Limiting alcohol availability reduced trauma & freed hospital resources during the COVID19 pandemic: the South African experience

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South African Medical Research Council
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Drinking context in South Africa

Progression of COVID19 & stages of lockdown

Modelling alcohol-related trauma informed South Africa’s 2nd alcohol sales ban

Effects of alcohol sales bans & other lockdown provisions on trauma presentation & unnatural deaths

10 lessons learnt from South Africa’s alcohol sales bans
## Drinking context in South Africa & associated harms

<table>
<thead>
<tr>
<th></th>
<th>% current drinkers</th>
<th>Adult per capita consumption per drinker in g AA</th>
<th>Heavy episodic drinking among drinkers (≥5 drinks: 60g) in single occasion past 30 days - (% of drinkers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>43.0</td>
<td>32.8</td>
<td>50.2</td>
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<tr>
<td>AFR</td>
<td>32.2</td>
<td>40.0</td>
<td>39.5</td>
</tr>
<tr>
<td>South Africa</td>
<td></td>
<td></td>
<td>59.0</td>
</tr>
<tr>
<td>Males</td>
<td>31.0</td>
<td>43.2</td>
<td>70.8</td>
</tr>
<tr>
<td>Females</td>
<td>19.4</td>
<td>64.6</td>
<td>33.7</td>
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Alcohol-attributable disability adjusted life years (DALYs) lost through dying early or living with a disability, per country in 2016.

5.5%-6.6% of all disability adjusted life years lost in SA can be attributed to alcohol.
6.2%-7.8% of all deaths in South Africa can be attributed to alcohol.
Progression of COVID-19, stages of lockdown & negative sequelae over time

**Pre-lockdown**
Normal restrictions on alcohol sales

**Lockdown lite**
On & off-consumption liquor outlets Mon-Sat: close 18:00-09:00 (next day); Sunday & public holidays: close 13:00. For on-consumption outlets above plus 50 pax limit

**Lockdown levels 4 & 5**
Complete ban on the sale of liquor during 66-day lockdown and no transportation of liquor + limitations on movement, work etc. Alcohol declared “non-essential”. Some easing of movement for work & exercise in Level 4, but 20:00 – 05:00 curfew

**Level 3**
Alcohol can be sold from both on- & off-consumption outlets from 9 am to 17:00 Monday – Thursday & not public holidays. Only transportation of liquor on these days + opening up of work, movement, no curfew, etc.

**Level 3b**
Sale, dispensing & distribution of liquor is prohibited. Transportation of liquor is prohibited except for export. Curfew 21:00-04:00. 31 July, curfew 22:00 (34 days)

**Level 2**
Alcohol can be sold from on-consumption outlets till 10pm any day (50 pax limit) – no nightclubs; can be sold from off-consumption outlets 9 am to 5 pm Monday to Thursday (excluding public holidays)

**Level 1**
Alcohol can be sold from on-consumption outlets till 12 am any day (50% limit) – no nightclubs; can be sold from off-consumption outlets 9 am to 5 pm Monday to Friday (excluding public holidays)
The government has adopted a stance of seeking to maximise the effects of the lockdown, by seeking to minimise commerce except with regard to truly essential services. The sale of alcohol is self-evidently not an essential service. On this basis alone, it was considered that the sale of alcohol should not be permitted.

“the sale of alcohol has proven links to an increase in violent crime, motor vehicle accidents, medical emergencies and results in full emergency rooms and hospitals. In the face of a pandemic such as Covid-19, the experience of the rest of the world has shown us that hospitals need to be prepared to receive and treat vast numbers of Covid-19 patients and to quarantine them from non-infected patients.”
Modelling on alcohol-related trauma informed 2nd alcohol sales ban (L3)

MAC question (6/7/2020)
1. What would be the effect of re-imposing a ban on liquor sales during Level 3 lockdown on trauma-related hospital visits and admissions?
2. What would be the effect of placing tighter restrictions on alcohol access as opposed to a ban on liquor sales in terms of reducing burden on public health care system and trauma admissions?

Team that developed the model (6/7/2020 – 7/7/2020)
- 2 alcohol epidemiologists
- 2 trauma doctors
- 1 clinical services director
- 1 health economist
- 1 infectious diseases specialist
- 1 dental specialist
- 1 alcohol policy advisor (NGO)
18% of all trauma, 36% of alcohol-related trauma

<table>
<thead>
<tr>
<th>Number of trauma unit presentations per year in SA</th>
<th>Multiplier</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>Number of trauma presentations per year across 336+ secondary &amp; tertiary public hospitals (1999)</td>
<td>1.511,040</td>
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<tr>
<td>Estimated number in 2020 across secondary &amp; tertiary public hospitals</td>
<td>1.47</td>
<td>2,221,229</td>
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<table>
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<tr>
<th>Estimates per week</th>
<th>Multiplier</th>
<th>Number</th>
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<tr>
<td>Estimated trauma presentations per week before lockdown</td>
<td>0.019</td>
<td>42,716</td>
</tr>
<tr>
<td>Estimated trauma presentations in Level 3 per week (80% of pre-lockdown trauma presentations) compared to pre-lockdown</td>
<td>0.8</td>
<td>34,173</td>
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Estimated alcohol-relate trauma presentations Level 3: 0.5, 17,086

So what % of ~17,000 would disappear if alcohol sales stopped as in L4 & L5?

1st week after instituting a ban on liquor sales in Level 3 lockdown: 0.2, 3,417
2nd week: 0.3, 5,126
3rd week: 0.4, 6,835
4th & subsequent weeks: 0.4, 6,835

Est. saving in alcohol-related trauma presentations over 4 weeks: 22,212 trauma presentations; over 8 weeks: 49,550
Using data in Level 3 from 5 WC Hospitals to indicate spread of trauma presentations across different injury types, ~50K less trauma presentations would come to 124K less days spent in general wards & 46K less days of ICU bed occupancy or a saving of R1.3 bn

- Would enable the treatment of about 17,755 Covid-19 patients in general wards OR about 12,947 in ICU wards [Using MOSAIC model for costing and ward stays]
**BESIDES LIMITING HOURS & DAYS OF WEEK OF ALCOHOL SALES, WHAT ELSE COULD HAVE BEEN DONE TO REDUCE TRAUMA ADMISSIONS IN LEVEL 3?**

<table>
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<th>Area</th>
<th>Specific strategy</th>
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<tr>
<td>Limit availability</td>
<td>Limits on quantities purchased, esp. for resale from legal to illegal outlets&lt;br&gt;Industry to ↓ manufacturing to 70% of capacity (esp. beer)&lt;br&gt;No off-sales by on-consumption outlets&lt;br&gt;Limit days of sale to 3 days/week</td>
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<td>Drink driving counter measures &amp; policing of public/illega...</td>
<td>Reduce max. BAC level for drivers to 0.02 g/100ml (and enforce)&lt;br&gt;Test BAC levels after serious motor vehicle collisions&lt;br&gt;Act against public drinking &amp; illegal drinking @ on-consumption outlets</td>
</tr>
<tr>
<td>Advertising &amp; packaging</td>
<td>Only permit advertising factual information about product (not lifestyle) &amp; only at point of sale&lt;br&gt;Ban sale of alcohol in containers linked to heavy drinking e.g. 1-liter beer containers&lt;br&gt;Implement system to track products from source</td>
</tr>
<tr>
<td>Treatment &amp; brief intervention</td>
<td>Intensify availability of counselling &amp; medically assisted treatment for persons struggling with dependence</td>
</tr>
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2nd liquor sales ban announced evening 12/7/2020 & came into force 13/7/2020

Charles Parry @profparry - Jul 13
WATCH: Mkhize says alcohol ban evidence-based | eNCA

WATCH: Mkhize says alcohol ban evidence-based
The Health Minister said during level four and five of lockdown, a study by Parry et al showed that there was a 60-70% reduction in trauma ...
🔗 enca.com

The Data behind the Alcohol Ban

During Levels 4 and 5 of the lockdown, which included a ban on the sales of liquor from both on and off-consumption outlets, there was a 60%-70% reduction in hospital visits and admissions related to trauma.

Models suggest that the alcohol ban could result in a maximum reduction of approximately 6,800 alcohol-related trauma presentations by the end of the third week. This is likely to have a substantial impact on reducing the burden on staff in trauma units, the demand for inpatient beds, ICU facilities and ventilation capacity.
Taken from Sentinel Trauma Report – WC Department of Health from 5 hospitals in the Western Cape (17,214 from January till end of August 2020)

The data
BREAKDOWN BY TYPE OF TRAUMA: GSH (PRE-DURING-POST 1ST ALCOHOL SALES BAN)
Unnatural deaths – South Africa (SAMRC)

RSA weekly deaths from unnatural causes: 1 Jan - 29 Sep 2020

- Weekly deaths
- Forecast
- Lower Prediction Bound
- Upper Prediction Bound

Vertical time lines:
0. Week Disaster Management Act implemented
1. Week lockdown level 5 introduced
2. Week lockdown changed to level 4 with curfew
3. Week lockdown changed to level 3 including unbanning sale of alcohol
4. Week sale of alcohol re-banned and curfew re-introduced
5. Week lockdown changed to level 2, including unbanning of alcohol

Numbers have been scaled to the estimated actual number of death and for the last week has been adjusted for delayed registrations

Updated 297/10/20

Saved ~21 lives per day
“From 01 June, our trauma numbers picked up again. Whilst not up to pre-lockdown levels, the first thing we noticed was the return of high energy motor vehicle accidents, resulting in polytraumatised patients. The unmistakable smell of alcohol combined with bleeding returned to the trauma units.”

Email from Orthopaedic Trauma doctor (GSH), 8/6/2020
10 LESSONS LEARNED FROM SA’S ALCOHOL SALES BANS

1. Exposed culture of heavy drinking in SA and dependence of many drinkers on alcohol and also the dependence of large parts of the alcohol industry/trade on heavy drinking.
2. Raised attention on the burden of heavy use of alcohol use in SA into trauma and non-natural deaths.
3. Got the President to acknowledge that alcohol is not an essential product and to highlight the close links between alcohol use and GBV.
4. Showed that change is possible by revealing the effectiveness of a single regulatory measure in dramatically reducing trauma presentations and non-natural deaths and raised questions about the impact of a basket of less restrictive regulatory interventions.
5. It exposed the lengths the industry would go to in order to get their business back, including use of the media and raising the specter of disrupting international trade agreements.
6. It is possible to disrupt the cozy relationship that the alcohol industry has had with government for so long.
7. Raised questions about the kind of society in which we wish to live -- free from weight of alcohol-related death and disability and on how we could create a new normal

8. Exposed weaknesses in our alcohol regulatory environment and our dependence on industry self-regulation and focused attention on the need for the state to strengthen regulatory measures and their enforcement & to take a tougher stance on the commercial determinants of alcohol-related harms

9. We are in this together. While the impacts are not the same, we are all affected by government policies to lessen heavy use of alcohol and reduce the negative impacts. It is in most people's interests to try to create a new normal

10. Highlighted gaps in way we collect and report on death and trauma data. Related, it raised the imperative of ongoing surveillance of alcohol-related trauma, at least at sentinel hospitals around the country, as a bellwether of how well we are doing in reducing the burden of alcohol in health services and addressing the burden experienced from heavy drinking.