

Substance misuse and Toxicity (PART II – Case Study)

GEC1015/GEH1049 Public Health in Action

Tan Yeong Lan, PhD

AY2024/2025, Semester 2



Instructions

Part II of this lecture is a case study discussion. Students can expect frequent use of Poll Everywhere to engage in the case study discussion.

Slides for Part II lecture will only be released by Friday of the week, after 2pm on Canvas.

Case study discussions can be examinable for open-ended critical reflection question in end-of-semester assessment. This pertains not just to week 7 lecture, but all subsequent 3-hour lectures involving a Part II discussion.

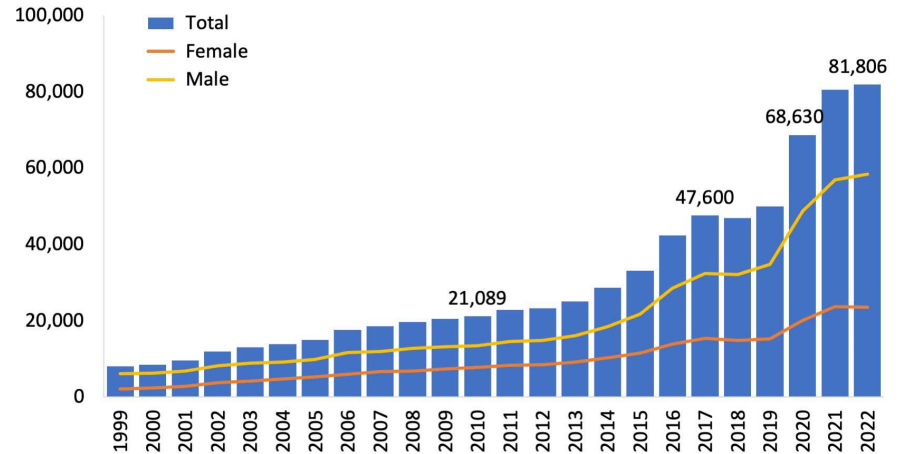
Case Study



America's Opioid Crisis

- Between 2005-2014, the national rate of opioid-related hospitalizations increased 64% to 225 hospitalizations per 100,000 population.
- Half a million of overdose death have been reported in the last 20 years.

Figure 3. National Overdose Deaths Involving Any Opioid*, Number Among All Ages, by Sex, 1999-2022



*Among deaths with drug overdose as the underlying cause, the "any opioid" subcategory was determined by the following ICD-10 multiple cause-of-death codes: natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids (other than methadone) (T40.4), or heroin (T40.1). Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2022 on CDC WONDER Online Database, released 4/2024.

Lyden J, Binswanger IA. The United States opioid epidemic. Semin Perinatol. (2019)

Lim TY et al. Modeling the evolution of the US opioid crisis for national policy development. Proc Natl Acad Sci U S A. (2022)



Drug Courts in America

- A drug treatment court (DTC) is present in over 1800 county, tribal, and territorial jurisdictions in the United States, as an alternative to incarceration for drug dependent offenders.
- Treatment contracts would involve:
 - Participation in community-based substance abuse treatment
 - Individual case management
 - Regular urine drug screening
 - Sanctions and rewards to motivate continued drug treatment and compliance
 - Regularly scheduled contact with the Drug Court Judge for assessment of progress
 - Regular assessment of eligibility for graduation.

Benefit #1: Better treatment and social outcomes

Study compared the risk of outcomes during time **on contract treatment** to, 1) **parole after imprisonment** and, 2) **regular probation without a treatment component.**

Factors under consideration in this study:

- Recidivism
- Mental Health
- Somatic Health
- Crime rates

Virtanen S et al. Effectiveness of substance use disorder treatment as an alternative to imprisonment. BMC Psychiatry. (2024)

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[BMC Psychiatry](#). 2024; 24: 260.

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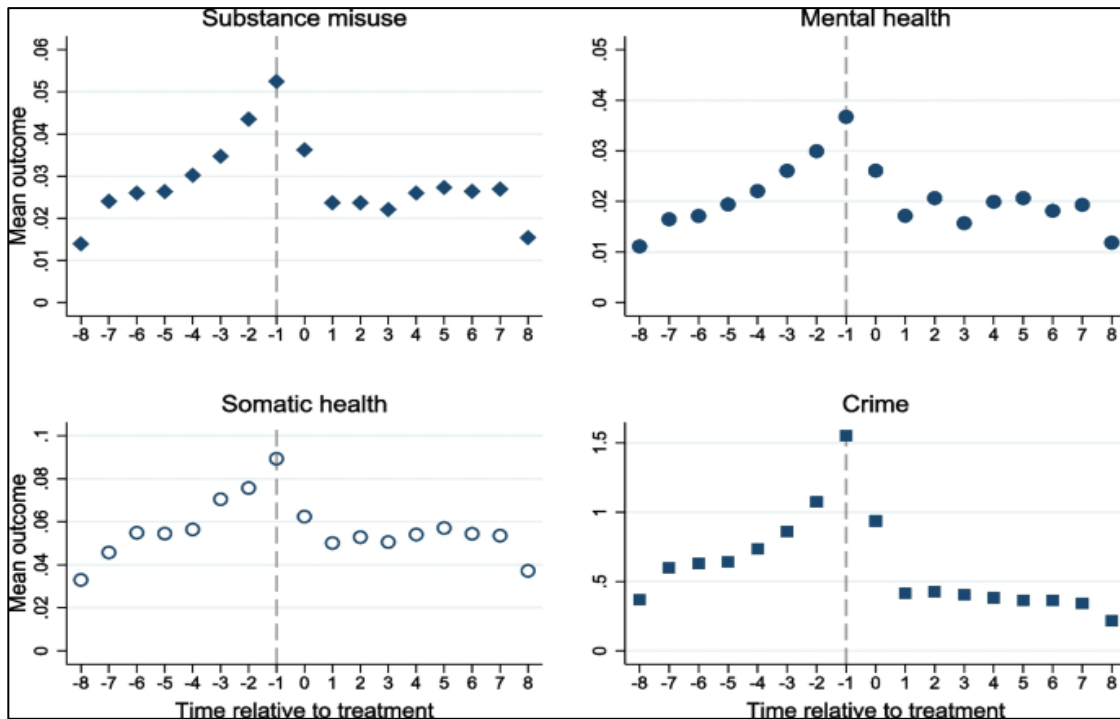
PMCID: PMC11003076

PMID: [38589822](https://pubmed.ncbi.nlm.nih.gov/38589822/)

Effectiveness of substance use disorder treatment as an alternative to imprisonment

[Suvi Virtanen](#),^{1,2} [Mikko Aalttonen](#),^{3,4} [Antti Latvala](#),^{1,4} [Mats Forsman](#),¹ [Paul Lichtenstein](#),¹ and [Zheng Chang](#)¹

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Benefit #2: Better compliance to substance abuse treatment

- Early sanctioning is associated with treatment failure due to non-adherence, while a jail sanction initiated later may better foster treatment compliance in less refractory individuals.

Final Cox proportional hazards model of time to treatment failure¹.

	Parameter Estimate	Standard Error	p-value	Hazard Ratio (95% Confidence Limits)
Gender	0.146	0.154	0.341	1.16 (0.86, 1.57)
Age in years	0.000	0.007	0.959	1.00 (0.99, 1.01)
Non-White vs White	-0.027	0.173	0.878	0.97 (0.69, 1.37)
Education (< high school vs high school or greater)	0.348	0.152	0.022	1.42 (1.05, 1.91)
Unemployed vs Employed	0.403	0.144	0.005	1.50 (1.13, 1.98)
Polysubstance misuse (yes vs no)	0.387	0.176	0.028	1.47 (1.04, 2.08)
First Sanction at ≤ 30 days	2.429	0.644	<0.001	11.34 (3.21, 40.0)
Second Sanction	0.451	0.288	0.118	1.57 (0.89, 2.76)
Third Sanction	0.501	0.451	0.266	1.65 (0.68, 3.99)
Fourth Sanction	0.454	0.704	0.519	1.58 (0.40, 6.26)
First Sanction at > 30 days	-1.506	0.671	0.025	0.22 (0.06, 0.83)

Benefit #3:

Achieve greater cost effectiveness

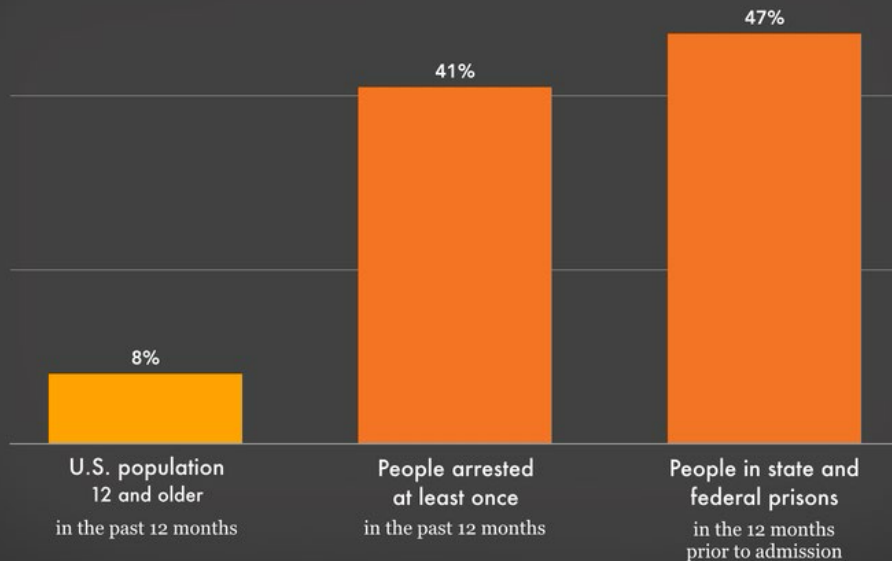
- A comprehensive drug court system typically costs between \$2,500-\$4,000 annually for each offender, compared to \$20,000-\$50,000 per person per year to incarcerate a drug-using offender.
- Every \$1 spent on drug courts yields more than \$2 in savings in the criminal justice system.
 - Reduced cost from additional re-arrest and incarceration. Improved public safety from sustained recovery of person with substance use disorder.

Challenge #1:

Eligibility criteria for drug courts

People who have been arrested or incarcerated have higher rates of substance use disorder than the nation at large

Percent of people in each category that met the criteria for substance use disorder



PRISON
POLICY INITIATIVE

Sources: Data on the U.S. population and people arrested at least once are from the National Survey of Drug Use and Health (NSDUH), SAMHSA, 2019. Data regarding people in state and federal prisons are from the Bureau of Justice Statistics' Survey of Prison Inmates, 2016.

ADDICTION TREATMENT IN PRISON: AN OVERLOOKED PROBLEM

In the United States, most inmates abuse substances, or battle with addiction, while they are in prison. However, many are left to their own devices, and are not offered adequate options for addiction treatment and recovery.

AN ADDICTION EPIDEMIC IS BEING OVERLOOKED



80%
OF THE PRISON POPULATION SUFFERS
FROM SUBSTANCE ABUSE




60%
OF PEOPLE WHO ARE ARRESTED TEST
POSITIVE FOR ILLICIT DRUGS IN THEIR
SYSTEM



50%
OF ALL INMATES SUFFER FROM DRUG
OR ALCOHOL ADDICTION



**BUT LESS THAN 10% OF INMATES RECEIVE
PROPER ADDICTION TREATMENT WHILE
INCARCERATED**



Considering factors outside the operation of a drug court, what are other **external socio-ecological factors** that may influence the success of implementing a drug court?

Other factors to consider:

INDIVIDUAL FACTORS – Employment & Education

- Unemployed status and lower educational attainment are associated with treatment failure hazard during drug treatment court.

Final Cox proportional hazards model of time to treatment failure¹.

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Gender	0.146	0.154	0.341	1.16 (0.86, 1.57)
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Other factors to consider: **INSTITUTIONAL FACTORS – Working Industry**

- The highest rates of heavy alcohol use were found in the mining (17.5%) and construction industries (16.5%).
- The highest rates of illicit drug use were found in the accommodations and food services industry (19.1%).
- Workers in the accommodations and food services industry (16.9%) had the highest SUD rates.


The **CBHSQ** Report

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Substance Use and Substance Use Disorder by Industry
Donna M. Bush, Ph.D., F-ABFT and Rachel N. Lipari, Ph.D.
[Author Information and Affiliations](#)
Published: April 16, 2015.

Substance use in the trades

