Insights from RAND Research on 24/7 Sobriety

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Outline

1. What does our published research say about 24/7?

2. What are we working on?

3. How can you help improve the 24/7 evidence base?
Thank you!

• To my team
  – Greg Midgette, Nancy Nicosia, Paul Heaton

• To agencies that funded this research
  – National Institute on Alcohol Abuse and Alcoholism (x3)
  – National Institute of Justice
  – Montana Department of Justice

• To all of the government agencies & testing companies who graciously provided data with no strings attached
About RAND

• Nonprofit, nonpartisan institution that helps improve policy and decision making through research & analysis

• Our research spans the issues that matter most, such as energy, education, health care, justice, the environment, international affairs, and national security.

• Nearly 2,000 employees in 9 offices across 3 countries

• Extensive research on substance use & criminal justice
24/7 is consistent with scientific research on deterrence and contingency management

- To deter crime, we should prioritize certainty and celerity of sanction over severity

- Those with alcohol use disorder have been found to be responsive to predictable, immediate consequences for behavior
  - E.g., Petry et al. (2000)
Me blowing into a breathalyzer in South Dakota
24/7 quickly expanded in South Dakota

Monthly number of new participants (bars)

Number of counties with 24/7 program (line)

Note: We define 24/7 as operational in each county once the number of county residents in 24/7 for a given month equals or exceeds a quarter of the number of DUI arrests in the county, where the latter is defined as the county’s moving monthly average during the previous year to address any seasonality.
About 60% of 24/7 participants enter for DUI

Driving under the influence 59%

Other 18%

Drug Possession 5%

DV 6%

Assault 5%

Community corrections violations 8%

51% of 24/7 participants are pre-trial; 49% are post-conviction
No formal treatment component to South Dakota’s 24/7 program

• Very different from a Drug/DUI Court

• Requires that you stay sober, doesn’t care about pathway

• Multiple-DUI offenders must attend a “court-approved counseling program” to get a work permit
  – Penalty for driving without a license ≥10 days in jail
Alcohol test results are impressive

- Through February 2019 there were almost 11 million breathalyzer tests and the pass rate was 99%
  - Previous calculations suggest that this includes no-shows

- Alcohol monitoring bracelet participants accumulated ~10,000 violations over 2 million days of monitoring, equivalent to daily compliance rate >99%

Source: South Dakota Attorney General (2019)
Through February 2017, more than 30,000 unique 24/7 Sobriety participants in South Dakota accumulated more than 5 million days without a confirmed drinking event.
With county-level analyses, need to control for several factors—especially Sturgis!

<table>
<thead>
<tr>
<th>County-month</th>
<th>County-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sturgis Motorcycle Festival indicator</td>
<td>• Total population, % males 18-40, % white</td>
</tr>
<tr>
<td>• Snowfall</td>
<td>• Per capita vehicle miles traveled</td>
</tr>
<tr>
<td>• College indicator variable</td>
<td>• Per capita police officers</td>
</tr>
<tr>
<td>• Unemployment rate</td>
<td>• Per capita bars, package liquor stores</td>
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- For repeat DUI models, include DUI-1 as control
  - Mechanical relationship, control for enforcement intensity, other shocks
  - Relationship modeled flexibly using high-degree polynomial
At the county level, 24/7 associated with 12% drop in total arrests for repeat DUI

Percent Reduction

Notes: * p<0.10; ** p<0.05; *** p<0.01

Source: Kilmer et al. (2013) American Journal of Public Health
Also saw 9% drop in total arrests for DV

Percent Reduction

Source: Kilmer et al. (2013) *American Journal of Public Health*
Suggestive evidence that 24/7 reduces traffic crashes

Percent Reduction

- Crashes, Males aged 18-40
  - * p<0.10

- Domestic Violence
  - ** p<0.05

- Repeat DUI
  - ** p<0.05

Notes: * p<0.10; ** p<0.05; *** p<0.01

Source: Kilmer et al. (2013) *American Journal of Public Health*
24/7 associated with decrease in total deaths

Percent Reduction

- Adult mortality: ***
- Crashes, Males aged 18-40: *
- Domestic Violence: **
- Repeat DUI: **

Notes: * p<0.10; ** p<0.05; *** p<0.01

Source: Nicosia, Kilmer, & Heaton (2016) Lancet Psychiatry
New NASEM (2018) report provides great summary of evidence on several DUI interventions
NASEM: 24/7 has been shown to be effective in some rural areas

• “The 24/7 monitoring program for high-risk offenders has been shown to be effective in some rural areas.”

• But report also noted an important limitation to the existing 24/7 literature is the “reliance on aggregate analyses rather than individual-level data.”
Approach for individual-level analysis

• Studying >16,000 DUI-2/DUI-3 arrestees in S. Dakota
  – From 2004-2012
  – 28% are 24/7 participants
  – Median time in program = 6 months (Mean = 11 months)

Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
Approach for individual-level analysis

• Studying >16,000 DUI-2/DUI-3 arrestees in S. Dakota

• Outcome: Re-arrested or probation revoked for any offense
  – Look at 12, 24, and 36 months after DUI arrest

Source: Kilmer & Midgette, 2018
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Approach for individual-level analysis

• Studying >16,000 DUI-2/DUI-3 arrestees in S. Dakota

• Outcome: Re-arrested or probation revoked for any offense

• Control for several factors to rule out alternate explanations
  – Age, gender, criminal history
  – County-level info on bars, liquor stores, VMT, police officers
  – County and year-month fixed effects

Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
Approach for individual-level analysis

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• Outcome: Re-arrested or probation revoked for any offense

• Control for several factors to rule out alternate explanations

• Use instrumental variable approach to address selection
  – Instrument: 24/7 operational in the county of arrest (F-stat > 40)

Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
24/7 decreased 1-year re-arrest rate by 49%

Percent Reduction

12 months

Notes: * p<0.10; ** p<0.05; *** p<0.01
Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
24/7 decreased 2-year re-arrest rate by 35%

Percent Reduction

Notes: * p<0.10; ** p<0.05; *** p<0.01
Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
24/7 decreased 3-year re-arrest rate by 26%

Notes: * p<0.10; ** p<0.05; *** p<0.01
Source: Kilmer & Midgette, 2018
https://www.rand.org/health-care/projects/24-7.html
Can 24/7 work outside of South Dakota?
Promising results from Montana’s 24/7

Source: Midgette & Kilmer (2015)
Interesting variation & encouraging results in other places

• North Dakota
  – Uses a 0.02 BAC threshold, not 0.00
  – First violation is a warning in some counties, to some judges
  – Alcohol monitoring bracelets more commonly used
  – Reducing impaired driving arrests (Midgette et al., in progress)
Interesting variation & encouraging results in other places

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• London is expanding pilot city-wide
  – Uses bracelets exclusively
  – First violation was warning, second court warning
  – Pilot: 92% compliance (Not an RCT)
  – Finlay & Humphreys, 2017, Journal of the Royal Society of Medicine
More RAND 24/7 research on the way!

- Finalizing our cost study
- Analyzing data from millions of tests to predict positives
- Further analysis of the 24/7 effect on mortality
- Submitted more proposals on 24/7 & domestic violence
Many questions remain

- How long should 24/7 supervision last?
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• What’s the minimum level of punishment to deter?

• What about incorporating treatment or “carrots”?

• Most cost-effective? DUI Court, IID, 24/7, combination?
If you want to implement evidence-based practices...

...sometimes you have to help create them
What can YOU do to help create the evidence?

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• Consider randomized controlled trials
  – This is what FDA does when testing new prescription drugs
  – Long history of doing this in criminal justice settings
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• Look beyond DUI outcomes
Additional information about RAND’s 24/7 Sobriety research: [www.rand.org/24-7](http://www.rand.org/24-7)

Alcohol consumption can impose enormous health and safety costs on individuals and society. Problem drinkers account for a disproportionate share of these costs. Although millions of problem drinkers pass through the criminal justice system each year, reducing their alcohol consumption is critically important. RAND research indicates that 24/7 Sobriety programs are cost-effective and efficient in achieving this goal.