Digital Adherence Interventions:

A Review of CDC Investments in IT-Based Technologies

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Overview

- CDC Research to Practice Framework
- Changing Context of HIV Prevention
- CDC Investment in Technology for HIV Prevention
- Preview of CDC’s New e-Learning Toolkit to Improve Adherence – EVERY DOSE EVERY
CDC RESEARCH TO PRACTICE FRAMEWORK
Identifying and Disseminating Evidence-Based Intervention

- **Compendium of Evidence-Based HIV Behavioral Interventions**
  - Since 1996, PRS has been reviewing and synthesizing the risk reduction intervention literature to help CDC make recommendations to our grantees
  - Original Compendium published in 1999 (now online and updated regularly)
  - First attempt to organize the behavioral intervention literature
  - Focus on efficacy – interventions with strongest evidence are highlighted
Research Translation

- **Prevention Research Synthesis (PRS)**
- **Replicating Effective Programs (REP)**
  - Developed user friendly intervention packages
  - Tested them with a few CBOs
- **Diffusion of Effective Behavioral Interventions (DEBI)**
  - Technology transfer: training and technical assistance
  - National dissemination of evidence-based interventions through guidance on use to grantees
Evidence-Based Strategies: The Updated Compendium

- **Risk Reduction Chapter:**
  - 84 EBIs

## Compendium of Evidence-Based HIV Behavioral Interventions

The evidence-based HIV behavioral interventions (EBIs) listed in the *Compendium* have been identified by PRS through an ongoing systematic review process and are classified as either *best-evidence* or *good-evidence*. These interventions represent the strongest HIV behavioral interventions in the scientific literature to date that have been rigorously evaluated and have demonstrated evidence of efficacy. The *Compendium* includes individual-, group-, couple-, and community-level behavioral interventions for high-risk populations.

The *Compendium* is now divided into two chapters. A complete listing of each chapter can be accessed below.

The **Risk Reduction Chapter** of the *Compendium* includes **84** HIV risk reduction (RR) evidence-based behavioral interventions (EBIs), identified from the published or in press scientific literature. (Updated on April 11, 2014)

The **Medication Adherence Chapter** of the *Compendium* includes **10** HIV medication adherence (MA) evidence-based behavioral interventions (EBIs), identified from the published or in press scientific literature. (Updated on April 11, 2014)

CHANGING CONTEXT OF HIV PREVENTION
Increased Prevention Options

- Prevention Benefits of Treatment
- Yet about 850,000 don’t have their virus under control

OVERALL: Of the 1.1 million Americans living with HIV, only 25 percent are virally suppressed.

- Diagnosed: 82%
- Linked to Care: 66%
- Retained in Care: 37%
- Prescribed ART: 33%
- Virally Suppressed: 25%

Evidence-Based Strategies: The Updated Compendium

- Risk Reduction Chapter: 84 EBIs
- Adherence Chapter: 10 EBIs

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www.cdc.gov/hiv/prevention/research/compendium/
High-Impact Prevention (HIP)

- Applying the science of implementation to maximize impact

www.cdc.gov/hiv/policies/hip.html
High-Impact Prevention (HIP)

- Key components
  - Effectiveness and cost
  - Feasibility of full-scale implementation
  - Coverage of targeted population
  - Interaction and targeting
  - Prioritizing

- Preventing the most HIV and reducing disparities

www.cdc.gov/hiv/policies/hip.html
<table>
<thead>
<tr>
<th>Untargeted interventions</th>
<th>Cost per new infection averted (rank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing in clinical settings</td>
<td>51,293 (3)</td>
</tr>
<tr>
<td>Partner services</td>
<td>99,105 (7)</td>
</tr>
<tr>
<td>Linkage to care</td>
<td>114,644 (8)</td>
</tr>
<tr>
<td>Retention in care</td>
<td>75,665 (5)</td>
</tr>
<tr>
<td>Adherence to ART</td>
<td>42,753 (2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Targeted Interventions</th>
<th>HRH</th>
<th>IDU</th>
<th>MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing in non-clinical settings</td>
<td>866,272 (12)</td>
<td>53,935 (4)</td>
<td>17,965 (1)</td>
</tr>
<tr>
<td>Behavioral intervention for HIV+ people</td>
<td>594,796 (10)</td>
<td>700,005 (11)</td>
<td>97,410 (6)</td>
</tr>
<tr>
<td>Behavioral intervention for HIV- people</td>
<td>15,642,127 (14)</td>
<td>2,931,406 (13)</td>
<td>327,210 (9)</td>
</tr>
</tbody>
</table>

HRH: High Risk Heterosexuals; IDU: Injection Drug Users; MSM: Gay, Bisexual and Other Men Who Have Sex with Men
Intervention dissemination through a ‘high impact’ lens

Challenges to the Research to Practice Framework

- Long time to identify, package and disseminate EBIs (packaging and field trial took 2-3 years)
- Limited reach (e.g., small training classes)
- Costly to train in-person and retrain when staff left
- Long time for CDC training component
- Rigid approach – Interventions had to be implemented as developed with little flexibility for implementing agencies
CDC INVESTMENT IN TECHNOLOGY FOR PREVENTION
Online (e-Learning) training would be more HIP

- **Turn-around time** – may be faster to develop the e-package (once first-time issues/clearances are worked out); field trial dropped
- **Limited reach** – markedly expands reach
- **Costly** – less cost to reach more; greater reach at less cost means higher impact
- **Too long for CDC training** – online or “blended” training takes less time (e.g., 2 days away from work instead of 5); no waiting to get into the training
- **Rigid** – Using more collaborative process. After training, we will work with implementer to tailor TA to agency’s needs; consider how new adherence strategies can augment what they’re already doing.
Increasing Investment in Online Resources

- **Online toolkits**
  - Data to Care for HDs

- **Online training**
  - Prevention Benefit of ART for providers
  - VOICES/VOCES

- **Blended online/face-to-face training**
  - Couples Testing
  - ARTAS

- **Technology-delivered intervention**
  - GameOn! STD/HIV app for youth
  - C-BISCT web-based clinic counseling tool
  - STEPS to Care LRC tool development
  - Adherence App (+ Smartphone research)
One of our major investments has been in adherence interventions

- Four Adherence EBIs selected from Compendium to package for online, rather than in-person, training
  - SMART Couples\(^a\)
  - HEART\(^b\)
  - Partnership for Health\(^c\)
  - Peer Support\(^d\)

- Selection criteria included:
  - Resource needs to implement the adherence intervention
  - Extent to which the adherence strategies could augment what programs were already doing (and without need for many additional staff)

a) Remien et al. (2005), *AIDS*; b) Koenig et al. (2008), *Health Psych*; c) Milam et al. (2005), *JAIDS*, d) Simoni et al. (2009), *JAIDS*. 
“Packaging” Interventions for e-Learning Training

- Like REP, training curriculum developed for the online platform

Core tools:
- At-a-glance text and visuals to help potential trainees determine interest in the module
- Seven media rich and interactive components to teach the intervention
  - Strategy Overview
  - Key Players
  - Key Intervention Components
  - Strategy in Action
  - Integrating Intervention into Setting
  - Knowledge Check
Like REP, original investigators involved. Provided guidance; helped to build out needed aspects of curriculum

- Needs varied by intervention but included things like additional tools, or descriptive information, or script development
- Script Development Example: Project HEART
  - Adherence problem-solving with patients & support partner
  - Identify barriers, generate and test strategies to overcome
  - Greatest challenge: demonstrating problem-solving process without in-person modeling, practice or correction
  - Required detailed attention to scripts for filmed/audio vignettes to demonstrate counseling approach
  - Implementation feedback and follow up TA will be informative

Like REP, training was piloted; however, implementation was not.
EVERY DOSE EVERY DAY: CDC e-LEARNING TOOLKIT TO IMPROVE ADHERENCE
## EVERY DOSE EVERY DAY e-Learning Modules

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project HEART</strong></td>
<td>ART-naïve or changing regimen</td>
<td>Sessions focus on social support, problem-solving, enlisting support partner, and making individual adherence plan. 5 sessions + 5 phone calls</td>
</tr>
<tr>
<td><strong>Partnership for Health</strong></td>
<td>ART-experienced</td>
<td>Sessions at routine medical visits focus on provider-provider relationship that promotes healthy behaviors. Posters and brochures reinforce adherence messages. 3-5 minute session at each encounter</td>
</tr>
<tr>
<td><strong>Peer Support</strong></td>
<td>ART- naïve ART-experienced</td>
<td>Persons with HIV with high adherence provide individualized peer support. 6 sessions + weekly phone calls</td>
</tr>
<tr>
<td><strong>SMART Couples (Discordant Couples)</strong></td>
<td>HIV+ person has low adherence</td>
<td>Sessions focus on adherence, safer sex, and mutual support 4 sessions</td>
</tr>
</tbody>
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Medication Adherence

EVERY DOSE EVERY DAY
Strategies to improve HIV medication adherence

A New Medication Adherence e-Learning Training Toolkit for Providers

Every Dose Every Day is designed to help providers support medication adherence among people living with HIV to improve the health outcomes and increase the prevention benefits of treatment.

Adherence to anti-retroviral therapy (ART) is critical to the success of HIV treatment and treatment as prevention. However, the benefits of ART can be realized only by those individuals who are tested, diagnosed, timely linked to medical care, and start and adhere to ART to achieve viral suppression.

Video: Reason for Staying Adherent

More Info...

MEDICATION ADHERENCE - ADDITIONAL RESOURCES

- Table 1. Brief description of the 4 evidence-based HIV medication adherence strategies selected for translation into e-Learning trainings for HIV providers
- Table 2. HIV Medication Adherence Strategy by Appropriate Provider Type and Setting
- Medication Adherence Consumer Handouts
- Medication Adherence Posters
Key Steps in Translating Evidence-based Interventions into an e-Learning Package

- Develop Design Teams
- Information Gathering with Researchers
- Create Storyboards and Scripts to Convey Key Intervention Components
- Video Production and Editing
- Module Development, Programming and Voice Recording

John Snow, Inc. (JSI) awarded contract 2011. JSI worked collaboratively with CDC’s Capacity Building Branch to complete this project.
Core e-Learning Module Components

Strategy Overview

Key Players and Roles

Key Components

Strategy in Action

Implementing the Strategy in Your Setting

Knowledge Check
Partnership for Health

Video 2: Brief Adherence
HEART (Helping Enhance Adherence to Antiretroviral Therapy)

HEART e-Learning Training Information

Helping Enhance Adherence to Antiretroviral Therapy (HEART) is a 5-session individual and dyadic-level intervention strategy. This social support and problem-solving intervention includes 5 sessions and a patient-identified support partner. Two sessions are delivered just before initiating antiretroviral therapy and 3 sessions occur during the first 3 months of treatment.
Partnership for Health for Medication Adherence

What is Partnership for Health?

Partnership for Health - Medication Adherence e-Learning Training Information

PHM – Medication Adherence is a brief, clinic-based individual-level, provider-administered intervention strategy that emphasizes the importance of the patient-provider relationship to promote the patient's self-management activities, such as taking medications as prescribed.
Peer Support

What is Peer Support?

Peer Support e-Learning Training Information

Peer Support is an individual- and group-level intervention strategy that can be implemented with patients who are either ART-experienced or ART-naive. Patients who are HIV-positive, taking ART medicines and adherent to their treatment are trained to serve as “peers”. Peers provide medication-related social support through group meetings and weekly individual telephone calls. Group meetings are led by peers, who are supervised by agency/clinic program staff. The group meetings are designed to give patients an opportunity to engage face-to-face with their assigned peer, meet other peers and patients who are taking ART medications and share experiences with the group. Whereas, the
SMART Couples

What is SMART Couples?

SMART (Sharing Medical Adherence Responsibilities Together) Couples

SMART Couples e-Learning Training Information

SMART Couples is a couple-level intervention administered to individual discordant couples, with poor medication adherence in the HIV-positive partner. The intervention consists of four sessions with the patient and his/her partner and lasts about 45 minutes to an hour.
Because my life is worth living.

Everyone has a reason for taking every dose, every day. What is yours? Talk to your provider about the importance of taking your HIV medication every day.

Barbi, living with HIV since 1991

Because every day is a new adventure.

Everyone has a reason for taking every dose, every day. What is yours? Talk to your provider about the importance of taking your HIV medication every day.

Lance, living with HIV since 2004
Because there’s so much I haven’t done yet.

Because I want to grow old with my partner.

Everyone has a reason for taking every dose, every day. What is yours?
Talk to your provider about the importance of taking your HIV medication every day.

Everyone has a reason for taking every dose, every day. What is yours?
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Every Dose Every Day Mobile Application

App Features:
- My Meds
- Drug Details
- Dose reminders
- Healthcare Team
- Reasons Photo
- Viral load tracker
- CD4 count tracker
- Tips for health and wellness
- Buddy Support
Continuing Education Pilot Evaluation

- Continuing education accreditation obtained for physicians, nurses, pharmacists and certified health education specialists
- 20 providers reviewed each module
  - 5 physicians
  - 5 nurses
  - 5 pharmacists
  - 5 certified health education specialists
- Reviewed content of at least 1-2 module(s)
- Completed a 30-item survey for each module reviewed
Continuing Education Pilot Evaluation Comments

- “Course is very well done, user-friendly and informative, including the investigators and diverse clinical providers helped ensure the material remained engaging.” (HEART - MD)

- “This is a useful and very relevant training for physicians with patients on ARVs.” (PfH – MD)

- “…well done course with informative content! The real story video clips are awesome!” (Smart Couples – Nurse)
Next Steps

- Launch toolkit by the end of June 2014
- Implement our dissemination and marketing plan
- Train new capacity building providers to provide technical assistance to jurisdictions
- Working on an evaluation plan to assess uptake and implementation
Every Dose Every Day Trailer

Reason for Staying Adherent (2)

What's your reason?
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