Using Text Messaging to Reduce Methamphetamine Use and Sexual Risk Behaviors, and Increase ART Adherence among MSM

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Friends Research Institute, Inc.
UCLA Integrated Substance Abuse Programs, Semel Institute for Neuroscience and Human Behavior

Acknowledgements

Steve Shoptaw, Ph.D.
Dallas Swendeman, Ph.D.
Deborah Ling Grant, M.B.A., M.P.H.
Jesse B. Fletcher, Ph.D.
Gordon Mansergh, Ph.D.

This work has been generously supported by:
CDC grant #UR6PS000312
and NIDA grant #1 R01 DA035092
Study 1:

CDC funded

Reducing Methamphetamine Use and HIV Sex-risk behaviors in Out-of-Treatment MSM

Lay title: Project Tech Support

2006 - 2009
Study Aims

- To conduct formative work to development of a real time, text messaging intervention for reducing methamphetamine use and high-risk sexual behaviors among out-of-treatment MSM;

- To assess the feasibility and utility of the intervention with the target population;

- Implement the two-week text messaging intervention to transmit real-time electronic correspondence;

- The aims of the two-week intervention were to:
  - impact upon at least one methamphetamine-using episode;
  - impact upon at least one sexual episode; and
  - provide culturally appropriate referral(s) for ongoing services
Eligibility

- Engaged in unprotected anal sex with a non-primary male partner in the previous 2 months;
- Used methamphetamine once in the previous 2 months;
- Not currently in or seeking drug treatment;
- NOT learned of his positive HIV serostatus for the first time in the previous 6 months;
- Between the ages of 18 and 65;
- A current resident of Los Angeles County;
- Does not have a plan to move away from Los Angeles County in the next 5 months.
If you’re a GAY or BI MAN who uses METH, and you are between 18 – 65 years old, you may be eligible to participate in a research study and receive HIV information, social support and referrals via TEXT MESSAGES.

Participation is 2 weeks and 1 follow up.

We’ll give you a Motorola T900 2-way text pager with 3 months airtime and you may earn up to $75 cash. For more information call Terrence at 323-463-1601.
400 Pre-written Messages Based on a Theoretical Background

- Each pre-written text message was framed within a theoretical perspective:
  - Social support theory
  - Health belief model
  - Social cognitive theory

- Text messages were based on participant’s risk profile:
  - HIV status
  - Frequency of methamphetamine use
  - Method of administration
  - Meth/sex location
  - Sexual positioning
  - Stages of change regarding methamphetamine use
<table>
<thead>
<tr>
<th></th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 pm</td>
<td>12:00 pm</td>
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<td>12:00 pm</td>
<td>3:30 pm</td>
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<td>12:00 am</td>
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<td></td>
<td>8:00 pm</td>
<td>8:00 pm</td>
<td>1:00 am</td>
<td>1:00 am</td>
<td>2:00 am</td>
<td>2:00 am</td>
<td></td>
</tr>
</tbody>
</table>
### Sample Text Messages

<table>
<thead>
<tr>
<th>Social Support</th>
<th>Informational Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Did he give you a bug? Here’s where to go.”</td>
</tr>
<tr>
<td></td>
<td>“Take care of your body, get vaccinated for hep A and B.”</td>
</tr>
<tr>
<td></td>
<td><strong>Emotional Support</strong></td>
</tr>
<tr>
<td></td>
<td>“Screw your partner, not your life.”</td>
</tr>
<tr>
<td></td>
<td>“You’re worth a new needle.”</td>
</tr>
<tr>
<td></td>
<td><strong>Instrumental Support</strong></td>
</tr>
<tr>
<td></td>
<td>“Meth brings you down, meds bring you up.”</td>
</tr>
<tr>
<td></td>
<td>“Pack your socks with condoms and lube.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Belief</th>
<th>Health Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Is that precum or do you have a STD drip?”</td>
</tr>
<tr>
<td></td>
<td>“Meth can take your teeth.”</td>
</tr>
<tr>
<td></td>
<td><strong>Health Behaviors to Reduce Risk</strong></td>
</tr>
<tr>
<td></td>
<td>“Dip it, don’t stick it.”</td>
</tr>
<tr>
<td></td>
<td>“Inject clean, an abscess is a hot mess.”</td>
</tr>
<tr>
<td></td>
<td><strong>Awareness of Health Risks</strong></td>
</tr>
<tr>
<td></td>
<td>“50% of men with Chlamydia have no symptoms.”</td>
</tr>
<tr>
<td></td>
<td>“Using meth in public can be risky.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Cognition</th>
<th>Self-regulation Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Weekends getting longer and longer?”</td>
</tr>
<tr>
<td></td>
<td>“Don’t have an open sores relationship.”</td>
</tr>
<tr>
<td></td>
<td><strong>Self-Efficacy</strong></td>
</tr>
<tr>
<td></td>
<td>“Say 1st thing your poz, like you did last time. You can do it.”</td>
</tr>
<tr>
<td></td>
<td>“You can take your meds, even when you party.”</td>
</tr>
</tbody>
</table>
Pre-programmed Referral List
Sample Text-message Conversations…
I want sex bad
U can get it & keep it safe
How do I tell him?
Have a condom ready
What if he says no?
Is he worth it? There’s always another guy.
Hi, where R U?
I'm at the bathhouse just met a hot guy
What R U planning?
Gonna top him raw, that's safe right?
No, still risky 4 HIV and STIs
How’s the hunt?
Lot a guys wanna PNP 2nite
U can find guys who don’t
But not as much fun
Peace of mind is hot, 2
Yeah, I’m worth it
Hi, how’s ur nite?
G8, ran in2 old f-buddy, gonna hook up
Have U talked status?
No, that’ll end it
If ur safe U don’t need to know
Recruitment: Advertisement, Outreach, In-Services

Eligibility/Final Screen (N = 55)
- UAI with non-primary partner, previous 2 months
- Meth use, previous 2 months
- Out of treatment, not seeking treatment
- Not learned HIV+, previous 6 months

Baseline (N = 52)
- ACASI
- HIV test
- Urine drug screen
- $25 incentive

Daily Delivery (2 weeks)
- Engagement
- Research
- Interventionists
- 400 Prewritten

2-Month Follow-Up
- ACASI
- Urine Drug Screen
- $50 incentive
- 48/50 (96%)

Ineligible; Tested HIV+ at screen (n = 3)

Risk Areas Screened to Tailor Text
1. General
2. HIV status
3. Frequency of use
4. Method of Administration
5. Drug/sex location
6. Sexual positioning
7. Stages of change regarding meth use

Withdrawn by P.I. (n = 2)

Overview of Design and Study Progress
**Text Messaging System**

**Theoretical Constructs**
- Social Support Theory
- Informational Support
- Emotional Support
- Instrumental Support
- Health Belief Model
- Health Threat
- Health Behavior to Reduce Threat
- Awareness of Health Risk
- Social Cognition Theory
- Self-regulation Skills
- Self-efficacy

**Risk Areas**
1. General
2. HIV status
3. Frequency of use
4. Method of Administration
5. Drug/sex location
6. Sexual positioning
7. Stages of change regarding meth use

**Engagement Research Interventionists**

**Delivery Plan**
- Daily for 2 weeks, tailored to response over time
- Within 30 minutes – welcome message

*Fully Engaged (n = 38)*
- Limited responders (n = 10)
- Non-responders (n = 2)

- Maximum or 20 messages sent per conversation;
- 4 conversations per day

*Days 1-3*
- 3 messages

*Days 4-6*
- 2 messages

*Days 7-14*
- 1 message

Weekly follow-up reminder
<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td>Hispanic/Latino</td>
<td>20</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>Caucasian/white</td>
<td>18</td>
<td>34.6</td>
</tr>
<tr>
<td></td>
<td>African American/black</td>
<td>11</td>
<td>21.1</td>
</tr>
<tr>
<td></td>
<td>Other/Multiethnic</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td>HIV Status</td>
<td>HIV+</td>
<td>31</td>
<td>59.6</td>
</tr>
<tr>
<td></td>
<td>HIV-</td>
<td>21</td>
<td>40.4</td>
</tr>
<tr>
<td>Age</td>
<td>Mean (SD)</td>
<td>36.5 yrs (SD=8.86)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>22 to 61 years</td>
<td></td>
</tr>
<tr>
<td>Employment Status</td>
<td>Full time</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Part time</td>
<td>11</td>
<td>21.1</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>38</td>
<td>73.1</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>&lt; High School</td>
<td>7</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>H.S./GED/some college</td>
<td>13</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>&gt; High School</td>
<td>32</td>
<td>61.5</td>
</tr>
<tr>
<td>Homeless, past 12 mo.</td>
<td>Yes</td>
<td>15</td>
<td>28.9</td>
</tr>
</tbody>
</table>
Alcohol and Drug Use, Previous 2 Months

* p < .05; ** p < .01; *** p < .001
## Methamphetamine Use Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Baseline</th>
<th>Follow-up</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injected Methamphetamine in Previous 2 Months (N = 48)</td>
<td>10 20.8%</td>
<td>4  8.3%</td>
<td>*</td>
</tr>
<tr>
<td>Stopped Having Unprotected Sex while on Methamphetamine (N = 43)</td>
<td>9  20.9%</td>
<td>19  44.2%</td>
<td>**</td>
</tr>
<tr>
<td>Stopped Using Methamphetamine (N = 45)</td>
<td>6  13.3%</td>
<td>22  48.9%</td>
<td>***</td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; *** p < .001
Length of Time Since Last Used Methamphetamine

Omnibus T-Test
Mean at Baseline = 0.6 (0.58)
Mean at Follow-Up = 1.04 (0.9)
Mean Diff = 0.44**

* p < .05; ** p < .01; *** p < .001
## Any Anal Intercourse (top or bottom), Previous 2 Months

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td># Male Partners</td>
<td>1 to 55</td>
<td>0 to 40</td>
</tr>
<tr>
<td>Range</td>
<td><strong>8.4 men (10.3)</strong></td>
<td><strong>3.6 men (7.8)</strong></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td><strong>8.4 men (10.3)</strong></td>
<td><strong>3.6 men (7.8)</strong></td>
</tr>
</tbody>
</table>

*p < .05; ** p < .01; *** p < .001*
Exchange Sex in the Previous 2 Months

- Yes: 34.6%
- No: 87.5%

* p < .05; ** p < .01; *** p < .001
# Unprotected Sex with Primary and Non-Primary Partners

## Primary Partners (N = 38)

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (SD)</th>
<th>Follow-Up Mean (SD)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Times as &quot;Top&quot;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>... while on Alcohol</td>
<td>1.63 (5.91)</td>
<td>.66 (2.13)</td>
<td>-</td>
</tr>
<tr>
<td>... while on Drugs</td>
<td>2.42 (7.02)</td>
<td>.97 (3.06)</td>
<td>†</td>
</tr>
<tr>
<td><strong># of Times as &quot;Bottom&quot;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>... while on Alcohol</td>
<td>1.14 (3.74)</td>
<td>.62 (2.59)</td>
<td>-</td>
</tr>
<tr>
<td>... while on Drugs</td>
<td>1.54 (4.43)</td>
<td>.65 (2.55)</td>
<td>†</td>
</tr>
</tbody>
</table>

## Non-Primary Partners (N = 48)

<table>
<thead>
<tr>
<th></th>
<th>Baseline Mean (SD)</th>
<th>Follow-Up Mean (SD)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Times as &quot;Top&quot;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>... while on Alcohol</td>
<td>2.04 (4.49)</td>
<td>.72 (2.03)</td>
<td>*</td>
</tr>
<tr>
<td>... while on Drugs</td>
<td>3.4 (5.14)</td>
<td>1.64 (3.6)</td>
<td>**</td>
</tr>
<tr>
<td><strong># of Times as &quot;Bottom&quot;</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>... while on Alcohol</td>
<td>2.4 (4.95)</td>
<td>.58 (1.74)</td>
<td>**</td>
</tr>
<tr>
<td>... while on Drugs</td>
<td>4.1 (6.84)</td>
<td>1 (2.31)</td>
<td>**</td>
</tr>
</tbody>
</table>

† p < .1; * p < .05; ** p < .01; *** p < .001
Conclusions

- The use of text messaging intervention for methamphetamine-using MSM appears to be feasible and acceptable as a HIV prevention strategy.

- Significant reductions in methamphetamine (and other drug) use, frequency of use, and high-risk behaviors:
  - Significant reductions in injection use and use during sex, two very high-risk behaviors for HIV transmission.

- Significant increase in time interval between methamphetamine use.

- Significantly fewer high-risk sexual encounters as well as exchange partners:
  - Significant reductions in unprotected anal intercourse with non-primary partners

- Randomized controlled trial is needed to determine the efficacy, cost effectiveness, and sustainability of the intervention.
Study 2:

NIDA funded

Theory-based Text Messaging to Reduce Methamphetamine Use and HIV Risks among MSM

Lay title: Project Tech Support

2013 - 2017
Project Tech Support RCT Study Design

Out-of-treatment, Methamphetamine-using MSM (N=285) → Ineligible; Receive Referrals

Informed Consent → Baseline Assessment → Randomization

TXT-PHE “push & pull” (n=95) → 8-week Text-messaging Intervention → During 8-week Intervention Weekly TXT Assessments: Methamphetamine Use, HIV Sexual Risk Behaviors → 8-week, 3-, 6-, 9-month Post-randomization Follow-up

TXT-Auto “push only” (n=95)

Attentional Control (n=95)
Study Aims

- Determine differential immediate and sustained effects of transmitting theory-based text messages by PHE (TXT-PHE) versus by automation (TXT-Auto), compared to an assessment-only (AO) control condition among out-of-treatment, methamphetamine-using MSM for reductions of methamphetamine use and HIV sexual risk behaviors;

- Determine the cost-effectiveness of TXT-PHE vs. TXT-Auto compared to AO for reducing methamphetamine use and HIV sexual risk behaviors;

- Estimate the main effects of each theoretical construct by testing associations between intervention outcomes and relative exposure to each theoretical construct; and,

- Determine the impact of TXT-PHE versus TXT-Auto as compared to AO to increase linkages/adherence to, and retention in, HIV primary care for HIV-positive participants.
Text Messaging Intervention
Arm A

- Each participant receives 5 messages/day

- Each participant receives 280 text messages during the 8 week intervention
  - 5 daily messages x 7 days/week x 8 weeks = 280 messages

- Of the 5 messages/day, participants receive 1 message/day/risk profile + general messages
  - 1 message/day/risk profile x 7 days/week x 8 weeks = 56 messages/risk profile

- Total of 616 pre-written text messages
  - 56 messages per risk profile X 6 risk profiles = 336 messages
  - 280 general meth/sex messages
  - 336 risk profile specific messages + 280 general messages = 616 total pre-written messages

- Same text-messaging intervention as pilot study

- Weekly brief text assessment
Text Messaging Intervention
Arm B

- Each participant receives 5 messages/day
- Each participant receives 280 text messages during the 8 week intervention
  - 5 daily messages x 7 days/week x 8 weeks = 280 messages
- Of the 5 messages/day, participants receive 1 message/day/risk profile + general messages
  - 1 message/day/risk profile x 7 days/week x 8 weeks = 56 messages/risk profile
- Total of 616 pre-written text messages
  - 56 messages per risk profile X 6 risk profiles = 336 messages
  - 280 general meth/sex messages
  - 336 risk profile specific messages + 280 general messages = 616 total pre-written messages
- Same text-messaging intervention as pilot study
- Weekly brief text assessment
Text Messaging Intervention
Arm C

- Each participant receives 5 messages/day.
- Each participant receives 280 text messages during the 8-week intervention.
  - 5 daily messages x 7 days/week x 8 weeks = 280 messages.
- Of the 5 messages/day, participants receive 1 message/day/risk profile + general messages.
  - 1 message/day/risk profile x 7 days/week x 8 weeks = 56 messages/risk profile.
- Total of 616 pre-written text messages:
  - 56 messages per risk profile x 6 risk profiles = 336 messages.
  - 280 general meth/sex messages.
  - 336 risk profile specific messages + 280 general messages = 616 total pre-written messages.
- Same text-messaging intervention as pilot study.
- Weekly brief text assessment.
Slightly Modified Project Tech Support Flyer

If you’re a gay or bisexual man who uses meth, and you are between 18-65 years old, you may be eligible to participate in an 8-week text-messaging research study. Participants will be randomized to 1 of 3 study conditions. Participation also includes an initial assessment, brief monthly updates, and 4 follow-up assessments all at the study site in Hollywood. You may earn up to $310 in gift cards. For more information call or text 323-793-4174.

www.projecttechsupport.org

Friends Community Center • 1419 N. La Brea • Los Angeles 90028
A project of Friends Research Institute in collaboration with UCLA Center for HIV Identification, Prevention and Treatment Services. Funded by the National Institute on Drug Abuse.
Estimated enrollment to start mid-February 2014
Overall Summary

- Given the advances in mHealth, it is no longer necessary to limit prevention or treatment intervention options to physical, brick-and-mortar sites.

- mHealth interventions are poised to capture the paradigm shift in behavioral health services delivery.

- mHealth interventions provide a prevention or treatment opportunity that is easily accessible, culturally competent, and private.
Thank you.

reback@friendsresearch.org