

Development of Automated, Mobile Treatment Systems for Opioid Dependence

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Type and Context of Opioid Agonist Treatment

- Traditional Methadone Clinics
- Buprenorphine in Primary Care Settings

Obstacles to traditional behavioral treatments

- Costs
- Training and supervision of counseling
- Staff interest and training
- Space – availability and scheduling
- Coordination with off-site counseling
- Patient conflicts – travel distance, employment schedule, child care, etc.

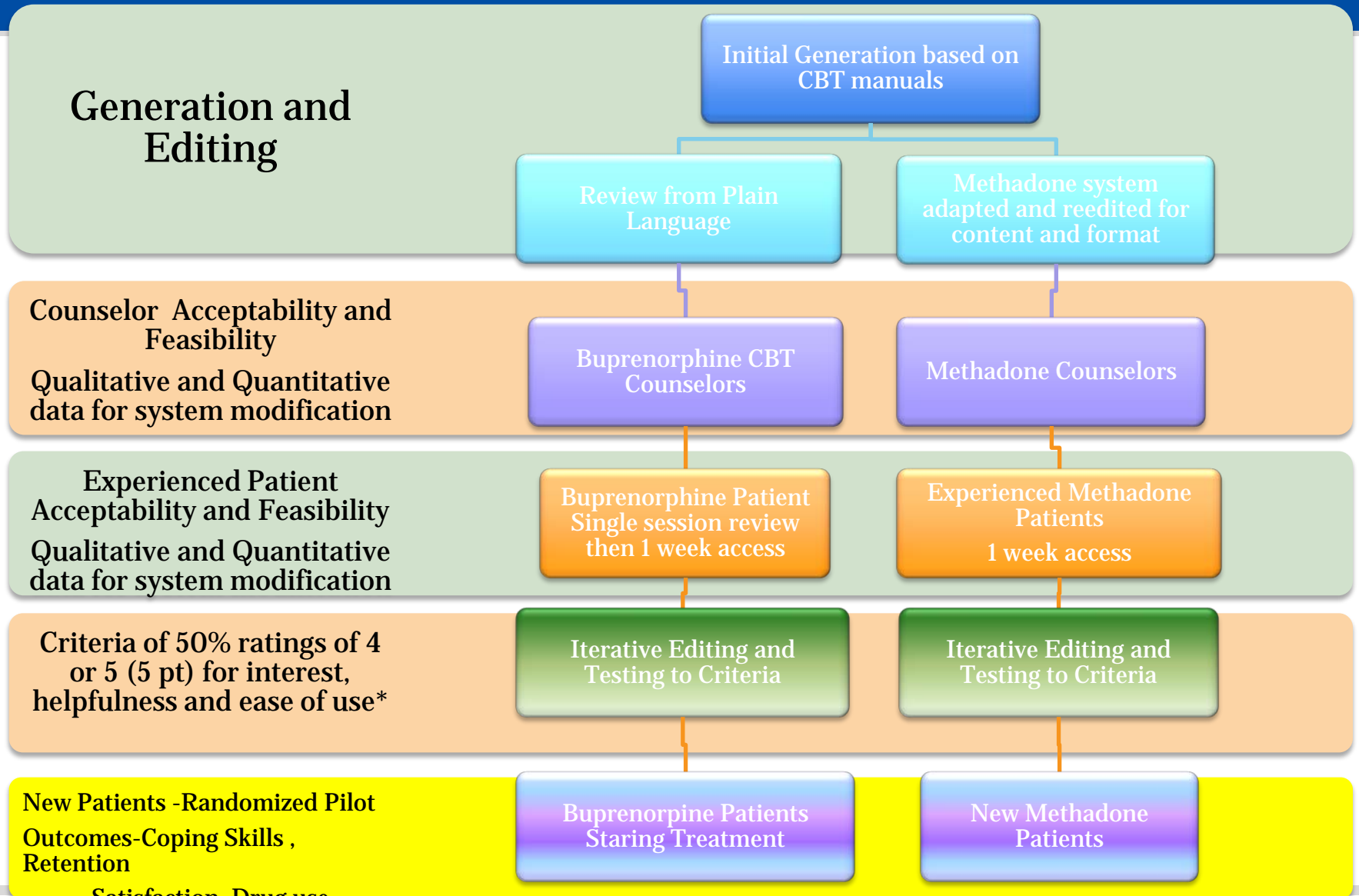
Advantages of Automated Mobile Treatments

- Offers potential for many therapeutic interactions
- In-situ - Potential for immediate intervention when needed
- High confidentiality
- Low cost
- Consistent presentation
- Increased availability of treatment for rural and remote settings

Therapeutic Interactive Voice Response (TIVR)

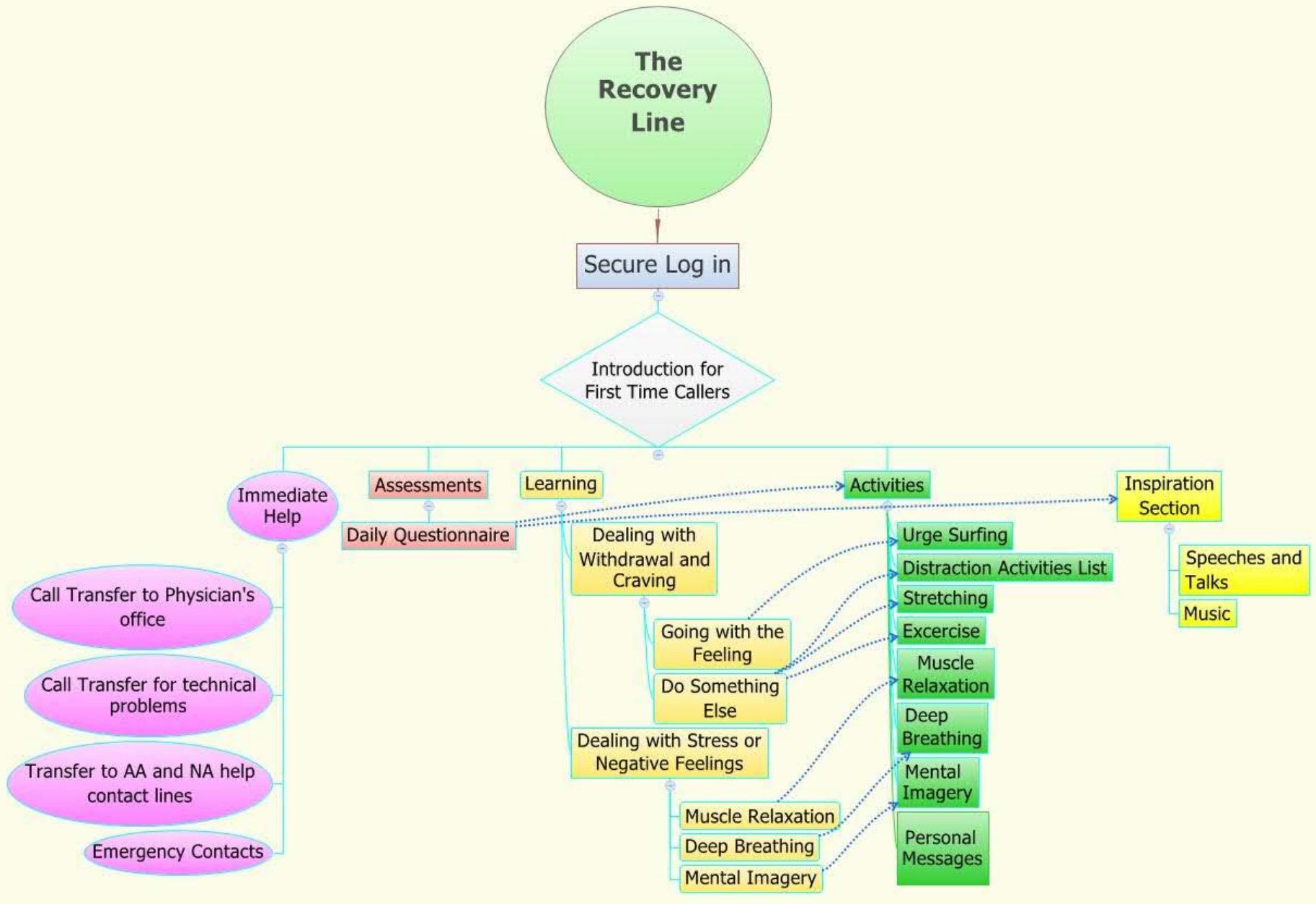
- Low Cost – Centralized system
- Mobile - highly flexibility and convenient
 - Available 24 hours/day
 - Available for any phone anywhere
 - In patient’s natural environment. Can be used to intervene before use or relapse
- High accessibility – rural, remote and places with low access to treatment or 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



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



Substance Abuse Counselors

Reviewed the system and provided feedback regarding system acceptability and system content.

Buprenorphine:

- CBT therapists experienced in treating patients with opioid dependence
- N= 6

Results:

Acceptability criteria met.

- Interest, 83% 4 or 5, M= 4.1, Median= 4.0
- Helpfulness, 67% 4 or 5, M= 3.8, Median= 4.0
- Ease of Use, 100% 4 or 5, M=4.3, Median= 4.0

Methadone:

- Clinic methadone counselors experienced in treating patients in methadone maintenance
- N=9

Results:

Acceptability criteria met.

- Interest, 86% 4 or 5, M= 4.0, Median 4.0
- Helpfulness, 86% 4 or 5, M = 4.0, Median 4.0
- Ease of Use, 86% 4 or 5, , Mean = 4.4, Median 5.0

Patient Acceptability Testing

Patients currently prescribed buprenorphine or methadone reviewed the system and provided feedback regarding acceptability and system content.

Buprenorphine:

N= 16 patients

Methadone :

N= 12 patients

Acceptability criteria met.

- Interest, 69% 4 or 5, M = 3.8, SD=1.1
- Helpfulness, 81% 4 or 5, M =4.2, SD=0.8
- Ease of system use, 89% 4 or 5, M =4.4, SD=1.2

Acceptability criteria met.

- Interest, 67% 4 or 5, M = 3.8, SD=1.4
- Helpfulness, 50% 4 or 5, M =3.6, SD=1.2
- Ease of system use, 92% 4 or 5, M =4.4, SD=0.9

System Modifications

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

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

Post-Feasibility Testing Modifications

Buprenorphine System Edits

- Information About Buprenorphine Module
- 3 Daily Questions
- Level 2
 - Expanded sections and enhanced features (record a message section, encouragement)
 - Understanding Patterns to Use and Mindfulness Modules
- Menus divided for more clear presentation of options

Methadone System Edits:

- Addition of an Information About Methadone Module
- 3 Daily Questions
- Increased variety in voices (gender, ethnicity) recorded in modules
- Updated clinic information
- Removed Mindfulness With A Spoon Activity
- Understanding Patterns to Use and Mindfulness Modules

Randomized Pilot for BUP and Methadone

- 4 weeks
- Recovery Line Access + Treatment as Usual (n = 16)
- or Treatment as Usual (n = 17)

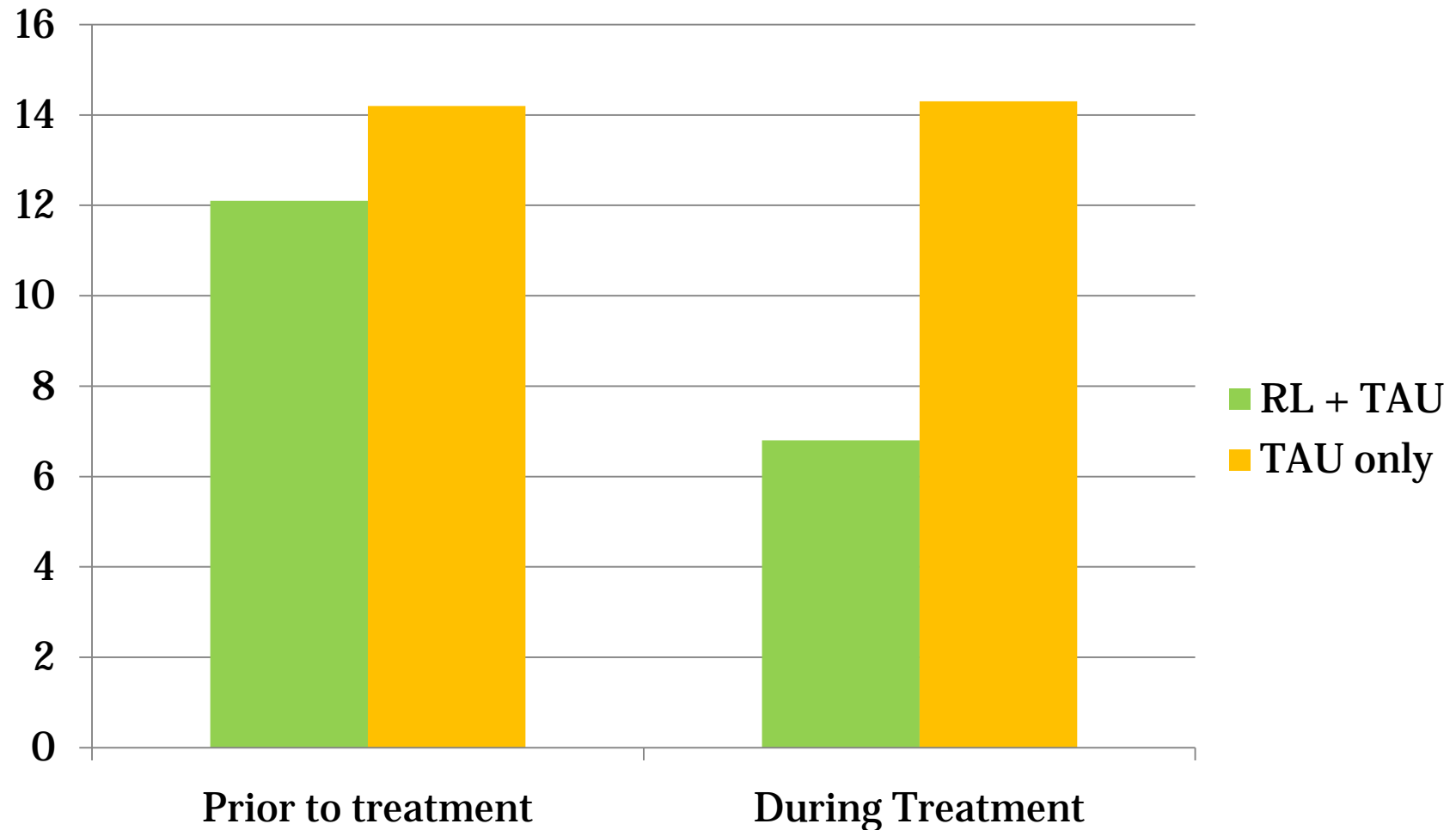
Inclusion Criteria:

- Currently prescribed methadone or buprenorphine
- 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:

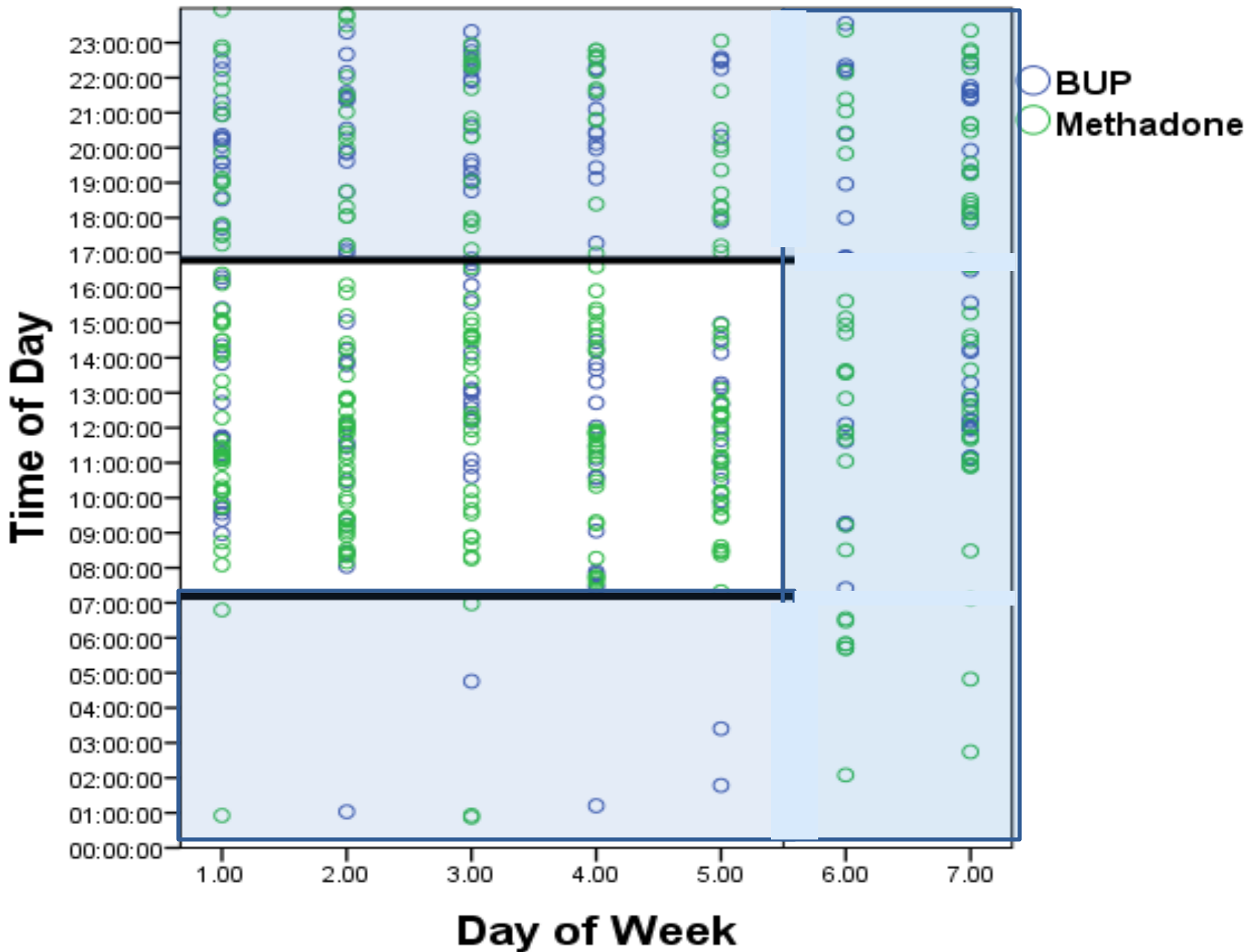
- Current suicide or homicide risk
- Meets DSM-IV diagnosis for bipolar or psychotic disorder
- Medical complications that preclude participation

Days of Self-Reported Drug Use, $p = .05$



Outcomes

- Urine Toxicology Screens
- Percent abstinence from all tested drugs, $p = .19$
 - RL + TAU - 48.8 (SD = 46.4) TAU = 27.9 (SD = 40.4)
- Number of drugs with positive tests each week, $p = .16$
 - RL + TAU - 0.79(SD = 0.76) TAU = 1.18 (SD = 0.76)
- Situational Confidence in Avoiding Use(of 100%), $p = .40$
 - RL + TAU – 59.7 to 67.4 TAU – 58.1 to 59.0
- 5 patients reported that they called the Recovery Line instead of using.



Call Details

- Mean calls per week= 4.5
- Mean call length= 9 minutes
- Mean total system contact= 194 minutes (30 to 337)

- Of 200 calls based on 16 patients
 - 25% (n = 50) reported using drugs since their last call.
 - 40% used urge surfing
 - 44% used recognizing triggers

Conclusion

- The Recovery Line for opioid dependent patients is acceptable and feasible for both buprenorphine and methadone patients
- Preliminary outcome findings are promising, though effect sizes may be smaller
- Low cost (~\$10-20/patient/month) suggests the Recovery Line may be a cost effective means of providing ancillary treatment

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