The Science of Behavior Change and Intervention Implementation in Alcohol-HIV Research

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Where we have been...

In this bright future you can't forget your past.

(Bob Marley)
U24 AA022003
Mechanisms of Behavior Change Resource Core for Alcohol-HIV Interventions

PI: Christopher Kahler
Co-Investigators: Howe, Laws, Magill, Mastroleo, Monti, Wilson
External: Fiellin (Yale), McCaul (Hopkins), Saag (UAB), Bryant (NIAAA)
Primary Objective

Objective 1: To conduct state-of-the-art, integrative, and clinically impactful research on mechanisms of behavior change in alcohol interventions among PLWH and those at high risk for HIV infection.
Methods

• Motivational Interviewing Skills Code (MISC 2.0)
  • Developed for coding language in MI
  • Code provider behavior as MI-consistent or MI-inconsistent
  • Codes pt. language as change or sustain talk

• Generalized Behavioral Intervention Analysis System (GBIAS)
  • Used to code non MI-specific elements of clinical encounters
  • Used for parsing topics in a clinical interaction and tracking how they are addressed
## Participating Trials - Targets

<table>
<thead>
<tr>
<th>Study</th>
<th>Setting</th>
<th>Particip.</th>
<th>Provider type</th>
<th>MI Used?</th>
<th>ETOH</th>
<th>Sex Risk</th>
<th>ART Adh.</th>
<th>Alc Phar.</th>
<th>HIV test</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFER</td>
<td>Emerg. Dept.</td>
<td>Uninfect.</td>
<td>Paraprofess</td>
<td>Yes</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>ReACH</td>
<td>HIV Clinic</td>
<td>Infected</td>
<td>Paraprofess</td>
<td>Yes</td>
<td>Y</td>
<td>Y*</td>
<td>Y*</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>DAWN</td>
<td>HIV Clinic</td>
<td>Infected</td>
<td>Medical provider</td>
<td>No</td>
<td>Y*</td>
<td>Y*</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>STEPS</td>
<td>HIV Clinic</td>
<td>Infected</td>
<td>Social w., Psychol.</td>
<td>No Yes</td>
<td>Y</td>
<td>N</td>
<td>Y*</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>
Sex-Risk and Alcohol Feedback in the Emergency Room

PI: Monti; Co-Investigators: Barnett, Colby, Kahler, Mastroleo, & Operario
Topics of CT vs ST: TBO = Alcohol

Alcohol Discussion - Change Talk
- Cons of TB: Change 0.4%
- Pros of TB: Change 7.1%
- Change Planning: 21.6%
- Patterns: 14.3%
- Barriers/Fac.: 4.1%
- Pros of TB: 3.7%

Alcohol Discussion - Sustain Talk
- Cons of TB: Change 0.5%
- Pros of TB: Change 1.4%
- Change Planning: 6.4%
- Patterns: 20.5%
- Pros of TB: 20.0%
- Barriers/Fac.: 6.6%
Topics of CT vs ST: TBO = Sex Risk

Sex Risk Discussion - Change Talk

- Pros of TB Change: 13.1%
- Cons of TB Change: 1.7%
- Patterns: 30.7%
- Change Planning: 23.4%
- Barriers/Fac.: 1.7%

Sex Risk Discussion - Sustain Talk

- Cons of TB Change: 15.6%
- Change Planning: 9.0%
- Patterns: 36.5%
- Pros of TB Change: 2.6%
- Barriers/Fac.: 4.0%
- Pros of TB: 4.8%
- Pros of TB: 27.4%
Advantages

• Reliably code behavior change discussion
• Complementary information with the MISC
• Tracking of multiple TBs in a given intervention
• Future qualitative analysis
  – Classify barriers to change
  – Examine difference in pros of TB change
• Coding allows future analysis of the goals discussed: e.g., abstinence vs. moderation
Next Directions

• Predictive modeling using “big data” to determine language most predictive of change: 200,000 utterances*6 coded properties*3 decimals

• Sequential analysis to determine how counselor behaviors impact patient language

• Use of machine learning approaches to develop “smarter” computerized systems that can code counseling for fidelity and respond to spoken language
Where we are headed next...

I like the dreams of the future better than the history of the past.

Thomas Jefferson
U24 AA022003

Behavioral Science and Biostatistics Resource Core for Alcohol-HIV Research

PI: Christopher Kahler

Co-Investigators: Barnett, Howe, Laws, Magill, Mastroleo, Monti, Cook, Brumback, Chen
Contingency Management

• Creates particularly robust change in behavior
• Difficult to employ for alcohol use
• Continuous monitoring now possible with wearable remote sensors

• Objective 1 – CM Implementation: To provide expertise in Contingency Management procedures and in the use of the SCRAM Continuous Alcohol Monitor biosensor
Motivational Interviewing

• We and others have shown MI outperforms brief advice for alcohol use and sex risk reduction, including in HIV+ MSM.

• Requires training and ongoing supervision to maintain competence. Must include HIV training.

• Videoconferencing is a scalable delivery mode.

• Objective 2 – MI implementation: To train and supervise staff on the implementation of an evidence-based MI to reduce alcohol use using high definition videoconferencing (vMI).
Mechanisms of Behavior Change

- Further coding will add to our “big data” on behavior change discussions
- Provide valuable data on adherence/competence
- **Objective 3 (Mechanisms of behavior change):**
  - Examine how CM and use of vMI may alter interaction process and outcomes
  - Examine barriers and facilitators of change across demographic groups factors (i.e., gender, race, ethnicity, sexual orientation, socioeconomic status, and region) to inform tailored interventions
Data Management and Biostatistics

• High level data management and analysis expertise to handle big data and cohort data.
• Particular expertise needed in applying causal modeling approaches with observational data.
• Objective 4 – Data Management and Biostatistics: To provide data management and biostatistical leadership and support to the SHARC U01 and, when resources permit, to other CHAART consortia.
Opportunities

The past, the present and the future are really one: they are today.

Harriet Beecher Stowe