>ASPIRE Scholastic Alcohol</td>
<td>Vogel et al., 2009</td>
<td>Alcohol Australia</td>
<td>6 lessons</td>
<td>ES 0.05 (INT&lt;CO)</td>
<td>Average alcohol consumption, ES 0.05 (INT&lt;CO)</td>
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<tr>
<td>ASPIRE Scholastic Alcohol</td>
<td>Newton et al., 2009</td>
<td>Alcohol Australia</td>
<td>n=764</td>
<td>Online, 6 lessons</td>
<td>Average alcohol consumption, ES Average alcohol consumption at 6th</td>
<td>Binge drinking, ES</td>
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<tr>
<td>CANNAS</td>
<td>Scholastic Alcohol &amp;</td>
<td>Newton et al., 2009</td>
<td>Alcohol &amp; cannabis</td>
<td>n=764</td>
<td>Online, 6 lessons</td>
<td>Average alcohol consumption at 6th</td>
<td>Binge drinking, ES</td>
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<tr>
<td>Combined PNS</td>
<td>Koning et al., 2011</td>
<td>Alcohol Netherlands</td>
<td>12 lessons, n=1048</td>
<td>Online, 6 lessons</td>
<td>Quit rate, OR 0.24 (INT&lt;CO)</td>
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<td>ITM</td>
<td>Ayurved, 2001</td>
<td>Tobacco UK</td>
<td>13 lessons, n=652</td>
<td>CD-ROM, 3 lessons</td>
<td>Smoking cessation, OR 0.23 (INT&lt;CO)</td>
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<td>Need On</td>
<td>Moncrieff et al., 2001</td>
<td>Tobacco USA</td>
<td>15 lessons</td>
<td>Online, 6 lessons</td>
<td>Frequency of smoking use, ES 0.05 (INT&lt;CO)</td>
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<tr>
<td>Return to</td>
<td>Diabetes, 2004</td>
<td>Alcohol Australia</td>
<td>12 lessons, n=227</td>
<td>Online, 6 lessons</td>
<td>Drug-related knowledge (INT&lt;CO)</td>
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<td>Drug A</td>
<td>Lord &amp; Alcohol, 2007</td>
<td>Alcohol Australia</td>
<td>6 visits</td>
<td>Drug-related knowledge (INT&lt;CO)</td>
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Analysis
- Effect Sizes (ES) are reported for continuous outcomes, and Odds Ratios (OR) for dichotomous outcomes.
- Due to the small number of studies and study heterogeneity, it was not possible to conduct a formal meta analysis.* A systematic review was conducted

Discussion
- Overall 12 trials of 10 programs were identified, and ES and/or ORs were obtained for 7 programs.
- Of the 7 programs:
  - 6 achieved a reduction in alcohol use
  - 2 increased intentions to smoke
- The greatest effects were achieved for drug and alcohol-related knowledge, with effectiveness persisting at 6- and 12-month follow-ups for 3 trials.
- ES and ORs were small for drug and alcohol use and secondary outcomes. However, these compare favourably to effects reported for non-computerized school-based prevention programs (Teesson, Newton & Barrett, 2012) and Internet-based treatment programs for young adults (Tait & Christensen, 2010). ESs for drug and alcohol prevention typically fall between 0.2 – 0.3
- This was the first review to focus specifically on computer- and Internet-based programs for the prevention of alcohol and drugs in schools.

Conclusions
- Only 2 of the 10 programs had been evaluated more than once, highlighting a clear need for the cross validation of existing programs.
- Although the number of trials identified in this review is small, the results have major implications for the delivery of alcohol and drug prevention in schools.

Acknowledgements & Contact
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*Duplicates removed (n=516)