

ECONOMIC ANALYSIS OF A LOW-THRESHOLD MOBILE MEDICAL UNIT DISPENSING BUPRENORPHINE FOR OPIOID USE DISORDER

Kanya K. Shah¹, Jennie B Jarrett², Sarah E. Messmer³, Daniel R. Touchette¹

1. University of Illinois Chicago, College of Pharmacy, Department of Pharmacy Systems Outcomes and Policy, Chicago, IL

2. University of Illinois Chicago, College of Pharmacy, Department of Pharmacy Practice, Chicago, IL

3. University of Illinois Chicago, Department of Medicine, Chicago, IL

INTRODUCTION

- The opioid crisis affects thousands of lives each year, despite the availability of therapies to treat opioid use disorder (OUD).^{1,2}
- Patient-level barriers (e.g. ability to seek care), healthcare system structure barriers (e.g. insurance), and social barriers (e.g. stigma) prevent motivated individuals from accessing medication therapy for OUD, including buprenorphine.^{3,4}
- Low-threshold approaches to delivering medication for OUD, such as mobile medical units, acknowledge and address these barriers by meeting individuals where they are.⁴⁻⁶
- The University of Illinois Chicago (UIC) Community Outreach Intervention Project (COIP) low-threshold mobile medical unit program provides OUD treatment in Chicago neighborhoods with high need for such services.⁶⁻⁹
- There is need to understand the costs associated with the mobile medical unit, to justify continued operation and to inform healthcare systems across the country considering the mobile medical unit model to deliver OUD care.

OBJECTIVE

This study collected the direct implementation, operation, and indirect patient costs associated with the UIC COIP mobile medical unit.

UIC COIP Mobile Medical Unit

- Established in 2021
- Services Offered:
 - Evaluation by a specialized physician
 - Prescribing and dispensing of buprenorphine on-site
 - Care services including wound-care, vaccinations, vitals measurement, medication refills, and other primary care services
- Typically operates from 11am to 3:30p Monday – Friday
- Focuses on serving Chicago neighborhoods with high overdose rates and engages individuals statistically most at risk of opioid-related overdose fatalities in Chicago, including individuals experiencing economic hardship, homelessness, and high social vulnerability.⁶⁻⁹



METHOD

We concurrently conducted micro-costing, time-motion observations, and interviews to determine direct and indirect costs of the mobile medical unit:

Aim 1: Determine Startup Costs for Establishing the Mobile Medical Unit

- Micro-costing using administrative and purchase records
- Interviews with staff and leadership of the mobile medical unit

Aim 2: Determine the Direct Medical Operating Expenses of the Mobile Medical Unit

- Micro-costing using administrative and purchase records
- Time-motion studies to evaluate care processes
- Interviews with staff, providers, and leadership of the mobile medical unit to validate and augment time and motion

Aim 3: Determine Indirect Patient Costs

- Interviews with patients during clinical encounters to capture:
 - Transportation time/cost
 - Missed work/school/other commitments
 - Arrangements to present for care
 - Perceived alternative treatments

Analysis

- Results were compiled in Microsoft Excel to calculate implementation costs, direct operation costs, and indirect patient costs.
- Assumptions and estimates were subjected to sensitivity and scenario analyses, specifically to examine:
 - The influence of inputs relating to buprenorphine dispensing on per-patient costs (cost, days supplied, and proportion of patients receiving).
 - The influence of wound care in per-patient costs.
- Inputs with high uncertainty or less generalizability were subject to one-way sensitivity analyses with minimum and maximum estimates informed by expert opinion, observation onsite, and assumptions based on published literature.

RESULTS

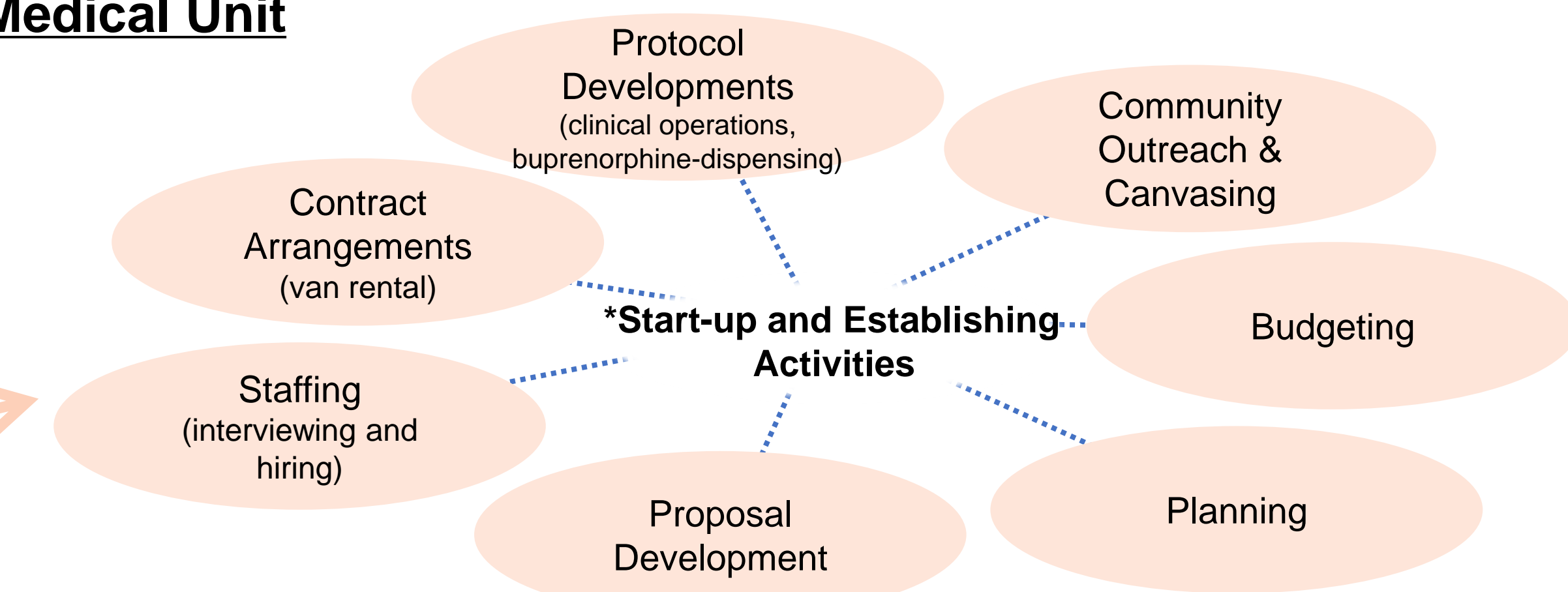
Startup Costs for Establishing the Mobile Medical Unit

Costs: \$85,368

- Medical Supplies (vitals instruments): \$43
- Administrative Supplies (e.g. printer) : \$575
- Van-Related (rental)
 - Buildout & Contract Labor: \$75,000
 - Outfitting: \$9,750

Personnel Time:*

480 Hours per Team Member (~20 hours per week for 6 months)



Direct Medical Operating Expenses of the Mobile Medical Unit

Time Spent

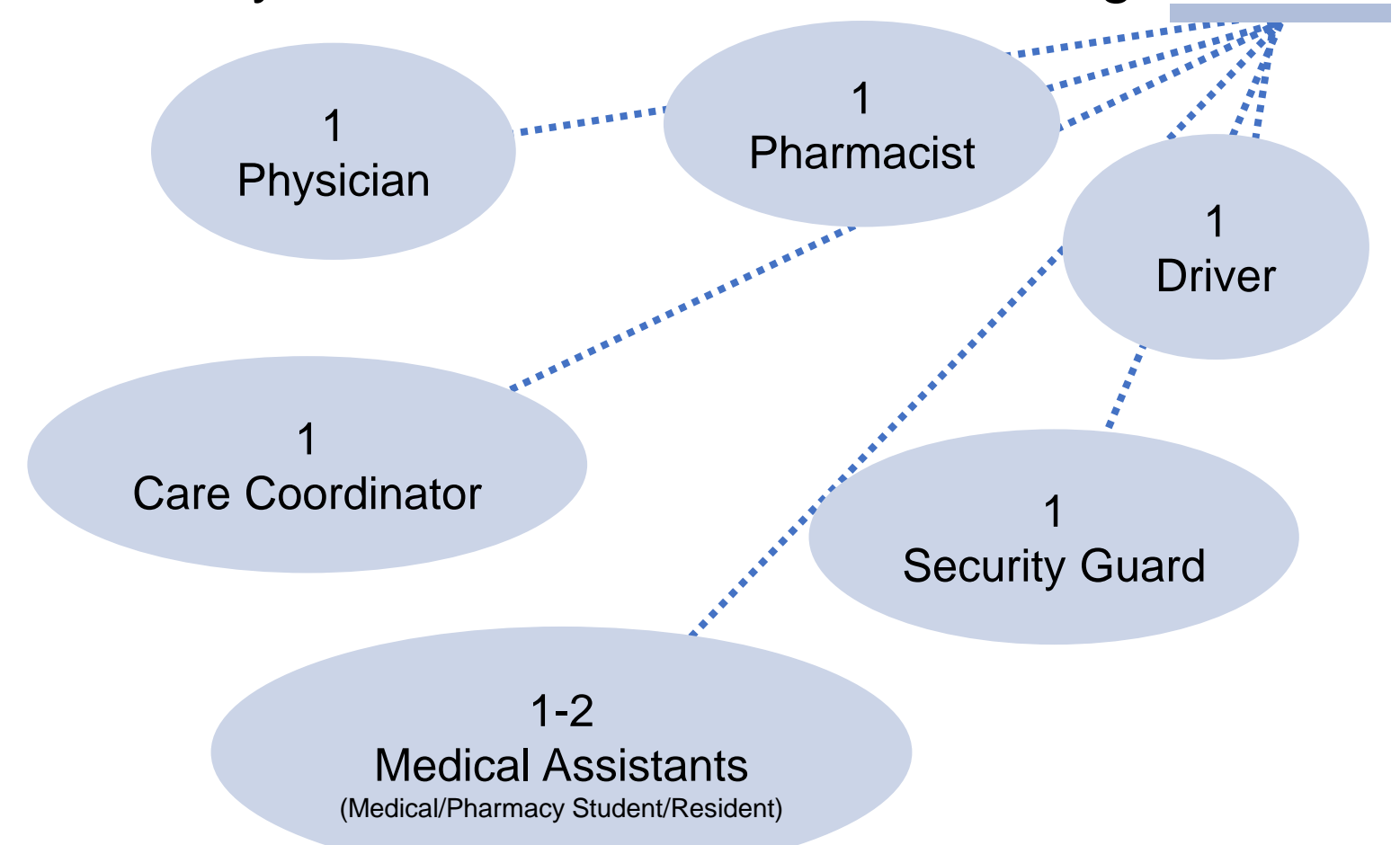
- 7-25 minutes per patient encounter*
- 2 hours per day aside from patient care documenting (physicians)
- 2 hours every other week packaging medication (pharmacists)
- 7.25 hours per week cumulatively in meetings**
- 4-hours per week cumulatively scheduling and managing supplies

*depending on the services provided and if the patient was new or returning

**city, state, and other community organizations plus internal weekly meetings

Operating Costs

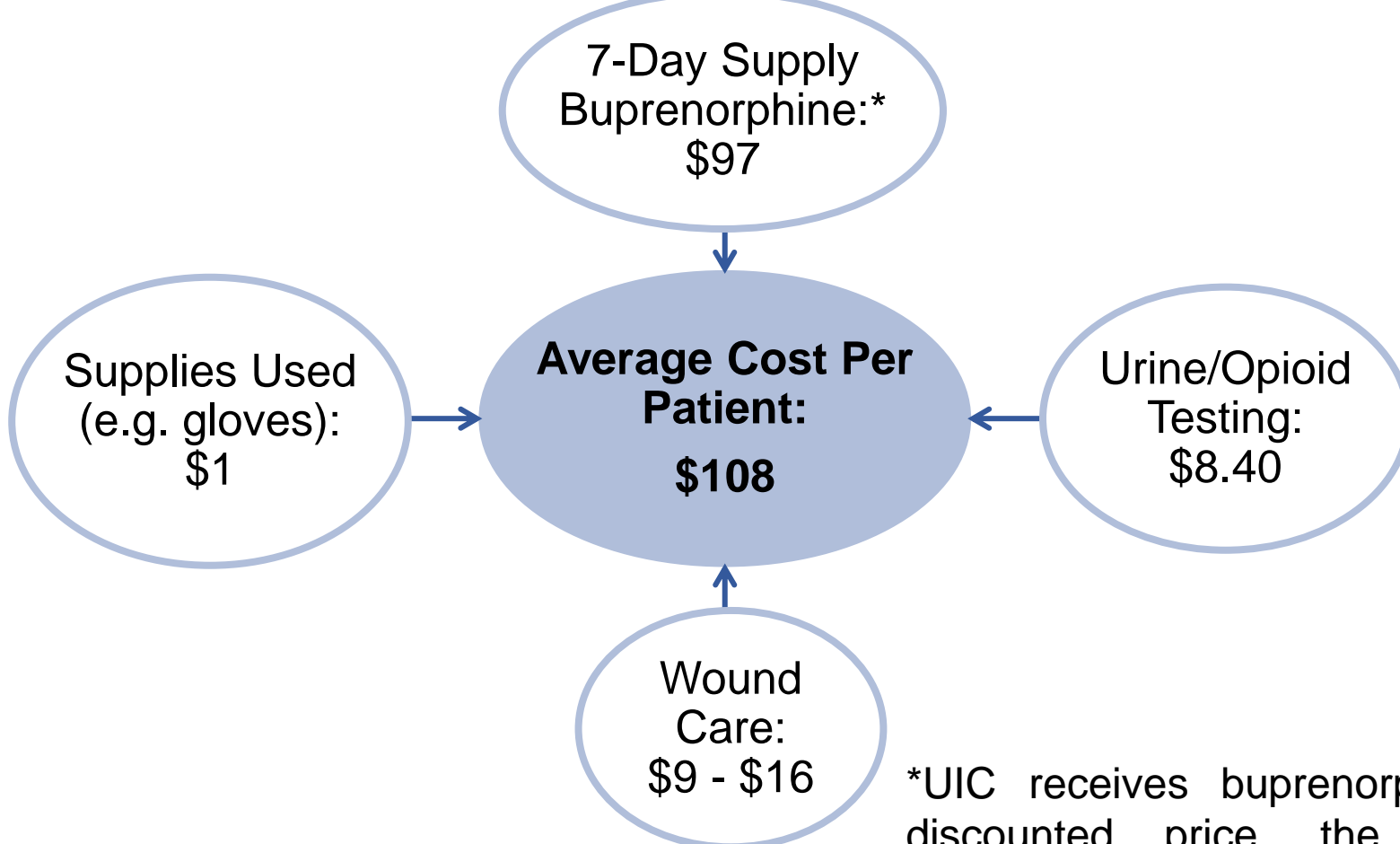
- Annual Van-Related Cost: \$106,200*
- Daily Salaries of Individuals Staffing: \$1,300**



*Includes capital, storage, and maintenance costs, plus driver salary and fringe rates

**Based on estimated average salary for the Chicago-Naperville-Elgin, IL-IN-WI area¹⁰ for a 4.5-hour operation day

Per-Patient Costs



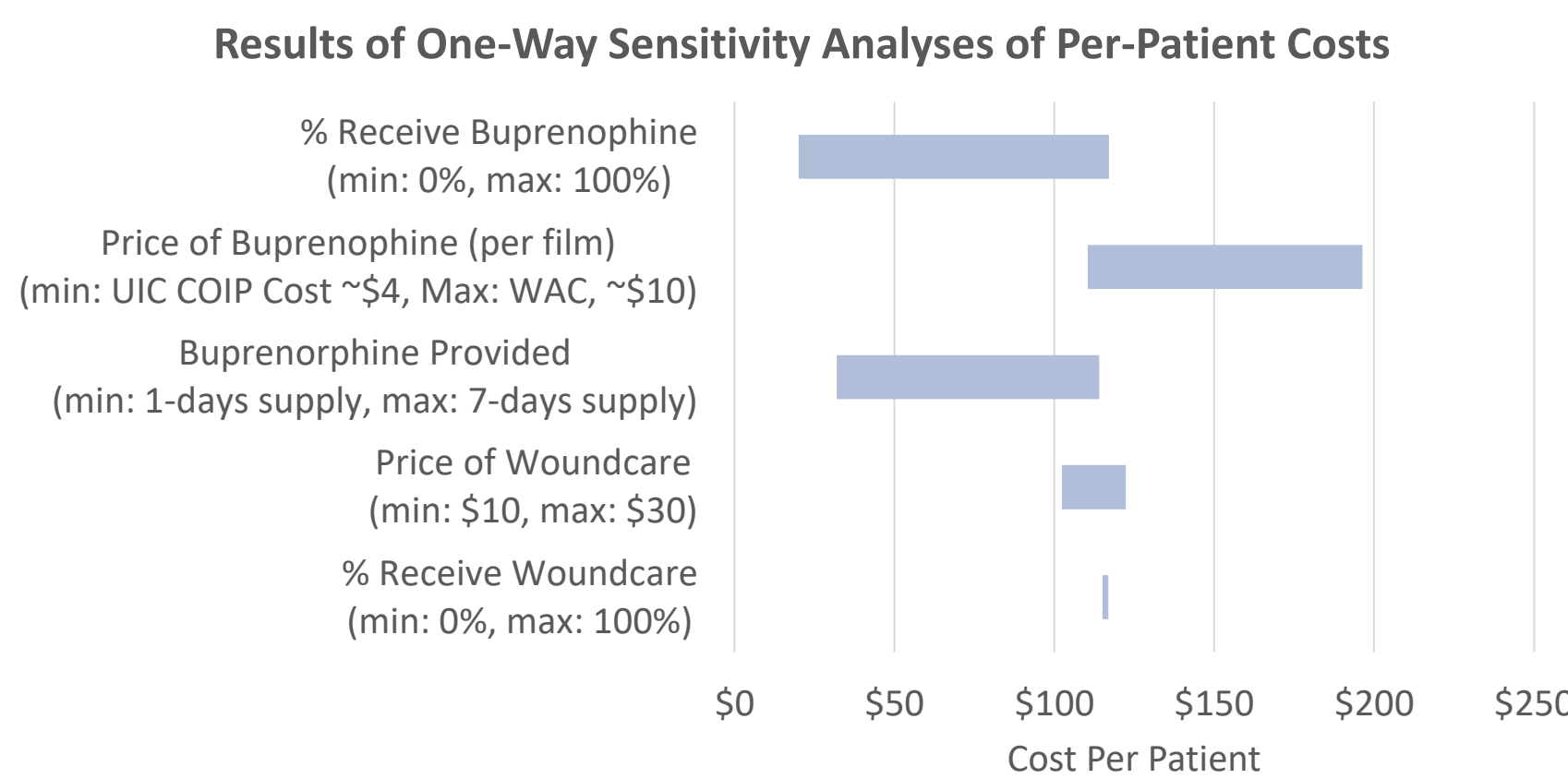
Assumptions:

- All patients dispensed buprenorphine must provide a urine sample.
- 72% of patients receive buprenorphine, 21.2% of patients receive buprenorphine and wound care, 6.8% receive only wound care and vitals assessment (no buprenorphine).⁶
- Patients were provided a 7-day supply of buprenorphine at each visit.

*UIC receives buprenorphine at a discounted price, the wholesale acquisition cost (WAC) is \$227¹¹

Sensitivity Analysis

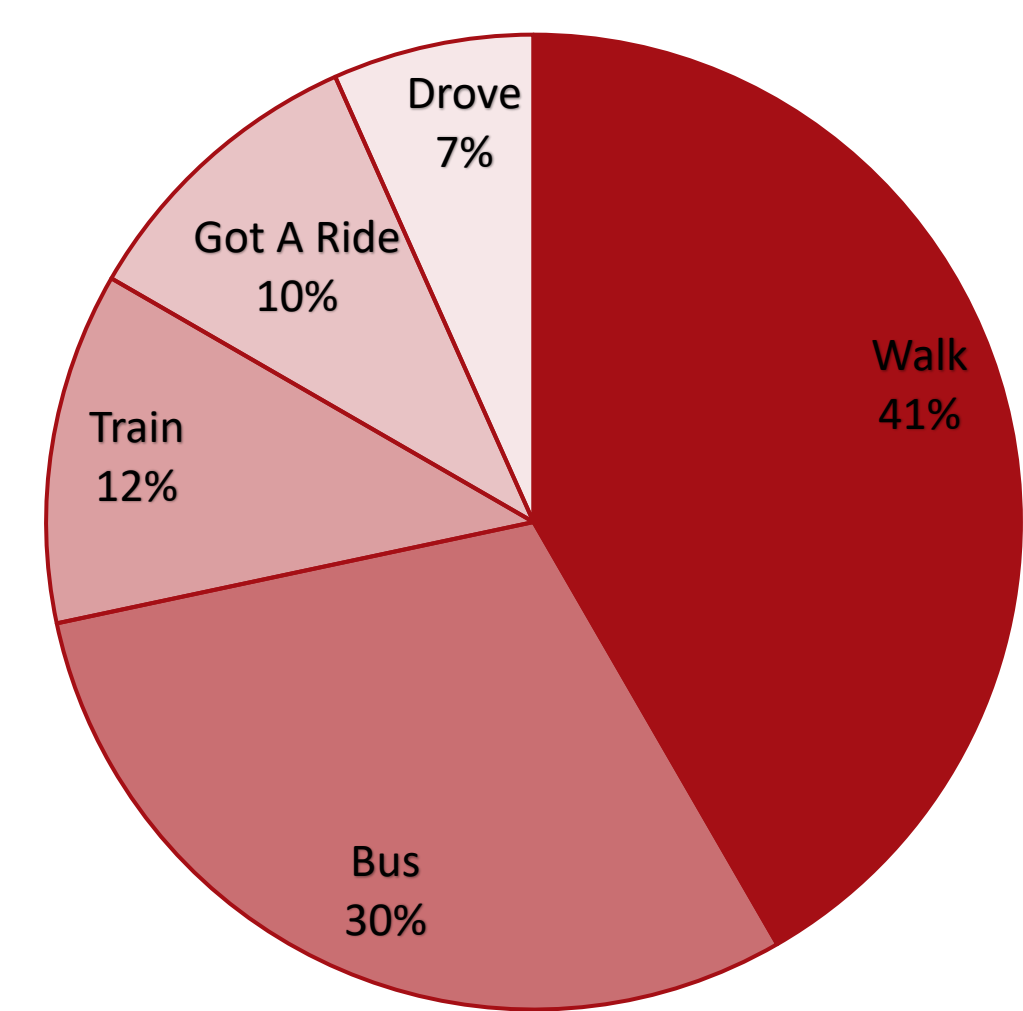
- Buprenorphine was the main driver of per-patient cost.
- The per-patient cost estimate was sensitive to changes in the % of individuals who receive buprenorphine, the price of buprenorphine, and the days supply of buprenorphine provided.



Indirect Patient Costs

Transportation

Methods of Transportation to Care Site



Mean Time Transporting: 35.2 minutes
Range Time Transporting: 3 – 120 minutes

Mean Cost of Transportation: \$2.70
(Chicago Public Transportation Pass Costs \$2.50)

Arrangements Made

On average, most individuals visiting the mobile medical unit for treatment...

- ...did not need to make arrangements (e.g. childcare, pet care) to present for care
- ...did not miss other commitments (e.g. work, school) to present for care

Perceived Alternative Treatment Options

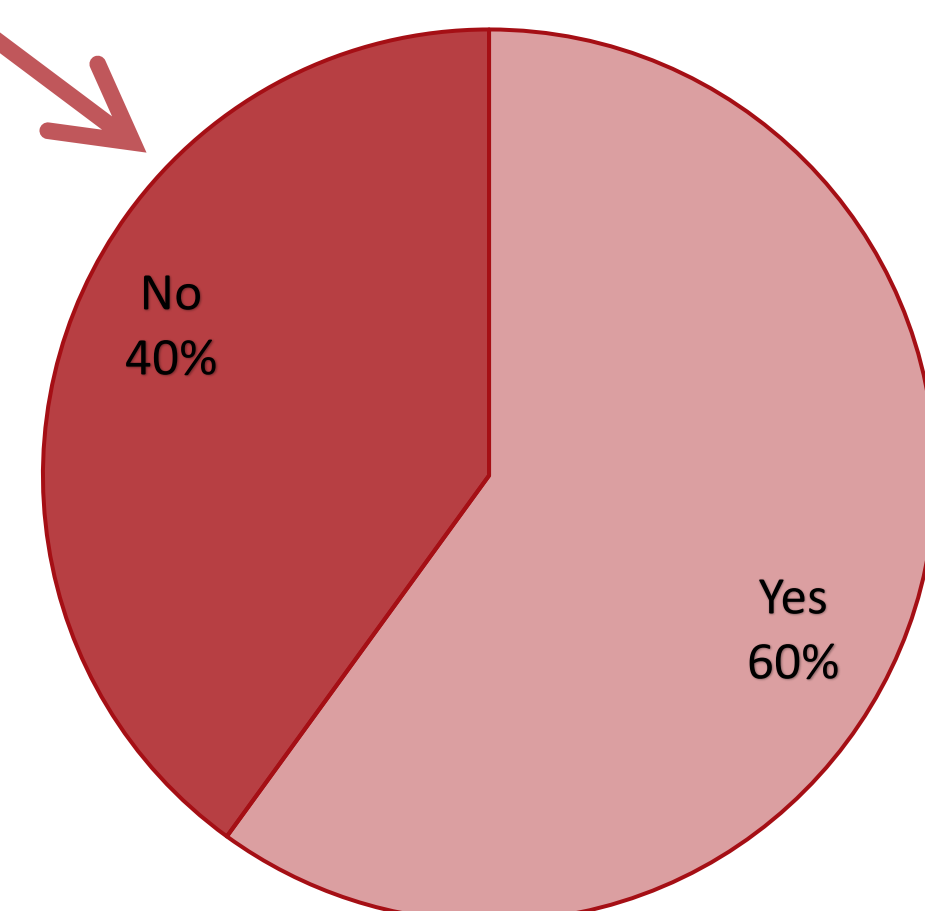
Responses to “Would you seek [OUD] care elsewhere if this care site was not available”

(among a sample of individuals receiving care at the UIC COIP Mobile Medical Unit)

Among those answering ‘Yes,’

Identified Alternative Options Included:

Alternative Option	Frequency of Response (%)
Find Another Clinic	79.2%
Specific Clinic Identified	52.6%
Clinic Unknown	47.4%
Obtain from Unofficial Sources	12.5%
Visit a Hospital	8.3%



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