Background

Contingency management (CM) is an underutilized strategy that may be effective in addressing syndemics of infectious diseases and substance use disorders (SUD).

CM implementation outside of drug treatment settings is limited, despite its regard as gold-standard treatment for stimulant use disorder and potential use to support infection treatment completion.

Objective: To describe feasibility and preliminary effectiveness of a novel CM program incentivizing both drug use reduction and antibiotic adherence in the acute care setting.

Methods

INCLUSION CRITERIA

- Opioid use disorder and/or stimulant use disorder interested in reducing use
- Serious infection needing at least 2 weeks of antimicrobial in SNF or hospital setting

ENROLLMENT

- Baseline interview + urine collection
- Priming draw (draw until monetary prize received)

Two Weekly Contingency Management based on antimicrobial adherence and absence drug use on UDS:

- 2 draws max
- 4 draws max

Week 1

Week 2

Fishbowl Prizes (300 slips)
250 positive affirmations
209 slips x $10
40 slips x $20
1 slip x $100

Probability-weighted cost per draw: $5.98

Example Week 1 visit

Feasibility

- We performed a pilot CM program in the hospital and attached skilled nursing facility to support antibiotic compliance and reduced substance use in people with stimulant and/or opioid use disorders hospitalized with osteomyelitis and/or endocarditis.

Effectiveness as measured by antibiotic completion was high, 92%. Most participants (all of whom without prior knowledge of CM) reported program extremely effective in aiding infection treatment with greater inter-participant variability in beliefs re: CM facilitation of reduced drug use.

Feasibility challenges identified include relatively short duration of program engagement in acute care setting and supporting staff time when multiple attempts needed to complete CM visit.

As is true for other addiction treatments, offering CM in the acute care setting may represent a reachable moment that both introduces patients to this SUD treatment modality and supports infection treatment completion.

Results

Table 1: Demographic & Baseline Characteristics of IMPACT Participants (n=13)

<table>
<thead>
<tr>
<th>ID</th>
<th>CM visits attempted</th>
<th>Value of gift cards earned</th>
<th>Urine drug tests negative for non-prescribed drugs</th>
<th>Infection treatment complete</th>
<th>Discharge type</th>
<th>Participant-reported CM effectiveness for antibiotic completion (1-10)*</th>
<th>Participant-reported CM effectiveness for drug use reduction (1-10)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14:12</td>
<td>$460</td>
<td>12/12 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>1:1</td>
<td>$10</td>
<td>1/1 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>No exit data</td>
<td>No exit data</td>
</tr>
<tr>
<td>3</td>
<td>5:2</td>
<td>$20</td>
<td>2/2 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>No exit data</td>
<td>No exit data</td>
</tr>
<tr>
<td>4</td>
<td>3:3</td>
<td>$100</td>
<td>3/3 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>4:3</td>
<td>$70</td>
<td>3/3 (100%)</td>
<td>Yes</td>
<td>Patient-directed</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>6:5</td>
<td>$140</td>
<td>5/5 (100%)</td>
<td>Yes</td>
<td>Patient-directed</td>
<td>No exit data</td>
<td>No exit data</td>
</tr>
<tr>
<td>7</td>
<td>4:2</td>
<td>$10</td>
<td>0/2 (0%)</td>
<td>No exit data</td>
<td>Patient-directed</td>
<td>No exit data</td>
<td>No exit data</td>
</tr>
<tr>
<td>8</td>
<td>6:4</td>
<td>$40</td>
<td>4/4 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>7</td>
<td>2</td>
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<tr>
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<td>10:6</td>
<td>$180</td>
<td>6/6 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>9</td>
<td>7</td>
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<tr>
<td>10</td>
<td>8:7</td>
<td>$390</td>
<td>7/7 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>10</td>
<td>10</td>
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<tr>
<td>11</td>
<td>10:7</td>
<td>$240</td>
<td>1/7 (14%)</td>
<td>Yes</td>
<td>Standard</td>
<td>7</td>
<td>7</td>
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<tr>
<td>12</td>
<td>12:7</td>
<td>$290</td>
<td>7/7 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>8</td>
<td>5</td>
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<tr>
<td>13</td>
<td>8:4</td>
<td>$110</td>
<td>4/4 (100%)</td>
<td>Yes</td>
<td>Standard</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

Notes:

- Adherence based on medical record review. Draws earned escalated if continued demonstration of target behavior to max of 8 draws (4 per behavior). Reset to 2 draws if lapse in target behavior.

WHAT IS CONTINGENCY MANAGEMENT?

More specific than simple incentive use, CM is a behavioral treatment program utilizing operant conditioning, historically useful to encourage abstinence from drugs. Frequent assessment of objective behavior change earns incentives, often escalating if sustained.

Conclusions

- We performed a pilot CM program in the hospital and attached skilled nursing facility to support antibiotic completion and reduced substance use in people with stimulant and/or opioid use disorders hospitalized with osteomyelitis and/or endocarditis.

- Effectiveness as measured by antibiotic completion was high, 92%. Most participants (all of whom without prior knowledge of CM) reported program extremely effective in aiding infection treatment with greater inter-participant variability in beliefs re: CM facilitation of reduced drug use.

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