Digital Health Technologies as an Adjunct to Medication Assisted Therapy for Opioid Use Disorder: Effectiveness and Value

Public Meeting — November 18, 2020

Meeting materials available at: https://icer-review.org/topic/opioids-digital-apps/
Why are we here today?

People who don’t have an addiction do not understand what it is like to feel scared and vulnerable. I want to be better and stay better. If you don’t suffer from addiction you may not figure out what helps patients like me to not go back, and back, and back to expensive rehab.

Heidi Hoffman, Patient in Recovery
Why Are We Here Today?

• What happens the day these treatments are approved by the FDA?
• What happens to patients and others in the health care “system”?
When There Isn’t Enough Money For Health Insurance

Gustavo Bendeck, Lubbock, Texas

The Whitmans, Bird City, Alaska

Luke Breen, Minneapolis, Minnesota

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Organizational Overview

• Midwest Comparative Effectiveness Public Advisory Council (CEPAC)
• The Institute for Clinical and Economic Review (ICER)
Sources of Funding, 2020
https://icer-review.org/about/support/

- Nonprofit Foundations: 70%
- Manufacturer Contributions: 17%
- Health Plans and Provider Group Contributions: 12%
- Other*: 1%

*Individual and matching contributions, government contracts, and speech stipends
How was the ICER report developed?

• Scoping with guidance from patient groups, clinical experts, manufacturers, and other stakeholders

• Internal ICER staff evidence analysis and cost-effectiveness modeling

• Public comment and revision

• Expert reviewers
  • **Dr. Scott Steiger, MD, FACP, FASAM**, Associate Clinical Professor of Medicine and Psychiatry, University of California San Francisco
  • **Jake Nichols, PharmD, MBA**, President and CEO, Professional Recovery Associates
  • **Sean Murphy, PhD**, Director, Consultation Service, Methodology Core, Weill Cornell Medicine
  • **Danielle Tarino**, President and CEO, Young People in Recovery

• How is the evidence report structured to support CEPAC voting and policy discussion?
Fair Price, Fair Access, Future Innovation

Long-Term Value for Money

Short-Term Affordability
How much extra should we pay for the better health we get?
Cost Effectiveness as a Part of Pricing to Value

Consider Benefits Beyond Health and Special Priorities

Consider Range of Pricing Linked to Better Health

Maximum Price at Which We Can Do More Good Than Harm

Price to reach $50k/QALY or evLYG

Price to reach $100k/QALY or evLYG

Price to reach $150k/QALY or evLYG
## Agenda

<table>
<thead>
<tr>
<th>Time (CT)</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 10:00 am—10:20 am | Meeting Convened and Opening Remarks  
Steven D. Pearson, MD, MSc, ICER                                                      |
| 10:20 am—10:40 am | Presentation of the Clinical Evidence  
Jeffrey A. Tice, MD, University of California, San Francisco                                   |
| 10:40 am – 11:10 am | Presentation of the Economic Model  
Melanie Whittington, PhD, MS, ICER                                                             |
| 11:10 am – 11:40 am | Public Comments and Discussion                                                                    |
| 11:40 am—12:00 pm | Break                                                                                              |
| 12:00 pm—12:50 pm | Midwest CEPAC Deliberation and Vote                                                                |
| 12:50 pm—1:30 pm  | Lunch                                                                                              |
| 1:30 pm—2:30 pm   | Policy Roundtable                                                                                  |
| 2:30 pm—3:00 pm   | Reflections from Midwest CEPAC and Closing Remarks                                                  |
| 3:00 pm           | Meeting Adjourned                                                                                  |
Clinical and Patient Experts

Miriam Komaromy, MD, FACP, DFASAM, Medical Director, Grayken Center for Addiction, Boston Medical Center/Boston University

• No financial conflicts of interest to disclose.

Scott Steiger, MD, FACP, FASAM, Associate Clinical Professor of Medicine and Psychiatry, University of California San Francisco

• No financial conflicts of interest to disclose.

Jake Nichols, PharmD, MBA, President and Chief Executive Officer, Professional Recovery Associates

• Jake Nichols was previously employed by Pear Therapeutics.

Kevin Roy, MBA, Chief Public Policy Officer, Shatterproof

• No financial conflicts of interest to disclose.
Presentation of the Clinical Evidence

Jeffrey A. Tice, MD
Division of General Internal Medicine
University of California San Francisco
Key Collaborators

• Noemi Fluetsch, MPH, Research Assistant, ICER
• Kanya Shah, PharmD, Intern, ICER

Disclosures:

We have no conflicts of interest relevant to this report.
Background

• Deaths from OUD continue to increase during the pandemic
• The social and economic consequences of OUD are enormous
  • $2.4 trillion from 2015 to 2018
• Medication assisted treatment (MAT) is the most effective treatment, but fewer than half of patients remain on MAT for six months
• Psychosocial interventions increase retention in some studies
Impact on Patients

• Disrupted relationships with family and friends
• Loss of jobs and housing
• Social stigma
• Health: infections and intermittent adherence to treatment for chronic diseases
Scope of Review

• Population: Adults 18+ years old with OUD
• Intervention: MAT + digital health technologies
• Comparator: MAT
• Outcomes: MAT retention and abstinence
• Time frame: Ideally 1-2 years
Psychosocial Interventions added to MAT

• Cognitive behavioral therapy (CBT) specific to OUD

• Contingency management (CM)

• “Psychosocial interventions were associated with increased likelihood of abstinence from drug use versus control conditions at 3 to 4 months.”

• “There was no difference between psychosocial interventions versus controls on drug use days or severity at longer (6 to 12 month) follow up.”
Digital Health Technologies

- reSET-O: an FDA approved digital therapeutic
  - CM, CBT
- Connections
  - Peer support, CBT
- DynamiCare
  - CM, CBT
Insights from Discussions with Patients

• Heterogeneity of patients
  • Age, oral versus IV opioid, prior treatment experience, co-morbidities including other substance use disorders and mental health issues, family support, housing

• “One size does not fit all.”
  • Different MAT, different providers, different psychosocial therapies

• The outcome that matters is “getting their life back.”
  • Reconnect with family, friends; housing, job, restoration of trust
Clinical Evidence
Randomized Trials

• reSET-O
  • None, but based on the Therapeutic Education System (TES)

• Connections
  • None, but based on A CHESS and CBT4CBT

• DynamiCare
  • None
# Clinical Trials of the TES

<table>
<thead>
<tr>
<th>Study</th>
<th>Arms</th>
<th>N</th>
<th>Length of Follow-Up</th>
<th>Retention (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christensen 2014</td>
<td>• Computer CBT + CM + BUP</td>
<td>92</td>
<td>12 weeks</td>
<td>80.4</td>
</tr>
<tr>
<td></td>
<td>• CM + BUP</td>
<td>78</td>
<td></td>
<td>64.1</td>
</tr>
<tr>
<td>Bickel 2008</td>
<td>• Computer CBT + CM + BUP</td>
<td>45</td>
<td>23 weeks</td>
<td>62.2</td>
</tr>
<tr>
<td></td>
<td>• Therapist CBT + CM + BUP</td>
<td>45</td>
<td></td>
<td>53.3</td>
</tr>
<tr>
<td></td>
<td>• BUP</td>
<td>45</td>
<td></td>
<td>57.7</td>
</tr>
<tr>
<td>Chopra 2009</td>
<td>• Computer CBT + CM + BUP</td>
<td>41</td>
<td>12 weeks</td>
<td>85.4</td>
</tr>
<tr>
<td></td>
<td>• Computer CBT + CM* + BUP</td>
<td>42</td>
<td></td>
<td>59.5</td>
</tr>
<tr>
<td></td>
<td>• BUP</td>
<td>37</td>
<td></td>
<td>75.7</td>
</tr>
<tr>
<td>Marsch 2014</td>
<td>• Computer CBT + Methadone</td>
<td>80</td>
<td>52 weeks</td>
<td>38.8</td>
</tr>
<tr>
<td></td>
<td>• Methadone</td>
<td>80</td>
<td></td>
<td>38.8</td>
</tr>
</tbody>
</table>

BUP: Buprenorphine, CBT: Cognitive behavioral therapy, CM: Contingency management
Christensen 2014

• Single site, unblinded trial with no sham intervention and baseline imbalances between treatment groups

• Different intervention from reSET-O
  
  • Contingency management
    
    • Christensen: Consecutive negative urines always led to higher rewards with mean payout $997.50
    
    • reSET-O: rewards intermittent and based on CBT module completion with mean payout < $300
  
  • CBT modules
    
    • Christensen: done in clinic at a computer
    
    • reSET-O: done out of clinic on a smartphone
Christensen 2014 Outcomes

- Primary outcome: days of continuous abstinence
  - **NOT SIGNIFICANT**: 55 days versus 59 days, p=0.21
- Retention in treatment at 12 weeks: 80% versus 64%, p=0.02
  - OR 2.3 (95% CI 1.2-4.6)
- GEE analysis* of likelihood of a negative test in weeks 9-12
  - 76% versus 61%, p=0.03
  - Says nothing about total abstinence during the last 4 weeks

*Marichich et al, CMRO, 2020
Real World Evidence

• 3142 patients who redeemed reSET-O and completed > 1 module
  • No data for 873 (28%) during last 4 weeks
  • 66% abstinent during last 4 weeks (GEE?)

• Claims data on 351 patients using reSET-O

<table>
<thead>
<tr>
<th></th>
<th>6 months before initiation</th>
<th>6 months after initiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine:</td>
<td>from 76.7%</td>
<td>to 72.8%</td>
</tr>
<tr>
<td>Hospitalizations:</td>
<td>from 72 (29 patients)</td>
<td>to 27 (13 patients)</td>
</tr>
<tr>
<td>ER visits:</td>
<td>from 136 (84 patients)</td>
<td>to 109 (38 patients)</td>
</tr>
</tbody>
</table>

Maricich et al, CMR and Opinion, 2020; Velez et al, Exp Rev Pharm, 2020
Harms

• No harms identified with the digital health technologies
• Theoretical concerns about PHI release
Controversies and Uncertainties

- Lack of RCT evidence of efficacy using the apps
- Lack of medium and long-term outcomes
- No clinical trial evidence on ER visits, hospitalizations, work, and relationship restoration
Potential Other Benefits and Contextual Considerations

• Considerable uncertainty about long-term benefits

• Because of the digital divide, digital health technologies have the potential to increase health disparities

• The potential impact of digital health technologies on family/caregiver burden and on potential return to work is unknown
Public Comments Received

• New data published November 2020
  • Added to updated report

• CM is accepted as efficacious in SUD
  • Agree, but primarily for alcohol and stimulant use disorder, not opioids

• RCTs of TES present data beyond 12 weeks
  • All of these trials are described in the report. For example, Marsch et al 2014, which has 1-year follow-up found no difference in retention at 1 year (38.8% in both study groups)
  • Christensen 2014 is single site trial done in 2010. They clearly had retention data beyond 12 weeks, but did not report it.

• Evidence base for reSET (predicate for reSET-O) is problematic
Summary

• There is no direct, peer-reviewed randomized trial evidence on the efficacy of any of the apps in the population of interest

• There are randomized trials supporting the short-term efficacy of some of the psychosocial interventions implemented by the apps

• The use of the apps is unlikely to be harmful to patients

• Thus, there is moderate certainty that the digital apps are comparable to MAT alone (due to no identified harms) and there may be incremental benefits
ICER Evidence Ratings for Digital Health Technologies added to MAT versus MAT alone

- reSET-O: C+ Comparable or incremental
- Connections: C+ Comparable or incremental
- DynamiCare: C+ Comparable or incremental
Questions?
Presentation of the Economic Model

Melanie D. Whittington, PhD, MS
Associate Director of Health Economics
Institute for Clinical and Economic Review
Team Members

Jonathan D. Campbell, PhD, Senior Vice President, ICER

Rick Chapman, PhD, Director of Health Economics, ICER

Lorenzo Villa Zapata, PhD, PharmD, Post-Doctoral Fellow, University of Colorado Anschutz Medical Campus

Nicholas D. Mendola, MPH, PhD Student, University of Colorado Anschutz Medical Campus

Disclosures:

The economic team reported no conflicts defined as more than $10,000 in health care company stock or more than $5,000 in honoraria or consultancies relevant to this report during the previous year from health care technology manufacturers or insurers.
Objective

To estimate the cost effectiveness of digital health technologies as an adjunct to MAT for OUD

• reSET-O in addition to outpatient MAT (i.e., counseling and pharmacological therapy) vs. outpatient MAT alone
Methods Overview

• **Model**: Two-phase decision analytic model

• **Setting**: United States

• **Perspective**: Health care system perspective

• **Time Horizon**: Five-year

• **Discount Rate**: 3% per year (costs and outcomes)

• **Cycle Length**: Four weeks (Phase 2)

• **Outcomes**: Cost per quality-adjusted life year (QALY) gained; cost per life year (LY) gained; cost per equal value life year gained (evLYG); cost per MAT year
Model Schematic: Phase 1

Adults with OUD in outpatient treatment with MAT

With digital therapeutic

On MAT with Illicit Use of Opioids

On MAT without Illicit Use of Opioids

Off MAT with Illicit Use of Opioids

Off MAT without Illicit Use of Opioids

Dead

Without digital therapeutic

On MAT with Illicit Use of Opioids

On MAT without Illicit Use of Opioids

Off MAT with Illicit Use of Opioids

Off MAT without Illicit Use of Opioids

Dead
Model Schematic: Phase 2

M1. On MAT with Illicit Use of Opioids

M2. On MAT without Illicit Use of Opioids

M3. Off MAT with Illicit Use of Opioids

M4. Off MAT without Illicit Use of Opioids

Dead
Key Model Assumptions

• Individuals with negative urine drug screening tests for all assessment points over the last 4 weeks of reSET-O use entered the On MAT without Illicit Use of Opioids health state in the Markov model

• No incident cases of abstinence in Phase 2

• MAT discontinuation after reSET-O was the same as standard of care

• The clinical outcomes (e.g., abstinence, retention) for standard of care were equivalent to the outcomes from the comparator arm in the reSET-O pivotal trial
## Population

Adults 18 years and older with OUD in outpatient MAT

<table>
<thead>
<tr>
<th>Population Characteristics</th>
<th>Value</th>
<th>Notes/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>34</td>
<td>Weighted average from Christensen et al., 2014</td>
</tr>
<tr>
<td>Female (%)</td>
<td>46%</td>
<td>Weighted average from Christensen et al., 2014</td>
</tr>
<tr>
<td>Injection drug use (%)</td>
<td>14%</td>
<td>Weighted average from Christensen et al., 2014</td>
</tr>
<tr>
<td>Employed full time (%)</td>
<td>37%</td>
<td>Weighted average from Christensen et al., 2014</td>
</tr>
</tbody>
</table>
## Key Model Inputs: Abstinence and Retention

<table>
<thead>
<tr>
<th></th>
<th>reSET-O</th>
<th>SoC</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstinence</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1</td>
<td>67.1 days</td>
<td>57.4 days</td>
<td>Christensen et al., 2014</td>
</tr>
<tr>
<td>Phase 2</td>
<td>14.5% discontinue per cycle</td>
<td>Data on file</td>
<td></td>
</tr>
<tr>
<td><strong>Retention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 1</td>
<td>80.4%</td>
<td>64.1%</td>
<td>Christensen et al., 2014</td>
</tr>
<tr>
<td>Phase 2</td>
<td>14.5% discontinue per cycle</td>
<td>Christensen et al., 2014</td>
<td></td>
</tr>
</tbody>
</table>
# Key Model Inputs: Health State Utilities

<table>
<thead>
<tr>
<th>Parameter</th>
<th>On MAT</th>
<th>Off MAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Illicit Use of Opioids</td>
<td>0.766</td>
<td>0.852</td>
</tr>
<tr>
<td>Illicit Use of Opioids</td>
<td>0.689 - 0.761</td>
<td>0.574 - 0.694</td>
</tr>
</tbody>
</table>

*Lower value of range represents injection drug use; upper value of range represents non-injection drug use

Source: Wittenberg et al., 2016
## Key Model Inputs: DHT Costs

<table>
<thead>
<tr>
<th></th>
<th>WAC per Download</th>
<th>Net Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O</td>
<td>$1,665</td>
<td>$1,219</td>
</tr>
</tbody>
</table>

WAC: wholesale acquisition cost
# Key Model Inputs: Outpatient MAT Costs

<table>
<thead>
<tr>
<th>Therapist Counseling</th>
<th>Utilization</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 visits</td>
<td>$128</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug</th>
<th>WAC per Dose</th>
<th>Discount from WAC</th>
<th>Price per Dose</th>
<th>Price per Year</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine/Naloxone</td>
<td>$9.81</td>
<td>N/A due to generic product</td>
<td>$9.81</td>
<td>$3,579</td>
<td>Redbook</td>
</tr>
</tbody>
</table>

WAC: wholesale acquisition cost
### Key Model Inputs: Health Care Utilization Costs

<table>
<thead>
<tr>
<th></th>
<th>On MAT</th>
<th>Off MAT with Illicit Use of Opioids</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospitalizations</strong></td>
<td>$379</td>
<td>$1,033</td>
</tr>
<tr>
<td><strong>Emergency Department Visits</strong></td>
<td>$55</td>
<td>$101</td>
</tr>
<tr>
<td><strong>Outpatient Visits</strong></td>
<td>$136</td>
<td>$159</td>
</tr>
</tbody>
</table>

Costs reported are per cycle (four weeks) and are reflective of average health care utilization for patients with OUD who are or are not adherent to buprenorphine. These estimates are not unit costs, but reflect the unit cost multiplied by the average rate of use of each service per four-week cycle.
## Key Model Inputs: Societal Costs

<table>
<thead>
<tr>
<th>Societal Cost Type</th>
<th>Per Cycle Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity Losses (only with Illicit Use of Opioids)</td>
<td>$1,358*</td>
</tr>
<tr>
<td>Criminal Justice and Incarceration</td>
<td></td>
</tr>
<tr>
<td>When On MAT (with and without Illicit Use of Opioids)</td>
<td>$1,109¥</td>
</tr>
<tr>
<td>When Off MAT (only with Illicit Use of Opioids)</td>
<td>$5,546¥</td>
</tr>
</tbody>
</table>

MAT: medication assisted treatment  
*Applied to 37% of patients in applicable health states  
¥Applied to 43% of patients in applicable health states
Results
## Base-Case Results: Discounted Model Outcomes

<table>
<thead>
<tr>
<th>Intervention</th>
<th>reSET-O Download Cost</th>
<th>Total Health System Costs</th>
<th>Life Years</th>
<th>QALYs</th>
<th>evLYGs</th>
<th>On MAT Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O</td>
<td>$1,219</td>
<td>$83,332</td>
<td>4.61821</td>
<td>3.152809</td>
<td>3.152812</td>
<td>0.54</td>
</tr>
<tr>
<td>SoC</td>
<td>$0</td>
<td>$82,558</td>
<td>4.61820</td>
<td>3.146440</td>
<td>3.146440</td>
<td>0.46</td>
</tr>
<tr>
<td>Incremental</td>
<td>$1,219</td>
<td>$774</td>
<td>0.00002</td>
<td>0.006369</td>
<td>0.006371</td>
<td>0.08</td>
</tr>
</tbody>
</table>

QALYs: quality-adjusted life years, evLYGs: equal value life year gained, MAT: medication-assisted treatment, SoC: Standard of Care
## Base Case Results: Incremental Cost-Effectiveness Ratios

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Incremental Cost per Life Year Gained</th>
<th>Incremental Cost per QALY Gained</th>
<th>Incremental Cost per evLYG</th>
<th>Incremental Cost per MAT Year Gained</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O vs. SoC</td>
<td>$48,449,000</td>
<td>$121,500</td>
<td>$121,400</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

*evLYG: equal value life year gained, MAT: medication-assisted treatment; QALY: quality-adjusted life year, SoC: standard of Care*
One Way Sensitivity Analyses

- reSET-O effect on MAT retention
- On MAT after Phase 1 - SoC
- OUD-related per-cycle hospitalization costs while off MAT
- Probability of MAT discontinuation
- Multiplier of discontinuation from illicit use state
- Utility for off MAT with illicit use
- reSET-O effect on total abstinence days, Phase 1
- Utility for on MAT with illicit use
- OUD-related per-cycle hospitalization costs while on MAT
- Utility for on MAT without illicit use

Incremental Cost-Effectiveness Ratio (cost per QALY gained)
## Probabilistic Sensitivity Analysis

<table>
<thead>
<tr>
<th></th>
<th>Cost Effective at $50,000 per QALY</th>
<th>Cost Effective at $100,000 per QALY</th>
<th>Cost Effective at $150,000 per QALY</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O vs. SoC</td>
<td>4.2%</td>
<td>26.9%</td>
<td>62.0%</td>
</tr>
</tbody>
</table>

QALY: quality-adjusted life year, SoC: Standard of care
## Scenario Analysis: Trial Time Horizon Discounted Model Outcomes

<table>
<thead>
<tr>
<th></th>
<th>reSET-O Download Cost</th>
<th>Total Health System Cost</th>
<th>QALYs</th>
<th>On MAT Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time Horizon: 12 Weeks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reSET-O</td>
<td>$1,219</td>
<td>$4,540</td>
<td>0.175</td>
<td>0.21</td>
</tr>
<tr>
<td>SoC</td>
<td>$0</td>
<td>$3,425</td>
<td>0.173</td>
<td>0.19</td>
</tr>
<tr>
<td>Incremental</td>
<td>$1,219</td>
<td>$1,115</td>
<td>0.002</td>
<td>0.02</td>
</tr>
</tbody>
</table>

|                |                       |                          |       |              |
| **Time Horizon: 5 Years** |                       |                          |       |              |
| Incremental    | $1,219                | $774                     | 0.006 | 0.08         |

MAT: medication-assisted treatment; QALY: quality-adjusted life year; SoC: standard of Care
Scenario Analysis: Trial Time Horizon, Incremental Cost-Effectiveness Ratios

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Incremental Cost per QALY Gained</th>
<th>Incremental Cost per Additional MAT Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O vs. SoC</td>
<td>$547,000</td>
<td>$59,200</td>
</tr>
</tbody>
</table>

MAT: medication-assisted treatment; QALY: quality-adjusted life year; SoC: standard of Care
# Scenario Analysis: Modified Societal Perspective, Discounted Model Outcomes

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Productivity Loss Costs</th>
<th>Criminal Justice &amp; Incarceration Costs</th>
<th>Total Health System Costs</th>
<th>Total Societal Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O</td>
<td>$27,981</td>
<td>$2,599</td>
<td>$83,332</td>
<td>$113,912</td>
</tr>
<tr>
<td>SoC</td>
<td>$28,155</td>
<td>$2,638</td>
<td>$82,558</td>
<td>$113,351</td>
</tr>
<tr>
<td>Incremental</td>
<td>-$174</td>
<td>-$39</td>
<td>$774</td>
<td>$561</td>
</tr>
</tbody>
</table>

SoC: Standard of Care
### Scenario Analysis: Modified Societal Perspective, Incremental Cost-Effectiveness Ratio

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Incremental Cost per QALY Gained</th>
<th>Incremental Cost per Additional MAT Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>reSET-O vs. SoC</td>
<td>$88,000</td>
<td>$7,300</td>
</tr>
</tbody>
</table>

MAT: medication-assisted treatment; QALY: quality-adjusted life year; SoC: Standard of Care
Limitations

• Lack of comparative evidence on retention or abstinence after an individual has stopped using reSET-O

• The comparator arm in the pivotal trial for reSET-O was not reflective of standard of care

• The impact of contingency management in addition to MAT versus MAT alone is inconsistent in the literature
Comments Received

- Manufacturer-provided net price
- Provider interactions with the platform occurs with the counseling sessions
- Updated utility values for On MAT to a US population reference
- Recent claims-based analysis of health care utilization
Conclusions

• reSET-O is within commonly used thresholds of $100,000-$150,000 per QALY gained IF a significant impact on MAT retention if extended after the use of reSET-O.

• If individuals immediately revert to outcomes characteristic of standard of care after reSET-O use, the findings from the 12-week time horizon are more indicative of the cost-effectiveness, suggesting reSET-O is not cost-effective.

• Clinical evidence on MAT retention and abstinence after one’s use of reSET-O is essential to reduce the uncertainty in the cost-effectiveness findings.
Questions?
Public Comment and Discussion
Yuri Maricich, MD, MBA
Chief Medical Officer & Head of Development, Pear Therapeutics

Conflicts of Interest:

- Dr. Maricich is a full-time employee of Pear Therapeutics.
Hans Morefield
Chief Executive Officer, CHESS Health

Conflicts of Interest:

- Hans is a full-time employee of CHESS Health.
Heidi Hoffman
Patient Representative

Conflicts of Interest:

- No financial conflicts of interest to disclose.
Andrea Barthwell, MD, DFASAM
Encounter Medical Group; Founder, Two Dreams; Founder, EMGlobal LLC
Former Deputy Director of Demand Reduction, White House Office of National Drug Control Policy

Conflicts of Interest:

- Dr. Barthwell consults for Ideal Option, the Manor, and Pocket Naloxone
Break

Meeting will resume at 12:00 pm CT
Voting Questions
**Patient population for all questions:** Adult patients with opioid use disorder who are receiving medication assisted treatment (buprenorphine, methadone)

**Clinical Evidence**
*standard of care includes medication assisted treatment, but not contingency management*
1. Given the currently available evidence, is the evidence adequate to demonstrate a net health benefit for the reset-O app added to standard of care compared to standard of care alone?

A. Yes
B. No
2. Given the currently available evidence, is the evidence adequate to demonstrate a net health benefit for the treatment with the Connections app added to standard of care compared to standard of care alone?

A. Yes

B. No
3. Given the currently available evidence, is the evidence adequate to demonstrate a net health benefit for the DynamiCare app added to standard of care compared to standard of care alone?

A. Yes
B. No
4. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

<table>
<thead>
<tr>
<th>1 (Suggests Lower Value)</th>
<th>2 (Intermediate)</th>
<th>3 (Suggests Higher Value)</th>
</tr>
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<tbody>
<tr>
<td>This intervention will not differentially benefit a historically disadvantaged or underserved community</td>
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<td>Uncertainty or overly favorable model assumptions creates significant risk that base-case cost-effectiveness estimates are too optimistic</td>
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</tr>
<tr>
<td>Delivery mechanism or relative complexity of regimen likely to lead to much lower real-world adherence and worse outcomes relative to an active comparator than estimated from clinical trials</td>
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<td>Will not significantly reduce the negative impact of the condition on family and caregivers vs. the comparator</td>
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<tr>
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<tr>
<td>Other</td>
<td></td>
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</table>
4c. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

A. 1

B. 2

C. 3

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B. 2  
C. 3

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4e. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

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B. 2

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4f. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

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B. 2
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4i. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

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B. 2
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4k. Please vote 1, 2, or 3 on the following potential other benefits and contextual considerations as they relate to the reset-O app.

A. 1
B. 2
C. 3
5. Given the available evidence on comparative effectiveness and incremental cost effectiveness, and considering other benefits, disadvantages, and contextual considerations, what is the long-term value for money of treatment at current pricing with reSET-O versus standard care?

A. Low long-term value for money

B. Intermediate long-term value for money

C. High long-term value for money
Lunch

Meeting will resume at 1:30 pm CT
Policy Roundtable
## Policy Roundtable

<table>
<thead>
<tr>
<th>Policy Roundtable Participant</th>
<th>Conflict of Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kelcey Blair, PharmD</strong>, Vice President, Clinical Solutions at Express Scripts</td>
<td>Kelcey is a full-time employee of Express Scripts.</td>
</tr>
<tr>
<td><strong>Anita Ju</strong>, Innovation Manager, Blue Shield of California</td>
<td>Anita is a full-time employee of Blue Shield of California.</td>
</tr>
<tr>
<td><strong>Miriam Komaromy, MD, FACP, DFASAM</strong>, Medical Director, Grayken Center for Addiction, Boston Medical Center, Boston University</td>
<td>No financial conflicts of interest to disclose.</td>
</tr>
<tr>
<td><strong>Hans Morefield</strong>, Chief Executive Officer, CHESS Health</td>
<td>Hans is a full-time employee of CHESS Health.</td>
</tr>
<tr>
<td><strong>Jake Nichols, PharmD, MBA</strong>, President and Chief Executive Officer, Professional Recovery Associates</td>
<td>Jake Nichols was previously employed by Pear Therapeutics</td>
</tr>
<tr>
<td><strong>Mike Pace, MBA</strong>, Vice President and Global Head of Market Access, Value, and Evidence, Pear Therapeutics</td>
<td>Mike is a full-time employee of Pear Therapeutics.</td>
</tr>
<tr>
<td><strong>Kevin Roy, MBA</strong>, Chief Public Policy Officer, Shatterproof</td>
<td>No financial conflicts of interest to disclose.</td>
</tr>
<tr>
<td><strong>Scott Steiger, MD, FACP, FASAM</strong>, Associate Clinical Professor of Medicine and Psychiatry, University of California San Francisco</td>
<td>No financial conflicts of interest to disclose.</td>
</tr>
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Midwest CEPAC Council Reflections
Next Steps

• Meeting recording posted to ICER website next week

• Final Report published on or around December 11, 2020
  • Includes description of Midwest CEPAC votes, deliberation, policy roundtable discussion

• Materials available at: https://icer-review.org/topic/opioids-digital-apps/
Adjourn