Managed Alcohol Programs: Impacts and Outcomes

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Photo Credit: Keefer4~commonswiki
CMAPS Funding (2011-2021)
18% of Canadians aged 15 or older have had an alcohol use disorder during their lifetime.

1 in 5 Canadians aged 12 or older drink in excess of recommended daily or weekly limits.

Alcohol Harm Reduction

Pricing x 3

Physical Availability

Drinking and Driving

Marketing and Advertising

Minimum Legal Drinking Age

SBIR

Server Training and Management
Provincial Clinical Guidelines: High-Risk Drinking and Alcohol Use Disorder

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Interim Clinical Director, BCCSU
Adjunct Professor, UBC School of Nursing
Low Risk Alcohol Drinking Guidelines

Your limits

Reduce your long-term health risks by drinking no more than:

- 10 drinks a week for women, with no more than 2 drinks a day most days
- 15 drinks a week for men, with no more than 3 drinks a day most days

Plan non-drinking days every week to avoid developing a habit.
### Table 1: Summary of Guideline Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screening and Brief Intervention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Clinicians should provide education about Canada’s Low-Risk Alcohol Drinking Guidelines to all adult and youth patients.</td>
<td>LOW</td>
<td>STRONG</td>
</tr>
<tr>
<td>2. All adult and youth patients should be screened annually for alcohol use above low-risk limits.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>3. All patients who are drinking alcohol above low-risk limits but do not have an alcohol use disorder (AUD) should receive a brief counselling intervention.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td><strong>Withdrawal Management</strong></td>
<td></td>
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<tr>
<td>4. Clinicians should use the Prediction of Alcohol Withdrawal Severity Scale (PAWSS) to assess the risk of severe complications of alcohol withdrawal in patients with AUD, in order to select the most appropriate withdrawal management pathway.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>5. Patients at low risk of severe complications of alcohol withdrawal (PAWSS&lt;4) who have no other concurrent conditions that would require inpatient management should be offered outpatient withdrawal management.</td>
<td>HIGH</td>
<td>STRONG</td>
</tr>
<tr>
<td>6. Clinicians should consider prescribing non-benzodiazepine medications, such as gabapentin, carbamazepine, or clonidine, for the outpatient management of patients at low risk of severe complications of alcohol withdrawal.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>7. Patients at high risk of severe complications of withdrawal (PAWSS≥4) should be referred to inpatient facility (i.e., withdrawal management facility or hospital) where they can receive a benzodiazepine treatment regimen under close observation, and emergency care can be administered immediately if needed.</td>
<td>HIGH</td>
<td>STRONG</td>
</tr>
<tr>
<td>8. All patients who complete withdrawal management should be connected to continuing AUD care.</td>
<td>LOW</td>
<td>STRONG</td>
</tr>
<tr>
<td><strong>Continuing Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. <strong>Adult patients with moderate to severe AUD</strong> should be offered naltrexone or acamprosate as a first-line pharmacotherapy to support achievement of patient-identified treatment goals.**</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>A. Naltrexone is recommended for patients who have a treatment goal of either abstinence or a reduction in alcohol consumption.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Acamprosate is recommended for patients who have a treatment goal of abstinence.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Adult patients with moderate to severe AUD who do not benefit from, have contraindications to, or express a preference for an alternative to first-line medications, can be offered topiramate or gabapentin.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>11. Clinicians should provide motivational interviewing-based counselling to all patients with mild to severe AUD to support achievement of treatment goals.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>12. All patients with mild to severe AUD can be provided with information about and referrals to specialist-led psychosocial treatment interventions.</td>
<td>MODERATE</td>
<td>STRONG</td>
</tr>
<tr>
<td>13. All patients with mild to severe AUD can be provided with information about and referrals to peer-support groups and other recovery-oriented services in the community.</td>
<td>LOW</td>
<td>STRONG</td>
</tr>
</tbody>
</table>

*The GRADE approach* was used to assess the quality of evidence (possible categories include: high, moderate, low, or very low) and strength of recommendation (possible categories include: strong or weak). Please refer to the Development and Approval of Recommendations section for more information on how the GRADE criteria were applied and an explanation of the quality of evidence and strength of recommendation scores that have been assigned.

*As per DSM-5 Diagnostic Criteria for Alcohol Use Disorder and Severity (Mild, Moderate, Severe)*
Figure 1  Alcohol Use Screening Pathway for Adult Patients

"Do you sometimes drink beer, wine or other alcoholic beverages?"

**NO**

Low- or No-Risk
- Screening complete
- Offer encouragement
- Provide information on Canada’s Low-Risk Alcohol Drinking Guidelines
- If patient indicates having recently discontinued (or reduced) drinking, offer support as appropriate
- Re-screen regularly

**YES**

Single Alcohol Screening Question (SASQ)*
"How many times in the past year have you had...
- 4 or more drinks in one day?" [for men]
- 3 or more drinks in one day?" [for women]

NEVER  ≥ 1 TIME

High-Risk Drinking
Proceed to diagnosis and assessment for AUD using the DSM-5 criteria

< 2 DSM-5 criteria  ≥ 2 DSM-5 criteria

High-Risk Drinking
- Conduct brief intervention
- Follow-up [see Appendix 2]

Alcohol Use Disorder
- Offer:
  - Withdrawal management
  - Pharmacotherapy
  - Referrals to psychosocial treatments and supports
  [see Appendix 3-4]
Development of Canadian MAPS
(The Pour by the Fifth Estate)

Source: The Guardian
COVID 19 Risks for People with AUD and Homelessness

Risk Environment

• Inadequate living conditions
• Loss of Income related to panning and recycling
• Liquor Stores Limited Hours
• Liquor Stores May not take Cash
• Limited Intake and Availability of Detox & Tx services
• Sourcing Alcohol Daily (Cycle of Survival Drinking)
• Drinking often not allowed

Consequences

• Increased harms of COVID due to pre-existing health issues and alcohol use
• Increased risk of Withdrawal
• Non Beverage Alcohol Use
• Substitution of Illicit Drugs
• Increased Social Isolation
COVID 19 Responses

Increased awareness of the gap in alcohol harm reduction.

Development of Safer Drinking Education (www.cmaps.ca)

MAPs can Increase ability to Physically Distance, Stay in Place & Isolate

Risk Mitigation Guidelines including MAP (www.bccsu.ca)
FAQ’s re Scale Up of MAPs (www.cmaps.ca)
COVID MAP Operational Guidance
23 MAPS in 13 Canadian Cities +10 New COVID MAPs
The purpose of our research is to rigorously evaluate MAPs in Canada and generate insights into the *implementation and outcomes*

Do MAPs reduce consumption, alcohol related harms, improve housing tenure, health and quality of life and reduce economic costs? How?
Evaluating Implementation & Outcomes

Outcomes
- Quantitative Surveys (n=364)
- Secondary Administrative Data

Process and Impacts
- Qualitative Interviews & Talking Circles (n=80+)
- Policy and Protocol Analysis
Outcomes From The Canadian Managed Alcohol Program Study (CMAPS) 2013-2019
What have we learned about MAP outcomes from initial studies?

- More likely to retain housing and experience increased safety and home (Pauly et al. 2016; Pauly, et al., 2020)
- 43% reduction in police calls 47% reduction in hospital admissions (Vallance et al., 2016)
- Reduced hospital admissions and time in police custody = economic savings (cost-benefits) (Hammond et al., 2016)
- Safer sources and patterns of consumption: less NBA, lower daily quantities, less bingeing safer setting than the street (Vallance et al., 2016; Stockwell et al., 2017)
- Significantly fewer self-reported physical harms and social harms (Vallance et al. 2016; Stockwell et al., 2017; Pauly et al., 2016)
- Improved quality of life, re-connection to family & community (Pauly et al. 2016, Pauly et al., 2020)
Two New Longitudinal Analyses

We present two new longitudinal analyses of outcomes from CMAPs:

1. **Trajectories** of alcohol use and related harms over 12 months for 59 ”New” MAP clients and 116 controls from 6 sites across 5 cities.

2. **Mortality and healthcare utilization** (ER and hospital admissions) for 205 MAP clients from 5 Ontario MAPs and 131 controls between January 2008 and December 2018.
Study 1
Flowchart

**MAP Participants**
- 216 MAP participants screened for eligibility
- 175 (81.0%) eligible MAP participants interviewed
- 59/175 interviewed <60 days after MAP admission
- 50/59 (84.7%) followed up at 6 months
- 40/59 recruited in time for a 12 month follow up
- 27/40 (67.5%) followed up at 12 months

**Neighbourhood Controls**
- 195 eligible controls identified
- 189 (96.9%) interviewed
- 116 selected for follow up at 6 and/or 12 months
- 78 (67.2%) interviewed at 6 month follow up
- 92/116 recruited in time for 12 month follow up
- 62/92 (67.4%) followed up at 12 months
Both MAP and Control participants were

• about 80% male,
• average age 46 years,
• severely alcohol dependent
• equally distributed across the five cities
Table 2. Comparisons of non-beverage consumption (NBA), alcohol dependence and harms between MAP and control participants assessed between 0 and 2 months after program entry †

<table>
<thead>
<tr>
<th>Measures</th>
<th>Mean (95% CI)</th>
<th>T-test statistic, P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MAP (n=59)</td>
<td>Control (n=116)</td>
</tr>
<tr>
<td><strong>Quantity and frequency of NBA drinking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBA drinks per week/12 months</td>
<td>45.70 (18.43 - 113.32)</td>
<td>30.21 (7.31 - 124.81)</td>
</tr>
<tr>
<td>Mean NBA drinking days/12 months</td>
<td>75.42 (27.05 - 210.33)</td>
<td>49.77 (14.12 - 175.43)</td>
</tr>
<tr>
<td><strong>Alcohol dependence and harms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SADQ Score (6 months)</td>
<td>30.29 (25.14 - 36.51)</td>
<td>31.37 (26.87 - 36.62)</td>
</tr>
<tr>
<td>AUDIT Score (12 months)</td>
<td>29.47 (27.51 - 31.58)</td>
<td>31.37 (30.04 - 32.76)</td>
</tr>
<tr>
<td>Harm Score (12 months)</td>
<td>5.73 (4.92 - 6.67)</td>
<td>6.52 (5.90 - 7.20)</td>
</tr>
</tbody>
</table>

Note: † Estimates adjusted for potential effects of age, sex and site of residence.
Outcomes at 6 and 12 months

Both **MAP** and **Control** participants reported:

- Fewer drinks per day
- Fewer drinking days per month
- Both reduced NBA consumption

**MAP** participants:

- **fewer harms** at Baseline and 6 months.
- Drinking was spread out over more days.
- **improved liver function** at 6 mo
- Leaving a MAP, liver status deteriorated
Some MAPs have better outcomes than others, specifically those with management of outside drinking

- Fewer drinks per day (11* vs 18.0 vs 15 drinks)
- Fewer alcohol-related harms/month: 2.4* vs 3.2 vs 3.5

NB Adjustments made for age, sex, ethnicity and site-specific variation
What does this mean?

Many study **limitations** e.g. not randomized, self-report data, no true baseline measures, small samples from diverse sites but overall:

a) reduced their alcohol use over time,
b) consumed their alcohol in a more even, less sporadic pattern than controls, and
c) did not experience deterioration in liver function or of alcohol-related harms in general.
Mortality and Healthcare Analyses

Much **stronger analysis**, greater confidence in results:
- Longer time series: 11 complete years of data with dates of deaths, ER and hospital presentations
- More participants: 215 MAPs, 131 controls
- No participants lost to follow-up

We present **Multilevel Survival Analyses** comparing probabilities of MAP clients dying, attending ER or being admitted to hospital controlling when they are on a MAP versus off the MAP and versus neighbourhood controls with AUDs and unstable housing
### Mortality Outcomes

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>No of obs ≠</th>
<th>Follow-up days</th>
<th>No of deaths</th>
<th>Adjusted Model*</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hazard Ratio</td>
<td>95% CIs</td>
</tr>
<tr>
<td>On-MAP</td>
<td>580</td>
<td>195,623</td>
<td>41</td>
<td>0.54</td>
<td>0.09-3.39</td>
</tr>
<tr>
<td>Off-MAP</td>
<td>481</td>
<td>138,190</td>
<td>41</td>
<td>1.20</td>
<td>0.19-7.56</td>
</tr>
<tr>
<td>Control</td>
<td>128</td>
<td>548,777</td>
<td>29</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>On- vs Off-MAP</td>
<td></td>
<td></td>
<td>41</td>
<td>0.45</td>
<td>0.28-0.73</td>
</tr>
</tbody>
</table>

*Adjusted for age, gender, within-subject variation
## ER Presentation Outcomes

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>No of obs</th>
<th>Follow-up days</th>
<th>No of ER visits</th>
<th>Adjusted Model* Hazard Ratios and 95% CIs</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-MAP</td>
<td>4,058</td>
<td>195,627</td>
<td>3,478</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>On- vs Pre-MAP</td>
<td>4,506</td>
<td>149,662</td>
<td>4,301</td>
<td><strong>0.73</strong> <em>(0.62-0.86)</em></td>
<td><strong>0.0002</strong></td>
</tr>
<tr>
<td>On vs Post-MAP</td>
<td>4,475</td>
<td>138,219</td>
<td>3,994</td>
<td><strong>0.74</strong> <em>(0.63-0.87)</em></td>
<td><strong>0.0004</strong></td>
</tr>
<tr>
<td>MAP vs Control**</td>
<td>5,239</td>
<td>642,220</td>
<td>4,983</td>
<td>1.05 <em>(0.71-1.55)</em></td>
<td>0.8174</td>
</tr>
</tbody>
</table>

*Adjusted for age, gender, within-subject variation; **More alcohol-related, less other.
Preliminary Conclusions

- Attendance at a MAP was associated with a 55% reduction in mortality risk and 26-27% fewer ER presentations than not being on a MAP.
- There was a non significant increase in alcohol-related ER visits for MAP attendees vs controls – and a decrease in non-alcohol related ER visits.
- Indicates role of MAP in harm reduction.
- NB more analysis needed re impacts of specific MAP policies and of eligibility criteria.
Implementation Findings: Canadian Managed Alcohol Program Study (CMAPS)
What have been learnings about MAP implementation?

- Attention to program eligibility, policies, and tailored dosing to reduce chronic harms. (Stockwell et al., 2013)
- Not Just Alcohol: Six Key dimensions of MAP (Pauly et al., 2018):
  - Less likely to re-budget for essentials, drink NBA, steal or commit crimes and more likely to go to treatment (Erickson et al., 2018)
- MAPs disrupt the constant cycle of displacement, survival, disconnection (Pauly et al., 2019; Pauly, et al., 2020)
Focus on Implementation

**Situational Analysis** visually explores the elements in a “situation” and the relationships between them (i.e. the implementation of MAPs within existing housing, health, and social systems)

Photo by Alina Grubnyak on Unsplash
Figure 1. Pre-MAP Social Arenas
Disrupting the Cycle of Survival Drinking

Figure 2. Post-MAP Social Arenas
Shifting from Pre-MAP World to Post-MAP is a Fragile Process
## Cross-Case Analysis

<table>
<thead>
<tr>
<th></th>
<th>MAP</th>
<th>Acuity</th>
<th>Support Level</th>
<th>Housing Security</th>
<th>Alcohol administration restrictions</th>
<th>Program Culture/Philosophy</th>
<th>Δ Consumption</th>
<th>ΔHarms</th>
<th>Social &amp; Community Connectedness</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High</td>
<td>High</td>
<td>Low-Mod.</td>
<td>Low-Mod.</td>
<td>HR &amp; Community Integration</td>
<td>Mod. Reduction</td>
<td>Moderate Reduction</td>
<td>Mod.-high</td>
<td>Mod.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>High</td>
<td>Low-Mod.</td>
<td>Low</td>
<td>High</td>
<td>HR, Safety &amp; Palliation</td>
<td>Mod. Reduction</td>
<td>Low-Mod Reduction</td>
<td>Low-mod</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Mod.</td>
<td>High</td>
<td>Mod.</td>
<td>High</td>
<td>HR, PSR &amp; Transition to Independence</td>
<td>High Reduction</td>
<td>High Reduction</td>
<td>Mod-high</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mod-High</td>
<td>Mod-High</td>
<td>High</td>
<td>Mod-High</td>
<td>HR, Community Integration &amp; Culture-based Healing</td>
<td>High Reduction</td>
<td>Mod-High Reduction</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>High</td>
<td>Mod.-High</td>
<td>Very low</td>
<td>Moderate</td>
<td>HR &amp; PSR</td>
<td>Mod. Increase</td>
<td>Low Reduction</td>
<td>Moderate</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
Core Elements of Effective MAPS

- Matching Needs and Supports
- Alcohol Admin, Dosing and Policies
- Housing
- Community Connectedness and Belonging
COVID MAP Operational Guidance

Operational Guidance for Implementation of

MANAGED ALCOHOL for
VULNERABLE POPULATIONS

Available at www.bccsu.ca and www.cmaps.ca
The Canadian Managed Alcohol Program Study (CMAPS)

CISUR is leading a national study of Managed Alcohol Programs in Canada. This project will rigorously evaluate MAPs in Canada and generate insights into their implementation and effectiveness. The results of this research will be used to reduce unintended negative consequences of MAPs and inform the development of program and policy recommendations.

Read about recent CMAPS findings published in Drug and Alcohol Review.

Download our Safer Drinking Tips During COVID-19.

Download our Scaling up of Managed Alcohol Programs guide.

Download BC's Operational Guidance for Implementation of Managed Alcohol for Vulnerable Populations.
Current & Future Research

- Feasibility of Cannabis Substitution in MAP
- Development of Indigenous Culturally Supported MAPs (U of C, Alpha House, ACEH, CISUR) CIHR Funded (2020-2023)
- Evaluation of the COVID Risk Mitigation Guidelines including MAP (UBC, BC Centre for Excellence, CISUR) CIHR Funded (2020-2021)
- Scottish CSO Funded on MAP effectiveness during COVID (University of Stirling)
Future BCCSU Guideline Work - Alcohol

December 17, 2019

• Formal release

Supplements in development

• Pregnancy (finalized, awaiting release)
• Wise Practices for High-Risk Drinking and
• Alcohol Use Disorder in Indigenous Populations (in progress)

National work, funded through Health Canada SUAP grant (funded fall 2020)

• National high-risk drinking and AUD guideline & pregnancy supplement
• BCCSU-CISUR partnership to develop national operational guidance for managed alcohol programs
QUESTIONS?
COMMENTS?