Lifetime Benefits and Costs of Diverting Substance Abusing Offenders from State Prison

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Background (I)

- Much of prison inmate population abuses substances, but few get treatment
  - Approximately 50% of state prisoners meet the criteria for a diagnosis of drug abuse or dependence
  - At most, 10% of state inmates surveyed received clinical drug treatment during current incarceration

- Inmates who regularly use drugs have higher criminal recidivism rates than other inmates

- Research Question
  - What are the lifetime benefits and costs of diverting substance-abusing arrestees to treatment?
Cost-benefit analyses of prison drug treatment and aftercare. Examples:
- McCollister, French, Inciardi, Butzin, Martin, Hooper (2003)
- McCollister, French, Prendergast, Hall, & Sacks (2004)

Economic analyses of diversion and drug courts. Examples:
- Cowell et al. (2004)
- Zarkin et al. (2005a)

A lifetime perspective captures the chronic nature of drug use and criminal behavior:
- Auerhahn, 2004
- Zarkin et al. (2005b)
- Zarkin et al. (2011)
Model Description (I)

- Discrete event simulation of 2004 U.S. state prison cohort ages 21 to 60 \((N = 1.14\) million)
  - All start in prison
  - Follow into community until death or age 61
  - Monthly transitions

- Simulate:
  - Incarcerated & in community
  - Drug and alcohol use and treatment
  - Crime, arrest, & diversion or incarceration
  - Employment
  - Health care use
Main outcomes for cost-benefit analysis (2009$, DPV)

- Lifetime economic benefits = PV of lifetime earnings − (PV of crime victimization costs + PV of arrest, court, and incarceration costs + PV of health care costs)
- Lifetime treatment costs = Prison and community-based treatment costs, including treatment during diversion

Societal Net Benefits = Lifetime Economic Benefits – Lifetime Treatment Costs

Criminal Justice System Costs = Arrest, court, & incarceration costs + prison treatment costs + diversion treatment costs + aftercare costs
- Expressed as cost savings rather than net benefits

Discount rate = 3%
Model Description (III)

- Crime categories: violent, drug, and non-drug non-violent
- Substance abuse categories: alcohol abuse/dependence, other drug abuse, both alcohol and drug abuse, none
- Prison Treatment modalities: outpatient drug-free and residential
- Community-based treatment modalities: outpatient drug-free, residential, and methadone
- Transition probabilities and lengths of stay in treatment depend on:
  - age, race/ethnicity, gender, substance abuse status and history, opiate and injection drug use status and history, substance abuse treatment history, criminal status, criminal history, arrest and incarceration history, HIV/AIDS status, and employment status
Model Description (IV)

**LEGEND**

- Solid line: Start or resume drug use after non-use
- Dotted line: Stop drug use without treatment
- Dashed line: Start treatment
- Dotted-dashed line: End treatment (don’t resume drug use)
- Double-dashed line: End treatment (resume drug use)
- Dash-dot-dash line: End aftercare (don’t resume drug use)
- Dash-dot-double-dash line: End aftercare (resume drug use)
Data

- Model requires a large number of parameter values
  - Not all values are available in data sources

- Numerous sources. Examples:
  - BJS Recidivism Data Set (1994-1997)
  - NESARC (2001-2005)
  - NSDUH (2002-2007)
  - TEDS (2005)
  - Peer-reviewed literature
Policy Scenarios

- Baseline
  - No diversion program

- Access to prison/jail diversion (10% of eligible)
  - If not diverted, go to jail or prison
  - If diverted, 100% probability of accessing treatment
  - Once diverted into treatment, all transition probabilities thereafter are the same as baseline

- Greater access to prison/jail diversion (40% of eligible)
### Selected Baseline Results

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of abusers receiving community treatment</td>
<td>33.6%</td>
</tr>
<tr>
<td>% of cohort who committed a crime after release</td>
<td>74.1%</td>
</tr>
<tr>
<td>% of cohort who were reincarcerated</td>
<td>61.6%</td>
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<tr>
<td>Earnings (billions)</td>
<td>$115.7</td>
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<tr>
<td>Crime victimization costs (billions)</td>
<td>$66.9</td>
</tr>
<tr>
<td>Criminal justice costs (billions)</td>
<td>$255.3</td>
</tr>
<tr>
<td>Health care costs (billions)</td>
<td>$29.8</td>
</tr>
<tr>
<td>Treatment costs (billions)</td>
<td>$1.1</td>
</tr>
</tbody>
</table>
Results (I)

Total treatment costs for the 2004 US state prison cohort

- Baseline: 0.61 billion
  - Prison Treatment Costs: 0.15 billion
  - Community Treatment Costs: 0.27 billion
  - Aftercare Costs: 0.20 billion

- Access to prison/jail diversion: 0.59 billion
  - Prison Treatment Costs: 0.06 billion
  - Community Treatment Costs: 0.26 billion
  - Aftercare Costs: 0.15 billion

- Greater access to prison/jail diversion: 0.57 billion
  - Prison Treatment Costs: 0.10 billion
  - Community Treatment Costs: 0.25 billion
  - Aftercare Costs: 0.20 billion

Legend:
- Prison Treatment Costs (Billions)
- Community Treatment Costs (Billions)
- Aftercare Costs (Billions)
- Diversion Treatment Costs (Billions)
Results (II)

Incremental net benefits for the 2004 US state prison cohort compared to baseline

Baseline Net Benefits: -$237.7 (Billion)

Access to prison/jail diversion: $9 billion
Greater access to prison/jail diversion: $23 billion
Results (III)

CJ system cost savings for the 2004 US state prison cohort compared to baseline

Baseline CJ Costs: -$256.2 (Billion)

- $5
- $13

Access to prison/jail diversion
Greater access to prison/jail diversion
Results (IV)

Lifetime criminal justice costs savings for the 2004 US state prison cohort:

Access to diversion compared to baseline

Cost savings (Billions)

Years after start of model
Goal: help inform decisions about allocating treatment resources for state prisoners by building a lifetime simulation model

From the societal and criminal justice perspective, diversion to community treatment generates positive net benefits

Our model demonstrates the value of improving the treatment system for state prisoners
Limitations

- Model makes many simplifying assumptions
  - Model does not take into account probation or parole systems
- Some parameters are not available in data sets or literature
  - We make educated guesses and then validate parameters