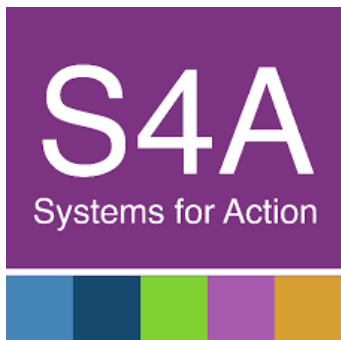# Transit and Treatment: Effectiveness of Transit Systems to Improve Substance Use and Mental Health in Connecticut

Strategies to Achieve Alignment, Collaboration, and Synergy Across Delivery and Financing Systems

S4A Systems for Action

Research-In-Progress Webinar
July 22, 2020
12-1pm ET

colorado school of **public health**

Agenda

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Welcome: **Chris Lyttle, JD**

Deputy Director for Systems for Action

Presenters: **Jeffrey Cohen, PhD & Carla Rash, PhD**

University of Connecticut

Steven Huleatt, MPH

Capital Region Council of Governments

Q&A: **Chris Lyttle, JD**

Jeffrey Cohen, PhD

- Economist; UCONN Professor
- Expert in transit and real estate
- Past empirical research includes substance use treatment costs; other public health issues

Carla Rash, PhD

- Clinical Psychologist
- Addictions expert
- Most research to date focused on efficacy trials of addictions treatments

UCONN HEALTH

Steven Huleatt, MPH

CRCOG
CAPITOL REGION
COUNCIL OF GOVERNMENTS
Working together for a better region.

Steven Huleatt currently serves the Capitol Region Council of Governments as the Public Health Emergency Preparedness (PHEP) Grant Manager and as the Metropolitan Medical Response System (MMRS) Project Manager in Hartford, CT. He is also Adjunct Instructor in Clark University's Department of Community Medicine. Prior to joining the CRCOG, Mr. Huleatt was the Director of Health for the West Hartford-Bloomfield Health District for 25 years. Mr. Huleatt is a two-time past President of the Connecticut Association of Directors of Health (NACCHO State affiliate) and a past President of the Connecticut Public Health Association (APHA State affiliate).

Project Team

Researchers

- Jeffrey P. Cohen - PI
- Carla Rash – Co-PI
- Shane Murphy – Co-investigator

- Steven Huleatt –

   Advisory Panel Coordinator;

   Today's discussant; Capital Region Council of Governments

- Ruth Fetter – Research assistant

Community Partners/Advisory Panel

- Recovery Network of Programs
  - Jennifer Kolakowski
- Community Renewal Team
  - Heidi Lubetkin
- Wheeler Clinic
  - Kim Holyst
- The Village
  - Steven Moore
- CT Department of Mental Health & Addiction Services
  - Eleni Rodis
- CT Department of Public Health
  - Amy Mirizzi
- CT Department of Transportation
 - Andrew Mrcoczkowski

Project Background

- Access to substance use disorder (SUD) and mental health (MH) treatment
  - Is a costly problem in the US
  - Drives health disparities, and
  - Was exacerbated by the opioid crisis.

- Example from our sample of 1198 patients initiating SUD treatment in CT/Western MA
  - 54% did not have a driver's license
  - Of the 553 with a license, 39% had no access to a vehicle

- Strong transit systems can improve treatment outcomes and impact clinic operating costs.
- Past studies find some evidence of decreasing unit costs as number of patients increase, but wide variation exists.
  - Unknown why this variation occurs.
  - Results in difficult decision making on the part of state agencies.

- Treatment facilities' proximity to transit may:
  - Increase patient volumes
  - Reduce unbillable clinician time (missed appointments)
  - Pushing down unit cost curves (economies of scale)
  - If integrated (MH and SUD services), may also produce cost savings (economies of scope)

Research Aims

- Using a quasi-experimental, empirical estimation approach, we will examine:

  1. How treatment costs differ, after vs. before a new transit line and/or change to transit service schedules, for providers near vs. far from transit.

  2. How transit impacts provider costs who offer comprehensive vs limited SUD services.

  3. How transit impacts provider costs who offer SUD or MH in isolation versus integrated care.

  4. For transit improvements, how is the reduction in treatment costs from treating patients with better treatment outcomes different, for clients treated at providers close to these enhanced social services, and after social services improvements? And how is this related to client demographics (i.e., equity)?

Alignment of Systems

- Advisory panel partners:
  - Medical
    - CT treatment providers
    - CT Department of Mental Health and Substance Abuse Services
  - Social sector
    - CT Department of Transportation; Capital Region Council of Governments
  - Public health sector
    - CT Department of Public Health; Capital Region Council of Governments
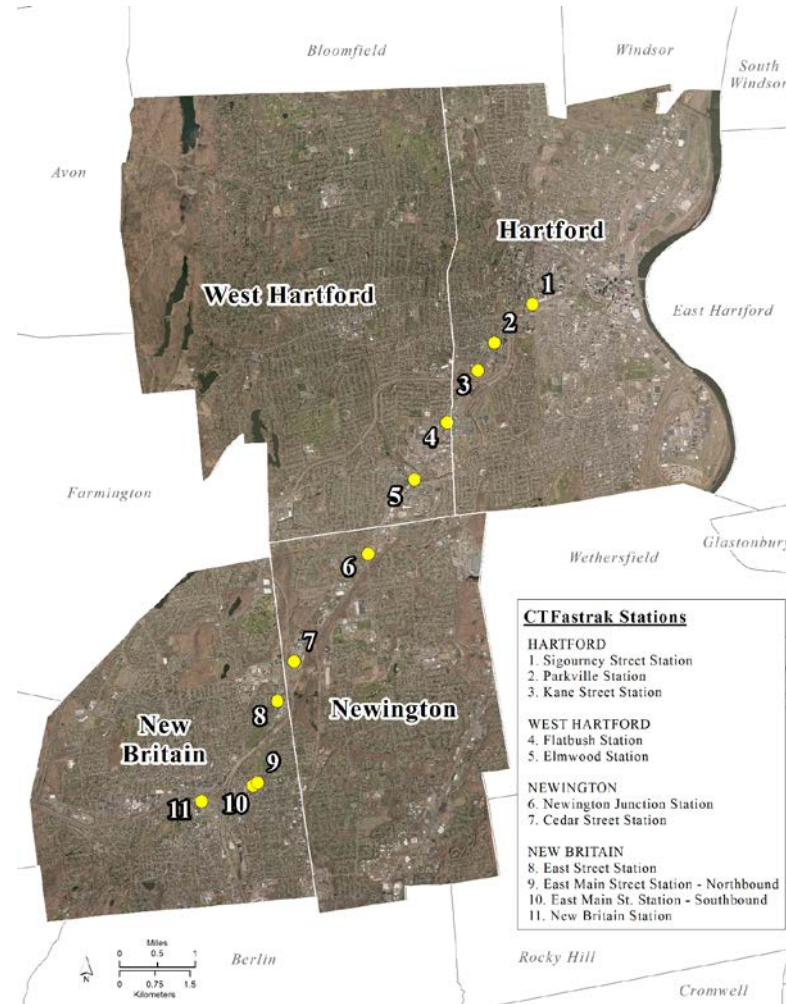
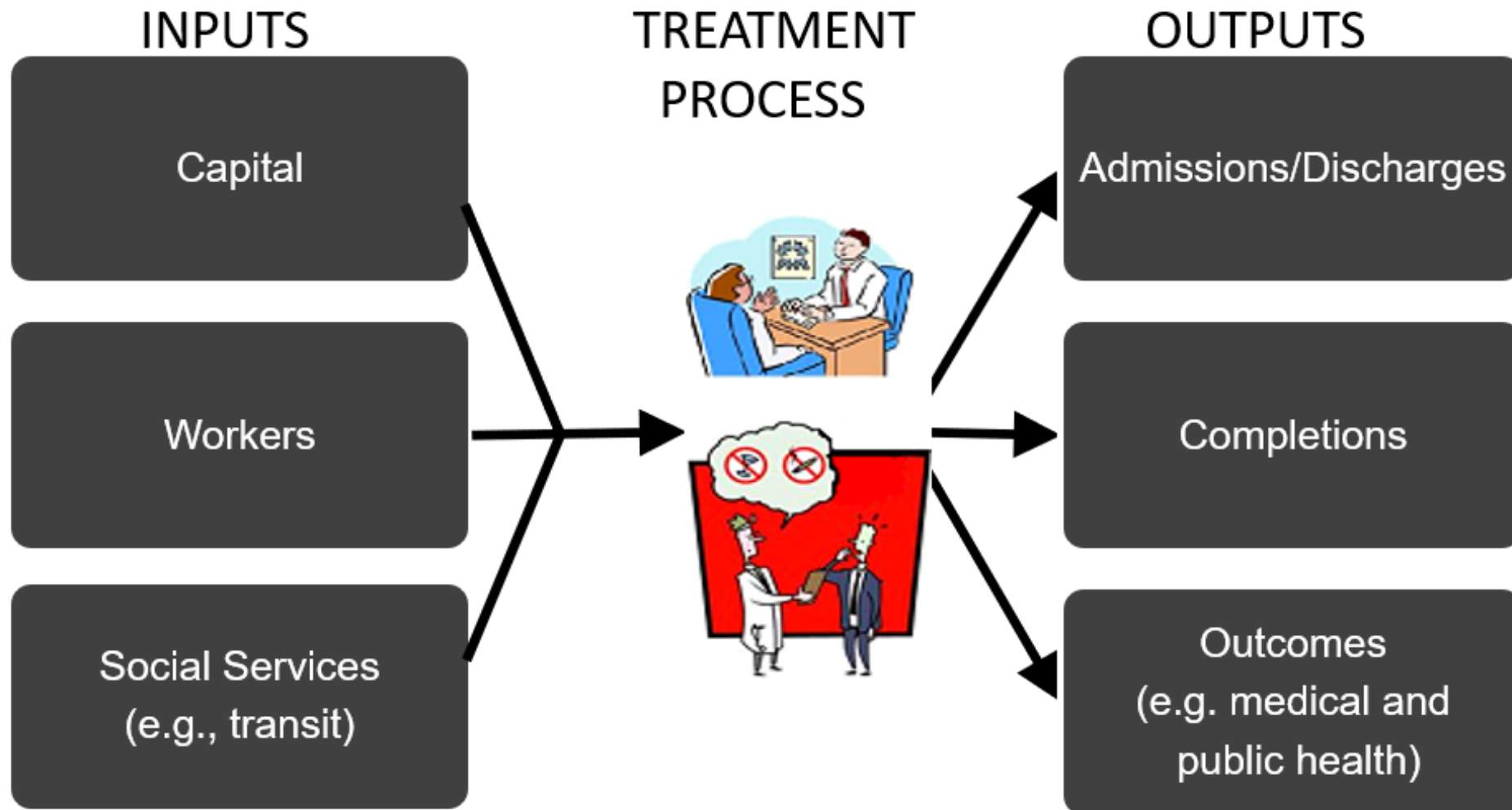CTfastrak (bus rapid transit): Opened March 2015
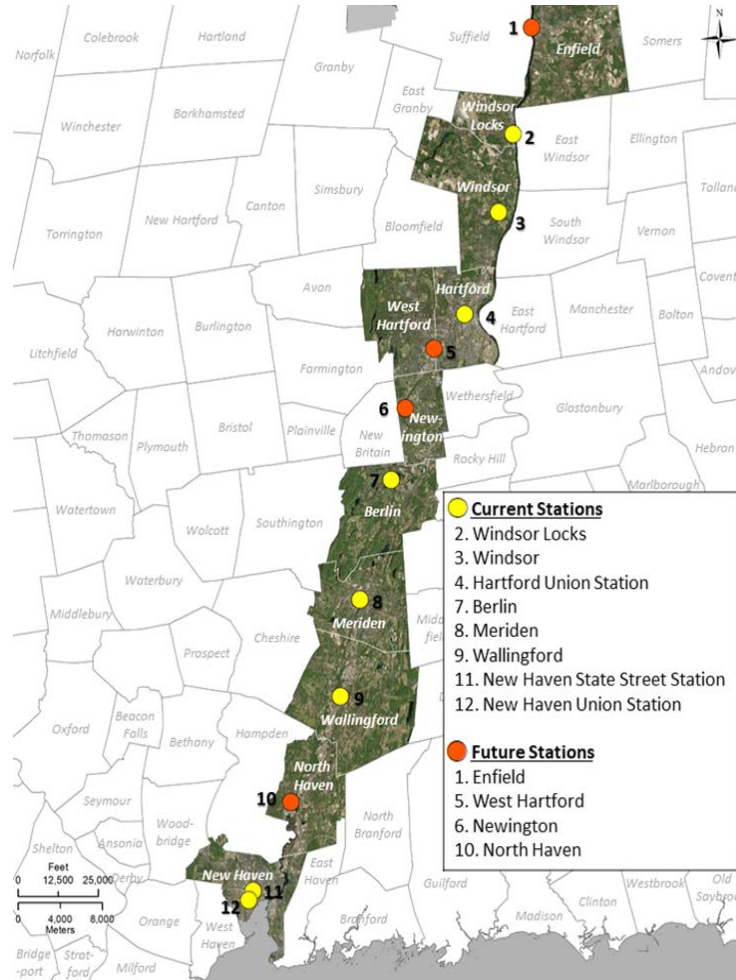
CTrail Hartford Line: Opened in June 2018

Research Methods

- "Treatment Process" - Combine the following "inputs":
  - Employees (clinicians, nurses, counselors, administrators, etc.)
  - physical capital (buildings and structures)
  - other inputs (medications and supplies)

- generate "outputs":
  - treatment completions
  - outcomes
  - Admissions/discharges

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INPUTS

TREATMENT PROCESS

OUTPUTS

Capital

Workers

Social Services (e.g., transit)

Admissions/Discharges

Completions

Outcomes (e.g. medical and public health)

- Cost Function Analysis:

  – Regression analysis approach

- Morrison and Schwartz (1996)
- Cohen and Morrison Paul (2008)
- Cohen and Checko (2017)
- Duffy et al. (2004)

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- *If a provider's change in output per extra $ spent on workers is greater (less) than the change in output per extra $ spent on physical capital, economics says a provider should hire more (less) workers and less (more) capital.*
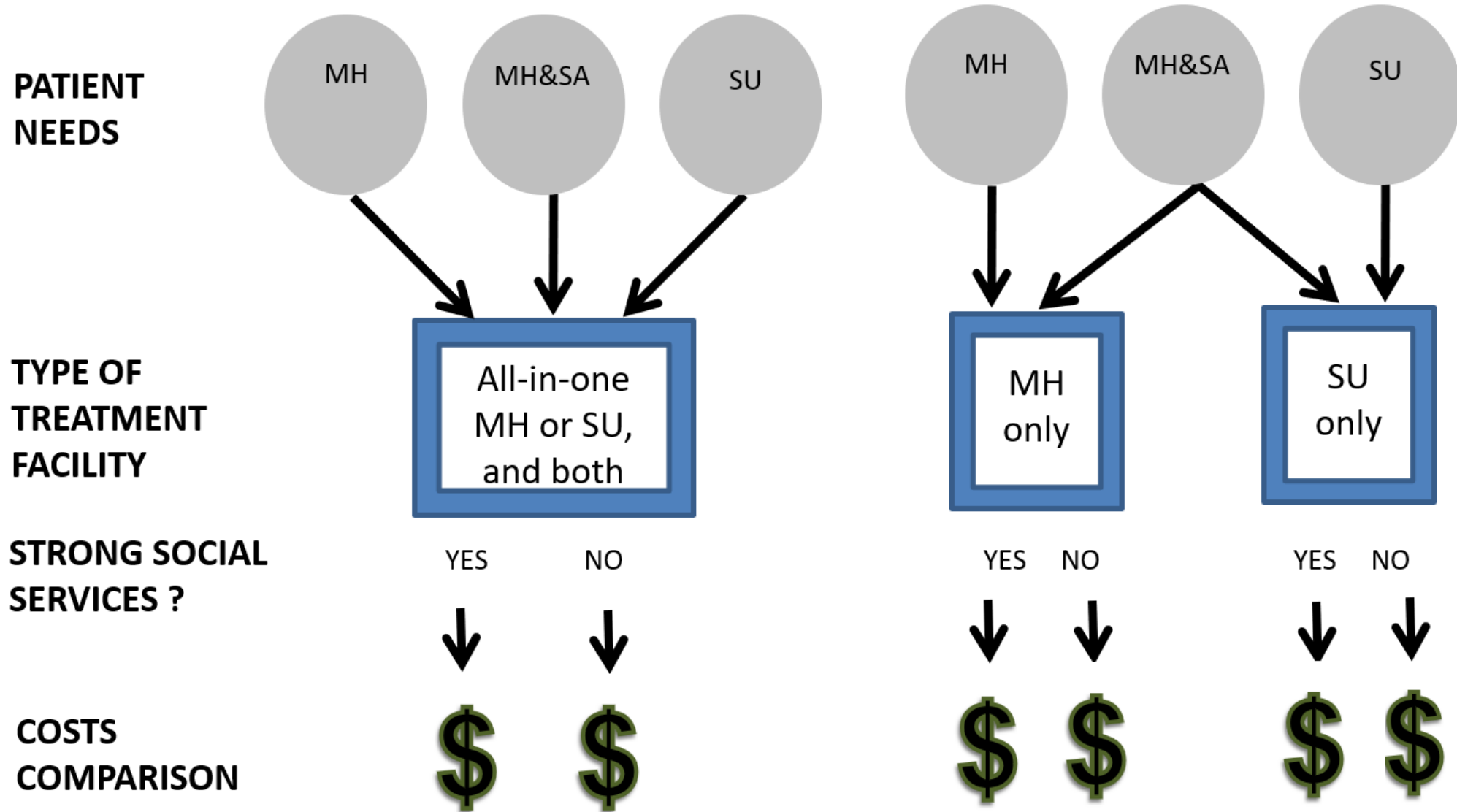
Enhanced social services: How do they tip the scale?

Extra output per $ spent on capital

Extra output per $ spent on workers
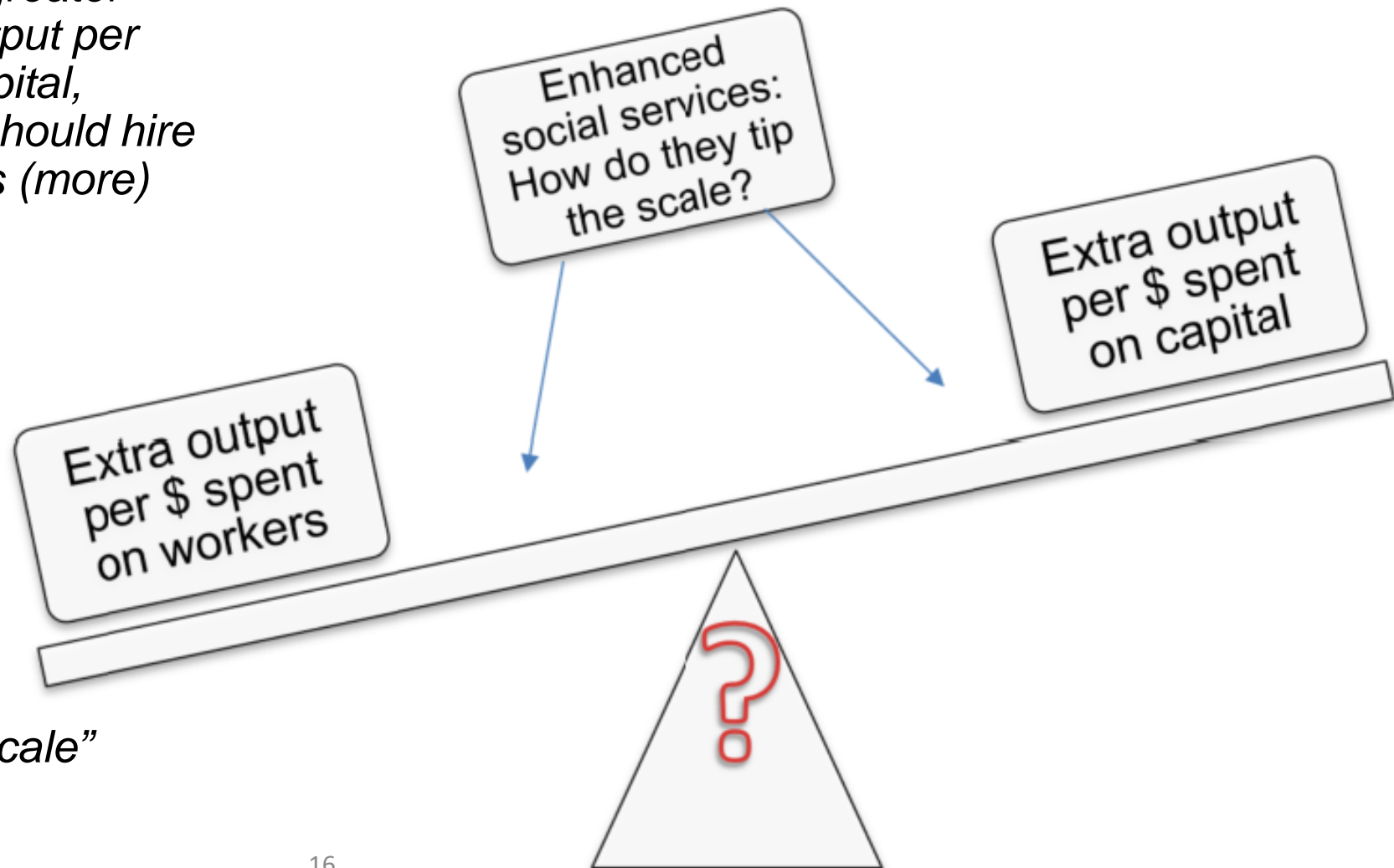
- *Social services (transit) enhancements can "tip the scale" either way, a priori unknown.*

Figure 3: Economies of Scale
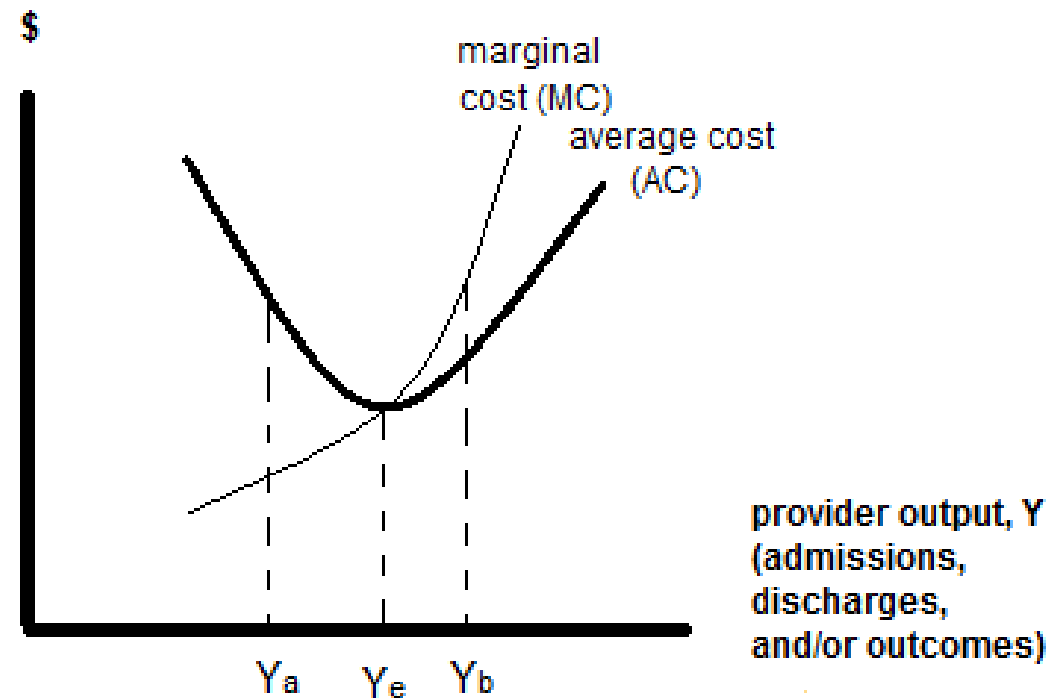
Average cost (AC) is the cost per unit of output (Y), while marginal cost (MC) is the change in total cost from a small change in output. Figure 3 shows that micro-economic theory implies the provider's AC curve is U-shaped, and the MC curve slopes up. AC is minimized at Y_e, so Y_e is the "efficient" level of output. If MC<AC (economies of scale), as in the provider output level Y_a, then the provider can lower its AC by increasing Y until it reaches Y_e.

- Estimating economies of scope (or specialization) can help providers and public health officials understand if treating mental health (MH) and substance use (SU) patients at the same facility costs less (or more) than treating each type of disorder separately.

- It can also explain whether the costs of treating alcohol and drug use at the same facility costs less (or more) than treating these two substance use problems separately.

- Enhanced social services (e.g. transit) may impact the optimal approach but a priori it is not known in which way.

Research Methods

PATIENT NEEDS

MH | MH&SA | SU | MH | MH&SA | SU

TYPE OF TREATMENT FACILITY

All-in-one MH or SU, and both | MH only | SU only

STRONG SOCIAL SERVICES ?

YES | NO | YES | NO | YES | NO

COSTS COMPARISON

$ $ | $ $ | $ $

Data

- State substance use agencies

- IRS tax forms data

- Data from sample of 1198 patients initiating SUD treatment in CT/Western MA

- Primary area of focus: CT

- Other areas that may be considered for generalizability: MN, NY

Future Findings

- Do transit improvements lead to lower costs per client?

- Is it more cost effective to treat mental health and substance use clients at the same clinic or separately – and how does the answer change, depending on new transit improvements?

- Equity: how do treatment outcomes for different demographic groups vary in response to new transit?

- Financial incentives: if provider operating costs fall in response to new transit, are providers willing to pay some portion of these reduced costs in order to encourage new transit? (Value Capture)

Informing System Alignment

- System Alignment: What do the answers to the previous questions imply for system alignment?

- Regular advisory panel meetings: guide research, as well as use research findings to work together with the goal of aligning systems to improve the opioid crisis, reduce SU treatment costs, and improve outcomes for under-represented groups

Dissemination

- Write and publish academic research papers (including, but not limited, to a special issue of a journal if S4A chooses to try and organize this again)

- Present findings at conferences and S4A Research in Progress webinars

- Host a symposium in year 3 in Connecticut to disseminate findings and demonstrate the effectiveness of our proposed approach to system alignment

Comments/Questions

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Questions?
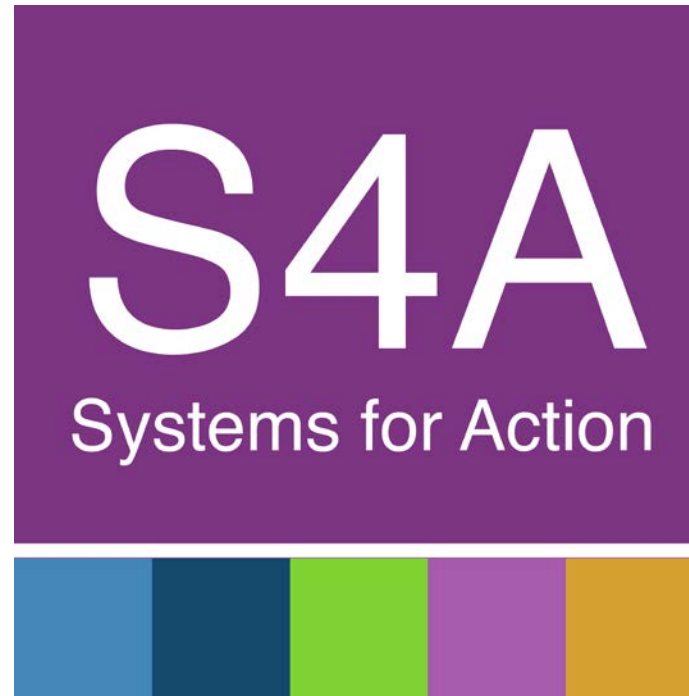
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2020 S4A Supplemental Research on COVID-19 Response & Recovery Call for Proposals

**Letters of Intent due July 20, 2020
Proposals due August 5, 2020**

$1 million is available for research investigating the effectiveness of existing, currently operating system alignment mechanisms in mitigating social, economic and health disruptions associated with the COVID-19 pandemic. Applications must leverage ongoing or recently completed research on the system alignment mechanism of interest.

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Acknowledgements