Preventing Alcohol-related Injury: A Surfeit of Solutions

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Killin’ Time
by Clint Black

You were the first thing that I thought of,
When I thought I drank you off my mind.
When I get lost in the liquor,
You're the only one I find.
And if I did the things I oughta,
You still would not be mine.
So I'll keep a tight grip on the bottle,
Gettin' loose and killin' time.

This killin' time is killin' me,
Drinking myself blind, thinkin' I won't see.
That if I cross that line and they bury me,
Well, I just might find I'll be killin' time for eternity.
Killin’ Time is all the time

• Approx. 150,000 deaths per year
  – A third motor vehicle
  – A third intentional injury
    (homicide/suicide)
  – A third other unintentional
Dying by the Clock

• 3 or 4 deaths per hour in car crashes
• 1 pedestrian death every 2 hours
• 2 homicide deaths per hour
• 3 or 4 suicide deaths per hour
• 7 other injury deaths per hour
Deaths Are Only the Tip of the Iceberg

1 death ➔

16 hospitalizations ➔

381 requiring medical attention
Cost of Injury

- $700 billion per year
- $2,000 per person per year
- $6,000 per household per year
Alcohol in Injury Mortality

- Burn/Fire
- Hypothermia
- Drowning
- Fall
- Poisoning
- Gunshot
- Homicide
- Suicide
- Car Crash

Percent
Positive Alcohol
Intoxicated

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What Is An Injury?

• Exchange of energy beyond body’s capacity to absorb

• Excess energy:
  kinetic, thermal, chemical, electrical, radiation
Risk of Injury when Drinking

![Graph of Risk of Injury when Drinking vs BAC and Number of Drinks]

- **Relative Risk**
- **BAC:**
  - 0.00
  - 0.02
  - 0.04
  - 0.06
  - 0.08
  - 0.10
  - 0.12

- **# Drinks:**
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6

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Putting it Together

Accumulated Energy
- cars
- guns
- balconies

Easy Alcohol
- many outlets
- low prices
- unregulated sales
- active marketing

Causes/Preventives
“Injury Control”

Causes/Preventives
“Criminal Justice”

Causes/Preventives
“Alcohol Policy”

= ▲ Deaths
Injury Control Strategies

• Prevent creation of the hazard in first place; prevent aggregation of energy

• Reduce the amount of the hazardous energy aggregated

• Prevent the release of hazardous energy that already exists
Injury Control Strategies

• Modify rate or spatial distribution of release of the energy from its source

• Separate, in space or time, the hazard and people which are to be protected

• Separate the hazard and people with a material barrier

• Modify contact surfaces or basic structures that can be impacted

• Make people more resistant to damage from the hazard
Effects of Injury Control Strategies: Research Results

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airbags</td>
<td>11% fatality reduction</td>
</tr>
<tr>
<td></td>
<td>Over 3000 lives saved every year</td>
</tr>
<tr>
<td>Vehicle Safety Standards</td>
<td>43% fatality reduction</td>
</tr>
<tr>
<td></td>
<td>330,000 lives saved from 1960 - 2002</td>
</tr>
<tr>
<td>Window Guards</td>
<td>96% reduction in unintentional falls</td>
</tr>
<tr>
<td>Child Resistant, Adult-friendly packaging</td>
<td>93% reduction in poisonings</td>
</tr>
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Causes/Preventives
“Alcohol Policy”

= ▲ Deaths
Criminal Justice Strategies

Deterrence

• Increase probability of detection
• Threshold for penalty/punishment/disutility
• Increase celerity: speed penalty is applied

Incapacitation

• Jail, home detention, electronic monitoring
• Impound the car, license plate, or driver’s license
• Ignition interlocks on vehicles of offenders
<table>
<thead>
<tr>
<th>Strategy</th>
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<tbody>
<tr>
<td>Administrative license revocation</td>
<td>13% decline for drivers with 0.10% BAC or higher</td>
</tr>
<tr>
<td>Sobriety checkpoints</td>
<td>17% decline in alcohol-related fatal crashes</td>
</tr>
<tr>
<td>Lower <em>per se</em> limits</td>
<td>10 – 20% decline in proportion of fatal crashes with 0.08% BAC drivers</td>
</tr>
<tr>
<td>Youth Zero BAC laws</td>
<td>20% decline in proportion of single-vehicle, nighttime fatal crashes among 15-20 year old drivers</td>
</tr>
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Putting it Together

Accumulated Energy
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Easy Alcohol
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Causes/Preventives
- "Injury Control"
- "Criminal Justice"
- "Alcohol Policy"

Deaths

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Role of Policy in Affecting Drinking Behavior

- Public and Institutional Policy
- Alcohol Availability
- Norms, Attitudes, Beliefs
- Drinking

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Public Policies Affecting How, When and Where Alcohol is Sold

- State monopoly alcohol distribution systems
- Limiting hours of sale
- Limiting days of sale
- Banning home deliveries
- Restrictions at community events
- Density of alcohol outlets
- Restricting location of alcohol outlets
- Restricting types of alcohol outlets
- Server training
- Server licensing
- Dram shop or server liability
Effects of Elimination of Public Retail Wine Monopolies

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Study</th>
<th>Effect on Wine Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Wagenaar &amp; Holder, 1995</td>
<td>+ 42%</td>
</tr>
<tr>
<td>Idaho</td>
<td>MacDonald, 1986</td>
<td>+ 190%</td>
</tr>
<tr>
<td>Iowa</td>
<td>Mulford et al, 1988, 1992</td>
<td>temporary + 92%</td>
</tr>
<tr>
<td></td>
<td>Wagenaar &amp; Holder, 1991</td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td>MacDonald, 1986</td>
<td>+ 305%</td>
</tr>
<tr>
<td></td>
<td>Wagenaar &amp; Holder, 1995</td>
<td>+ 137%</td>
</tr>
<tr>
<td>Montana</td>
<td>Wagenaar &amp; Holder, 1995</td>
<td>+ 75%</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>Wagenaar &amp; Holder, 1995</td>
<td>+ 13%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Wagenaar &amp; Langley, 1995</td>
<td>+ 17%</td>
</tr>
<tr>
<td>Quebec</td>
<td>Smart, 1986</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>Adrian, 1994</td>
<td>temporary</td>
</tr>
<tr>
<td>Washington</td>
<td>MacDonald, 1986</td>
<td>+ 26%</td>
</tr>
<tr>
<td>West Virginia</td>
<td>Wagenaar &amp; Holder, 1991</td>
<td>+ 48%</td>
</tr>
</tbody>
</table>
Wine Sales in Maine
(Liters of Pure Ethanol)

Wine Privatization

Liters per month (x10,000)

Year
Wine Sales in Idaho (Liters of Pure Ethanol)

Wine Sales Privatized

Liters per month (x10,000)

Year

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Wine Sales in State of Alabama
(Liters of Pure Ethanol)

Liters per month (x10,000)

3 Counties Privatized
Entire State Privatized

Year

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Public Policies Affecting How, When and Where Alcohol is Sold

- Privatization of alcohol distribution systems
- Limiting hours of sale
- Limiting days of sale
- Banning home deliveries
- Restrictions at community events
- Density of alcohol outlets
- Restricting location of alcohol outlets
- Restricting types of alcohol outlets
- Server training
- Server licensing
- Dram shop or server liability
Public Policies Affecting Where and When Alcohol is Consumed

- Parks, public spaces
- Cars: open containers
- Stadiums
Public Policies Affecting the Price of Alcohol

- Excise taxes
- Licensing fees
- Restricting happy hour sales
Public Policies Affecting the Message Environment

- Mandatory warning signs
- Restrictions or bans on billboards
- Warning labels
Public Policies Affecting Underage Access

- Minimum drinking age
- Keg registration
- Enhancement of drivers license
- Restricting sales of classes of alcohol
Alcohol Flows to Underage Youth

Commercial Availability

- Under 21
  - Supplies to others <21
  - Parties
- 21+ Friends
  - Parties (e.g., keg)
  - Provides to <21
- Siblings
- Co-workers
- 21+ Strangers
  - Provides Alcohol Outside Store
  - Alcohol Easily Available in Home
- Parents
  - Parties (e.g., Grad)
## Effects of Alcohol Policy Strategies: Research Results

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<td>Minimum legal drinking age</td>
<td>10 – 16% decline in alcohol-related traffic deaths among drivers under age 21; 1200 suicides &amp; homicides saved per year</td>
</tr>
<tr>
<td>Increase alcohol excise taxes</td>
<td>10-20% decline in alcohol-related disease and injury deaths</td>
</tr>
<tr>
<td>Compulsory responsible beverage service training</td>
<td>4% decline in single-vehicle, nighttime fatal crashes</td>
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## Effects of Alcohol Policy Strategies: Research Results

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<td>Monopoly vs. private alcohol sales</td>
<td>17% - 305% increase in sales</td>
</tr>
<tr>
<td>Density of alcohol retail outlets</td>
<td>Elasticity of 0.4 on spirits and wine</td>
</tr>
<tr>
<td>Monitoring/enforcement of retail sales/service</td>
<td>17% reduction in underage sales following enforcement check</td>
</tr>
</tbody>
</table>
Public Support for Alcohol Control: Uniform Across Political Orientation

Public Support for Alcohol Control: Uniform Across Political Party

- Outlets Not Careful
- Compliance Checks
- Adult Penalties
- Drinking Age
- Alcohol Taxes
- Ban Beer TV Ads
- Ban Liquor TV Ads

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Conclusions

• We have the answers; we know what to do
• Many prevention policies have large demonstrated effects:
  10%+ reductions in risk behaviors or mortality
• Major progress has been made in last quarter century
• There is much more we can do
• Most alcohol & injury prevention policies are blocked by vested interests in the status quo
• Scientists and public health workers must work together with an activated citizenry to achieve effective prevention policies
“Good laws make it easier to do right, and harder to do wrong.”

–Gladstone