Strengthening strategies to improve adherence in HIV-infected drug users: challenges for IT

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Outline

• Integrated care: a great idea that is rarely actualized

• Behavioral economics: incentivizing reliable targets

• Out-of-care individuals: seeing the invisible
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Integrated models of HIV/substance abuse treatment make sense

• One-stop shopping: multiple modalities under one roof
• Patient-focused rather than provider focused
• May foster better communication & collaboration between subspecialties
• Two approaches
  – Bring medical care to substance abuse service programs
  – Bring substance abuse care to HIV clinic
The effect of the integrated care model on engagement to medical treatment

- 51 Patients in methadone therapy randomized:
  - On-site medical care
  - Referred care at nearby clinic
- Study funds used to pay medical expenses at either location

BEEHIVE study design

Opioid-dependent HIV-infected Subjects

Random treatment assignment

Clinic-based BUP

Referred treatment

Study Outcomes
1) Engagement and retention in OAT
2) Positive urine drug tests
3) HIV primary care visit attendance
4) HIV RNA and CD4 changes
BEEHIVE: time to first dose of opioid agonist therapy (OAT)

P < 0.001
BEEHIVE: retention to OAT over time

P < 0.001 for overall group difference
Visits with HIV primary care providers during follow-up

Referred treatment vs Clinic-based BUP

P = 0.047
Real-world challenges to integration of HIV and substance abuse care

• Insurance
• Regulatory requirements (e.g., OTPs)
• Inadequate space for outside providers
• Inefficiencies
  – Healthcare staff travel
  – Transport of specialized instruments, forms, etc.
  – Small pockets of patients
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Behavioral economics & incentives

• Myopia: tendency to overvalue immediate reward vs. delayed reward

• Incentivized behaviors
  – Unobtrusively measurable
  – Correlate with outcome
  – Resistant to chicanery
Voucher incentives to improve HAART adherence using MEMS caps

Sorensen JL et al. DAD 2007;88:54
2nd generation: adherence incentive intervention

- Participants receiving warfarin anti-coagulation
- Electronic pill-box
  - Connected to phone line
  - Sends message to central site when box opened
- Incentive lottery
  - Subjects entered in lottery each day ($3 or $5 expected value per day)
  - Lottery wins only given if box opened that day

Volpp KG et al. BMC Health Services Research 2008
Adherence improved with lottery incentive compared to baseline.

Volpp KG et al. BMC Health Services Research 2008
Biologic outcome (INR in range) also improved

Volpp KG et al. BMC Health Services Research 2008
IT challenge for incentive strategies: confirming the target behavior

- Track true medication adherence
- Flexible to patients needs
- Mechanically rugged
- Unobtrusive
- Inexpensive
Features of interventions to improve adherence with chronic medical therapy

• Modest effect sizes (adherence > biomarker)
• Multifaceted (educational, cognitive-behavioral, social)
• Time-intensive
• Ongoing

Simoni JM et al. JAIDS 2006:43:S23
Haynes RB et al. Cochrane Database of Systematic Reviews 2008
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Engagement in care among HIV-infected persons in South Carolina

- SC-HARS
  - Name-based reporting
  - Mandatory CD4 / HIV RNA reporting
- Patients (n=13,042)
  - HIV-infected adults
  - Alive ‘04 – ’06

Engagement patterns
- In care – 35%
- Transitional care – 25%
- Out of care – 40%

Injection drug users
- 29% increased odds of transitional care
- 65% increased odds of being out of care

Olatosi et al. AIDS, 2009
Can IT keep the “unseen” on the radar?

• Centralized ownership of patients
  – Public health model
  – Tracking – smart card, etc.
  – Respect privacy and individual rights

• Outreach to engage or re-engage individuals in care

• Coordinated management of patients in different venues
  – Health care access (outpatient, ER, hospital)
  – Substance abuse services
  – Criminal justice system
Conclusions

• Integrated care
  – Effective
  – Can IT improve feasibility

• Behavioral economic approaches
  – Target behavior monitoring that is accurate, inexpensive, and unobtrusive

• Engaging the disengaged
  – Centralized ownership
  – Tracking & communication