Automated telephone-based CBT to support opioid recovery in methadone maintenance patients

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Funded by
NIDA K01-DA022398
NIDA R01 – DA 034678
Use of prescription opioids has increased substantially in the past 20 years.

First time use has increased from 600,000 in 1990 to more than 2.5 million in 2010.

Dependence has almost tripled since 2000 with approximately 2 million persons dependent on heroin or prescription opioids.
Methods to Improve Opioid Dependence Treatment

- Expanding opioid agonist options
  - Methadone and Buprenorphine
  - Expanded settings – Primary Care
- Improving opioid agonist treatment
  - Evaluating behavioral interventions
  - Evaluating sub-populations that may require increased care
  - Developing and evaluating automated treatments
Alternative Models of Behavioral Treatments

- Distance counseling – telephone, web-based, IM, email
- Traditional self-help – bibliotherapy
- Automated treatment
  - Stand-alone
  - Traditional web-based
  - Mobile-based
    - Telephone or IVR systems
    - Text systems
    - Mobile internet
Internet and cell-phone use in opioid-dependent treatment seekers

• Technology use screening questions
  – As part of screening for buprenorphine/naloxone treatment.
  – 236 consecutive screenings from 2008-09
  – 64% had regular internet access available
  – 79% had regular cell phone access

• Methadone patients had less internet access
Therapeutic Interactive Voice Response (TIVR)

- Low Cost – Centralized system
- Mobile - highly flexibility and convenient
  - Available 24 hours/day
  - Available for any phone anywhere
  - In patient’s natural environment. Can be used to intervene before use or relapse
- High accessibility – rural, remote and places with low access to treatment or few trained providers.
- Low “high tech” –
  - More secure and less open to attacks than web or mobile web systems
- Easy to adapt and change content based on feedback and updates in the science
Development Procedures

Generation and Editing

Initial Generation based on CBT manuals

- Review from Plain Language
- Methadone system adapted and reedited for content and format

Counselor Acceptability and Feasibility
Qualitative and Quantitative data for system modification

- Buprenorphine CBT Counselors
- Methadone Counselors

Experienced Patient Acceptability and Feasibility
Qualitative and Quantitative data for system modification

- Buprenorphine Patient Single session review then 1 week access
- Experienced Methadone Patients 1 week access

Criteria of 50% ratings of 4 or 5 (5 pt) for interest, helpfulness and ease of use*

- Iterative Editing and Testing to Criteria

New Patients - Randomized Pilot
Outcomes - Coping Skills, Retention

- Buprenorphine Patients Starting Treatment
- New Methadone Patients
Acceptability and Feasibility Criteria

- **Acceptability**
  - On a 5 point Likert scale 1-5, 50% of ratings of 4 or 5
    - Interest
    - Helpfulness
    - Ease of Use

- **Feasibility for 7 day access**
  - Majority (> 50%) of patients >30 minutes of system contact time
  - Majority (> 50%) of patients call on more than 50% of days
System Modifications

- No machine-generated voices
- Brief modules (5-10 minutes)
- Patient driven rather than “session driven”
- Activities and skills practice
- Keep language simple/plain not “dumbed down”
- Interactive and engaging
- Encouragement
The Recovery Line for Methadone

Secure Log in

Introduction for First Time Callers

3 daily questions

Patient Services

- Assessments
- Daily Questionnaire

Learning

Understanding your patterns

- Recognizing Triggers
  - People, Places and Things
- Dealing with Withdrawal and Craving
  - Going with the Feeling
  - Do Something Else
  - Mindfulness
- Dealing with Stress or Negative Feelings
  - Muscle Relaxation
  - Deep Breathing
  - Mental Imagery

Activities

Scenarios and Role Plays

- Simple scenario
- Scenario with Choices
- Self Role Plays

Encouragement Section

- Speeches and Talks
- Music
- Laughter and Jokes

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Learning Modules

- Didactic presentations.
- Role-plays present scenarios in 3 layers of increasing interactivity ("Learn, Choose, Do").
- Presented example scenarios
  - “Learn” - the correct response is provided
  - “Choose” Selected between multiple choice options,
  - “Do” - recorded, played back and rated their own response.
  - Patients received positive feedback for correct responses, and corrective feedback and suggestions for improving responses for incorrect responses.
Activity Modules

- Direct guidance in using coping skills
  - Urge Surfing
  - Relaxation exercises
  - Mindfulness examples
  - Distraction activities
    - Distraction alternatives
    - Stretching and physical exercise
  - Encouragement modules
Patient Feasibility Testing

Patients currently prescribed opioid agonist medication were provided access to the Recovery Line for 7 days and asked to call daily.

- 19 Buprenorphine patients

Results:

Feasibility criteria met.

- 84% > 30 minutes contact time
  - Mean = 76 minutes
- Mean number of calls = 5.1
- 80% called more than 50% of days
- Mean call length = 10.5 minutes

- 12 Methadone patients

Results:

Feasibility criteria met.

- 100% > 30 minutes contact time
  - Mean = 82 minutes
- Mean number of calls = 7.2
- 92% called more than 50% of days
- Mean call length = 12.2 minutes
Randomized Pilot for Methadone

- 4 weeks
- Recovery Line Access + Treatment as Usual ($n = 18$)
- or Treatment as Usual ($n = 18$)

Inclusion Criteria:
- Currently prescribed methadone
- Used illicit drugs in the past 30 days (as evidenced by urine toxicology and/or self report)
- 18+ years old
- Can understand and read English

Exclusion Criteria:
- Current suicide or homicide risk
- Meets DSM-IV diagnosis for bipolar or psychotic disorder
- Medical complications that preclude participation
Recovery Line Use

- 14.2 calls (sd = 11.6) on 9.9 days (sd = 6.0) of 28
- 121.9 total minutes (sd = 84.3)
- Most calls were brief (M=9.3 minutes, SD=3.2)
- Most calls were outside clinic hours (58%)
- All patients (100%) accessed self-monitoring modules, 89% (16/18) accessed coping with urges and cravings modules, 78% (14/18) accessed identifying/avoiding risky situations, and 89% (16/18) accessed managing moods and stress modules.
- Of 46 modules for which patients provided in-call ratings, 57% were rating 4 or 5 (M=3.6, SD=1.4).
But do they really use it?

- 83% (15) reported drug use on one or more calls, and 50% (9) reported use on 4 or more calls.
- Drug use was reported for 32% of calls (74 of 224).
- Compared to calls in which patients denied drug use, those in which patients reported use were longer (p=.05; 10.8 vs. 8.8 min), and more likely to occur during hours their methadone clinic was closed (p=.001), but did not differ on the time since the patient last called the RL (p=.13).
- On calls that reported drug use, callers were more likely to access modules related to understanding drug use patterns and dealing with withdrawal and cravings (p’s<.001).
Summary of Outcome Findings

• High treatment satisfaction in both conditions.
• No significant differences in urine screen results.
• Similar utilization of other treatment services.
• No significant differences in retention.

• Fewer self-reported days of cocaine use of RL+TAU.
• Effectiveness of Coping Behaviors Inventory scores significantly correlated with days of cocaine use.
• Patients were more likely to report abstinence on days they used the Recovery Line.
• Ratings of acceptability and perceived efficacy were moderately high.
Do system functions increase engagement and use?

- Customized Therapeutic Recommendations
  - Is personalization or customization effective?
  - what types and how much?
  - 2 week trial of customized recommendations
    - System use and acceptability

- System Reminders
  - Message content
  - Reminder latency
  - 4 week trial
Implementation/Scaling

- Do systems need to be customized for different settings?
- What affects effectiveness?
  - Structural/organizational Level
    - Organizational readiness, communication, climate, culture, rewards, etc.
    - costs
  - Patient Level
    - Technology beliefs, comfort, access, costs
    - self-efficacy
    - Relationship with organization, trust
  - Process
    - Engaging – Champions, opinion leaders
    - Evaluation and modification
Recovery Line and MyRecoveryHelp Mobile Web Test Access

- (872) 216-2992
  - 12345
  - 111
- [www.myrecoveryhelp.com](http://www.myrecoveryhelp.com)
  - 100100
  - pwd123
Acknowledgements

- Bruce Rounsaville, M.D.
- Richard Schottenfeld, M.D.
- David Fiellin, M.D.
- Declan Barry, Ph.D.
- Samuel Ball, Ph.D.
- Tera Fazzino, M.A.
- Brian Garnet, M.D.
- The APT Foundation
- MRU staff and all our RA’s
- John Helzer, M.D. – University of Vermont
- Warren Bickel, Ph.D. – University of Arkansas
- All our patients!
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